

CONFERENCE 2022

30th NOVEMBER 2022 | CEFN LEA CONFERENCE CENTRE, DOLFOR, NEWTOWN SY16 4AJ



AGENDA

[Scroll down to view all the slides or Click on the links below](#)

09:30	Refreshments on arrival
10:00	Welcome / Housekeeping / Aims for the day Sharon Evans, Director of Quality Policy and Compliance, Dŵr Cymru Welsh Water and Chair, Water Health Partnership Conference morning session
10:15	Opening Address Huw Brunt, Chief Environmental Public Health Officer, Welsh Government
10:30	Private Water Supplies Update <ul style="list-style-type: none">– Private Water Supplies and Wider Water Supplies in Wales - Click here Marcus Rink, Chief Inspector, Drinking Water Inspectorate– Update on the Private Water Supplies Task and Finish (PWS TaF) Group Diane Watkins, Chair of PWS TaF Group
11:20	Drought & Extreme Weather – 2022 experience <ul style="list-style-type: none">– Drought Process (Welsh Government) - Click here– Impact on Environment (Natural Resources Wales) - Click here– Impact on Sufficiency and Quality (Dŵr Cymru Welsh Water & Hafren Dyfrdwy) - Click here
11:50	Panel Discussion on Morning Session
12:15 – 13:15	Lunch During lunchbreak delegates are encouraged to visit our information stands for further info and updates on Task and Finish Group activities.
13:15	Introduction to afternoon session Oliver Twydell, Water Regulations and Public Health Business Leader, Hafren Dyfrdwy and Chair, Water Health Partnership Conference afternoon session
13:20	Ensuring Water Supplies to Temporary Events (Workshop / Scenario / Learning)
14:45	Break
15:00	An introduction to PFAS <ul style="list-style-type: none">– Overview - What we know and what we don't know (Public Health Wales) - Click here– Risk Assessments and Monitoring Outcomes (Dŵr Cymru Welsh Water & Hafren Dyfrdwy) - Click here
15:45	Closing Remarks Sharon Evans, Director of Quality Policy and Compliance, Dŵr Cymru Welsh Water
16:00	Event Close

Slido - Responses to questions that we did not have time to answer on the day - [Click here](#)

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Water Health Partnership Conference 2022

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Welcome

Sharon Evans, Dŵr Cymru Welsh Water
Chair of Water Health Partnership Steering Group

Chair of morning session

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[Back To Agenda](#)

Housekeeping

- No fire alarm tests – evacuation arrangements
- Facilities
- Mobile Phones
- Timekeeping



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Mission Statement of the WHP:

Protecting and enhancing public health by working together to deliver consistent understanding and management of water quality issues and to supply safe & resilient water services.

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[Back To Agenda](#)



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Aims of the WHP

Facilitate improved communication and data sharing between public health practitioners

Delivering against the objectives of the Wellbeing of Future Generations Act 2015

Provision of consistent communication and messaging on public health issues within scope

Initiate events, training, CPD and raise awareness of health issues related to public and private water services and associated topics of interest

Undertake specific supporting activities through the work of multi-agency working groups

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- 10:00 Welcome / Housekeeping / Aims for the day
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- 10:15 Opening Address
Huw Brunt, Chief Environmental Public Health Officer, Welsh Government
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- 10:30 Private Water Supplies Update
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Rules for the day

Interact

Engage

Enjoy

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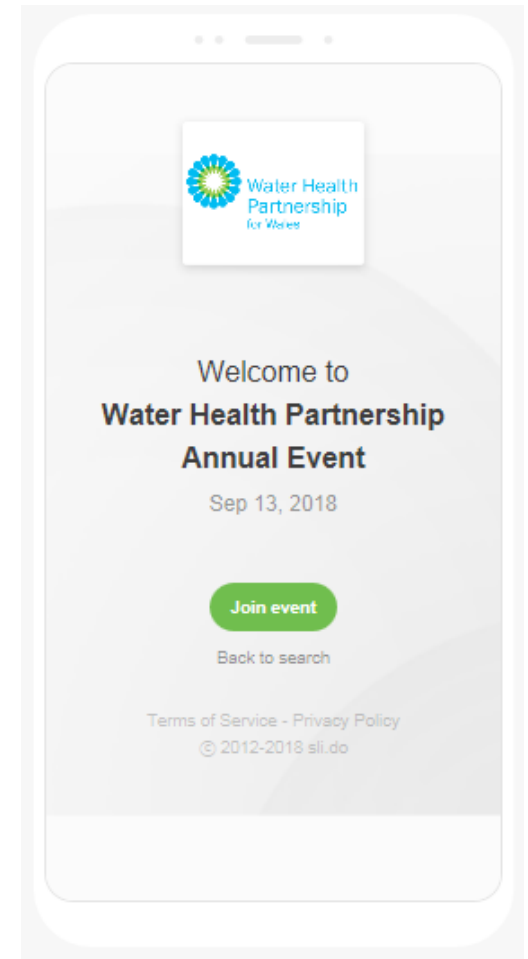
[Back To Agenda](#)

Slido Questions

How to join the event

1. Open a browser on any laptop, tablet or smartphone
2. Go to [slido.com](https://www.slido.com)
3. Enter the event code **#WHP2022**

[dwrcymru.com](https://www.dwrcymru.com)





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Opening Address

Dr Huw Brunt

Chief Environmental Health Public Health Officer
Welsh Government

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[Back To Agenda](#)

Private Water Supplies Update

- Private Water Supplies and Wider Water Supplies in Wales
Marcus Rink, Chief Inspector, Drinking Water Inspectorate
- Update on the Private Water Supplies Task and Finish (PWS TaF) Group
Diane Watkin, Chair of the PWS TaF Group

Drinking Water Wales 2021



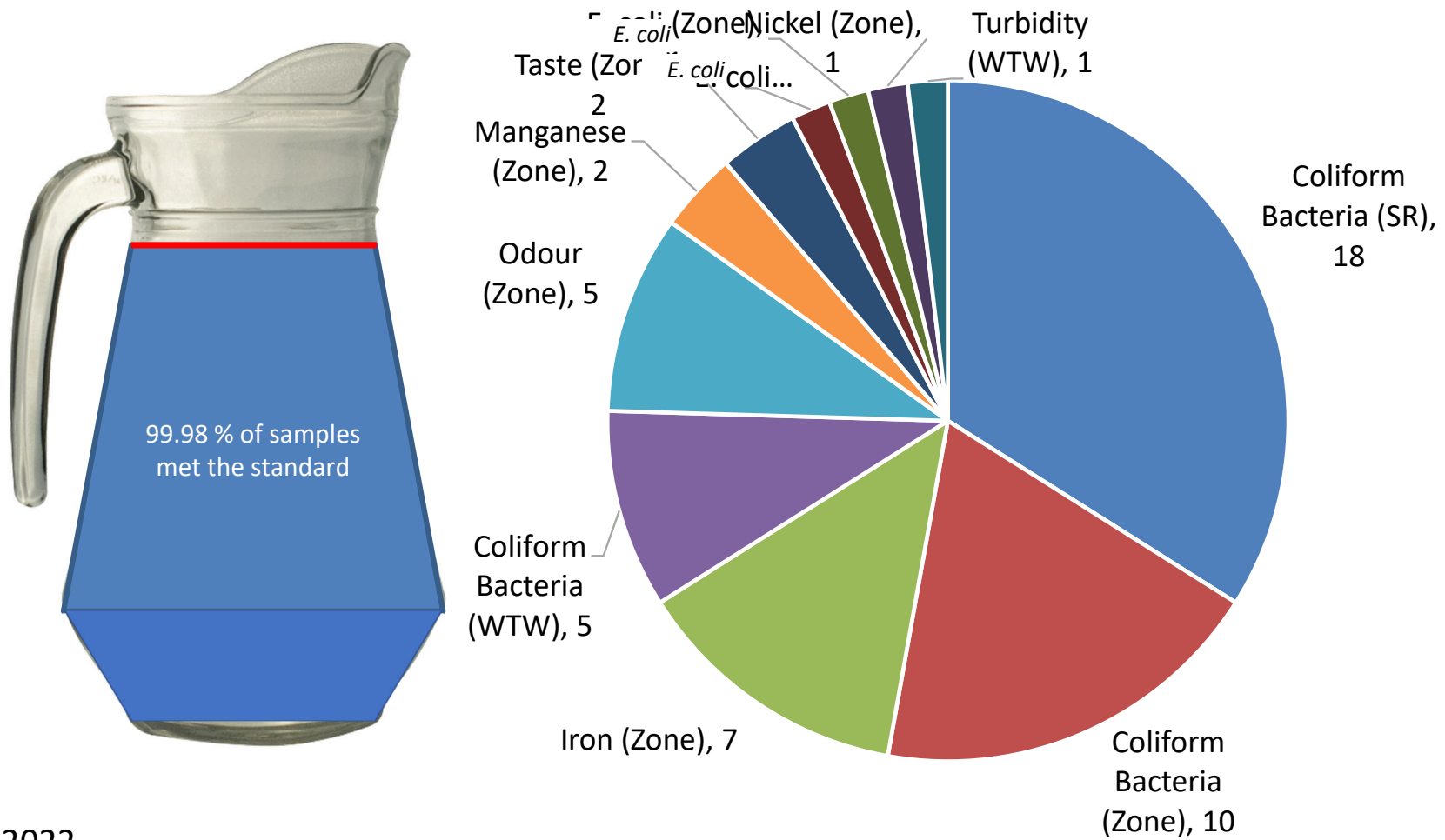
Marcus Rink
Chief Inspector of
Drinking Water

November 2022



[Back To Agenda](#)

Compliance Failures Wales 2021



November 2022

[Back To Agenda](#)



Service Reservoirs and Tanks










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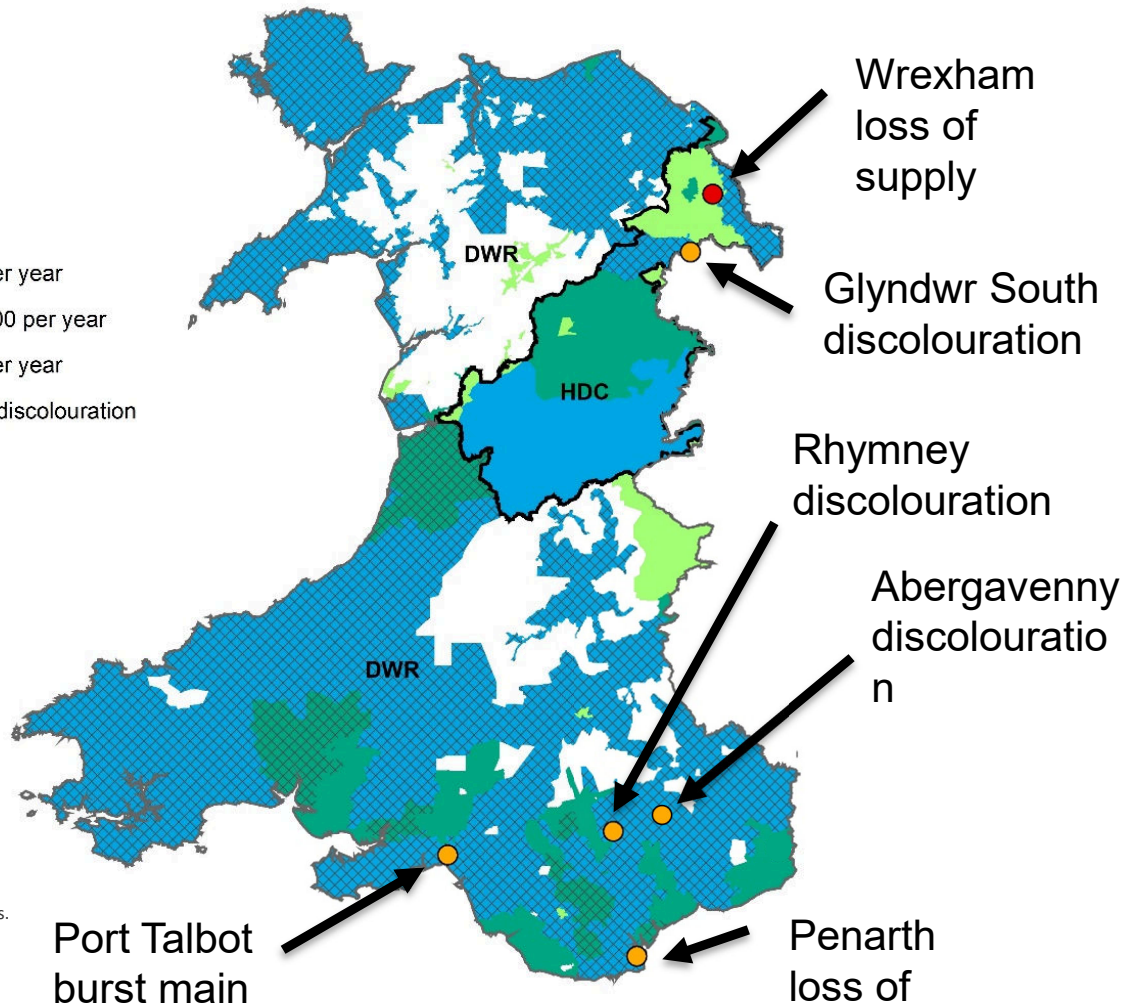
[Back To Agenda](#)



Discolouration Contacts and Events

Key

-  < 0.6 BBO Contacts per 1,000 per year
-  0.6 to 1.2 BBO Contacts per 1,000 per year
-  > 1.2 BBO Contacts per 1,000 per year
-  Zones identified as high risk for discolouration
-  ERI <1.0
-  ERI =1.1 to 10.0
-  ERI =>10.1



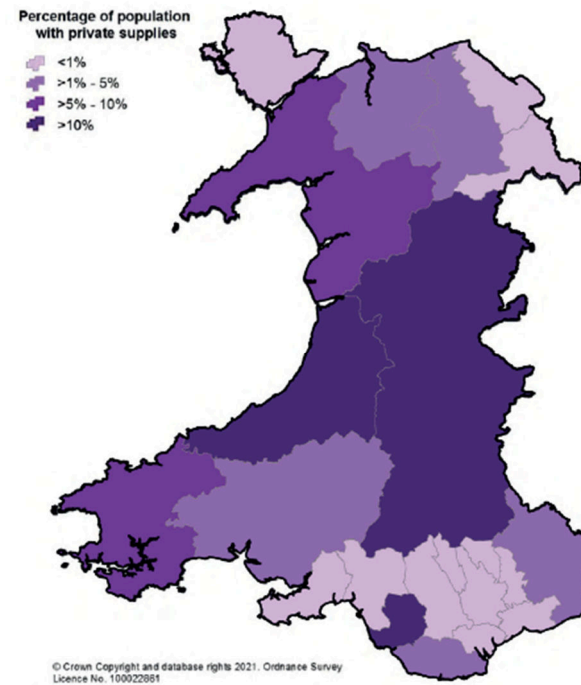
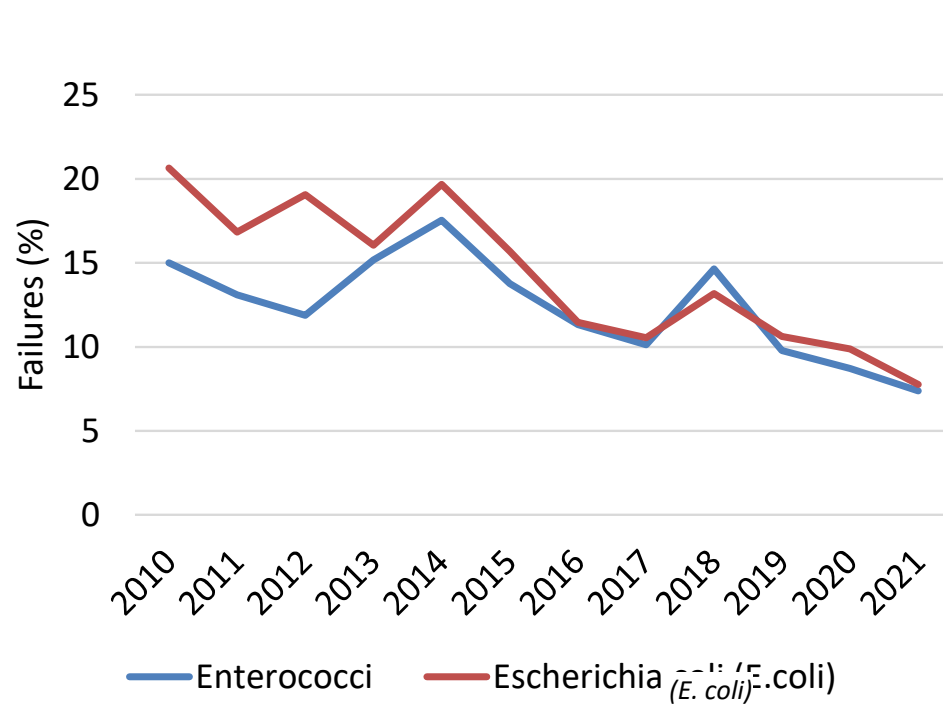
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November 2022

[Back To Agenda](#)



Private Water Supplies



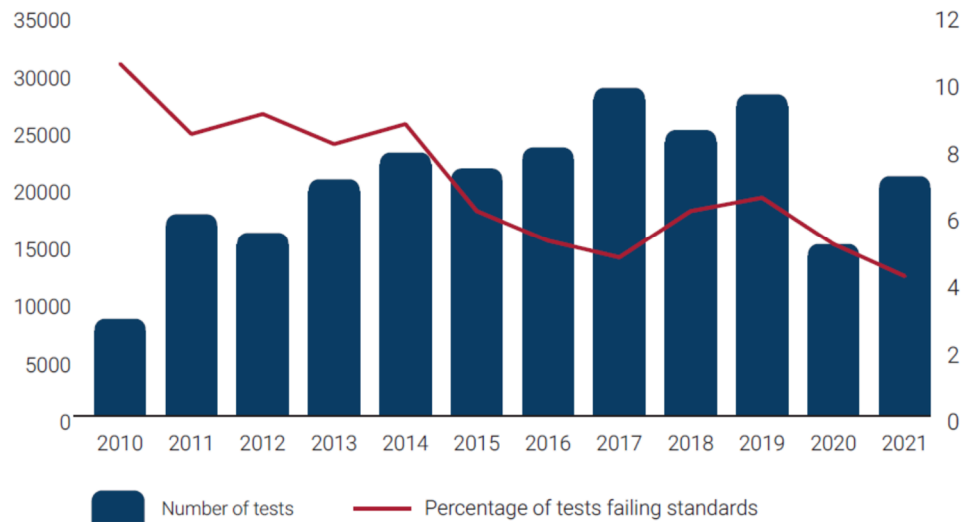
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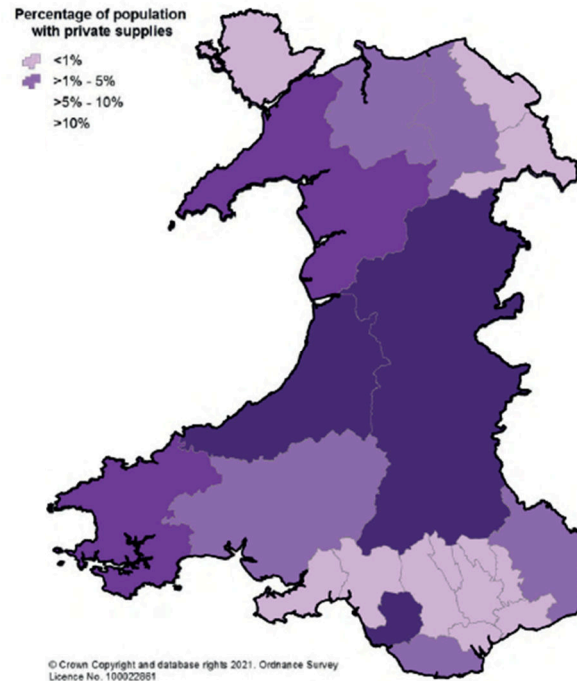
[Back To Agenda](#)

Private Water Supplies

Percentage of tests failing to meet the standards for wholesomeness and the number of tests



Percentage of population with private supplies

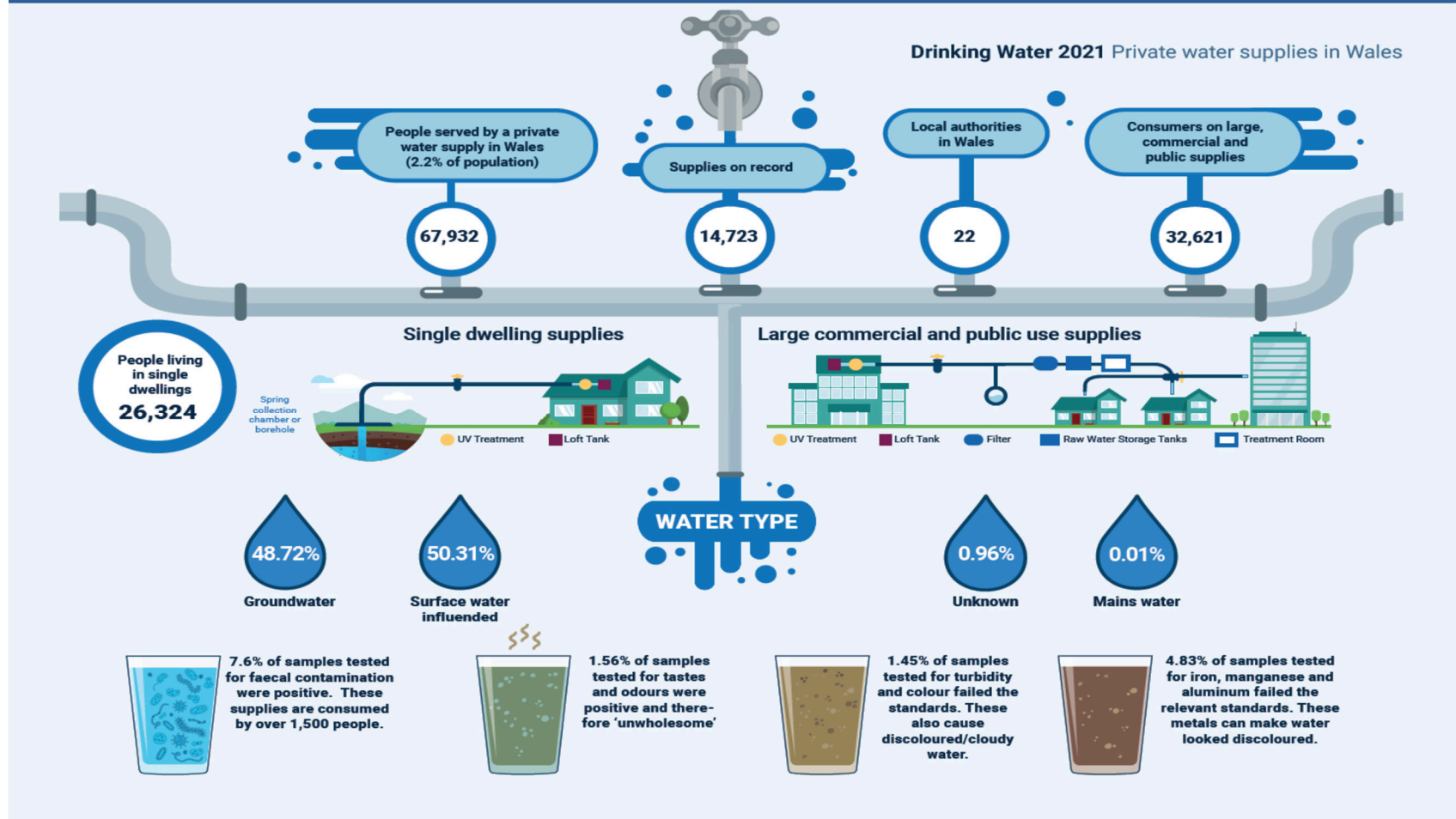


November 2022



[Back To Agenda](#)

Private Water Supplies Overview



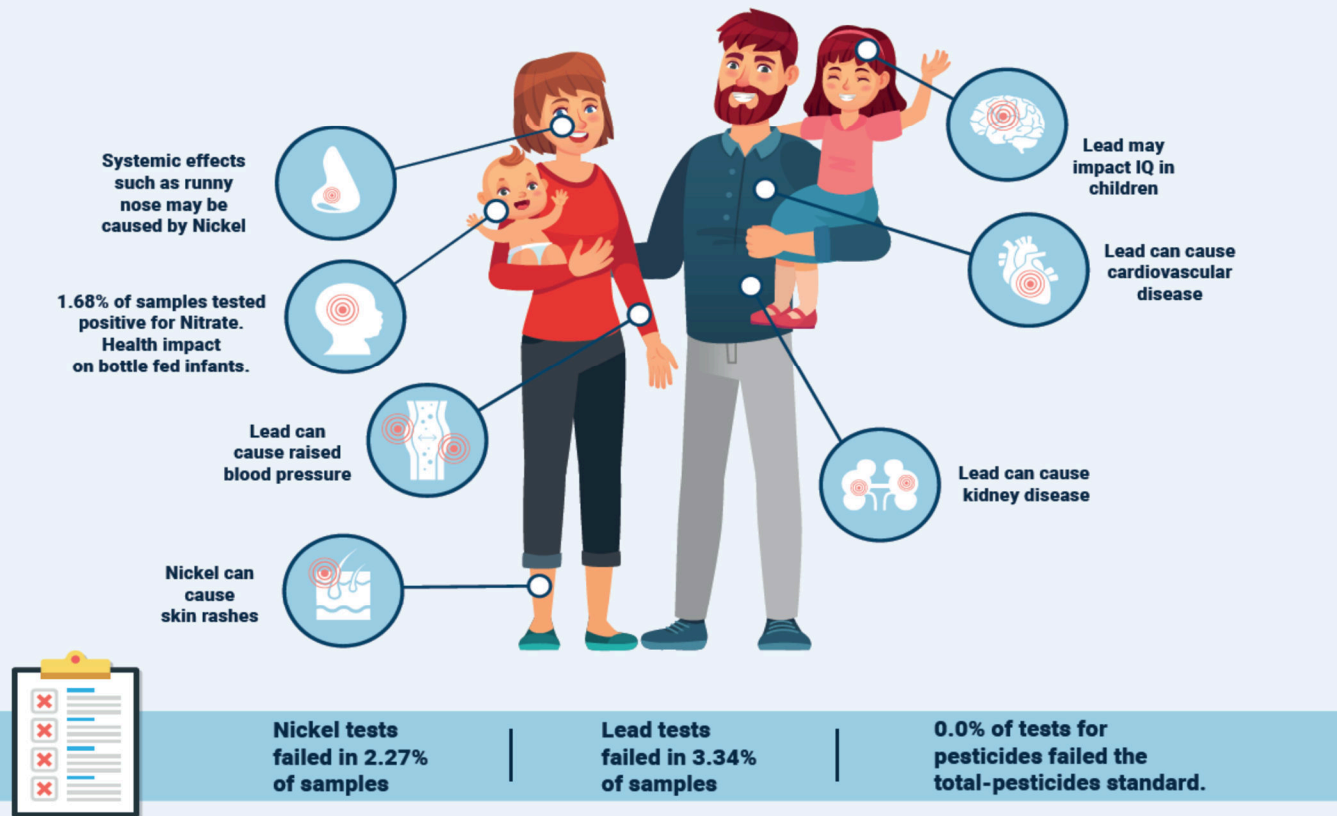
November 2022



[Back To Agenda](#)

Private Water Supplies Lead & Nickel

Multiple negative health effects



November 2022



[Back To Agenda](#)

Private Water Supplies & RAs

How to reduce the risk of contamination and protect public health

Risk assessment to identify risks and manage them to an acceptable level.



2,784 supplies require a risk assessment, and only 564 (20.3%) have one that has not expired.



Take action where there is a risk to health. 56 supplies had one or more detections of faecal contamination, but no notice was served. Over 500 people are drinking this water.



Refer to the Inspectorate's website for assistance. New in 2021 – searchable guidance to the Regulations and searchable case studies.

Long Term Planning / Strategy

- Targeting PWS for public health:
 - Risk Assessments
 - Regulatory Intervention
- High priority contaminants:
 - Getting the Basics Right - Faecal Contamination
 - PFAS
 - Pesticides
 - Lead and Nickel
- Climate change
 - Drought
 - Flooding

November 2022



[Back To Agenda](#)



Update on the Private Water Supplies Task and Finish (PWS TaF) Group

Diane Watkin

Environmental Health Officer – Powys County Council
Chair of the PWS TaF Group

ST Classification: UNMARKED



Water Health
Partnership
for Wales



[Back To Agenda](#)

ST Classification: UNMARKED



Private Water Supplies TAF

Representatives from the 22 Local Authorities,
DWI, PHW, BGS, Welsh Government

[Back To Agenda](#)



Water Health
Partnership
for Wales

Aims and Objectives 2022-2023

Sampler
Accreditation
ISO/IEC 17024

Training
Programme

Fees & Charges
Review

Aims and Objectives 2022-2023

MOD Sub-group

Radon

What next...

Drought & Extreme Weather 2022 Experience

- Drought Process (Welsh Government)
- Impact on the Environment (Natural Resources Wales)
- Impact on Quality & Sufficiency (Water Companies DCWW & HD)

ST Classification: UNMARKED



Water Health
Partnership
for Wales

Drought Process

Eifiona Williams

Head of Water Branch
Welsh Government



Llywodraeth Cymru
Welsh Government

[Back To Agenda](#)



Llywodraeth Cymru
Welsh Government

Drought

Defined as a prolonged period of dry weather and below average rainfall



Llywodraeth Cymru
Welsh Government

Roles and Responsibilities

Water companies: Reduce PCC, reduce leaks, produce and update Water Resource Management Plans, issue TUBs

NRW: Issue status of catchments and monitor environment, land management, agriculture, and water supplies

Local authorities: Help monitor private water supplies in their area

Individuals: Follow TUBs, use water wisely, report leaks, ensure private water supplies are sufficient

Businesses: Use water wisely, report leaks



Llywodraeth Cymru
Welsh Government

Reflections/lessons/next steps –

Governance, Data & Information:

- Create overarching plan to see how we can, do, and will work together
- Create a battle rhythm for DLG

Policy & Guidance:

- View previous methods/projects to see what insight we can gain
- Share lessons learnt, future aims, and improvements

Comms & Engagement:

- Keep DLG communication all year round
- Stakeholders share early warning signs so we are proactive, not reactive
- Improve messaging to the public and publish earlier



Llywodraeth Cymru
Welsh Government

Reflections/lessons/next steps –

General Drought Management:

- Find methods to relieve pressure off of waterways and sewage systems

Extreme Heat:

- Check systems are in order to prevent spills and leaks
- Promote methods to prevent public suffering



Llywodraeth Cymru
Welsh Government

Information and Comms:

DCWW – Dealing with water leaks

Draft Water Resources Management Plan 2024

Water resources

HD – Water resource management plan

CCW – 2022-23 Strategy | 2022-23 Strategaeth

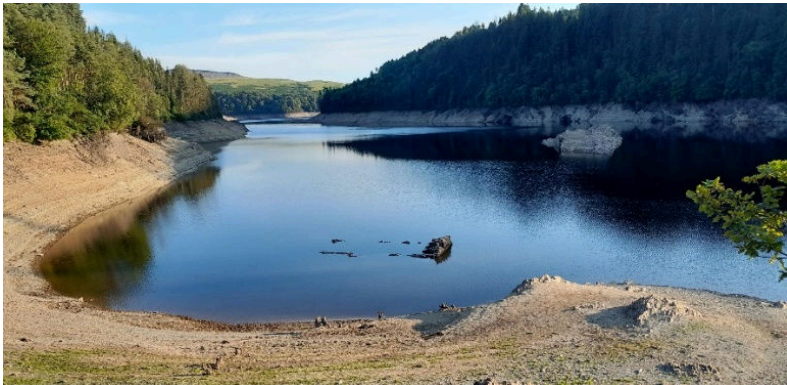
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Drought experience 2022

Focus on the Environment & Land

Helen Tidridge – Senior Planner, Water Resources, NRW



[Back To Agenda](#)



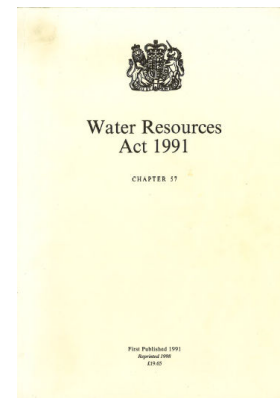
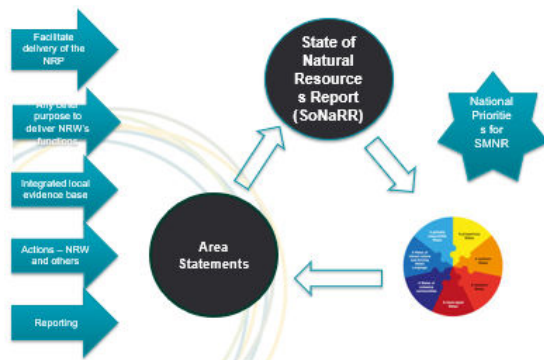
NRW's role in water resources

Natural Resources Wales is responsible for the sustainable management of natural resources of Wales now and in the future

Environment (Wales) Act 2016

We have a duty to conserve, augment redistribute and secure the proper use of water resources to meet the needs of people, agriculture, commerce, industry and the water environment

Water Resources Act 1991





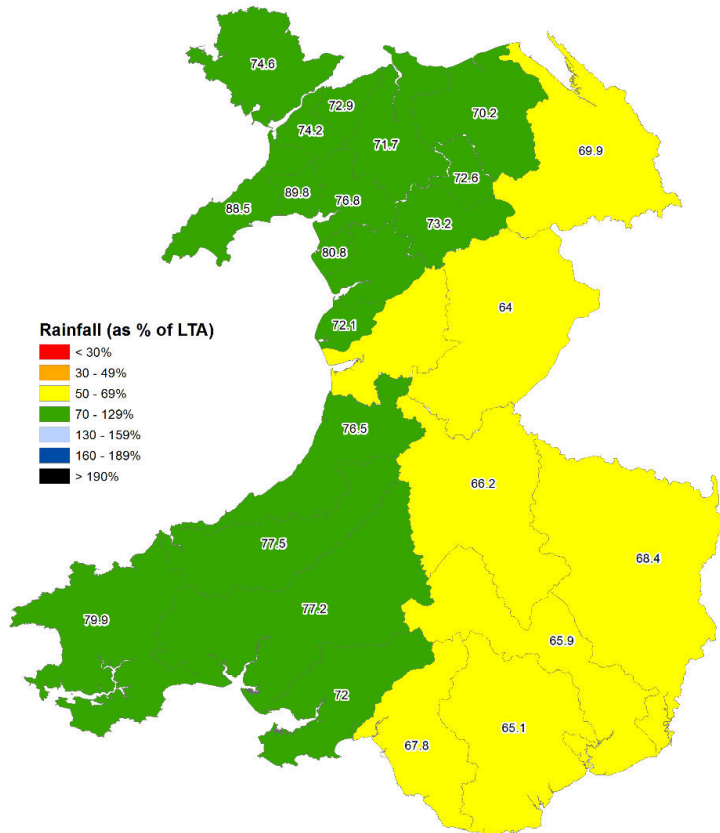
NRW's role during a drought

- During droughts we monitor, report and act to reduce the impacts on the environment as well as others. We take specific actions to manage droughts, where low river flows and lake levels have potential to cause damage to our natural resources and ecosystems.
- We also manage Visitor Centres, National Nature Reserves, Land and Forestry across Wales and during more severe drought conditions may have to manage habitats differently to protect some more vulnerable species.
- We monitor water company actions to confirm they are following their drought plans, determine drought permit applications and provide advice to Welsh Government on drought order applications.
- We communicate with the Welsh Government, Water Companies and other stakeholders / media in relation to issues arising across Wales relating to prolonged dry weather and drought.

ST Classification: UNMARKED



Rainfall – March to October



[Natural Resources Wales / Dry weather updates](#)

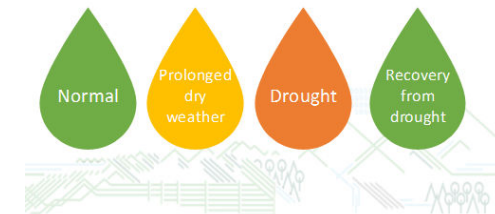
Rank	Month	Year	genreg::wales
1	October	1995	570.6
2	October	1887	576.1
3	October	1915	602.2
4	October	1893	605
5	October	1854	605.7
6	October	1990	614.4
6	October	2022	614.4
8	October	1844	625.3
9	October	1864	626.6
10	October	1937	627.4

[Back To Agenda](#)

Drought status (July – present)

- 20th July – Whole of Wales entered ‘prolonged dry weather’ status
- 18th August – South West Wales declared as being in ‘drought’
- 25th September – Rest of South Wales and Upper Severn entered ‘drought’
- 8th September – Whole of Wales declared at drought status
- 27th October – South West Wales entered recovery from drought
- 10th November – Whole of Wales in recovery from drought
– with exception of Upper Severn that remains in drought *subject to change

All of Wales in drought status
after months of dry weather



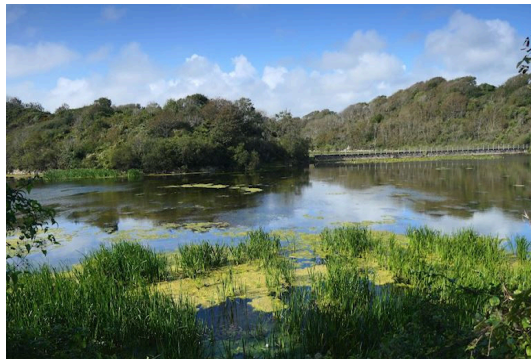
ST Classification: UNMARKED



Environment / Land impacts



NATURAL RESOURCES WALES
| More than 600 fish were moved from the Ewenny



[Back To Agenda](#)

Summary of actions (env/land)

Natural Resources Wales releases extra water to reduce risk of fish mortality

21 Jul 2022



Cyfoeth Naturiol Cymru / Natural Resources Wales
19 August · 🌐

🔥 Last weekend was a busy and testing time for our teams in south east Wales as they helped support the [South Wales Fire and Rescue Service](#) tackle five separate wildfires that broke out across the Welsh Government Woodland Estate.

👤 Our land management team provided fire officers with advice on how to best access the woodlands so they could tackle the fires and brought in specialised contractors with an array of skills and machinery to help create fire breaks and contain t... [See more](#)



Fish rescued after river levels drop

Meanwhile, hundreds of fish were rescued after river levels dropped significantly in a stretch of the Ewenny near Pencoed.

A sinkhole has been blamed, which left 600 fish trapped in isolated pools of water with no means of escape.

With so many fish packed into such a small area, Natural Resources Wales (NRW) said they were in danger of running out of oxygen.





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Drought & Extreme Weather – 2022 Experience: Impact on Sufficiency & Quality

Richard Amos

Water Resources Regulation Manager, DCWW

dwrcymru.com

[Back To Agenda](#)

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Drought Experience 2022



Pontsticill reservoir

Aled Isaf reservoir

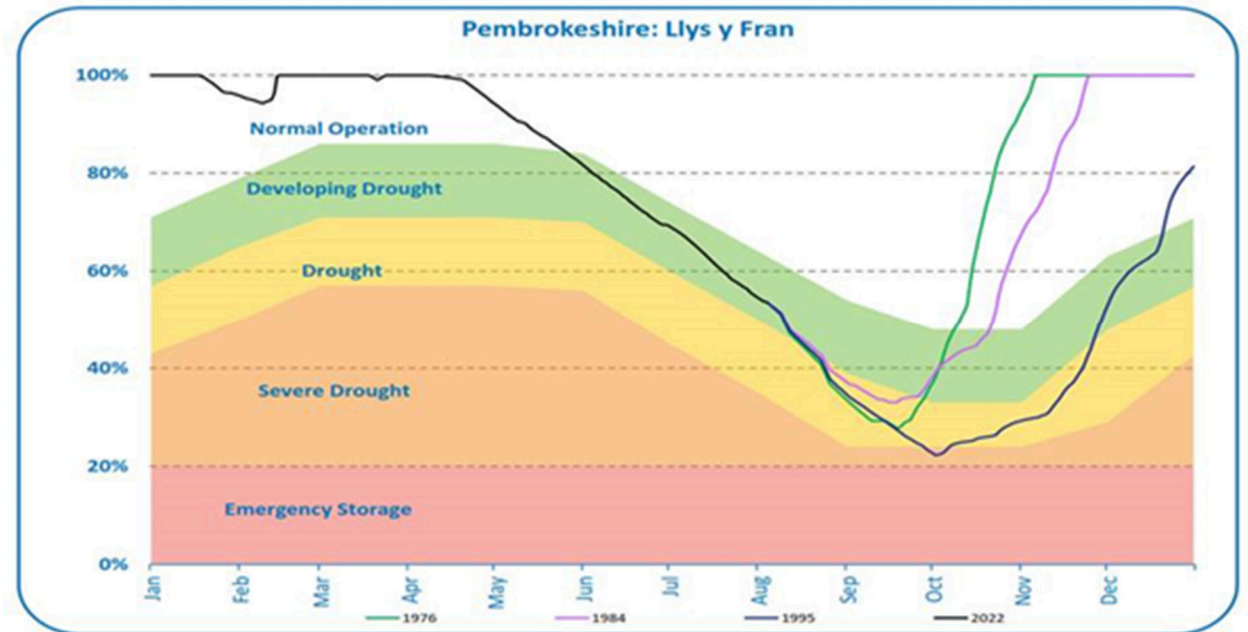
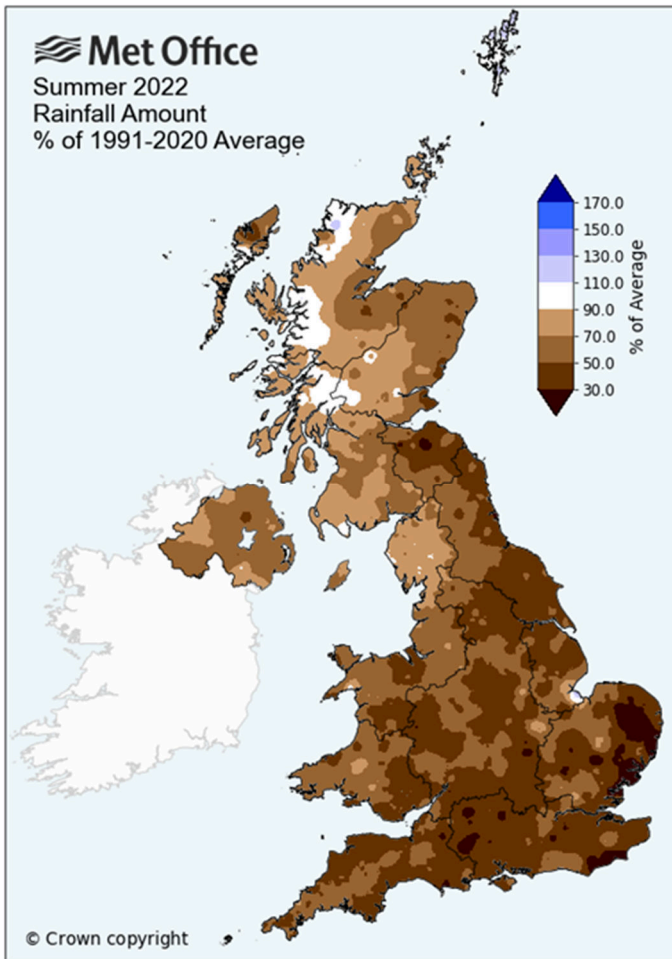


[Back To Agenda](#)



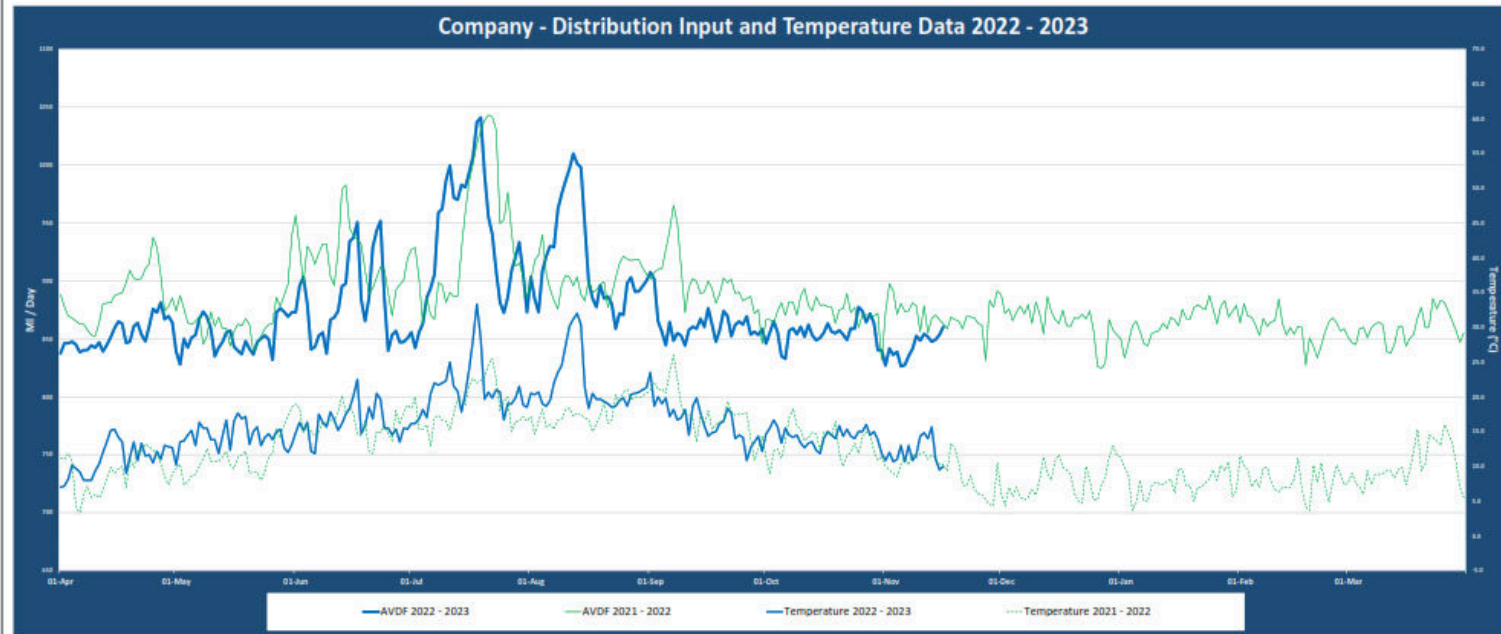
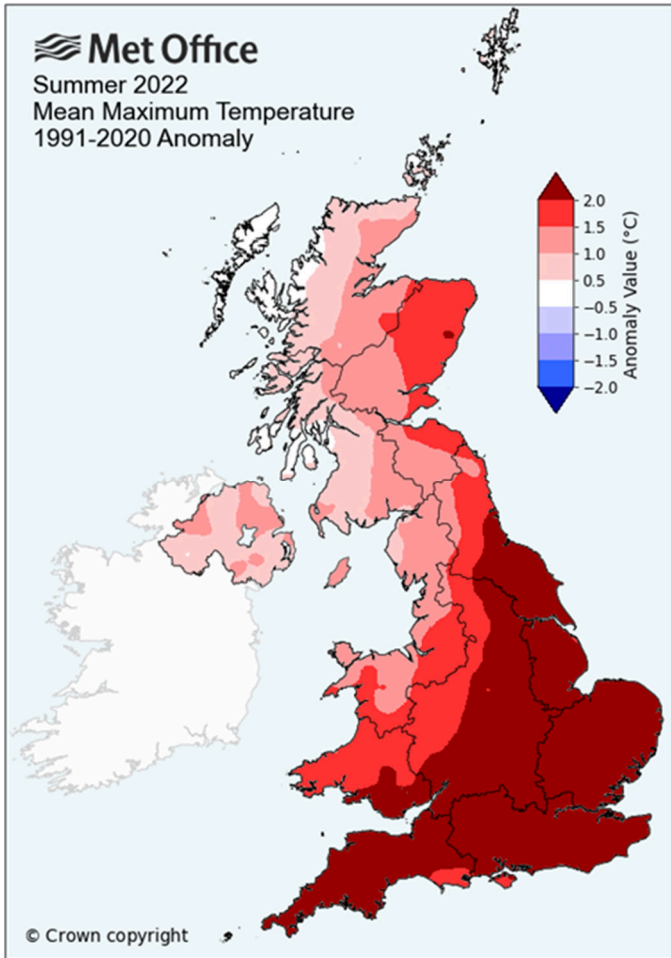
Weather and Water Resources

- Around 50% LTA rainfall March –August (3rd driest in a 150 yr record)
- 38% LTA in August



Temperature and Water Demand

- New record-high temperature for Wales of 37.1C at Hawarden in July
- Significant peaks in demand



Actions taken

- Statutory requirement to prepare and maintain a Drought Plan
- Maximised available water resource
- Temporary enhancement to key pumping station
- Enhanced customer communications
- Targeted leakage detection
- Tankering supplies to meet peak demands
- Temporary Use Ban

Water Industry Act 1991
Dŵr Cymru Cyfyngedig



TEMPORARY BAN ON WATER USE

Dŵr Cymru Cyfyngedig gives notice that, pursuant to sections 76 and 76A-C of the Water Industry Act 1991, the following uses of water supplied by Dŵr Cymru Cyfyngedig are restricted.

This notice, and further details concerning the prohibitions, current drought and water efficiency advice may be found on the website of Dŵr Cymru Cyfyngedig here: dwr.cymru.com/drought

Water use restrictions will start on 08.00am on 19th August 2022 and continue until further notification. The restriction applies to our Pembrokeshire water resource zone.

Thank you for your support at this important time.

Prohibited Uses
The use of a hosepipe, including using sprinklers, dripper hoses, automatic irrigation systems and similar devices, is prohibited for the following:

1. Watering a garden using a hosepipe
2. Cleaning a private motor-vehicle using a hosepipe
3. Watering plants on domestic or other non-commercial premises using a hosepipe
4. Cleaning a private leisure boat using a hosepipe
5. Filling or maintaining a domestic swimming or paddling pool
6. Dousing water using a hosepipe, for domestic recreational use
7. Filling or maintaining a domestic pond using a hosepipe
8. Filling or maintaining an ornamental fountain
9. Cleaning walls, or windows, of domestic premises using a hosepipe
10. Cleaning paths or patios using a hosepipe
11. Cleaning other artificial outdoor surfaces using a hosepipe

Note that customers can still undertake the above activities if they use mains water from a bucket or watering can or use water that is not sourced from the mains such as grey water, rainwater from a water butt through a hosepipe, or private boreholes for example. The following definitions apply:

- "Using a hosepipe" includes the drawing of water supplied by the company from a container through a hosepipe, and filling a container by means of a hosepipe with water supplied by the company.
- "Garden" includes a park, gardens open to the public, a domestic garden, a lawn, a grass verge, an allotment used for non-commercial purposes and any other green space.
- "Hosepipe" includes anything designed, adapted or used to serve the same purpose as a hosepipe. The prohibitions apply whether or not any device is attached to the hosepipe, such as a sprinkler for example, and.
- "Using a hosepipe for domestic recreational use" includes operating water slides and other recreational equipment.

These prohibited water uses are covered by the Water Industry Act 1991 section 76 as amended by the Flood and Water Management Act 2010. Further definitions may be found in the Water Use

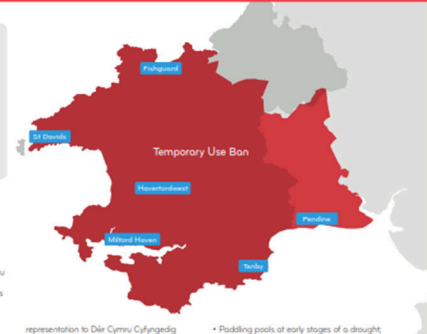
(Temporary Ban) Order 2010, which is available at <http://www.legislation.gov.uk/ukoi/2010/223/contents/made>

Statutory Exceptions
Customers who meet the requirements below can continue to use water without having to make representation to Dŵr Cymru Cyfyngedig to receive permission. In using water, it is requested that customers use water wisely and adopt water efficient practices:

- Using a hosepipe for health or safety reasons, where this includes (a) removing or minimising any risk to human or animal health or safety, and (b) preventing or controlling the spread of causative agents of disease;
- Watering plants that are (1) grown or kept for sale or commercial use, or (2) that are part of a National Plant Collection or temporary garden or flower display;
- Cleaning any area of a private leisure boat which, except for doors or windows, is enclosed by a roof and walls;
- Filling or maintaining a pool where necessary in the course of its construction;
- Filling or maintaining a pool that is designed, constructed or adapted for use in the course of a programme of medical treatment;
- Filling or maintaining a pool that is used for the purpose of decontaminating animals from infections or disease;
- Filling or maintaining a pool used in the course of a programme of veterinary treatment;
- Filling or maintaining a pool in which fish or other aquatic animals are being reared or kept in captivity;
- Filling or maintaining a domestic pond in which fish or other aquatic animals are being reared or kept in captivity; and
- Filling or maintaining an ornamental fountain which is in or near a fish-pond and whose purpose is to supply sufficient oxygen to the water in the pond in order to keep the fish healthy.

Nil Watering areas of grass which are used for sport or recreation, is covered by a Statutory Exception for health & safety only in relation to the active strip/playing area, not the entire ground.

Discretionary Universal Exceptions
Customers who meet the criteria below for a Discretionary Universal Exception can continue to use water without having to make



representation to Dŵr Cymru Cyfyngedig to receive permission to use water for the following restricted uses. It is requested that customers that meet the requirements for a Discretionary Universal Exception use water wisely and adopt water efficient practices. This applies to Blue Badge holders and those on our Priority Services Register.

The criteria for a Discretionary Universal Exception include:

- Watering newly laid turf for the first 28 days;
- The watering of newly bought plants for the first 14 days;
- Customers using an approved drip or trickle irrigation system fitted with a pressure reducing valve and timer systems.

Cleaning a private motor-vehicle using a specific approved apparatus, such as high specification pressure washers

- A hosepipe with a hand operated trigger or a water efficient apparatus;
- Commercial customers that use hosepipes as part of their business for some TLR categories, e.g. hand car washing, window cleaning, graffiti removal).

Cleaning a private leisure boat using a hosepipe

- Those using vessels as a primary residence;
- Cases in which the fouling of hulls is causing increased fuel consumption by the ding created;
- For engines designed to be cleaned with a hosepipe;
- To operate water features with religious significance;
- To customers on the company's Vulnerable Customers List who have mobility issues, but are not in possession of a Blue Badge.

Filling or maintaining a domestic swimming or paddling pool

- Swimming pools with covers;
- Pools fitted with approved water conservation or recycling systems;

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Filling or maintaining a domestic swimming or paddling pool

- Swimming pools with covers;
- Pools fitted with approved water conservation or recycling systems;

• Paddling pools at early stages of a drought

- Pools that are subject to significant repair and renovation;
- Filling new pools;
- Swimming pools saving industrial training if considered justified;
- Pools with religious significance.

Cleaning walls, or windows, of domestic premises using a hosepipe

- Where very low water use technologies are employed and approved by the water company;
- For the removal of graffiti.

Cleaning paths or patios using a hosepipe and cleaning other artificial outdoor surfaces using a hosepipe

- Cleaning paths or patios or other artificial outdoor surfaces using a hosepipe for the removal of graffiti or where very low water use technologies are employed and approved by the water company;
- Small businesses whose sole operations are cleaning of vehicles using hosepipes;
- To prevent or control the spread of non-rat and/or invasive species.

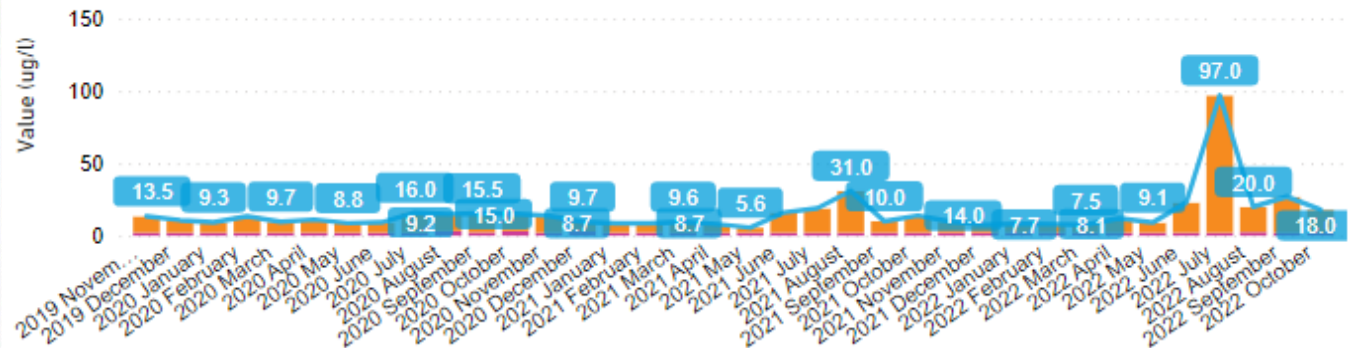
Representations
Representations concerning any of these prohibitions may be made in writing by 5pm on 19th August to Water Use Restriction Exceptions_Drought Co-ordinator, Dŵr Cymru Cyfyngedig, Lines, Fortan Road, St Mellons, Cardiff, CF3 9LZ or by emailing water.resources@dwr.cymru.com citing 'Water Use Restriction Exceptions' in the subject line.

If, as a result of any representation, Dŵr Cymru Cyfyngedig decides to vary any terms of the prohibition, a further notice will be published. Subject to this, the prohibitions will have effect from the stated date and will remain in force until further notice.



Raw Water Quality

- Increased incidence of algal blooms in lowland rivers and reservoirs due to extended sunshine hours and high temperatures – e.g. Cwmtillery Reservoir. Raw water became untreatable.
- Elevated manganese concentration from upland reservoirs – e.g. Ystradfelte Reservoir (below).



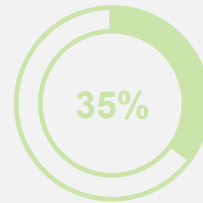
- Taste and Odour issues (presence of Geosmin and Methyl Iso-borneol):
 - Preseli WTW – use of Lllys-y-fran pump-back to blend supplies
 - Talybont WTW – use of PAC dosing as well as GAC for treatment
- Currently experiencing water quality and treatment challenges resulting from rapid reservoir refill

Customer Feedback

Impact on perceptions of Welsh Water

Welsh Water customers

- Feel much more positively towards them
- Feel a bit more positively towards them
- No difference / no opinion
- Feel a bit more negatively towards them
- Feel much more negatively towards them



The TUB has had a **positive impact** on perceptions of Welsh Water

43% living in the impacted area

- ✓ Done 'for the right reasons' – seen as **necessary and something that should be taken seriously**
- ✓ A sense that **limiting hosepipe usage is a small ask** – even for those who regularly use a hosepipe
- ✓ **Plus, rationalised as worth doing to protect supply for the things that matter more** e.g. drinking water, washing etc.
- ! But for many – just seen as '**doing what needs to be done**', thus not impacting perceptions either way



Drought & Extreme Weather – 2022 Experience: Impact on Sufficiency & Quality

Dr David Sutherland

Senior Hydrologist, Hafren Dyfrdwy

Craig Williams

Water Treatment Business Lead, Hafren Dyfrdwy

RHAGOROL O'R TAP
WONDERFUL ON TAP

HAFREN
DYFRDWY
severn dee



Water Health
Partnership
for Wales

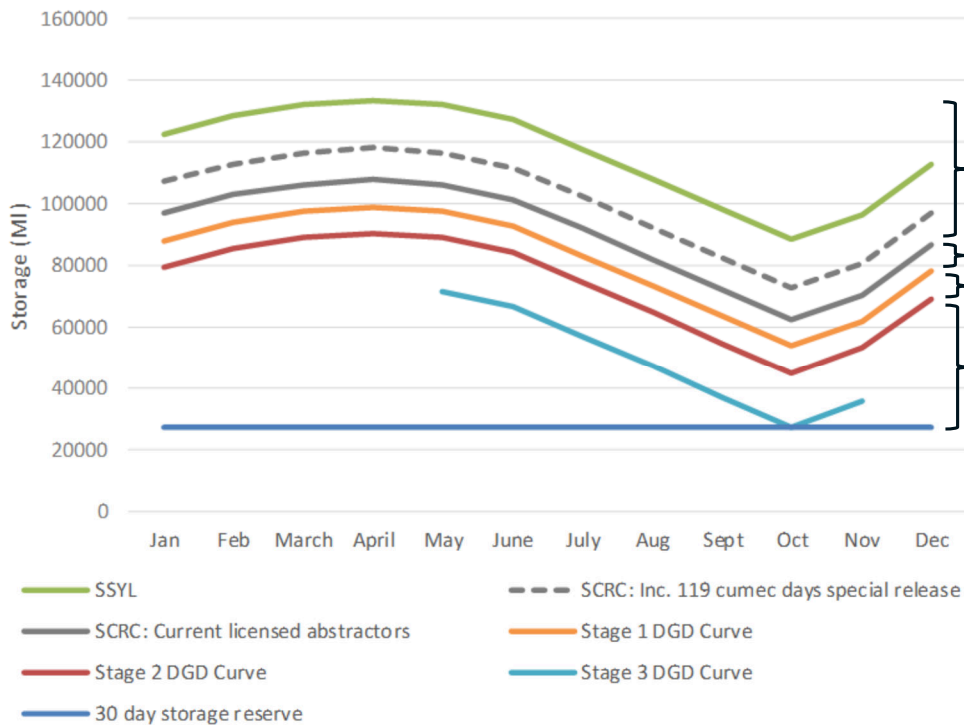
Overview

- Drought Triggers
- Dee Storage System
- Raw Water Storage & Demand
- Learning
- Questions



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Drought Triggers



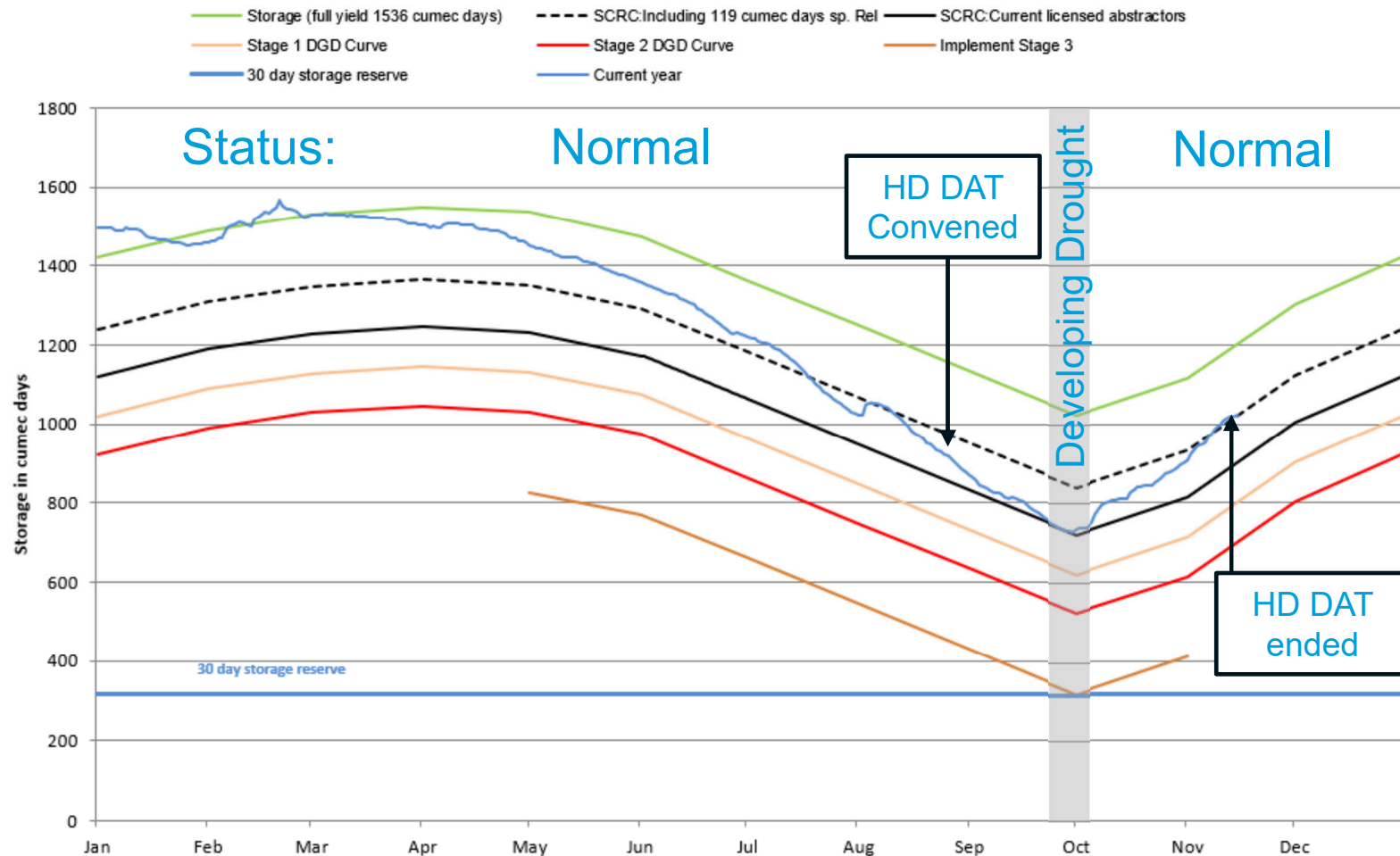
Status	Trigger	Operational Action
Normal	Dee Storage System in Zone 1	Abstraction is only constrained by licence conditions / Lift restrictions if entering zone as part of drought recovery.
	Trigger 1 – Dee Storage System crossing the System Safe Yield Line	Maximum abstraction must not exceed Safe Yield Allocation.
Developing Drought	Trigger 2 - Dee Storage System crossing the System Conservation Rule Curve	Dee Consultative Committee must convene within 7 days to discuss the implementation of Stage 1 Drought General Directions.
Drought	Trigger 3 - Dee Storage System crossing Stage 1 Implementation Curve	Net reduction in abstraction of 0.4MI/d through the augmentation of the River Dee with water from Pen-y-Cae Reservoir. Dee Consultative Committee convenes within 7 days to discuss the implementation of Stage 2 Drought General Directions. Increased leakage management activities.
Severe Drought	Trigger 4 - Dee Storage System crossing Stage 2 Implementation Curve	Net reduction in abstraction of 0.8MI/d through the augmentation of the River Dee with water from Pen-y-Cae Reservoir. Dee Consultative Committee convenes to discuss the implementation of Stage 3 Drought General Directions. Plan to implement Temporary Use Bans.
	Trigger 5 - Dee Storage System crossing Stage 3 Implementation Curve	Introduce and enforce Temporary Use Bans. Apply for Drought Orders. Implement Drought Orders

[Back To Agenda](#)



Dee Storage System

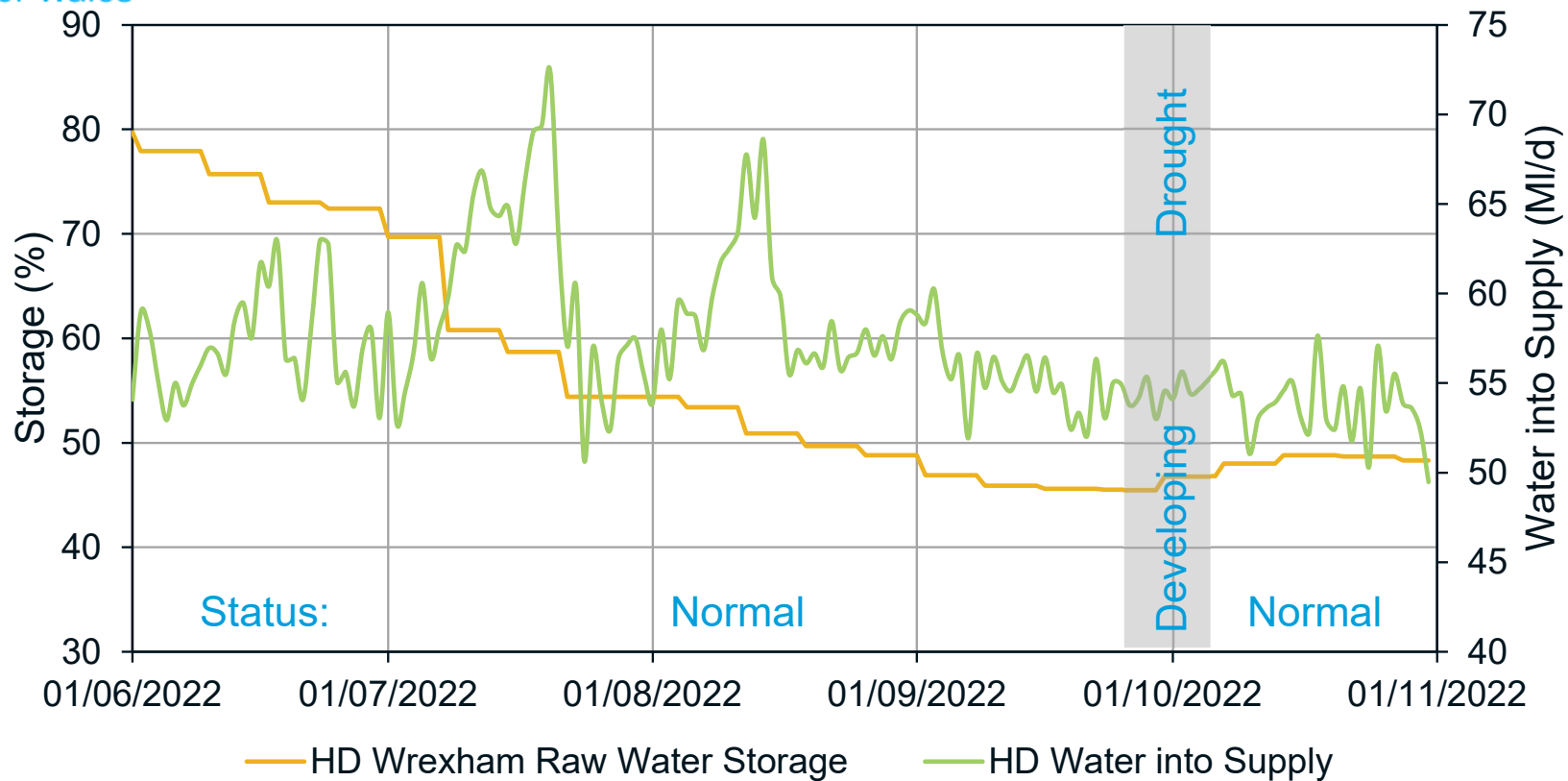
- For the majority of the dry period our status was normal
- Briefly entered developing drought status
- Impact on abstractions of entering drought status would have been a 0.4 MI/d net reduction.





Water Health Partnership
for Wales

Raw Water Storage & Demand



- Stored water decreased until end of September when recovery began
- Demand peaked in July & August during hot temperatures
- Reservoir storage plateaued then increased due to increased precipitation and HD demand management

Learning

- HD Drought Action Team convened for the first time since HD formed in 2018
- Water into Supply data improved
- Optimised reservoir abstraction & blends to conserve usable storage
- Where possible managed pumping in pressure so that treatment met demand without treating excess volumes



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Q&A session and Panel discussion

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Lunch

Please take the opportunity to visit the stands and poster displays

Return to this room ready for afternoon session at **13:15** please

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Welcome Back

Oliver Twydell, Hafren Dyfrdwy

Member of Water Health Partnership Steering Group

Chair of afternoon session

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Workshop session

Ensuring potable water supplies to temporary events

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[Back To Agenda](#)

Ensuring potable water supplies to temporary events

Why now?

- Festivals / Community events up and running again
- A couple of ‘near misses’ in 2022
- WHP Temporary Event Guidance – Still fit for purpose?

Review together and discuss any opportunities for improvement

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Ensuring potable water supplies to temporary events

- Scenario based workshop (in smaller groups)
- Will introduce some challenges experienced in 2022 to work through
- Offer chance to discuss current written guidance
- Come back together and share feedback

Workshop session

Tables 1 & 2 – Stay in this room (Facilitator – Sion Lingard)

Tables 3 & 4 – Move to Cader Room 1 (Facilitator – Sam Naylor)

Tables 5 & 6 – Move to Cader Room 2 (Facilitator – Diane Watkin)

Tables 7 & 8 – Move to Cambrian room (Facilitator – Kate Willis)

Please be back in this main room for 14:20 for feedback session

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Feedback on workshop session

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[Back To Agenda](#)

Ensuring potable water supplies to temporary events

Points to discuss

- Key Communications?
- Response to Challenge 1?
- Response to Challenge 2?
- Key issues to take forward?



Introduction to PFAS

Paul Callow – Environmental Public Health Scientist UKHSA
PFAS and Human Health

Matthew Jones – Public Health Manager DCWW
Current picture in Wales – Risk Assessment & Monitoring
Outcomes



What is PFAS?

Per and polyfluoroalkyl substances (PFAS) are a group of around 5,000 man-made 'forever' chemicals that are used to make coatings and products that resist heat, oil, stains, grease, and water.

PFAS chemicals do not occur naturally in nature, and are therefore very long lived and are proving to be a ubiquitous pollutant present at very low levels in the environment, in soil, groundwater or surface water and food.

Over the last few years these chemicals have gathered more media attention in both the UK and worldwide press.

UK 'flying blind' on levels of toxic chemicals in tap water

Government is not testing drinking water for PFAS, which studies have linked to numerous health issues

Concern over toxic chemicals in tap water

Are British Regulations for PFAS in Water Too Lenient?

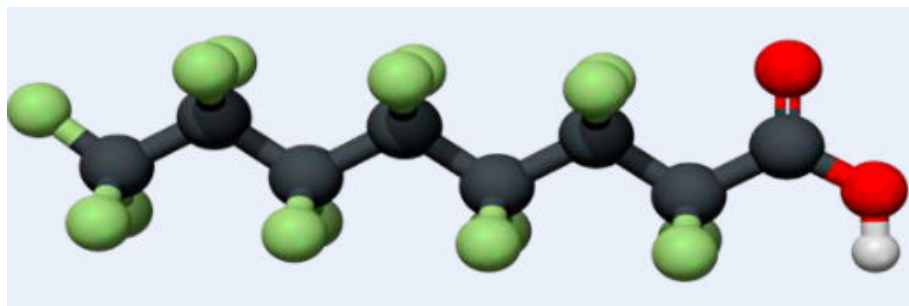
Pollution: 'Forever chemicals' in rainwater exceed safe levels

Lyon, Veneto and Antwerp plagued by dangerous forever chemicals, as call for an EU ban gains steam



UK Health
Security
Agency

PFAS and human health



Paul Callow

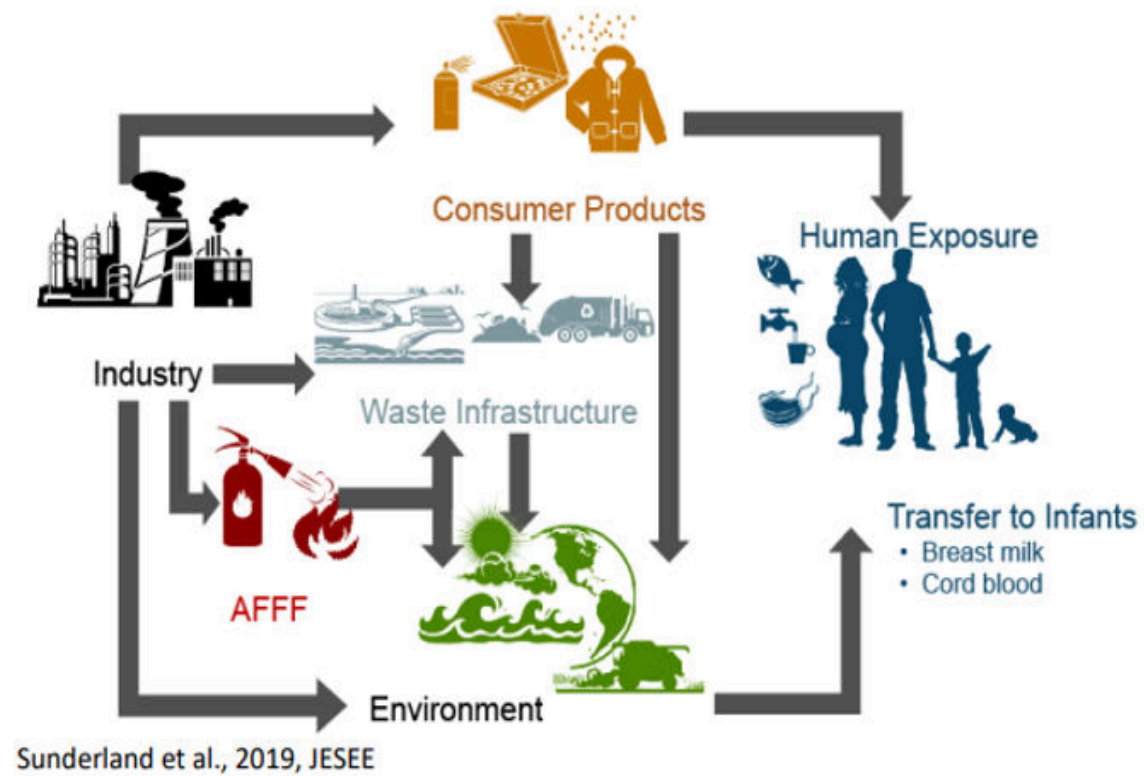
Environmental Public Health Scientist

[Back To Agenda](#)

Perfluoroalkyl and Polyfluoroalkyl substances (PFAS)

- There is concern over some of these substances because they are persistent in the environment, accumulate in the body over time and may be toxic at low levels of exposure.
- PFOS and PFOA, are classified as Toxic, accumulate in living organisms and pose a risk to human health and the environment. Similar PFAS may have similar properties. For example, a third PFAS, PFHxS (perfluorohexane sulfonate) will also be restricted/controlled in the EU.

Diverse exposure



Adverse health effects of PFAS

Laboratory animals

- Effects on the liver
- Immune system
- Neurodevelopmental
- Reproduction and development

Human epidemiological data

- Immune system
- Increased cholesterol
- Increased levels of a liver enzyme
- Limited evidence for association with cancer

Different approaches to health based values

Available values

- Health based values are available for a few PFAS (e.g. PFOS, PFOA, PFHxS, PFNA)
- A few specifically for drinking water (i.e. water concentrations)
- Few in terms of intake from food (e.g. European Food Authority)

Uncertainties

- Different numerical values have been derived
- Various approaches and uncertainties in derivation (e.g. selection of most sensitive endpoint; use of animal or human data; modelling/extrapolation to human exposure; and uncertainty factors applied)

Uncertainties over health risk assessment of PFAS

- Lack of toxicological data for many (most) PFAS
- Animal toxicology studies are difficult to interpret in terms of human exposure
- PFAS behave differently in animals compared with humans
- Shorter chain PFAS behave differently in the body compared with longer chain PFAS
- Reported effects in human epidemiological studies are variable (not always consistent)
- Analytical difficulties (e.g. cross-contamination)



Current PFAS picture in Wales – Risk Assessment & Monitoring Outcomes

Matthew Jones – Public Health Manager DCWW



Regulation and Guidance

PFAS is not currently regulated within the United Kingdom but has been the subject of information letters and regulations elsewhere:

- Drinking Water Directive 98/83/EC (European Guidance) – Not adopted in the UK. (Scotland currently working towards transposition)
- EU Directive reviews – e.g. Urban Waste Water Directive released for comment end of October 2022.
- DWI Information Letter 05/2021 - Requirement of PFAS monitoring and risk assessment.
- DWI Information Letter 03/2022 – PFAS Guidance (Risk assessments and associated reports).

In response to information letters and guidance issued by DWI, water companies in Wales have developed PFAS strategies and action plans to ensure the guidance can be met. This is going to take investment, resource and collaboration with stakeholders throughout Wales.



PFAS in Raw Water in Wales (combined DCWW & HD)

In 2021, we carried out risk assessments on all of our 119 raw water sources in Wales. This risk assessment process involved assessing the number of potential sources of PFAS e.g. active or historic landfills within the catchment.

Risk Rating	Number of Sites (%)
Low	102 (86%)
Medium	5 (4%)
High	12 (10%)

In Wales, we have taken samples from 78 of our raw water sources with over 2400 individual PFAS results. Of these results, 4 have been above the first trigger guidance value, 0.01µg/L.

Area	Results between 0.01µg/L and 0.1µg/L	Actions Taken	Repeat Results
South Wales	3 (2 sites)	Catchment risk assessment review - no new potential sources or additional risks identified. Repeat sampling taken at an increased frequency.	7 further samples taken - all below 0.01µg/L.
North Wales	1 (1 site)	Catchment risk assessment review - no new potential sources or additional risks identified. Repeat sampling taken at an increased frequency.	4 further samples taken - all below 0.01µg/L.



PFAS in Final Water in Wales (combined DCWW & HD)

Across Wales, we have taken 56 final water samples for PFAS analysis from 42 WTWs. This has generated 1,024 individual PFAS results. Of these over 1000 results, there has been 1 results above the first trigger guidance values of 0.01µg/L in Wales (Tier 2 between 0.01µg/L and 0.1µg/L).

For this detection above the first trigger guidance value, actions were taken as per DWI guidance and water companies PFAS strategies:

Action/Information	Result
Catchment Investigation	Initial Catchment risk assessment carried out and no new risks or potential sources identified. Still classified as low risk based on catchment inputs.
Repeat Sampling	Resamples arranged and both raw and treated results were all below the limit of detection for the method.
Increased Routine Monitoring	Increased frequency of final and raw water monitoring.
DWI Liaison	Discussed the detection and actions with our DWI inspector and the risk assessment team.



PFAS in Waste Water

Water companies in Wales are participating in the UK Water Industries Chemicals in the Environment Programme (CIP) which has done some monitoring of PFAS.

This monitoring has shown that PFAS compounds are ubiquitous in the environment including at our waste water treatment works (WwTW), transitional and coastal waters, crude sewage and final effluent.

Waste water treatment could cost of £21 billion and 210,000 tonnes of carbon per year for UK water companies (UKWIR). This significant cost of investment demonstrates that it is essential for government, industry and commercial organisations to have a robust discussion on controlling PFAS at source.

In Wales we will continue to partake in the CIP programme monitoring PFAS and work with regulators and stakeholders to better understand PFAS in waste.



PFAS Challenges

- Analytical capacity within the UK.
- Analytical Method challenges:
 - Developing a method comes with challenges such as contamination, uncertainty and cost.
 - Interferences and LoD issues e.g., $<0.02\mu\text{g/l}$ (above trigger action level)
- List of PFAS has potential to keep increasing – how does analytical science keep up?
- Understanding treatability – unknowns.



Summary

- PFAS will continue to form part of water company risk assessments and we are taking the steps necessary to reduce potential exposure to PFAS from drinking water in Wales.
- Across Wales, our initial risk assessment and analytical data shows that PFAS is currently of low risk in our raw and drinking water.
- Both DCWW & HD have a drinking water strategy in place for PFAS and have action plans to address further guidance issued by DWI in information letter 03/2022.
- Water companies will continue to support Europe in advocating for enforcement and environmental regulation to prevent PFAS at source.
- There is still a lot of unknowns with PFAS.



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Event Close

Thank you for attending and your participation

We will be producing a summary of today's event including copies of presentation slides and a summary of questions / answers on Slido questions not covered

Don't forget to pick up your CPD form

Please provide us with your feedback via the feedback forms on your tables to help us shape future events

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[Back To Agenda](#)



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Closing Remarks

Sharon Evans,
Director of Quality Policy & Compliance
Dwr Cymru Welsh Water

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[Back To Agenda](#)

Slido – Outstanding Questions

The Following are answers to questions that were posed through Slido and not answered on the day:

“Should families with under 10s be prioritised for private supply risk assessments?”

Local Authority perspective - Risk assessments are carried out by classification (Reg.9/Reg.11 are statutory) every 5 years, we tend to look at the larger (most consumers) and higher risk when prioritising RA reviews. We wouldn't necessarily know the age of consumers/whether there are some vulnerable groups before visiting. Also Reg.10 single domestic supplies are risk assessed by request only – if a request comes in, particularly if a problem was highlighted, this would usually be carried out quickly.

DWI perspective - Whilst prioritising RAs on age is not a regulatory requirement, DWI will always encourage a risk-based approach, as advocated by WHO. The RA of each supply should be informed on a case-by-case basis, and any vulnerability of PWS users (for example, the elderly, as well as the young, or any immunocompromised people, or indeed anyone from a transient population) should, in my view, be taken into account as part of risk assessment prioritisation. It is worth noting though that the demographic of many people on reg 9 supplies (and some reg 11 supplies) will almost certainly be variable, and include “unsuspecting” members of the public (e.g. visitors and guests) of all ages and resistance to infection. Even those people not normally immunosuppressant may succumb to infection when they are exposed to poor quality supplies for the first time – Whilst the risk may be less for regular users of such supplies due to an established immunity, this of course, is no reason not to deprioritise control measures being put in place to safeguard health, irrespective of age of users, or anything else. Regulation 20 notices must be served in such cases.

“PWS risk assessments. Should we [Local Authority] be sending DWI summary sheet for high risk sites before remedial work is undertaken?”

Summary sheet should be sent to DWI withing 28 days of the RA being carried out for Very High/High risk supplies. The timescales for remedial works should be specified (which would vary).

“How prepared are LAs for providing alternative supplies to PWS customers in a drought? Is there a TAF for this?”

The responsibility for ensuring the sufficiency of any private water supply falls to the relevant person(s); and there should be a contingency plan in place to deal with insufficiency whether from drought or other reason (e.g. damage/contamination).

The PWS TAF Group Guidance on Insufficiency was put together through the WHP and has details and action levels for LA's in periods of dry weather/drought and contains a flow chart and agreements with water companies on how to assist PWS. This may include involvement from local resilience forums is insufficiency is widespread.

LA's also have enforcement powers to require PWS/relevant persons to provide a sufficient supply, but no duty to provide an alternative supply.

There is no separate TAF group.

Additional note - Given the emerging issues associated with private water supplies, with climate change (drought and insufficiency) and health impacts (water quality), the Planning Policy Wales (PPW) ([Planning policy Wales | GOV.WALES](https://gov.wales/planning-policy-wales)) includes a number of principles and requirements that PPW translates into the planning system e.g., Sustainable Management of Natural Resources, Climate Change, Health & Well Being, Placemaking in Rural Areas and Supporting Infrastructure, which cover and relate to water supplies and services.

There may be a potential for other LA's to have private water supplies included as a material planning consideration in their Local Development Plans (LDP).