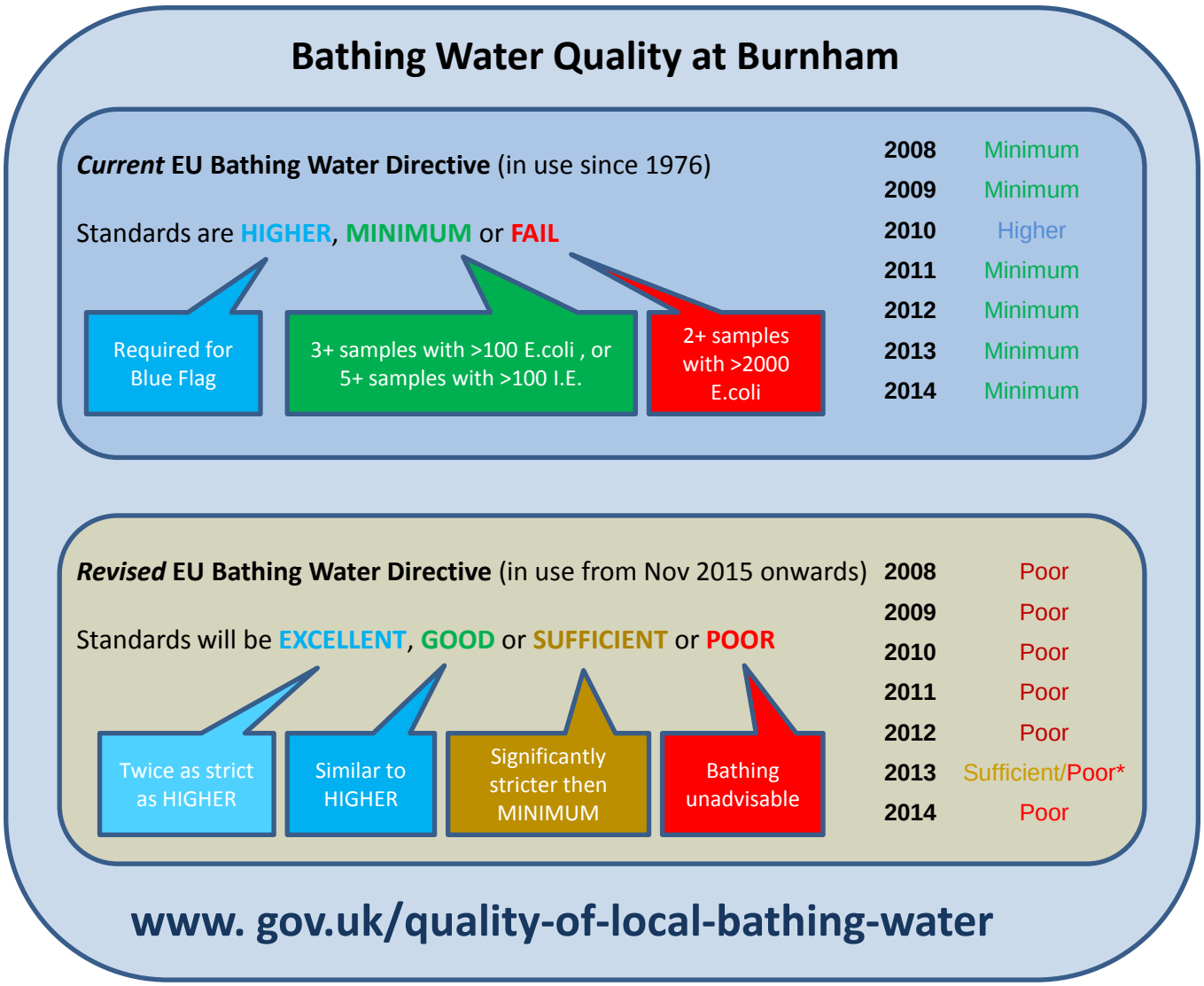
Burnham Jetty North: July 2014 Update

Purpose of this document

This document is a summary of the investigations and interventions taken by the Environment Agency and its partners to improve bathing water quality at Burnham Jetty since 2009. It does not include details of earlier work, such as the addition of UV disinfection at the Bridgwater and West Huntspill sewage works.

Water Quality Prospects

Bathing water quality at Burnham Jetty consistently meets the 'Minimum' (mandatory) standard of the current Directive, yet is at severe risk of being classed as 'Poor' under the stricter revised Bathing Water Directive (rBWD) in 2015. Five years of concerted effort by members of the Sedgemoor Bathing Waters Steering Group have brought Burnham much closer to passing the stricter rBWD standards (2013 projected rBWD class was borderline between Poor and Sufficient). Continued effort by the steering group, greater public awareness of domestic pollution sources, and the ability to discount up to15% of the poorest results between now and October 2015, via the Short-Term Pollution scheme, are all crucial to Burnham reaching 'Sufficient' by the end of 2015.



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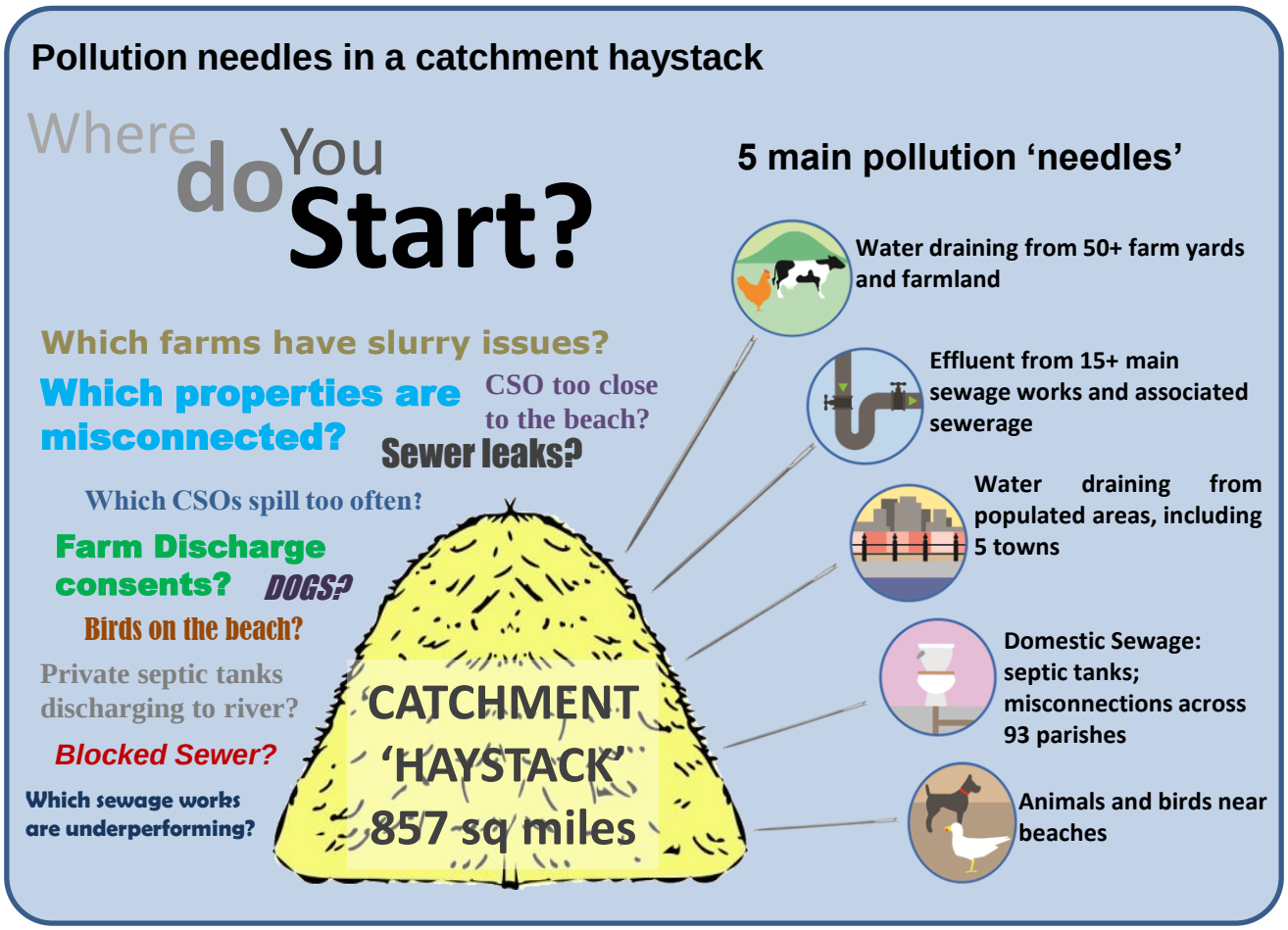
Finding Pollution Sources

Proximity to a river often causes pollution problems for a bathing water.

Burnham is: - at the confluence of **four** large rivers, and within the Severn estuary
- at the end of a combined catchment totalling 857 square miles (222,000ha)
- affected by complex flows within the catchment and currents within the bay.



Fixing Pollution Sources

Upgrading sewage works, re-routing rainwater run-off, improving farm infrastructure and other pollution reduction measures cost many millions of pounds. As taxes and water rates pay for many of theses fixes, evidence of impact is essential to justify and win necessary funding. The Environment Agency, Wessex Water and Natural England's Catchment Sensitive Farming team (CSF) have spent several years identifying potential sources of pollution, and collecting the evidence needed to justify and inform mitigation measures. These investigations shaped the multi-million pound improvements submitted to OFWAT by Wessex Water. They also allowed CSF to target areas of the catchment where farming was having the biggest impact on bathing water quality.

Such intervention work by the Environment Agency and partners has already had a positive impact on the bathing water, raising quality from a definite Poor in 2011 to borderline Sufficient in 2013. Investments in pollution reduction by Wessex Water and the farming community are expected to further benefit bathing water quality over the next few years.

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What has the Environment Agency done for Burnham?

2006

European Commission ratifies rBWD

2007

Catchment Sensitive Farming Scheme launched with Natural England: Provides grants to reduce water pollution from the farming industry.

Water quality sampling: annual sampling of Parrett, Brue, Tone, KSD, Cannington, Huntspill for gut bacteria

DNA tests at beach & Brue: Finds mix of human and cattle sources at many river sites (with Wessex Water)

UK public consultation on rBWD

2008

Extra water quality sampling. 2008 survey includes: Parrett estuary & Bridgwater Bay; sewage work effluents; shoreline from Burnham to Berrow

UK ratifies rBWD

2009

Annual river 'walkovers' begin Looking for pollution issues and offering mitigation advice to riparian owners, farmers and businesses.

EA & Defra interpret rBWD legislation into operational requirements and policy

2010

Misconnections surveys Burnham & Highbridge

Wessex *StreamClean* team formed (Wessex Water, Environment Agency, SDC)

***ConnectRight* campaign launched** by Environment Agency and water companies. (connectright.org.uk)

Dye-trace investigation of Brue Confirmed pollution route from river to beach that returns on next tide

EA water quality planning now based on rBWD targets

2011

Weekly summer river sampling: Brue & its tributaries, KSD, Parrett

Review of Discharge consents Caravan Parks & Farms

2012

Source Apportionment Study Burnham impacted by agriculture and sewage but urban sources also significant.

Daily sampling (with Wessex Water) Brue, Parrett, Tone, KSD, Cannington Brook

Boat Survey of Parrett: Check for illegal outfalls

Misconnections survey: Bridgwater, Dunball, Huntworth

Public engagement: Local workshop, press releases, online campaigns

2013

Public Engagement ESCAPE Day, Parish Council talks

Short-Term Pollution Prediction Burnham in national trial

CSO upgrades agreed with Wessex Water: based on joint investigations since 2010

River sampling & walkovers: still conducted annually

CSF: 105 grants awarded to local farms, including many identified as pollution sources to Burnham Jetty.

rBWD bacterial parameters used to allow 4 year assessment in 2015

2014

Short-Term Pollution Prediction Burnham, Berrow & Brean enrolled

Public Engagement Leaflets/visits to industrial units; Parish Council talks; Local Community Group talks; Press campaign on Short-Term Pollution scheme

CSF: A further 120 applications submitted by local farmers.

2015

First revised BWD Assessment

Our officers have walked much of the main rivers and tributaries during annual catchment 'walkovers', and repeatedly sampled watercourses for gut bacteria and other pollutants. This work, and collaborative research with Wessex Water on the performance of their assets, has allowed us to build up a picture of pollution sources with the 857 sq mile catchment that drains to Burnham beach.

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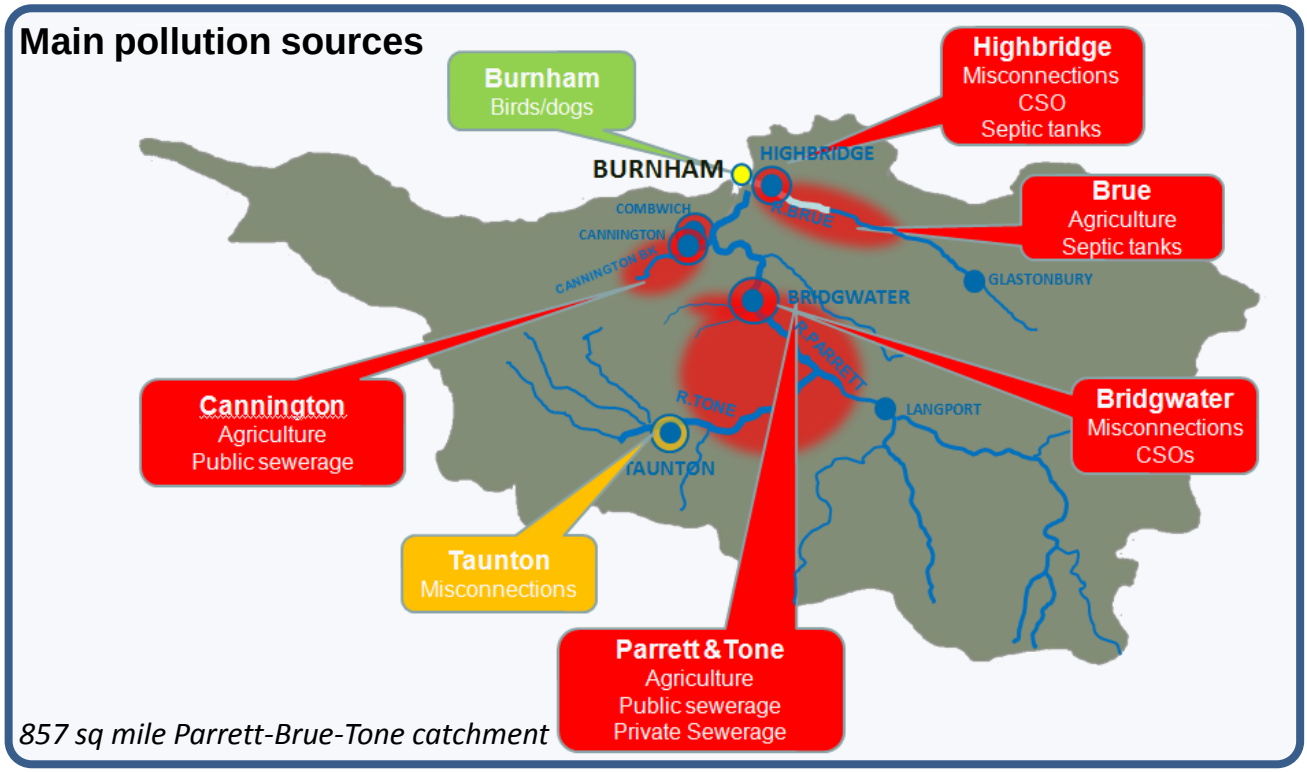

What is being done now?

Farming & Sewerage

Following our joint investigation work, Wessex Water have an investment plan in excess of £20M (pending OFWAT approval) to reduce pollution sources from their sewerage system. CSF have so far awarded over £1M of capital grants to farmers in the 'Levels and Moors' catchment, a lion's share of the £11M available to the 77 eligible catchments across England and Wales. The CSF Scheme has received a further 120 applications from local farmers this year.

With sewerage and farming improvement plans already underway, it is the impact of private businesses and individuals on bathing waters that remains to be tackled. Wessex Water's 'StreamClean' team have located at least 52 misconnections in Bridgwater, Burnham and Highbridge, with Environment Agency officers finding several more plus many septic tank issues across the catchment.

Households and Businesses

Despite many misconnections and poor waste practices being rectified in homes and businesses across Somerset, more cases appear due to wilful negligence or genuine ignorance. A push to educate the general public about their own impact on bathing water quality is needed to further improve Burnham Jetty's prospects for 2015 and beyond. The Environment Agency has supported several national and regional awareness and educational campaigns, including:

• *ConnectRight* – misconnections awareness and advise website

• SAS campaigns to deter irresponsible disposal of cooking fats and sanitary into the sewer system

• Keep Britain Tidy's *BeachCare* project s in Dorset, and NW England.

The Beachcare projects are relatively low-cost, community-driven campaigns aimed at schools, local businesses and communities, are funded by the Environment Agency, local water companies, Local Authorities, land owners and businesses. Creation of a similar project in Somerset could benefit the 11 coastal bathing waters in the county, including the 3 within Sedgemoor District.

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Short-Term Pollution Prediction

The emphasis of the rBWD is to provide information about bathing water quality to the public.

The rBWD has provision for a prediction system to warn the public of 'short term pollution' (STP).

'Short-term' means less than 72 hours. Historically, STP events rarely exceed 24 hours.

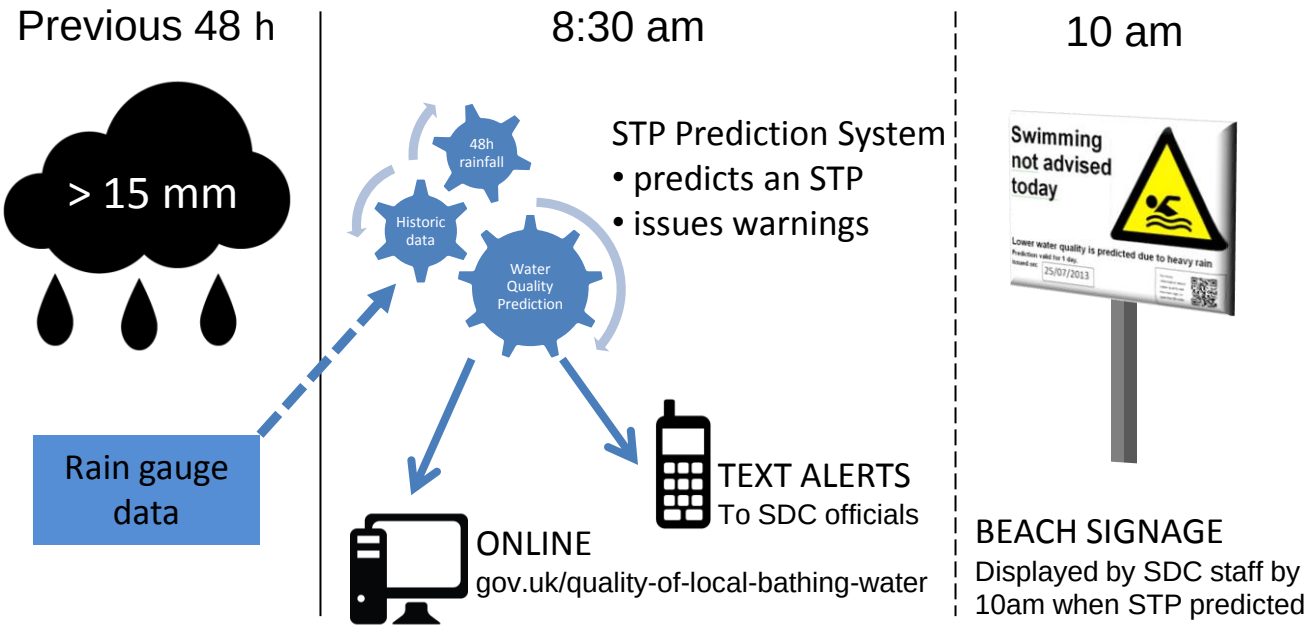
If the Environment Agency can reliably predict a STP, we are allowed to discount up to 15% of samples adversely affected by one. Discounting will improve Burnham's prospects under the rBWD.

But only if:

- The Beach Controller (SDC or a proxy) posts warning signs at the bathing water
- The Environment Agency post warnings on our website (gov.uk/quality-of-local-bathing-water)
- The Environment Agency take a 'confirmation' sample to show the STP has ended

How STP warnings are generated

Our prediction system currently uses antecedent rainfall to predict reduced water quality. Each bathing water has its own 'trigger level' of rainfall, refined from a decade of rainfall and bathing water sampling data. Future improvements could incorporate sewage spill data from Wessex Water, UV-index forecasts from the Met Office and other factors that influence water quality. The current trigger level for Burnham is 15mm of rainfall over the preceding 48 hours. This trigger will be reviewed annually.



The STP prediction system has been continually refined over several years of development, including extra samples taken at many sites (inc. Burnham) to improve prediction accuracy. Following a successful trial in 2013, the Environment Agency launched the STP prediction system in May 2014. Sedgemoor District Council entered Burnham in last year's trial and has enrolled all three of its bathing waters in the scheme this year.

* [page 1] 2013 projected class depends on the method of projection used. The Environment Agency changed their limit of detection (LOD) for bacteria in 2012 to bring our reporting in line with rBWD requirements. The rBWD only accepts samples with counts between 10cfu/100ml and 10,000 cfu/ml. Samples from Burnham collected prior to 2012 with bacterial counts below 10cfu/100ml have to be adjusted to fit with the new LOD when projecting the rBWD class. Alternatively, a 'face-value' class can be used which does not adjust data to fit with the new LOD. The more conservative face-value class is currently used for rBWD projections. However, in 2013, Burnham was so close to Sufficient that the projected class depended on the method applied. From 2015 onwards, the 4-year rolling assessment only includes sample data collected after the change in LOD method thus adjustments will no longer be necessary.

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