Annual Environmental Report

2018

Courtown/Gorey

D0046-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0046-01, Courtown/Gorey, in Wexford in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

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

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Courtown WWTP with a Plant Capacity PE of 36000. The treatment process includes the following:

1.2.1 Courtown WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening / Grit Removal
Primary Treatment	No	
Secondary Treatment	Yes	Activated Extended Aeration / SBR
Nutrient Removal	Yes	Biological De Nitification
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 Courtown WWTP

Compliance Status	
Were all parameters compliant for Courtown WWTP treatment plant	Yes
Where noncompliant see table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
Courtown WWTP	Cake Sludge	1105.66	Weight (Tonnes)	22.32	Mortorstown lime Stabilization Facility

Annual Statement of Measures

No Significant charges occurred in 2018 and none planned with next 3 years,, DAP for Gorey Collection network commenced last quarter 2018

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

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

2.1.1 Influent Monitoring Summary - Courtown WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr	12	2470	332.24
Total Phosphorus (as P)	12	9.1	2.91
Suspended Solids	12	1134	110.28
BOD, 5 days with Inhibition (Carbonaceous BOD)	12	693	126.23
Total Nitrogen	12	82.7	26.26
Hydraulic Capacity	0	20517	6570

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater tretament plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - Courtown WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Temperature	25	0	N/A	6	0	0	8.59	Pass
Suspended Solids	35	87.5	N/A	12	0	0	4	Pass
Ammonia-Total (as N)	25	30	N/A	12	0	0	0.08	Pass
COD-Cr	125	250	N/A	12	0	0	19.51	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD)	25	50	N/A	12	0	0	2.68	Pass
pH	6-9	6-9	N/A	12	0	0	7.25	Pass
Total Oxidised Nitrogen (as N)	35	42	N/A	12	0	0	7.55	Pass

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Not Applicable

Significance of Results:

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

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - Courtown WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	321647, 160061	TPEFF3300D0046SW001	No	No	No	No	Good
Upstream	320266, 156050	TPEFF3300D0046SW001	No	No	No	No	Good
Upstream	312719, 112447	TPEFF3300D0046SW001	No	No	No	No	Good

2.3.2 Ambient Monitoring Parameter Summary - Courtown WWTP

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

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

Other Potential cause of deterioration in water quality relevant to this area are: N/A

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - Courtown WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
cBOD	583332.87	5630.63	99.03	
SS	509632.33	8409.43	98.35	
TN	121344.37	18569.77	84.7	
COD	1535396.89	41035.09	97.33	
TP	13444.73	5192.73	61.38	

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

3.2 Treatment Capacity Report Summary

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.

Courtown WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	23625

DWF to the Treatment Plant (m3/day)	7875
Current Hydraulic Loading - annual max (m3/day)	20517
Average Hydraulic loading to the Treatment Plant (m3/day)	6570
Organic Capacity (PE) - As Constructed	36000
Organic Capacity (PE) - Collected Load (peak week)	21334
Organic Capacity (PE) - Remaining	14666
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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
29	Blocked Sewer	0	29

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Other	1	No	Yes
Uncontrolled release	Other	1	No	Yes

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	2
Number of Incidents reported to the EPA via EDEN in 2018	2
Explanation of any discrepancies between the two numbers above	N/A

3.5 Sludge / Other inputs to the 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)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2](Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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:

No Appendix Included

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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW1 (TPEFF330D0046SW006)	320156, 155989	Yes	Low	Meeting			Not Monitored
SW2 (TPEFF330D0046SW007)	315848, 158534	Yes	Low	Meeting			Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / charges to Schedule C3 and A4 under Condition 1.7?	No

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)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Decommissioning of Gorey WWTP and subsequent conversion of infrastructure to storm water storage	C	31/Dec/2013	Y	Complete		
Decommissioning of inlet overflow mechanism and subsequent utilisation of WWTP infrastructure for storm water retention purposes	C	31/Dec/2013	Y	Complete		
Discharge to cease: SW002 Gorey WWTP	C	31/Dec/2013	Y	Complete		
Discharge to cease: SW003 Riverchapel	C	31/Dec/2013	Y	Complete		
Discharge to cease: SW004 Paulishaun	C	31/Dec/2013	Y	Complete		
Discharge to cease: SW005 Ballinatray	C	31/Dec/2013	Y	Complete		
Elimination of all unauthorised discharges/surcharges from waste water works	C	31/Dec/2013	Y	Complete		
Upgrading of waste water works to convey all WW for treatment to Courtown WWTP	C	31/Dec/2013	Y	Complete		

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
WWTP upgrade and ancillary works	C	31/Dec/2013	Y	Complete		

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	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 (e.g. Appendix X).
There is no Licence Specific Report Required in this AER Annual Review.				

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 modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 26/02/2019

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 ,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix
Appendix 7.1 - Ambient monitoring summary

Station	Uupstream SW1		Station Ref: CW33002081SY4002			Ammonia N	E Coli	BOD, 5 days with Inhibition (Carbonaceous)	COD Chemical Oxygen Demand	Enterococci	Faecal Coliforms	Ortho-Phosphate P	Coliform Bacteria	pH	Suspended Solids	Total Kejdahl Nitrogen	Total Nitrogen N	Total Oxidised Nitrogen N	Total Phosphate P	Dissolved Inorganic Nitrogen DIN	Temperature	Dissolved Oxygen	Dissolved Oxygen % Saturation
Enity	Enity Ref:	Station Easting	Station Northing	Sample Date	Sample Method	mg/l	no./100mls	mg/l	mg/l	cfu/100mls	no./100mls	mg/l	no./100mls	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Degrees C	mg/l	% Sat.
Irish Sea	2081	322188.6	147982	17-Jan-2018	Grab	0.3		< 2	300			0.08		8	138	2.1	2.1	< 0.25	0.11	0.3	6.5	11.85	*96.9*
Irish Sea	2081	322188.6	147982	14-Feb-2018	Grab	0.35		< 2	140			0.02		8.1	263	1.6	1.6	< 0.25	< 0.1	0.35	7	11.49	*105.3*
Irish Sea	2081	322188.6	147982	28-Mar-2018	Grab	0.63		< 2	280			0.1		7.8	60	1.5	1.5	< 0.25	< 0.1	0.63	9.1	11.35	*91*
Irish Sea	2081	322188.6	147982	28-Mar-2018	Grab		< 10			< 10			*< 10*										
Irish Sea	2081	322188.6	147982	18-Apr-2018	Grab	0.36		1	120			0.04		8.1	156	0.36	1.3	< 0.25	0.22	0.36	10.7	11.26	*108.4*
Irish Sea	2081	322188.6	147982	23-May-2018	Grab	0.38		< 2	180			0.02		8.3	47	< 1	< 1	< 0.25	< 0.1	0.38	15.8	10.64	*87.1*
Irish Sea	2081	322188.6	147982	27-June-2018	Grab	0.38		2	480			0.03		8.2	44	1.7	1.7	< 0.25	< 0.1	0.38	19.6	9.35	*77.5*
Irish Sea	2081	322188.6	147982	17-July-2018	Grab			< 1		8	*5*	< 0.02		8.19			< 0.2				17	9.99	*103.5*
Irish Sea	2081	322188.6	147982	2-Aug-2018	Grab			< 1				< 0.02		8.31			< 0.2				16.6	10.19	*103.5*
Irish Sea	2081	322188.6	147982	20-Aug-2018	Grab			2				< 0.02		8.14			0.6				18.7	10.18	*101.6*
Irish Sea	2081	322188.6	147982	4-Sep-2018	Grab			2				0.11		8.47			1.3				16.4	10.28	*102.4*
Irish Sea	2081	322188.6	147982	2-Oct-2018	Grab			< 1		7	0	0.02		8.36			< 0.2				14.6	10.18	*102.3*
Irish Sea	2081	322188.6	147982	1-Nov-2018	Grab			< 1				0.06		8.46			0.3				9.5	10.61	*102.7*
				mean		**0.40**		**1.75**	**250.00**	**7.50**	**2.50**	**0.05**		**8.20**	**118.00**	**1.45**	**1.30**		**0.17**	**0.40**	**13.46**	**10.61**	**98.52**
				95%ile		**0.57**		**2.00**	**435.00**	**7.95**	**4.75**	**0.11**		**8.46**	**236.25**	**2.02**	**1.96**		**0.21**	**0.57**	**19.11**	**11.65**	**106.70**

Staion	Ambinet SW1		Station Ref: CW33002081SY4003			Ammonia N	E Coli	BOD, 5 days with Inhibition (Carbonaceous)	COD Chemical Oxygen Demand	Enterococci	Faecal Coliforms	Ortho-Phosphate P	Coliform Bacteria	pH	Suspended Solids	Total Kejdahl Nitrogen	Total Nitrogen N	Total Oxidised Nitrogen N	Total Phosphate P	Dissolved Inorganic Nitrogen DIN	Temperature	Dissolved Oxygen	Dissolved Oxygen % Saturation
Entity	Entity Ref-	Station Easting	Station Northing	Sample Date	Sample Method	mg/l	no./100mls	mg/l	mg/l	cfu/100mls	no./100mls	mg/l	no./100mls	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Degrees C	mg/l	% Sat.
Irish Sea	2081	320266.1	156049.8	17-Jan-2018	Grab	0.35		< 2	200			0.03		8	275	2.5	2.5	< 0.25	0.11	0.35	7.7	11.89	*97.4*
Irish Sea	2081	320266.1	156049.8	14-Feb-2018	Grab	0.34		< 2	300			< 0.02		8.1	210	< 1	< 1	< 0.25	< 0.1	0.34	7.1	11.24	*103.8*
Irish Sea	2081	320266.1	156049.8	28-Mar-2018	Grab		30			30			*110*										
Irish Sea	2081	320266.1	156049.8	28-Mar-2018	Grab	0.49		< 2	360			0.04		7.9	179	1.7	1.7	< 0.25	0.16	0.49	9.1	11.21	*89*
Irish Sea	2081	320266.1	156049.8	18-Apr-2018	Grab	0.49		< 2	100			0.57		8.1	184	0.49	< 1	< 0.25	0.59	0.49	10.9	10.9	*104.9*
Irish Sea	2081	320266.1	156049.8	23-May-2018	Grab	0.38		4	180			< 0.02		8.3	102	< 1	< 1	< 0.25	< 0.1	0.38	15.2	10.61	*85.7*
Irish Sea	2081	320266.1	156049.8	23-May-2018	Grab		10			< 10			*70*										
Irish Sea	2081	320266.1	156049.8	23-May-2018	Grab		40			20			*380*										
Irish Sea	2081	320266.1	156049.8	27-June-2018	Grab	0.77		8	380			< 0.02		8.2	77	< 1	< 1	< 0.25	< 0.1	0.77	19.6	9.5	*77.9*
Irish Sea	2081	320266.1	156049.8	17-July-2018	Grab		*20*	< 1		0	*6*	< 0.02		8.21			< 0.2				17.1	9.98	*103.7*
Irish Sea	2081	320266.1	156049.8	2-Aug-2018	Grab			< 1				< 0.02		8.27			< 0.2				16.5	10.15	*103.6*
Irish Sea	2081	320266.1	156049.8	20-Aug-2018	Grab			1				< 0.02		8.15			< 0.2				18.7	10.08	*100.9*
Irish Sea	2081	320266.1	156049.8	4-Sep-2018	Grab			2				< 0.02		8.44			< 0.2				16.3	10.26	*102.6*
Irish Sea	2081	320266.1	156049.8	2-Oct-2018	Grab		*1986*	< 1		0	1	0.03		8.35			< 0.2				14.7	10.17	*102.5*
Irish Sea	2081	320266.1	156049.8	1-Nov-2018	Grab			< 1				0.06		8.47			< 0.2				9.5	10.58	*102.1*
Irish Sea	2081	320266.1	156049.8	4-Dec-2018	Grab			< 2				< 0.02		8.26			< 0.2				8.9	10.16	*101.5*
				mean		**0.49**	**417.20**	**3.75**	**264.00**	**12.50**	**3.50**	**0.18**	**186.67**	**8.23**	**150.40**	**1.10**	**1.70**		**0.38**	**0.49**	**13.63**	**10.40**	**98.18**
				95%ile		**0.71**	**1596.80**	**7.40**	**376.00**	**28.50**	**5.75**	**0.49**	**353.00**	**8.45**	**204.80**	**1.64**	**1.70**		**0.57**	**0.71**	**19.11**	**11.22**	**104.30**

Station	Downstream SW1		Station Ref: CW33002081SY4004			Ammonia N	E Coli	BOD, 5 days with Inhibition (Carbonaceous)	COD Chemical Oxygen Demand	Enterococci	Faecal Coliforms	Ortho-Phosphate P	Coliform Bacteria	pH	Suspended Solids	Total Kejdahl Nitrogen	Total Nitrogen N	Total Oxidised Nitrogen N	Total Phosphate P	Dissolved Inorganic Nitrogen DIN	Temperature	Dissolved Oxygen	Dissolved Oxygen % Saturation
Enity	Enity Ref:	Station Easting	Station Northing	Sample Date	Sample Method	mg/l	no./100mls	mg/l	mg/l	cfu/100mls	no./100mls	mg/l	no./100mls	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	Degrees C	mg/l	% Sat.
Irish Sea	2081	321647.5	160061.4	17-Jan-2018	Grab	0.34		< 2	240			< 0.02		8.1	327	2.1	2.1	< 0.25	0.36	0.34	7.5	11.53	*95.4*
Irish Sea	2081	321647.5	160061.4	14-Feb-2018	Grab	0.35		< 2	220			< 0.02		8.1	200	1.2	1.2	< 0.25	< 0.1	0.35	7	11.57	*104.6*
Irish Sea	2081	321647.5	160061.4	28-Mar-2018	Grab		30			30			*90*										
Irish Sea	2081	321647.5	160061.4	28-Mar-2018	Grab	0.37		< 2	360			0.02		8	173	1.9	1.9	< 0.25	0.22	0.37	9.1	11.49	*92.7*
Irish Sea	2081	321647.5	160061.4	18-Apr-2018	Grab	0.33		< 2	60			< 0.02		8.1	451	0.33	< 1	< 0.25	0.21	0.33	10.9	10.93	*105.9*
Irish Sea	2081	321647.5	160061.4	23-May-2018	Grab	0.34		4	220			0.11		8.3	115	3.1	3.1	< 0.25	< 0.1	0.34	15.1	10.55	*87.3*
Irish Sea	2081	321647.5	160061.4	23-May-2018	Grab		40			10			*50*										
Irish Sea	2081	321647.5	160061.4	27-June-2018	Grab	0.38		6	220			< 0.02		8.2	74	2.2	2.2	< 0.25	< 0.1	0.38	19.8	9.36	*73.9*
Irish Sea	2081	321647.5	160061.4	17-July-2018	Grab			2		0	1	< 0.02		8.2			< 0.2				17.1	9.89	*103.2*
Irish Sea	2081	321647.5	160061.4	2-Aug-2018	Grab			< 1				< 0.02		8.28			< 0.2				16.6	10.08	*102.7*
Irish Sea	2081	321647.5	160061.4	20-Aug-2018	Grab			1				< 0.02		8.17			< 0.2				17.8	10.2	*101.3*
Irish Sea	2081	321647.5	160061.4	4-Sep-2018	Grab			2				< 0.02		8.45			1.2				16.3	10.24	*102.3*
Irish Sea	2081	321647.5	160061.4	2-Oct-2018	Grab			< 1		7	*6*	< 0.02		8.41			< 0.2				14.3	10.24	*102.4*
Irish Sea	2081	321647.5	160061.4	1-Nov-2018	Grab			< 1				0.09		8.47			0.3				9.6	10.56	*101.9*
Irish Sea	2081	321647.5	160061.4	4-Dec-2018	Grab			< 2				< 0.02		8.26			< 0.2				8.8	10.09	*101.7*
				mean		**0.35**	**35.00**	**3.00**	**220.00**	**11.75**	**3.50**	**0.07**	**70.00**	**8.23**	**223.33**	**1.81**	**1.71**		**0.26**	**0.35**	**13.07**	**10.52**	**98.10**
				95%ile		**0.38**	**39.50**	**5.60**	**330.00**	**27.00**	**5.75**	**0.11**	**88.00**	**8.46**	**420.00**	**2.88**	**2.83**		**0.35**	**0.38**	**18.60**	**11.55**	**105.12**