

Environment Agency Wales written evidence to Petitions Committee on P-03-238 Pollution of the Burry Inlet

Background

The Petitions Committee is currently considering a petition calling for a public inquiry by Welsh Government into the sewage pollution of Burry Inlet and Carmarthen Bay. Concerns have also been expressed by cockle gatherers and others that discharges of sewage are implicated in the premature deaths of cockles within the Burry Inlet, which have been an annual occurrence since 2002.

In response to these concerns, in 2008 Welsh Government commissioned, through Environment Agency Wales (EA Wales), a scientific investigation to establish the causes of the mortalities. The final report on this independent investigation was completed in January 2012, a summary of which has already been provided to the Committee.

This further briefing provides information on the role of EA Wales in ensuring that the water quality within the Burry Inlet complies with the standards contained within relevant EU Directives. The briefing also summarises proposals for further improvements to provide consistent long term compliance with the required standards.

Current water quality in the Burry Inlet and Carmarthen Bay

EA Wales is responsible for ensuring that water quality in the Burry Inlet meets current EU standards, as well as tougher standards being introduced in the future. Our routine monitoring confirms that the water quality in the Burry Inlet is currently good and that the trend is improving. We have put extra monitoring in place and we are using our powers to ensure that we achieve the higher standards expected in the future.

The following findings of the recent independent investigation coordinated by the University of Hull supports the our view of the current position;

- No evidence of mortality link to water quality (other benthos is not affected).
- The Burry Inlet is a highly dynamic marine environment with good mixing.
- Elevated nutrients (phosphorous) highlighted but not unusual for this type of shallow embayment and no evidence of any adverse secondary effects.
- Elevated nutrient levels probably contributed to thriving fishery in the past.
- Metals are higher than other areas, but lower than historically (when there was no mortality problem) and below current Environmental Quality Standard limits.
- Pesticide levels are low and within statutory limits.
- Dissolved Oxygen levels are good overall and do not compromise cockle survival and growth
- No gross bacteriological contamination

We also undertake monitoring to enable reporting of compliance with EU Directives and we have regard to the required standards in these Directives in applying controls to, and regulation of discharges to the water environment.

The following Directives are of particular relevance to the Burry Inlet:

Shellfish Waters Directive

The water quality of the Burry Inlet has complied with all of the mandatory and guideline chemical standards of the Shellfish Waters Directive since 2003.

The Guideline standards also include an assessment of the concentrations of faecal coliform bacteria in shellfish flesh, which in the Burry Inlet, like many other shellfish waters, is proving challenging to meet.

Research work is ongoing to better understand the link between faecal indicators in the water column and shellfish flesh (for public health protection purposes of consumed shellfish).

Run off from land, such as from agricultural sources and point source discharges from water company assets are sources of bacterial inputs and local investigations are underway to better understand these relationships.

Habitats Directive

To have required measures in place by 2015, we have reviewed over 500 permits to assess their current impact on the marine environment of Carmarthen Bay and Burry Inlet.

We have modified the permits for waste water treatment works at Llanelli, Parc y Splott near Carmarthen and Pontyberem as well as Llannant and Gowerton in the Swansea area. This is to reduce the level of nutrients entering the Inlet.

Water Framework Directive (WFD)

The Burry Inlet and Loughor Estuary are currently achieving good chemical status under the WFD target classifications but are classified as bad/moderate for macrophytes (seaweeds). This is believed to be linked to elevated nutrients, for which reduction plans exist.

The WFD is a major opportunity to improve the whole water environment and to promote the sustainable use of water for the benefit of people and wildlife alike.

Implementation of the WFD will take place in a series of planning cycles. This will allow plans to take into account long-term environmental trends (such as climate change) and improved understanding of river basin characteristics. The first cycle must be completed by 2015. Reviews then take place every six years.

Bathing Waters Directive

There are three EU designated bathing waters around the Burry Inlet; Pembrey (Cefn Sidan), Pendine, and Rhossili. All three beaches normally achieve the strict guideline water quality standards within the current Directive. A revised Directive is being implemented from 2012 and under the new classification scheme the projected classification for Pendine and Pembrey is "good" and for Rhosilli is "excellent".

The primary pressure on these bathing waters is considered to be diffuse pollution, mainly from agricultural activities. The beaches are located adjacent to the large three rivers estuary of the Taf, Tywi and Gwendraeth, all of which will have elevated bacteria levels following heavy rain owing to diffuse agricultural sources, and combined sewage discharges.

Urban Wastewater Treatment Directive

The Urban Wastewater Treatment Directive (UWWTD) sets minimum standards for the treatment of sewage discharges from communities around the Burry Inlet.

This has been a primary driver for a major investment programme by Dwr Cymru Welsh Water (DCWW) since the early 1990s. This investment has led to major reductions in the loadings of sewage effluents and some additional storage and treatment for excess flows of sewage from Combined Sewer Overflows during wet weather events. The drainage systems in the area, as for many urban drainage systems elsewhere, receive both wastewaters and clean surface water and these overflows are required to prevent flooding.

The UK and Welsh Governments were notified by the European Commission in June 2009 that deficiencies in the sewerage networks of Llanelli and Gowerton were possibly in breach of the requirements under the UWWTD. A complaint had been raised by concerned members of the public and the initial enquiry from Europe was in relation to comments raised.

Welsh Government instructed EA Wales to review the current situation and ensure that any risk to compliance of European Directives was tackled. Since the initial query in 2009, Welsh Government has provided regular updates to the Commission on plans and progress to improve the infrastructure in both Llanelli and Gowerton

We have been working closely with DCWW to investigate the current situation and make any necessary improvements to the sewerage networks of both catchments. Extensive sewer network monitoring has been completed by DCWW for both drainage catchments. The results of the monitoring have been fed into a computer modelling exercise and used to confirm the current operational effectiveness of all key foul drainage systems within the catchments.

We have overseen the monitoring programme. DCWW has developed new network models of the sewerage catchments and an independent auditor was appointed to oversee each stage of the model verification. A full audit trail of the process of verification has also been produced. The new models provided for both catchments provide an accurate representation of the drainage and treatment systems discharging into the waters of the Burry Inlet.

A plan has been developed to ensure that the infrastructure in both catchments is adequate to meet the current requirements and future growth. DCWW is currently developing options to reduce the predicted storm spills from all sewerage and treatment assets in Llanelli and Gowerton to 10 spills per annum. This will be in line with UK policy for discharges to Shellfish Water.

DCWW plans to use a mixture of engineering solutions such as storing storm water, and more sustainable solutions such as removing large amounts of surface water, creating more natural attenuation and promotion and development of sustainable urban drainage solutions within the catchments.

All known developments identified under the Carmarthenshire and Swansea Unitary Development Plans have been included in the options appraisal stage.

DCWW is currently undertaking 10 projects aimed at removing up to 25% of surface water within the sewerage networks by March 2015. A detailed programme for a further 180 projects is being developed for delivery within the shortest feasible time period, probably over the next 8-10 years.

Flood Risk reduction

In addition to the work being undertaken on the sewerage network, risks of flooding from surface drainage, watercourses and tidal sources are being addressed.

EA Wales has progressed a number of schemes in the Llanelli area to reduce the risk of flooding of properties and this programme is continuing, with work currently underway on a scheme at Pwll.

Given the complex interactions between foul drainage and surface drainage systems the relevant organisations are working together through the Llanelli Technical Flood Group to gather information and develop solutions to potential sources of flooding within the catchments. The Group has identified all known flood risk issues in Llanelli, highlighting current and future mitigation works and identifying potential work to reduce surface water discharges into the town's combined sewerage system.

Many of the 60 plus schemes identified by the desktop study undertaken by the group have now been incorporated into the DCWW improvement plan. The Technical Group will continue to administer the multi-agency surface water reduction programme, providing an interface between developers, local authority planners and engineers from DCWW and EA Wales to ensure the most effective solutions are adopted within all land use planning developments.

Further development within the sewerage catchments of Llanelli and Gowerton

Concerns about the frequency of spills from Combined Sewer Overflows and the need to have regard to the requirements of EU Directives has led to a precautionary approach to new developments within the Llanelli and Gowerton sewerage catchments.

Arrangements were put in place in 2008 through a Memorandum of Understanding (MoU) between Carmarthenshire County Council, the City and County of Swansea, Countryside Council for Wales, Dwr Cymru Welsh Water and EA Wales. Initially, this MoU required that for any new developments to be connected into the sewerage systems, equivalent reductions in hydraulic loading through removal of clean surface water needed to take place.

Subsequent development of the MoU has extended this approach. Carmarthenshire County Council and the City and County of Swansea have jointly funded a phosphate reduction treatment process at Llanant Sewage Treatment to enable new developments to continue

within defined limits. The current MoU now requires betterment in terms of hydraulic loading for new development, with twice as much surface water needing to be removed for any new hydraulic loads on the sewerage systems.

Summary

We understand and share the concerns of the Petitioners to safeguard the Burry Inlet. Extensive independent studies and investigations have been carried out that confirm water quality within the Burry Inlet is good. This accords with the monitoring undertaken by EA Wales in relation to the requirements of EU Directives.

There is no evidence that water quality is linked to the mortalities of cockles within the Burry Inlet and a combination of biological factors is considered to be the likeliest cause.

Considerable improvements in effluent discharges have taken place over the past 20 years through investments required of DCWW to meet EU Directive standards. Further investment will be required by 2015 to meet the requirements of the Habitats Directive.

It is accepted that further investment is required to address deficiencies in the sewerage systems of the Llanelli and Gowerton catchments and to reduce the frequency of spills from Combined Sewer Overflows. Following a comprehensive programme of drainage investigations and computer modelling, a programme of improvements has now been identified that will deliver major reductions in surface water entering foul drainage systems by 2015 (estimated 25% reduction) with a further programme of work in subsequent water company investment plans over the next 5-10 years.

The phased improvements should enable required sewage spill frequencies to be achieved, alongside accommodating planned new developments. In the meantime, the MoU between the relevant agencies will allow some development to take place alongside protection of the Burry Inlet.

The comprehensive assessments of surface drainage systems, watercourses and foul drainage will provide the foundation for integrated management and solutions to flooding problems in the area and the implementation of innovative sustainable urban drainage solutions.

Environment Agency Wales
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