

# Annual Environmental Report 2016

<b>Agglomeration Name:</b>	<b>Passage/Monkstown</b>
<b>Licence Register No.</b>	<b>D0129-01</b>



# Contents

<b>Section 1. Executive Summary and Introduction to the 2016 AER</b>	<b>3</b>	
1.1 Summary Report on 2016	3	
<b>Section 2. Monitoring Reports Summary</b>	<b>4</b>	
2.1 Summary report on monthly influent monitoring	4	
2.2 Discharges from the agglomeration	5	
2.3.1. Ambient Monitoring Summary	6	
2.4 Data collection and reporting requirements under the UWWTD	6	
2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year	6	
<b>Section 3. Operational Reports Summary</b>	<b>7</b>	
3.1 Treatment Efficiency Report	7	
3.2 Treatment Capacity Report	7	
3.3 Extent of Agglomeration Summary Report	8	
3.4 Complaints Summary	8	
3.5 Reported Incidents Summary	9	
<b>Section 4. Infrastructure Assessments and Programme of Improvements</b>	<b>11</b>	
4.1 Storm water overflow identification and inspection report	11	
4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.	13	
<b>Section 5. Licence Specific Reports</b>	<b>16</b>	
<b>Section 6. Certification and Sign Off</b>	<b>17</b>	
<b>Section 7. Appendices</b>	<b>18</b>	

## Section 1. Executive Summary and Introduction to the 2016 AER

### 1.1 Summary Report on 2016

This Annual Environmental Report has been prepared for **D0129-01, Passage/Monkstown**, in County **Cork**, in accordance with the requirements of the wastewater discharge licence for the agglomeration.

There is no waste water treatment plant in Passage West / Monkstown and waste water discharges untreated to Lough Mahon through three outfall points. The largest flow is discharged through Pembroke outfall (primary discharge) in Passage West. There are two other secondary discharges of untreated waste water from the agglomeration. There are five pumping stations and four of these have emergency overflows which also act as combined storm water overflows. There is evidence of seawater and rainfall infiltration. The current load from the agglomeration is estimated at a population equivalent (p.e.) of 7,600 which includes an estimated load of 10% for pending development. The waste water is predominantly domestic with 10% attributed to commercial and institutional waste water.

As the agglomeration is between 2,000 and 10,000 p.e., a secondary treatment was required under the Urban Waste Water Regulations, 2001 (S.I. No 254 of 2001) (UWW Regulations) by 31/12/05 but such treatment has not been provided. It is proposed to upgrade the Passage West / Monkstown sewer network and pump waste water to the proposed urban waste water treatment plant at Shanbally which has been operational since late 2016. This proposal forms part of the Cork Lower Harbour Sewerage Scheme (also known as Cork Harbour Main Drainage Scheme). It is proposed that storm water overflows will be designed in accordance with the DoECLG 'Procedures and Criteria in relation to storm water overflows', 1995. The network upgrade to transfer sewage to this WWTP from the Passage-Monkstown Agglomeration is expected to start 2017.

The final effluent from the discharge points is currently not monitored in accordance with the discharge licence, so it is unknown whether or not it was compliant with the Emission Limit Values in 2016.

There were no major capital or operational changes undertaken in 2016.

An Annual Statement of Measures is included in **Appendix 7.1**

## Section 2. Monitoring Reports Summary

### 2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

<b>2.1.1 Monthly Influent Monitoring</b>	<b>BOD (mg / l)</b>	<b>COD (mg / l)</b>	<b>SS (mg / l)</b>	<b>TP (mg / l)</b>	<b>TN (mg / l)</b>	<b>Hydraulic Loading (m3/d)</b>	<b>Organic Loading (PE/Day)</b>
<b>Number of Samples</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Annual Max.</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Annual Mean</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Influent monitoring is not carried out as there is no treatment plant in Passage West/Monkstown. Wastewater currently discharges to Lough Mahon through three outfall points.

## 2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

<b>2.2.1 Effluent Monitoring Summary</b>	<b>BOD (mg/l)</b>	<b>COD (mg/l)</b>	<b>TSS (mg/l)</b>	<b>Total P (mg/l)</b>	<b>Ortho P (mg/l)</b>	<b>MRP</b>	<b>Total N (mg/l)</b>	<b>Ammonia NH3 (mg/l)</b>	<b>pH</b>	<b>Kjeldahl Nitrogen</b>
<b>WWDL ELV (Schedule A) where applicable</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>ELV with Condition 2 Interpretation included</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Interim % Reduction (Schedule A)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Number of sample results</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Number of sample results above WWDL ELV</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Number of sample results above ELV with Condition 2 Interpretation</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Annual Mean (for parameters where a mean ELV applies)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Overall Compliance (Pass/Fail)</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

### Significance of results

There is direct discharge. No monitoring of primary or secondary wastewater discharges is required, in accordance with the licence. The impact on receiving waters is assessed further in Section 2.3.

### 2.3.1. Ambient Monitoring Summary

**Table 2.3. 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
Upstream Monitoring Point		LE330					Moderate
Downstream Monitoring Point		LE380	No	No	No	No	Good
Downstream Monitoring Point #2		LE630	No	No	No	No	Good

Ambient monitoring is not being carried out by the licensee for this agglomeration. EPA Coastal Monitoring Data is used instead. 2015 data has been used as 2016 data is not available. Data sets used are included in Appendix 7.2.

Shellfish production area classification for The North Channel (East) in Cork Harbour is Class B for Oysters (Source: SFPA, July 2016), indicating some level of contamination with bacterial and viral pathogens.

Cork Great Island North Channel Shellfish Area: The Marine Institute conducted water quality analysis for samples taken within the Cork Great Island North Channel in 2012. All monitoring results are in compliance with the mandatory values prescribed in the European Communities (Quality of Shellfish Waters) Regulations 2006.

#### Significance of results

- The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.
- The discharge from the WWTP doesn't have an observable negative impact on the Water Framework Directive status.
- Other potential causes of deterioration in water quality relevant to this area are discharges from other agglomerations

### 2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 28/02/2017

### 2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required as the PE is < 100000

## Section 3. Operational Reports Summary

### 3.1 Treatment Efficiency Report

	<b>cBOD (kg/yr)</b>	<b>COD (kg/yr)</b>	<b>SS (kg/yr)</b>	<b>Total P (kg/yr)</b>	<b>Total N (kg/yr)</b>
Influent mass loading (kg/year)	N/A	N/A	N/A	N/A	N/A
Effluent mass emission (kg/year)	N/A	N/A	N/A	N/A	N/A
% Efficiency (% reduction of influent load)	N/A	N/A	N/A	N/A	N/A

### 3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

<b>Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)</b>	N/A
<b>Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)</b>	N/A
<b>Hydraulic Capacity – Current loading (m3/day)</b>	N/A
<b>Hydraulic Capacity – Remaining (m3/day)</b>	N/A
<b>Organic Capacity - Design / As Constructed (PE)</b>	N/A
<b>Organic Capacity - Current loading (PE)</b>	N/A
<b>Organic Capacity – Remaining (PE)</b>	N/A
<b>Will the capacity be exceeded in the next three years? (Yes / No)</b>	N/A
<b>Is an upgrade or expansion of the WWTP proposed? (i.e. if on Minor Programme or CIP) (Yes/No)</b>	Yes

### 3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and created in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended).

**Table 3.3 - Extent of Agglomeration Summary Report**

	<b>% of P.E. load generated in the agglomeration</b>	<b>Estimated / Measured</b>
<b>Load generated in the agglomeration that is collected in the sewer network</b>	100	Estimated
<b>Load collected in the agglomerations that enters treatment plant</b>	0	Estimated
<b>Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)</b>	100	Estimated

**Load generated in the agglomeration that is collected in the sewer network** is the total load generated and collected in the municipal network within the boundary of the agglomeration.

**Load collected in the agglomerations that enters treatment plant** is that portion of the previous figure which enters the waste water treatment plant.

**Load collected but discharged without treatment** is that portion of the first figure which is discharged without treatment.

The data in Table 3.3 is estimated based on the fact that no waste water treatment takes place.

### 3.4 Complaints Summary

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

**Table 3.4 - Complaints Summary Table**

<b>Number of Complaints</b>	<b>Nature of Complaint</b>	<b>Number Open Complaints</b>	<b>Number Closed Complaints</b>
4	Regular Sewer Blockages	0	4



### 3.5 Reported Incidents Summary

A summary of reported incidents is included below.

**Table 3.5.1 - Summary of Incidents**

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Recurring Incident (Yes/No)	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

**Table 3.5.2 - Summary of Overall Incidents**

<b>Number of Incidents in 2016</b>	0
<b>Number of Incidents reported to the EPA via EDEN in 2016</b>	0
<b>Explanation of any discrepancies between the two numbers above</b>	N/A

### 3.6 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in Table 3.6 below.

**Table 3.6 - Other Inputs<sup>1,2</sup>**

Input type	m3/year	PE	% of load to WWTP	Included in Influent Monitoring (Y/N)? <sup>3</sup>	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? <sup>2</sup> (Y/N)
Domestic /Septic Tank Sludge	N/A	N/A	N/A	N/A	N/A	N/A
Industrial / Commercial Sludge	N/A	N/A	N/A	N/A	N/A	N/A
Landfill Leachate (delivered by tanker)	N/A	N/A	N/A	N/A	N/A	N/A
Landfill Leachate (delivered by sewer network)	N/A	N/A	N/A	N/A	N/A	N/A
Other (specify)	N/A	N/A	N/A	N/A	N/A	N/A

**Notes:**

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant **not** included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to Influent monitoring point and are therefore already reported in S.2.1 *Influent Monitoring Summary*, then a "Yes" here will clarify this, to avoid duplication and over-reporting of PE.

## Section 4. Infrastructure Assessments and Programme of Improvements

### 4.1 Storm water overflow identification and inspection report

Storm Water Overflows have not yet been assessed as direct discharge is in operation. A summary of the significance and operation is included below.

**Table 4.1.1 - SWO Identification and Inspection Summary Report**

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/Low)	Compliance with DoEHLG criteria	No. of times activated in 2016 (No. of events)	Total volume discharged in 2016 (m3)	Total volume discharged in 2016 (P.E.)	Estimated / Measured data
TPEFF0500D 0129SW004	175621E 069656N	Yes	N/A	Not yet assessed	Unknown	Unknown	Unknown	N/A
TPEFF0500D 0129SW005	176987E 068831N	Yes	N/A	Not yet assessed	Unknown	Unknown	Unknown	N/A
TPEFF0500D 0129SW006	177116E 067734N	Yes	N/A	Not yet assessed	Unknown	Unknown	Unknown	N/A
TPEFF0500D 0129SW007	177114E 066095N	Yes	N/A	Not yet assessed	Unknown	Unknown	Unknown	N/A

**Table 4.1.2 - SWO Identification and Inspection Summary Report**

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown

<b>Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?</b>	Yes
<b>The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)</b>	No
<b>Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?</b>	N/A

#### 4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.

The Improvement Programme report addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail other improvements identified through assessments required under the licence.

**Table 4.2.1 - Specified Improvement Programme Summary**

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
Construction of a WWTP and collection system	A and C	1st January 2015	Yes	Commenced		2018	Included in Capital Investment Plan
Upgrade collecting system: reduce infiltration, remediate structural damage, separate storm water and install major pumping station	Schedule C: C.1	1st January 2015	Yes	Commenced		2018	Included in Capital Investment Plan
Infrastructural Works necessary to cease discharges	Schedule C: C.1	1st January 2015	Yes	Commenced		2018	Included in Capital Investment Plan

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

**Table 4.2.2 - Improvement Programme Summary**

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
None					

**Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary**

<b>The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:</b>	<b>Risk Assessment Rating (High, Medium, Low)</b>	<b>Risk Assessment Score</b>	<b>Reference to relevant section of AER (e.g. Appendix 2 Section 4.</b>	<b>Specified improvements</b>	<b>Comment</b>
<b>Hydraulic Risk Assessment Score</b>	Medium	78	AER 2014	Lower Harbour Scheme	N/A
<b>Environmental Risk Assessment Score</b>	High	435	AER 2014	Lower Harbour Scheme	N/A
<b>Structural Risk Assessment Score</b>	High	125	AER 2014	Lower Harbour Scheme	N/A
<b>Operation &amp; Maintenance Risk Assessment Score</b>	Medium	140	AER 2014	Lower Harbour Scheme	N/A
<b>Overall Risk Score for the agglomeration</b>	High	778	AER 2014	Lower Harbour Scheme	N/A

## Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Never required by condition 5 in Licence	Required in this AER or outstanding from previous AER	Included in this AER / Remains outstanding	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	Not Required	No	No	N/A
Drinking Water Abstraction Point Risk Assessment	Not Required	No	No	N/A
Shellfish Impact Assessment	Not Required	No	No	N/A
Pearl Mussel Report	Not Required	No	No	N/A
Toxicity/Leachate Management	Not Required	No	No	N/A
Toxicity of Final Effluent Report	Not Required	No	No	N/A
Small Stream Risk Score Assessment	Not Required	No	No	N/A
Habitats Impact Assessment	Not Required	No	No	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	N/A	N/A
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A
Small Stream Risk Score Assessment	N/A	N/A
Habitats Impact Assessment	N/A	N/A



## Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

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)?	N/A
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 modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	No
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	N/A
Ensure the following reports are included	

### Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2016 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

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

Signed:



Date:

20/02/2017

**Elizabeth Arnett**

**Head of Corporate Affairs and Environmental Regulation**

## **Section 7. Appendices**

### *Appendix 7.1 Statement of Measures / Improvement Programme*

No additional measures have been taken in 2016 in relation to prevention of environmental damage. The need for measures to prevent environmental damage will be reviewed on an annual basis.

## Appendix 7.2 Ambient Monitoring Data

Upstream Monitoring Data: Mid Lough Mahon - Buoy No. 6

Counter	Station No	Sample Lat	Survey Dat	Time Clock	Depth Bed	Sample De	Salinity S ‰	Temp S °C	pH	Secchi m	SS mg/l	DO S % Sat	B.O.D. mg/l	TON mg/l	NH3 mg/l	PO4 µg/l P	Chlorophyll	Si_est µg/l	Lab. Numb	DIN mg/l N	Free NH3 r
127376	LE330	LE330SR	42165		8.2	0.3	26.22	16.35	8.2	1		133.1	0.5	0.47	0.062	12	5.4	410	1542746	0.532	0.00345
127382	LE330	LE330S	42165		10.3	0.3	27.99	14.35	8.2	2.5		130	0.5	0.34	0.075	11	7.3	280	1542730	0.415	0.00361
127432	LE330	LE330BR	42165	0.663194	8.2	7.1	31.61	12.69	8.1	1		119.6	1.4	0.14	0.11	15	16.9	100	1542747	0.25	0.00375
127390	LE330	LE330B	42165		10.3	8.6	31.8	12.53	8.1	2.5		115	0.5	0.12	0.12	15	10.3	100	1542731	0.24	0.00404
127801	LE330	LE330SR	42186		10.5	0	31.05	16.89	8.1	1.5		112.1	1.6	0.13	0.12	6.1		100	1543371	0.25	0.00557
127794	LE330	LE330S	42186		8	0	27.07	18	8.1	1.75		111.6	1.6	0.35	0.077	17	10.6	240	1543358	0.427	0.00387
128468	LE330	LE330S	42228		8	0	23.69	15.58	8	1		103.4	0.5	0.98	0.096	27	4.4	1700	1544383	1.076	0.00324
127803	LE330	LE330B	42186		8	7.5	32.1	16.32	8.1	1.75		103	1.2	0.1	0.15	17	10.8	410	1543359	0.25	0.00668
128473	LE330	LE330SR	42228		10	0	28.29	15	8.1	2.1		101.6	1.5	0.34	0.067	15	4.5	650	1544398	0.407	0.00271
127809	LE330	LE330BR	42186		10.5	0	32.1	16.09	8.1	1.5		101.3	1.1	0.087	0.14	2.5	7.8	350	1543372	0.227	0.00613
128486	LE330	LE330BR	42228		10	9.6	30.83	14.08	8	2.1		96.2	0.5	0.18	0.1	17	5.2	430	1544399	0.28	0.00302
128477	LE330	LE330B	42228		8	7.5	30.49	14.23	8	1		90.3	0.5	0.19	0.18	27	6.2	470	1544384	0.37	0.0055
1988	LE330	LE330B	42025	0.482639	7.3	6.78	29.03	8.32	8	1		93.3	0.5	0.64	0.1	32	1.8	970	1540200	0.74	0.00195
1989	LE330	LE330S	42025	0.482639	7.3	0.34	9.77	6.58	7.7	1		94	0.5	1.48	0.061	28	1.7	2800	1540199	1.541	0.00052
2005	LE330	LE330BR	42025	0.679861	10	9.66	28.45	8.05	7.9	NR		95.1		0.68	0.1	39	4	1000	1540218	0.78	0.00152
2006	LE330	LE330SR	42025	0.679861	10	0.23	22.02	7.13	7.9	NR		95.3		1.14	0.105	30	1.3	1600	1540217	1.245	0.00149

Downstream Monitoring: Cork Harbour - Ringaskiddy (LE380)

Counter	Station No	Sample Lat	Survey Dat	Time Clock	Depth Bed	Sample De	Salinity S ‰	Temp S °C	pH	Secchi m	SS mg/l	DO S % Sat	B.O.D. mg/l	TON mg/l	NH3 mg/l	PO4 µg/l P	Chlorophyll	Si_est µg/l	Lab. Numb	DIN mg/l N	Free NH3 r
127414	LE380	LE380S	42165	0.524306	15.8	0.3	32.14	12.9	8.2	3		128.5		0.089	0.03	5	8.1	100	1542734	0.119	0.0013
127395	LE380	LE380B	42165		15.8	15.6	34.17	11.24	8.1	3		122.8		0.005	0.017	5.7	13.5	100	1542735	0.022	0.00052
127802	LE380	LE380S	42186		16	0	30.53	16.79	8.2	1.8		110.9		0.17	0.061	7.1	9.2	100	1543362	0.231	0.0035
127813	LE380	LE380SR	42186		18.8	0	33.58	15.6	8.1	1.9	5	107.9	0.5	0.033	0.027	2.5	7.1	100	1543373	0.06	0.00114
128474	LE380	LE380S	42228		15	0	27.41	14.66	8	2		99.1		0.34	0.62	20	2.9	620	1544387	0.96	0.01957
127817	LE380	LE380BR	42186		18.8	18.2	34.08	14.5	8	1.9		97.9	0.5	0.087	0.033	2.5	4.2	100	1543374	0.12	0.00103
127815	LE380	LE380B	42186		16	15.5	33.33	14.98	8.1	1.8		97.4		0.044	0.063	2.5	6	100	1543363	0.107	0.00255
128491	LE380	LE380B	42228		15	13.9	33.37	13.32	8	2		94.4		0.057	0.024	7.1	2.9	250	1544388	0.081	0.00069
1992	LE380	LE380S	42025	0.511806	12.6	0.29	21.91	7.19	7.9	0.9		95.3		0.98	0.088	30	1.5	1500	1540203	1.068	0.00125
1993	LE380	LE380B	42025	0.535417	12.6	11.95	33.81	9	8	0.9		97.2		0.21	0.018	21	2	540	1540204	0.228	0.00037

Downstream Monitoring: Outer Cork Harbour (LE630)

Counter	Station No	Sample Lat	Survey Dat	Time Clock	Depth Bed	Sample De	Salinity S ‰	Temp S °C	pH	Secchi m	SS mg/l	DO S % Sat	B.O.D. mg/l	TON mg/l	NH3 mg/l	PO4 µg/l P	Chlorophyll	Si_est µg/l	Lab. Numb	DIN mg/l N	Free NH3 r
127393	LE630	LE630S	42165		27.5	0.6	34.13	11.89	8.2	4.5		134.8		0.005	0.005	2.5	8.4	100	1542738	0.01	0.0002
127399	LE630	LE630B	42165		27.5	27.1	34.9	10.81	8.1	4.5		126.9		0.005	0.005	2.5	8.5	100	1542739	0.01	0.00015
127816	LE630	LE630C	42186		29.5	0	33.75	14.92	8	3		102		0.018	0.026	2.5	2.7	100	1543365	0.044	0.00084
128475	LE630	LE630S	42228		28.8	0	32.03	14.31	8.1	4		100.6		0.17	0.026	8.3	2.1	360	1544391	0.196	0.001
128489	LE630	LE630B	42228		28.8	28.3	34.1	13.41	8.1	4		100.6		0.029	0.02	2.5	3	100	1544392	0.049	0.00072
127816	LE630	LE630C	42186		29.5	29	34.57	13	8	3		96.8		0.018	0.026	2.5	2.7	100	1543365	0.044	0.00073
1996	LE630	LE630S	42025	0.546528	27	0.37	28.11	7.75	8	1.1		96.9		0.74	0.053	27	1.1	1100	1540207	0.793	0.00099
1997	LE630	LE630B	42025	0.563194	27	25.06	33.47	8.84	8	1.1		97.1		0.34	0.018	23	1.4	590	1540208	0.358	0.00037

TON:NH3	DIN:PO4 µ	DO mg/l	Season	Cond	BOD_LOD	TON_LOD	NH3_LOD	PO4_LOD	Chl_a_LOD	Si_est_LOD	Lab	din:si	P:si	colour_lod	sal_lod	colour	WB
7.58	98.04	11.1	Summer		<1.0						EPA Dublin	5.57	0.06				Lough Mahon
4.53	83.43	11.2	Summer		<1.0						EPA Dublin	6.36	0.08				Lough Mahon
1.27	36.86	10.4	Summer							<200	EPA Dublin	10.72	0.29				Lough Mahon
1	35.38	10	Summer		<1.0					<200	EPA Dublin	10.29	0.29				Lough Mahon
1.08	90.63	9	Summer							<200	EPA Dublin	10.72	0.12				Lough Mahon
4.55	55.54	9	Summer								EPA Dublin	7.63	0.14				Lough Mahon
10.21	88.13	8.9	Summer		<1.0						EPA Dublin	2.71	0.03				Lough Mahon
0.67	32.52	8.3	Summer								EPA Dublin	2.62	0.08				Lough Mahon
5.07	60	8.6	Summer								EPA Dublin	2.69	0.04				Lough Mahon
0.62	200.79	8.2	Summer					<5			EPA Dublin	2.78	0.01				Lough Mahon
1.8	36.42	8.2	Summer		<1.0						EPA Dublin	2.79	0.08				Lough Mahon
1.06	30.3	7.7	Summer		<1.0						EPA Dublin	3.38	0.11				Lough Mahon
6.4	51.14	9.1	Winter		<1.0						EPA Dublin	3.27	0.06				Lough Mahon
24.26	121.7	10.8	Winter		<1.0						EPA Dublin	2.36	0.02				Lough Mahon
6.8	44.23	9.3	Winter								EPA Dublin	3.35	0.08				Lough Mahon
10.86	91.77	10	Winter								EPA Dublin	3.34	0.04				Lough Mahon

TON:NH3	DIN:PO4 µ	DO mg/l	Season	Cond	BOD_LOD	TON_LOD	NH3_LOD	PO4_LOD	Chl_a_LOD	Si_est_LOD	Lab	din:si	P:si	colour_lod	sal_lod	colour	WB
2.97	52.63	11.1	Summer							<200	EPA Dublin	5.1	0.1				Inner Cork Harbour
0.29	8.54	10.8	Summer			<0.010				<200	EPA Dublin	0.94	0.11				Inner Cork Harbour
2.79	71.95	8.9	Summer							<200	EPA Dublin	9.91	0.14				Inner Cork Harbour
1.22	53.07	8.7	Summer		<1.0			<5		<200	EPA Dublin	2.57	0.05	<5		2	Inner Cork Harbour
0.55	106.14	8.5	Summer								EPA Dublin	6.64	0.06				Inner Cork Harbour
2.64	106.14	8.1	Summer		<1.0			<5		<200	EPA Dublin	5.15	0.05				Inner Cork Harbour
0.7	94.65	8	Summer					<5		<200	EPA Dublin	4.59	0.05				Inner Cork Harbour
2.38	25.23	8	Summer								EPA Dublin	1.39	0.06				Inner Cork Harbour
11.14	78.72	10	Winter								EPA Dublin	3.05	0.04				Inner Cork Harbour
11.67	24.01	9	Winter								EPA Dublin	1.81	0.08				Inner Cork Harbour

TON:NH3	DIN:PO4 µ	DO mg/l	Season	Cond	BOD_LOD	TON_LOD	NH3_LOD	PO4_LOD	Chl_a_LOD	Si_est_LOD	Lab	din:si	P:si	colour_lod	sal_lod	colour	WB
1	8.85	11.7	Summer			<0.010	<0.010	<5		<200	EPA Dublin	0.43	0.05				Outer Cork Harbour
1	8.85	11.3	Summer			<0.010	<0.010	<5		<200	EPA Dublin	0.43	0.05				Outer Cork Harbour
0.69	38.92	8.4	Summer					<5		<200	EPA Dublin	1.89	0.05				Outer Cork Harbour
6.54	52.22	8.4	Summer								EPA Dublin	2.34	0.04				Outer Cork Harbour
1.45	43.34	8.5	Summer					<5		<200	EPA Dublin	2.1	0.05				Outer Cork Harbour
0.69	38.92	8.2	Summer					<5		<200	EPA Dublin	1.89	0.05				Outer Cork Harbour
13.96	64.95	9.6	Winter								EPA Dublin	3.09	0.05				Outer Cork Harbour
18.89	34.42	9.1	Winter								EPA Dublin	2.6	0.08				Outer Cork Harbour