Iascach Intíre Éireann
Inland Fisheries Ireland

Local Authority Waters Programme
vibrant communities | catchment assessment | healthy waters

Inland Fisheries Ireland – Planning for Watercourses in the Urban Environment

Brian Beckett
IFI Dublin

November 9th, 2020

OVERVIEW

- IFI – who we are
- Fisheries and Sustainable Development
- IFI's Role in the Planning System
- Nature-Based Infrastructure - Opportunity
- LAUNCH: PLANNING FOR WATERCOURSES IN THE URBAN ENVIRONMENT (2020 Update)

Iascach Intíre Éireann
Inland Fisheries Ireland

Legislative Background

- IFI charged with Protection and Conservation of the fisheries resource – FISH & HABITATS (including WATER)
- Area of responsibility – inland surface waters and marine waters extending to the 12 mile limit
- Range of species – all freshwater fish plus certain marine species (European Bass, Native Oysters)

Iascach Intíre Éireann
Inland Fisheries Ireland

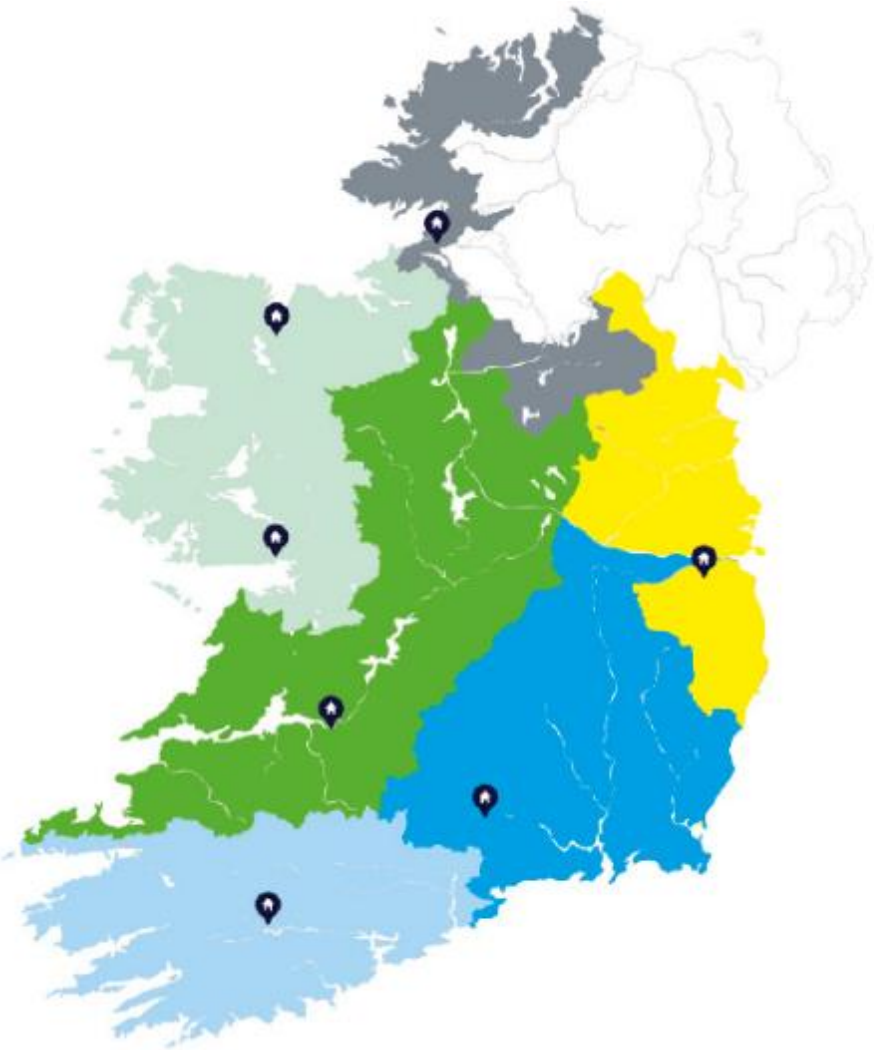
Fisheries & Sustainability

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

AN tACHT IASCAIGH (COMH-DHLUTHU), 1959.

FISHERIES (CONSOLIDATION) ACT, 1959.

IFI Structure



Inland Fisheries Ireland - Ballina/Galway - **WRBD**
ballina@fisheriesireland.ie / + 353 (0)96 22788
galway@fisheriesireland.ie / +353 (0)91 563118

Inland Fisheries Ireland - Ballyshannon - **NWRBD**
ballyshannon@fisheriesireland.ie / +353 (0)71 9851435

Inland Fisheries Ireland - Clonmel - **SERBD**
clonmel@fisheriesireland.ie / + 353 (0)52 6180 055

Inland Fisheries Ireland - Dublin - **ERBD**
info@fisheriesireland.ie / + 353 (0)1 8842 600

Inland Fisheries Ireland - Macroom - **SWRBD**
macroom@fisheriesireland.ie / +353 (0)26 41222

Inland Fisheries Ireland - Limerick - **ShRBD**
limerick@fisheriesireland.ie / +353 (0)61 300238

IFI and the Planning System

IFI's environmental framework themes:

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

2. Expertise, Knowledge & Sectoral Input

3. Stewardship and Advocacy

Iascach Intíre Éireann
Inland Fisheries Ireland

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…

Iascach Intíre Éireann
Inland Fisheries Ireland

IFI and the Planning System

- 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).

Iascach Intíre Éireann
Inland Fisheries Ireland

Fisheries & Sustainability

COLLABORATION

PARTNERSHIPS

INNOVATION

INTEGRATED SYSTEMS & ACTION

CONTEXT

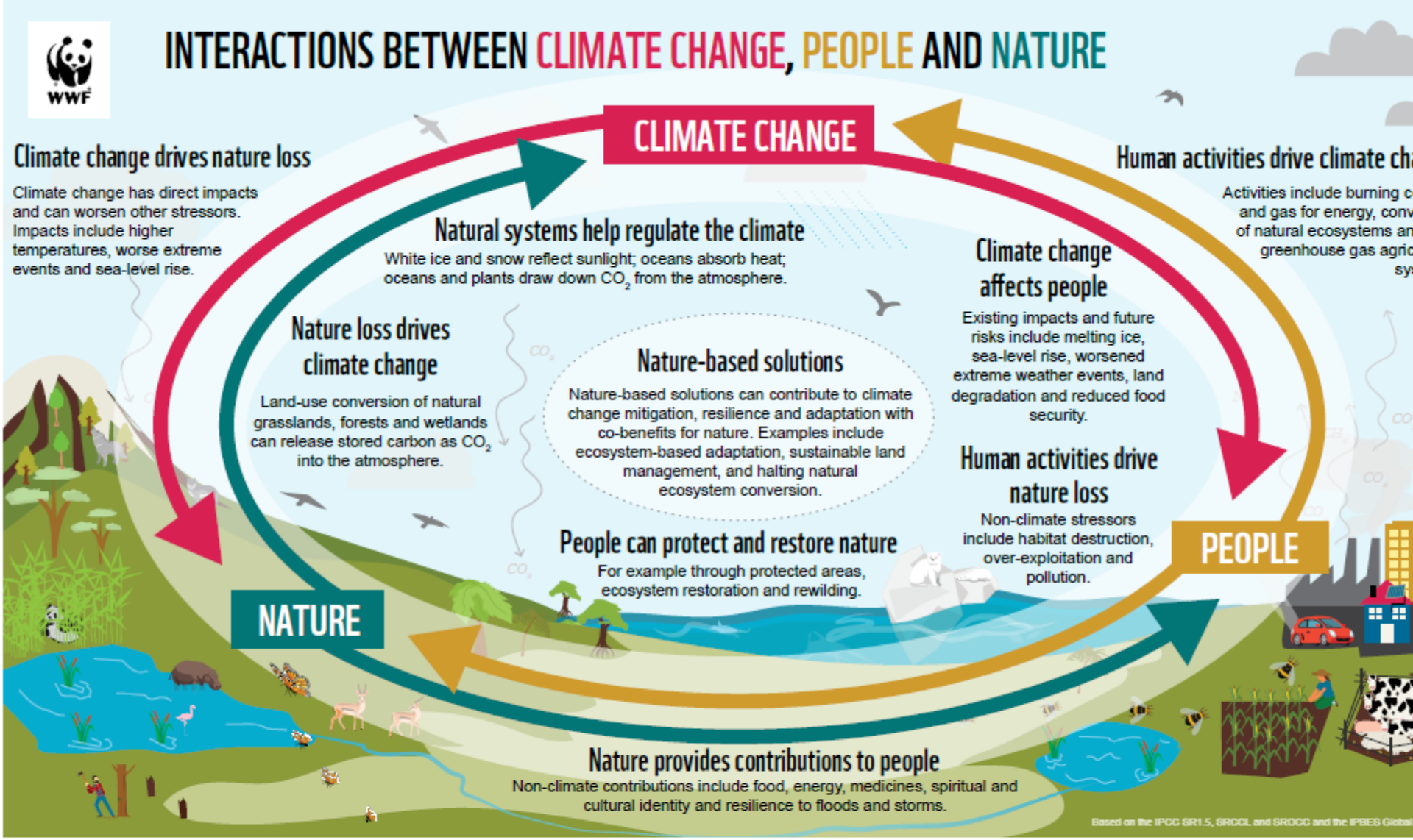
Iascach Intíre Éireann
Inland Fisheries Ireland

A WARNING SIGN FROM OUR PLANET: NATURE NEEDS LIFE SUPPORT

10/30/2018

The Living Planet Report 2018 shows that wildlife populations have declined by over half in less than 50 years.

WE ARE THE FIRST GENERATION THAT HAS A CLEAR PICTURE OF THE VALUE OF NATURE AND OUR IMPACT ON IT. WE MAY BE THE LAST THAT CAN TAKE ACTION TO REVERSE THIS TREND. FROM NOW UNTIL 2020 WILL BE A DECISIVE MOMENT IN HISTORY.



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 e sion pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (C 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 gre house 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 / SUDS
- Early consultation / cooperation is essential – **Integrated Management**

Nature

100's species, rewilding / wildlife corridors, enhance biological diversity, preserve heritage

People

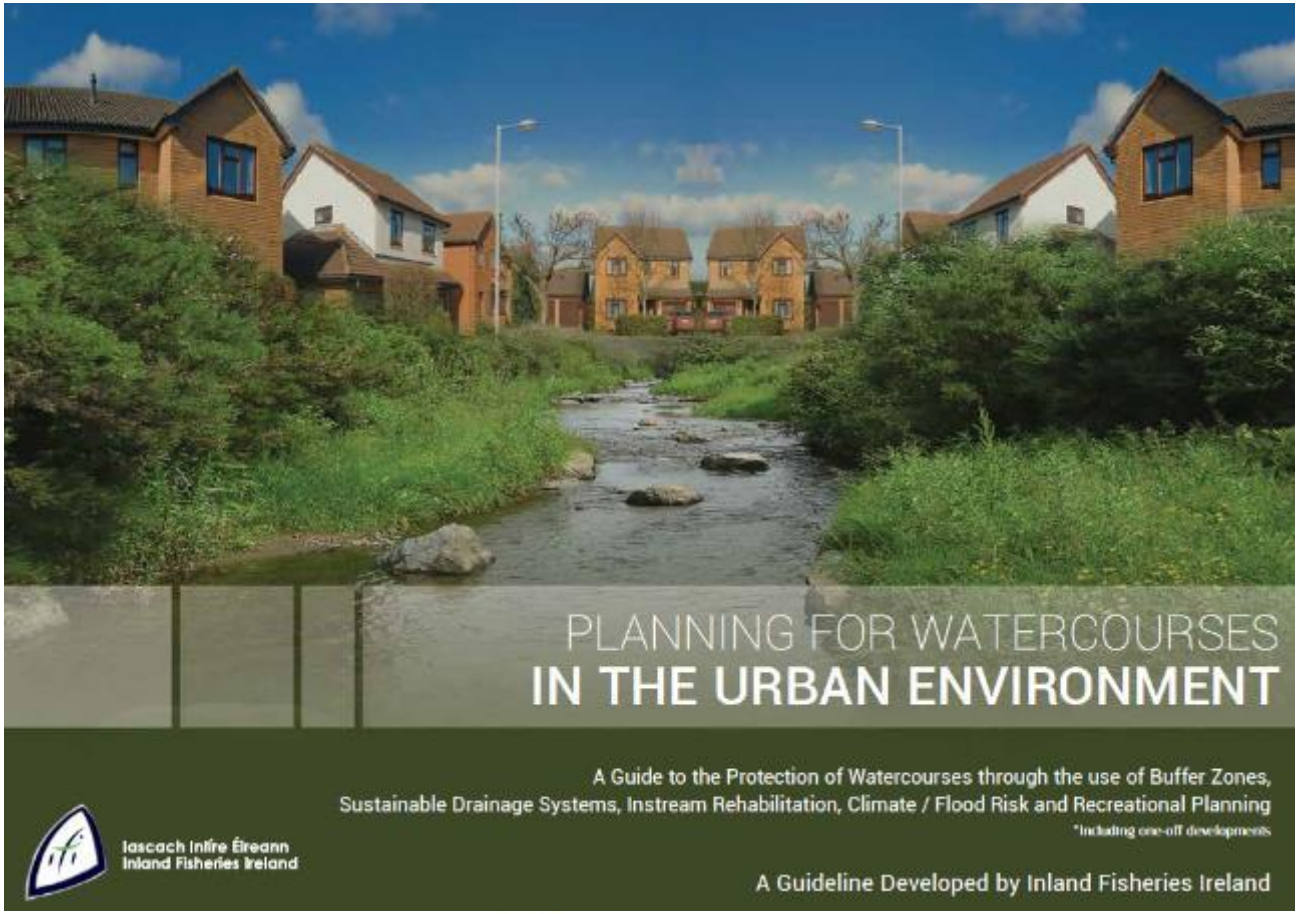
Safe and people friendly, quality of life, open space, enhanced living environment

Built Environment

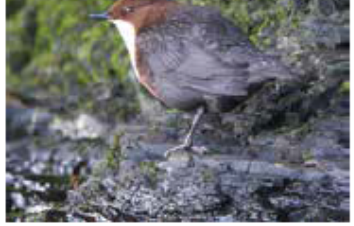
Urban development feature, enhance urban fabric / place-making, Climate resilience, cost efficiency

Opportunity for action at scale

IFI Guidelines



Iascach Intíre Éireann
Inland Fisheries Ireland



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 [illegible] sensitively [illegible] developed by Inland Fisheries Ireland through consultation with a wide range of experts in [illegible] Implementation of this strategy should, not only protect watercourses and their associated [illegible] people living nearby. It is important to note that, the riparian zone (i.e. the bank and the [illegible] just ecological, but also practical functions from a human point of view. For example, the [illegible] must be allocated at the planning stage, and it is strongly [illegible] is 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 [illegible] ical features and therefore a greater [illegible] with the protection of water courses from farming or forestry.

THE FOUR MAJOR STEPS IN THE STRATEGY ARE:

STEP 1. PROTECT THE STREAMSIDE RIPARIAN ZONE.

[illegible] INCLUDE AMENITY INFRASTRUCTURE, EG. FOOTPATHS.

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

STEP 4. REHABILITATE THE RIVER ITSELF TO RECREATE DIVERSITY OF [illegible]

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

STEP 1. PROTECT THE STREAMSIDE RIPARIAN ZONE

STEP 2. CREATE A MIDDLE RIPARIAN ZONE – CAN INCLUDE AMENITY INFRASTRUCTURE, EG. FOOTPATHS

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

STEP 1 – PROTECT STREAMSIDE ZONE >10M

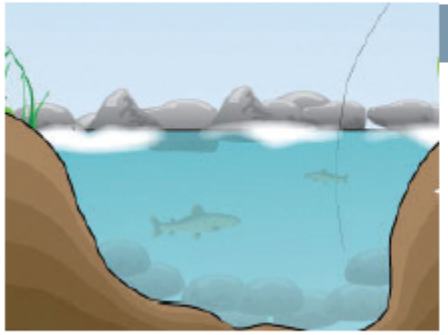
- ENSURE SUFFICIENT SPACE IS SET-ASIDE , I.E. >10M.
- LEAVE INTACT IF IN AN UNDISTURBED NATURAL SITE.
- IF DISTURBED, LANDSCAPE APPROPRIATELY.
- PLANT WITH NATIVE MARGINAL AND EMERGENT VEGETATION.

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*

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.

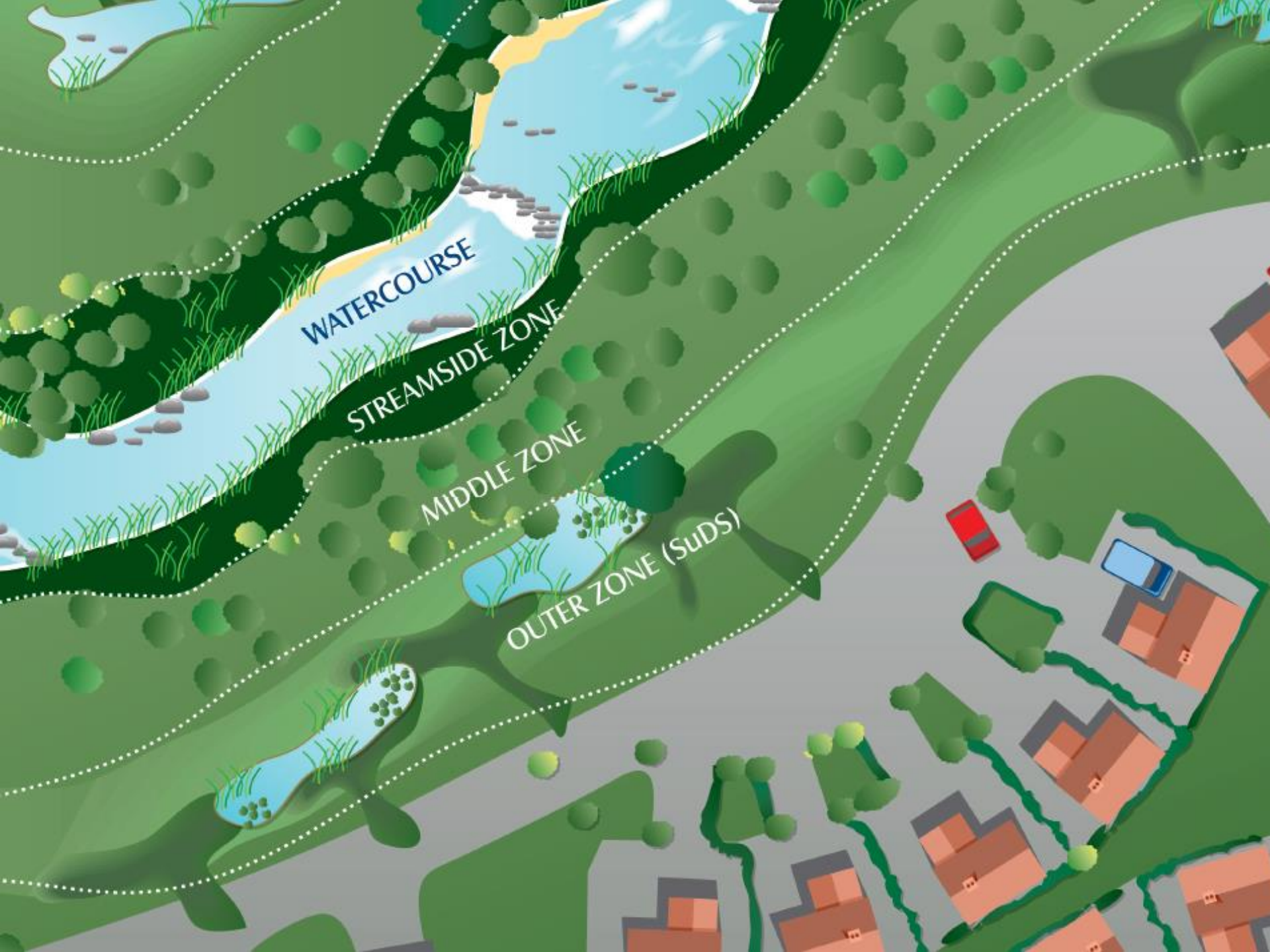
OFTEN THE INTRODUCTION OF NON NATIVE PLANTS (SUCH AS JAPANESE KNOTWEED) IN IMPORTED SOIL.

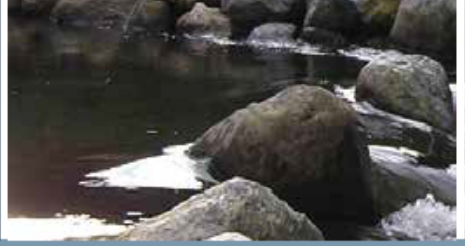
LOSS OF AESTHETIC VALUE AND A POTENTIAL QUALITY AMENITY FOR PUBLIC UTILISATION.

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.

Riverbank Infilling


WATERCOURSE
STREAMSIDE ZONE
MIDDLE ZONE
OUTER ZONE (SuDS)



CHARACTERISTICS	STREAMSIDE ZONE >10M	MIDDLE ZONE 15M-30M	OUTER ZONE >8M
FUNCTION	Protect the physical integrity of the stream ecosystem	Provide distance between upland development and streamside zone. Acts as a sump/filter for nutrients and sediment	Prevent encroachment and filter hard surface runoff
WIDTH	Minimum 10m plus wetland and other habitat	15-30m depending on stream	8m minimum setback to structures
VEGETATIVE TARGET	Native riparian vegetation	Managed woodland, some cleaing/open space allowed	Woodland encouraged, but usually-turfgrass
ALLOWABLE USES	Very restricted except for fishing or walking trails	Restricted, e.g. some recreationaluses such as bike path or larger footpaths can function as a flood zone*	Unrestricted e.g. residential uses, including lawn, swales, most stormwater treatment will occur here
SUPPORTING OTHER PLANNING OBJECTIVES	*All zones but especially the streamside zone should support Biodiversity including EU Habitats Directive objectives*		
	Potentially Align with Flood Zones (https://www.floodinfo.ie) & Local Authority information.		
	Walking trails should not run through sensitive ecological habitats. It is recommended that a multi-disciplinary team including an ecologist and flood risk expert determine the appropriate zonation and allowable uses.		
	No artificial lighting is recommended for the streamside zone and artificial lighting should be restricted unless absolutely necessary in the middle zone. LEDs should be warm white to minimise disturbance to wildlife		

• Steps 1 (i.e. create stream side zone) and 3 (i.e. create outer zone) are essential for all streams irrespective of size.
• Steps 4 (i.e. rehabilitate channel) and 2 (i.e. create middle zone) are strongly recommended and arguably necessary for rivers with amenity potential, particularly in the context of social cohesion in urban areas.

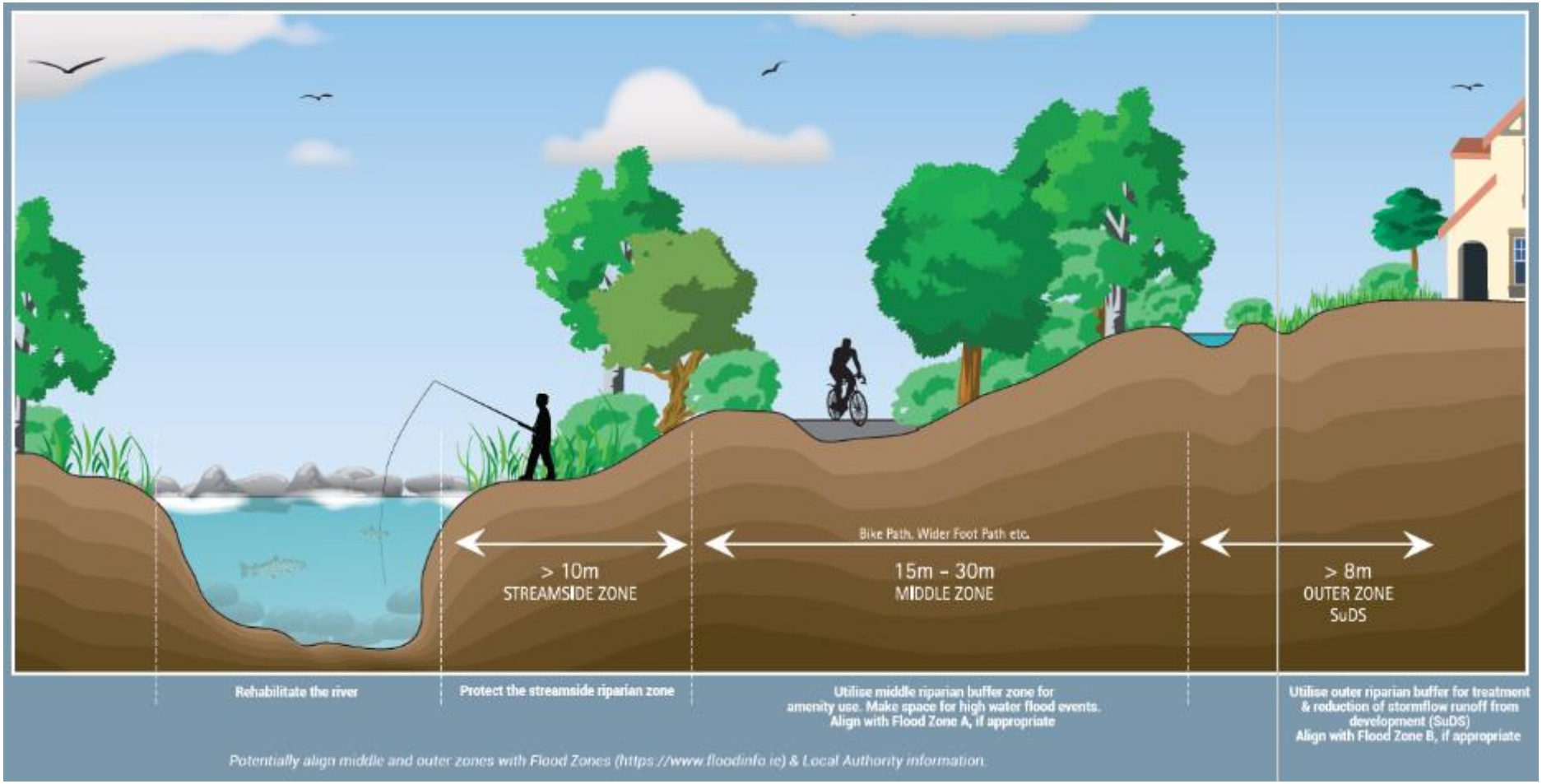
INCORPORATE BUFFER ZONATION INTO LOCAL AREA PLANS

Incorporation of this guideline into local area plans will protect the watercourse and ensure sufficient space is set aside for appropriate amenity and SuDS provision.

Climate change is expected to have diverse and wide ranging impacts on Ireland's environment, society and economic development, including managed and natural ecosystems, water resources, agriculture and food security, human health and coastal zones. The most immediate risks to Ireland which can be influenced by climate change are predominantly those associated with changes in extreme events, such as floods, precipitation and storms. These factors should be integrated in every decision made when planning for watercourse management.

** It is recommended to use this guide in association with the OPW Flood Maps (http://www.floodmaps.ie/).*

IFI Guidelines



Iascach Intíre Éireann
Inland Fisheries Ireland

Step 2: Construct Middle Zone

THE MIDDLE ZONE

MIDDLE RIPARIAN ZONE
RECOMMENDED WIDTH 15M-30M

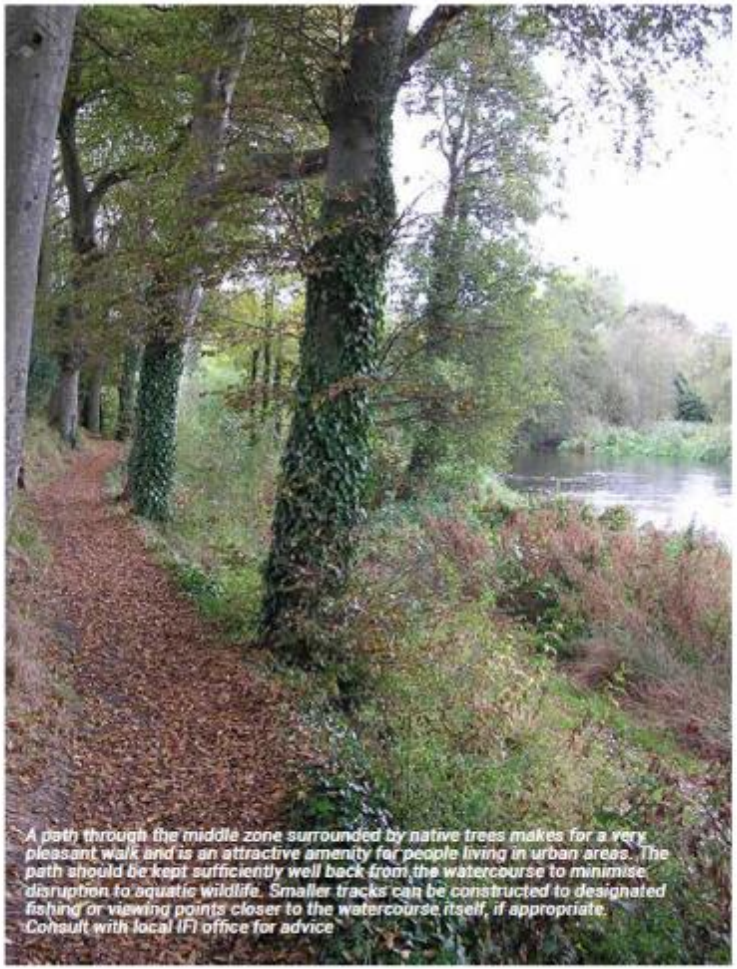
The next zone out from the river is the middle zone. This zone is best developed as a narrow woodland area and planted with an appropriate mixture of native woodland species.

This zone is suitable for human usage and the habitat is also important for wildlife. Recreational activities such as walking (permeable paved or gravel footpaths) or cycle lanes can be planned for incorporation into this zone. Planting of appropriate tree and shrub species is important; species such as poplar, Scots pine, European larch, ash, oak, alder, birch, aspen, willow, holly, rowan, hazel, guelder rose, elder and crab apple are suitable. Plant with Irish rather than imported "native varieties" as the vegetation community should ideally be genetically similar to that which occurs naturally in the locality. This zone could also be planned to provide for projected extra water retention. Take EU Habitats and Birds Directive objectives into consideration if applicable.

BENEFITS OF MIDDLE ZONE

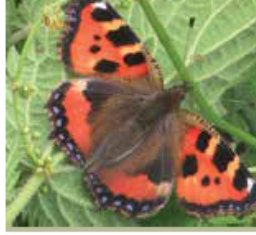
The middle zone, if sufficiently wide and managed appropriately, will

- Provide amenity and a recreation area for local people and visitors (fishing, scenic walks, etc.). This zone is suitable for high impact recreational pursuits, such as cycling and horse riding.
- Provide a refuge for a range of woodland and grassland species.
- Filter out pollutants and sediment from overland surface runoff.
- Act as a carbon sink between the outer and streamside zone.



A path through the middle zone surrounded by native trees makes for a very pleasant walk and is an attractive amenity for people living in urban areas. The path should be kept sufficiently well back from the watercourse to minimise disruption to aquatic wildlife. Smaller tracks can be constructed to designated fishing or viewing points closer to the watercourse itself, if appropriate. Consult with local IFI office for advice

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.

IFI Guidelines

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

Iascach Intíre Éireann
Inland Fisheries Ireland

Where to from here…?

Many Shared Strategic Goals including:

- Sustainable Planning and Development
- Integrated Catchment Management
- Implementation of 3rd Cycle RBMP
- Climate / Biodiversity Action

Relationships and Collaboration

PLEASE USE THE GUIDELINES

Iascach Intíre Éireann
Inland Fisheries Ireland

THANK YOU FOR
YOUR
ATTENTION

Iascach Intíre Éireann
Inland Fisheries Ireland