

Poole Harbour Catchment - the facts

Sewage treatment

Within the catchment, we have 21 WRCs (water recycling centres, formerly known as sewage treatment works), 172 sewage pumping stations and 88 storm overflows (SO).

Nutrients

One of the main issues affecting the Poole Harbour catchment is the impact of nutrients (nitrogen and phosphorus).

Nitrogen

Nitrogen is of particular concern as it affects algal growth and the protected habitats and species of Poole Harbour.

- The total input of nitrogen (N) to Poole Harbour measured from our WRCs in 2009 was around 13% of the total (with the remainder coming from diffuse urban and rural sources), comprising 1.8% from Poole WRC and 11.1% from other WRCs, with the main share from Dorchester WRC.
- Poole WRC was fitted with nitrogen removal in 2008 at a cost of £12 million. This additional process removes approximately 312 tonnes of nitrogen per year (whilst the works overall removes approximately 927 tonnes of nitrogen per year).

Phosphorus

Phosphorus causes eutrophication in rivers. By the end of AMP6 (2020) we have installed phosphorus removal at:

- Maiden Newton WRC (£0.8 million, removing estimated 0.96 tonnes phosphorus per annum from March 2020)
- Wool WRC (£1.5 million, removing estimated four tonnes phosphorus per annum from 2006)
- Dorchester STW (£0.77 million, removing estimated 12.9 tonnes per annum from 2002, with tightening from 2010 to remove an additional 4.3 tonnes per annum).

Poole Harbour catchment offsetting 2015-2020

Nitrogen removal is expensive and chemically/energy intensive. We are delivering a catchment nitrogen offsetting scheme as a more sustainable alternative, working with farmers and landowners to deliver 40 tonnes/year nitrogen reduction to offset some of the nitrogen load discharged from Dorchester WRC.

By working with farmers to reduce nitrogen losses from their land management practices, we have saved an estimated 525 tonnes of nitrogen from entering Poole Harbour since 2015. The farmers we work in partnership with have received in excess of £1million in funding to date.

From 2020-2025 we will increase our target to reduce 100 tonnes per year of nitrogen within the catchment through offsetting or treatment, comprising:

- Continuing the 40 tonnes per year offsetting the discharge from Dorchester WRC.
- An additional 51 tonnes per year as a voluntary target across the wider catchment.
- An additional 9 tonnes per year from the new nitrogen removal plant at Wareham WRC.

Water supply

Within the catchment, we operate 13 Water treatment works, three river flow supports (where we discharge water to support flows in rivers) and 65 distribution sites.

Nitrate

Rising nitrate levels in groundwater are also of concern for public water supplies. We rely on groundwater for public water supply in Dorset and drinking

water regulations place a limit on the level of nitrate in water. We have had to take action to reduce nitrate to avoid breaching regulations. The sources in the table are being monitored for nitrate and many have been identified as safeguard zones which have measures to reverse rising nitrate trends - including our catchment management approach to work with landowners to reduce nitrate entering the sources.

Drinking water sources	Current nitrogen status
Winterbourne Abbas	Out of supply
Belhuish	Rising, seasonal peaks exceeding limits
Briantspuddle	Stable
Alton Pancras	Falling
Milborne St Andrew	Rising, seasonal peaks exceeding limits
Hooke	Stable with reduced seasonal peaks
Forston	Stable
Dewlish	Rising over the past 4 years
Eagle Lodge	Stable
Maiden Newton	Low but with large spikes
Cattistock	Low, but rising
Litton Cheney	Rising - source protection zone inside catchment but actual source is outside
Langdon	No longer used due to too high nitrate
Empool	Falling
Sutton Poyntz	Rising



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Investments completed to 2020

Five investigations completed 2010-2020

- Hydrology of the Devils Brook - evaluating the impact of our abstractions on the watercourse.
- Bere Stream - evaluating the impacts of our abstractions and discharges on the stream.
- River Frome Nutrients - understanding the influence of WRC discharges on nutrient levels in river.
- Poole Harbour Nutrients - understanding nitrogen levels entering Poole Harbour.
- Poole Harbour Shellfish - monitoring outputs from WRCs at Studland and Corfe Castle, and rivers for bacterial levels.

Poole Harbour Catchment Partnership

- We initiated and developed the pilot partnership in 2012.
- We continue to host the catchment partnership, now in conjunction with Dorset Wildlife Trust.
- We provide £100,000 annual funding, including hosting the roles of the catchment co-ordinator and catchment partnership officer.

Environmental Investment

- Poole Harbour catchment biodiversity project (1,800 hectares of catchment mapped for biodiversity opportunities).
- Dorset biodiversity strategy (£58,000 funding through our biodiversity partners programme 2006-2010).
- Dorset Wild Rivers project with Dorset Wildlife Trust and FWAG SW (£200,000 funding through our Biodiversity Partners Programme 2010-2020).
- Dorset extended riverfly monitoring (£2,500 funding through our Biodiversity Partners Programme 2015-2020).
- Holt Heath (£2,500 funding through our Biodiversity Partners Programme 2015-2020).
- Devils Brook multi benefit project (£5,000 funding through our Biodiversity Partners Programme 2015-2020).
- Streamclean team - tackling sewerage misconnections around Poole.

Current investment 2020-2025

New phosphorus removal at WRCs

- Cerne Abbas WRC (removing 0.3 tonnes per annum from 2021).
- Corfe Castle WRC (0.48 tonnes per annum from 2021).
- Piddlehinton WRC (0.13 tonnes per annum removed by 2025).
- Dorchester WRC (tighten existing permit to remove 18.54 tonnes by 2025).

Installation of ultraviolet treatment (UV) to reduce bacteria to improve shellfish waters

- Corfe Castle WRC (from 2021).



Corfe Castle WRC improvements during construction - July 21. New UV plant in the background, with improved secondary treatment in the foreground

Nitrogen removal at WRCs and catchment offsetting

Target for removal of 100 tonnes of nitrogen/year through:

- new nitrogen removal process for Wareham WRC (to achieve 15mg/l total nitrogen), removing c. nine tonnes of nitrogen/year from 2021
- continuing nitrogen offsetting from Dorchester WRC - 40 tonnes per annum reduction to 2025
- additional nitrogen offsetting in line with our performance commitment - 51 tonnes/year to 2025.



Nitrogen removal plant at Wareham WRC



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Storm Overflows

We have 88 Storm Overflows within the catchment. We are aware of the increasing concern about the effect storm overflows have on our rivers and the sea. In an ideal world we wouldn't have storm overflows at all - they are a legacy from the past. They have always been part of the sewerage network in the UK because the majority of sewers carry both rainwater and foul sewage and they prevent properties from flooding following intense rainfall.

Although overflows are permitted by the Environment Agency, we are committed to completely eliminating the discharge of untreated sewage, starting with storm overflows that discharge most frequently and those that have any environmental impact. Since 2000, we have invested £181 million upgrading more than 582 storm overflows. From 2022 to 2025, we plan to spend a further

£150 million on storm overflows to reduce their impact on the environment, including:

- New stormwater storage tank at Toller Porcorum WRC
- Increased treatment of storm discharges by nature based solutions such as wetlands/reedbeds at Bulbury Lane (Lytchett Matravers), Maiden Newton WRC, Sydling St Nicholas, Milborne St Andrew and Broadmayne WRCs
- Increasing pass forward flow to treatment at Sandy Lane SPS, Poole
- Sewer sealing to reduce groundwater infiltration at Martinstown and Piddletrenthide.

We are planning to increase investment on storm overflows across our region in AMP8 (2025-2030) to £450 million, subject to agreement from our economic regulator (Ofwat).

Further information on the operation of our storm overflows and our plans to improve them can be found at wessexwater.co.uk/services/sewerage/storm-overflows

Environmental Investigations:

- **Dewlish boreholes** - implement abstraction licence change to reduce abstraction in the Devils Brook.
- **Dorchester WRC seasonal permitting** - investigate an innovative seasonal phosphorus permitting approach at Dorchester WRC.
- **Dorset Frome SSSI water quality** - assess the contribution our WRCs, SOs, water resources and catchment management have on water quality of the River Frome SSSI.
- **Poole Harbour catchment WRCs** - to understand the nitrogen and phosphorus contributions from WRCs.
- **Poole Harbour shellfish waters** - to assess our discharges and their impact on shellfish waters and climate change impacts.
- **Poole WRC options appraisal** - to assess improvements for discharge quality or outfall re-location.
- **Holes Bay** - investigation of nitrogen and phosphorus loads from our discharges to Holes Bay, Poole.
- **Water Guardians** - we are working with Dorset Wildlife Trust to recruit and train local volunteers - the Water Guardians - to monitor watercourses, identify possible pollution incidents and report them for further investigation.
- **Norovirus Risk Prediction Project** - Working with Seafish, Bangor University, Othniel Oysters and CEFAS, we have been awarded £200k from DEFRA's Fisheries and Seafood Scheme to better understand Norovirus in Poole Harbour.

Biodiversity

- **Briantspuddle and Litton Cheney DrWPA** - biodiversity opportunity investigation and catchment nitrate reduction measures.
- **Poole Harbour catchment biodiversity project** - 72 hectares of habitat to be improved to enhance biodiversity and reduce nutrients to rivers.
- By March 2023, we have delivered 63% of our 72ha target, including:
 - 23.4ha of arable reversion to a BAP grassland habitat
 - 6.58ha of arable margin reversion to perennial nectar sources
 - 7.44km new native hedges with over 300 new hedgerow trees
 - 4.3ha new native woodlands with a further 1ha to be planted shortly.
- Five years funding for the Dorset Wild Rivers project with Dorset Wildlife Trust, FWAG SW & Dorset AONB (£100,000 total funding from our Partners Programme 2020-2025).
- **Flagship Chalk Stream** - We have chosen the River Hooke to be our Flagship Chalk Stream for restoration by 2035. Working alongside partners, we are working to assess the changes and improvements needed to restore the river.

Find out more

You can access more information about our work in the Poole Harbour catchment on our website – wessexwater.co.uk/environment

- Interactive Investigations map.
- Sample results and flow data from our WRCs.
- Our Business Plan for AMP7 (2020-2025).
- Find out about our drainage and waste water management plans including details of our SOs.
- Read more about the Poole Harbour catchment initiative and our catchment management work.



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