Monitoring for Toxin Producing and Nuisance Microalgae in Northern Ireland Coastal Waters

Reporting Period 1st January 2021 - 31st December 2021

Final Report – Version 1

Pages 37

Quality statement: This report is a compilation of the information included on the reports provided daily/ weekly to FSANI and showing the results of the phytoplankton analyses undertaken on samples submitted by third parties. All results were quality checked and approved prior to release to FSANI and the results compiled in this report have been further checked against a copy of the original reports held on a central database. Information relating to the origin of the samples (place, date and time of collection) is as provided by sampling staff and has not undergone verification checks by AFBI.

Contents

Shellfish production waters: reporting period: 1st January 2021- 31st December 2021.

Summary

During the period of this report a total of 396 water samples were received and reported to the customer (Food Standards Agency Northern Ireland (FSANI). Performance indicators set by the customer were met with 100% of samples reported within the stipulated time frame. As well as the four main target phytoplankton groups (*Alexandrium* spp., Dinophysiales (genera *Dinophysis* and *Phalacroma*), *Prorocentrum lima* and *Pseudo-nitzschia* spp. the samples collected during 2021 also contained three other target species; *Prorocentrum cordatum*, *Karenia mikimotoi* and *Phaeocystis* spp.

Cells of the genus *Alexandrium*, a potential producer of PST's (Paralytic Shellfish Toxins), were recorded in 2 of the 7 areas monitored and were present in 2.8 % of samples analysed. The trigger level for *Alexandrium* spp. (≥ 40 cells L^{-1}) was breached on 8 occasions. Cells of *Alexandrium* spp. were recorded in all 4 Belfast sites from mid-July to mid-August with a peak cell abundance of 820 cells L^{-1} recorded in a water sample from the B1-AFFNI 55 site on 26th July. Toxins were detected in mussels from the lough during this period, however, these were below the regulatory level.

No official control shellfish flesh samples tested during the year contained levels above the regulatory value of 800µg STX/ Kg.

Monitored target species responsible for the production of lipophilic toxins includes some members of the taxonomic order Dinophysiales as well as *Prorocentrum lima*. Target species belonging to the Order Dinophysiales were recorded in five of the seven monitored areas, the exceptions being Lough Foyle and Dundrum Bay. Overall they were recorded present in 11.6% of the samples analysed in 2021. This ranged from their absence in Dundrum Bay and Lough Foyle samples to 23.2% of Belfast samples. The trigger level of ≥ 100 cells L^{-1} was breached on 15 occasions. A maximum cell abundance of 660 cells L^{-1} was recorded on 6th September in a water sample taken from site B12 AFFNI 54 in Belfast Lough. *Prorocentrum lima* was recorded twice in 2021. On both these occasions samples were from the S2-AFFNI 42 site in Strangford Lough with a maximum abundance of 60 cells L^{-1} recorded on 22nd June.

No official control samples tested during 2021 contained lipophilic toxins above the set regulatory limit. More details can be found in the AFBI Biotoxin Report for 2021.

The cosmopolitan diatom genus *Pseudo-nitzschia* contains species which have the potential to produce domoic acid. Cells of the genus were present in all 7 monitored areas and in 48% of all samples tested. Their presence ranged from 23.3% of Lough Foyle water samples to 65.7% of samples tested from Belfast Lough. A maximum abundance of 494,400 L^{-1} was recorded on 26th April in a sample taken from the PA3-Wild fishery site in Lough Foyle.

No official control samples from the Biotoxin Monitoring Programme contained domoic acid above

the regulatory level of 20 µg/g.

Three other target species were identified in water samples taken as part of the Official Control Programme during 2021. *Prorocentrum cordatum* was recorded in four samples during the year. All were from Belfast Lough sites sampled on the 9th August. A maximum cell abundance of 340 cells L^{-1} was recorded on this date in the water sample from B3 AFFNI 50. The ichthyotoxic dinoflagellate, *Karenia mikimotoi* was recorded on three occasions with all three present at the limit of detection (20 cells L^{-1}). The 3 occasions were 19th April (B12 AFFNI 54), 13th July (B20-AFFNI 53) and 4th August (K1-AFFNI 18). *Phaeocystis* sp. was recorded once in 2021 when 1500 cells L^{-1} were recorded in the water sample taken from B3 AFFNI 50 on 9th August.

Introduction

Fisheries and Aquatic Ecosystems Branch of the Agri-Food and Biosciences Institute (AFBI) deliver the Official Control Phytoplankton Monitoring Programme for Northern Ireland on behalf of the competent authority, the Food Standards Agency (FSANI). A monitoring programme has been in place since mid-1993. This report presents the phytoplankton programme results for the period 1st January 2021– 31st December 2021.

A total of 396 water samples were received and reported in 2021. Samples were examined by light microscopy and results reported within 3 working days of sample receipt.

Water samples were obtained from all the classified shellfish production areas in Northern Ireland which included five sea loughs as well as Dundrum Bay and Killough Harbour (Table 1 and Figure 1). Samples were screened for the presence of the toxin producing and nuisance microalgae listed in Table 2.

Sampling

FSANI are responsible for the logistics of the water sampling programme including delivery to the laboratory by designated sampling officers. Sampling officers were asked to take water samples as close to high tide as possible and to deliver these to AFBI for analysis as soon as possible, following the sampling and transport protocol issued by FSANI. Sampling was generally carried out on a fortnightly basis after the FSANI risk based approach to sampling frequency was implemented.

Laboratory procedures

Once received in the laboratory each preserved sample was given a unique identifying code and sample details were entered into the laboratory log book. A 50 ml subsample was then taken from each water sample and left to settle overnight in a sedimentation (Utermöhl) chamber (limit of detection of 20 cells L^{-1}). Samples were examined the next day using an inverted microscope. Each sample was screened for the target phytoplankton listed in Table 2 and the results reported to FSANI the same day. These procedures are based on those of the UK National Reference Laboratory (UKNRL). AFBI have maintained ISO17025 accreditation for the test method since 2012.

Results

The occurrence (as a percentage) and maximum abundance (in cells per litre) for the four most important taxon groups are reported by individual shellfish site (Table 3) and coastal area (Table 4). Positive results for *Alexandrium* spp., Dinophysiales, *Prorocentrum lima* and *Pseudo-nitzschia* spp. are reported in tabular form in Appendix 1.

Table 1. Shellfish production areas monitored for the presence of toxin producing and nuisance microalgae in water in 2021.

Coastal area	Site identification reference (SIR)
Lough Foyle	PA3-Wild fishery
Lough Foyle	PA4-Wild fishery
Larne Lough	L3-AFFNI 88
Belfast Lough	B1-AFFNI 55
Belfast Lough	B3-AFFNI 50
Belfast Lough	B12-AFFNI 54
Belfast Lough	B20-AFFNI 53
Strangford Lough	S2-AFFNI 42
Strangford Lough	S7-AFFNI 76
Killough	K1-AFFNI 18
Dundrum Bay	DB1-AFFNI 95A
Carlingford Lough	C1-AFFNI 27
Carlingford Lough	C7-AFFNI 73
Carlingford Lough	C9-AFFNI 39
Carlingford Lough	C11-AFFNI 84
Carlingford Lough	NW-Wild fishery

Figure 1 – Current sampling sites

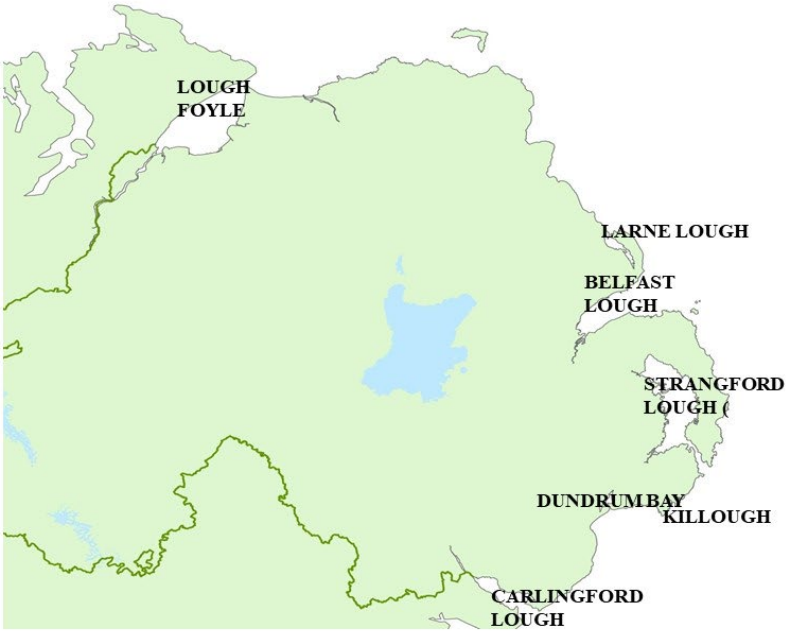


Table 2 – Monitored phytoplankton species.

Species	Toxin	Threshold value
Alexandrium spp.	Paralytic Shellfish Toxin (PST)	40 cells L^{-1}
Dinophysis acuminata	Diarrhetic Shellfish Toxin (DST)	100 cells L^{-1}
Dinophysis acuta	DST	100 cells L^{-1}
Dinophysis norvegica	DST	100 cells L^{-1}
Phalacroma rotundatum (previously known as *Dinophysis rotundata*)	DST	100 cells L^{-1}
Dinophysis spp.	DST	100 cells L^{-1}
Prorocentrum lima	DST	100 cells L^{-1}
Lingulodinium polyedra	Yessotoxin (YTX)	None
Protoceratium reticulatum	YTX	None
Pseudo-nitzschia spp.	Amnesic Shellfish Toxin (AST)	150,000 cells L^{-1}
Prorocentrum cordatum	Hepatotoxins	None
Karenia mikimotoi	Toxic to fish (TTF)	None
Noctiluca scintillans	TTF	None
Phaeocystis spp.	Not known	None

Results by species

Alexandrium spp.

Cells of the potential paralytic shellfish toxin producer *Alexandrium* spp. were recorded in 2 of the 7 coastal areas monitored, namely Belfast Lough and Carlingford Lough (Figure 2A). *Alexandrium* spp. were present in 11 of the 396 samples (2.8%) tested during 2021. The majority of these were from Belfast Lough in July and August (10 samples). A peak cell abundance of 820 cells L^{-1} was recorded on 26th July in a sample taken from the B1-AFFNI 55 site (Table 5). PST's were detected in shellfish during this period, however, levels were below the set action level.

No Paralytic Shellfish Toxins (PST's) above the regulatory level were detected in shellfish tested as part of the Official Control Monitoring Programme during 2021.

Dinophysiales (*Dinophysis* species and *Phalacroma rotundatum*)

Cells of the target Dinophysiales (Table 2) were present in 5 of the 7 coastal areas monitored, the exceptions being Lough Foyle and Dundrum Bay (Figure 2B). In 2021 they were recorded in 11.6% of all samples tested, a slight increase on the 2020 figure of 8.3% of samples received but still greatly reduced from the 21.7% recorded in 2019. Their maximum cell abundance in 2021 was 660 cells L^{-1} in a water sample taken from Belfast Lough (B12-AFFNI 54) on 6th September (Figure 3B and Table 7). The majority of samples analysed contained cells of *Dinophysis acuminata*, the most common of the *Dinophysis* species recorded in Northern Ireland waters.

No lipophilic toxins above the regulatory limit were recorded in shellfish tested as part of the Official Control Programme. More detailed information can be found in the AFBI Biotoxin report.

Prorocentrum lima

The dinoflagellate *Prorocentrum lima* was recorded in two (0.5%) of the samples tested in 2021. A peak cell abundance of 60 cells L^{-1} was recorded on 22nd June in a sample tested from S2-AFFNI 42 (Figure 3C and Table 6). This agrees with the historical pattern of its low abundance across all Northern Ireland monitoring sites (Figure 4C).

Pseudo-nitzschia spp.

Pseudo-nitzschia is a diatom genus frequently recorded in Northern Ireland coastal waters (Figure 4D). All monitored areas contained cells of this species ranging from 23.3% of Lough Foyle samples to 65.7 % of Belfast samples (Table 4 and Figure 2D). One sample breached the threshold value of 150,000 cells L^{-1}. This sample was taken from the PA3 Wild fishery site in Lough Foyle on 26th April and was composed mainly of cells from the *Pseudo-nitzschia delicatissima* complex (cells ≤ 3µm in width). Toxin producing species from the 'delicatissima' complex generally have a lower toxin

quotient per cell than toxin producers from the *Pseudo-nitzschia seriata* complex (> 3µm in width). No toxicity in shellfish was associated with this event.

No shellfish samples, tested as part of the 2021 Official Control Programme, contained domoic acid above the EU regulatory limit.

Other species

Three other target species were identified in water samples taken as part of the Official Control Programme during 2021. *Prorocentrum cordatum* was recorded in four samples during the year. All were from Belfast Lough sites sampled on the 9th August. A maximum cell abundance of 340 cells L^{-1} was recorded on this date in the water sample from B3 AFFNI 50. The ichthyotoxic dinoflagellate, *Karenia mikimotoi* was recorded on three occasions with all three at the limit of detection of the test (20 cells L^{-1}). The 3 occasions were 19th April (B12 AFFNI 54), 13th July (B20-AFFNI 53) and 4th August (K1-AFFNI 18). *Phaeocystis* sp. was recorded once in 2021 when 1500 cells L-1 were recorded in the water sample taken from B3 AFFNI 50 on 9th August.

Table 3. The total number of samples collected, their occurrence (presence of cells in sample as a percentage of the total number of samples analysed) and maximum abundance (cells L-1) from each site in 2021.

Sampling site	No. of samples received	No. of samples rejected	*Alexandrium* spp. occurrence	*Alexandrium* spp.* max abundance	*Dinophysis* spp.* occurrence	*Dinophysis* spp. max abundance	*P.lima* occurrence	*P.lima* max abundance	*Pseudo-nitzschia* spp. occurrence	*Pseudo-nitzschia* spp. max abundance
Lough Foyle										
PA3-Wild fishery	15	0	0	0	0	0	0	0	26.7	494,400
PA4-Wild fishery	15	0	0	0	0	0	0	0	20	3,400
Larne Lough										
L3-AFFNI 88	23	0	0	0	4.4	20	0	0	52.2	1,220
Belfast Lough										
B1-AFFNI 55	27	0	11.1	820	25.9	400	0	0	74	21,600
B3-AFFNI 50	27	0	11.1	680	25.9	640	0	0	63	22,160
B12-AFFNI 54	27	0	11.1	500	25.9	660	0	0	70.4	16,880
B20-AFFNI 53	27	0	3.7	20	14.8	240	0	0	55.6	16,600
Strangford Lough										
S2-AFFNI 42	26	0	0	0	7.7	40	7.7	60	50	47,720
S7-AFFNI 76	25	0	0	0	3.9	20	0	0	52	1,420
Killough										
K1-AFFNI 18	27	0	0	0	14.8	40	0	0	55.6	51,320

Sampling site	No. of samples received	No. of samples rejected	*Alexandrium* spp. occurrence	*Alexandrium* spp.* max abundance	*Dinophysis* spp.* occurrence	*Dinophysis* spp. max abundance	*P.lima* occurrence	*P.lima* max abundance	*Pseudo-nitzschia* spp. occurrence	*Pseudo-nitzschia* spp. max abundance
Dundrum Bay										
DB1-AFFNI 21A	27	0	0	0	0	0	0	0	37	19,160
Carlingford Lough										
C1-AFFNI 27	26	0	0	0	3.9	40	0	0	15.4	1,480
C7-AFFNI 73	26	0	0	0	3.9	20	0	0	26.9	2,820
C9-AFFNI 39	26	0	0	0	11.5	60	0	0	42.3	1,100
C11-AFFNI 84	27	0	3.7	20	18.5	120	0	0	51.9	5,200
NW-Wild fishery	25	0	0	0	12	40	0	0	48.2	820

396 samples received

0 samples rejected

396 samples reported

*Includes *Phalacroma rotundatum*

Table 4. The total number of samples collected, their occurrence (presence of cells in sample as a percentage of the total number of samples analysed) and maximum abundance (cells L-1) from each lough in 2021.

Sampling site	No of samples received	No. of samples rejected	Alexandrium spp. occurrence	Alexandrium spp. max abundance	Dinophysis spp.* occurrence	Dinophysis spp.* max abundance	P.lima occurrence	P.lima max abundance	Pseudo-nitzschia spp. occurrence	Pseudo-nitzschia spp. max abundance
Lough Foyle	30	0	0	0	0	0	0	0	23.3	494,400
Larne Lough	23	0	0	0	4.4	20	0	0	52.2	1,220
Belfast Lough	108	0	9.3	820	23.2	660	0	0	65.7	22,160
Strangford Lough	51	0	0	0	5.9	40	3.9	60	51	47,720
Killough	27	0	0	0	14.8	40	0	0	55.6	51,320
Dundrum Bay	27	0	0	0	0	0	0	0	37	19,160
Carlingford Lough	130	0	0.8	20	10	120	0	0	37.7	5200

396 samples received

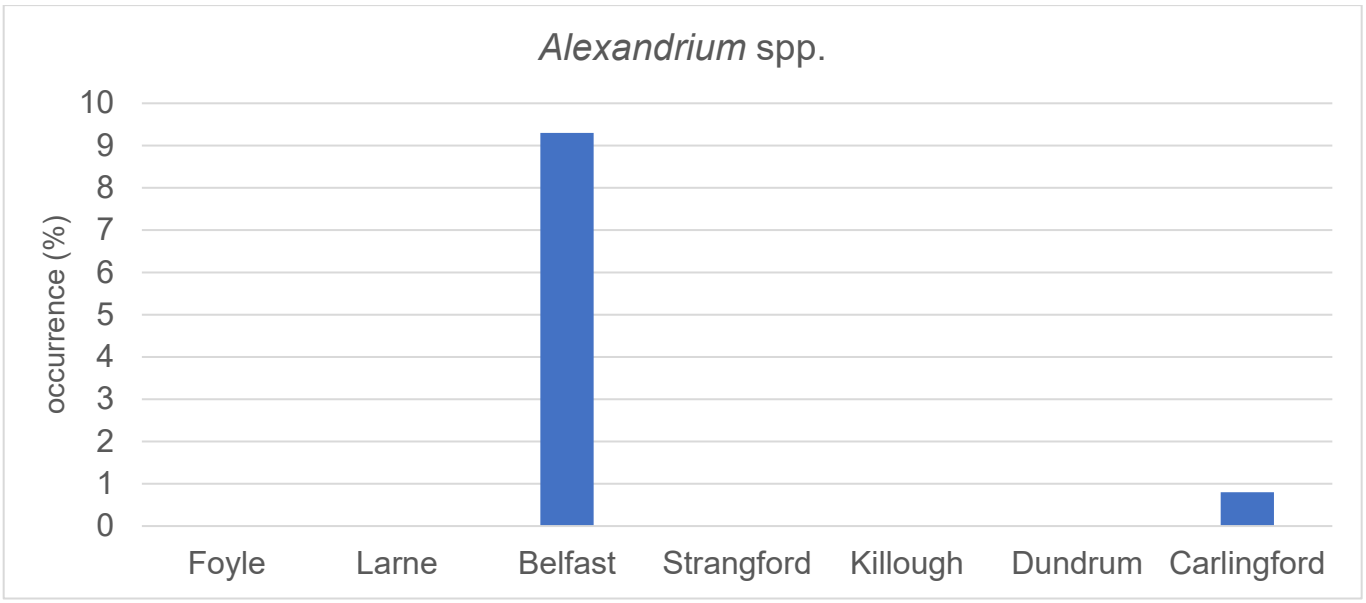
0 samples rejected

396 samples reported

*Includes *Phalacroma rotundatum*

Figure 2. Occurrence (%) of the four major target organisms in 2021 (presence of cells in water samples as a percentage of the total number of samples reported for each area)

A



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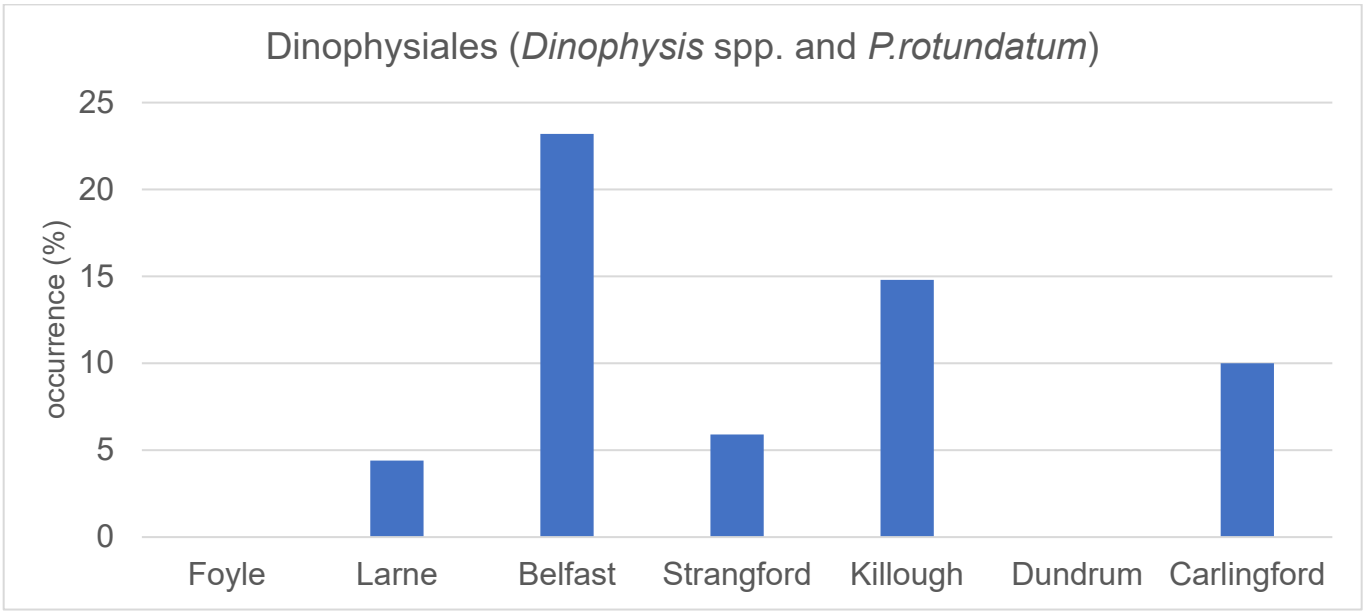

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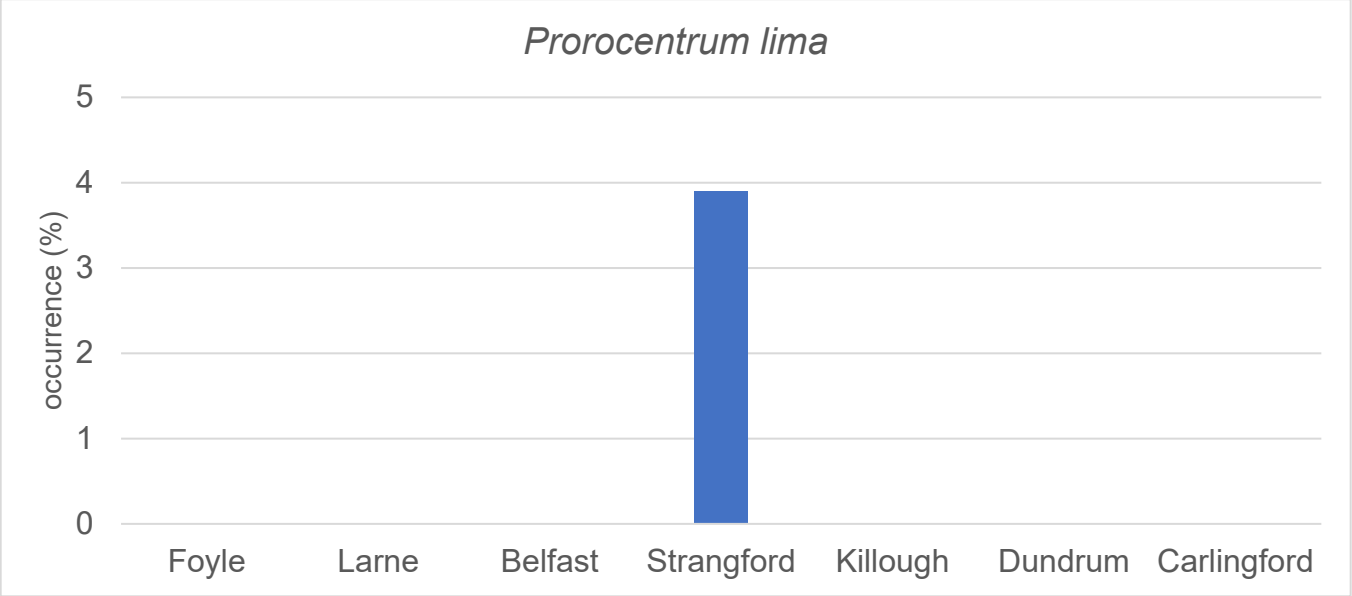

Prorocentrum lima
occurrence (%)
5
4
3
2
1
0
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

D

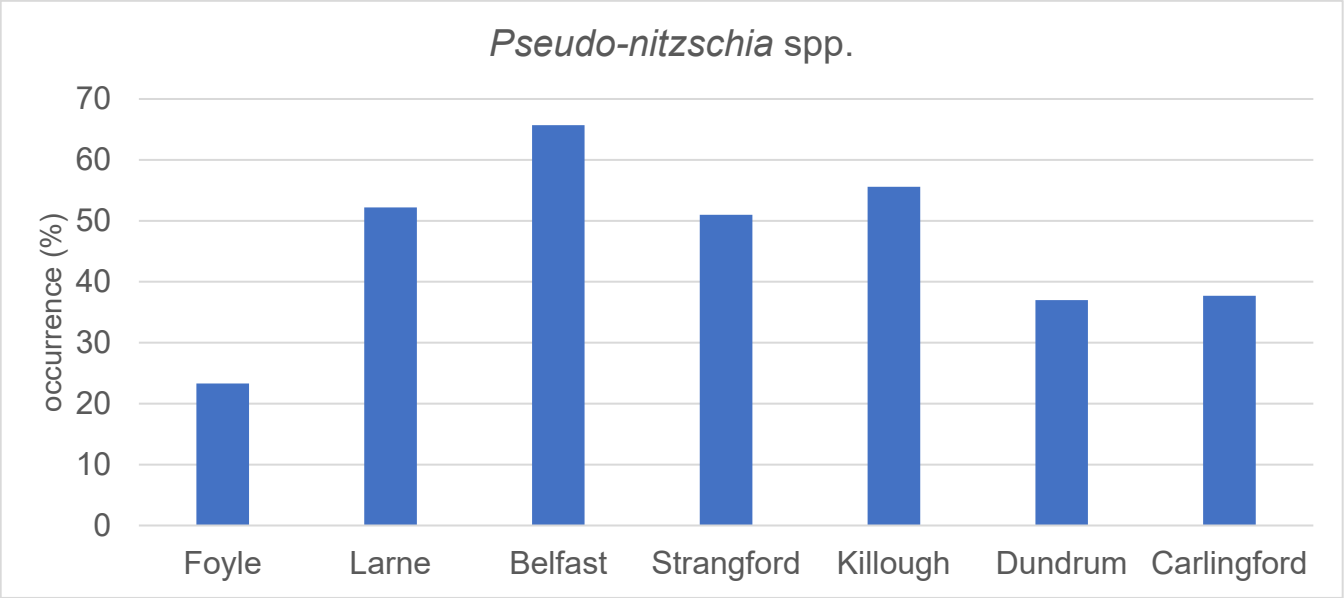
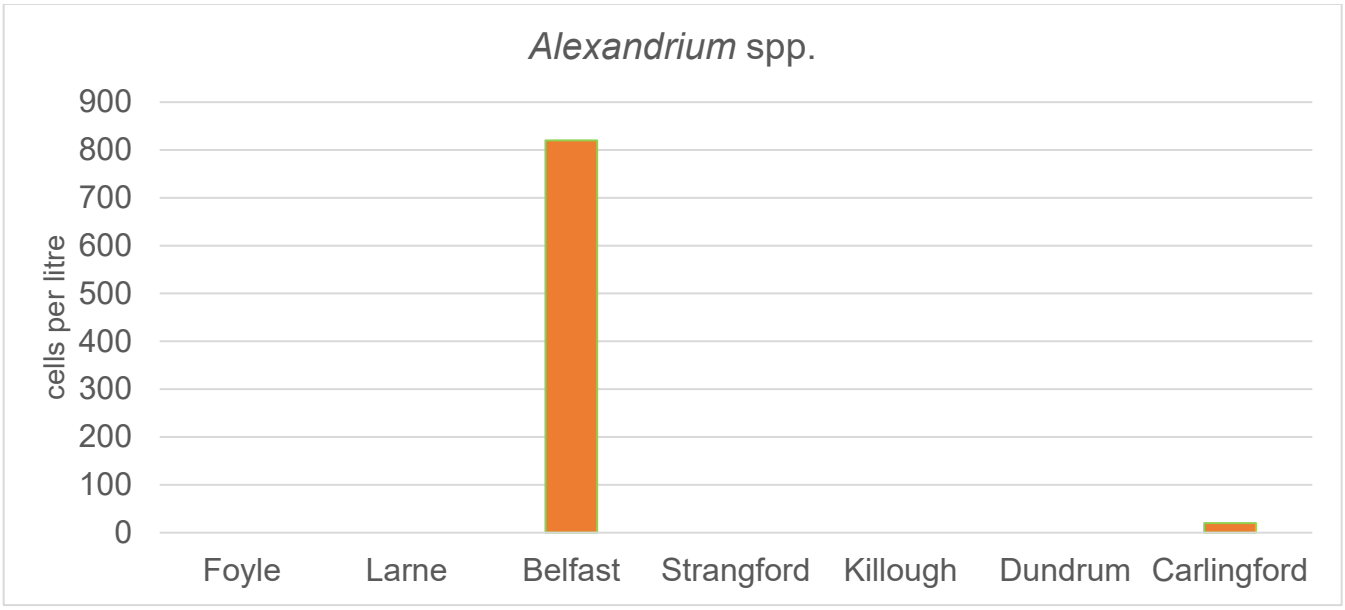

Pseudo-nitzschia spp.
occurrence (%)
70
60
50
40
30
20
10
0
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

Figure 3 – Maximum abundance (cells per litre) of the four major target groups in 2021 in water samples taken from each area.

A



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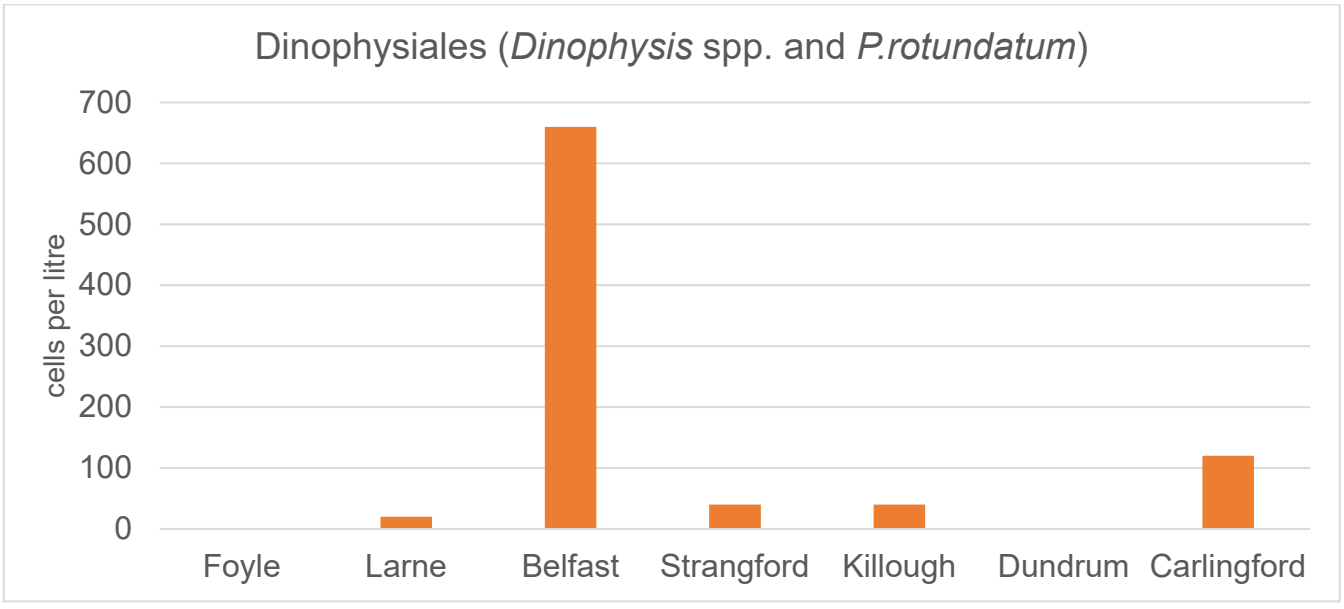

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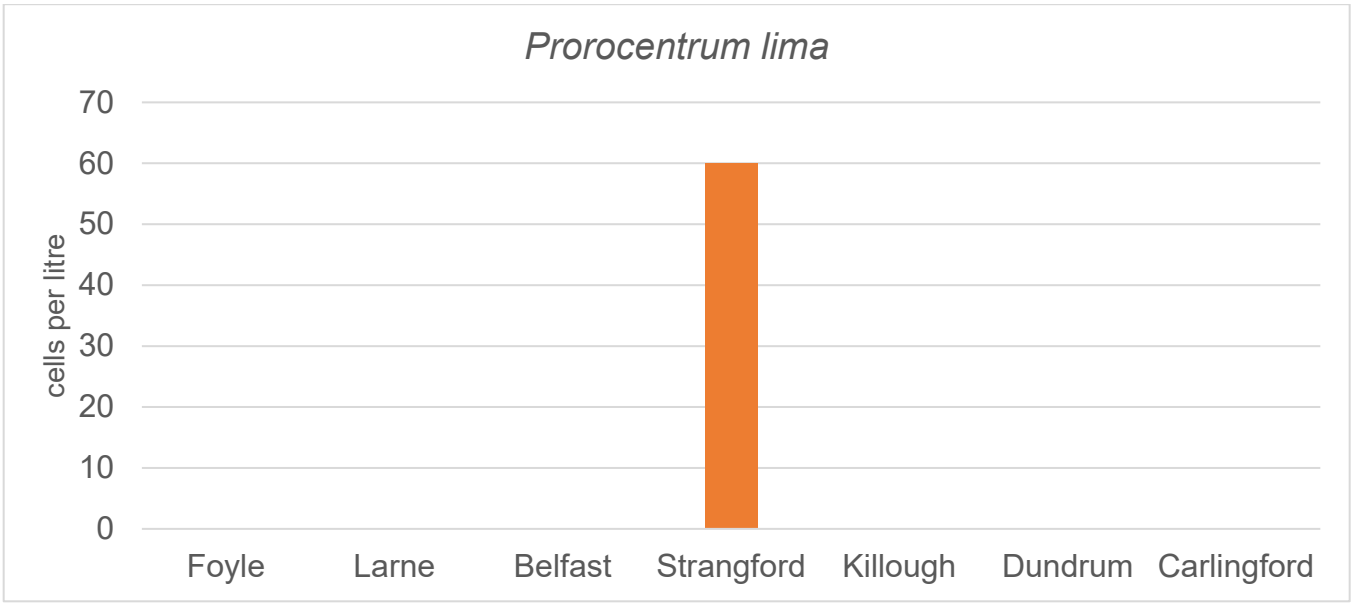

Prorocentrum lima
cells per litre
70
60
50
40
30
20
10
0
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

D

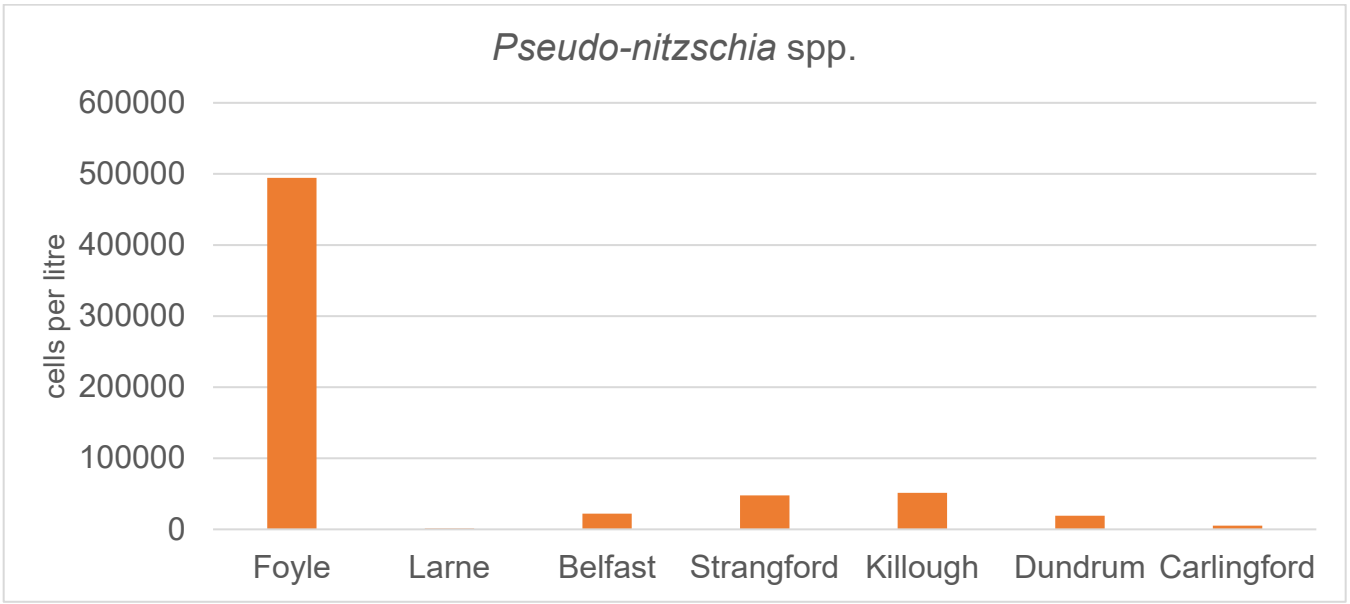
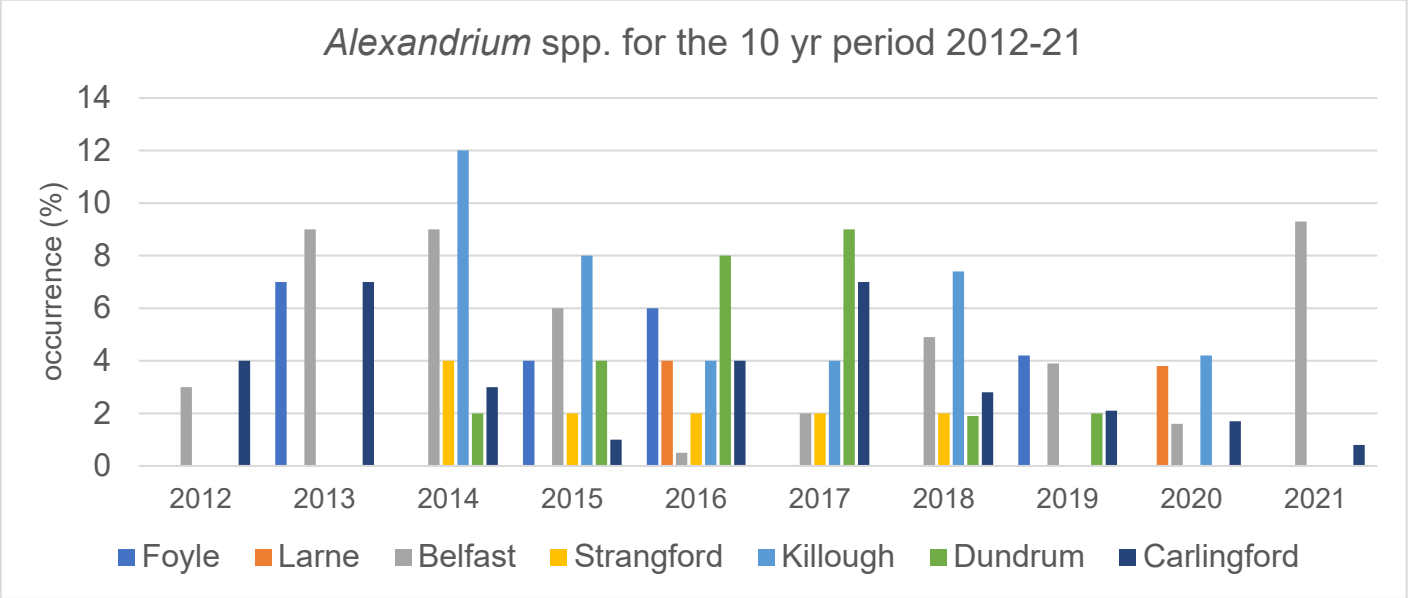

Pseudo-nitzschia spp.
cells per litre
600000
500000
400000
300000
200000
100000
0
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

Figure 4 – Occurrence of the four major target organisms for period 2012-2021 (presence of cells in water samples as a % of the total number of samples reported for each sampling area in each year).

A



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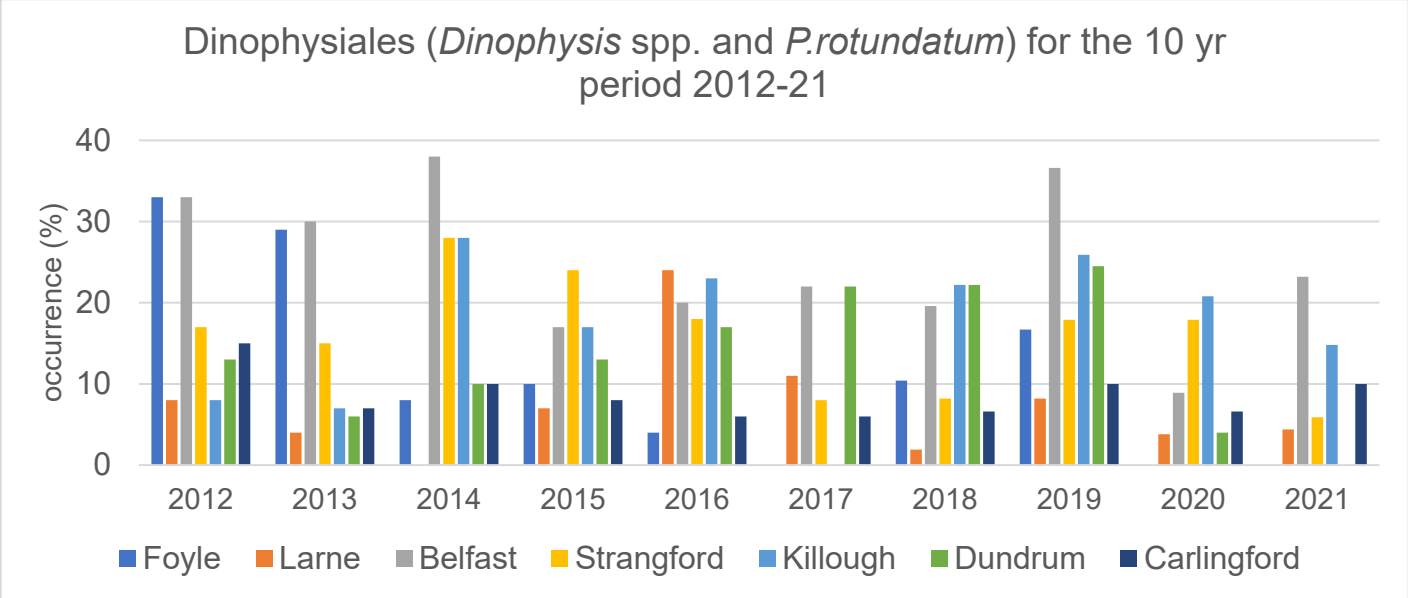

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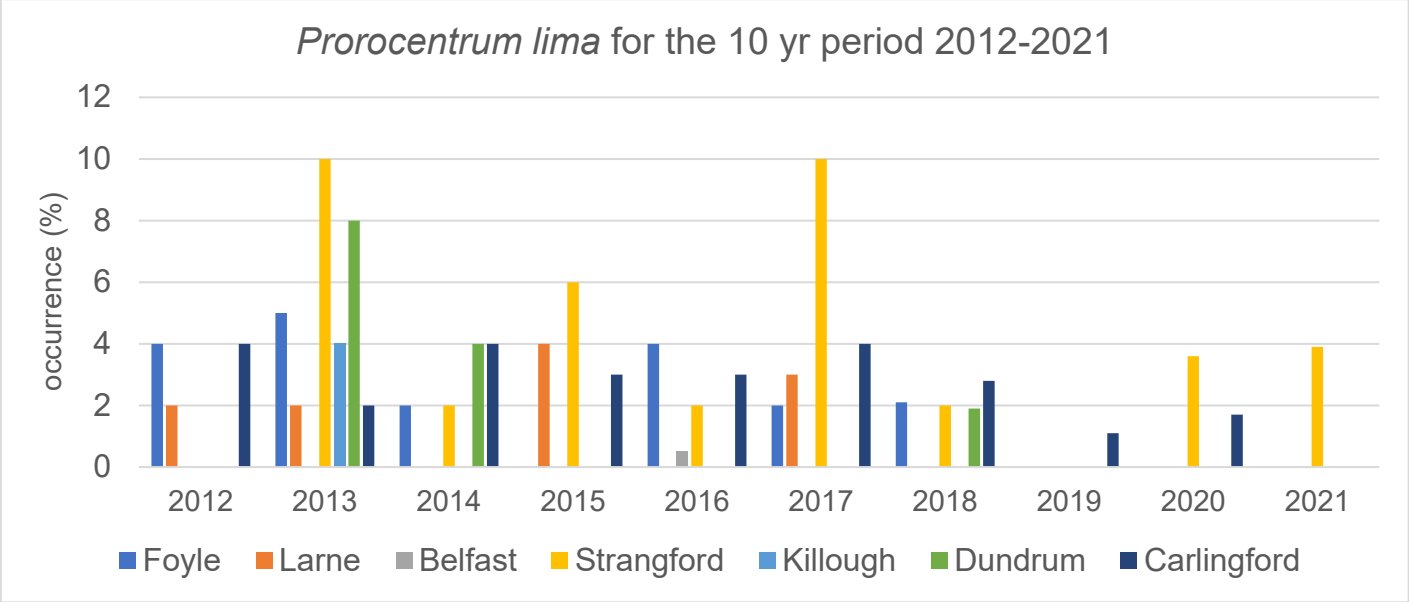
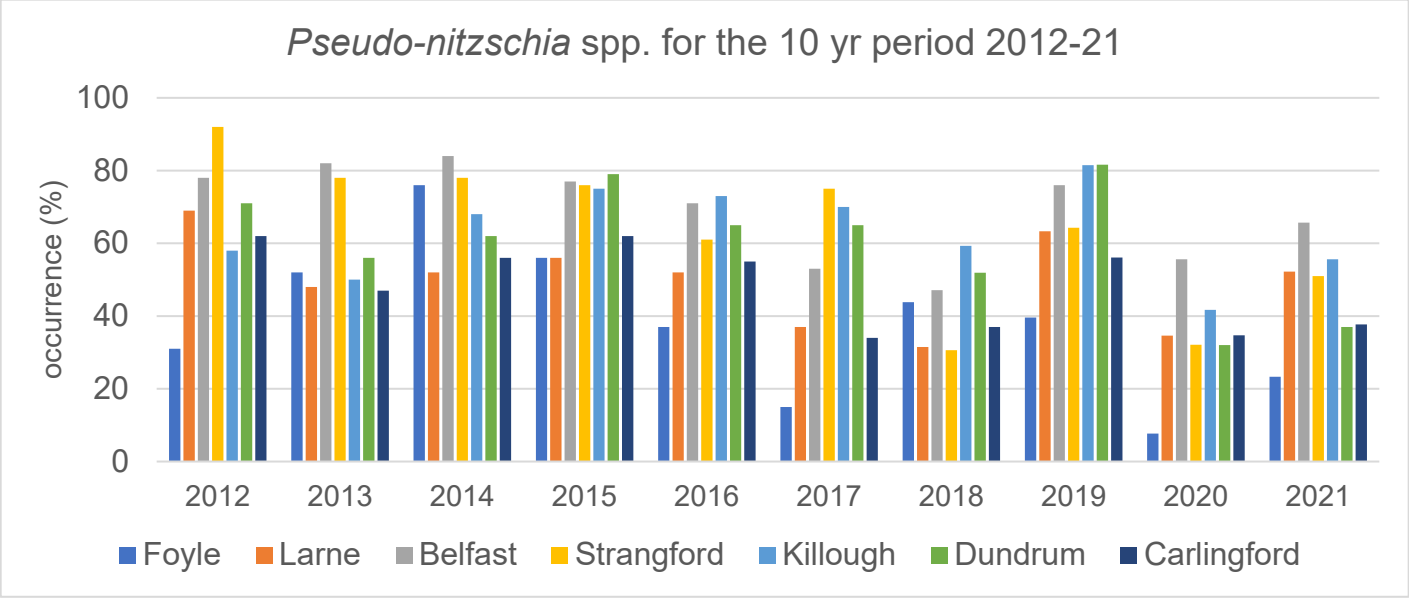

Prorocentrum lima for the 10 yr period 2012-2021
occurrence (%)
12
10
8
6
4
2
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

D


Pseudo-nitzschia spp. for the 10 yr period 2012-21
occurrence (%)
100
80
60
40
20
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Foyle
Larne
Belfast
Strangford
Killough
Dundrum
Carlingford

Results by area

Lough Foyle

Pseudo-nitzschia spp. was the only target species recorded from Lough Foyle in 2021.

A total of 30 samples were received and analysed from the two monitoring sites in Lough Foyle (Table 3). Phytoplankton analysis was suspended from May- September due to inactivity in the lough. Sampling recommenced in October 2021. *Pseudo-nitzschia* was the only target species detected in samples received from the lough in 2021.This result may reflect the fact that sampling was suspended during the phytoplankton growth period. *Pseudo-nitzschia* spp. reached a maximum abundance of 494,400 cells L^{-1} in a sample taken from the PA3 Wild fishery site on 26thApril (Table 8). The sample was comprised mainly of cells from the 'delicatissima' complex.

Larne Lough

The following target species were recorded in water samples from Larne Lough in 2021; *Dinophysis acuminata* and *Pseudo-nitzschia* spp.

A total of 23 samples were received from the one site (L3-AFFNI 88) monitored in Larne Lough (Table 3). Cells of the *Dinophysis* genus were counted in 4.4% of samples from the lough. A maximum cell count of 20 cells L^{-1} was recorded in the water sample taken on 12th October (Table 7). *Pseudo-nitzschia* spp. was recorded in 52.2% of samples with a maximum abundance of 1,220 cells L^{-1} counted in the sample taken on 28th June (Table 8).

Belfast Lough

Target species recorded in water samples from Belfast Lough during the reporting period were as follows; *Alexandrium* spp., *D.acuminata*, *Dinophysis* spp., *Prorocentrum cordatum*, *Pseudo-nitzschia* spp., *K.mikimotoi* and *Phaeocystis* spp.

Cells of *Alexandrium* spp. were counted in 9.3% of samples, a large increase in the number from the previous year (1.6%) and the highest figure in a number of years (Fig.4A). Elevated numbers of *Alexandrium* cells were recorded from all four sites in the lough from mid-July to mid-August with a maximum abundance of 820 cells per litre recorded on 26th July in a water sample submitted from the B1-AFFNI 55 site (Table 5). Cells from the taxonomic order Dinophysiales have been recorded regularly over the past years in samples from Belfast Lough (Figure 4B). In 2021 they were present in 23.2% of samples (Figure 4B). The dominant species present in samples was *Dinophysis acuminata* which is in keeping with that found in other local production areas. The maximum cell abundance recorded was 660 cells L^{-1} in a sample taken from B12-AFFNI 54 on 6th September (Table 7).

Cells of the genus *Pseudo-nitzschia* were found in 65.7% of samples (Table 4 and Figure 2D) reaching a peak abundance of 22,160 cells L^{-1} in a sample from B3-AFFNI 50 on 20th September.

Other target species recorded in Belfast Lough samples were *Karenia mikimotoi*, *Prorocentrum cordatum* and *Phaeocystis* spp. *K.mikimotoi* reached a maximum abundance of 20 cells L^{-1} on 19th April (B12-AFFNI 54) and 13th July (B20-AFFNI 53). *Prorocentrum cordatum* was recorded on one occasion (9th August) and was present in all four sites on that date. A peak cell abundance of 340 cells L^{-1} was recorded in the sample from B3-AFFNI 50. Cells of the nuisance species *Phaeocystis* spp. were detected once during 2021 with a cell abundance of 1500 cells L^{-1} recorded on 9th August in the water sample from B3-AFFNI 50.

Strangford Lough

Target species recorded from Strangford Lough during the year included; *D.acuminata*, D.acuta, *Prorocentrum lima* and *Pseudo-nitzschia* spp..

Two sites were monitored in the lough during 2021, S2-AFFNI 42 and S7-AFFNI 76. As in the previous year, cells of Alexandrium spp. were not detected in the lough. The last time they were recorded in the monitoring programme was in 2018 (Figure 4A). Dinophysiales were present in 5.9% of samples. A maximum cell abundance of 40 cells L^{-1} was recorded from the S2-AFFNI 42 site on the 28th September (Table 7). Cells of *Prorocentrum lima* were present on two occasions reaching a maximum of 60 cells L^{-1} on 22nd June (Table 6). *Pseudo-nitschia* were present in just over half (51%) of the samples analysed (Table 4).Cell abundance reached a maximum of 47,720 cells L^{-1} in a sample from S2-AFFNI 42 on 28th September (Table 8). There were no other target species recorded from the lough in 2021.

Killough

The following target species were recorded from Killough waters during 2021; *Dinophysis acuminata*, *Pseudo-nitzschia* spp. and *Karenia mikimotoi*.

Cells of the Dinophysiales order were recorded in 14.8% of samples (Table 3) although cell counts were low with a maximum of 40 cells L^{-1} recorded on 21st July (Table 7). *Pseudo-nitzschia* spp. was recorded in 55.6% of samples with a maximum cell abundance of 51,320 cells L^{-1} recorded on the 21st June (Table 8).

The target dinoflagellate species *Karenia mikimotoi* was recorded once from water samples received as part of the monitoring programme with a cell abundance of 20 cells L^{-1} recorded on 4th August.

Dundrum Bay

Pseudo-nitzschia spp. was the only target group detected in water samples from this site.

Pseudo-nitzschia spp. was present in 37% of Dundrum samples (Table 4) with a maximum cell abundance of 19,160 cells L^{-1} on 20th September (Table 8).

No other target species were recorded during 2021.

Carlingford Lough

Target species recorded from Carlingford Lough during 2021 were; *Alexandrium* spp., *D.acuminata*, *D.acuminata* and *Pseudo-nitzschia* spp..

Alexandrium spp. was detected in one sample from the lough in 2021. This was in a water sample from C11 AFFNI 84 on 20th July when a count of 20 cells L^{-1} was made (Table 5). Members of the Dinophysiales order were present in 10% of samples (Table 4) with a maximum abundance of 120 cells L^{-1} recorded in a water sample from the C11-AFFNI 84 site on 20th July (Table 7).

Pseudo-nitzschia spp. was recorded in 37.7% of all samples tested from Carlingford Lough (Table 4). This figure masks the spatial variation within the lough which ranged from 15.4% of samples from the inner lough site C1-AFFNI 27 to 51.9% of samples from the outer lough site of C11-AFFNI 84 (Table 3). Cell abundance was low across all sites with a maximum value of 5,200 cells L^{-1} recorded on 20th July in a sample from C11 AFFNI 84 (Table 8).

Appendix 1

Table 5 - Positive occurrences of *Alexandrium* spp. (cells L^{-1}) in 2021

System id	Region	Site ID ref	Report no.	Collection date	*Alexandrium* spp.
phy2100208	Belfast	B1-AFFNI 55	phy21-28a	13/07/2021	60
phy2100209	Belfast	B3-AFFNI 50	phy21-28a	13/07/2021	540
phy2100210	Belfast	B12-AFFNI 54	phy21-28a	13/07/2021	120
phy2100218	Carlingford	C11-AFFNI 84	phy21-29c	20/07/2021	20
phy2100222	Belfast	B1-AFFNI 55	phy21-30a	26/07/2021	820
phy2100223	Belfast	B3-AFFNI 50	phy21-30a	26/07/2021	680
phy2100224	Belfast	B12-AFFNI 54	phy21-30a	26/07/2021	500
phy2100236	Belfast	B1-AFFNI 55	phy21-32a	09/08/2021	60
phy2100237	Belfast	B3-AFFNI 50	phy21-32a	09/08/2021	20
phy2100238	Belfast	B12-AFFNI 54	phy21-32a	09/08/2021	60
phy2100239	Belfast	B20-AFFNI 53	phy21-32a	09/08/2021	20

Table 6 - Positive occurrences of *Prorocentrum lima* (cells L^{-1}) in 2021

System id	Region	Site ID ref	Report no.	Collection date	*Prorocentrum lima*
phy2100017	Strangford	S2-AFFNI 42	phy21-03a	19/01/2021	20
phy2100188	Strangford	S2-AFFNI 42	phy21-25b	22/06/2021	60

Table 7 Positive occurrences of monitored Dinophysiales (cells L^{-1}) in 2021

Abbreviations in table

- Da – *Dinophysis acuminata*
- Dac – *Dinophysis acuta*
- Dn – *Dinophysis norvegica*
- Pr – *Phalacroma rotundatum*
- Din. – *Dinophysis* spp. not identified to species level

System id	Region	Site ID ref	Report no.	Collection date	Da	Dac	Dn	Pr	Din	Tot Din
phy2100121	Belfast	B20-AFFNI53	phy21-16a	19/04/2021	20	0	0	0	0	20
phy2100176	Carlingford	C11-AFFNI84	phy21-23b	08/06/2021	20	0	0	0	0	20
phy2100178	Killough	K1-AFFNI18	phy21-23b	09/06/2021	20	0	0	0	0	20
phy2100180	Belfast	B1-AFFNI55	phy21-24a	14/06/2021	20	0	0	0	0	20
phy2100183	Belfast	B20-AFFNI53	phy21-24a	14/06/2021	20	0	0	0	0	20
Phy2100186	Killough	K1-AFFNI18	phy21-25a	21/06/2021	20	0	0	0	0	20
phy2100197	Carlingford	NW-wild fishery	phy21-26b	28/06/2021	20	0	0	0	0	20
phy2100203	Carlingford	C9-AFFNI39	phy21-27b	06/07/2021	60	0	0	0	0	60
phy2100206	Killough	K1-AFFNI18	phy21-27b	07/07/2021	20	0	0	0	0	20
phy2100208	Belfast	B1-AFFNI55	phy21-28a	13/07/2021	20	0	0	0	0	20
phy2100209	Belfast	B3-AFFNI50	phy21-28a	13/07/2021	160	0	0	0	40	200

System id	Region	Site ID ref	Report no.	Collection date	Da	Dac	Dn	Pr	Din	Tot Din
phy2100210	Belfast	B12-AFFNI54	phy21-28a	13/07/2021	200	0	0	0	0	200
phy2100211	Belfast	B20-AFFNI53	phy21-28a	13/07/2021	160	0	0	0	0	160
phy2100213	Strangford	S7-AFFNI76	phy21-29a	19/07/2021	20	0	0	0	0	20
phy2100218	Carlingford	C11-AFFNI84	phy21-29c	20/07/2021	120	0	0	0	0	120
phy2100219	Carlingford	NW-wild fishery	phy21-29c	20/07/2021	40	0	0	0	0	40
phy2100220	Killough	K1-AFFNI18	phy21-29c	21/07/2021	40	0	0	0	0	40
phy2100222	Belfast	B1-AFFNI55	phy21-30a	26/07/2021	120	0	0	0	0	120
phy2100223	Belfast	B3-AFFNI50	phy21-30a	26/07/2021	20	0	0	0	0	20
phy2100224	Belfast	B12-AFFNI54	phy21-30a	26/07/2021	180	0	0	0	0	180
phy2100227	Carlingford	C1-AFFNI27	phy21-31a	02/08/2021	40	0	0	0	0	40
phy2100229	Carlingford	C9-AFFNI39	phy21-31a	02/08/2021	20	0	0	0	0	20
phy2100230	Carlingford	C11-AFFNI84	phy21-31a	02/08/2021	20	0	0	0	0	20
phy2100236	Belfast	B1-AFFNI55	phy21-32a	09/08/2021	100	0	0	0	0	100
phy2100237	Belfast	B3-AFFNI50	phy21-32a	09/08/2021	20	0	0	0	0	20

System id	Region	Site ID ref	Report no.	Collection date	Da	Dac	Dn	Pr	Din	Tot Din
phy2100238	Belfast	B12-AFFNI54	phy21-32a	09/08/2021	440	0	0	0	20	460
phy2100244	Carlingford	C11-AFFNI84	phy21-33a	16/08/2021	20	0	0	0	0	20
phy2100253	Belfast	B3-AFFNI50	phy21-34a	23/08/2021	20	0	0	0	0	20
Phy2100254	Belfast	B12-AFFNI54	phy21-34a	23/08/2021	40	0	0	0	0	40
phy2100257	Strangford	S2-AFFNI42	phy21-35a	31/08/2021	20	0	0	0	0	20
phy2100264	Belfast	B1-AFFNI55	phy21-36a	06/09/2021	400	0	0	0	0	400
phy2100265	Belfast	B3-AFFNI50	phy21-36a	06/09/2021	640	0	0	0	0	640
phy2100266	Belfast	B12-AFFNI54	phy21-36a	06/09/2021	660	0	0	0	0	660
phy2100267	Belfast	B20-AFFNI53	phy21-36a	06/09/2021	240	0	0	0	0	240
phy2100270	Belfast	B1-AFFNI55	phy21-37a	13/09/2021	20	0	0	0	0	20
phy2100271	Belfast	B3-AFFNI50	phy21-37a	13/09/2021	200	0	0	0	0	200
phy2100272	Belfast	B12-AFFNI54	phy21-37a	13/09/2021	220	0	0	0	0	220
phy2100275	Carlingford	C7-AFFNI73	phy21-37b	13/09/2021	0	20	0	0	0	20
phy2100276	Carlingford	C9-AFFNI39	phy21-37b	13/09/2021	0	20	0	0	0	20

System id	Region	Site ID ref	Report no.	Collection date	Da	Dac	Dn	Pr	Din	Tot Din
phy2100277	Carlingford	C11-AFFNI84	phy21-37b	13/09/2021	20	0	0	0	0	20
phy2100284	Belfast	B1-AFFNI55	phy21-38a	20/09/2021	80	0	0	0	0	80
phy2100285	Belfast	B3-AFFNI50	phy21-38a	20/09/2021	100	0	0	0	0	100
phy2100286	Belfast	B12-AFFNI54	phy21-38a	20/09/2021	40	0	0	0	0	40
phy2100292	Carlingford	NW-wild fishery	phy21-39a	27/09/2021	20	0	0	0	0	20
phy2100295	Strangford	S2-AFFNI42	phy21-39b	28/09/2021	20	20	0	0	0	40
phy2100310	Larne	L3-AFFNI88	phy21-41b	12/10/2021	20	0	0	0	0	20

Table 8 - Positive occurrences of *Pseudo-nitzschia* spp. (cells L^{-1}) in 2021

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100002	Belfast	B1-AFFNI 55	phy21-02a	10/01/2021	40
phy2100011	Carlingford	C11-AFFNI 84	phy21-02b	11/01/2021	80
phy2100016	Strangford	S7-AFFNI 76	phy21-03a	18/01/2021	120
phy2100018	Foyle	PA3-wild fishery	phy21-03a	18/01/2021	80
phy2100042	Carlingford	C11-AFFNI 84	phy21-06c	09/02/2021	40
phy2100058	Larne	L3-AFFNI 88	phy21-08b	23/02/2021	80
phy2100068	Belfast	B1-AFFNI 55	phy21-10a	08/03/2021	220
phy2100069	Belfast	B3-AFFNI 50	phy21-10a	08/03/2021	140
phy2100071	Belfast	B20-AFFNI 53	phy21-10a	08/03/2021	460
phy2100084	Belfast	B1-AFFNI 55	phy21-12a	22/03/2021	160
phy2100085	Belfast	B3-AFFNI 50	phy21-12a	22/03/2021	120
phy2100086	Belfast	B12-AFFNI 54	phy21-12a	22/03/2021	140
phy2100087	Belfast	B20-AFFNI 53	phy21-12a	22/03/2021	160
phy2100092	Carlingford	C9-AFFNI 39	phy21-12b	22/03/2021	40
phy2100093	Carlingford	C11-AFFNI 84	phy21-12b	22/03/2021	140
phy2100094	Carlingford	NW-wild fishery	phy21-12b	22/03/2021	40
phy2100095	Larne	L3-AFFNI 88	phy21-12c	22/03/2021	120
phy2100099	Strangford	S2-AFFNI 42	phy21-13a	30/03/2021	120
phy2100101	Dundrum	DB1-AFFNI 95A	phy21-14a	07/04/2021	3280
phy2100108	Carlingford	C9-AFFNI 39	phy21-14b	07/04/2021	80

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100109	Carlingford	C11-AFFNI 84	phy21-14b	07/04/2021	540
phy2100110	Carlingford	NW-wild fishery	phy21-14b	07/04/2021	660
phy2100111	Killough	K1-AFFNI 18	phy21-15a	12/04/2021	80
phy2100112	Dundrum	DB1-AFFNI 95A	phy21-15a	12/04/2021	700
phy2100113	Foyle	PA3-wild fishery	phy21-15b	12/04/2021	160
phy2100114	Foyle	PA4-wild fishery	phy21-15b	12/04/2021	240
phy2100116	Strangford	S2-AFFNI 42	phy21-15b	13/04/2021	80
phy2100117	Larne	L3-AFFNI 88	phy21-15c	13/04/2021	280
phy2100118	Belfast	B1-AFFNI 55	phy21-16a	19/04/2021	80
phy2100119	Belfast	B3-AFFNI 50	phy21-16a	19/04/2021	220
phy2100120	Belfast	B12-AFFNI 54	phy21-16a	19/04/2021	140
phy2100122	Carlingford	NW-wild fishery	phy21-16b	19/04/2021	420
phy2100126	Carlingford	C11-AFFNI 84	phy21-16b	19/04/2021	140
phy2100127	Killough	K1-AFFNI 18	phy21-17a	26/04/2021	300
phy2100131	Larne	L3-AFFNI 88	phy21-17b	26/04/2021	80
phy2100132	Foyle	PA3-wild fishery	phy21-17b	26/04/2021	494400
phy2100133	Foyle	PA4-wild fishery	phy21-17b	26/04/2021	3400
phy2100139	Belfast	B1-AFFNI 55	phy21-19a	10/05/2021	320
phy2100141	Belfast	B12-AFFNI 54	phy21-19a	10/05/2021	500
phy2100147	Larne	L3-AFFNI 88	phy21-19b	11/05/2021	140
phy2100153	Killough	K1-AFFNI 18	phy21-21a	24/05/2021	120

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100155	Belfast	B1-AFFNI 55	phy21-21a	24/05/2021	200
phy2100157	Belfast	B12-AFFNI 54	phy21-21a	24/05/2021	60
phy2100159	Strangford	S7-AFFNI 76	phy21-21b	24/05/2021	40
phy2100162	Belfast	B1-AFFNI 55	phy21-22a	01/06/2021	420
phy2100164	Belfast	B12-AFFNI 54	phy21-22a	01/06/2021	300
phy2100165	Belfast	B20-AFFNI 53	phy21-22a	01/06/2021	60
phy2100171	Strangford	S7-AFFNI 76	phy21-23a	07/06/2021	220
phy2100172	Strangford	S2-AFFNI 42	phy21-23a	08/06/2021	80
phy2100176	Carlingford	C11-AFFNI 84	phy21-23b	08/06/2021	40
phy2100178	Killough	K1-AFFNI 18	phy21-23b	09/06/2021	2060
phy2100180	Belfast	B1-AFFNI 55	phy21-24a	14/06/2021	1140
phy2100181	Belfast	B3-AFFNI 50	phy21-24a	14/06/2021	640
phy2100182	Belfast	B12-AFFNI 54	phy21-24a	14/06/2021	1800
phy2100183	Belfast	B20-AFFNI 53	phy21-24a	14/06/2021	1500
phy2100184	Larne	L3-AFFNI 88	phy21-24b	15/06/2021	40
Phy2100186	Killough	K1-AFFNI 18	phy21-25a	21/06/2021	51320
phy2100187	Dundrum	DB1-AFFNI 95A	phy21-25a	21/06/2021	6140
phy2100188	Strangford	S2-AFFNI 42	phy21-25b	22/06/2021	480
phy2100189	Belfast	B1-AFFNI 55	phy21-26a	28/06/2021	1200
phy2100190	Belfast	B3-AFFNI 50	phy21-26a	28/06/2021	940
phy2100191	Belfast	B12-AFFNI 54	phy21-26a	28/06/2021	2280

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100192	Belfast	B20-AFFNI 53	phy21-26a	28/06/2021	16600
phy2100193	Carlingford	C1-AFFNI 27	phy21-26b	28/06/2021	320
phy2100194	Carlingford	C7-AFFNI 73	phy21-26b	28/06/2021	280
phy2100195	Carlingford	C9-AFFNI 39	phy21-26b	28/06/2021	120
phy2100196	Carlingford	C11-AFFNI 84	phy21-26b	28/06/2021	1660
phy2100197	Carlingford	NW-wild fishery	phy21-26b	28/06/2021	80
phy2100198	Larne	L3-AFFNI 88	phy21-26b	28/06/2021	1220
phy2100199	Strangford	S2-AFFNI 42	phy21-27a	05/07/2021	60
phy2100200	Strangford	S7-AFFNI 76	phy21-27a	05/07/2021	520
phy2100202	Carlingford	C7-AFFNI 73	phy21-27b	06/07/2021	160
phy2100203	Carlingford	C9-AFFNI 39	phy21-27b	06/07/2021	80
phy2100204	Carlingford	C11-AFFNI 84	phy21-27b	06/07/2021	140
phy2100205	Carlingford	NW-wild fishery	phy21-27b	06/07/2021	60
phy2100206	Killough	K1-AFFNI 18	phy21-27b	07/07/2021	13220
phy2100208	Belfast	B1-AFFNI 55	phy21-28a	13/07/2021	1360
phy2100209	Belfast	B3-AFFNI 50	phy21-28a	13/07/2021	740
phy2100210	Belfast	B12-AFFNI 54	phy21-28a	13/07/2021	1280
phy2100211	Belfast	B20-AFFNI 53	phy21-28a	13/07/2021	2500
phy2100213	Strangford	S7-AFFNI 76	phy21-29a	19/07/2021	620
phy2100214	Strangford	S2-AFFNI 42	phy21-29b	20/07/2021	80
phy2100215	Carlingford	C1-AFFNI 27	phy21-29c	20/07/2021	300

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100216	Carlingford	C7-AFFNI 73	phy21-29c	20/07/2021	2820
phy2100217	Carlingford	C9-AFFNI 39	phy21-29c	20/07/2021	1100
phy2100218	Carlingford	C11-AFFNI 84	phy21-29c	20/07/2021	5200
phy2100219	Carlingford	NW-wild fishery	phy21-29c	20/07/2021	40
phy2100220	Killough	K1-AFFNI 18	phy21-29c	21/07/2021	1740
phy2100222	Belfast	B1-AFFNI 55	phy21-30a	26/07/2021	410
phy2100223	Belfast	B3-AFFNI 50	phy21-30a	26/07/2021	2700
phy2100224	Belfast	B12-AFFNI 54	phy21-30a	26/07/2021	3140
phy2100225	Belfast	B20-AFFNI 53	phy21-30a	26/07/2021	2760
phy2100226	Larne	L3-AFFNI 88	phy21-30a	26/07/2021	200
phy2100227	Carlingford	C1-AFFNI 27	phy21-31a	02/08/2021	40
phy2100228	Carlingford	C7-AFFNI 73	phy21-31a	02/08/2021	300
phy2100229	Carlingford	C9-AFFNI 39	phy21-31a	02/08/2021	120
phy2100231	Carlingford	NW-wild fishery	phy21-31a	02/08/2021	140
phy2100232	Strangford	S2-AFFNI 42	phy21-31a	03/08/2021	740
phy2100233	Strangford	S7-AFFNI 76	phy21-31a	03/08/2021	1280
phy2100234	Killough	K1-AFFNI 18	phy21-31b	04/08/2021	2060
phy2100236	Belfast	B1-AFFNI 55	phy21-32a	09/08/2021	940
phy2100237	Belfast	B3-AFFNI 50	phy21-32a	09/08/2021	2700
phy2100238	Belfast	B12-AFFNI 54	phy21-32a	09/08/2021	1300
phy2100239	Belfast	B20-AFFNI 53	phy21-32a	09/08/2021	680

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100240	Larne	L3-AFFNI 88	phy21-32b	09/08/2021	320
phy2100242	Carlingford	C7-AFFNI 73	phy21-33a	16/08/2021	200
phy2100243	Carlingford	C9-AFFNI 39	phy21-33a	16/08/2021	200
phy2100244	Carlingford	C11-AFFNI 84	phy21-33a	16/08/2021	180
phy2100245	Carlingford	NW-wild fishery	phy21-33a	16/08/2021	580
phy2100246	Strangford	S2-AFFNI 42	phy21-33a	17/08/2021	80
phy2100247	Strangford	S7-AFFNI 76	phy21-33a	17/08/2021	260
phy2100248	Killough	K1-AFFNI 18	phy21-33a	18/08/2021	740
phy2100249	Dundrum	DB1-AFFNI 95A	phy21-33a	18/08/2021	3080
phy2100250	Killough	K1-AFFNI 18	phy21-34a	23/08/2021	18740
phy2100251	Dundrum	DB1-AFFNI 95A	phy21-34a	23/08/2021	9580
phy2100252	Belfast	B1-AFFNI 55	phy21-34a	23/08/2021	380
phy2100253	Belfast	B3-AFFNI 50	phy21-34a	23/08/2021	560
Phy2100254	Belfast	B12-AFFNI 54	phy21-34a	23/08/2021	580
phy2100255	Belfast	B20-AFFNI 53	phy21-34a	23/08/2021	220
phy2100256	Larne	L3-AFFNI 88	phy21-34b	24/08/2021	120
phy2100257	Strangford	S2-AFFNI 42	phy21-35a	31/08/2021	80
phy2100259	Carlingford	C1-AFFNI 27	phy21-35b	31/08/2021	1480
phy2100260	Carlingford	C7-AFFNI 73	phy21-35b	31/08/2021	220
phy2100261	Carlingford	C9-AFFNI 39	phy21-35b	31/08/2021	860
phy2100262	Carlingford	C11-AFFNI 84	phy21-35b	31/08/2021	1920

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100263	Carlingford	NW-wild fishery	phy21-35b	31/08/2021	820
phy2100264	Belfast	B1-AFFNI 55	phy21-36a	06/09/2021	12740
phy2100265	Belfast	B3-AFFNI 50	phy21-36a	06/09/2021	6940
phy2100266	Belfast	B12-AFFNI 54	phy21-36a	06/09/2021	12520
phy2100267	Belfast	B20-AFFNI 53	phy21-36a	06/09/2021	4480
phy2100268	Killough	K1-AFFNI 18	phy21-36b	06/09/2021	5160
phy2100269	Dundrum	DB1-AFFNI 95A	phy21-36b	06/09/2021	2820
phy2100270	Belfast	B1-AFFNI 55	phy21-37a	13/09/2021	9620
phy2100271	Belfast	B3-AFFNI 50	phy21-37a	13/09/2021	8860
phy2100272	Belfast	B12-AFFNI 54	phy21-37a	13/09/2021	2760
phy2100273	Belfast	B20-AFFNI 53	phy21-37a	13/09/2021	800
phy2100275	Carlingford	C7-AFFNI 73	phy21-37b	13/09/2021	80
phy2100276	Carlingford	C9-AFFNI 39	phy21-37b	13/09/2021	560
phy2100277	Carlingford	C11-AFFNI 84	phy21-37b	13/09/2021	1040
phy2100278	Carlingford	NW-wild fishery	phy21-37b	13/09/2021	80
phy2100280	Strangford	S2-AFFNI 42	phy21-37c	14/09/2021	2920
phy2100281	Strangford	S7-AFFNI 76	phy21-37c	14/09/2021	1420
phy2100282	Killough	K1-AFFNI 18	phy21-38b	20/09/2021	9860
phy2100283	Dundrum	DB1-AFFNI 95A	phy21-38b	20/09/2021	19160
phy2100284	Belfast	B1-AFFNI 55	phy21-38a	20/09/2021	21600
phy2100285	Belfast	B3-AFFNI 50	phy21-38a	20/09/2021	22160

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100286	Belfast	B12-AFFNI 54	phy21-38a	20/09/2021	16880
phy2100287	Belfast	B20-AFFNI 53	phy21-38a	20/09/2021	8220
phy2100292	Carlingford	NW-wild fishery	phy21-39a	27/09/2021	140
phy2100293	Larne	L3-AFFNI 88	phy21-39a	27/09/2021	40
phy2100294	Strangford	S7-AFFNI 76	phy21-39b	27/09/2021	460
phy2100295	Strangford	S2-AFFNI 42	phy21-39b	28/09/2021	47720
phy2100296	Killough	K1-AFFNI 18	phy21-40a	05/10/2021	11920
phy2100297	Dundrum	DB1-AFFNI 95A	phy21-40a	05/10/2021	9000
phy2100299	Belfast	B1-AFFNI 55	phy21-41a	11/10/2021	140
phy2100300	Belfast	B3-AFFNI 50	phy21-41a	11/10/2021	80
phy2100301	Belfast	B12-AFFNI 54	phy21-41a	11/10/2021	180
phy2100302	Belfast	B20-AFFNI 53	phy21-41a	11/10/2021	320
phy2100308	Foyle	PA3-wild fishery	phy21-41c	11/10/2021	720
phy2100309	Foyle	PA4-wild fishery	phy21-41c	11/10/2021	320
phy2100310	Larne	L3-AFFNI 88	phy21-41b	12/10/2021	80
phy2100312	Killough	K1-AFFNI 18	phy21-42a	19/10/2021	860
phy2100313	Dundrum	DB1-AFFNI 95A	phy21-42a	19/10/2021	8040
phy2100314	Belfast	B1-AFFNI 55	phy21-43a	25/10/2021	120
phy2100315	Belfast	B3-AFFNI 50	phy21-43a	25/10/2021	40
phy2100317	Belfast	B20-AFFNI 53	phy21-43a	25/10/2021	80
phy2100319	Strangford	S7-AFFNI 76	phy21-35b	25/10/2021	260

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100320	Strangford	S2-AFFNI 42	phy21-43b	26/10/2021	1360
phy2100324	Carlingford	C11-AFFNI 84	phy21-43c	26/10/2021	80
phy2100325	Carlingford	NW-wild fishery	phy21-43c	26/10/2021	700
phy2100329	Dundrum	DB1-AFFNI 95A	phy21-44a	02/11/2021	240
phy2100330	Belfast	B1-AFFNI 55	phy21-45a	08/11/2021	60
phy2100332	Belfast	B12-AFFNI 54	phy21-45a	08/11/2021	120
phy2100336	Carlingford	C9-AFFNI 39	phy21-45b	08/11/2021	120
phy2100342	Strangford	S7-AFFNI 76	phy21-45c	08/11/2021	40
phy2100356	Belfast	B1-AFFNI 55	phy21-47b	22/11/2021	40
phy2100357	Belfast	B3-AFFNI 50	phy21-47b	22/11/2021	280
phy2100358	Belfast	B12-AFFNI 54	phy21-47b	22/11/2021	40
phy2100359	Belfast	B20-AFFNI 53	phy21-47b	22/11/2021	80
phy2100360	Strangford	S2-AFFNI 42	phy21-47b	23/11/2021	120
phy2100362	Belfast	B3-AFFNI 50	phy21-48a	29/11/2021	80
phy2100363	Belfast	B12-AFFNI 54	phy21-48a	29/11/2021	140
phy2100371	Killough	K1-AFFNI 18	phy21-49a	06/12/2021	40
phy2100374	Strangford	S7-AFFNI 76	phy21-49a	06/12/2021	100
phy2100378	Belfast	B3-AFFNI 50	phy21-50a	13/12/2021	140
phy2100383	Carlingford	C9-AFFNI 39	phy21-50a	13/12/2021	220
phy2100384	Carlingford	C11-AFFNI 84	phy21-50b	13/12/2021	660
phy2100385	Carlingford	NW-wild fishery	phy21-50b	13/12/2021	80

System id	Region	Site ID ref	Report no.	Collection date	*Pseudo-nitzschia* spp.
phy2100390	Strangford	S7-AFFNI 76	phy21-51a	20/12/2021	60
phy2100395	Belfast	B12-AFFNI 54	phy21-52a	27/12/2021	80