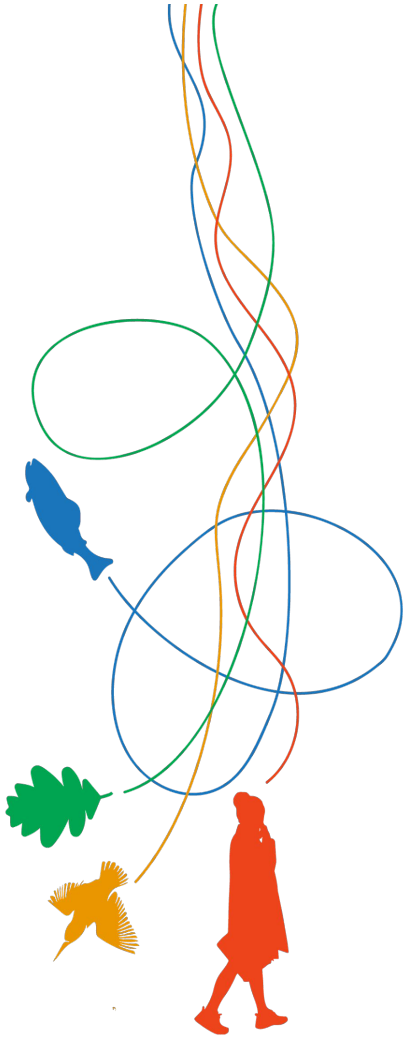
THE BIOREGIONAL LEARNING CENTRE

Data on your river, the Dart

All the way from local to global



April 2022

VOICES OF THE DART

Building water resilience for our communities through connection.

Sharing what we know and care about.

Designing our response to the impact of climate change. Together.

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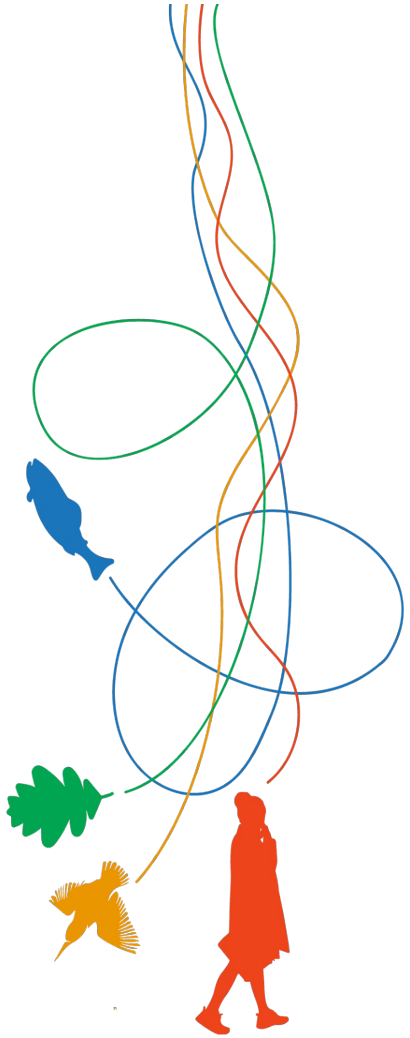

VOICES OF THE DART

It keeps raining, why plan to use less water?

Climate change is increasing drought risk. In England, May 2020 was the driest on record.

The Environment Agency's estimate is that summer rainfall is expected to decrease by approximately 15% by the 2050s in England, and by up to 22% by the 2080s.

Hotter drier summers and less predictable rainfall–two effects of a changing climate–plus over-abstraction of water for industry, agriculture and the public water supply as the population grows, is a toxic combination.

(Sir James Bevan, Chief Executive of the Environment Agency, at a Royal Society Conference, 19 October 2021)

One pressure on freshwater is population growth and increased demand

The population of the UK is expected to rise from 67m now to 75 million in 2050. All those extra people need houses and roads and energy and food and places to work, all of which will require more water.

(Sir James Bevan, Chief Exec of the Environment Agency, Jaws of Death speech, March 2019)

Population in the South West is due to rise by 15% by 2050.
The current total figure is 5.7million.

(Westcountry Water Resources Report, March 2020)

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The other pressure on water is climate change

Summer days

Your local area

In the past 30 summers, there were **1 day** above 25C per month on average. If global temperatures rise by 2C, there could be **3 days**. With a 4C rise, there could be **11 days**.

The BBC and Met Office projections for Totnes future rainfall and temperature

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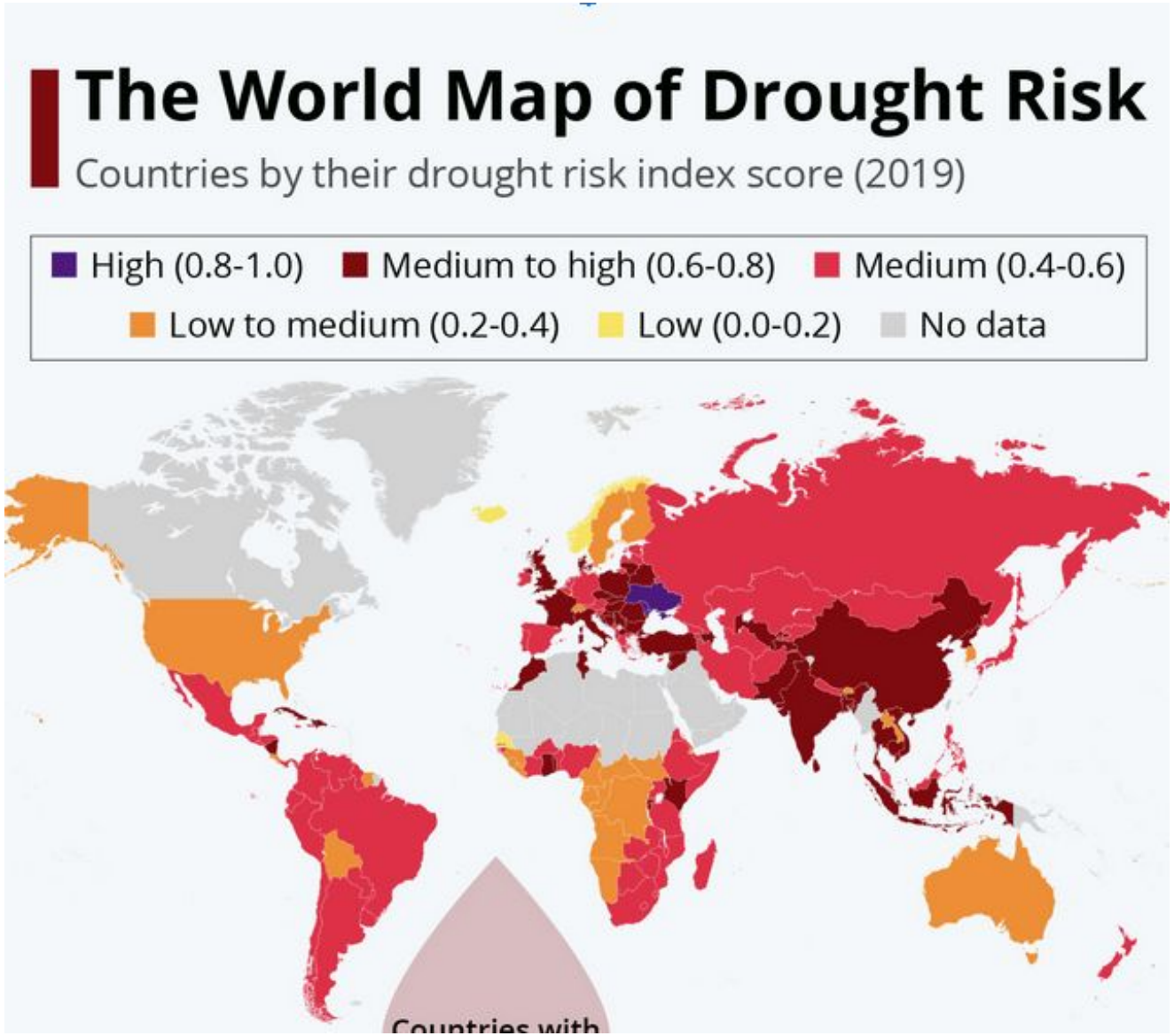

This survey by the World Resources Institute collected data on 138 countries and took into account past drought intensity, water stress, drought vulnerability, population, crop and livestock density.

Source: Aqueduct by World Resources Institute

STATISTA

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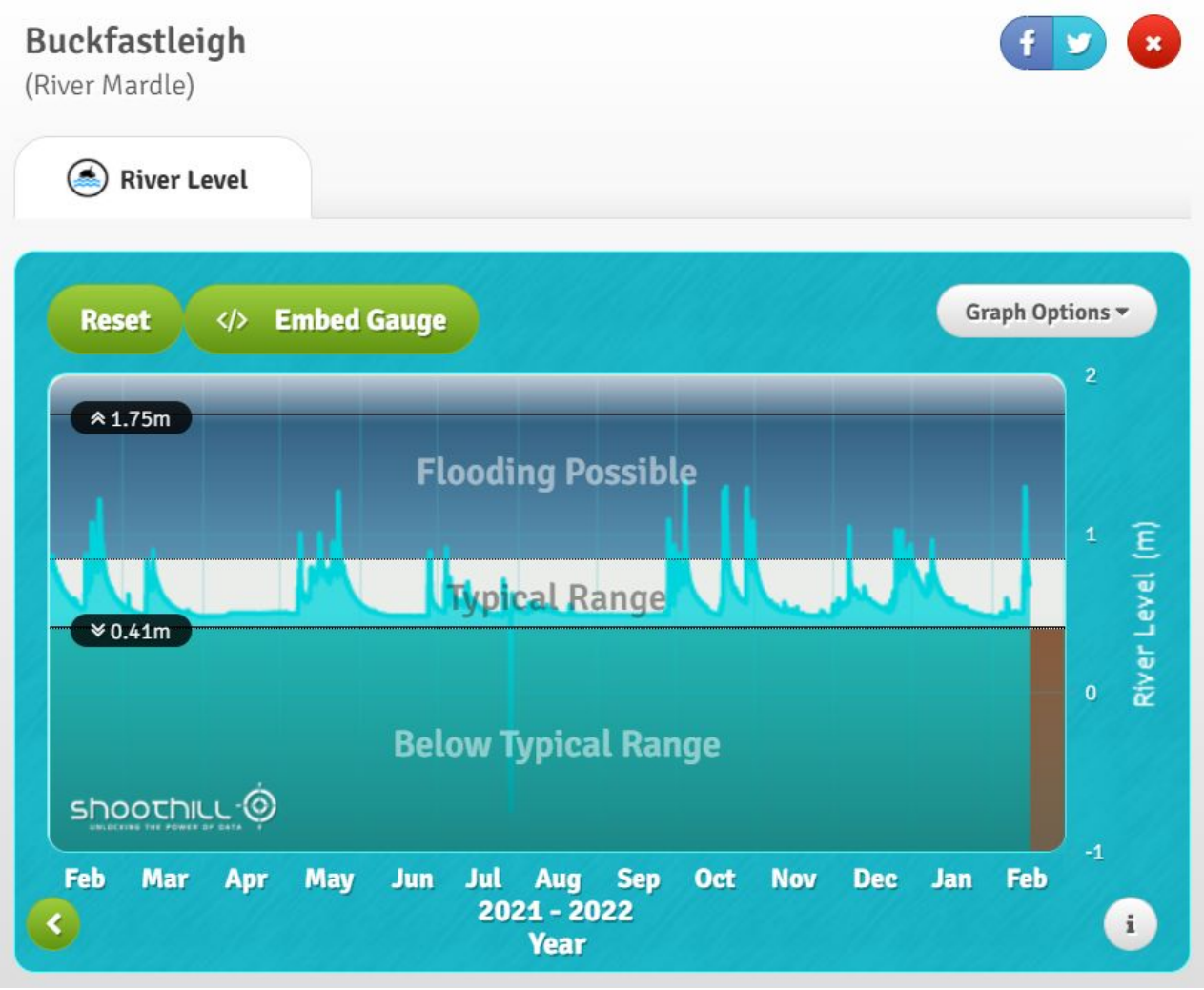
Climate change = extreme weather = uncertainty



Fluctuations in River Dart level at Buckfastleigh

From
Graphs showing river and tidal levels of the Dart and its tributaries between 2021-2022

Using Shoothill's gauge map of the UK which gives data from measurements stations on water level of rivers, groundwater, rainfall and river flow.

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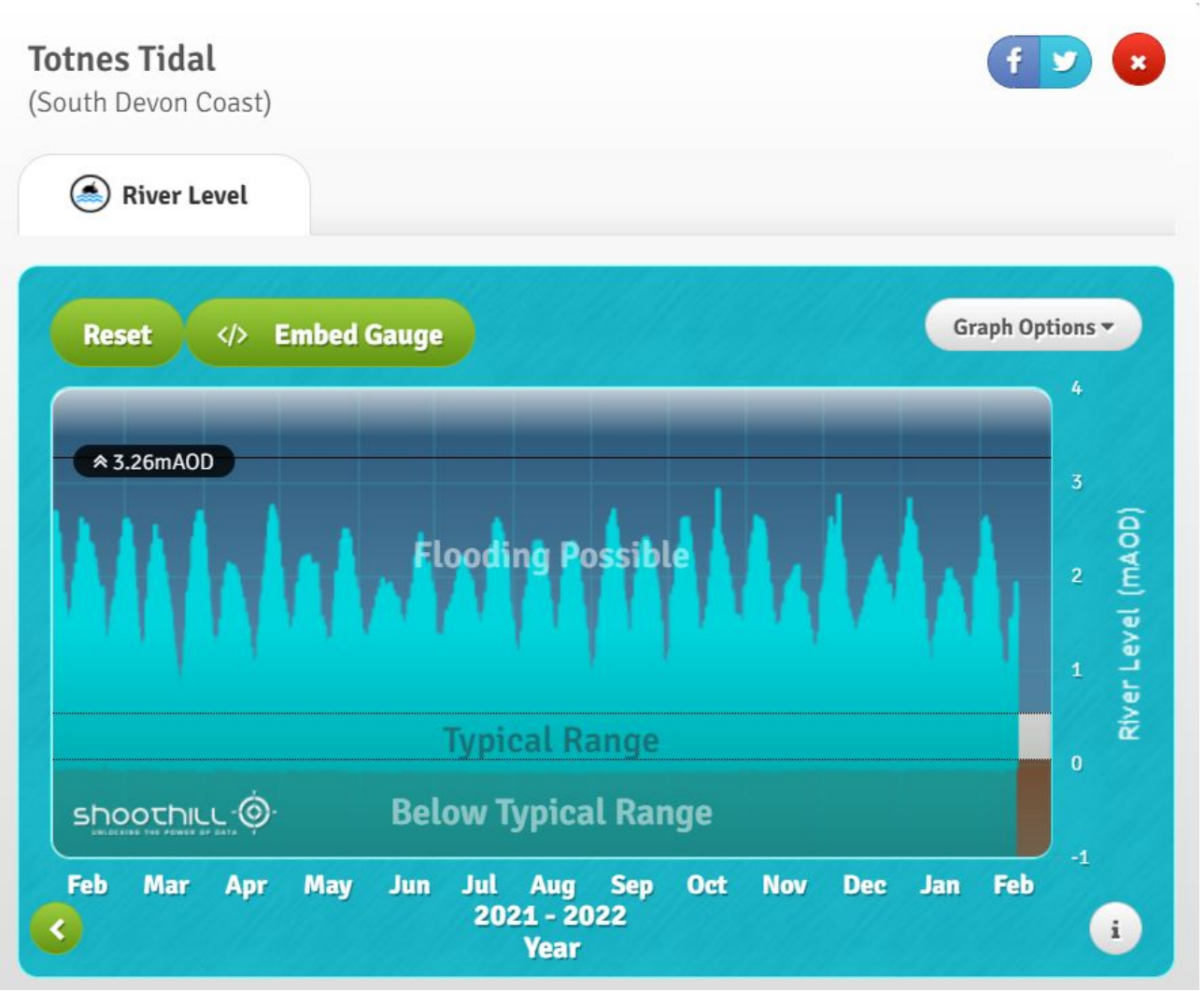
Climate change = extreme weather = uncertainty



Fluctuations in River Dart estuary level at Totnes

From
Graphs showing river and tidal levels of the Dart and its tributaries between 2021-2022

Using Shoothill's gauge map of the UK which gives data from measurements stations on water level of rivers, groundwater, rainfall and river flow.

THE BIOREGIONAL LEARNING CENTRE

Climate change = extreme weather = uncertainty

Fluctuations in Dart estuary level at Dartmouth

From
Graphs showing river and tidal levels of the Dart and its tributaries between 2021-2022

Using Shoothill's gauge map of the UK which gives data from measurements stations on water level of rivers, groundwater, rainfall and river flow.

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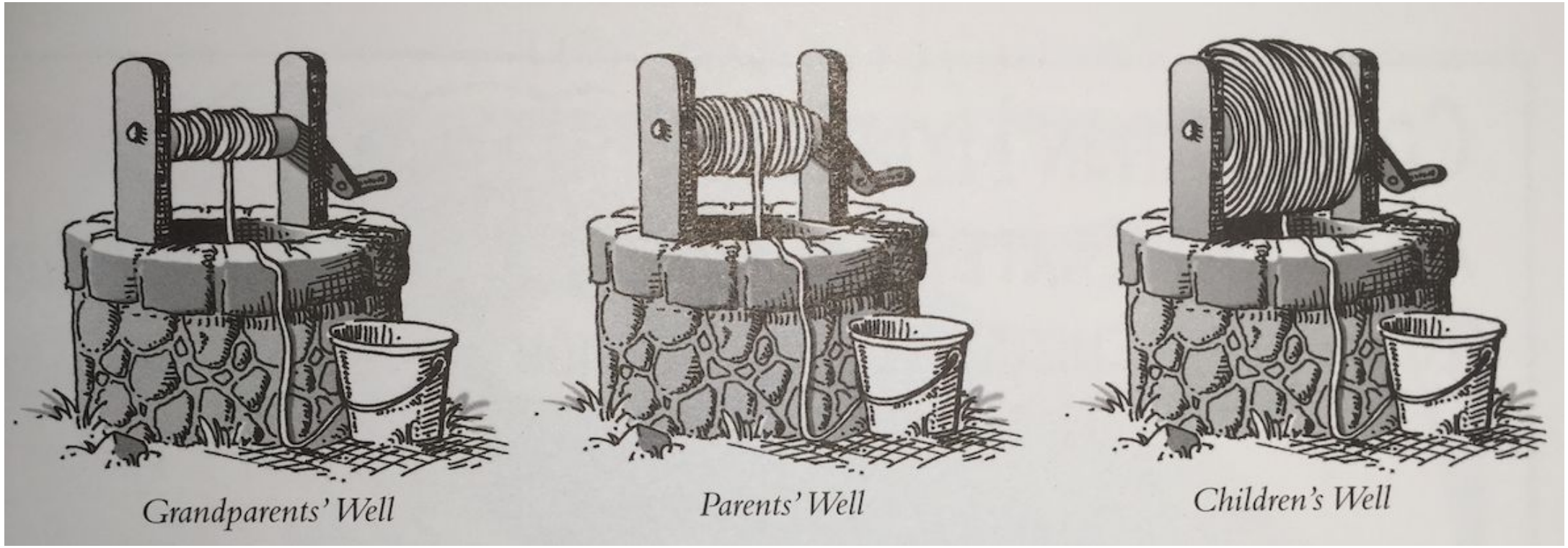
In the past, people used less water



Our grandparents only used 18 litres of household water a day. As Sir John Beddington, England's former chief scientific advisor, pointed out in 2009: in 1950 there was 17,000 cubic metres for every person. By 2030 there will be 4000, although more than half is used in agriculture. Shortages are expected on almost every continent.
(Sir John Beddington, Perfect Storm speech, March 2009)

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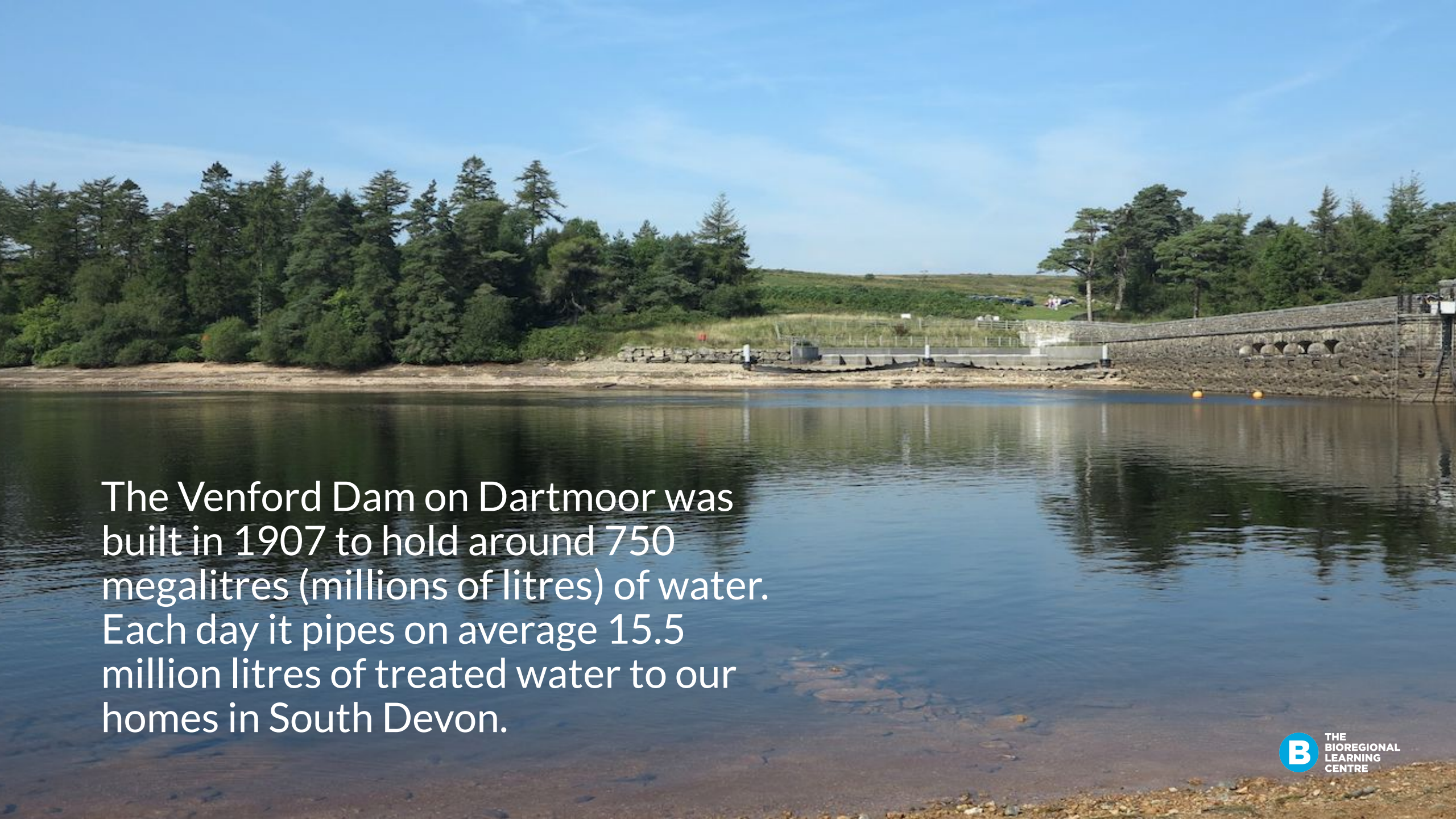
Our drinking water is rain and rock dependent

In Devon, 45% of the drinking water is stored in our rivers, 45% in reservoirs and 10% in the ground (the water table). Soil is also a good way of storing water, if it has enough organic matter in it. Without organic matter rain runs off soil, taking topsoil with it and causing floods.

Wetter winters mean the reservoirs fill up to capacity and the flow of rivers is more likely to spill over into flood. Drier summers however drain down the reservoirs to uncomfortable levels and rivers fall even lower than we are used to seeing. When this happens in South Devon, SWW currently pumps water across from the Tamar.



The Venford Dam on Dartmoor was built in 1907 to hold around 750 megalitres (millions of litres) of water. Each day it pipes on average 15.5 million litres of treated water to our homes in South Devon.

THE BIOREGIONAL LEARNING CENTRE

The Drinking Water Map for South Devon

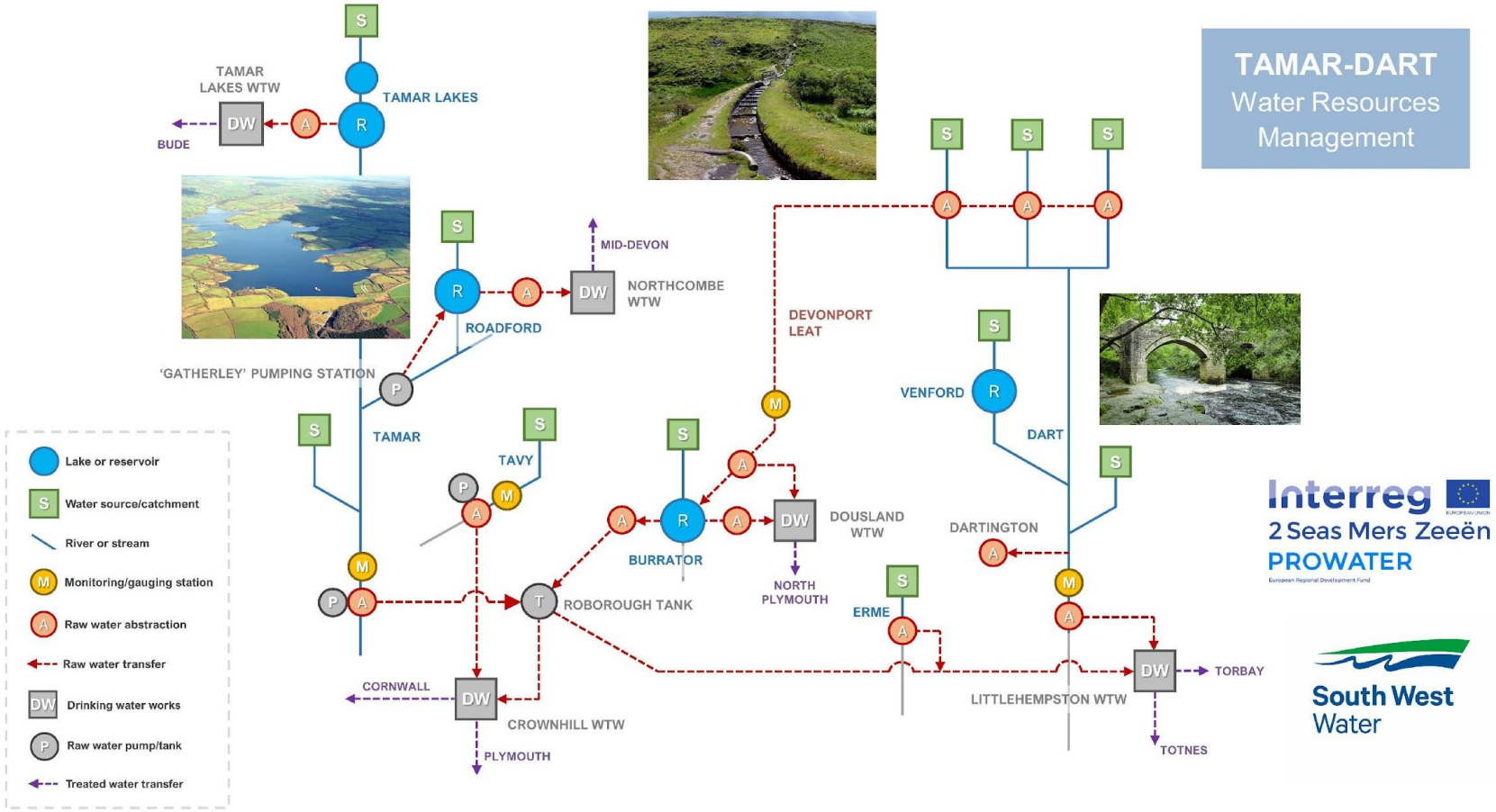


Diagram by Dr Nick Paling, Head of Evidence & Data at Westcountry Rivers Trust

THE BIOREGIONAL LEARNING CENTRE

How much water is in the Dart? How clean?

During winter months the Dart below Buckfastleigh carries 1700 million litres of water a day (or 3 olympic swimming pools an hour) down to the sea. In the summer it is closer to 400 million litres a day. https://environment.data.gov.uk/…

Notably the Dart Water Body has been failing chemical tests for mercury, perfluorooctane sulphonate (PFOS) - used as a stain and water repellent for fabrics and polybrominated diphenyl ethers (PBDE) - used as flame retardants.

Micro plastics, prescription and non-prescription drugs for humans and animals are not measured.

People like you are asking the right questions…

- What is in our drinking water?
- How safe is our river water?
- Will our river water become more polluted due to drought as it becomes more concentrated?
- How quickly do our reservoirs empty?
- Will we have to pay more for water because of climate change?
- Why are bills /pricing not reflecting reducing use, i.e. discourage high use?
- Why do sewage treatment works smell?
- How close have we come to hosepipe bans?
- Where does our water go once it is used?
- Microplastics in the river (and our blood)–how can we avoid this with clothing/wet suits/canoe/paddleboards?
- What was and is the relationship between trees (especially oaks) and the Dart?
- How big are the flushes in public toilets?
- How much water resilience do we have now and how much do we need?
- What are the biggest threats to water resilience?
- Whose responsibility is water resilience?
- How do you measure (progress towards) water resilience?

(From: Voices of the Dart workshops 2022 and the BLC/WRT Water Resilience Summit, Totnes, 2019)

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From climate to water and biodiversity

The economic costs of investing in biodiversity are hugely outweighed by the economic benefits. ‘We see the domino effect of climate breakdown when extreme heat causes wildfires, waste fires, soil damage and flash flooding. We see it in the perfect storm faced by wildlife which lives in or depends on freshwater, which is most of it: rising water temperatures, lower flows, less oxygen, deteriorating water quality are all damaging that wildlife. And thus we see how the climate emergency is also a key driver of the biodiversity crisis.

(James Bevan 2021)

The challenge for South West Water

The average person in our region uses 143 litres of water in a day. By the end of 2025 South West Water want to get that down to 128 litres. With 1.8 million customers, if everyone saved 5 litres of tap water a day, that would save nearly 10 million litres.

SWW is working to reduce demand by plugging all the leaks in the drinking water system so 50% less is lost by 2050 and by constructing a pumped storage scheme at Devon's Roadford Reservoir (taking water during the winter, when it is abundant, out of rivers and putting it back in the reservoir).

If the 15,000km of sewers and pipework in Devon were laid end to end you could get from Devon to Delhi and back. Sounds long but if you laid the blood vessels in the human body end-to-end it would stretch ten times further.

The challenge for us in the Dart Catchment

The Environment Agency's National Framework for Water (2020 report) makes a strong push for collaborative action, and that collaboration has to include the public. We are all in this together.

In the Dart Catchment we could link up citizens, policy-makers and stakeholders to agree a catchment-wide strategy for water.

In parts of Denmark they use just 80 litres a day. After the recent drought in South Africa, they looked at how they could get use down to 50 litres. It's all about behaviour change.

WE CAN DO IT!

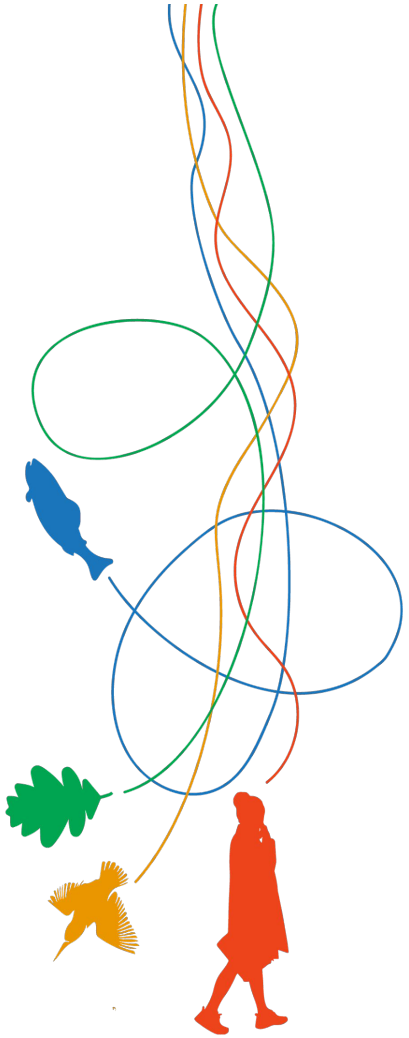
THE BIOREGIONAL LEARNING CENTRE

"Inspiring and a reminder of how much I love the Dart. I want to see it flourish as a central part of our community."

This presentation of key water-related data forms an integral part of the Voices of the Dart programme and in-community workshop series, combining local knowledge, data and the arts, and produced by the Bioregional Learning Centre with funding from South West Water.

It is freely available to share with any community up and down the River Dart (or any river) who want to contribute their Voices to figure out effective ways to keep the river clean, and to save water.

To request a ppt version that can be adapted, for more information or to watch a short film, visit [bioregion.org.uk.](bioregion.org.uk)



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