

Catchment report 2018

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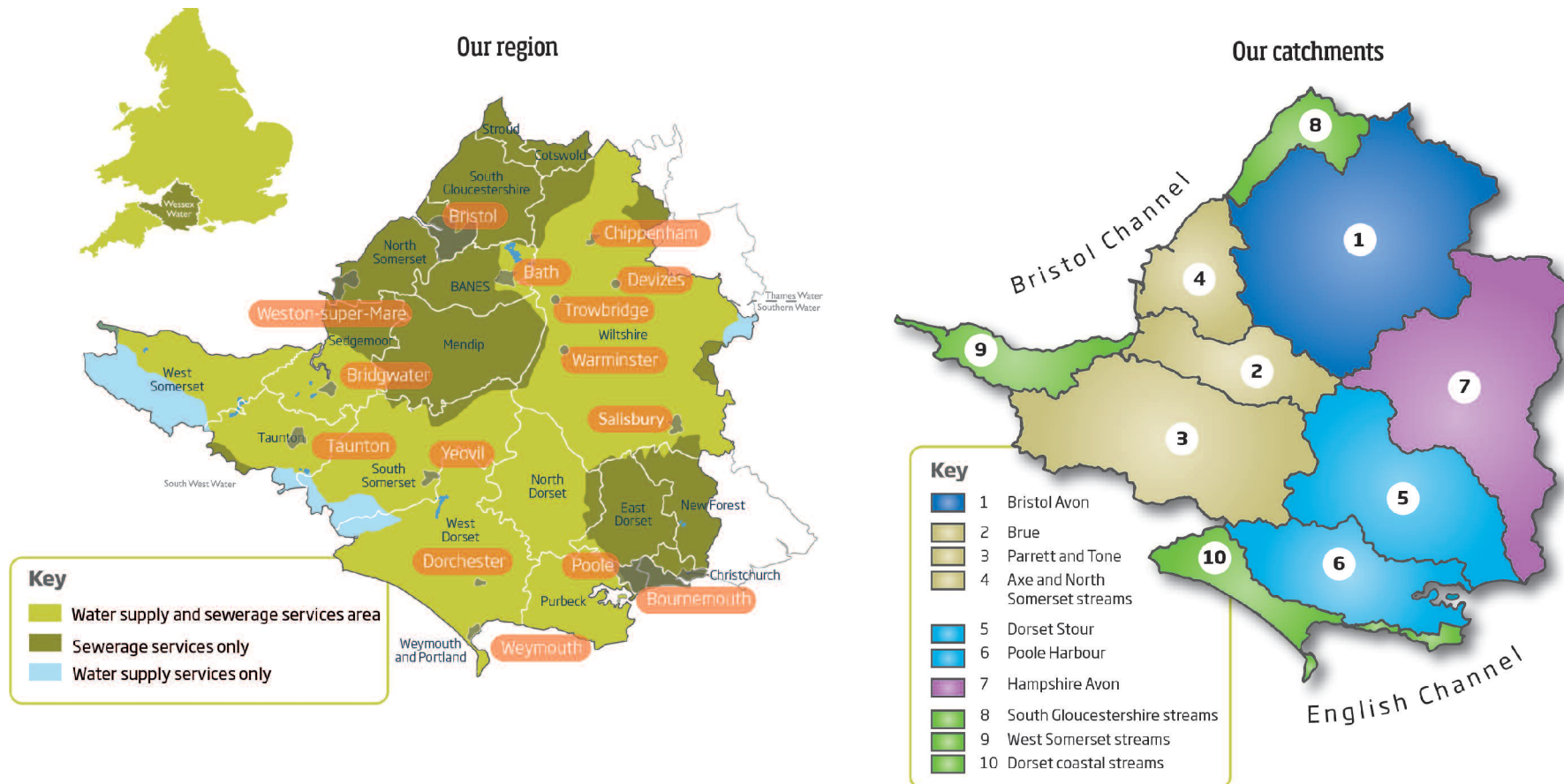
Wessex Water
YTL GROUP



Catchment report 2018

This report is a summary of our activity during 2017-18 and accompanies our interactive online catchment report which can be found at wessexwater.co.uk/catchmentmanagement

What area do we cover?



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Protecting water sources

We use catchment-based strategies to protect our service levels which often means we can deal with the source of the problems not the symptoms.

We are currently working with farmers at 20 sites to reduce nitrate levels in groundwater sources or to remove pesticide risks from reservoirs. We are now taking catchment-based approaches to reducing nitrate runoff into Poole Harbour rather than installing nitrate removal at a water recycling centre, and finding innovative ways to maximise the benefits achieved at the lowest cost to customers.

Rivers, streams and estuaries

Rainfall varied last year - a wetter than average summer was followed by a particularly dry autumn which delayed the start of reservoir and groundwater refill.

However, the year ended with a very wet March, taking rainfall over the full year to 101% of average. The improvement in resource availability arising from the wet March put us in a good position for starting 2018-19. We successfully met our performance commitment regarding the abstraction incentive mechanism at Mere in 2017-18. During the time the groundwater level was below the trigger level, we exported only 30 megalitres (MI) of water from the local catchment against a target maximum level of 100 MI.

Our programme for 2015 to 2020 includes the reduction of phosphorus concentration in discharges at 47 water recycling centres (WRC) and improvements to the ammonia discharges at eight WRCs. Phosphorus is a nutrient that can contribute to excessive weed growth whereas ammonia, at high concentrations, can be toxic to animal life. During the year, we have completed improvements at four WRCs for further phosphorus removal and at six WRCs for reductions in ammonia.

The National Environment Programme included a series of technology trials designed to test the performance of new processes to meet future, more stringent targets for phosphorus levels in sewage discharges required by the EU Water Framework Directive. These were completed last year, and we have used the results to assist us in the next investment period 2020-25 where we are planning for a further 64 potential phosphorus improvement schemes.



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Bathing waters

This year 96% of our bathing waters passed strict environmental standards. However, two (Uphill Slipway and Burnham Jetty) were assessed as having below standard water quality, which is below our 100% target. We completed the National Environment Programme schemes in the year, achieving 100% performance against target to deliver agreed schemes.

Schemes to improve our assets that may affect the Burnham Jetty bathing water include:

- constructing a 3,000m³ underground storage tank and a new pumping station at Bristol Road, Bridgwater
- proactively investigating misconnections of foul flows that could end up in the River Parrett in Bridgwater
- providing 150m³ storage at a new pumping station to transfer flow from Combwich to Cannington
- installing UV disinfection plant to disinfect flows from Combwich and Cannington.

We are supporting Litter Free Coast and Sea project officers in both Dorset and Somerset to develop and deliver innovative engagement and awareness campaigns to raise awareness and ownership of bathing water quality, and to promote behaviour change campaigns for residents, tourists and businesses.



Environmental investigations

Our investment should always be based on sound scientific evidence. By gathering data through investigations, we can better understand our impacts and then trial solutions. In AMP6 (asset management period 6), we are delivering 45 environmental investigations covering a range of issues including:

- the occurrence and removal of hazardous and emerging substances from sewage effluent
- the effectiveness of green and social prescribing to reduce pharmaceutical concentrations in sewage
- trialling new, sustainable treatment solutions for phosphorus and chemical removal
- understanding the ecological impact of our reservoirs and abstractions
- understanding the effect of our sewage treatment works on the nutrient levels within rivers, compared to other sources, at a catchment scale
- trialling techniques to restore and enhance the grassland and woodland habitats to improve connectivity for species to disperse across the local landscape.

Our Bristol Avon catchment permitting trial, a UK first, took a catchment approach to limiting phosphorus discharges from our assets and manages the discharges from 66 sewage treatment works/water recycling centres in combination, rather than individually. During 2017-18, we removed 37 tonnes of phosphorus, against a target of 25 tonnes. By optimising our existing assets and constructing new phosphorus removal treatment only where it can be demonstrated to have a quantifiable benefit on the river, we are delivering the same phosphorus reduction at a cost to customers £24m lower than a traditional single site-based approach.

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We won the 2017 Institute of Water National Innovation Award for the catchment permitting programme we co-designed with the Environment Agency in the Bristol Avon and our innovative environmental trading scheme EnTrade. The new techniques trialled this year, some of which are part of our extensive environmental investigations programme, included:

- the use of brief spate flows from Durleigh reservoir into the downstream watercourse to remobilise phytoplankton that had settled, causing poor ecological results
- monitoring sediment movement downstream of Sutton Bingham reservoir using radio frequency tags and time lapse photography
- mobile kiosks housing river quality analysers that upload data every half hour
- novel treatment methods for reducing phosphorus in effluent, eg, the use of BioMag, a material that uses magnetite (an oxide of iron) to improve settlement in sewage treatment and an algal pond designed by the University of Bath, populated by locally dominant varieties of algae
- working with local public health practitioners on ways to encourage people to take more exercise and have more contact with the environment, which could in turn alter medicine prescribing and reduce the impact of pharmaceutical residues on the water environment.

The outcome of all our investigations is being fed into our next business plan, to deliver the most cost effective and sustainable solutions for our customers with the best environmental results.

Biodiversity

This year we have made great progress towards fulfilling a company performance commitment to assess 100% of our landholding for biodiversity by 2020, with a view to bringing as much as feasible into appropriate management. By the end of 2017-18 we had:

- assessed 90% of 2,157 hectares of eligible land
- mapped more than 1,500 hectares of terrestrial habitats
- found 270 hectares of UK priority habitats at 85 locations, all mapped and given a condition rating where appropriate.

In 2015, we appointed a part-time conservation, access and recreation (CAR) officer to help improve these elements of our landholding for the public. The role is to oversee and co-ordinate CAR projects at some of our largest and most visited sites, and those of greatest importance for wildlife and heritage.



Our proactive conservation programme is set out in our Biodiversity Action Plan (BAP), through which we aim to halt or reverse biodiversity loss on our land. Our compliance with the national Site of Special Scientific Interest (SSSI) target is now at 99.5% of 293 hectares of SSSI-designated land in favourable or recovering condition - of which 62.5% is in favourable condition. This exceeds the national target of 95% in favourable or recovering condition, with at least 50% in favourable condition.

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Carbon management

One of our long-term sustainability goals is to be carbon neutral in our operations. Our net greenhouse gas emissions fell to 122 kilotonnes carbon dioxide equivalent in 2017-18. As in previous years it was achieved through a combination of energy efficiency improvements, renewable energy generation and the falling carbon dioxide intensity of UK grid electricity.

While our electricity use increased slightly against 2016-17 due to wetter conditions, it remained in line with the downward trend from its peak in 2007-08. This is largely through concerted energy efficiency work which is delivering around four gigawatt hours of savings each year.

Following the installation of advanced anaerobic digestion and associated electricity generation at Trowbridge water recycling centre in 2015-16, we are making good progress with a scheme to improve digestion at Berry Hill, near Bournemouth.

Meanwhile, our operating division GENeco continues to export biomethane to the local gas grid and struck an agreement with Bristol Energy, in addition to the sale of green gas certificates to Unilever.

The Bio-Bee is the UK's first vehicle to both collect and run on commercial food waste and is operated from GENeco's base in Avonmouth. It runs on biomethane that has been produced by the anaerobic digestion of food waste and sewage from houses in Bristol, Bath and the surrounding area. Charlotte Stamper, Renewables and Bioresources Manager at GENeco, said: "We are delighted to be able to offer customers a UK first - collecting their food waste using a vehicle running from their food waste. This clean fuel helps to improve Bristol's air quality and creates a sustainable circular economy".



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Performance commitments ENVIRONMENT	Performance level			Target 2017-18	Performance vs target
	Five-year average	2016-17	2017-18		
EA's Environmental Performance Assessment*	IL	IL	IL	IL	Same
Bathing water compliance	98%	98%	96%	100%	Worse
Improved bathing waters - schemes delivered	n/a	100%	100%	100%	Same
Monitoring of combined sewer overflows	n/a	50%	60%	43%	Better
River water quality improved (number of waterbodies)	n/a	8	23	8	Better
Compliance with abstraction licences	100%	100%	100%	100%	Same
Length of rivers with improved flows (km)	n/a	0	78	0	Better
Abstractions at Mere exported (Ml)	179	341	30	100	Better
Land actively managed for biodiversity	n/a	71%	90%	80%	Better
Greenhouse gas emissions (kt CO ₂ e)	135	123	122	122	Same
Proportion of energy self-generated	24%	29%	26%	22%	Better
Volume of water used per person (l/p/d)	140	141	143	133	Worse
Volume of water saved by efficiency promotion - cumulative (l/p/d)	n/a	1.56	2.48	1.95	Better
Water mains bursts (number)	1823	1863	1920	<1993	Better
Sewer network collapses and bursts (number)	264	264	223	<300	Better

* IL = Industry leading.

For more information

email: env.info@wessexwater.co.uk or
look at our website: wessexwater.co.uk

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