A user's guide to being river and lake friendly

Funded by:

South Cumbria Rivers Trust

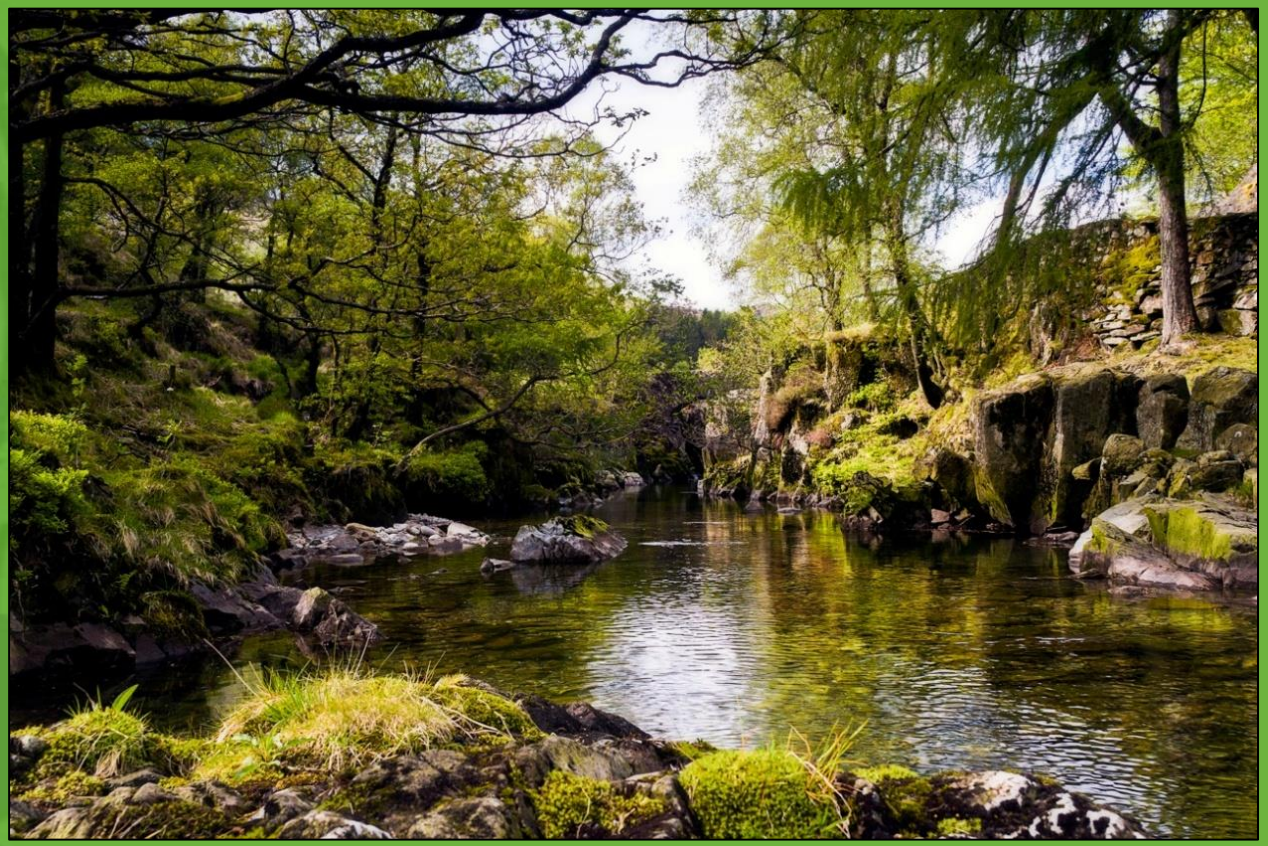
Environment Agency

Supported by:

CanoeEngland
Something for Everyone

NNSS
GB non-native species secretariat

Cumbria Freshwater Invasive Non-Native Species Initiative



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

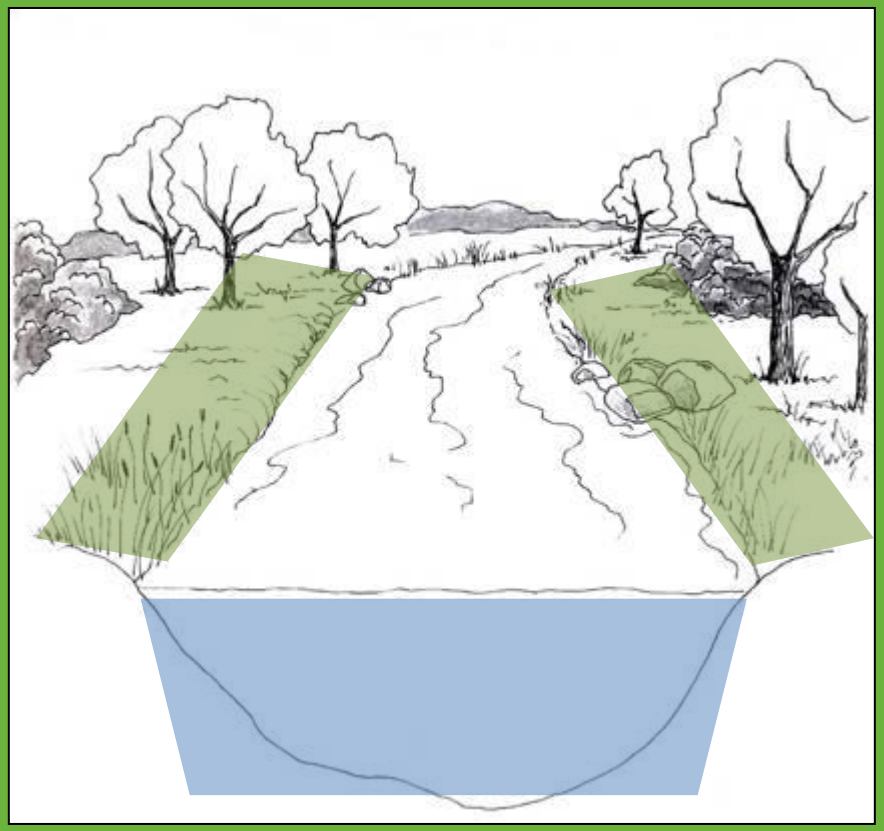
Why do I need to know?

- 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 :

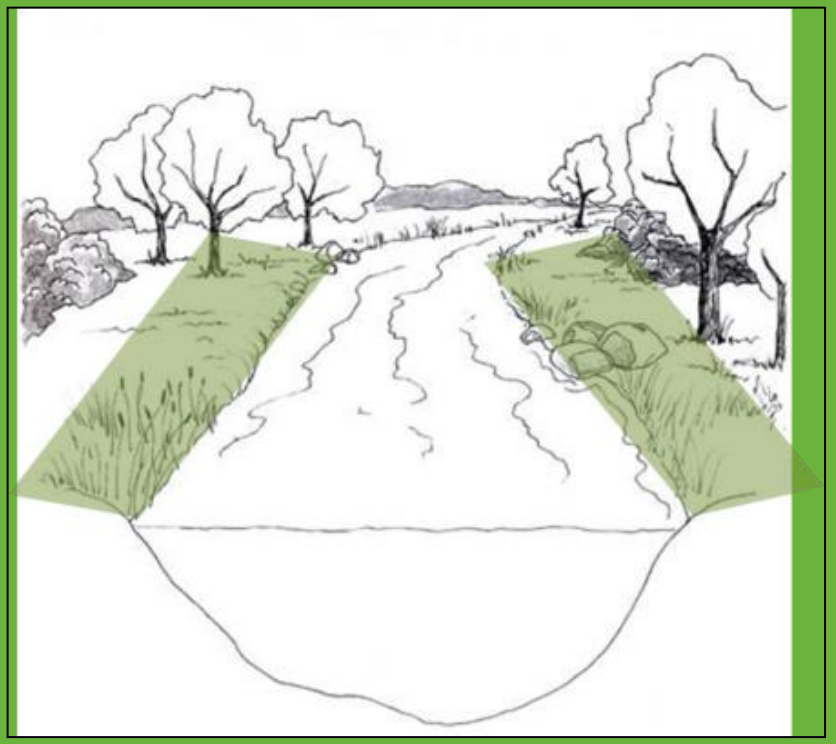
- Riparian zone or river margin
- River channel



The riparian zone

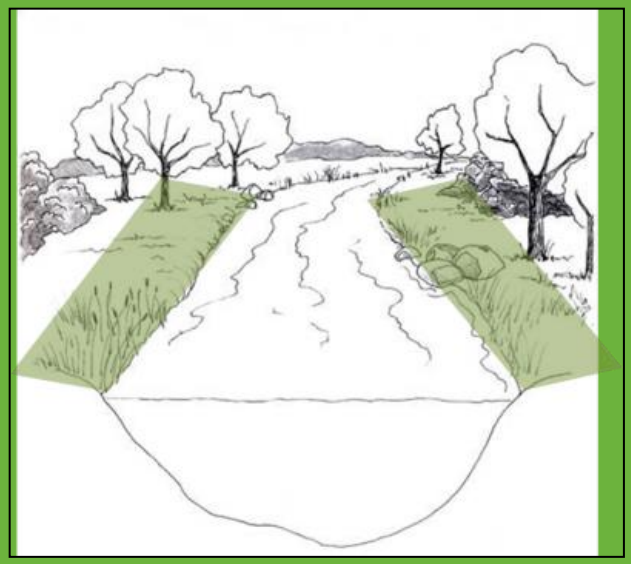
River sides, lake shores, marshes and reed-beds are some examples of a riparian habitat. This zone is particularly important for:

- 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

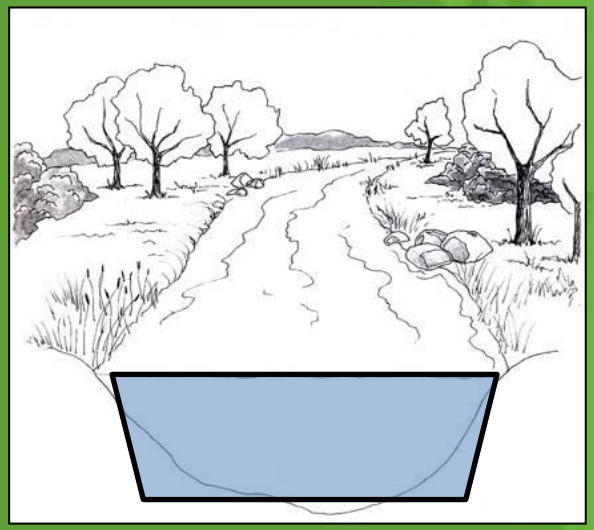
The riparian zone – access

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.



Potential threats and impacts – user groups

Potential threats and impacts – Swimmers & divers

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:

River bank erosion

Disturbance of fish migration and spawning gravels

Impact and disturbance to wildlife and habitats

Potential threats and impacts – bank erosion

Impacts:

• Destruction and wearing away of vegetation – very sensitive reed beds

• Exposure and wearing away of bare soil

Caused by:

• Concentrated footfall at popular ingress and egress points

• Damage to walls or fencing which allow farming stock to access the river bank

Potential threats and impacts – bank erosion

Solutions:

• Use designated ingress and egress points where possible

•Identify ingress and egress points which will have minimal impact – rocky areas and beaches, not reed beds

• Identify and report areas in need of management to reduce erosion

• Avoid climbing over walls or fences

Potential threats and impacts – disturb 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 – disturb spawning grounds

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 – disturb spawning grounds

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

•Stepping/standing.

•Scraping.

•Silt covering.

Where possible, avoid or minimise disturbance to gravels and consider the depth of water before starting your journey to avoid any unnecessary disturbance.

Potential threats and impacts – disturbance to 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

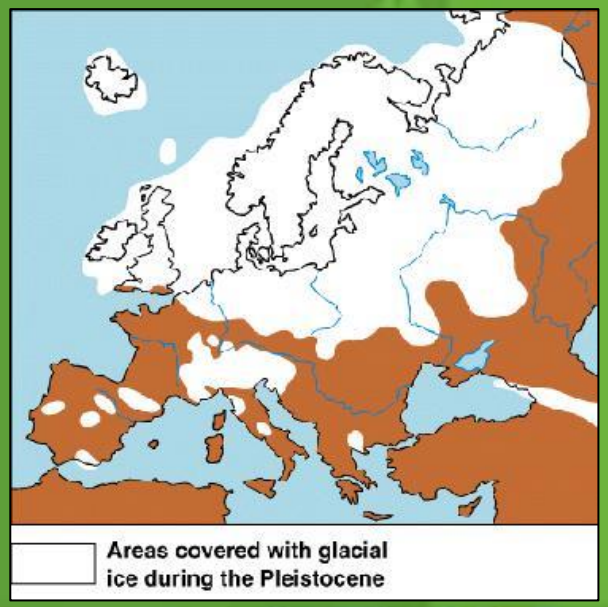
If you are planning to carry out any river improvement works or river clean-ups you will need to consider the following:

- 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 – 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**
- <u>Not all introduced species are bad</u> – 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

Floating pennywort

Giant hogweed

Japanese knotweed

American skunk cabbage

New Zealand pigmy weed

Potential threats and impacts – Invasive non-native species

The main culprits:

Killer shrimp

Chinese mitten crab

American signal crayfish

Zebra mussel

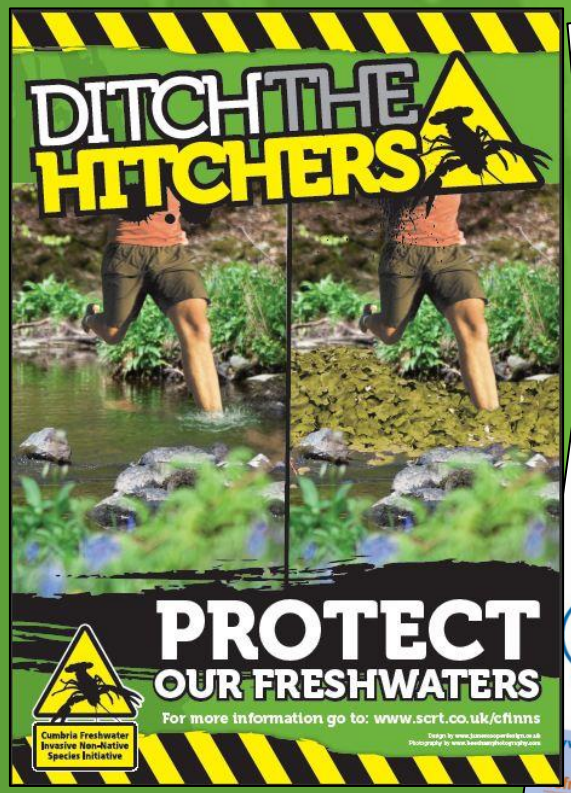
Parasites, fungal spores and disease

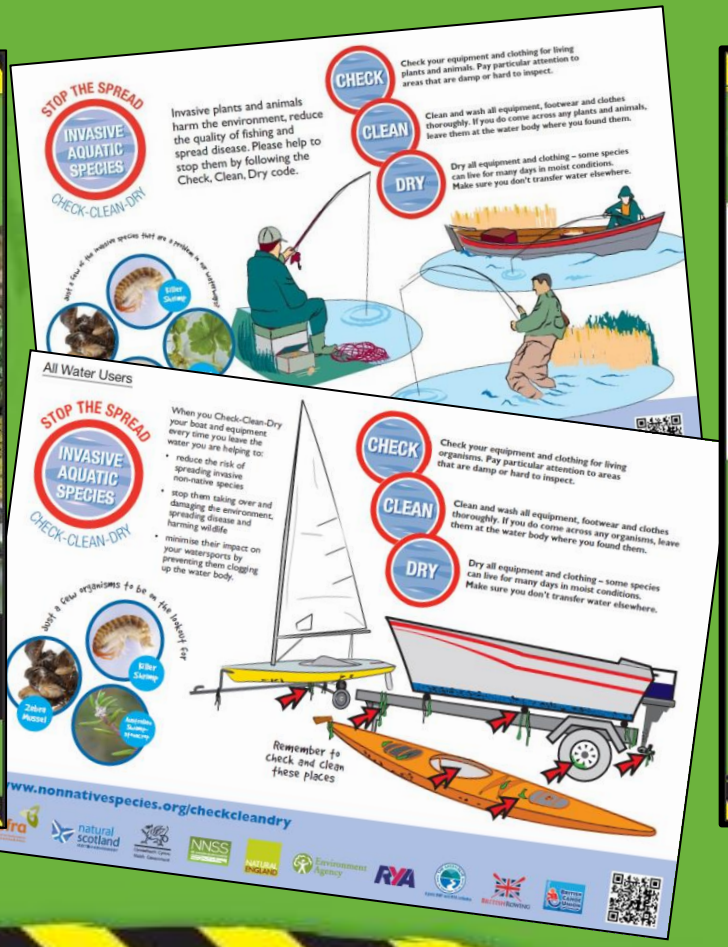
Fish outside their natural range

Potential threats and impacts – Invasive non-native species

Biosecurity:

- practical actions which can prevent the introduction and spread of INNS





Potential threats and impacts – Invasive non-native species

Biosecurity

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

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. 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 – Invasive non-native species

What else can be done:

Report sightings: What species?
Where? – grid reference and land ownership if possible
When?

Contact:
Your local Rivers Trust
Invasive Species Local Action Group
Environment Agency

OR use the Plant Tracker app.

Consider where you would like to go:

- High risk areas
- Moving between water bodies
- Multiple rivers / lakes on consecutive days or the same day

Potential threats and impacts – Invasive non-native species

What else can be done?

Set up a volunteer work party

1. During May – August before the seed pods start to explode

2. Pull whole root ball out of the ground

3. Break stem between root ball and first node

4. Balsam will re-root from nodes if not broken in correct place

5. Leave on-site in piles to decompose

Node Root ball

Summary

How you can become river friendly:

- Consider your movements on the river bank to reduce erosion and disturbance to wildlife and habitats.
- Consider water levels to reduce disturbance to spawning gravels.
- Incorporate biosecurity measures and sustainable good practice into your activities.

Further Information

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

Cumbria Freshwater Invasive Non-Native Species Initiative:

www.scrt.co.uk/cfinns

Canoe England: www.canoe-england.org.uk/waterways-and-environment

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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