RMP Assessment

For Dundrum Bay

Shellfisheries

Produced by

AQUAFACT International Services Ltd

On behalf of

Food Standards Agency in Northern Ireland

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Reference No.	FS315019
Assessment Date	21/02/2018

1. Summary of Information

Site	DB1 AFFNI 95A DB2 AFFNI 95B
Production Area	Dundrum Bay
Species	Mussels & Pacific Oysters
Wild or Farmed?	Mussels - Cultivated from re-laid seed Oysters - Cultivated in bags on trestles
Growing Method	Mussels - Bottom Oysters - Intertidal trestles
RMP O1(B) Mussels & Oysters RMP M2(B) Mussels	-5.8262335; 54.2640144 (100m tolerance) -5.8485661; 54.2498696 (100m tolerance)

1.1. General

Since the completion and implementation of the Sanitary Survey (2011/2012) and the Interim Review of the Sanitary Survey Report for Inner Dundrum Bay (2013), aquaculture activities have changed in Dundrum Bay due to a change in business ownership. A larger scale and revised business set up has resulted in there being limited to no production near the RMPs identified as part of the 2011/2012 Sanitary Survey. It is the aim of this assessment to review the original RMP locations in light of the change in business operations and recent investigations that have been carried out by NI Water. Any revision of RMP locations is an interim measure while NI Water complete its assessment of water quality in the bay.

Both oysters and mussels are licensed for cultivation in Dundrum Bay. Figure 1.1 shows the DAERA licensed sites and FSA classified sites in Dundrum Bay. Figure 1.2 shows the locations of the RMPs selected as part of the Sanitary Survey in 2011/2012. Inner South mussels (DB2 AFFNI 95B) was given a C classification in 2017. Inner North oysters and mussels (DB1 AFFNI 95A) were given a B classification in 2017.

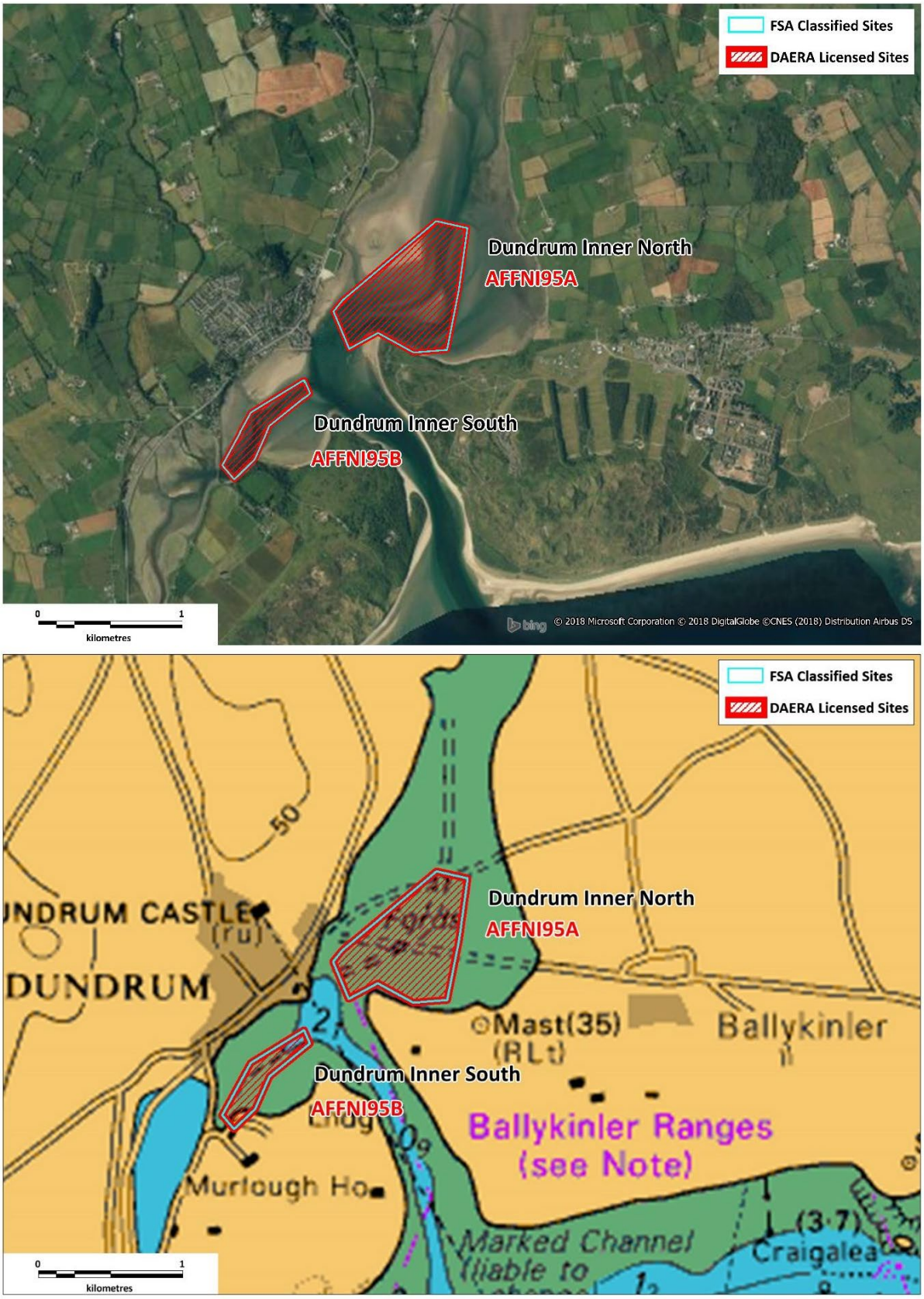

Figure 1.1: DAERA Licensed and FSA Classified sites in Dundrum Bay (overlaid on BING imagery and Admiralty Chart No. 44).

In addition to the information provided in the 2011/2012 Sanitary Survey and the 2013 Interim Review of the Sanitary Survey Report, NI Water and AFBI carried out a catchment investigation of the Dundrum Inner Bay designated shellfish waters in 2017 (Grant *et al.*, 2017). This investigation report contains the most up-to-date information available on the pollution sources in Inner Dundrum Bay.

The catchment area is *c.* 220km^2 and consists of 5 major rivers. Two rivers, the Carrigs and Moneycarragh plus an unnamed stream flow into the southwestern part of Inner Dundrum Bay, west of the Downshire Bridge. These 3 combine and flow under the bridge and it is in this channel that the Inner South site (Dundrum Inner South DB2 AFFNI 95B) is located. The Blackstaff River and Ardilea River flow into Inner Dundrum Bay, west of the Downshire Bridge. Both of these flow into the main channel that runs through the Inner North site (Dundrum Bay North DB1 AFFNI 95A). The main pollution sources into the bay are attributed to diffuse sources from agricultural practices and point sources from urban waste water networks. Landuse in the catchment area is *c.* 70% agricultural, predominantly sheep followed by cattle, pigs and poultry. There are 7 urban waste water networks in the catchment. Up to 65% of the overall catchment's major freshwater sources may impact on the Inner South area and 29% potentially affecting the Inner North (Grant *et al.,* 2017).

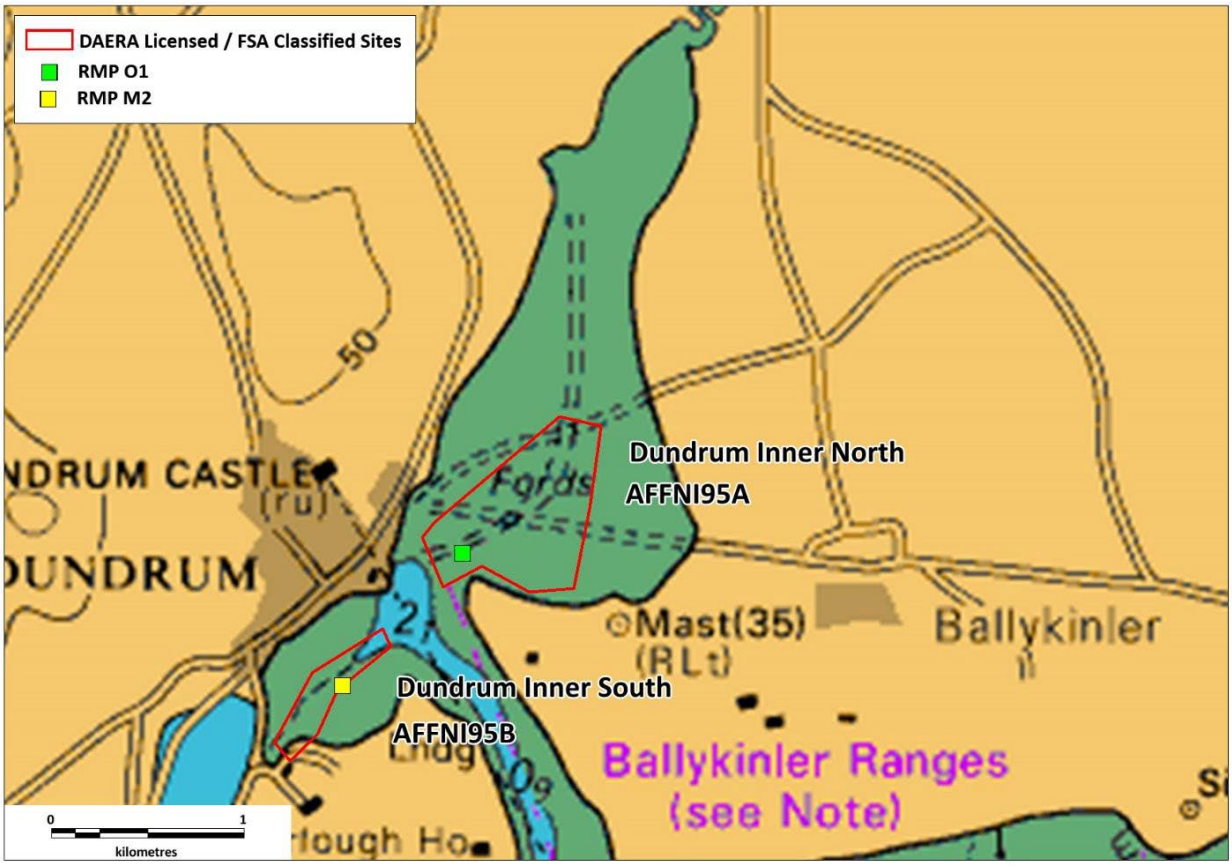

Figure 1.2: Location of aquaculture classified sites in 2012 and the RMPs selected as part of the Sanitary Survey.

1.2. Major Potential Faecal Pollution Sources

Dundrum WwTW is a Membrane Bio-Reactor type treatment plant which discharges directly into the Inner South Bay. The discharge site is located within 70m of the edge of the Inner South DB2 licensed shellfish harvesting area. Although the effluent is treated to a high quality, the plant has an inability to treat sustained Full Treatment Flow and is therefore prone to premature storming. There are 2 catchment pumping stations and 4 CSOs within the Dundrum sewage network that are consented to discharge directly to the Inner South DB2 shellfish area during periods of high rainfall. Flynn's WwPS does not consistently forward maximum consented flow to the WwTW and utilises a tank sewer system whereby it backs up to Main Street CSO.

The Inner South DB2 area may also be affected by discharges of the Carrigs River which has a number of wastewater treatment works (Grant *et al.,* 2017). There are 2 small Rotating Biological Contactors (RBC) WwTW (Maghera and Leitrim) and a larger Activated Sludge Plant (ASP) that treats human waste from the Annsborough and Castlewellan areas. The Moneycarragh River also discharges into the Inner South DB2 area; this has one small RBC plant (Drumaroad) which is a significant distance upstream from the bay.

There are 2 catchment pumping stations and 3 CSOs within the Dundrum sewage network that are consented to discharge directly to the Inner North DB1 shellfish area during periods of high rainfall. The Inner North Bay is also potentially impacted by two small RBC plants, Clough and Loughinisland, which discharge into the Ardilea and Blackstaff Rivers respectively.

The Carrigs River catchment has high numbers of sheep in the upper reaches combined with significant numbers of cattle (Grant *et al.,* 2017). In the lower reaches, the numbers of sheep and cattle (ruminants) significantly decrease which is likely due to the urbanisation of this river in the lower reaches. There is a high number of poultry in the lower Carrigs and its tributaries. The unnamed river adjacent to the Carrigs also has large numbers of poultry and cattle within its catchment. The Moneycarragh River catchment is dominated by large numbers of sheep in the upper reaches and cattle on the lower ground. The Ardilea and Blackstaff river catchments are heavily dominated by large numbers of sheep, cattle and poultry. With regards to daily *E. coli* loadings sheep rank first (18.1×10^9), followed by pigs (8.9×10^9), cattle (5.4×10^9), gulls (2×10^9), humans (1.9×10^9) and lastly poultry (0.24×10^9) (Jones & White, 1984).

The upper reaches of the Carrigs River is more dominated by agricultural activity than its lower draining section. The Ardilea and Blackstaff Rivers all have significant areas of arable farming. The lower reaches of the Moneycarragh River is more suitable for arable farming and cattle grazing.

Grant *et al.* (2017) in a technical report entitled *Dundrum Inner Bay Designated Shellfish Waters Catchment Investigation 2015* set out to investigate and identify the relative risk of pollution from various sources on shellfish water quality. The complex nature of interactions between the inner bay, riverine inputs, WwTW and associated infrastructure should be highlighted in the context of this assessment. In general, the Inner North DB1 ambient water microbial concentrations were significantly lower than those of the Inner South DB2 area, with the Inner South rivers exhibiting higher microbial concentration than the Inner North Rivers. The Carrigs River and ambient waters exhibit mixed sources of pollution with an undercurrent of human pollution always present. It should be noted that there is a potential for the human input to be significant due to location of outfalls etc. in close proximity to beds and thus reducing any dilution factors. The effect is compounded by a ruminant load in the summer months but it was not possible to apportion the risk and sources of pollution.

The Inner North DB1 shellfish harvesting area is more complex (Grant *et al.,* 2017). The predominance of pollution from the 2 contributing rivers is from ruminants during the summer months and intuitively it may be the same agricultural practices contributing load in the summer that is causing issues at Inner North as well as Inner South. The Grant *et al*. (2017) study started to see more ruminant loadings in the ambient water and two contributing rivers during the summer whereas the underlying low level human loadings is always there and if detected, it is at low levels.

The loading models as outlined in the Grant *et al.,* 2017 report suggest that there is significant microbial risk coming from the Carrigs River (estimated 84-88%) (Grant *et al.,* 2017). These loading models only identified trends of pollution from ruminants (*i.e.* cattle and sheep) and not from pigs and poultry. The other two rivers pose a lesser risk of microbial pollution based on the data obtained although combined, they may contribute to an equivalent degree as the WwTW on occasion. The assets from NI Water's Dundrum southern network contribute very little to the load on average. The Grant *et al.* (2017) study has indicated that the Carrigs River and ambient waters are exhibiting mixed sources of pollution with an undercurrent of human pollution always present. The effect is compounded by a ruminant load in the summer months but it was not possible to apportion the risk and sources of pollution.

The loading contribution is not as clear for the Inner North Bay. The loading models suggest that the Ardilea River contributes 84% during the winter and 30% during the summer while the Blackstaff River contributes 15% during the winter and 41% during the summer. The loading models suggest that the Dundrum Network (particularly Kielty's CSO) contributes 0.9% in summer and 29% in winter. However, the contribution from Kielty's CSO is likely to be an overestimation likely caused by a changing of microbial limits of detection between the winter and summer phases and the flow data used in the model. The overall risk to compliance with the objectives[1] of the Water Framework Directive in the Inner North is deemed to be from the two rivers and their ruminant sources (Grant *et al.* 2017).

In addition to the loadings from the rivers and urban waste water networks, tourism, shipping and wildlife also contribute to the loading in the bay albeit in much lower quantities. There is a quay wall in Inner Dundrum Bay, directly opposite the main channel out to the Outer Bay area. Small boats moor here between the quay wall and the Inner North site (DB1 AFFNI 95A). Tourism facilities in Inner Dundrum Bay are limited to angling and boat access areas. Vessels in the area are low in number and as a result pollution from shipping and tourism is considered insignificant compared with point source discharges from the land. Birds constitute the most significant contamination risk from wildlife in the area. Dundrum Bay regularly supports nationally important numbers of common scoter, oystercatcher, sanderling, dunlin and redshank. It also supports substantial numbers of black-headed and common gulls. Bird populations in the Dundrum Bay area are typically higher in early winter and late spring due to migratory events and they are typically higher in mid-winter than spring and summer as the local birds tend to move off-site in the summer months to breed. Therefore, it is highly probable that the contribution made by wildfowl to pollution levels in Dundrum Bay is higher in the winter months. However, it is also highly likely that these levels are low when compared with land-based discharges.

1.3. Major Potential Chemical Pollution Sources

There are no known chemical pollution sources discharging into the area (DAERA, 2017).

[1] Shellfish Waters Objective 1
All shellfish Water Protected Areas must be managed to ensure that they meet the objectives assigned to the water body as a whole under WFD.
Shellfish Waters Objective 2
All shellfish waters **must meet** the faecal indicator standard that ensures that all designated shellfish waters meet at least the Class B criterion as laid down in the EU Hygiene Regulations (854/2004).
Shellfish Waters Objective 3
To endeavour to meet the Guideline microbiological standard (75% of samples contain ≤230 *E. coli* per 100ml of shellfish flesh and intervalvular fluid) for shellfish flesh as set in the Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015.

1.4. Nearby Classified Production Areas (PA)

There are no other production areas near Dundrum Bay.

1.5. Summary of Available E. coli Data

Table 1.1 shows the FSA's official control classification data from 2006 to 2017 for Inner North (DB1 AFFNI95A) and Inner South (DB2 AFFNI95B). Appendix 1 contains the FSA's official control microbiological monthly results from 2012 to 2017 (data prior to this can be found in the Sanitary Survey) at the following link:
https://www.food.gov.uk/sites/default/files/multimedia/pdfs/dundrum-survey.pdf

Inner South mussels (DB2 AFFNI 95B) had an annual B classification up to and including 2011. There was an increased incidence of results >4600 *E. coli* MPN/100g from 2011 onwards and this led to a review of the site's classification in 2012. Following a subsequent agreement of notification of significant sewage spill events between NIW and NIEA and associated management actions, together with the implementation of fortnightly *E. coli* monitoring with ongoing review of the data resulted in the bed retaining a Classification B until August 2014. In August 2014 a sample result returned levels of E. *coli* that exceeded EU regulatory levels which resulted in the bed being re-classified as a Class C bed, which continued in 2015, 2016 and 2017 due to continued non compliance with EU Hygiene legislation Classification B criteria.

Inner North oysters (DB1 AFFNI 95A) had an annual B classification up to and including 2014 (with the exception of two annual A classifications in 2005 and 2006). In 2015 and 2016, due to increased incidences of results >4600 *E. coli* MPN/100g a seasonal classification was enforced; B classification from 8th December to 31st July and a C classification from 1st August to 7th December. The site was classified as an annual Classification B in 2017.

Mussels were only introduced to Inner North site (DB1 AFFNI 95A) in 2013 and this site was classified as B-provisional in 2013 and 2014 followed by an annual B classification in 2015, 2016 and 2017.

Table 1.1: FSA Annual Classification Data and Analysis (2006-2017).

Harvesting Area	Year	n	% Within Classification				Geo. Mean	>90% Class B	FSA Classification
			A	B	C	>C			
Inner North Oysters	2006	11	64	36	0	0	111	Y	A
	2007	11	73	27	0	0	96	Y	B
	2008	11	64	36	0	0	98	Y	B
	2009	11	73	27	0	0	111	Y	B
	2010	12	83	17	0	0	95	Y	B
	2011	12	75	25	0	0	92	Y	B
	2012	20	50	45	5	0	322	Y	B
	2013	12	75	25	0	0	136	Y	B
	2014	12	33	58	8	0	589	Y	B
	2015	18	6	72	16	6	1364	N	B/C Seasonal
	2016	13	23	77	0	0	399	Y	B
	2017	12	17	83	0	0	506	Y	B
Inner North Mussels	2013	12	75	25	0	0	136	Y	B
	2014	12	33	58	8	0	589	Y	B
	2015	12	8	83	8	0	902	y	B
	2016	13	31	62	7	0	781	Y	B
	2017	12	33	67	0	0	510	Y	B
Inner South Mussels	2006	11	64	36	0	0	110	Y	B
	2007	11	82	18	0	0	80	Y	B
	2008	9	33	67	0	0	332	Y	B
	2009	12	75	25	0	0	116	Y	B
	2010	12	42	58	0	0	201	Y	B
	2011	12	50	33	17	0	262	N	B
	2012	22	14	59	27	0	1435	N	B
	2013	19	21	79	0	0	530	Y	B

Harvesting Area	Year	n	% Within Classification				Geo. Mean	>90% Class B	FSA Classification
			A	B	C	>C			
Inner South Mussels (cont'd)	2014	28	7	82	7	4	1321	N	C
	2015	12	25	58	17	0	666	N	C
	2016	12	0	67	33	0	1925	N	C
	2017	12	0	75	25	0	1865	N	C

* >80% since amendment in early 2016

2. Assessment

The major faecal pollution source in the Inner South area comes from the Carrigs River. The Carrigs River and ambient waters exhibit mixed sources of pollution with an undercurrent of human pollution always present. It should be noted that there is a potential for the human input to be significant due to location of outfalls etc. in close proximity to beds and thus reducing any dilution factors. The effect is compounded by a ruminant load in the summer months but it was not possible to apportion the risk and sources of pollution.

The main contributors to faecal loading in the Inner North area come from the Ardilea and Blackstaff rivers (contributions vary between both from winter to summer months). The overall risk to compliance with the objectives of the Water Framework in the Inner North is deemed to be from the two rivers and their ruminant sources (Grant *et al.* 2017). Figure 2.1 show the locations of the existing discharges, the existing RMPs and the relocated RMPs.

In light of the findings by Grant *et al.* (2017), it is proposed to relocate RMP M2, 390m to the southwest closer to the inflow of the Carrigs River and rename it RMP M2(B) and sample it for mussels. A buffer zone of 100m is proposed around this RMP and once the mussels are sampled from within this area, they are considered to be representative of the worst case for public health protection. Figure 2.2 shows the location of the relocated RMP M2(B) and its 100m buffer zone.

It is proposed to relocate RMP O1 820m northeast into the path of the freshwater flow from the Blackstaff and Ardilea Rivers and rename it RMP O1(B) and sample it for mussels and oysters. A buffer zone of 100m is proposed around this RMP and once the mussels and oysters are sampled within 100m of this RMP, they are considered to be representative of the worst case. Figure 2.3 shows the location of the relocated RMP O1(B) and its 100m buffer zone.

Table 2.1 provides the coordinates of the relocated RMPs. It is recommended that the actual sampling locations are recorded, to 10m accuracy. In the event of no stock being available within the specified tolerance of the RMP, consideration should be given to placing bagged mussels/oysters at the RMP location for the purposes of official control sampling. In that case, the mussels/oysters should be *in situ* for at least 2 weeks prior to sampling.

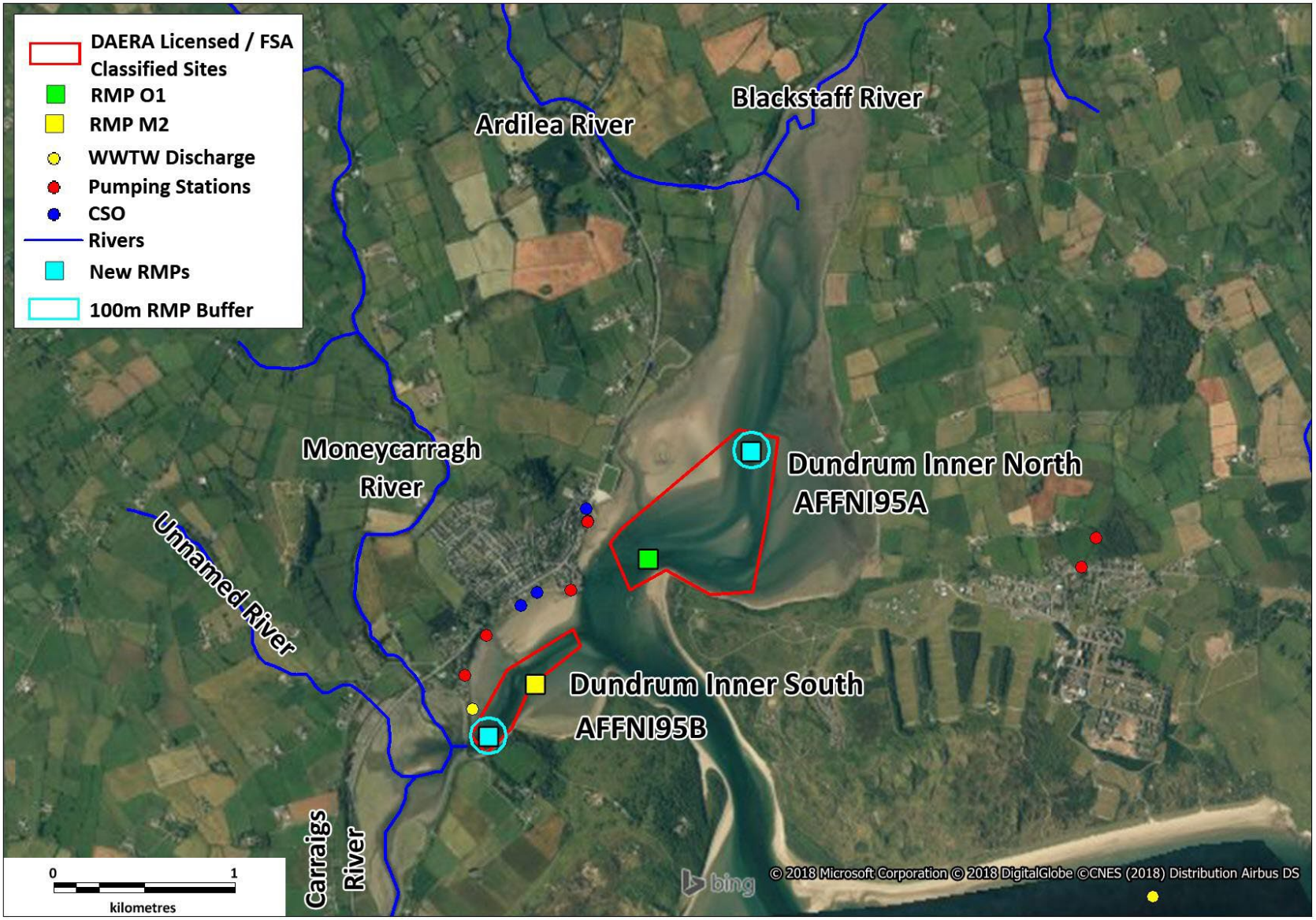

Figure 2.1: Location of existing RMPs, discharges, rivers, FSA Classified sites, DAERA licensed sites and the new RMPs.

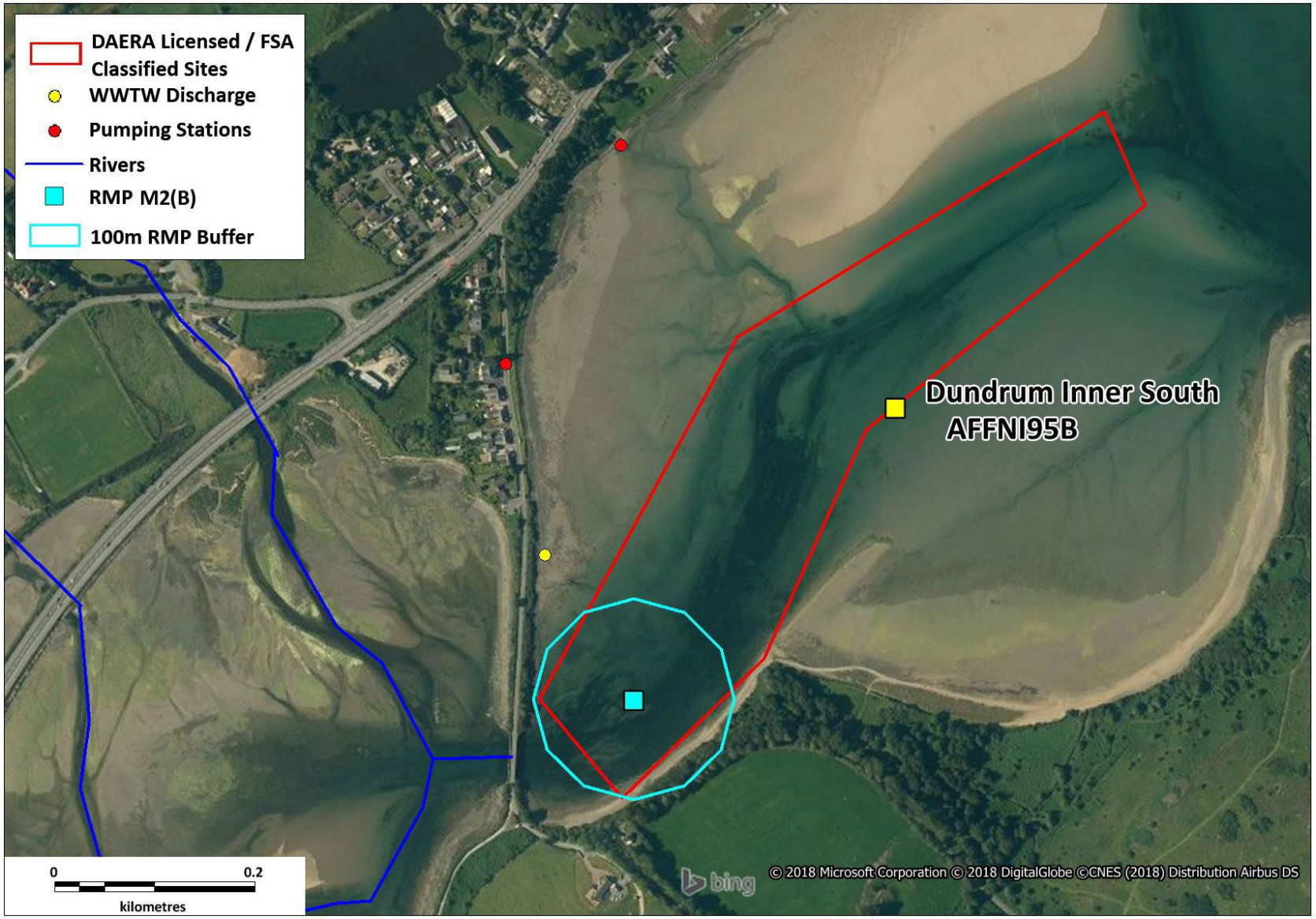

Figure 2.2: Location of RMP M2(B) with 100m buffer zone.

Figure 2.3: Location of RMP O1(B) with 100m buffer zone.

Table 2.1: Coordinates of relocated RMP O1(B) and RMP M2(B)

RMP	Longitude (WGS84)	Latitude (WGS84)	Easting (ING)	Northing (ING)	Species
RMP O1(B)	-5.8262335	54.2640144	341,688.68	337,199.45	Mussels & Oysters
RMP M2(B)	-5.8485661	54.248696	340,281.75	335,580.68	Mussels

3. References

Grant, K., Dunn, S. & A. Harte. 2017. Dundrum Inner Bay Designated Shellfish Waters Catchment Investigation 2015 Technical Report. Report prepared by NI Water & AFBI.

DAERA. 2017. Northern Ireland Industrial and Domestic Consents from 2012 – April 2017. DAERA, NIEA, Regulation Group. November 2017.

Appendix 1

FSA Official Control Microbiological Monthly Results 2012-2017

Inner North Oysters

Date	Result	Level	Date	Result	Level
17-Jan-17	B	490	21-Jan-14	B	790
20-Feb-17	A	220	18-Feb-14	B	790
20-Mar-17	B	780	19-Mar-14	A	130
19-Apr-17	B	330	15-Apr-14	B	330
15-May-17	A	170	20-May-14	A	230
28-Jun-17	B	330	17-Jun-14	A	230
25-Jul-17	B	490	16-Jul-14	B	1100
29-Aug-17	B	1400	12-Aug-14	C	6300
25-Sep-17	B	3300	16-Sep-14	B	450
24-Oct-17	B	490	14-Oct-14	B	780
27-Nov-17	B	490	10-Nov-14	B	2300
12-Dec-17	B	330	09-Dec-14	A	220
04-Jan-16	B	1100	04-Feb-13	A	130
01-Feb-16	B	1100	25-Feb-13	A	<20
29-Feb-16	B	780	25-Mar-13	A	170
30-Mar-16	B	490	23-Apr-13	B	330
26-Apr-16	A	170	28-May-13	A	130
24-May-16	B	490	25-Jun-13	B	330
27-Jun-16	A	78	22-Jul-13	A	40
25-Jul-16	B	690	20-Aug-13	A	230
22-Aug-16	B	330	17-Sep-13	A	230
20-Sep-16	B	330	14-Oct-13	A	20
24-Oct-16	B	1300	18-Nov-13	B	1100
21-Nov-16	A	45	16-Dec-13	A	140
19-Dec-16	B	490	30-Jan-12	B	1700
12-Jan-15	B	780	28-Feb-12	A	50
09-Feb-15	B	330	26-Mar-12	A	20
10-Mar-15	B	1300	30-Apr-12	A	110
08-Apr-15	B	780	29-May-12	A	130
12-May-15	B	330	26-Jun-12	B	1100
09-Jun-15	A	170	24-Jul-12	B	700
07-Jul-15	B	690	28-Aug-12	C	5400
10-Aug-15	C	54000	05-Sep-12	A	140
17-Aug-15	B	330	12-Sep-12	A	170
25-Aug-15	C	35000	20-Sep-12	A	130
03-Sep-15	B	780	24-Sep-12	B	490
07-Sep-15	C	4900	09-Oct-12	B	490
17-Sep-15	C	11000	22-Oct-12	B	1700
05-Oct-15	B	1100	06-Nov-12	A	140
02-Nov-15	B	930	12-Nov-12	A	80
17-Nov-15	B	690	20-Nov-12	B	3500
01-Dec-15	B	1300	27-Nov-12	B	1700
16-Dec-15	B	1100	03-Dec-12	B	330
			18-Dec-12	A	50

Inner North Mussels

Date	Result	Level	Date	Result	Level
17-Jan-17	B	780	05-Oct-15	B	780
20-Feb-17	A	170	02-Nov-15	B	1300
20-Mar-17	B	3300	01-Dec-15	B	2300
19-Apr-17	A	130	21-Jan-14	A	110
15-May-17	A	68	18-Feb-14	B	490
28-Jun-17	B	1300	19-Mar-14	A	130
25-Jul-17	B	490	15-Apr-14	A	<20
29-Aug-17	B	1300	20-May-14	B	330
25-Sep-17	B	1700	17-Jun-14	A	45
24-Oct-17	B	780	16-Jul-14	B	490
27-Nov-17	B	330	12-Aug-14	B	4600
12-Dec-17	A	220	10-Nov-14	B	690
04-Jan-16	B	780	09-Dec-14	B	490
01-Feb-16	B	3300	22-Jul-13	A	50
29-Feb-16	A	130	20-Aug-13	A	110
30-Mar-16	A	45	17-Sep-13	A	210
26-Apr-16	B	1100	14-Oct-13	A	20
07-Jun-16	B	2300	18-Nov-13	A	170
27-Jun-16	A	170	16-Dec-13	B	490
25-Jul-16	B	1700	10-Aug-12	B	330
22-Aug-16	C	7000	10-Aug-12	B	330
20-Sep-16	B	780	16-Aug-12	B	3500
24-Oct-16	B	1100	21-Aug-12	B	790
21-Nov-16	A	92	28-Aug-12	C	24000
19-Dec-16	B	490	05-Sep-12	A	170
10-Aug-12	B	330	12-Sep-12	B	1700
09-Feb-15	B	2300	20-Sep-12	B	330
10-Mar-15	B	2300	01-Oct-12	A	170
08-Apr-15	A	18	09-Oct-12	B	330
12-May-15	B	780	22-Oct-12	A	230
09-Jun-15	B	1300	06-Nov-12	A	50
07-Jul-15	C	7000	12-Nov-12	B	330
23-Jul-15	B	330	20-Nov-12	B	2400
10-Aug-15	C	7000	27-Nov-12	B	2400
07-Sep-15	B	1700	03-Dec-12	B	400

Inner South Mussels

Date	Result	Level	Date	Result	Level
03-Jan-17	B	690	26-Aug-14	C	92000
06-Feb-17	B	3300	04-Sep-14	B	2300
06-Mar-17	C	4900	10-Sep-14	B	330
03-Apr-17	B	1100	16-Sep-14	B	690
09-May-17	B	690	23-Sep-14	B	1100
14-Jun-17	B	1100	14-Oct-14	B	490
11-Jul-17	B	3300	28-Oct-14	A	170
14-Aug-17	B	1300	10-Nov-14	B	1100
11-Sep-17	C	24000	24-Nov-14	B	1300
10-Oct-17	B	1700	09-Dec-14	B	1300
13-Nov-17	C	3300	30-Dec-14	B	2300
11-Dec-17	B	330	14-Jan-13	B	490
18-Jan-16	C	24000	12-Feb-13	B	790
15-Feb-16	B	490	11-Mar-13	A	110
14-Mar-16	B	1700	08-Apr-13	A	170
11-Apr-16	C	4900	13-May-13	B	1100
11-May-16	C	7000	11-Jun-13	B	790
13-Jun-16	B	620	25-Jun-13	B	1700
14-Jul-16	B	2300	09-Jul-13	B	330
08-Aug-16	B	3300	22-Jul-13	A	170
16-Sep-06	C	11000	06-Aug-13	B	1700
10-Oct-16	B	490	20-Aug-13	B	2700
07-Nov-16	B	450	03-Sep-13	B	490
05-Dec-16	B	330	17-Sep-13	B	490
27-Jan-15	B	2300	30-Sep-13	B	330
03-Mar-15	B	270	14-Oct-13	A	220
31-Mar-15	B	330	06-Nov-13	B	1100
28-Apr-15	A	20	18-Nov-13	B	490
26-May-15	A	170	03-Dec-13	B	460
23-Jun-15	A	220	16-Dec-13	B	490
21-Jul-15	B	330	17-Jan-12	B	490
25-Aug-15	C	7900	14-Feb-12	B	2400
22-Sep-15	C	11000	13-Mar-12	A	170
19-Oct-15	B	690	16-Apr-12	B	490
17-Nov-15	B	1100	14-May-12	B	790
16-Dec-15	B	2300	12-Jun-12	C	5400
06-Jan-14	B	3500	09-Jul-12	C	5400
21-Jan-14	C	5400	31-Jul-12	B	1300
27-Jan-14	B	700	13-Aug-12	C	16000
04-Feb-14	B	1700	21-Aug-12	C	9200
18-Feb-14	B	3500	28-Aug-12	C	5400
04-Mar-14	B	1100	05-Sep-12	C	5400
19-Mar-14	B	1300	10-Sep-12	A	80
01-Apr-14	B	490	20-Sep-12	B	2400
15-Apr-14	A	130	01-Oct-12	B	790

Date	Result	Level	Date	Result	Level
06-May-14	B	330	09-Oct-12	B	330
27-May-14	B	2400	22-Oct-12	B	3500
03-Jun-14	B	330	06-Nov-12	A	210
17-Jun-14	B	460	12-Nov-12	B	330
01-Jul-14	B	790	20-Nov-12	B	3500
16-Jul-14	B	1700	27-Nov-12	B	2400
29-Jul-14	B	4600	03-Dec-12	B	2200
12-Aug-14	C	24000			