Bathing Water Quality

Image courtesy of the EA 2012.

The Environment Agency monitors and assesses bathing water quality at each designated bathing water in England and Wales annually between May and September every year. The River Ribble can, under certain weather conditions, impact on bathing water quality at Southport, St. Annes and Blackpool.

Bathing water quality results have improved over the years following upgrades to sewage infrastructure by water companies. But work still needs to continue.

Exceptionally heavy rainfall results in more pollution being washed into our bathing waters and due to climate change, these extreme weather events could occur more often. The six main sources of pollution, some of which can increase as a result of heavy rain are:

1. Rainwater running off farmland.
2. Rainwater draining off populated areas.
3. Wrongly connected drains from houses and businesses that pollute surface water systems.
4. Animal and bird faces on or near beaches (contains higher levels of bacteria than human faeces).
5. Items that are put down drains and toilets that clog up the sewage systems.
6. Sewage outflows which activate in heavy rain.

Diffuse pollution from agriculture

Diffuse pollution from agricultural sources is normally the result of combined inputs of pollutants from several different sources on farms within the catchment draining to the bathing water. Consequently, tackling diffuse agricultural pollution requires concentrated action across the catchment.

The risk of diffuse pollution is worse during rainfall because nutrients, soil, chemicals and faecal bacteria can be washed from land into the surrounding water environment. Combined across whole river catchments, these pollutants can significantly affect water quality, including EU-designated bathing waters.

Livestock farming is the predominant land use in the upper reaches of the Ribble catchment and livestock inevitably produces manure which contains faecal indicator organisms (FIOs).

What can farmers do to help improve bathing water quality?

- Follow good farm practice.
- Fence watercourses off from livestock and provide alternative drinking sources and crossing points.
- Buffer watercourse from field operations. Cross compliance now states a 10m no spread zone should be maintained.
- Site troughs and feeding areas well away from watercourses.
- Improve slurry, farm yard manure and dirty water storage, handling and management.
- Divert clean water from contaminated areas.
- Timing and quantity of manure applications should take into account crop requirements and nutrient uptake
- Regularly update manure and nutrient management plans.
- Check weather forecasts to ensure manure is not applied within two days of a storm or a very high rainfall forecast.
- Don't spread slurry on steep slopes as there is a higher risk of run off.
- Farm staff should be appropriately trained in the use of equipment and land spreading best practice techniques.
- Where contractors are used make sure they are aware of cross compliance requirements.
- Ensure farmhouse septic tanks are working correctly and regularly monitored.

See the Help and Advice contacts on the back of this leaflet for further free advice and capital grants.

River Ribble Catchment.
A Special Place for Wildlife

The River Ribble is home to some of our rarest plants and animals. The Water vole, Otter, White-clawed crayfish, Atlantic salmon, Brown trout, European eel and Lamprey are Biodiversity Action Plan (BAP) Species.

Original artwork and design courtesy of the Shropshire Hills AONB Partnership.

Riverbank Tree Management

Trees are an essential component of rivers and specifically river banks. Streams should be tree lined, however not to such an extent that there is a tunnel over the stream. Where there are no trees, it is important to plant or encourage trees to grow. Where there are trees these should be managed. Traditionally this was done through coppicing and pollarding.
The timber produced provided a range of useful products including clogs, firewood, charcoal, gunpowder and fencing materials. With declining markets, coppicing has largely ceased, resulting in over-mature and uniformly aged trees which reduce local biodiversity due to constant shade and prevention of natural regeneration leaving the area at risk of total loss of tree cover in the future. However, promoted by Environmental Stewardship schemes, coppicing is slowly making a comeback, along with the wildlife encouraged by these restored habitats.

The benefits of Riverbank tree management

- Creates a mosaic of light and shade beneficial to a wide range of plants and animals.
- Rejuvenates diseased and over-mature trees to help bind riverbanks.
- Encourages bank-side grasses and shrubby growth to help stabilise banks.
- Prevents erosion and over-widening by limiting the formation of 'erosion bays' and undercut banks.
- Re-vegetated banks help narrow the river channel, increasing flow velocity to 'scour' silted riverbeds.
- Coppicing is the only known control for alder disease.

Coppicing and Pollarding – Good Practice

- Coppicing is best undertaken during winter months – October to March.
- Check for the presence of protected species before starting work – consult relevant authorities.
- Strike a balance between light and shade – aim for more light over shallows and more shade over pools.
- Avoid cutting back to old growth.
- Dispose of brash carefully – do not burn near to the river and remove ash from the site.
- Retain old and veteran trees for wildlife and landscape value.
- Do not use heavy machinery on riverbanks and in river.
- Use vegetable-based chain oil in chainsaws.
- To prevent the spread of crayfish plague, disinfect clothing and equipment before moving on and off site.

What's in it for the farm?

- Increased capital value of holding.
- Significant improvements in water quality - reduced risk of pollution and prosecution.
- Savings in reduced fertiliser applications and losses to the river.
- Cleaner animals, reduced lameness and infection.
- Improved stock handling.
- Improved fisheries benefit the local economy.
- Promotes good relationships with neighbours.
- Improved wildlife and recreational value.

Help and Advice

There is lots of support to help manage our rivers and streams. Including help to get consents, capital grants and provide advice.

Ribble Rivers Trust 01200 444452 - Can help direct to others:
Catchment Sensitive Farming Initiative 0845 600 3078
Environment Agency 03708 506 506
Farm Advisory Service 0845 345 1302
Natural England 0845 600 3078
Yorkshire Dales National Park Authority 0300 456 0030
Forest of Bowland Area of Outstanding Natural Beauty 01200 448000
Forestry Commission 0117 906 6000

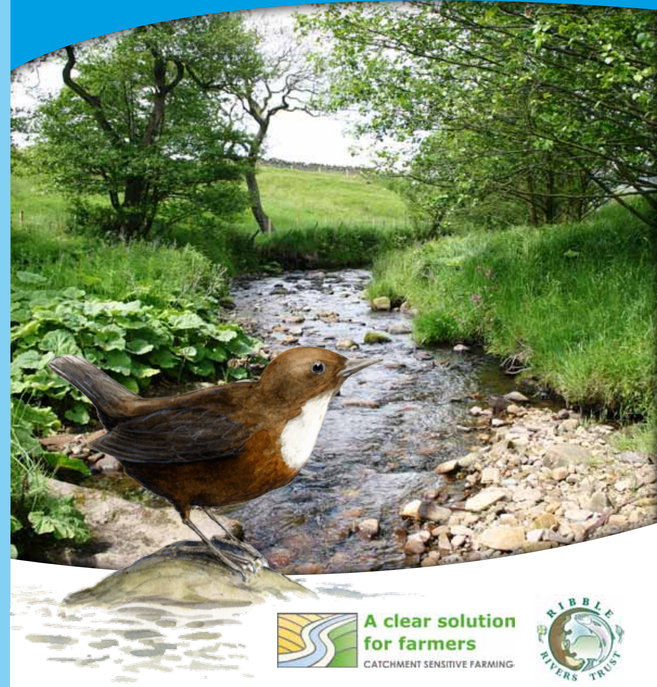
Keeping it legal

Before undertaking any works consult the relevant authorities!

- Will the work be on, or affect a designated site? eg Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protection Area (SPA), Scheduled Ancient Monument (SAM) etc.
- Will the work affect protected species? e.g. otters, bats, etc. Seek advice, as a Natural England licence may be required.
- Consult the Environment Agency before undertaking works on main river or a designated floodplain.
- To carry out work on an ordinary watercourse you will need to contact the lead local flood authority responsible for that particular watercourse.
- Do not undertake in-stream or bank profiling work without first gaining permission from the Environment Agency.
- An Environment Agency licence is required if spraying herbicide near to or on any watercourse.
- A felling licence is required if more than 5m³ of timber is coppiced in a calendar quarter.

Illustrations: **Alan Duncan** Graphic design: **www.thinkgraphic.co.uk** Printed in the UK using vegetable oil based inks on sustainably sourced stock

Ribble Catchment
WATER FRIENDLY FARMING
Good Practice Guide



A clear solution for farmers
CATCHMENT SENSITIVE FARMING

RIBBLE RIVERS TRUST

WATER FRIENDLY FARMING

It is not farming itself, but some farming practices can harm our rivers and streams. Accelerated soil erosion, and fertiliser and pesticide run-off can cause pollution. Water friendly farming can reduce these impacts.

Livestock and rivers

Where stock have free access to the river, water quality can be poor.

While low level stocking can be beneficial for river bank wildlife, excessive river bank poaching can lead to erosion, over-wide channels and increased siltation. This is compounded by compaction of soil, in turn leading to greater runoff and the deposition of fine silt on the riverbed. Silt robs the riverbed of oxygen by blocking the spaces between the gravels, it can significantly reduce the number of invertebrates, and make gravels unsuitable for fish spawning. High levels of stock access also adds animal wastes to rivers further raising nutrient levels. This encourages algal growth that smothers sensitive aquatic wildlife and generally reduces water quality.

High stocking densities can increase erosion, controlling this can reverse a decline

- By reducing stocking densities riverbank vegetation can be re-established.This in turn allows the river to narrow and deepen, to encourage 'scouring' of the riverbed.
- Establish a buffer strip between the river and farming operations that can intercept runoff from fertilisers and pesticides (minimum 6m).
- Encourage overhanging bankside vegetation, providing valuable cover and food for young fish.
- Sensitive stock management can help to address these problems and bankside fencing should be considered.
  An agri-environment grant may be available to help you to address this type of problem (see back panel).

Fencing and Stock Watering Good Practice

- Where fencing is essential ensure that management of the buffer strip is maintained
- Make provision for gated access to maintain management and control of invasive plants like Himalayan balsam through occasional grazing by livestock
- Temporary electric fencing or three lines of wire may be more appropriate than stock netting in areas of high flood risk
- Set fencing at an appropriate distance from the river to maximise a buffer strip (at least 6m), wide buffer strips allow easier management.
- Drinking bays should be placed on the inside of meanders or protected by upstream trees and should not impede flow if there is no alternative to providing drinking water.
- Access ramps should be surfaced with local stone held in place with untreated timber or similar.
- Consider water troughs in preference to drinking bays
- Provide hard base around troughs to minimise poaching.

Issues

1. Poorly maintained yard and buildings – no rainwater goods, uncovered stock gathering areas resulting in clean and dirty water mixing.
2. Silage clamp located next to ditch increases potential for leachate to drain to river.
3. Poorly maintained farm/cattle tracks and gateways encourage runoff to ditches and river.
4. Dense tree canopy causing heavy shading
5. Poorly sited livestock feeder – poached and prone to runoff to river.
6. Excessive poaching introducing high sediment levels.
7. Arable field on steep slope – no buffer between field and river to help intercept runoff.

Solutions

1. Well maintained yard and buildings – rainwater storage and covered stock gathering areas.
2. Covered slurry store located away from watercourse.
3. Well maintained tracks – limited pathway to river.
4. Well managed river corridor – vegetated riverbank with good balance of light and shade.
5. Livestock feeder located on hard-standing and away from river.
6. Encourage vegetated buffer strip.
7. Livestock watering – surfaced drinking bay or trough on hard-standing.
8. Well vegetated banks help intercept runoff.
9. Beneficial in-stream woody debris – located to limit erosion.
10. Gateway located away from river.
11. Arable field with wide margins to intercept runoff.

Himalayan balsam

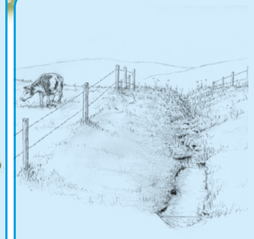
Himalayan balsam was introduced to England in 1839. It has colonised river banks, farmland and woodland, suppressing our native grasses and flowers. It spreads fast, using explosive seed pods to scatter its seeds and quickly colonise new habitats. When the plants die back in winter, large areas of bare soil are left vulnerable to erosion.

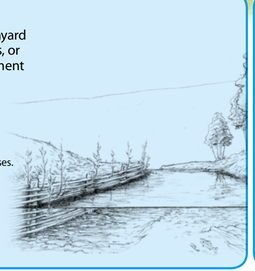
Control

Himalayan balsam can be controlled by hand pulling, strimming, mowing, or with herbicide. All these methods can be carried out from late May or early June and repeated throughout the growing season.
The aim is to stop all the plants going to seed.
Hand pulling is best for a small number of plants, while strimming or mowing is more effective for large stands. Herbicide (glyphosate or 2, 4-D amine) can be used in non-sensitive habitats away from water and should only be applied by appropriately trained individuals.
Avoid spraying once the plants are in flower as bees will be visiting the flowers for nectar.
Once the Himalayan balsam is gone, it can be replaced with native wildflowers or willows which will provide habitat and food for bees and other beneficial insects.
For more information on control, please contact the Ribble Rivers Trust.

Watercourse Management

Ditches and drains often form a direct route between the farmyard and the river and can be a path by which fertilisers, chemicals, or excess sediment enters a river. Riverbank protection or revetment may be necessary to stabilise damaged river banks.





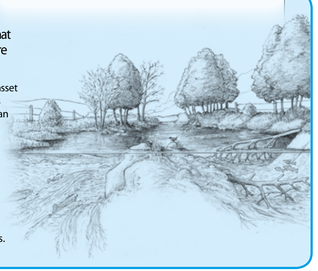
Good practice

- Know which farmyard drains run into ditches and streams, and identify as clean water drains.
- Fence ditches and watercourses and plant trees to prevent stock access and bank damage.
- Avoid the spreading of fertilisers and pesticides near ditches and watercourses.
- Where farm yard manure is stored in field heaps, store at least 10m away from a watercourse or ditch and do not locate on top of field drains.
- At field corners consider creating small ponds or filter beds to encourage settlement of silt.
- Use soft revetment to stabilise river banks e.g. willow spilling, brash, and large woody debris.
- Revetment should follow the natural line of the river.

Large Woody Debris

Large woody debris - the branches, trunks and root boles that collect in a watercourse are often removed because they are unsightly or perceived to increase flood or erosion risk.

Whilst this is sometimes true, large woody debris is in fact a valuable asset to the river. It is home to lots of wildlife, with almost 150 insect species associated. In small streams the pools created by large woody debis can provide up to half of the salmonid spawning and rearing habitat.



The benefits of Large Woody Debris

- Can help stabilise eroding riverbanks.
- Creates diverse flow conditions.
- Creates niche habitats and cover valuable to fish.
- Valuable as resting sites for otter and nesting sites for grey wagtail and dippers.
- Increases the range of stream temperatures .
- Helps improve water quality – increases in stream oxygen levels.
- Collects leaf litter – a valuable food source for aquatic insects.

Good Practice Guide

Controlling Runoff at Source

Clean and Dirty Water Separation

- Ensure guttering, downspouts and underground pipe work are in good order – consider storage of this clean water as an alternative to more expensive sources.
- Ensure that rainwater from rooftops is kept away from stock gathering areas trackways and manure stores.
- Consider roofing stock gathering areas to minimise the production of dirty water.

Livestock and Vehicle Movement

- Minimise poaching through the provision of 'cow tracks'.
- Site feeders on hard-standing areas on higher ground away from watercourses and move regularly to avoid poaching.
- Identify erosion pinch points to reduce poaching – install cross drains in tracks, move or resurface erosion prone gateways, resurface farm tracks, install watercourse crossings.

Managing Soils

- Avoid ploughing at right angles to water courses
- Implement soil, crop and nutrient plans for the farm – identifying areas of erosion and runoff risk will help safeguard the most valuable resource on the farm.
- Consider regular soil nutrient testing to help reduce fertiliser costs.
- Capping and compaction encourage rapid runoff - check soils regularly.
- Avoid cultivation when soil is too moist.
- Avoid vehicle movements/wheel ruts on wet soil.
- Utilise a cropping sequence to ensure ground coverage throughout the year.
- Where erosion is severe consider alternative uses for the land.
- Consider permanent vegetation (hedges, woodland, buffer strips) on steep slopes, natural drainage-ways at risk from gully erosion, long unbroken slopes, wet soils in difficult corners and alongside watercourses.

Sheep dip

Parasitic control in sheep is an important factor in maintaining flock health but the chemicals involved can be harmful to wildlife and the environment. If mishandled, they can make people ill, harm the sheep or pollute watercourses and groundwater reserves.

All dip products contain hazardous substances.
Cypermethrin dips have now been permanantly withdrawn from sale because of the serious danger to aquatic life.
OP dips are potentially more hazardous to people and must be used with great caution. Special precautions should be made when siting mobile dipping facilities.
Responsible disposal of dip must be planned before dipping.
Everyone involved in the dipping operation must be properly trained and competent. Only use treatments when they are strictly needed for animal health reasons.
Alternatives to dipping are injectable and pour on treatments.
Always follow Environment Agency/DEFRA best practice guidelines to protect yourself, your sheep and the environment.