

A user's guide to being river and lake friendly

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Objectives

To help water users to identify and understand the:

- Importance of the different areas of the river environment
- Potential threats and impacts to the river environment and
- How to help reduce that threat or impact



Why do I need to know?

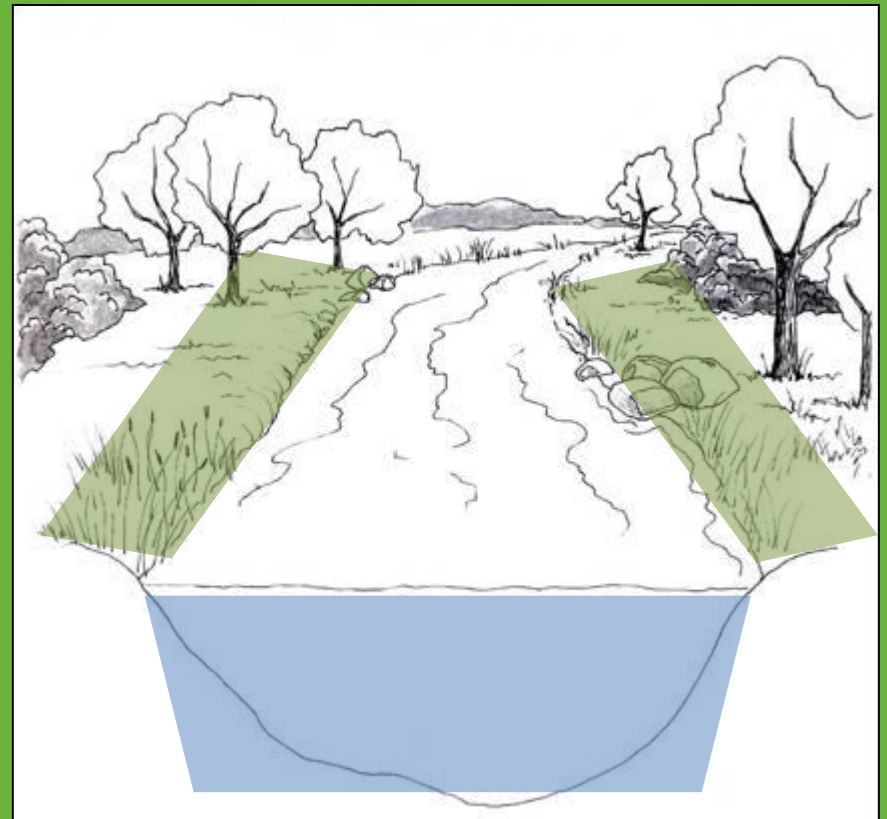
- Ensure sustainable use of the river
- Protect our native wildlife
- Work in partnership with all river users
- To ensure that you are following good practice and legislation and prevent you getting in to trouble
- Reduce costs to the tax payer for clearing invasive non-native species



The importance of the river environment

There are 2 distinct areas of the river environment which are of particular importance :

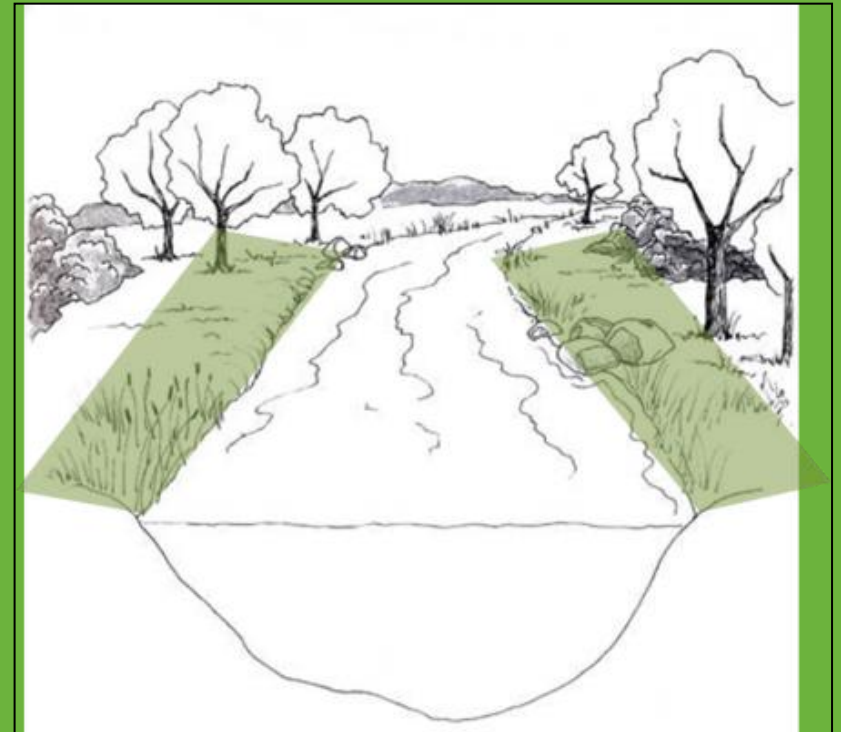
- Riparian zone or river margin
- River channel



The riparian zone

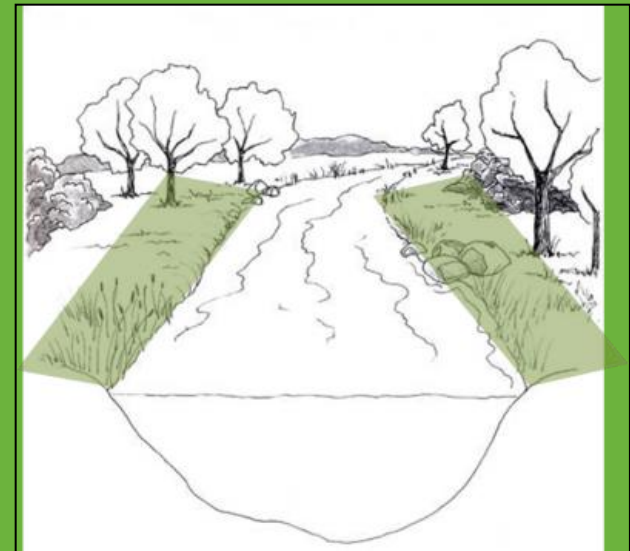
River sides, lake shores, marshes and reed-beds are some examples of a riparian habitat. This zone is particularly important for:

- Wildlife and habitats
- Bank stability
- Water quality
- Access to and along the water body



The riparian zone – wildlife and habitats

- Provides a corridor for wildlife to move along
- Supports a greater variety of plants and animals
- Provides shaded areas for water animals
- Act as buffer strips protecting rivers from surrounding land use



The riparian zone – bank stability

- Absorbs surface runoff - reduces rate at which water enters the river channel, contributing towards flood control.
- Helps to reduce water energy - reduces soil erosion and contributes towards flood management.
- Traps sediments - reduces the amount of suspended solids within the water contributing to replenishing soils and building up stream banks.



The riparian zone – water quality

- Filters out pollutants carried within the surface runoff (bio-filtration).



Freshwater pearl mussels

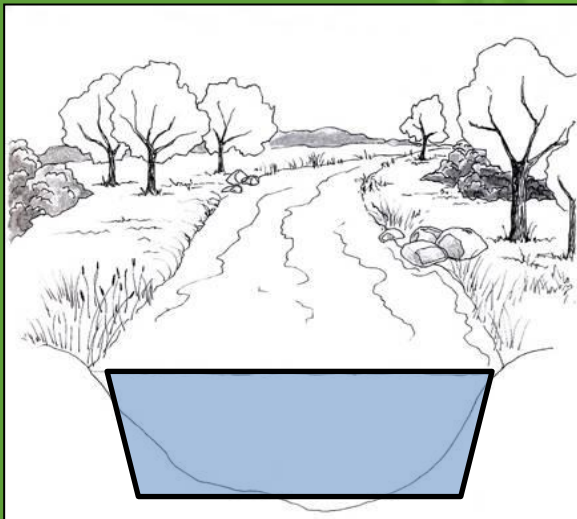
The riparian zone – access

Provides access for:

- recreation use
- utilities
- conservation and habitat improvements
- channel maintenance for flood risk management

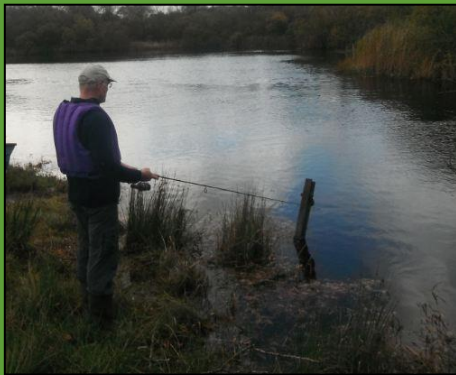
The river channel

The river channel is particularly important for invertebrate and fish populations. Both these utilise the gravels, sediments, vegetation and other species for feeding and breeding.



Gilbert von Ryckeversel

Potential threats and impacts – user groups



Potential threats and impacts - Anglers

All water based activities pose a potential threat to the river environment, to both the channel and the riparian zone – some of which are more widely known than others which include:

Bankside damage



Disturbance of fish populations and habitats



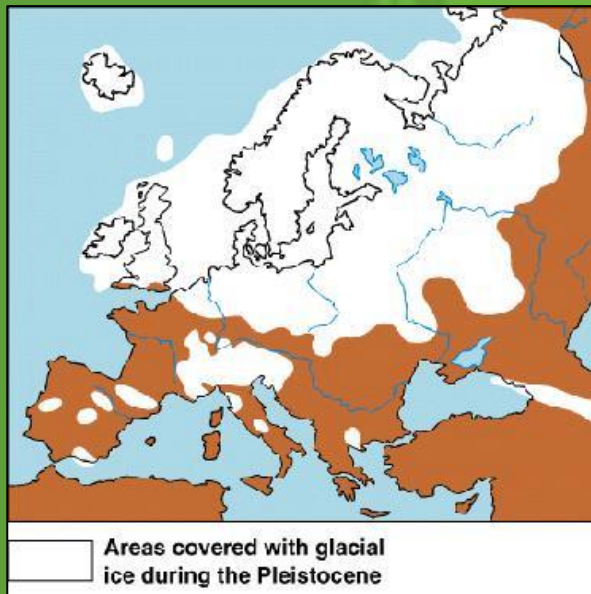
Disturbance to other wildlife and habitats



Potential threats and impacts – Invasive non-native species

Colonisation of native species

- Following the ice age 10,000 years ago
- Slow colonisation of plants and animals from mainland Europe
- Retreat and melting of ice
- Established species now **NATIVE SPECIES**



The introduction of

invasive non-native species (INNS)

- Globalisation and improved trade routes break down the natural barriers (oceans and mountain ranges) to migration
- Species introduced deliberately or accidentally by humans outside of their natural range = **NON-NATIVE SPECIES**
- Not all introduced species are bad – only **minority** have **serious negative** impacts on native species, the economy, our health and the way we live
- These are called:

INVASIVE NON-NATIVE SPECIES

Potential threats and impacts – Invasive non-native species

INNS can be introduced and spread, often unknowingly via contaminated equipment and clothing left in damp conditions.

Potential impacts of INNS include:

- Outcompete native species for light, nutrients and space
- Reduce biodiversity
- Damage infrastructure
- Expose soil to erosion
- Destabilise river banks
- Carry disease fatal to native species
- Increase flood risk
- Reduce recreational and amenity use



Potential threats and impacts – Invasive non-native species

The main culprits:

Himalayan balsam



Giant hogweed



Affect on fisheries

- These species dominate river banks by outcompeting native species for light and nutrients.
- They can be so dense they prevent access to the water course.
- Once they die back during winter, they expose bare soil to erosion increasing the amount of sediment being washed into the water, potentially smothering spawning gravels.



Japanese knotweed



American skunk cabbage

Spread by seed and root fragment

Potential threats and impacts – Invasive non-native species

The main culprits:

Floating pennywort



Parrot's feather



Affect on fisheries

- These species form dense mats smothering water courses reducing light and oxygen to invertebrates and fish.
- They can be so dense they prevent recreational use of the water course.
- Once they die back during winter, they increase nutrient input into the water affecting fish populations and their distribution.



New Zealand pigmy weed



Canadian & Nuttall's waterweeds

Spread by seed and root fragment

Potential threats and impacts – Invasive non-native species

The main culprits:

Killer shrimp



American signal crayfish



Chinese mitten crab



Parasites, fungal spores and disease

Affect on fisheries

- These species predate on invertebrates and juvenile fish.
- They host parasites and disease which are fatal to fish and other native species.
- They can burrow into the banks causing destabilisation and increase sediment input affecting spawning grounds.

Spread by migration and deliberate or accidental introduction

Potential threats and impacts – Invasive non-native species

Biosecurity

CHECK

CLEAN

DRY

Check all your equipment and clothing for living organisms and plants fragments.

Pay particular attention to areas that are damp and hard to inspect.



Potential threats and impacts – Invasive non-native species

Biosecurity



CHECK

CLEAN

DRY

Clean and wash all equipment, clothing and footwear thoroughly.



Wash down on site and leave any organisms or plant fragments at the water body where you found them OR on a hard standing or grass area away from a water source or drain system.

Potential threats and impacts – Invasive non-native species

Biosecurity



Completely dry out all equipment and clothing before going to a new site - particularly effective at killing crayfish plague fungal spores and diseases. Some species can live for many days in damp conditions.

Make sure you don't transfer elsewhere.

If this is not possible, disinfecting wet kit between sites can help reduce the risk of transferring diseases.

Potential threats and impacts – disturbance to fisheries

Migration:

Most river species, particularly fish move some distance up and down river channels between feeding and breeding areas, whilst salmon, sea trout, lampreys and eels move between rivers and the sea.

Fish and eel passes are constructed to allow fish to get past natural and man-made barriers such as waterfalls, fish counters, weirs, gauging weirs and tidal gates.



Potential threats and impacts – disturbance to fisheries

Spawning grounds:

Fish spawn throughout the year and throughout the course of a river if the conditions are right – all species are different.

Key conditions for spawning to take place:

- Require small gravels to build their nest – Redd
- Faster flowing, well oxygenated riffles (on the edge of a pool)
- Generally water depths below 1m (except when in spate)



Potential threats and impacts – disturbance to fisheries

All species are important.

The most vulnerable species are those which migrate from the sea up river to spawn – some of the most active are native salmon and trout.

Salmonids:

- Between October to March -peak activity between November to January
- Hatching of the young fish (fry) during April

Coarse Fish:

- Throughout the year
- Can spawn more than once

Potential threats and impacts – disturbance to fisheries

Disturbance can lead to eggs being exposed to unsuitable conditions and can be caused by:

- Stepping/standing.
- Scraping.
- Silt covering.



Potential threats and impacts – disturbance to fisheries

Productivity of populations:

Over-fishing has the potential to reduce the number a of spawning adults and the productivity of the remaining population to lay eggs thereby gradually reducing the population.



Catch and release

Anglers can adopt good practice of catch and release to increase the number of adults available to spawn. To further ensure their survival is follow these guidelines:

- All salmon caught before 16 June must be released under bylaw.
- Use barbless hooks
- Minimise time spent playing a hooked fish
- Release fish as quickly as possible and keep fish in water
- Support the fish in the water until it is sufficiently recovered

Potential threats and impacts – disturbance to fisheries

Stocking of fisheries:

Fish stocking is an important tool in managing a fishery. However, if not done properly, you could be putting that fishery and wider environment at risk.

Possible impacts include:

- Introduction of invasive non-native species
- Introduction of disease and parasites
- Ongoing debate surrounding the genetic integrity of local populations.

There are guidelines in place to ensure the safe movement of fish and water nationally:

- Ensure your stillwater is registered
- Apply for 'Section 30 consent' from the Environment Agency
- Apply for an 'Import of Live Fish Licence from DEFRA for the movement of non-native fish
- Ensure the welfare of fish is maintained

Potential threats and impacts – disturbance to other wildlife

Rivers and lakes support a rich variety of bird, mammal, fish, invertebrate and plant species. Many sites are of ecological importance and hold conservation status - SSSI, SAC, SPA, NNR, LNR, Nature Improvement Areas.

Potential impacts include:

- Disturbance and damage to protected landscapes and habitats.
- Disturbance and damage to nesting, breeding or feeding sites.
- Disturbance and damage to rare or protected species.



Potential threats and impacts – disturbance to wildlife

If you are planning to carry out any river improvement works or river clean-ups you will need to consider the following:

- Permission from the land owner.
- Permission from the appropriate Authority or organisation such as Natural England or Environment Agency (EA), particularly if on a legally protected site.
- The EA **usually** restrict in-river and bank side improvements to the period 1st June and 30th September (active fish spawning season).
- Work in or within 8m of a main river require Flood Defence consent from the EA.



Potential threats and impacts – bankside

Consider your personal impact when choosing your location and pitch and try to minimise your impact and leave no trace of your presence to be enjoyable for the next person.

Impacts:

- Bank erosion at popular locations, pitches and boat launches causes increase of sediment into rivers. Try and stick to designated sites.
- Damage to walls and fences along access paths which could allow stock access to the river banks causing poaching.
- Left over litter and bbqs can damage wildlife in and out of the river
- Discarded equipment, nylon line and tackle affect other wildlife, particularly birds.

Take everything
away with you



Further Information

South Cumbria Rivers Trust: www.scrt.co.uk

Cumbria Freshwater Invasive Non-Native Species Initiative:

www.scrt.co.uk/cfinns

The Angling Trust www.anglingtrust.net

The Canal and Rivers Trust www.canalrivertrust.org.uk

Environment Agency: www.environment-agency.gov.uk

Non-Native Species Secretariat: www.nonnativespecies.org

The Rivers Trust: www.theriverstrust.org

Credits

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