Annual Environmental Report

2019

Balbriggan

D0023-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0023-01, Balbriggan, in Dublin in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

The diversion of flows from the Loughshinny septic tank will not be fully operational until the Loughshinny pump station has been completed. The pumping station will pump from Loughshinny to the Rush Road Pumping Station in Skerries and onto the Balbriggan WWTP. Works on this pumping station is ongoing and expected to be completed in Q4 2020.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Barnageeragh WWTP with a Plant Capacity PE of 70000, the treatment type is 2 - Secondary treatment

1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF0900D0023SW001	Barnageeragh WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 BARNAGEERAGH WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - BARNAGEERAGH WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr mg/l	45	961	542.93
Total Phosphorus (as P) mg/l	45	10.8	5.85
Total Nitrogen mg/l	45	69.8	44.22
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	45	440	258.62
Suspended Solids mg/l	44	610	319.92
Hydraulic Capacity	N/A	17024	9310.22

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0900D0023SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	45	N/A	N/A	33.84	Pass
Suspended Solids mg/l	35	87.5	N/A	45	N/A	N/A	7.08	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	45	N/A	N/A	4.25	Pass
Temperature °C	25	N/A	N/A	1	N/A	N/A	4	Pass
pH pH units	6-9	6-9	N/A	44	N/A	N/A	7.8	Pass
Nitrite (as N) mg/l	N/A	N/A	N/A	45	N/A	N/A	0.33	
Salinity PSU	N/A	N/A	N/A	12	N/A	N/A	0.3	
Colour Hazen	N/A	N/A	N/A	4	N/A	N/A	38.58	
Nitrate (as N) mg/l	N/A	N/A	N/A	45	N/A	N/A	3.51	
Total Nitrogen mg/l	N/A	N/A	N/A	43	N/A	N/A	20.9	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	45	N/A	N/A	3.81	

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Dissolved Inorganic Nitrogen (as N) mg/l	N/A	N/A	N/A	45	N/A	N/A	19.68	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	45	N/A	N/A	2.32	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	45	N/A	N/A	2.05	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	45	N/A	N/A	15.86	
Conductivity 20 C µS/cm	N/A	N/A	N/A	45	N/A	N/A	909.19	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

Cause of Exceedance(s):

Not applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0900D0023SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Marine Monitoring Point Northwestern Irish Sea – DB800 - Balbriggan	321806, 265565	CW09001003DB7005	No	No	No	Yes	High
Marine Monitoring Point Northwestern Irish Sea – DB780 - Skerries	325502 262243	CW09001003DB7004	No	No	No	Yes	High

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary.**

Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - BARNAGEERAGH WWTP

2.1.4.1 Treatment Efficiency Report - Barnageeragh WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
SS	1092873	38967	96
cBOD	878842	17160	98
TN	150269	84544	44
TP	19892	9353	53
COD	1845000	136649	93

Note: The above data is based on sample results for the number of dates reported

2.1.4.2 Treatment Capacity Report Summary - Barnageeragh WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Barnageeragh WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	48300
DWF to the Treatment Plant (m^3/day)	16100
Current Hydraulic Loading - annual max (m^3/day)	17024
Average Hydraulic loading to the Treatment Plant (m^3/day)	9310.22
Organic Capacity (PE) - As Constructed	70000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	41208
Organic Capacity (PE) - Remaining	28792
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - BARNAGEERAGH WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
12	Blocked Sewer	0	12

3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	EO caused by power failure	1	Yes	Yes
Spillage	Blocked Sewer	1	No	Yes
Uncontrolled release	EO caused by pump failure	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes
Uncontrolled release	EO caused by ragging or blocking	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	5
Number of Incidents reported to the EPA via EDEN in 2019	5
Explanation of any discrepancies between the two numbers above	N/A

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW003	321595, 263493	Yes	High	Not yet Assessed	Unknown	Unknown	Not Monitored
SW004	320928, 263617	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW006	320928, 263617	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW009	324016, 261090	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW011	327302, 259650	Yes	Unknown	Meeting	Unknown	Unknown	Not Monitored
TBC	321732, 259102	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW005	320449, 263813	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW007	325541, 261086	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW008	324471, 260817	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW010	320880, 260080	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	320093, 263048	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes

SWO Summary	
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	Yes

4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS

4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0023-SIP:01	Balbriggan/Skerries Wastewater Treatment Scheme (Phase III) - Sewer Network Upgrade including infrastructure to direct WW from Loughshinny & Killalane to Barnageeragh WWTP	C	31/12/2010	Yes	Work ongoing on-site	31/12/2021	
D0023-SIP:02	Balbriggan/Skerries Wastewater Treatment Scheme (Phase III) - Sewer Network Upgrade to improve primary discharge	C	31/12/2010	Yes	Works Completed		

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0023-SIP:03	Connection of Kelly's Bay P.S. to Barnageeragh WWTP. SW6 to cease or revert to SWO complying with DoE criteria.	C	31/12/2010	Yes	Works Completed		
D0023-SIP:04	Discharge to cease: SW014 Killalane septic tank	A	31/12/2010	Yes	Works Completed		
D0023-SIP:05	Discharge to cease: SW006 Hoar's Rock, Skerries to cease or revert to a surface water overflow	A	31/12/2010	Yes	Works Completed		
D0023-SIP:06	Discharge to cease: SW015 Loughshinny septic tank	A	31/12/2010	Yes	At Planning Stage	31/12/2021	
D0023-SIP:07	Upgrading of sewer network to ensure SWOs comply with DoE criteria	C	31/12/2020	No	Work ongoing on-site	31/12/2021	

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvements Programme for this Agglomeration.				

4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Table.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2013	No	
Shellfish Impact Assessment	Yes	2015	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2013.

5.2 SHELLFISH IMPACT ASSESSMENT

The Shellfish Impact Assessment Report has been included in the AER 2015.

6 CERTIFICATION AND SIGN OFF

6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a Technical Amendment / Review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Date: 05/03/2020

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient monitoring summary

Balbriggan Ambient Monitoring Summary 2019

Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Marine Monitoring Point Northwestern Irish Sea – Balbriggan	321806.2, 265565.32	DB800	No	No	No	Yes	High (Coastal Water Quality Status: 2013 - 2018)
Marine Monitoring Point Northwestern Irish Sea – Skerries	325502.26 262243.93	DB780	No	No	No	Yes	High (Coastal Water Quality Status: 2013 - 2018)
Shore Monitoring Point Balbriggan North Beach	320385E 264052N		Yes	No	No	Yes	High (Coastal Water Quality Status: 2013 - 2018)
Shore Monitoring Point Skerries South Beach	325569E 260666N		Yes	No	No	Yes	High (Coastal Water Quality Status: 2013 - 2018)
Shore Monitoring Point Loughshinny Beach	327233E 256837N		Yes	No	No	Yes	High (Coastal Water Quality Status: 2013 - 2018)

2019 Ambient Monitoring Summary

Sampling Point Description	Sample Date	Ammonia mg/l as N	BOD mg/l O_2	Chlorophyll µg/l	DIN mg/l	DO % Sat.	pH	Ortho Phosphate mg/l P	Salinity PSU	Temp °C	TON mg/l as N	TN mg/l as N
DB780	21/05/2019	<0.02	3.32	<4.00	<0.2	112.4	8.3	<0.02	34.2	12.4	<0.7	<0.2
DB780	16/09/2019	<0.02	<2	<4.00	<0.2	101.8	8.13	<0.02	34.58	14.4	<0.7	<0.2
DB800	21/05/2019	<0.02	2.48	<4.00	<0.2	112.2	8.25	<0.02	34	12.4	<0.7	<0.2
DB800	21/05/2019	<0.02	2.4	<4.00	<0.2	101.5	8.05	<0.02	34.58	14.5	<0.7	<0.2

Bathing Water Results 2019

Balbriggan Front Beach

Date	E-Coli Result	Intestinal Enterococci Result	Water Sample Status
09/09/2019	771	480	Poor
26/08/2019	331	88	Good
12/08/2019	836	270	Poor
29/07/2019	31	13	Excellent
15/07/2019	31	38	Excellent
01/07/2019	10	7	Excellent
17/06/2019	52	11	Excellent
11/06/2019	10	12	Excellent
28/05/2019	10	23	Excellent

(Source: Beaches.ie)

In 2019, on 6 of the 9 sampling dates, Balbriggan Front Beach achieved an "*Excellent*" status.

Skerries South Beach

Date	E-Coli Result	Intestinal Enterococci Result	Water Sample Status
09/09/2019	<10	6	Excellent
26/08/2019	10	5	Excellent
12/08/2019	556	59	Sufficient
29/07/2019	<10	4	Excellent
15/07/2019	30	3	Excellent
01/07/2019	<10	1	Excellent
17/06/2019	10	24	Excellent
11/06/2019	<10	1	Excellent
28/05/2019	<10	3	Excellent

(Source: Beaches.ie)

In 2019, on 8 of the 9 sampling dates, Skerries South Beach achieved an "*Excellent*" status.

Loughshinny Beach

Date	E-Coli Result	Intestinal Enterococci Result	Water Sample Status
09/09/2019	31	27	Excellent
26/08/2019	10	5	Excellent
12/08/2019	10	2	Excellent
29/07/2019	10	13	Excellent
15/07/2019	10	5	Excellent
01/07/2019	20	11	Excellent
17/06/2019	426	190	Good
11/06/2019	41	21	Excellent
28/05/2019	10	5	Excellent

(Source: Beaches.ie)

In 2019, on 8 of the 9 sampling dates, Loughshinny Beach achieved an "*Excellent*" status.

FCC Bathing Water Monitoring Data 2019

Location	Sampled Date	E. coli (MPN/100ml)	Enterococci (CFU/100ml)	Floating Materials	Mineral Oil (Visual)	pH	Phenols (Olfactory)	Salinity (PSU)	Surfactants	Visual Inspection
(49902) Balbriggan Front Beach	28/05/2019 06:50	10	23	Absent	Absent	8.1	Absent	33.2	Absent	Normal
(49902) Balbriggan Front Beach	11/06/2019 06:15	10	12	Absent	Absent	8.1	Absent	31.8	Absent	Normal
(49902) Balbriggan Front Beach	17/06/2019 06:10	52	11	Absent	Absent	8	Absent	32.7	Absent	Normal
(49902) Balbriggan Front Beach	01/07/2019 10:05	10	7	Absent	Absent	8.2	Absent	33.4	Absent	Normal
(49902) Balbriggan Front Beach	15/07/2019 08:25	31	38	Absent	Absent	8.1	Absent	32.6	Absent	Normal
(49902) Balbriggan Front Beach	29/07/2019 08:00	31	13	Absent	Absent	8.1	Absent	33.4	Absent	Normal
(49902) Balbriggan Front Beach	12/08/2019 08:10	836	270	Absent	Absent	8	Absent	34.2	Absent	Normal
(49902) Balbriggan Front Beach	26/08/2019 07:45	331	88	Absent	Absent	8	Absent	33.3	Absent	Normal
(49902) Balbriggan Front Beach	09/09/2019 07:45	771	480	Absent	Absent	8.1	Absent	32.6	Absent	Normal
(49902) Balbriggan Front Beach	28/05/2019 06:50	10	23	Absent	Absent	8.1	Absent	33.2	Absent	Normal
(49907) Skerries South Beach	28/05/2019 07:10	<10	3	Absent	Absent	8.2	Absent	33.3	Absent	Normal
(49907) Skerries South Beach	11/06/2019 06:30	<10	1	Absent	Absent	8.2	Absent	33.5	Absent	Normal
(49907) Skerries South Beach	17/06/2019 06:45	10	24	Absent	Absent	8.1	Absent	33.1	Absent	Normal
(49907) Skerries South Beach	01/07/2019 10:40	<10	1	Absent	Absent	8.1	Absent	33.5	Absent	Normal
(49907) Skerries South Beach	15/07/2019 08:50	30	3	Absent	Absent	8.2	Absent	33.4	Absent	Normal
(49907) Skerries South Beach	29/07/2019 08:20	<10	4	Absent	Absent	8.1	Absent	33.8	Absent	Normal
(49907) Skerries South Beach	12/08/2019 08:30	556	59	Absent	Absent	8.1	Absent	31.3	Absent	Normal
(49907) Skerries South Beach	26/08/2019 08:05	10	5	Absent	Absent	8	Absent	33.4	Absent	Normal
(49907) Skerries South Beach	09/09/2019 08:10	<10	6	Absent	Absent	8.2	Absent	33.3	Absent	Normal
(49908) Lough Shinny Beach	28/05/2019 07:30	10	5	Absent	Absent	8.2	Absent	33.5	Absent	Normal
(49908) Lough Shinny Beach	11/06/2019 06:55	41	21	Absent	Absent	8.1	Absent	33.7	Absent	Normal
(49908) Lough Shinny Beach	17/06/2019 07:00	426	190	Absent	Absent	8.1	Absent	30.7	Absent	Normal
(49908) Lough Shinny Beach	01/07/2019 11:00	20	11	Absent	Absent	8.2	Absent	33.5	Absent	Normal
(49908) Lough Shinny Beach	15/07/2019 09:05	10	5	Absent	Absent	8.2	Absent	33	Absent	Normal
(49908) Lough Shinny Beach	29/07/2019 08:35	10	13	Absent	Absent	8.1	Absent	33.8	Absent	Normal
(49908) Lough Shinny Beach	12/08/2019 08:50	10	2	Absent	Absent	8	Absent	34.2	Absent	Normal

Location	Sampled Date	E. coli (MPN/100ml)	Enterococci (CFU/100ml)	Floating Materials	Mineral Oil (Visual)	pH	Phenols (Olfactory)	Salinity (PSU)	Surfactants	Visual Inspection
(49908) Lough Shinny Beach	26/08/2019 08:20	10	5	Absent	Absent	8	Absent	33.4	Absent	Normal
(49908) Lough Shinny Beach	09/09/2019 08:30	31	27	Absent	Absent	8.1	Absent	33.3	Absent	Normal

Shellfish Regs (Organics)

Location	Sample Number	FATWT%	CB18	CB31	CB28	CB52	CB44	CB101	CB149	CB118	CB153	CB105
Balbriggan - Skerries	ENV-18-1128	1.56	nd	0.026	0.074	0.06	0.039	0.112	0.117	0.141	0.306	0.049

CB138	CB156	CB180	CB170	CB194	CB209	HCBD	HCB	HCHA	HCHG	HCHB	HEPC	HCHD	OCDAN	HCEPC	TNONC	TCDAN
0.15	0.006	nd	nd	nd	nd	0.044	0.026	<0.03	<0.03	<0.03	nd	nd	nd	nd	<0.03	<0.03

DDEOP	CCDAN	DDEPP	TDEOP	TDEPP	DDTPP	DDTOP	BDE28	BDE47	BD100	BDE99	BD154	BD153	BD183	NAP	ACNLE	ACNE
<0.03	<0.03	0.221	0.052	0.166	<0.169	<0.032	<0.036	0.062	0.041	nd	<0.036	nd	<0.036	NA	0.144	0.393

FLE	PA	ANT	FLU	PYR	CHR	BAA	BBF	BKF	BAP	ICDP	DBAHA	BGHIP
0.855	3.746	0.157	5.767	3.244	1.934	1.347	1.875	0.831	0.637	0.403	0.064	0.568

Shellfish Regs (Biota)

Year	Date	Sample	Subno	Programme	Station	Latitude	Longitude	Species (latin)	Species (common)	# of individuals	Length Range (mm)	Length Mean (mm)	Length Stdev (mm)	Tissue analysed
2018	30/11/18	1128	1	SWD	Balbriggan - Skerries	53.61447	-6.16905	Ensis siliqua	clam, razor	-	-	-	-	SB

Moisture (%)	Lipid (%)	aluminium (mg kg-1 WW)	arsenic (mg kg-1 WW)	cadmium (mg kg-1 WW)	chromium (mg kg-1 WW)	cobalt (mg kg-1 WW)	copper (mg kg-1 WW)	iron (mg kg-1 WW)	lead (mg kg-1 WW)	manganese (mg kg-1 WW)	mercury (mg kg-1 WW)	nickel (mg kg-1 WW)	selenium (mg kg-1 WW)	silver (mg kg-1 WW)
77.8	1.56	71.8	1.5	0.02	0.31	0.05	1.5	58.5	0.16	1.51	0.01	0.08	0.28	0.12

vanadium (mg kg-1 WW)	zinc (mg kg-1 WW)
0.16	15.6