

# Catchment report 2017

**Wessex Water**  
YTL GROUP

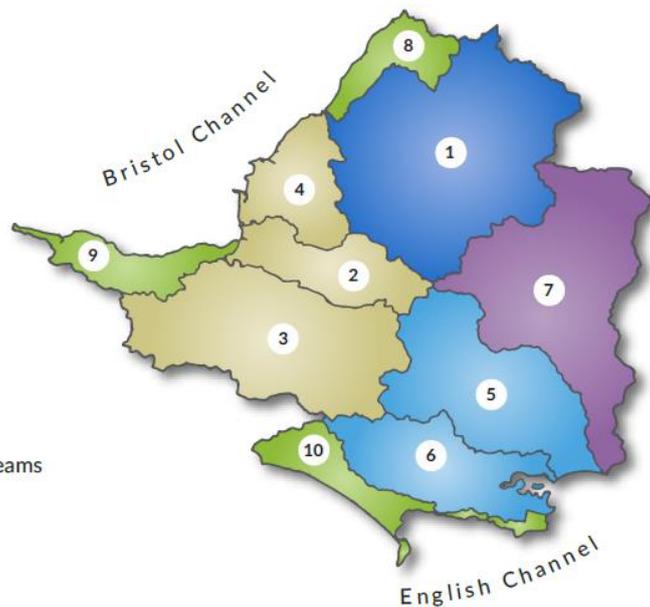


This brochure is a summary of activity during 2016/17. It accompanies our interactive online catchment report that can be found on our catchment management page.

## Wessex Water catchments

### Catchments

-  1 Bristol Avon
-  2 Brue
-  3 Parrett and Tone
-  4 Axe and North Somerset streams
-  5 Dorset Stour
-  6 Poole Harbour
-  7 Hampshire Avon
-  8 South Gloucestershire streams
-  9 West Somerset streams
-  10 Smaller catchments



### Protecting water sources

Catchment-based strategies are now a business as usual approach to protecting water sources as well as our service levels; often this means we are able to 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 also taking catchment-based approaches to reducing nitrate runoff into Poole Harbour rather than installing nitrate removal at a sewage treatment works and are finding innovative ways to maximise the benefits achieved at the lowest cost to customers.

### Rivers, streams and estuaries

2016-17 was a drier than usual year with 86% of average rainfall across the region. Resource management actions and rainfall in early 2017 helped improve the resource position and, although reservoirs

refilled later in the season than we usually experience, by the end of the year storage stood at 91% of total capacity. Some groundwater levels and river flows were still below average at the end of the year.

Using our performance measure to limit abstraction at our Mere source has resulted in significant reductions in output. In 2016-17 we were able to minimise abstraction between July and November. However, we then had to return to regular abstraction levels to help manage the effects of the dry autumn on the wider resource situation and the need for other source outages as part of our grid investment programme. During the year we used 341MI against a target of 100MI and we anticipate this performance will improve later in this asset management period (AMP6) once the supply grid is fully commissioned.

Our programme for this AMP period includes the reduction of phosphorus concentration in discharges at 47 sewage treatment works. During the year, our in-house engineering team began detailed design on the first group of these schemes, with the first few starting

construction on site, and also began outline design on the next group.

The National Environment Programme also includes a series of phosphorus 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. We have completed four full-scale trials, including a magnetite assisted settlement process, absorptive media reed beds and stretching existing chemical dosing performance on tertiary sand filters and activated sludge plants.

Under this programme we are working with the University of Bath to develop a high-rate algal pond for the removal of phosphorus from sewage effluent. This plant has been constructed at Beckington sewage treatment works and we are currently monitoring its performance.

This year we launched EnTrade – an innovative, market-based method for improving the water environment. EnTrade involves an online platform by which farmers bid for payment to carry out measures such as planting cover crops that reduce the amount of nitrogen that leaches from soil into groundwater. This approach is much more cost-effective than conventional engineered solutions and the first two auctions were comfortably oversubscribed.

Meanwhile, pollution incidents per 10,000km of sewers have decreased because the length of sewers has increased significantly following the adoption of private sewers, on top of our proactive approach to identifying and addressing the causes of incidents.

## Bathing waters

During 2016-17, Burnham Jetty was the only bathing water within our region that failed to meet the 'satisfactory' standard. This is due to tighter standards, rather than any underlying deterioration in water quality, and is why we report 98% of beaches passing EU bathing standards against our performance commitment target of 100%.

We have an agreed programme to improve our assets in the vicinity of Burnham Jetty and completed all the agreed National Environmental Programme schemes during the year. Outputs included a new underground storage tank at a pumping station near Highbridge; increasing pumping capacity at Blake Gardens in Bridgwater to reduce overflow spills; proactively investigating misconnections of sewage to the surface water system that could pollute the river Parrett in Bridgwater; and installing 67 overflow monitors.

We also investigated the effects of our discharges near Taunton on the quality of bathing water at Burnham Jetty, using tracer surveys, hydrological modelling of the river system and extensive sampling. The study showed limited effects from these discharges, so no further investment is proposed. Elsewhere in Dorset and Somerset we support Litter Free Coast and Sea project officers to raise awareness of bathing water quality and promote behaviour change for local residents, tourists and businesses. Projects included 'Don't feed the locals' (a scheme to reduce seagull nuisance), two-minute beach cleans and various events and workshops.



## 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, we are delivering 45 environmental investigations covering a range of issues:

- the occurrence and removal of hazardous and emerging substances from sewage effluent
- trialling new, sustainable treatment solutions for phosphorus 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 grassland and woodland habitats, improving connectivity for species to disperse.

In the Bristol Avon catchment, we are trialling a novel approach to reducing effluent discharges. We have agreed with the Environment Agency a mandatory reduction of 46 tonnes of phosphorus from a group of 24 sites at a cost of £20m less than the traditional approach; each of these in turn has a discretionary stretch target. This is a more flexible approach than usual, which will allow optimisation of existing treatment and the use of novel processes or additional treatment that has not been over-sized.

Our investigations will feed into our proposals for AMP7 to deliver the most cost effective and sustainable solutions for our customers with the best environmental results.

## Biodiversity

In order to develop our performance commitment to assess 100% of our landholding for biodiversity, we have surveyed our key conservation sites extensively over the last five years, resulting in changes to their management. So far, most of our holdings in excess of 10 hectares have been surveyed, amounting to just over 70% of our land area.

A part-time conservation, access and recreation (CAR) officer was appointed in 2015 to help improve these elements of our landholding for the public. This role oversees and co-ordinates CAR projects at some of our largest and most visited sites, and those of greatest importance for wildlife and heritage.

We continue to support wildlife projects funded by our Biodiversity Action Plan Partners Programme up to £80,000 per year and will be supporting four projects in our area between 2015 and 2020.

Our small grants scheme, new for this phase of the programme, has supported three projects this year which have led to:

- the creation of training materials
- improving accuracy of riverfly monitoring
- recruiting volunteers
- constructing brushwood berms to improve river flow
- exploring new ways to control the invasive Himalayan balsam.



## Carbon management

One of our long-term sustainability goals is to be carbon neutral in our operations. Our net greenhouse gas emissions fell to 123 kilotonnes carbon dioxide equivalent in 2016-17. This was our lowest since 1999-2000 and meant we met our performance commitment for the year. The reduction was the result of work to improve energy efficiency, increase and diversify renewable energy generation and the falling carbon dioxide intensity of UK grid electricity.



Our electricity use continues downwards from its peak in 2007-08, largely through concerted energy efficiency work which is delivering around four gigawatt hours of savings each year. We are also gaining financial benefits by using innovations such as Open Energi's dynamic demand system which enables instantaneous, temporary adjustment of the site's energy use to maintain a balance on the local electricity grid. Following installation of advanced anaerobic digestion and associated electricity generation at Trowbridge sewage treatment works in 2015-16, we are making good progress with a scheme to improve digestion at Berry Hill, near Bournemouth. Meanwhile, our recycling and renewable energy company GENeco has finalised an agreement with Unilever for a certified supply of biomethane originating from anaerobic digesters at Bristol sewage treatment works.

## Performance

Performance commitments	Performance level				Performance vs target
	Five year average	2015-16	2016—17	Target 2016-17	
EA's Environmental Performance Assessment*	AA/IL	IL	IL	IL	Same
Bathing water compliance	-	98%	98%	100%	Worse
Improved bathing waters – schemes delivered	-	100%	100%	100%	Same
Monitoring of combined sewer overflows	-	46%	50%	40%	Better
River water quality improved (number of waterbodies)	-	-	8	0	Better
Compliance with abstraction licences	100%	100%	100%	100%	Same
Abstractions at Mere exported (Ml)	421	172	341	100	Worse
Land actively managed for biodiversity	-	60%	71%	70%	Better
Greenhouse gas emissions	152	138	123	124	Better
Proportion of energy self-generated	18%	25%	29%	22%	Better
Volume of water used per person (l/p/d)	139	138	141	134	Worse
Volume of water saved by efficiency promotion – cumulative (l/p/d)	n/a	0.68	1.56	1.25	Better
Mains water bursts (number)	1796	1663	1863	<1993	Better
Sewer network collapses and bursts (number)	264	282	264	<300	Better

\*IL = Industry leading \*AA = Above average

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