Annual Environmental Report

2019

Westport

D0055-01

CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0055-01, Westport, in Mayo 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.

There were no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- WESTPORT WWTP with a Plant Capacity PE of 15042, the treatment type is 3NP - Tertiary N&P removal

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
TPEFF2200D0055SW001	WESTPORT WWTP	Treated	Non-Compliant	Copper - unspecified mg/l

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 WESTPORT WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - WESTPORT 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	12	723	178.44
Total Nitrogen mg/l	12	36.3	16.82
Total Phosphorus (as P) mg/l	12	4.8	1.98
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	485	98.17
Suspended Solids mg/l	12	182	107.81
Hydraulic Capacity	N/A	20488	6370

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 greater 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 - TPEFF2200D0055SW001

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	12	N/A	N/A	29.72	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	6.92	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	3.61	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.31	Pass
Ammonia-Total (as N) mg/l	5	6	N/A	12	N/A	N/A	0.61	Pass
Mercury - unspecified µg/l	40	48	N/A	2	2	2	0.03	Pass
Copper - unspecified mg/l	0.01	0.012	N/A	2	1	1	0.017	Fail
Arsenic - unspecified µg/l	40	48	N/A	2	N/A	N/A	0.5	Pass
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	4.67	

ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	12	N/A	N/A	0.81	
Conductivity 20 C µS/cm	N/A	N/A	N/A	12	N/A	N/A	1258.79	
E. Coli MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	11	
Cadmium - unspecified µg/l	5	6	N/A	2	N/A	N/A	0.15	Pass
Salinity PSU	N/A	N/A	N/A	12	N/A	N/A	1.5	
Zinc - unspecified µg/l	100	120	N/A	2	N/A	N/A	39.8	Pass
True Colour PtCo Units	N/A	N/A	N/A	4	N/A	N/A	27.76	
Chromium - unspecified µg/l	30	36	N/A	2	N/A	N/A	1.5	Pass
Fats, Oils & Greases mg/l	N/A	N/A	N/A	4	N/A	N/A	4.61	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	72.9	
Nitrite (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.14	
PCBs (Total) µg/l	N/A	N/A	N/A	1	N/A	N/A	0.02	
Lead - unspecified µg/l	20	24	N/A	2	N/A	N/A	0.45	Pass

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)
Nickel - unspecified µg/l	50	60	N/A	2	N/A	N/A	1.38	Pass
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	15.07	
Silver - unspecified µg/l	10	12	N/A	2	N/A	N/A	5	Pass
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	6.52	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.04	

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):

Please see Incident Section of report.

Significance of Results:

The WWTP is non compliant with the ELVs set in the WWDL. The impact on receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2200D0055SW001

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
There is no Ambient data included in the AER.							

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 not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring result does not 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 - WESTPORT WWTP

2.1.4.1 Treatment Efficiency Report - WESTPORT 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)
COD	413617	56294	86
TP	4598	1965	57
SS	249907	13106	95
cBOD	227559	6843	97
TN	38980	12342	68

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

2.1.4.2 Treatment Capacity Report Summary - WESTPORT 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.

WESTPORT WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	13650
DWF to the Treatment Plant (m^3/day)	4550
Current Hydraulic Loading - annual max (m^3/day)	20488
Average Hydraulic loading to the Treatment Plant (m^3/day)	6370
Organic Capacity (PE) - As Constructed	15042
Organic Capacity (PE) - Collected Load (peak week)[Note1]	9773
Organic Capacity (PE) - Remaining	5269

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 - WESTPORT 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)
Other	2074.72	Volume (m3)	25.26	0.09	Yes	Yes	No
Domestic /Septic Tank Sludge	805.33	Volume (m3)	9.8	0.03	Yes	Yes	No

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
There were no relevant environmental complaints in 2019.			

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)
Breach of ELV	Other	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Monitoring Equipment offline	Plant or equipment breakdown at WWTP	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	3
Number of Incidents reported to the EPA via EDEN in 2019	3
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
TBC	101163.122, 283164.518	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	97737, 285114	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
SW2	97738, 285114	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

TBC	100898.799, 283880.999	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	98068.767, 284545.453	No	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown

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

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
There are no Specified Improvement Programmes for this Agglomeration.							

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.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Shellfish Impact Assessment	Yes	2011	No	
Toxicity of Final Effluent	Yes	2017	No	

5.1 SHELLFISH IMPACT ASSESSMENT

The Shellfish Impact Assessment Report has been included in the AER 2011

5.2 TOXICITY OF FINAL EFFLUENT

The Toxicity of Final Effluent Report has been included in the AER 2017

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	Yes

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

Signed: Date: 03/06/2020

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

2019/20
List of Classified Bivalve Mollusc Production Areas in Ireland
(27 June 2019)

I	II	III	IV	V	VI
Production Area and Link to Map	**Boundaries**	**Bed Name**	**Species**	**Class**	**Notes**
Clew Bay Classified Production Areas	Area within a one nautical mile (1,852 M) radius of Roskeen Point (53° 53.46'N, 09° 40.10' W)	Tieranaur Bay Inisquirk	Oysters	A	
	Area bounded to the west by a line from Mulranny Pier to Old Head and to the south east by 09° 35.37' W and to the north east by a line due north and east respectively from the point at which 09° 37' W and 53° 52.60 N intersect	Corrie Channel	Mussels	A	
			Oysters	A	
		Rosslaher	Mussels	A*	*Seasonal Classification 1 Nov to 01 Aug, Reverts to Class B at other times (Note 1).
			Oysters	A	
		Mynah	Oysters	A	
		Inishlaughil	Mussels	A	
		Carrowholly	Oysters	A*	*Seasonal Classification 1 Oct to 01 Feb, Reverts to Class B at other times (Note 1).
		Murrisk	Oysters	A	

Scallops Harvested within Classified production areas:

All Scallops harvested within classified production areas are classified as B unless harvested within classified production areas where all other mollusc shellfish are classified of being class A where such scallops may be classified as A.

Lapsed Classifications:

The classifications for the areas listed below have lapsed because they are no longer active, or because an insufficient number of samples were available for the review period, and are subsequently no longer classified.

Production Area	Species
Murrisk	**Mussels**

Notes:

Note 1 Seasonal classifications

Where the data shows a clear seasonal trend over a number of seasons, different classification categories apply for different seasons. Details, where applicable, are given in column VI above.

Note 2 Preliminary classifications

Classifications are described as preliminary when an area is being classified for the first time or after a period in suspension. The term may also be used where an incomplete dataset of results was to hand.

Note 3 Dormant Fisheries

Fishery has been dormant for at least 12 months, and limited monitoring data is available. Sites that remain dormant are in danger of their Classification becoming lapsed due to a lack of monitoring data. Producers should contact their local SFPA office if Re-activating in order that monthly classification monitoring sampling may resume.

Classification monitoring data for Clew Bay.

Clew Bay has a number of different Classified sites which include:
Inisquirk, Corrie Channel, Rosslaher, Mynah, Inishlaughil, Carrowholly and Murrisk, and each have a separate worksheet.
Some of these sites are classified for both Oysters and Mussels.
Please also note that Results column, (ECShell), are expressed as Most Probable Number *E. coli* / Gram shellfish flesh so multiply this result by 100 to get the regulatory MPN *E. coli* /100grams shellfish flesh and intervalvular fluid.

B classification results are in **bold**

Hereunder are the sampling coordinates in order that you may geolocate your information:

Clew Bay (**Mussels**)		
Clew Bay (Inislaughill) Mussels	**Mussels**	53˚.881583N 009˚.632083W
Clew Bay (Corrie channel) Mussels	**Mussels**	53˚.86180N 009˚.56690W
Clew Bay (Rosslaher) Mussels	**Mussels**	53˚.85710N 009˚.56410W
Clew Bay (**Oysters**)		
Clew Bay (Murrisk)	**Pacific Oysters**	53˚.809166N 009˚.624666W
Clew Bay (Carrowholly)	**Pacific Oysters**	53.804194 9.581101
Clew Bay (Corrie Channel)	**Pacific Oysters**	53˚.86180N 009˚.56690W
Clew Bay (Inisquirk)	**Pacific Oysters**	53˚.88320N 009˚.67500W
Clew Bay (Mynah)	**Pacific Oysters**	53˚.84640N 009˚.57750W

The second attachment is the current list of Classified production areas in Ireland with their associated Classification. There is a table explaining Classification at the end of this email.

Finally, as an observation on our Classification monitoring programme for 2019, Clew bay is of good water quality and consequently, is mainly of A classification.

Classification Table:

Category	Microbiological Standard (MPN $100g^{-1}$ shellfish flesh)	Treatment required
Class A	<230 *E.coli*	May go direct for human consumption
Class B	<4,600 *E.coli* (90% compliance)	Must be depurated, heat treated or relayed to meet class A requirements
Class C	<46,000 *E.coli*	Must be relayed for 2 months to meet class A or B requirements or may also be heat treated

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39070	INISQUIRK	23-Jan-19	POY	0.2
CLEW BAY	39168	INISQUIRK	19-Feb-19	POY	0.18
CLEW BAY	39258	INISQUIRK	6-Mar-19	POY	0.78
CLEW BAY	39403	INISQUIRK	4-Apr-19	POY	0.18
CLEW BAY	39507	INISQUIRK	2-May-19	POY	0.18
CLEW BAY	39682	INISQUIRK	13-Jun-19	POY	0.18
CLEW BAY	**39878**	**INISQUIRK**	**23-Jul-19**	**POY**	**7.9**
CLEW BAY	39962	INISQUIRK	14-Aug-19	POY	0.18
CLEW BAY	40157	INISQUIRK	22-Sep-19	POY	0.18
CLEW BAY	40241	INISQUIRK	20-Oct-19	POY	0.2
CLEW BAY	40381	INISQUIRK	17-Nov-19	POY	0.18
CLEW BAY	40538	INISQUIRK	12-Dec-19	POY	0.18

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39029	CORRIE CHANNEL	7-Jan-19	MUS	0.18
CLEW BAY	39117	CORRIE CHANNEL	5-Feb-19	MUS	0.45
CLEW BAY	**39240**	**CORRIE CHANNEL**	**4-Mar-19**	**MUS**	**4.9**
CLEW BAY	39265	CORRIE CHANNEL	12-Mar-19	MUS	2.3
CLEW BAY	39383	CORRIE CHANNEL	1-Apr-19	MUS	0.45
CLEW BAY	39520	CORRIE CHANNEL	6-May-19	MUS	0.18
CLEW BAY	39686	CORRIE CHANNEL	13-Jun-19	MUS	0.2
CLEW BAY	39856	CORRIE CHANNEL	17-Jul-19	MUS	0.45
CLEW BAY	39935	CORRIE CHANNEL	7-Aug-19	MUS	0.18
CLEW BAY	40075	CORRIE CHANNEL	4-Sep-19	MUS	0.68
CLEW BAY	40235	CORRIE CHANNEL	17-Oct-19	MUS	2.3
CLEW BAY	40331	CORRIE CHANNEL	7-Nov-19	MUS	0.18
CLEW BAY	40468	CORRIE CHANNEL	2-Dec-19	MUS	0.18
CLEW BAY	39028	CORRIE CHANNEL	7-Jan-19	POY	0.2
CLEW BAY	39116	CORRIE CHANNEL	5-Feb-19	POY	0.18
CLEW BAY	39239	CORRIE CHANNEL	4-Mar-19	POY	0.2
CLEW BAY	39382	CORRIE CHANNEL	1-Apr-19	POY	0.18
CLEW BAY	39519	CORRIE CHANNEL	6-May-19	POY	0.18
CLEW BAY	39681	CORRIE CHANNEL	13-Jun-19	POY	0.18
CLEW BAY	39855	CORRIE CHANNEL	17-Jul-19	POY	0.18
CLEW BAY	39934	CORRIE CHANNEL	7-Aug-19	POY	0.18
CLEW BAY	40074	CORRIE CHANNEL	4-Sep-19	POY	2.2

CLEW BAY	40234	CORRIE CHANNEL	17-Oct-19	POY	0.93
CLEW BAY	40330	CORRIE CHANNEL	7-Nov-19	POY	0.78
CLEW BAY	40467	CORRIE CHANNEL	2-Dec-19	POY	0.18

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39031	ROSSLAHER	7-Jan-19	MUS	0.45
CLEW BAY	39119	ROSSLAHER	5-Feb-19	MUS	2.3
CLEW BAY	39242	ROSSLAHER	4-Mar-19	MUS	2.3
CLEW BAY	39385	ROSSLAHER	1-Apr-19	MUS	0.2
CLEW BAY	39514	ROSSLAHER	6-May-19	MUS	0.18
CLEW BAY	39688	ROSSLAHER	13-Jun-19	MUS	0.18
CLEW BAY	39858	ROSSLAHER	17-Jul-19	MUS	0.18
CLEW BAY	39937	ROSSLAHER	7-Aug-19	MUS	0.18
CLEW BAY	**40077**	**ROSSLAHER**	**4-Sep-19**	**MUS**	**7.9**
CLEW BAY	40233	ROSSLAHER	16-Oct-19	MUS	1.3
CLEW BAY	40333	ROSSLAHER	7-Nov-19	MUS	1.1
CLEW BAY	40470	ROSSLAHER	2-Dec-19	MUS	0.2
CLEW BAY	39030	ROSSLAHER	7-Jan-19	POY	0.2
CLEW BAY	39118	ROSSLAHER	5-Feb-19	POY	0.2
CLEW BAY	39241	ROSSLAHER	4-Mar-19	POY	1.1
CLEW BAY	39384	ROSSLAHER	1-Apr-19	POY	0.18
CLEW BAY	39513	ROSSLAHER	6-May-19	POY	0.18
CLEW BAY	39687	ROSSLAHER	13-Jun-19	POY	0.18
CLEW BAY	39857	ROSSLAHER	17-Jul-19	POY	0.2
CLEW BAY	39936	ROSSLAHER	7-Aug-19	POY	0.18
CLEW BAY	40076	ROSSLAHER	4-Sep-19	POY	2.3
CLEW BAY	40232	ROSSLAHER	16-Oct-19	POY	0.78
CLEW BAY	40332	ROSSLAHER	7-Nov-19	POY	1.1
CLEW BAY	40469	ROSSLAHER	2-Dec-19	POY	0.18

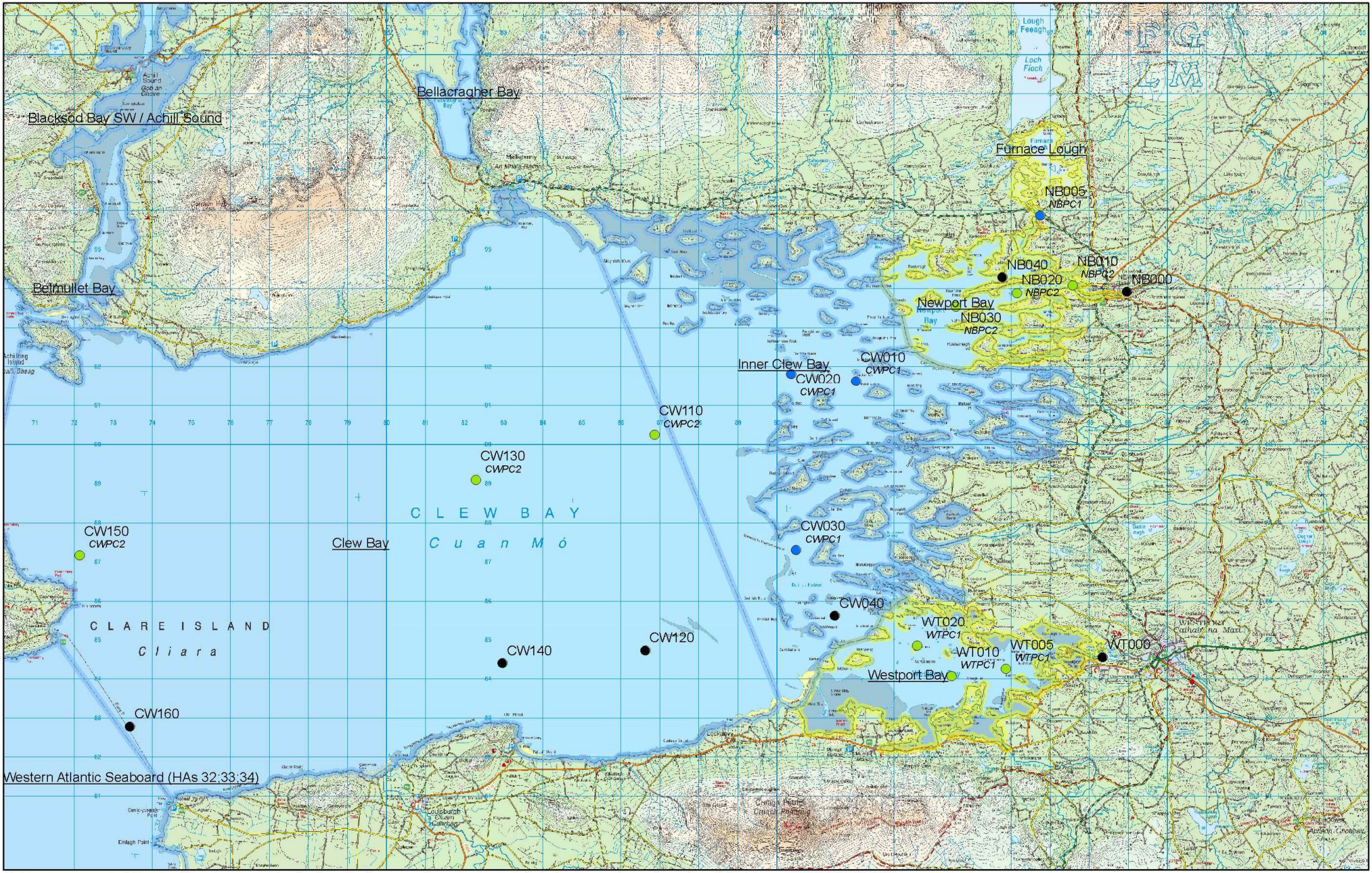
Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39034	MYNAH	9-Jan-19	POY	0.18
CLEW BAY	39144	MYNAH	14-Feb-19	POY	0.18
CLEW BAY	39365	MYNAH	27-Mar-19	POY	0.18
CLEW BAY	39475	MYNAH	25-Apr-19	POY	0.18
CLEW BAY	39515	MYNAH	6-May-19	POY	0.18
CLEW BAY	39707	MYNAH	19-Jun-19	POY	0.18
CLEW BAY	39852	MYNAH	17-Jul-19	POY	2.3
CLEW BAY	**40040**	**MYNAH**	**29-Aug-19**	**POY**	**35**
CLEW BAY	40180	MYNAH	30-Sep-19	POY	0.2
CLEW BAY	40270	MYNAH	24-Oct-19	POY	0.18
CLEW BAY	40418	MYNAH	25-Nov-19	POY	1.3
CLEW BAY	40539	MYNAH	12-Dec-19	POY	0.18

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39033	INISHLAUGHIL	9-Jan-19	MUS	0.4
CLEW BAY	39143	INISHLAUGHIL	14-Feb-19	MUS	0.18
CLEW BAY	39368	INISHLAUGHIL	28-Mar-19	MUS	0.18
CLEW BAY	39479	INISHLAUGHIL	24-Apr-19	MUS	0.18
CLEW BAY	39521	INISHLAUGHIL	6-May-19	MUS	0.18
CLEW BAY	39679	INISHLAUGHIL	13-Jun-19	MUS	0.45
CLEW BAY	39854	INISHLAUGHIL	17-Jul-19	MUS	0.18
CLEW BAY	40041	INISHLAUGHIL	29-Aug-19	MUS	0.45
CLEW BAY	40181	INISHLAUGHIL	30-Sep-19	MUS	0.45
CLEW BAY	40269	INISHLAUGHIL	24-Oct-19	MUS	0.18
CLEW BAY	40420	INISHLAUGHIL	26-Nov-19	MUS	0.18
CLEW BAY	40540	INISHLAUGHIL	13-Dec-19	MUS	0.45

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39069	CARROWHOLLY/ROSMALLEY POINT	23-Jan-19	POY	0.2
CLEW BAY	39142	CARROWHOLLY/ROSMALLEY POINT	14-Feb-19	POY	0.18
CLEW BAY	39367	CARROWHOLLY/ROSMALLEY POINT	27-Mar-19	POY	0.2
CLEW BAY	39477	CARROWHOLLY/ROSMALLEY POINT	24-Apr-19	POY	0.18
CLEW BAY	40039	CARROWHOLLY/ROSMALLEY POINT	29-Aug-19	POY	2.3
CLEW BAY	40129	CARROWHOLLY/ROSMALLEY POINT	17-Sep-19	POY	0.18
CLEW BAY	40243	CARROWHOLLY/ROSMALLEY POINT	20-Oct-19	POY	0.78
CLEW BAY	40419	CARROWHOLLY/ROSMALLEY POINT	25-Nov-19	POY	0.18
CLEW BAY	40533	CARROWHOLLY/ROSMALLEY POINT	12-Dec-19	POY	2.3
CLEW BAY	39659	CARROWHOLLY/ROSMALLEY PT	5-Jun-19	POY	0.2
CLEW BAY	39518	CARROWHOLLY/ROSMALLY POINT	6-May-19	POY	0.18
CLEW BAY	39879	CHARROWOLLY/ROSMALLEY POINT	23-Jul-19	POY	0.78

Area	Result Number	Sample Position	Sampling Date	Sample Type	ECShell
CLEW BAY	39068	MURRISK	23-Jan-19	POY	0.18
CLEW BAY	39141	MURRISK	14-Feb-19	POY	0.18
CLEW BAY	39366	MURRISK	27-Mar-19	POY	0.18
CLEW BAY	39478	MURRISK	24-Apr-19	POY	0.45
CLEW BAY	39517	MURRISK	6-May-19	POY	0.18
CLEW BAY	39658	MURRISK	5-Jun-19	POY	0.2
CLEW BAY	39851	MURRISK	17-Jul-19	POY	0.18
CLEW BAY	40038	MURRISK	29-Aug-19	POY	0.18
CLEW BAY	40128	MURRISK	17-Sep-19	POY	0.2
CLEW BAY	40242	MURRISK	20-Oct-19	POY	2.3
CLEW BAY	40355	MURRISK	15-Nov-19	POY	0.18
CLEW BAY	40532	MURRISK	12-Dec-19	POY	0.18

Newport, Westport & Clew Bay



Counter	Station No	Sample Label	Survey Date	Time Clock	Depth Bed	Sample Depth S	Salinity S ‰	Temp S °C	pH	Secchi m
131786	CW110	CW110B	15/02/2017	0.522222222	21	20.16	34.21	7.36	8	6.5
131785	CW110	CW110S	15/02/2017	0.522222222	21	0	34.19	7.36	8	6.5
131784	CW120	CW120C	15/02/2017	0.507638889	22	21.4	34.35	7.68	8	6.0
131784	CW120	CW120C	15/02/2017	0.507638889	22	0	34.28	7.62	8	6.0
133309	CW120	CW120C	18/07/2017	0.511111111	23.5	23.4	33.87	14.48	8.1	8.0
133309	CW120	CW120C	18/07/2017	0.511111111	23.5	0	33.57	16.39	8.1	8.0
133310	CW140	CW140C	18/07/2017	0.521527778	28	27.2	33.97	14.11	8.1	8.5
133310	CW140	CW140C	18/07/2017	0.521527778	28	0	33.77	16.37	8.1	8.5
133311	CW160	CW160S	18/07/2017	0.536805556	15	0	33.92	15.72	8.1	6.5
133312	CW160	CW160B	18/07/2017	0.536805556	15	14.6	33.91	14.77	8.1	6.5
133313	CW150	CW150C	18/07/2017	0.548611111	28	0	34.49	15.7	8.1	7.50
133313	CW150	CW150C	18/07/2017	0.548611111	28	26	35.1	14.6	8.1	7.50
133314	CW130	CW130C	18/07/2017	0.567361111	30.6	28	34.81	14.3	8.1	7.0
133314	CW130	CW130C	18/07/2017	0.567361111	30.6	0	34.5	15.9	8.1	7.0
133315	CW110	CW110C	18/07/2017	0.579861111	24	0	32.34	16.3	8.1	8.50
133315	CW110	CW110C	18/07/2017	0.579861111	24	23.8	34.64	15.1	8.1	8.50
134219	CW120	CW120C	20/09/2017	0.447916667	20.1	19.22	35.06	14.08	8.1	5.5
134219	CW120	CW120C	20/09/2017	0.447916667	20.1	0	34	14.55	8.1	5.5
134220	CW140	CW140C	20/09/2017	0.468055556	24.5	23.89	35	13.92	8.1	7.0
134220	CW140	CW140C	20/09/2017	0.468055556	24.5	0	33.9	14.4	8.1	7.0
134221	CW130	CW130C	20/09/2017	0.504861111	25.1	0	33.9	14.38	8.1	7.5
134221	CW130	CW130C	20/09/2017	0.504861111	25.1	24.26	35	13.89	8.1	7.5
134222	CW110	CW110C	20/09/2017	0.511805556	21.1	20.11	35	14.09	8.1	5.0
134222	CW110	CW110C	20/09/2017	0.511805556	21.1	0	33.9	14.53	8.1	5.0

Newport, Westport, Clew Bay

Site	Waterbody	Location	Easting	Northing	Long	Lat	PC_code	returns	BOD	VPH
NB000	Newport Bay	Newport River	9° 32' 12.745" W	53° 53' 5.331" N	53.8848	-9.5369				
NB005	Furnace Lough	Bridge at Furnace lough	9° 34' 16.601" W	53° 54' 6.901" N	53.9019	-9.5713	NBPC1			
NB010	Newport Bay	Newport Channel	9° 33' 29.099" W	53° 53' 9.701" N	53.8860	-9.5581	NBPC2	R		X
NB020	Newport Bay	Newport Channel by Green Buoy	9° 34' 46.700" W	53° 53' 2.400" N	53.8840	-9.5796	NBPC2			
NB030	Newport Bay	Rabbit Island	9° 36' 12.200" W	53° 52' 49.800" N	53.8805	-9.6034	NBPC2			
NB040	Newport Bay	Outfall pipe, Rossgibbileen Point	9° 35' 7.751" W	53° 53' 15.175" N	53.8875	-9.5855				
CW010	Inner Clew Bay	Mussel Lines at Illanmaw Island	9° 38' 29.299" W	53° 51' 46.300" N	53.8629	-9.6415	CWPC1			
CW020	Inner Clew Bay	Inishoo	9° 40' 0.800" W	53° 51' 50.900" N	53.8641	-9.6669	CWPC1			
CW030	Inner Clew Bay	Inishgort	9° 39' 47.902" W	53° 49' 25.399" N	53.8237	-9.6633	CWPC1			
CW040	Inner Clew Bay	Inishimmel	9° 38' 51.698" W	53° 48' 32.000" N	53.8089	-9.6477				
CW110	Clew Bay		9° 43' 9.574" W	53° 50' 57.660" N	53.8494	-9.7193	CWPC2			
CW130	Clew Bay		9° 47' 18.531" W	53° 50' 16.739" N	53.8380	-9.78848	CWPC2			X
CW150	Clew Bay		9° 56' 30.566" W	53° 49' 6.017" N	53.8183	-9.94182	CWPC2			
CW120	Clew Bay		9° 43' 15.762" W	53° 47' 59.154" N	53.7998	-9.72105				
CW140	Clew Bay		9° 46' 34.614" W	53° 47' 45.602" N	53.7960	-9.77628				
CW160	Clew Bay		9° 55' 13.621" W	53° 46' 45.227" N	53.7792	-9.92045				
WT000	Westport Bay	Westport House Lake	9° 32' 35.476" W	53° 48' 2.161" N	53.8006	-9.54319				
WT005	Westport Bay	Illanroe	9° 34' 50.389" W	53° 47' 50.765" N	53.7974	-9.58066	WTPC1			
WT010	Westport Bay	Annagh Island	9° 36' 6.098" W	53° 47' 43.699" N	53.7955	-9.60169	WTPC1	R		X
WT020	Westport Bay	Corillan Island	9° 36' 55.102" W	53° 48' 8.302" N	53.8023	-9.61531	WTPC1			

SS mg/l	DO S % Sat	B.O.D. mg/	TON mg/l N	NH3 mg/l N	PO4 µg/l P	Chlorophyll a mg/m	Si_est µg/l Si	Lab. Number	DIN	Free NH3 mg/l N
	97	0.5	0.075	0.013	24	0.5	180	17-02818	0.088	0.00024
	97.3	0.5	0.07	0.005	11	0.5	180	17-02817	0.075	0.00009
	97.4		0.048	0.005	11	0.5	180	17-02816	0.053	0.00009
	97.6		0.048	0.005	11	0.5	180	17-02816	0.053	0.00009
	95.5		0.005	0.022	5	1.1	50	17-12900	0.027	0.00086
	109.9		0.005	0.022	5	1.1	50	17-12900	0.027	0.00098
	93.8	0.5	0.005	0.03	2.5	0.5	50	17-12901	0.035	0.00114
	110	0.5	0.005	0.03	2.5	0.5	50	17-12901	0.035	0.00134
	112.7	0.5	0.005	0.027	2.5	0.5	50	17-12902	0.032	0.00115
	105.6	0.5	0.005	0.027	2.5	1.1	50	17-12903	0.032	0.00107
	115.3	0.5	0.005	0.028	2.5	0.5	50	17-12904	0.033	0.00119
	94.5	0.5	0.005	0.028	2.5	0.5	50	17-12904	0.033	0.0011
	92.8	0.5	0.005	0.028	2.5	1	50	17-12905	0.033	0.00108
	112	0.5	0.005	0.028	2.5	1	50	17-12905	0.033	0.00121
	113.8		0.005	0.027	2.5	1.1	50	17-12906	0.032	0.0012
	95.7		0.005	0.027	2.5	1.1	50	17-12906	0.032	0.0011
	90.8		0.005	0.016	2.5	2.5	50	17-16454	0.021	0.00061
	99		0.005	0.016	2.5	2.5	50	17-16454	0.021	0.00063
	91.6	0.5	0.021	0.025	18	1.1	50	17-16455	0.046	0.00093
	99.8	0.5	0.021	0.025	18	1.1	50	17-16455	0.046	0.00097
	101.2	0.5	0.019	0.017	5.8	1.5	120	17-16456	0.036	0.00066
	90.4	0.5	0.019	0.017	5.8	1.5	120	17-16456	0.036	0.00063
	89.4	0.5	0.022	0.11	230	1.7	50	17-16457	0.132	0.00416
	97.1	0.5	0.022	0.11	230	1.7	50	17-16457	0.132	0.0043

TON:NH3	DIN:PO4 µMol	DO mg/l	Season	Cond	BOD_LOD	TON_LOD	NH3_LOD	PO4_LOD	Chl_a_LOD	Si_est_LOD	Lab	din:si	P:si
5.77	8.11	9.3	Winter		<1				<1		EPA Monaghan	2.1	0.26
14	15.08	9.4	Winter		<1		<0.01		<1		EPA Monaghan	1.79	0.12
9.6	10.65	9.3	Winter				<0.01		<1		EPA Monaghan	1.26	0.12
9.6	10.65	9.3	Winter				<0.01		<1		EPA Monaghan	1.26	0.12
0.23	11.94	7.9	Summer			<0.01				<0.1	EPA Monaghan	2.32	0.19
0.23	11.94	8.8	Summer			<0.01				<0.1	EPA Monaghan	2.32	0.19
0.17	30.96	7.8	Summer		<1	<0.01		<0.005	<1	<0.1	EPA Monaghan	3	0.1
0.17	30.96	8.8	Summer		<1	<0.01		<0.005	<1	<0.1	EPA Monaghan	3	0.1
0.19	28.31	9.1	Summer		<1	<0.01		<0.005	<1	<0.1	EPA Monaghan	2.75	0.1
0.19	28.31	8.7	Summer		<1	<0.01		<0.005		<0.1	EPA Monaghan	2.75	0.1
0.18	29.19	9.3	Summer		<1	<0.01		<0.005	<1	<0.1	EPA Monaghan	2.83	0.1
0.18	29.19	7.7	Summer		<1	<0.01		<0.005	<1	<0.1	EPA Monaghan	2.83	0.1
0.18	29.19	7.7	Summer		<1	<0.01		<0.005		<0.1	EPA Monaghan	2.83	0.1
0.18	29.19	9	Summer		<1	<0.01		<0.005		<0.1	EPA Monaghan	2.83	0.1
0.19	28.31	9.2	Summer			<0.01		<0.005		<0.1	EPA Monaghan	2.75	0.1
0.19	28.31	7.8	Summer			<0.01		<0.005		<0.1	EPA Monaghan	2.75	0.1
0.31	18.58	7.5	Summer			<0.01		<0.005		<0.1	EPA Monaghan	1.8	0.1
0.31	18.58	8.2	Summer			<0.01		<0.005		<0.1	EPA Monaghan	1.8	0.1
0.84	5.65	7.6	Summer		<1					<0.1	EPA Monaghan	3.95	0.7
0.84	5.65	8.3	Summer		<1					<0.1	EPA Monaghan	3.95	0.7
1.12	13.73	8.4	Summer		<1						EPA Monaghan	1.29	0.09
1.12	13.73	7.5	Summer		<1						EPA Monaghan	1.29	0.09
0.2	1.27	7.4	Summer		<1					<0.1	EPA Monaghan	11.32	8.92
0.2	1.27	8	Summer		<1					<0.1	EPA Monaghan	11.32	8.92

colour_lod	sal_lod	colour	WB	
	34.4	IE_WE_340_0000		
	34.3	IE_WE_340_0000		
	34.4	IE_WE_340_0000		
	34.4	IE_WE_340_0000		
	34.7		IE_WE_340_0000	Clew Bay
	34.7		IE_WE_340_0000	Clew Bay
	37.8		IE_WE_340_0000	Clew Bay
	37.8		IE_WE_340_0000	Clew Bay
	34.9		IE_WE_340_0000	Clew Bay
	34.9		IE_WE_340_0000	Clew Bay
	34.9		IE_WE_340_0000	Clew Bay
	34.9		IE_WE_340_0000	Clew Bay
	34.8		IE_WE_340_0000	Clew Bay
	34.8		IE_WE_340_0000	Clew Bay
	34.7		IE_WE_340_0000	Clew Bay
	34.7		IE_WE_340_0000	Clew Bay
	34.3		IE_WE_340_0000	Clew Bay
	34.3		IE_WE_340_0000	Clew Bay
	34.6		IE_WE_340_0000	Clew Bay
	34.6		IE_WE_340_0000	Clew Bay
	34.5		IE_WE_340_0000	Clew Bay
	34.5		IE_WE_340_0000	Clew Bay
	34.4		IE_WE_340_0000	Clew Bay
	34.4		IE_WE_340_0000	Clew Bay