



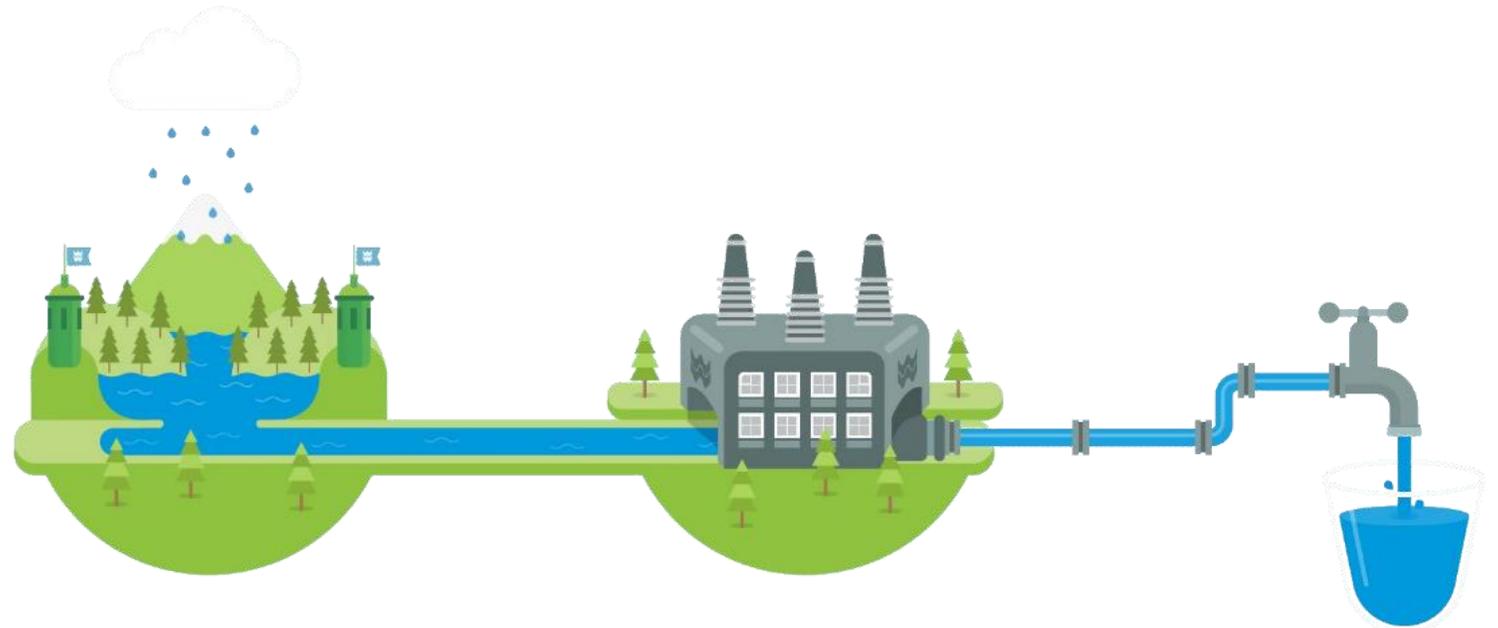
Catchment Management for Drinking Water

Phillippa Pearson
Head of Water Services Science
Welsh Water



Outline

- Catchment management at Welsh Water
- Facing the Future Together
- Building on lessons learnt – case studies
- Format of today



Catchment Management





Catchment Management

- Our “first line of defence”
- Source to Tap approach
- Delivers multiple outcomes for Welsh Water
- Cost
- Resilient water supply system
- Right thing to do - it’s what our customers expect
- Delivers benefits beyond drinking water quality





Catchment Management Priorities

Our catchment management strategy has two key areas of focus:

1. Responding to and recovering from existing raw water quality challenges
2. Developing a proactive and preventative catchment management programme for all our catchments

Our strategy work streams fall under five key themes:

Predict, Prevent, Respond, Innovate and Invest

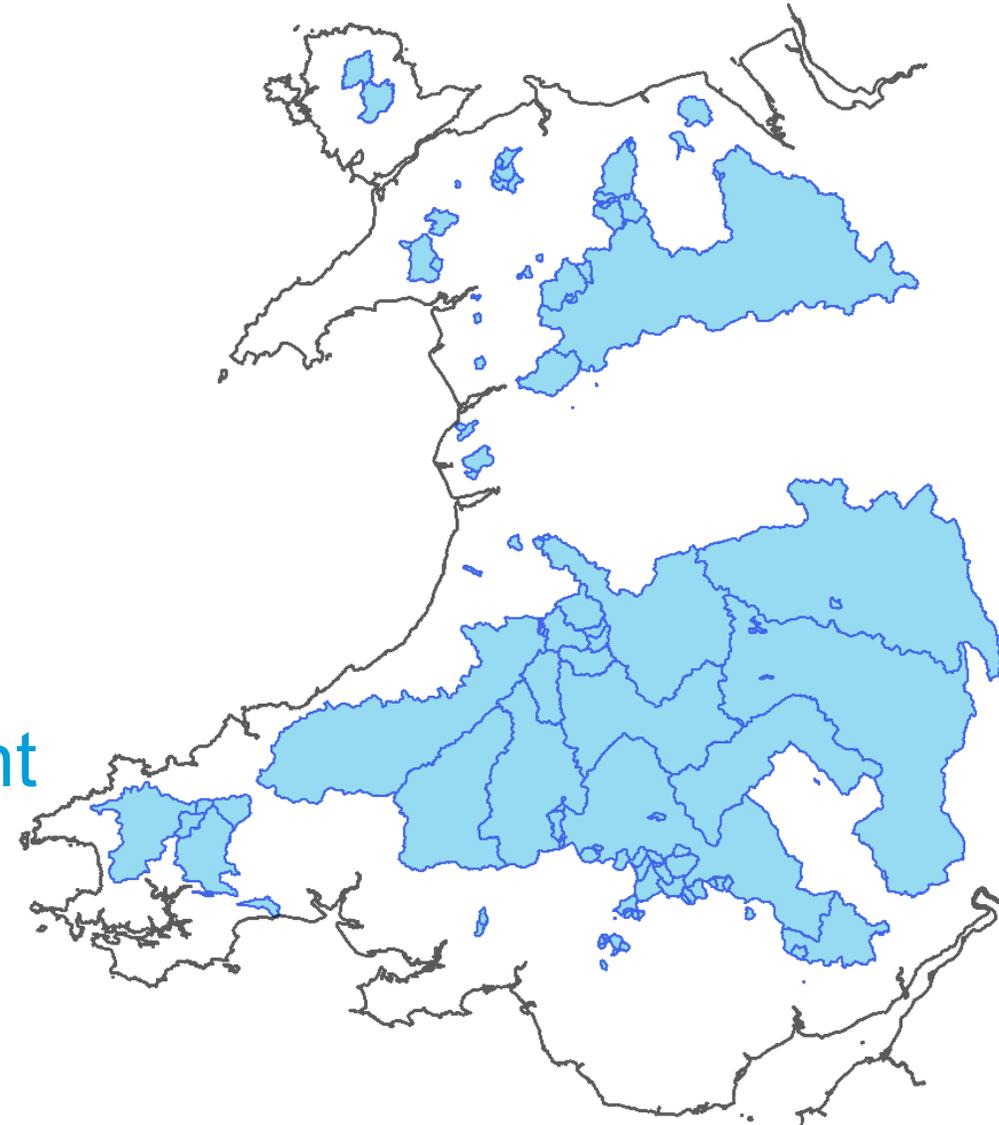




Our Drinking Water Catchments

- >100 Catchments/ c. 11,000km²
- 830 ML/ day
- 62 Water Treatment Works
- Welsh Water own <5% of land

We can't deliver Catchment Management on our own...





WaterSource Approach



Looking after the land, rivers and reservoirs to protect our drinking water both now and for years to come

- 💧 Prevention not cure
- 💧 Evidence based
- 💧 Right for our customers
- 💧 Inclusive & collaborative
- 💧 Delivers multiple benefits



Working with Others



Facing the Future Together





WaterSource19

Our theme today is Catchment Management: Facing The Future Together

We will share how our research and pilot catchment management schemes have built strong foundations

We will explain our challenges and future ambitions

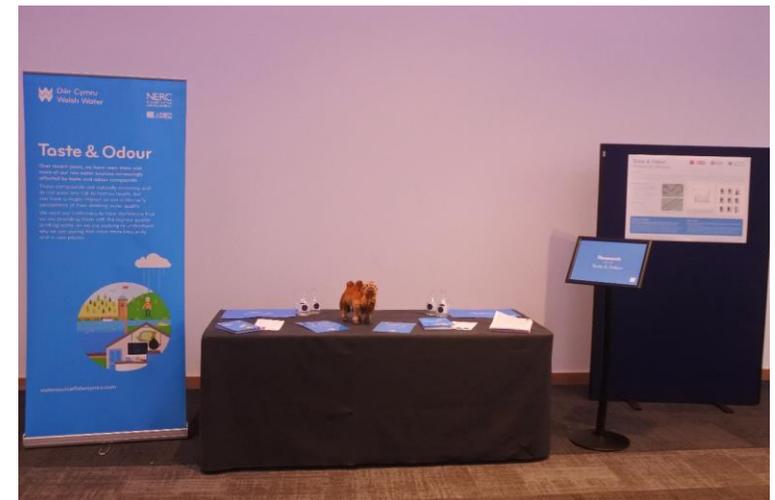
Together, we will explore how we can collaborate to deliver the best possible outcomes for us all





WaterSource19 Exhibition

- 💧 Predict: Smart Data
- 💧 Prevent: PestSmart
- 💧 Research: Taste and Odour
- 💧 Innovate: Brecon Beacons Mega Catchment
- 💧 Invest: Our Priority Catchments





Case Study: Responding to Existing Challenges



2013

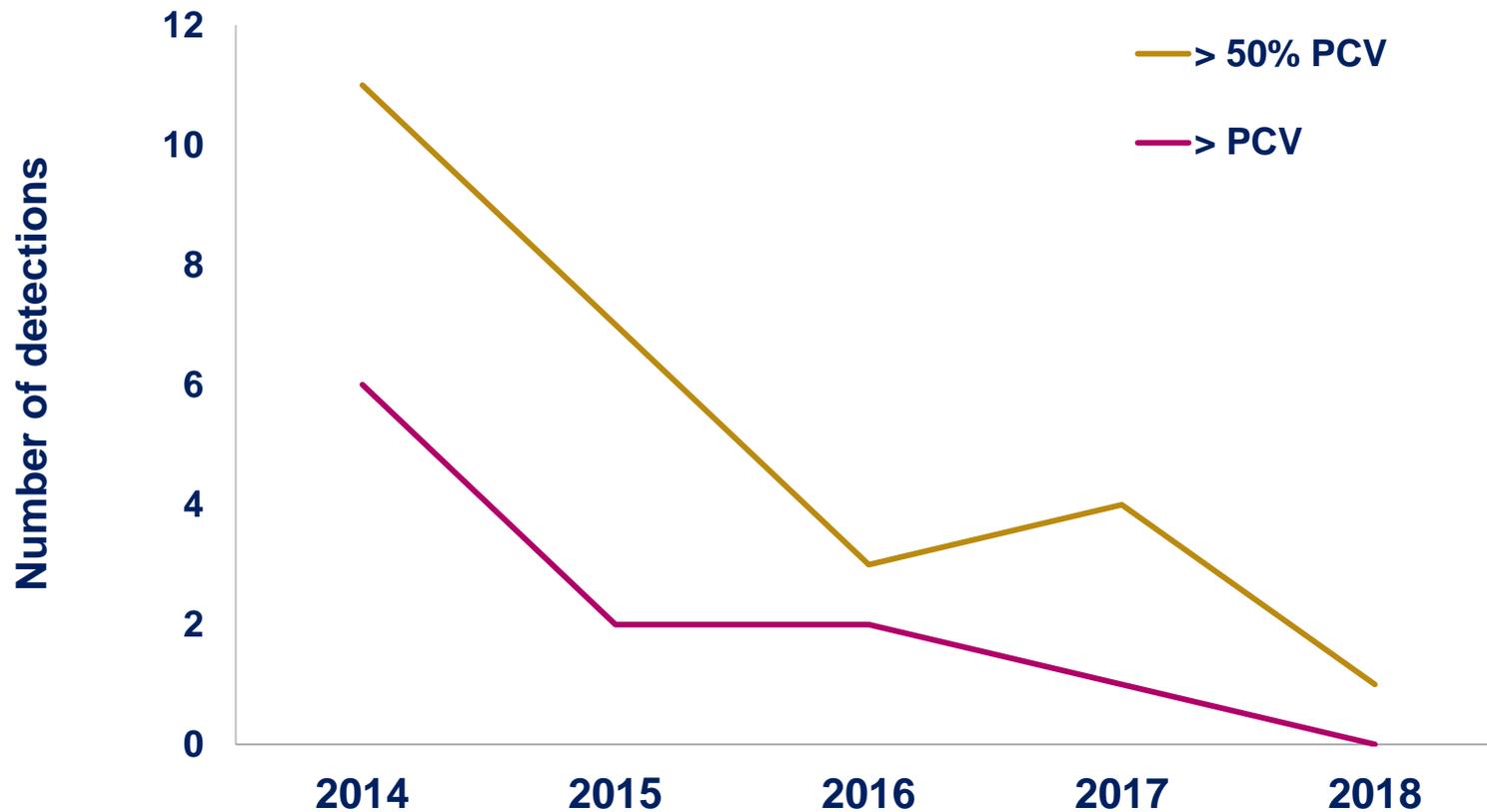


2015





Weed Wiper Trial Outcomes



- Significant reduction in detections
- Temporary treatment installed
- Confidence permanent treatment solution could be delayed

Key Learnings

- 💧 Impacts on people, environment & water
- 💧 Lack of awareness across all users of pesticides
- 💧 No 'one stop shop' for advice and guidance
- 💧 Challenges around safe storage, use & disposal
- 💧 Pesticide risk is very mobile
- 💧 Stakeholder involvement gains trust
- 💧 Systems approach / supply chain





Pilot Pesticide Disposal Scheme

2017



We collected

1,662kg
of pesticides
and herbicides

Volumes per
site ranged from
0.5-148
kg

This included:

Grassland herbicides • Insecticides • Pesticides
Wetting agents • Fungicides • Disinfectants
Growth regulators • Sheep dip

100%
of participants
said they would
recommend
the scheme

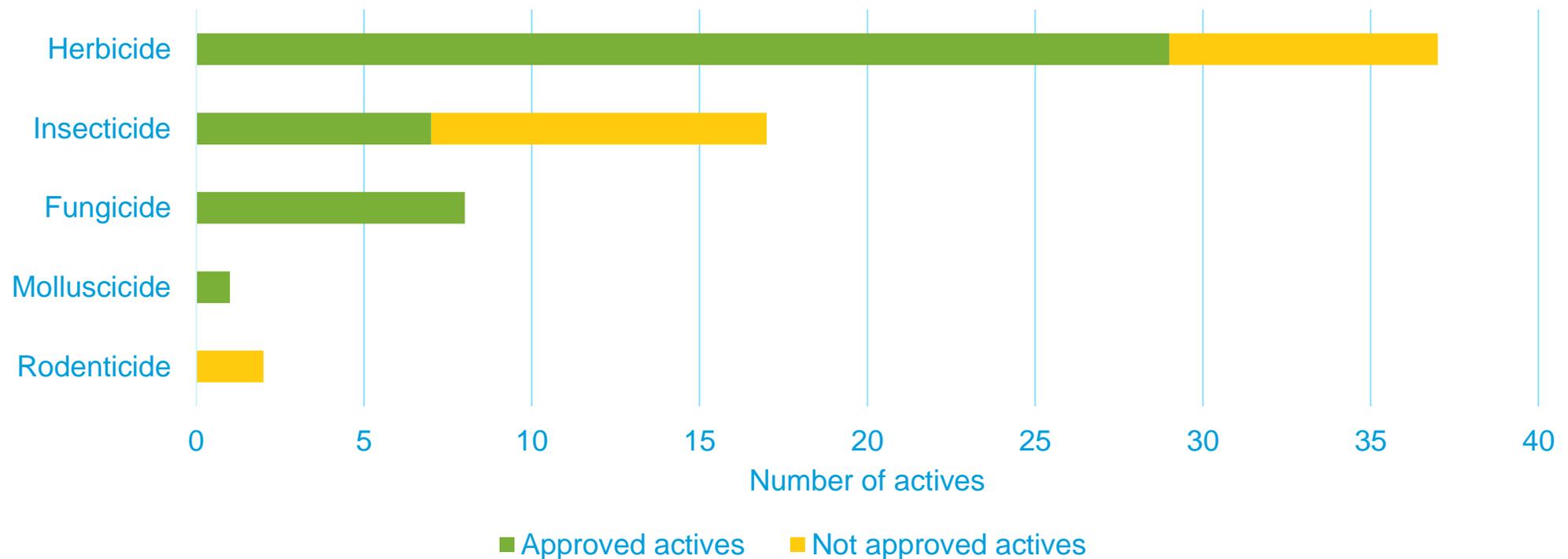


Pilot Pesticide Disposal Scheme

2017



Number of actives collected and approval status

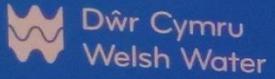




2017

PestSmart

- ◆ Aims to promote responsible storage, use & disposal across the supply chain
- ◆ Welsh Government - Rural Development Programme: Co-operation & Supply Chain Development Scheme funding
- ◆ £950,000 grant - Two year programme of work (2018-20)
- ◆ Collaborative working across pesticide supply chain
- ◆ Includes public awareness campaign, new practices & smarter technologies & behavioural research
- ◆ Wales wide & English catchments disposal scheme



PestSmart

Our routine raw water monitoring programme has detected increasing traces of pesticides in areas we have never seen them before.

While these levels are too low to pose a risk to those drinking the water, they are enough to risk breaching rigorous drinking water standards.

Our PestSmart campaign encourages people to consider 'smarter' ways of weed, pest and disease control that do not impact on people, water or the environment.



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Case Study: Proactive & Preventative Management

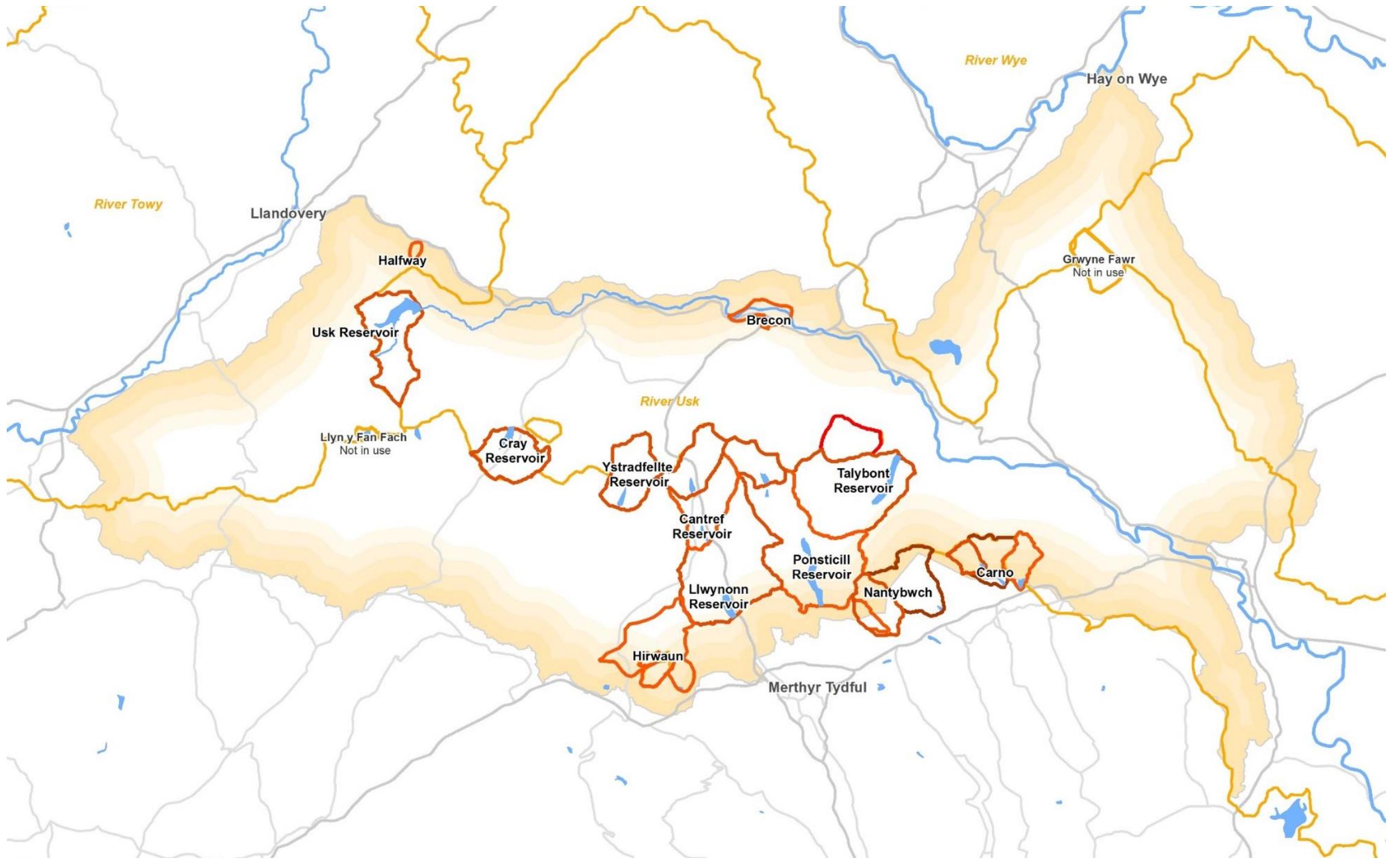


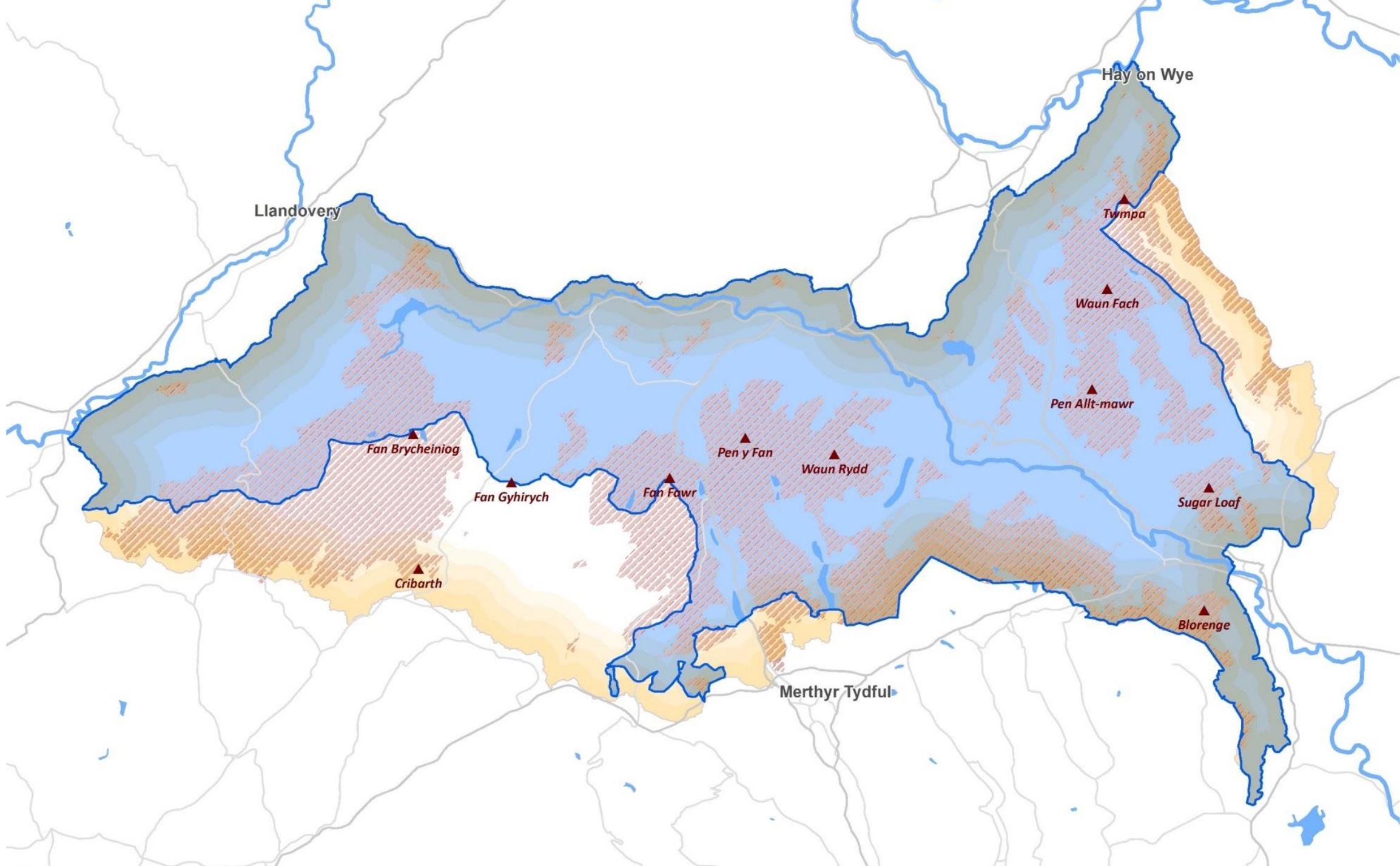


Brecon Beacons Mega Catchment

- Welsh Water 2050 case study
- 50% of our daily abstraction
- 17 Water Treatment Works
- Cardiff, Newport, Swansea & SE Wales valleys
- Treatment capability varied; evolved to meet past challenges
- Approach will build resilience into a strategically important landscape

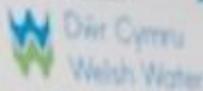






2017

WATERPROSPECT



MEGA DDALDYLLCH BANNAU BRYCHENIOS - BRIDON BETHYLLYDDA GŶNDDYD

3. MAPIO CYFLEDDO. PROSECTAU CYFREDD
3. OPPORTUNITY MAPPING. EXISTING PROJECTS



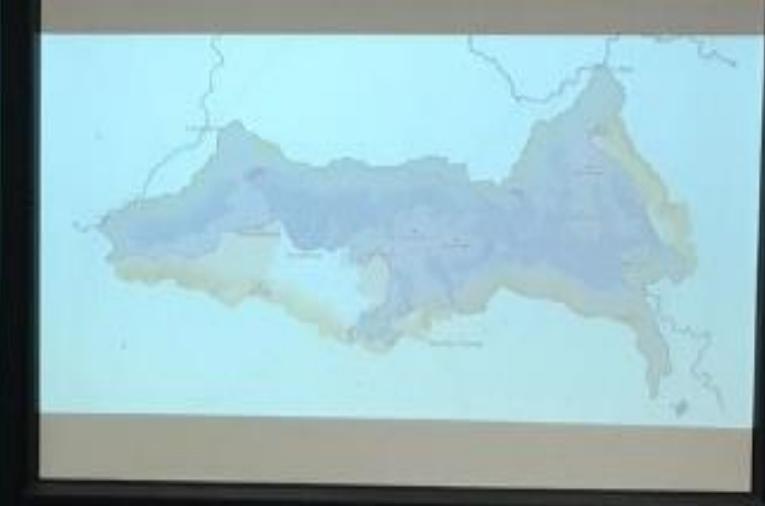
2017



Die Tübingen Wasser Forum

The Euzon-Bassins provides almost half of the drinking water for the wet customers.

With a population of approximately 1.5 million people, the wet customers are the largest group of customers.



2018



Watershed Protection Program

- Most programs are voluntary
- Most programs are funded by DEP but administered by public agencies
 - Collaborate with administrative agencies, including agriculture
 - Highly beneficial to stakeholders
- Decreased of laws and regulations
 - Federal Clean Water Act
 - Clean Water Act
 - CWA National Discharge Elimination System
 - CWA National Discharge Elimination System
 - Regulatory implementation
 - EPA regional offices
 - EPA regional offices

Land ownership

10%
25%
35%
30%

Dŵr Cymru Welsh Water

WaterS

A new way of...
the land...
to protect...
the year...

Torsid

...
...
...
...



Progress

- ◆ 2020-25 scheme
- ◆ Fully supported by Ofwat
- ◆ Early start work has commenced:
 - Evolving role of Steering Group
 - BBMC Facilitator - EnRAW funding
 - Opportunity mapping
 - Involving communities
 - Pilot projects
 - Talybont forest design project
 - Social prescribing
- ◆ Wider engagement programme in 2020





Beacons Water Group

- ◆ Farmer-led group based on Watershed Agricultural Council
- ◆ Targeted and replicable pilot projects to improve farm efficiency /resilience whilst safeguarding raw water quality
- ◆ Farmer-led SMS application submitted
- ◆ 2 x EIP applications in progress
- ◆ Watershed Agricultural Council return visit October 2019
- ◆ Drone surveys for nutrient management



A woman with blonde hair, wearing a dark blue jacket with a white logo on the chest, stands outdoors. She is gesturing with her hands as if speaking. In the background, there is a large dam with a prominent stone tower, set against a backdrop of rolling green hills and a clear blue sky. The scene is brightly lit, suggesting a sunny day.

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Innovate
Brecon Beacons
Mega Catchment

Brecon Beacons
Mega Catchment

Talybont Forest
Redesign

Dŵr Cymru
Welsh Water

Brecon Beacons Mega Catchment

The Brecon Beacons supply almost half of the drinking water we provide our customers every day, so you could call it a 'Mega Catchment' for water.

It's not just water that makes our Beacons extraordinary. Communities, biodiversity, agriculture, forestry and tourism all play their part in making it such an iconic landscape that provides so much for so many by turning it into a mega-catchment for everyone.

By doing this, we will deliver so much more for the environmental, social, cultural and economic well-being of a sustainable Wales.



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Today





Today

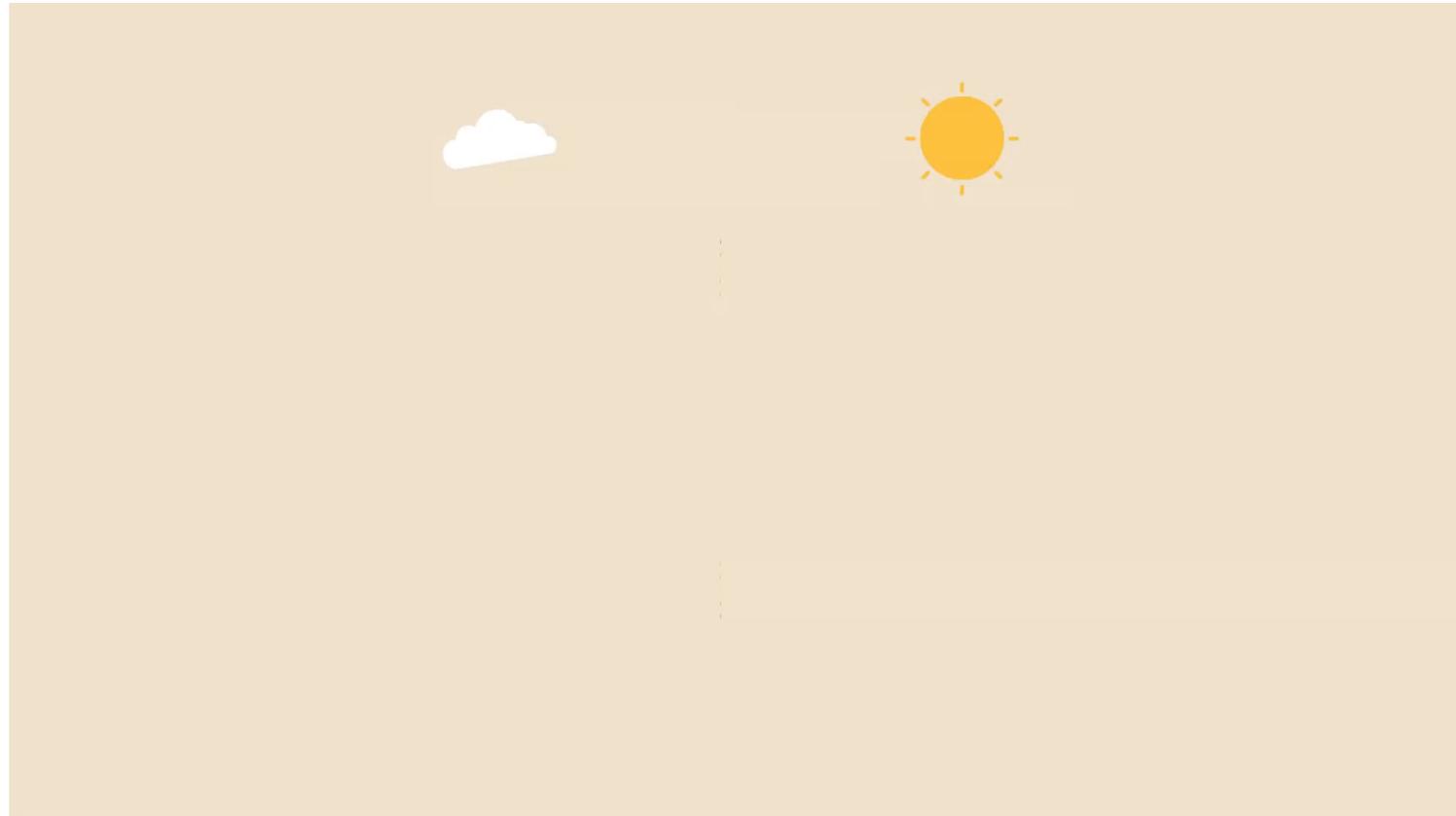
- 💧 Reflect on collective achievements
- 💧 Confidence in our approach
- 💧 Look to the future

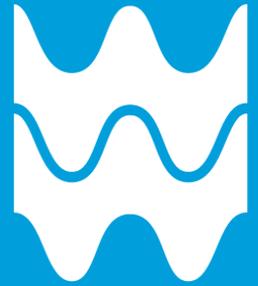
**We are all in this together.
We are one big team!**





Thank You





WaterSource

Facing the Future Together

#WaterSource19