

Lyme Regis briefing note 05 March 2024

River Lim bacteriological sampling 2023 bathing season

The Environment Agency collected water samples for bacteriological analysis from the Woodmead Road and River Lim at Beach sampling points throughout the 2023 bathing season (May to September inclusive). Sample collection coincided with collection of compliance samples from the designated bathing water at Lyme Regis Front Beach. Enumeration of *E. coli* and intestinal enterococci in water samples was undertaken at the EA NLS laboratory lab at Starcross. The results plotted below.

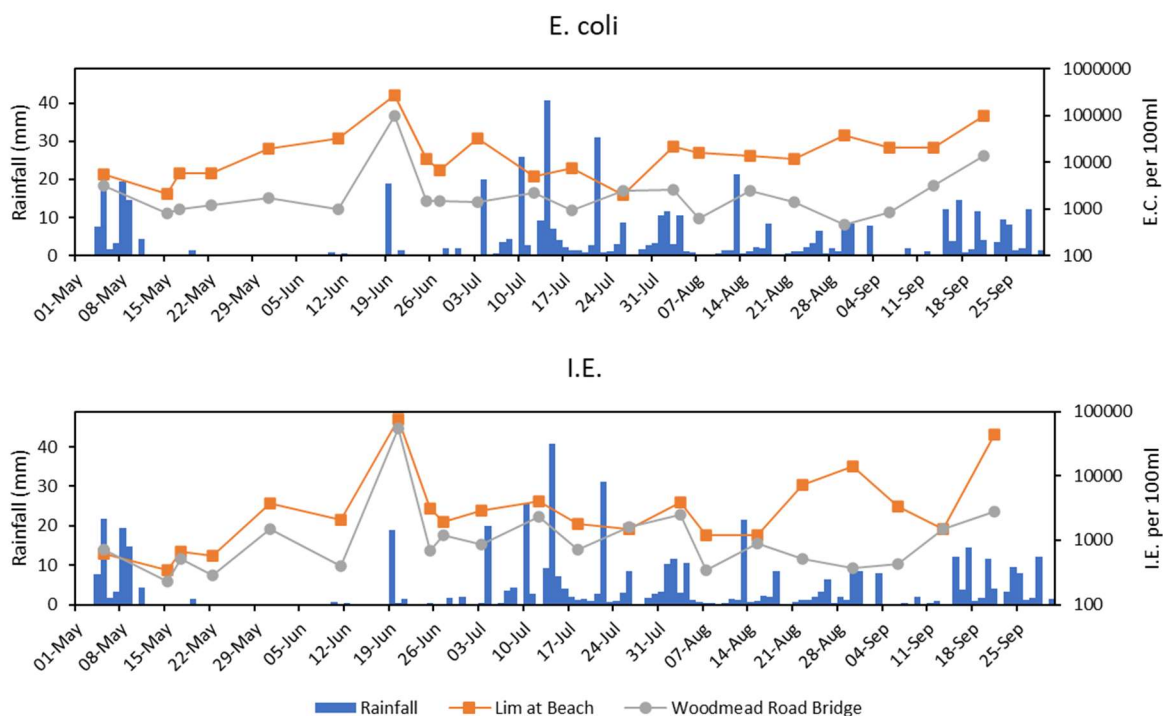


Figure 1. Time series of *E. coli* (top) and I.E. (bottom) concentrations in the River Lim at Woodmead Road and Lim at Beach. Daily rainfall totals for the EA gauge at Raymonds Hill are also shown.

The data are summarised in Table 1 below. There were statistically significant increases in both *E. coli* and I.E. concentrations between the Woodmead Road and Lim at Beach sites (paired t-test of log transformed data, $p < 0.05$). This confirms that there are persistent sources of contamination downstream of Woodmead Road (i.e. within Lyme Regis).

Table 1. Summary of bacteriological data from River Lim for 2023 bathing season (mu and sigma are the mean and standard deviation respectively of the log transformed data, $n=21$)

	<i>E. coli</i>		I. E.	
	Woodmead Road	Lim at Beach	Woodmead Road	Lim at Beach
mu	3.28	4.14	2.98	3.43
sigma	0.51	0.51	0.51	0.58
90%ile per 100ml	8,600	62,000	4,300	15,000
95%ile per 100ml	13,000	95,000	6,600	24,000

Microbial source tracking data

Four pairs of samples from the two River Lim sites were subsequently analysed for the seabird, ruminant and human microbial source tracking markers at the EA NLS Starcross laboratory. Two of these pairs were collected the day after heavy rainfall and the other two

pairs were collected the day after light rainfall. The MST results are presented below in Table 2.

Table 2. MST marker results for the River Lim. Note that % human is calculated as a percentage of the summed ruminant and human marker concentrations only.

Date	Site	Conditions	log ₁₀ copy no. / 100ml			% human
			Seabird	Ruminant	Human	
11/06/23	Woodmead Rd Lim at Beach	Light rain	ND	5.4	3.8	2.5
			3.1	5.1	5.9	86.3
20/06/23	Woodmead Rd Lim at Beach	Heavy rain	5.5	6.6	7.1	76.0
			5.4	4.8	7.4	99.7
30/08/23	Woodmead Rd Lim at Beach	Light rain	<2	4.9	3.9	9.1
			3.5	4.9	5.5	79.9
21/09/23	Woodmead Rd Lim at Beach	Heavy rain	<2	5.4	5.8	71.5
			4.3	5.3	7.6	99.5

All samples tested positive for both the ruminant and human markers. Human marker concentrations (as copy number per 100ml) were higher at the Lim at Beach site than at Woodmead Road on all sampling occasions, and the contribution of the human marker (expressed as a percentage of the sum of the ruminant and human marker concentrations) increased between the two sites. The data indicate that human sources of contamination are much more important than ruminant sources of contamination at the Lim at Beach site, and that this is true in both wet and dry conditions. [Note that spill data for CSOs discharging to the River Lim during the 2023 bathing season is not yet available but has been requested from South West Water.]

Most samples also tested positive for the seabird marker. Seabird marker concentrations were significant (>3 log₁₀ copy number per 100ml) at the River Lim at Beach site on all sampling occasions indicating that seagulls are likely to be an important source of contamination within Lyme Regis.

Classification of Lyme Regis Front Beach

The classification of Lyme Regis Front Beach is currently Good. This classification was assessed from samples collected during the 2019, 2021, 2022 and 2023 bathing season.

Out of season sampling by Devon, Cornwall and the Isles of Silly (DCIS) Area

EA DCIS have been sampling at Lyme Regis Front Beach and the Lim at Beach site since the end of the 2023 bathing season. The data are available on Open WIMS.

Designation of Lyme Regis Church Cliff Beach

An application has been made for re-designation of Church Cliff Beach (which was de-designated in 2015). Defra have launched a consultation on designation of 27 new sites as bathing waters (including Church Cliff Beach). The consultation closes on 10 March 2024.

**Environment Agency,
Wessex Area,
Analysis and Reporting Team – Feb 2024**