

Dunmore East Stream Chlorination Report

Introduction

The bathing season runs from the 1st June to 15th September each year. The streams that enter the Main strand at Dunmore East are considered to be the main source that impact negatively on the bathing water quality at this location. It is for this reason and in order to protect the public health of users that the streams are chlorinated. The disinfection is for the bathing season only.

Chlorine dosing of the Stream Outfall at Dunmore East

The stream outfall at the beach at Lawlor's Strand in Dunmore East combines two streams Killea and Horsequarter, which join under the road immediately upstream of the Strand. The two streams drain the adjoining catchments that rise above Dunmore East and are 1.5km and 2.5km in length respectively, and both are culverted prior to discharging into the beach.

Lawlor's Strand is a very popular bathing area and a designated Blue Flag beach. The small stream which is discharging directly into the bathing area impacts the bathing water quality with regards to intestinal bacteria, bring the levels of bacteria above the Bathing Waters Guidance Classification and causing health risk to bathers. The elevated levels of *E. coli* and *Enterococci* can result in bathing restriction in the affected area for several days and the beach to lose the Blue Flag status.

The chlorination points are situated approximately 150m to 200m from the entry onto the beach. The chlorine (less than 2% sodium hypochlorite) is introduced through an interval dosing system for the duration of the bathing season. In May this year (2022) new timers were installed, and the chlorination was terminated for a period of 8 hours between 22:00 and 06:00 daily. The levels of residual chlorine in the stream are monitored regularly.

An assessment conducted in 2001 on the impact of the chlorination on the ecology of the two streams, showed no detection of free or total chlorine below the chlorination points or at the beach. The assessment also investigates the ecological status of the two streams at locations before and after the chlorination stations (see the map below). The Q value results of Q3 indicated water quality of moderate pollution and showed no impact of the chlorination on the ecology of the streams.

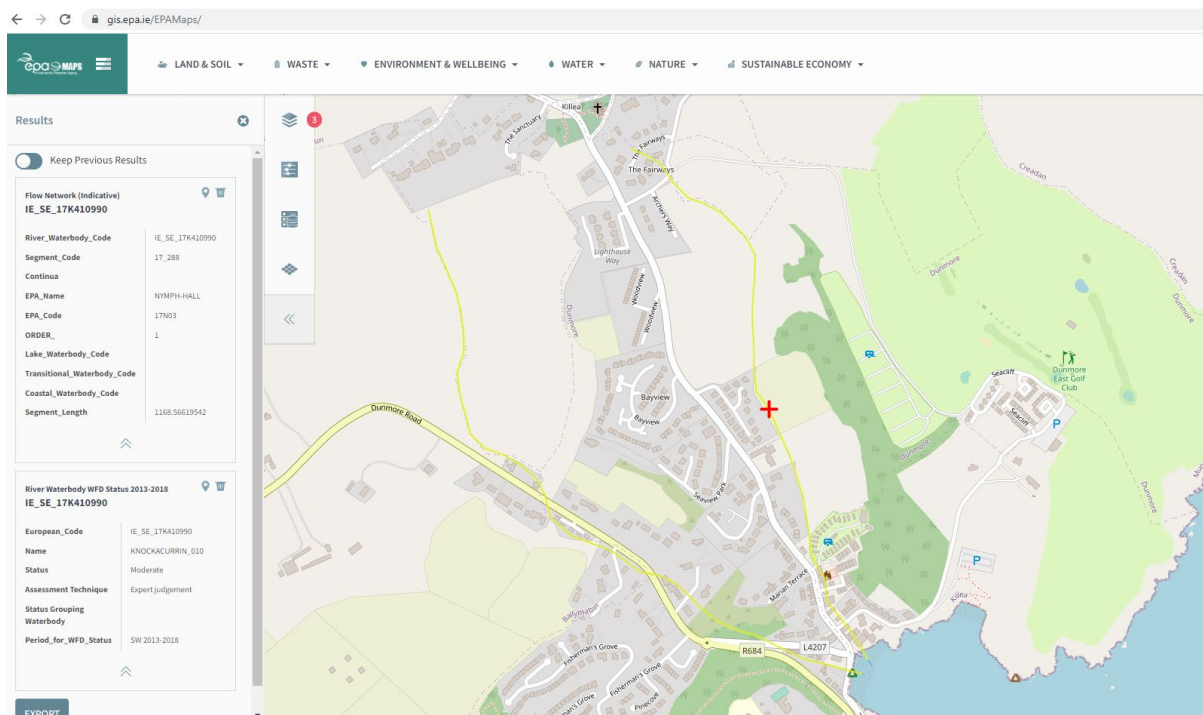
Stream	Location	Station
Killea	u/s chlorine-dosing housing	0300
Horsequarter	u/s chlorine-dosing housing	0400
Horsequarter	u/s where it becomes culverted	0500
Killea/Horsequarter	on beach	0600
Killea	under road	0650 ¹



Figure 1. Map showing sampling locations and chlorine-dosing points on the Horsequarter and Killea Streams in Dunmore East, Co. Waterford.

Current Ecological Status of Dunmore Stream

The two streams at Dunmore East are shown on the EPA maps as of moderate water quality status under the WFD status 2013 – 2018 (EPA maps). The current ecological status of these streams remains unchanged. The reasons for the poor quality are multiple and would include agricultural runoff, urban pressures such as contaminated storm water drainage from roads and possible pressures from poorly performing domestic wastewater systems.



EPA Interactive Maps (<https://gis.epa.ie/EPAMaps/>)

Catchment Management and Pollution Mitigation Measures

Waterford City and County Council has carried out several investigations in the catchment since 1998 and had identified and dealt with issues arising from domestic and agricultural sources. A section 12 improvement notice was issued in pre 2017 following inspections in the catchment.

More recent surveys found no direct discharges to the Streams from either agriculture or the urban sources. Chemical water quality was satisfactory. Microbiological quality was in line with most surface waters, however E coli counts were above bathing water standards at the beach and quite elevated following rainfall, due to diffuse runoff from agricultural and urban land. Addressing diffuse runoff and road drainage impact is more complex therefore the water quality in both streams continues to be a source of bacterial contamination and health hazard for bathing at the Lawlor's Strand.

The boundary of Waterford Estuary SAC is approximately 4km north of Dunmore East and thus due to distance and dilution factor the chlorination of the stream would not pose significant effects on the qualifying interests of Waterford Estuary SAC and a Stage 2 AA and Natura Impact Statement would not be required.

The activity is sub-threshold for EIA as per Schedule 7 of the Planning and Development Regulations 2001-2021.

Conclusions

The current practice of chlorinating the streams at Dunmore East is in place primarily to protect the public health. At present, the chlorination dosing is ongoing during the bathing season (June-August) between 06:00am and 10:00pm (a period of 8 hours during which no chlorine is released and also coincides with the eels' active night-time migration period) in levels less than 2% sodium hypochlorite. The levels of chlorine in the stream are monitored regularly and no residual chlorine has been detected.

Further measures to protect the public health include the re-erection of permanent warning sign directly above the discharge point of the stream.

At the conclusion of the bathing season in 2022, a review of the process of chlorination will be conducted. Once the review is completed, stakeholders will be consulted and asked to share their views in order to further inform what process should be followed in 2023.