Director

Westcountry Rivers Trust

Registered Charity

Established 1995

Westcountry Rivers Trust

Objectives of the Trust

- To secure the preservation, protection, development and improvement of watercourses in the Westcountry.
- To advance the education of the public in water management.

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Conservation, a potted history

- Fortress conservation (fence and forget)
- Community conservation (find win-wins for owners of valuable areas)
- Paid Ecosystem Services (PES)

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Case Study: *Advice on soil testing and optimisation*

- Applying a targeted best fit fertiliser application via soil testing
- Integrating organic muck into your fertiliser regime and composting

Shown to save on average **£693 /year/farm** in the Tamar catchment.
This is extra money in the pocket rather than excess nutrients in the river, in the estuary and on the coastal shelf

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Case Study: *Improved savings associated with collecting & using roof water in the farm yard*

A farm with annual rainfall of 1200mm/yr on a roof of 600m^2 produces 720m^3 water…

Cost: guttering, down pipes, storage tank, labour

Saving: **£1130.4/yr** when used to replace mains water (SWW rates 2009: £1.57/m^3)

Further savings are realised if you consider the cost of storing and spreading clean water that falls on dirty yard areas, reduced soil compaction & pollution risk reduction

150 Information Sheets

Water on the farm — **Best Practice Information Sheet**
Recycling water — **IS 1.2.3**

Practical examples

Using your roof water
Are there uses such as yard/equipment washing or stock drinking for which roof water could replace mains water? If so, what volume of water storage, e.g. tank/reservoir, exists in m^3 (220 galls)? What area (m^2 of roof could be diverted to storage? What is the average rainfall for the area (m)?

Roof area (m^2)	x	Average rainfall (m)	x	Saving in mains water (Ofwat costs 94p/m^3)	=	Potential savings (£ per annum)
	x		x	£0.94	=	

This is your potential gross annual saving. This does not take account of evaporation from the roof, which may be 10% - 25%, the capacity of your filter or the cost of storage. Since the cost and solutions are site-specific, it is essential when calculating cost-effectiveness to use your actual estimates.

Dairy farm cooling water
A farm recycles the water used for cooling 225,000 litres of milk (typically 3 x milk yield = 675 m^3) produced each year. Instead of discarding the warm water from the plate cooler as it leaves the heat exchanger, it is collected and reused to clean the milking parlour. In winter this warm water is given to the cows to drink instead, thereby saving on additional storage, handling and mains costs.

Remember

- Water is a valuable commodity and is likely to become increasingly scarce and costly - the less that is wasted the more you will benefit.
- Changes in management such as abstractions may require licence variations so consult the EA.
- Some water companies provide free advice to business customers.
- For further information: Environment Agency (01208 78301) and ECSFDI (0800 5874079).

Water on the farm — **Best Practice Information Sheet**
Recycling water — **IS 1.2.3**

Why change?

Many farmers have made large reductions in the cost of their water supply and disposal of wastewater by recycling some of the water that occurs on the farm. These benefits result from identifying the water quality needed for all operations and recycling water to meet the needs of different uses which:

- reduces costs
- protects supplies from overuse
- may allow for expansion of operations.

1. Farm Yard
2. Farm Land
3. River Corridor
4. Diversification

Steps to success

1. **Review the current situation** by identifying all the uses of water on the farm such as stock drinking, washing, and irrigation, and then estimate the quality, e.g. mains, and quantities needed for each purpose.
2. **Identify potential opportunities** by ascertaining if there is water of a quality that could be recycled for other purposes, for example:
   - irrigation runoff
   - cooling water
   - rainwater
   - vegetable washings
   - clean yard runoff

   Avoid unnecessary contamination of water supplies in supply, storage or after initial use by avoiding back siphoning, and protecting ground and surface water sources during farm operations.
   Consider if the development of your business is restricted by the lack or cost of water, and decide if recycled water would make expansion possible.
   Identify if any treatment such as settlement or slow sand filtration is necessary before reuse becomes feasible.
3. **Calculate the cost-benefit of these opportunities** by establishing the costs of recycling water such as collection, transfer and treatment. Compare costs with the potential savings such as reduced use of mains quality water (approximately 94p/m³ Ofwat, 2000 depending on where you live), a reduction in waste water disposal costs (low rate irrigation £1.50/m³), and reduced energy and labour costs. Identify the payback period.
4. **Implement the action plan** taking care to raise awareness of water costs with staff and ensure regular checks for any leakage in the delivery system. Introduce the improvements that are most cost-effective and help protect water resources and the wider environment.
5. **Monitor progress** with the recycling of water supplies to ensure that benefits associated with costs, crop yields and quality are realised.

Best Farming Practices: ***Profit from Change***

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Economic, environmental & social benefits

- DIRECT BENEFITS predominantly to farmers - average £2,300 per farm, for example through optimising farm inputs, water separation and leak reduction, improved stock health, diversification.

- INDIRECT BENEFITS to community, tourist & anglers - difficult to value, examples include improved water quality, flow regime, improved wildlife habitats and fisheries.

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Conservation, a potted future

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What is an 'Ecosystem Service'?

Provisioning services
- food
- energy (hydropower, biomass fuels)

Regulating services
- carbon sequestration and climate regulation
- waste decomposition and detoxification
- nutrient dispersal and cycling

Supporting services
- purification of water and air
- pest and disease control

Cultural services
- cultural, intellectual and spiritual inspiration
- recreational experiences (including ecotourism)

Preserving services
- genetic and species diversity for future use

The majority of these services are currently provided, for the benefit of all, by farmers who represent a tiny proportion of this dependant population.

They can only make money from very few of these services, predominantly food.

The rest are expected for free.

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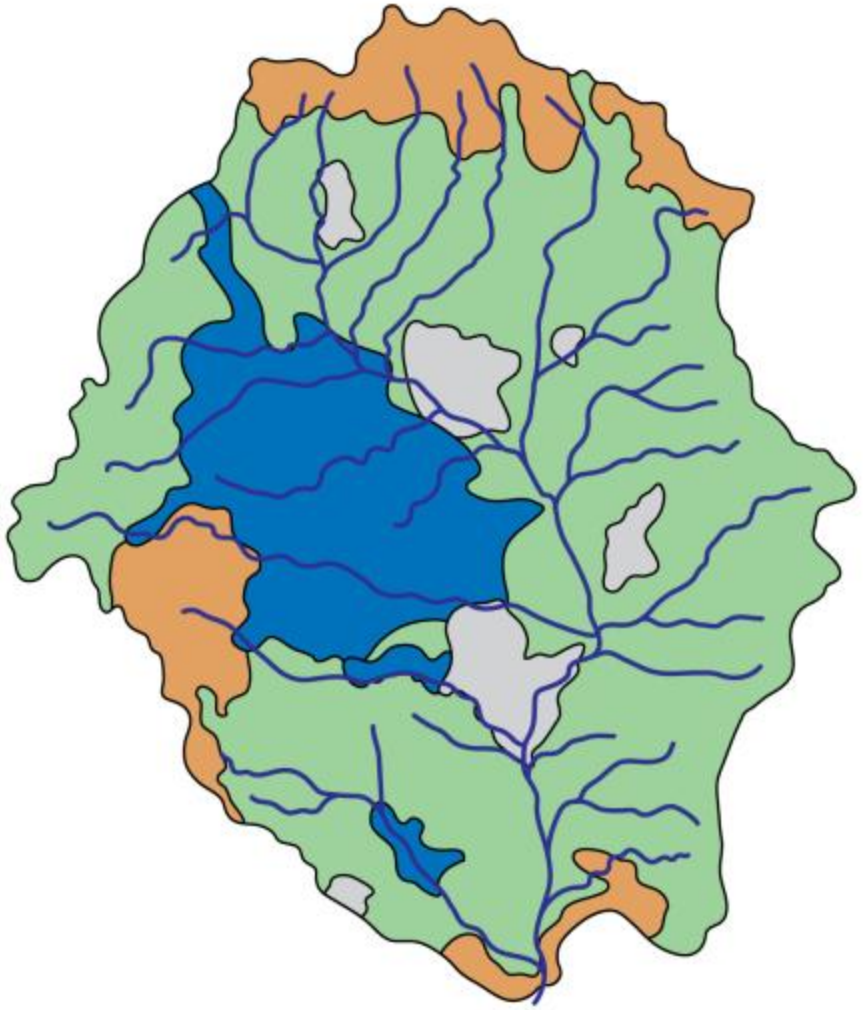
A typical Westcountry catchment



100,000 ha catchment with:

- 7,000ha Sheep farming
- 16,000 ha arable
- 9,000 ha SSI/stewardship HTS
- 4,000 ha urban
- 64,000 ha dairy and beef

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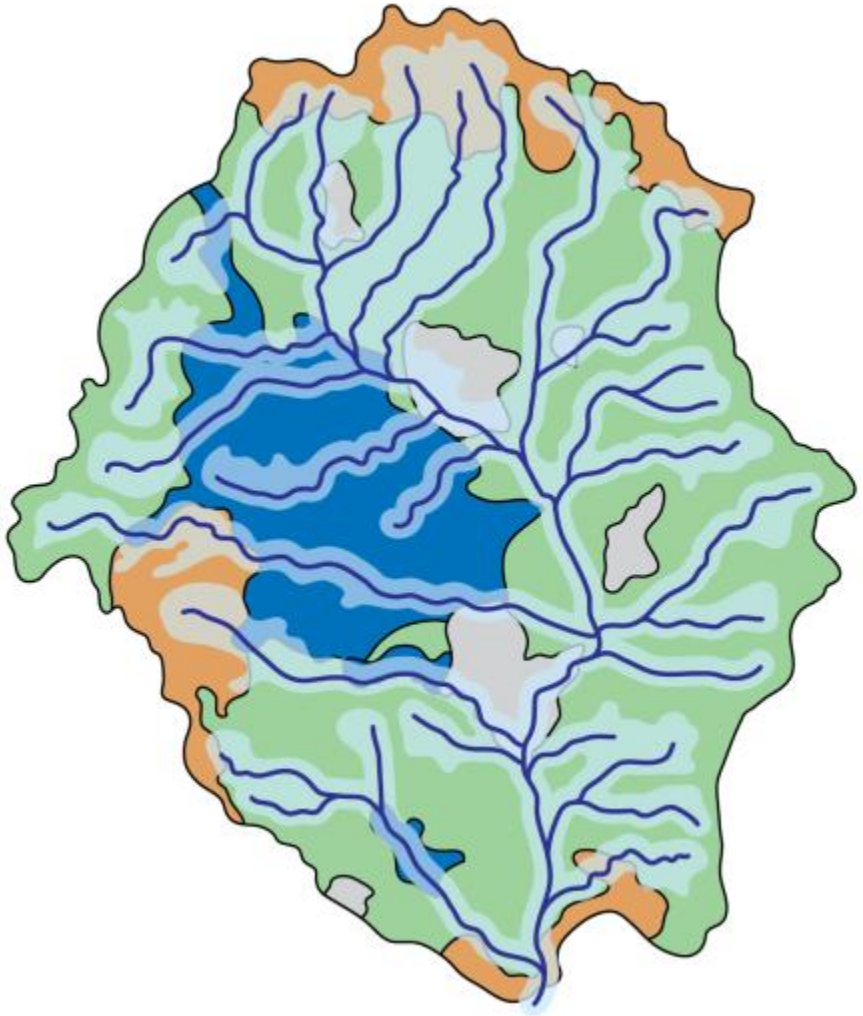

100,000 ha catchment with:

- 7,000ha Sheep farming
- 16,000 ha arable
- 9,000 ha SSI/stewardship HTS
- 4,000 ha urban
- 64,000 ha dairy and beef
- 2,600 ha vital for water resource protection

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WRT Developing PES's with regional farmers and:

- Water Companies
- Tourism groups; visitors and businesses
- Carbon/environmental off-setters
- Flood defence funders and beneficiaries
- Biodiversity advocates

Move from 'Polluter Pays' to 'Provider is Paid'.

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Famous examples of PES

- In New York City, where the quality of drinking water had fallen below standards required by the U.S. Environmental Protection Agency (EPA), authorities opted to restore the Catskill Watershed.

- Once the input of agricultural wastes and pesticides to the watershed area was reduced, natural abiotic and biotic processes were reestablished, water quality improved to levels that met government standards.

- The cost of this investment in natural capital was estimated between $1-1.5 billion, which contrasted dramatically with the estimated $6-8 billion cost of constructing a water filtration plant plus the $300 million annual running costs. This is an example of paying for the ecosystem service of water purification (many ancillary services are also improved)

Another PES example

- In the 1980s, mineral water company Vittel faced a critical problem. Nitrates and pesticides were entering the company's springs in northeastern France. Local farmers had intensified agricultural practices and cleared native vegetation that previously had filtered water before it seeped into the aquifer used by Vittel.

- This contamination threatened the company's right to use the "natural mineral water" label under French law

- In response to this business risk, Vittel developed an incentive package for farmers to improve their agricultural practices and consequently reduce water pollution that had affected Vittel's product. For example, Vittel provided subsidies and free technical assistance to farmers in exchange for farmers' agreement to enhance pasture management, reforest catchments, and reduce the use of agrochemicals.

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