Table 7: Mean values of selected water quality parameters by geographic areas within the Owen Sound study area for the July 7, 2009 survey. Values in brackets are the minimum and maximum values among samples over the respective areas. See Appendix 3 for the distribution of sampling locations over the study area and Figure 1 for stratification into geographic groups.

	Parameter	Inner Harbour	Inner sound	Outer sound	Outfall
Surface (1.5 m)	Chloride (mg L^{-1})	15.0 (10-19.3)	8.0 (6.6-12.4)	6.5 (6.5-6.7)	8.4 (8.0-8.9)
	Ammonia +Ammonium (µg L^{-1})	64 (41-86)	32 (13-55)	11 (9-13)	100 (68-137)
	TON (µg L^{-1})	291 (219-364)	175 (142-253)	137 (120-159)	196 (172-233)
	DOC (mg L^{-1})	2.8 (2-3.5)	1.7 (1.4-2.3)	1.5 (1.4-1.6)	1.6 (1.6-1.7)
	E.coli (CFU/100mL)	468 (26-910)	13 (2-64)	2 (2-2)	2 (2-2)
Bottom (1-2 m above the lakebed)	Chloride (mg L^{-1})	10.4	6.6	6.5	10.4
	Ammonia +Ammonium (µg L^{-1})	71	11	11	71
	TON (µg L^{-1})	289	129	119	289
	DOC (mg L^{-1})	2	1.4	1.4	2.0
	E.coli (CFU/100mL)	ns	ns	ns	ns

Notes: 1) Outfall group includes sampling points distributed within approximately 150 m of the outfall for the water pollution control plant; these data are not included in the calculation of values for the inner sound group. 2) Numbers of samples per group (surface) were 2, 8, 5 and 5 for the harbour, inner sound, outer sound and outfall groups respectively. There are single sampling points for the bottom groups. 3) ns - no samples

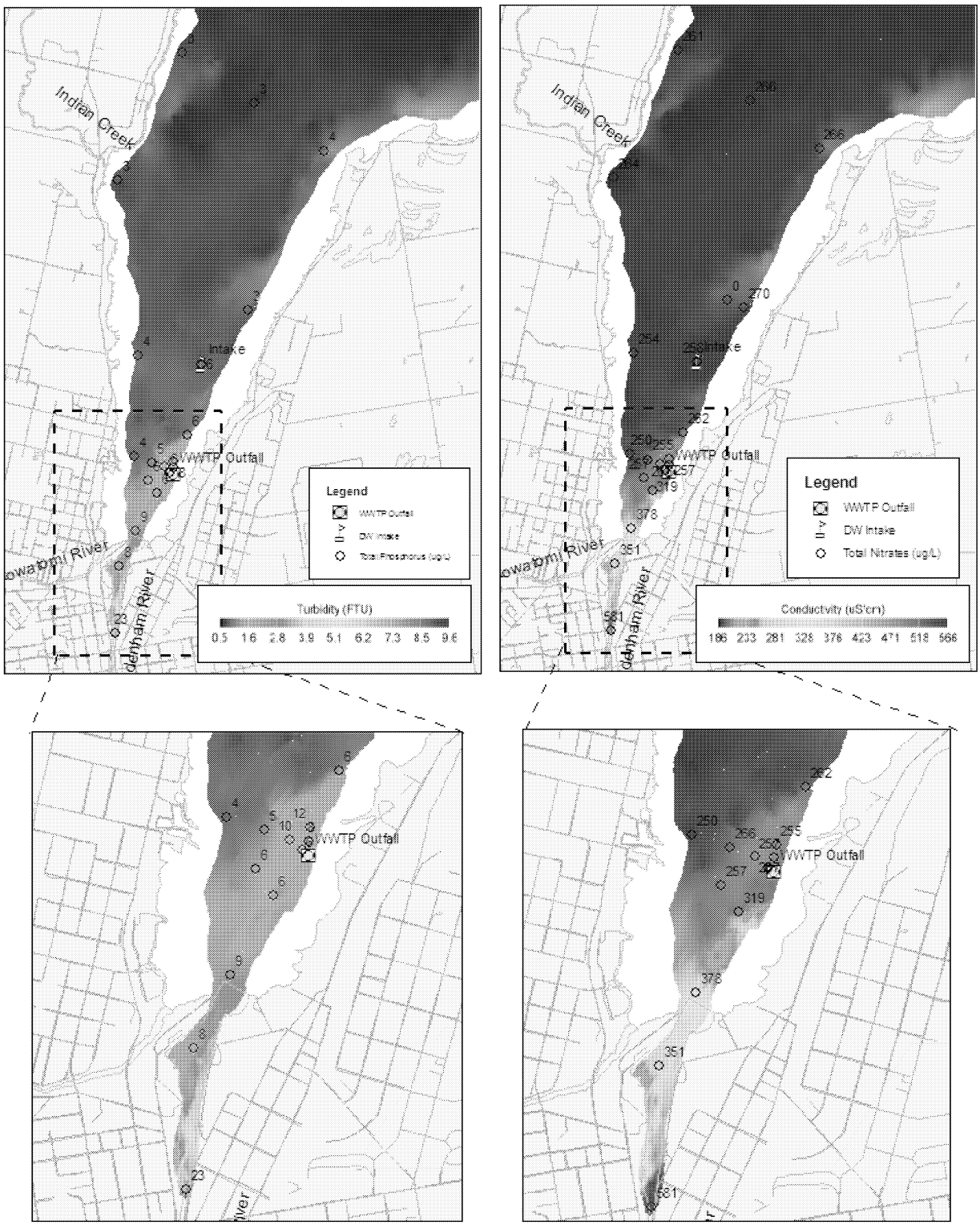

Figure 13: Total phosphorus and nitrate + nitrite concentrations in point samples plotted on surface maps of turbidity and conductivity, respectively on July 7, 2009 (survey 2).

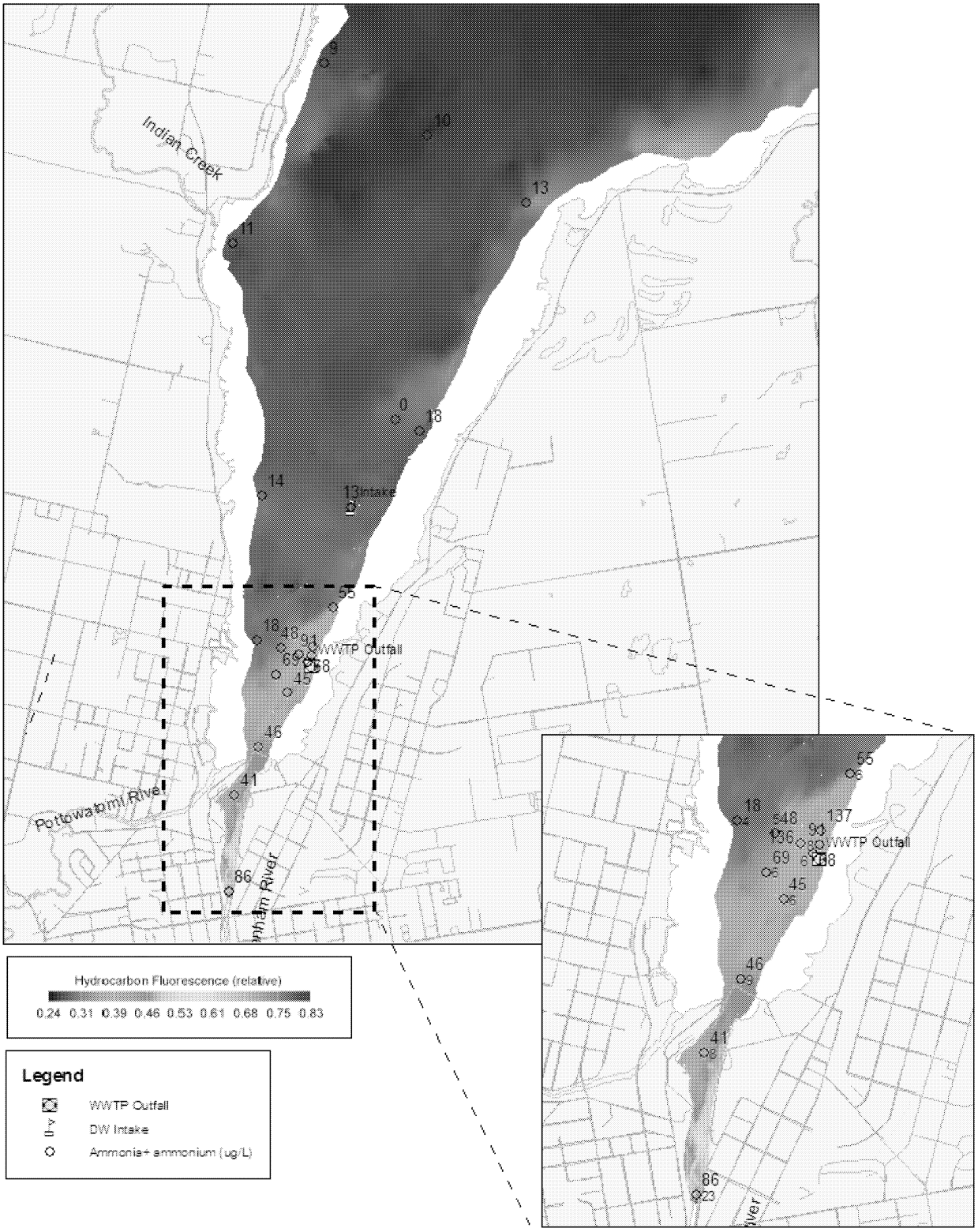

Figure 14: Ammonia + ammonium concentrations in point samples plotted on surface maps of hydrocarbon fluorescence on July 7, 2009 (survey 1).

7. Hydrocarbon fluorescence patterns with depth to infer distribution of mixing area

Unlike in the first survey, no clearly delineated mixing area was evident at the surface in the area of the WWTP outfall in the second survey. The majority of the variability in hydrocarbon fluorescence detected near the lake surface was associated with areas south/south-west of the WWTP outfall, in the inner harbour and in particular the south end of the inner harbour highlighting the loading from the Sydenham River.

Exploration of the distribution of hydrocarbon fluorescence through the water column (**Figure 15**) suggested complex mixing patterns and the possibility of changing circulation over the duration of data collection on July 7. One the one hand, The WWTP outfall discharge appeared to be moving westward across the inner sound in a clockwise direction and appeared to be sinking into the inner sound. This is consistent with the distribution of ammonia + ammonium levels near the outfall. On the other hand, inputs from the inner harbour to the inner sound appeared to be moving towards the northeast (counter clockwise) at the top and partially mixed through the water column (**Figure 15**).

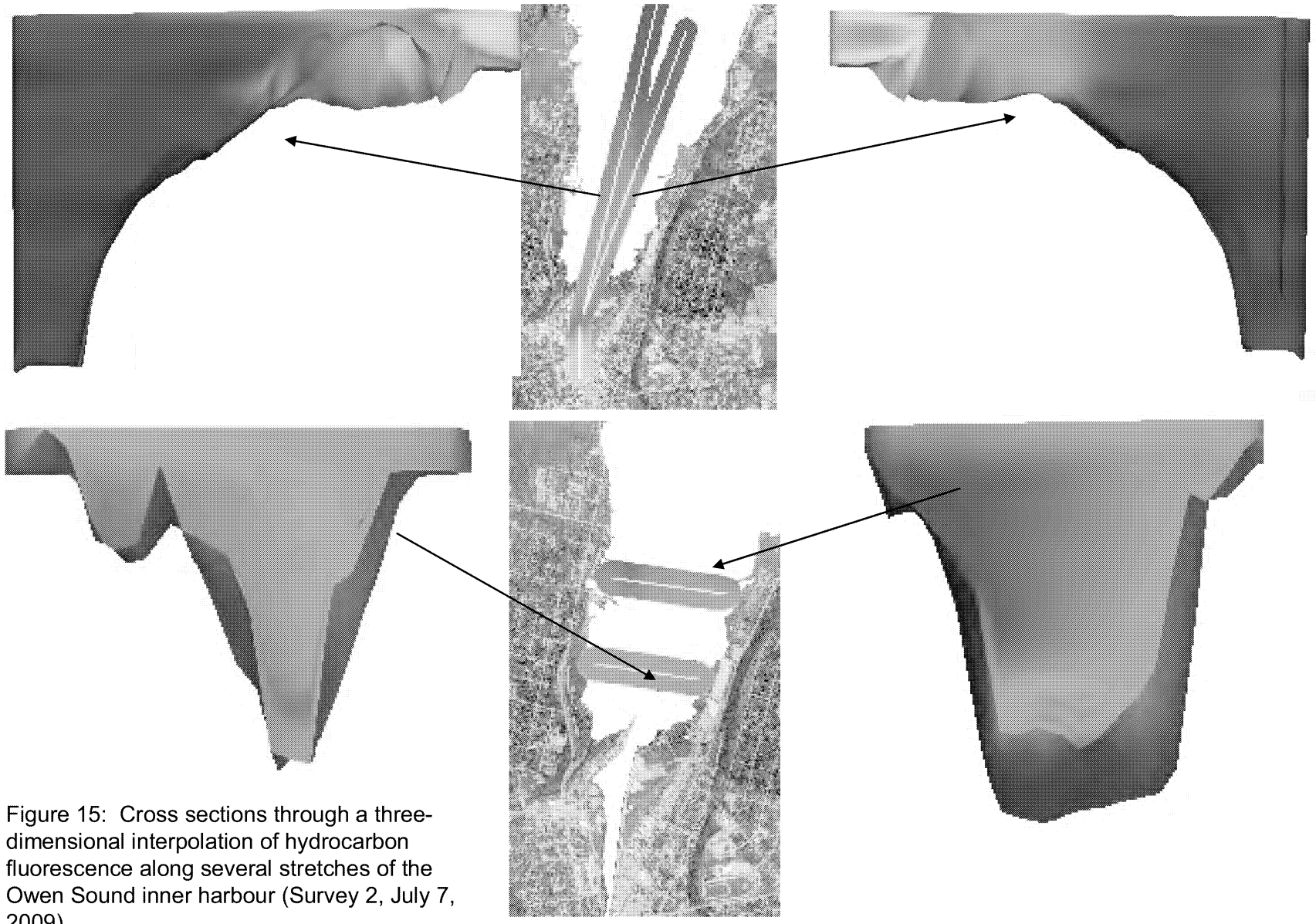

Figure 15: Cross sections through a three-dimensional interpolation of hydrocarbon fluorescence along several stretches of the Owen Sound inner harbour (Survey 2, July 7, 2009)

4.5.3 Owen Sound Water Quality Survey August 18, 2009: Late Summer Conditions

1. Weather conditions

Prevailing winds on August 18 at Wiarton were from the west-southwest with median wind speed of 19 km/h (**Table 3**). These were the strongest winds encountered over the four surveys. Environment Canada reported 0.2 mm of rainfall over the three days prior to the survey and there was 5.6 mm on the day of the survey.

Discharge measurements at the Sydenham River ranged from 0.64 m^3/s (August 17) to 0.59 m^3/s August 18 (**Appendix 6**).

2. Lake temperatures and thermal stratification

Surface water temperatures ranged from 16.3 to 19.9^oC during the third survey (**Figure 16**). The warmest temperatures (18-19^oC) were on the eastern side of the outer sound, and coolest temperatures in the harbour suggesting broader circulation effects and possibly upwelling along the west side and south end of Owen Sound.

Thermal stratification was evident in depth profiles with temperatures dropping to approximately 10^oC towards the bottom of the metalimnion (**Figure 17**). Thermal stratification appeared to be the strongest in the outer eastern side of the sound. Tilting of the thermocline upward from east to west across Owen Sound was evident in the interpolations of water temperatures.

3. Surface circulation

Surface circulation in the third survey appeared to be consistent with upwelling from the northwest and counter clockwise circulation within the inner harbour and the inner sound areas, as suggested by surface patterns in hydrocarbon fluorescence and conductivity (**Figure 16**). Surface temperatures suggest colder waters from depth in the NW end of the sound moving towards the surface and circulating in a counter clockwise

direction from the northwest, pushing warmer waters of the inner sound in an outward direction towards the east. Discharge from the WWTP outfall area appeared to be moving to the north and east along the shoreline.

4. Conductivity and hydrocarbon fluorescence as tracers of external inputs

Overall homogenous conditions were observed in Owen Sound, with evidence of localized inputs in the harbour and in the vicinity of the WWTP outfall (**Figure 16**). Spatial patterns in conductivity and hydrocarbon fluorescence measured in surface waters were similar (**Figure 16**). The range of conductivity was half that of the first two surveys, suggesting comparatively less external inputs to Owen Sound over the period preceding the August survey than earlier surveys.

The mixing area of the WWTP outfall was distinct from mixing areas in the harbour and between the harbour and inner sounds as inferred from surface conductivity (**Figure 16**). The strongest inputs inferred from conductivity (up to 287 µS/cm) were found within a localized area on the east side of the inner harbour. A mixing area of elevated conductivity (approximately 240 µS/cm) was found within the vicinity of the WWTP outfall.

Hydrocarbon fluorescence in the third survey was characterized by an overall homogeneous distribution of low fluorescence throughout Owen Sound (**Figure 16**).
Hydrocarbon fluorescence in the harbour appeared to be only slightly higher than in the rest of the sound. The highest surface hydrocarbon fluorescence measurements were noted immediately north of the WWTP outfall (extending approximately 500 m).
Compared with earlier surveys mixing of the inner harbour water into the inner sound appeared to be less of an influence on hydrocarbon fluorescence levels in the inner sound.

Figure 16: Surface maps of temperature, hydrocarbon fluorescence and conductivity (right to left) on August 18, 2009 (survey 3).

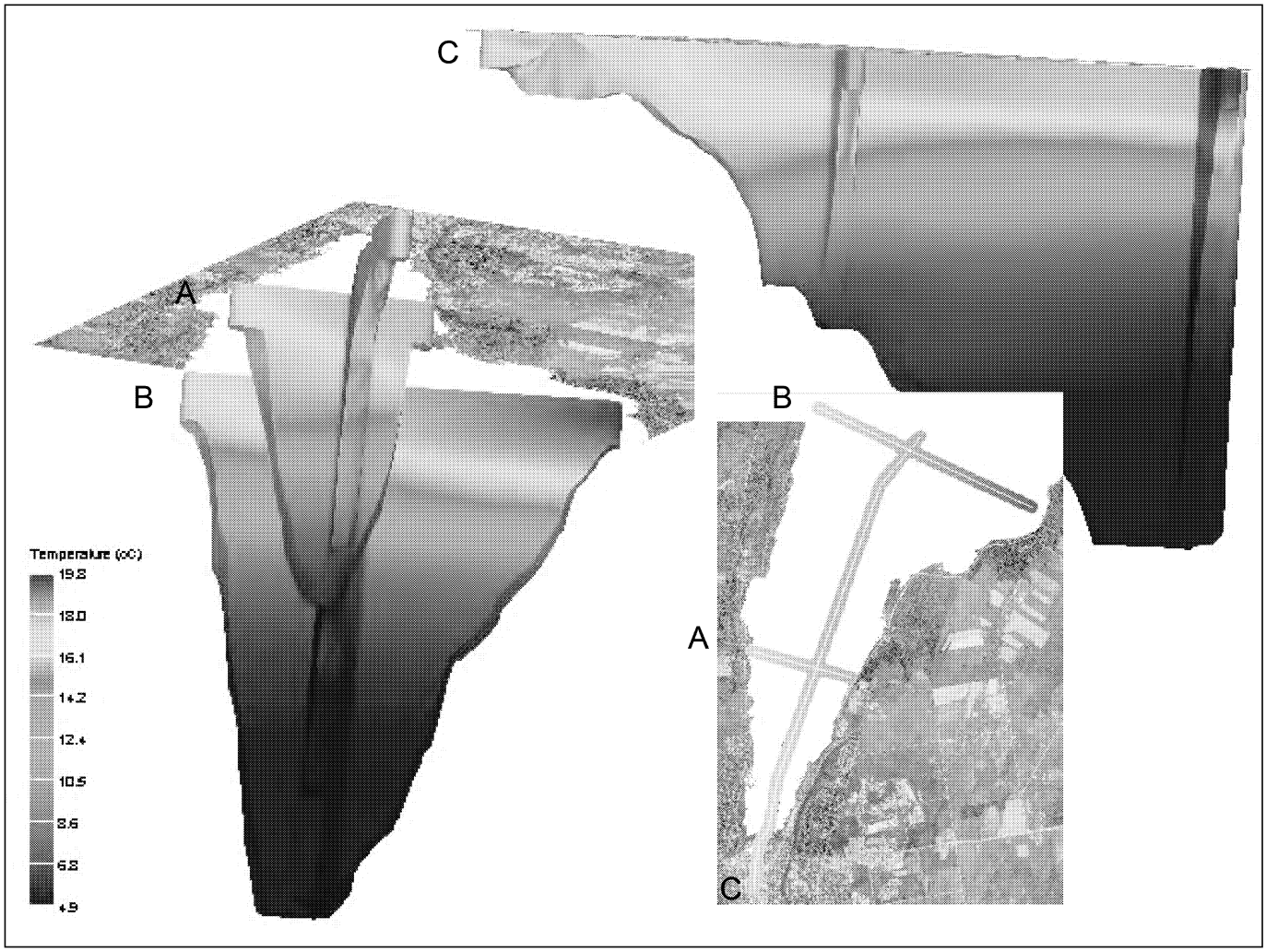

Figure 17: Selected temperature cross sections for Survey 3 (August 18, 2009): a) east to west across inner sound; b) southeast to northwest across outer sound; c) south to north from harbour to outer sound

5. Turbidity and Chlorophyll a

The range of turbidity readings encountered in the third survey (from 0.4 - 5 FTU) was generally half that of the first and second surveys (**Figure 18**). Low levels of turbidity (<1 FTU) were found over much of the study area, with the exception of the inner harbour and portions of the inner sound. Moderate to low turbidity levels were noted within the inner harbour area. The highest measurements of turbidity (up to 5 FTU) were found near the WWTP outfall. A plume of slightly higher turbidity extended

northward up to 830 m along the shoreline from the WWTP outfall. Some subtle increases in turbidity were noted along the western shoreline near the mouth of Indian Creek. Turbidity at the drinking water intake was similar to background conditions in Owen Sound.

Chlorophyll a concentrations in the third survey were generally low (0.9-2.2 µg/L), with slight increases associated with areas of higher turbidity within the inner harbour and inner sound areas (**Figure 18**). The explanation for the area of slightly higher chlorophyll a concentrations in the east to west band north of the water intake is not obvious and possibly related to dynamics within the plankton, given there is no indication of correspondence with anthropogenic factors.

Relative productivity levels inferred through chlorophyll a concentrations showed some variability among geographical zones (**Table 8**), with the highest chlorophyll a concentrations in the inner harbour. However, overall concentrations indicated oligotrophic conditions throughout the survey area.

Table 8: Summary of chlorophyll a concentrations as an indicator of relative productivity in various parts of Owen Sound (Survey 3, August 18, 2009).

Chlorophyll a (µg/L)	**TOTAL STUDY AREA**	**SEPARATE ZONES**			
		Harbour	**Inner sound**	**Outfall**	**Outer sound**
Mean:	1.10	1.27	1.21	1.21	1.05
Median:	1.04	1.27	1.22	1.20	1.00
Range:	0.91-2.15	1.04-1.58	1.00-2.13	1.04-2.15	0.91-1.69
Variance:	0.0213	0.0069	0.0098	0.0149	0.0174

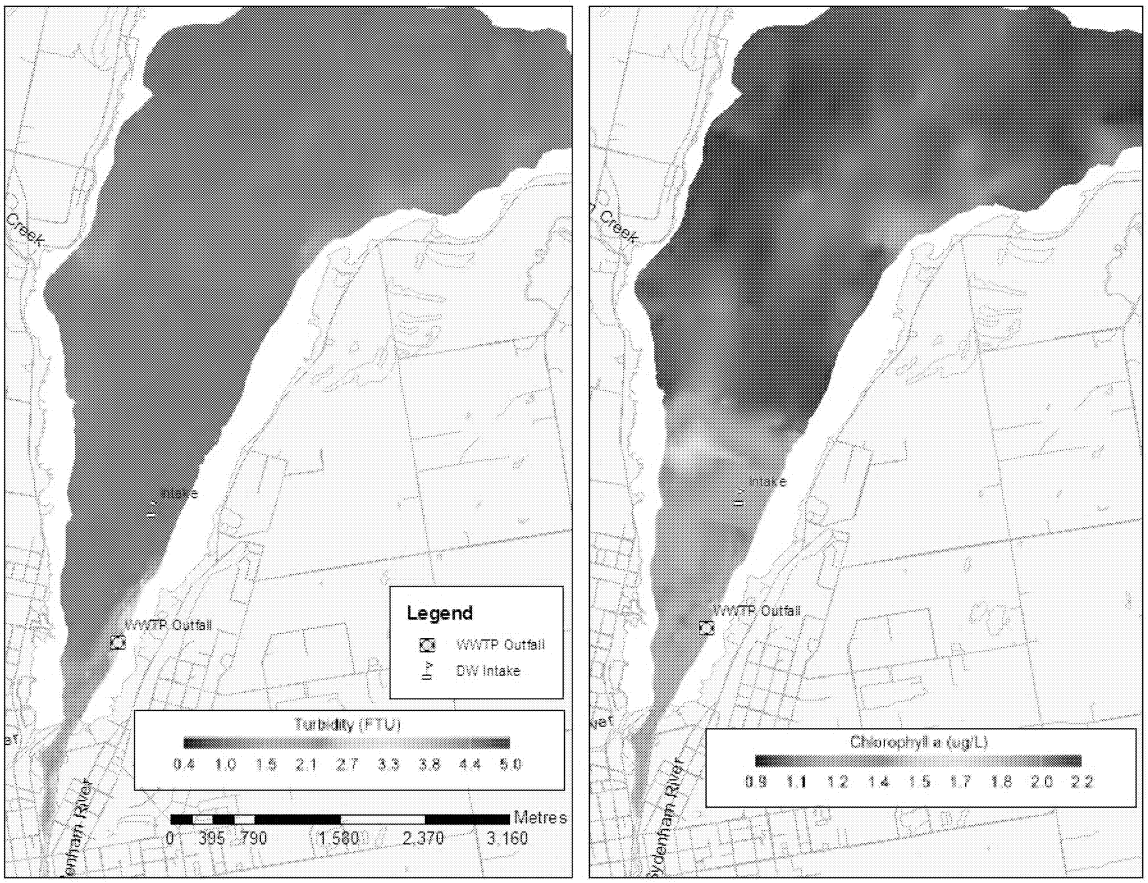

Figure 18: Surface maps of turbidity and chlorophyll a concentrations on August 18, 2009 (survey 3).

6. Nutrients

Total phosphorus concentrations in the third survey were again typical of the oligotrophic conditions in Owen Sound, ranging from <2 µg/L in the outer sound to 5 µg/L in the inner sound just outside the areas of higher turbidity (**Figure 19**). Areas with more turbidity had only slightly higher phosphorus concentrations. TP concentrations within the harbour were low (4 - 5 µg/L). TP concentrations within the inner sound were highest north of the WWTP outfall (12 µg/L) in the area of highest turbidity. TP concentrations along the shoreline north of the WWTP outfall ranged from 7 - 10 µg/L.

Nitrate + nitrite concentrations in the third survey ranged from 242 - 285 µg/L (**Figure 19**); with the highest concentrations noted within the harbour (250 - 285 µg/L) and in the vicinity of the WWTP outfall (262 - 275 µg/L). Concentrations were lower than in the first and second surveys, consistent with an overall decrease in inputs as noted in conductivity and turbidity, and seasonally high depletion by phytoplankton.

Ammonia + ammonium surface concentrations in the third survey were low in the inner harbour, inner sound and outer sound areas; however, concentrations at the WWTP outfall were slightly elevated (average 119 µg/L, range 4 - 373 µg/L) (**Table 9**). Bottom concentrations of ammonia + ammonium were also elevated at the outfall (798 µg/L). Ammonia + ammonium concentrations appeared to follow patterns consistent with inputs from the WWTP outfall, as evidenced by the correspondence in distribution of hydrocarbon fluorescence in the area of the outfall (**Figure 20**).

7. Other water quality parameters

Levels in surface samples for many of the parameters measured in the third survey were within the ranges of concentrations noted in the first and second surveys, with a few exceptions (**Table 9**).

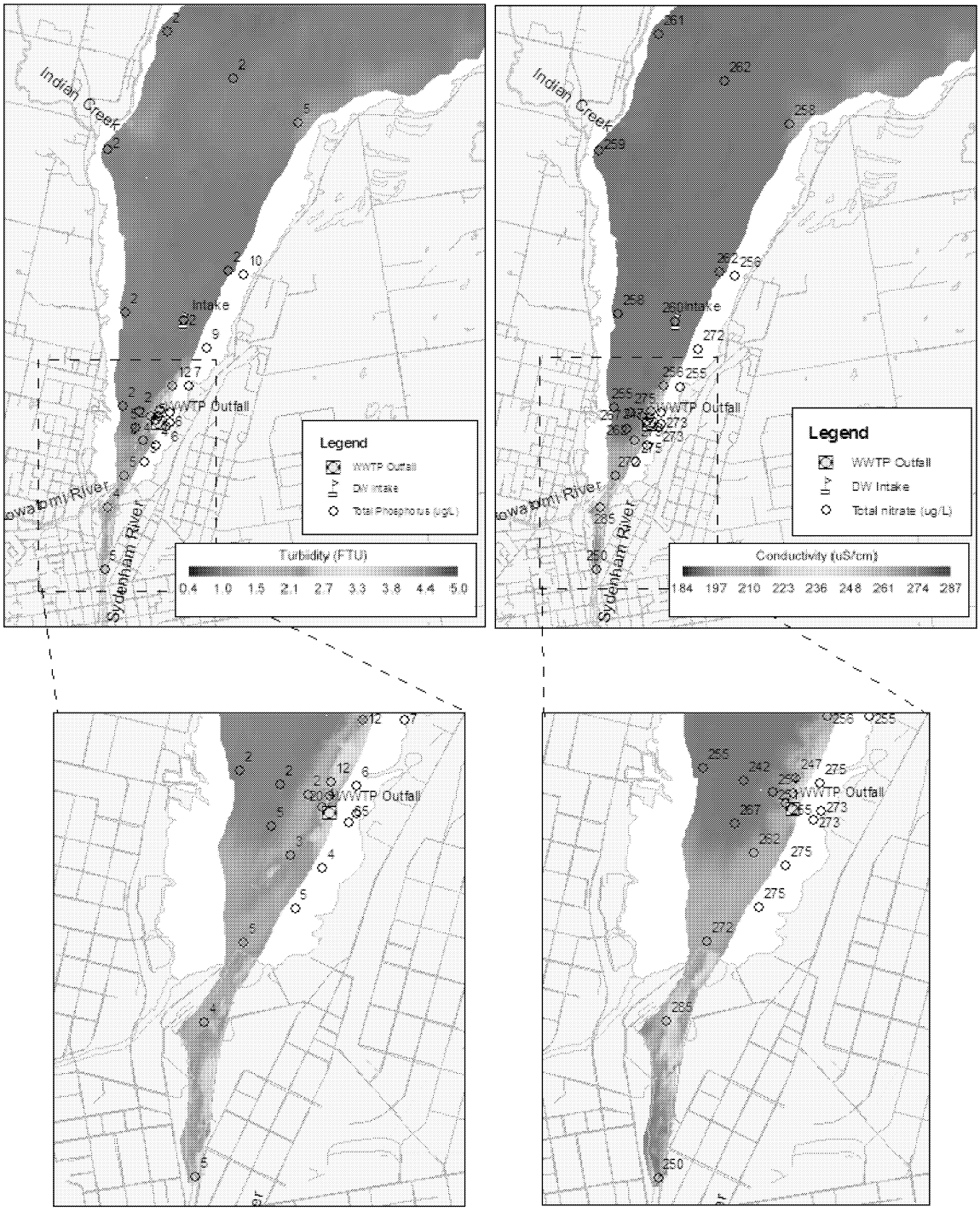

Figure 19: Total phosphorus and nitrate + nitrite concentrations in point samples plotted on surface maps of turbidity and conductivity, respectively on August 18, 2009 (survey 3).

Table 9: Mean values of selected water quality parameters by geographic areas within the Owen Sound study area for the August 18, 2009 survey. Values in brackets are the minimum and maximum values among samples over the respective areas. See Appendix 3 for the distribution of sampling locations over the study area and Figure 1 for stratification of sites into geographic groups.

	Parameter	Inner Harbour	Inner sound	Outer sound	Outfall	Outfall - shoreline	Inner sound - shoreline
Surface (1.5 m)	Chloride (mg L^{-1})	7.3 (6.7-7.9)	7 (6.5-9.3)	6.7 (6.5-7.1)	8.2 (6.6-11.0)	8.3 (8.0-8.6)	8.2 (7.7-9.0)
	Ammonia + Ammonium (µg L^{-1})	13 (11-14)	31 (4-199)	12 (7-31)	119 (4-373)	14 (14-14)	53.2 (14-112)
	TON (µg L^{-1})	133 (126-139)	156 (122-241)	164 (152-179)	246 (126-587)	152 (146-156)	167 (146-188)
	DOC (mg L^{-1})	1.8 (1.7-1.9)	1.8 (1.6-1.9)	1.7 (1.5-1.9)	1.8 (1.6-2.0)	1.8 (1.8 -1.8)	1.9 (1.8-2.0)
	E.coli (CFU/100mL)	49 (8-90)	15 (2-70)	5 (2-18)	19 (12-24)	14 (10-18)	16 (4 - 38)
Bottom (1-2 m above the lakebed)	Chloride (mg L^{-1})	6.7	6.5	6.5	15.7	ns	ns
	Ammonia +Ammonium (µg L^{-1})	14	8	10	798	ns	ns
	TON (µg L^{-1})	136	172	130	502	ns	ns
	DOC (mg L^{-1})	1.6	1.7	1.8	2.1	ns	ns
	E.coli (CFU/100mL)	ns	ns	ns	ns	ns	ns

Notes: 1) Outfall group includes sampling points distributed within approximately 150 m of the outfall for the water pollution control plant; these data are not included in the calculation of values for the inner sound group. 2) Numbers of samples per group (surface) were 2, 8, 5, 5, 5 and 3 for the harbour, inner sound, inner sound shoreline, outer sound, outfall and outfall shoreline groups respectively. There are single sampling points for the bottom groups. 3) ns - no samples

TON concentrations near the outfall in the third survey appeared to be slightly elevated in both the surface samples (246 µg/L, range 125-587 µg/L) and bottom samples (502 µg/L); surface concentrations in the harbour and the inner sound appeared to be lower than in previous surveys, but slightly higher in the outer sound.

Levels of *E.coli* were low throughout the survey area and did not exceed 90 CFU/100mL in any sample.

8. Hydrocarbon fluorescence patterns with depth to infer distribution of mixing area

A small mixing area was evident in the area of the WWTP outfall in the third survey based on surface patterns of hydrocarbon fluorescence and conductivity (**Figure 16**) as well as turbidity (**Figure 18**). The highest conductivity levels near the WWTP outfall were found immediately north/north-east of the outfall, and appeared to follow a north

easterly flow along the shoreline. As inferred from conductivity, the mixing area appeared to extend approximately 690 m northeast along the shoreline. At its widest, the mixing area appeared to extend up to 330 m away from shore. An area of elevated conductivity and hydrocarbon fluorescence was noted in the inner harbour and extended into the inner sound oriented along the SE shoreline.

Water column interpolations of hydrocarbon fluorescence derived from depth profiles (**Figure 17**) suggest that the mixing area at the WWTP was primarily near the outfall and distributed through the water column along the shoreline to the NE of the intake. The mixing area is likely represented by the pattern of hydrocarbon fluorescence measured near the lake surface. The slightly cooled water of the inner sound on August 18 likely resulted in the dissipation of effluent towards the lake surface in the area of the outfall as suggested by the vertical pattern in hydrocarbon fluorescence along the shoreline in the area of the outfall (**Figure 17)**.

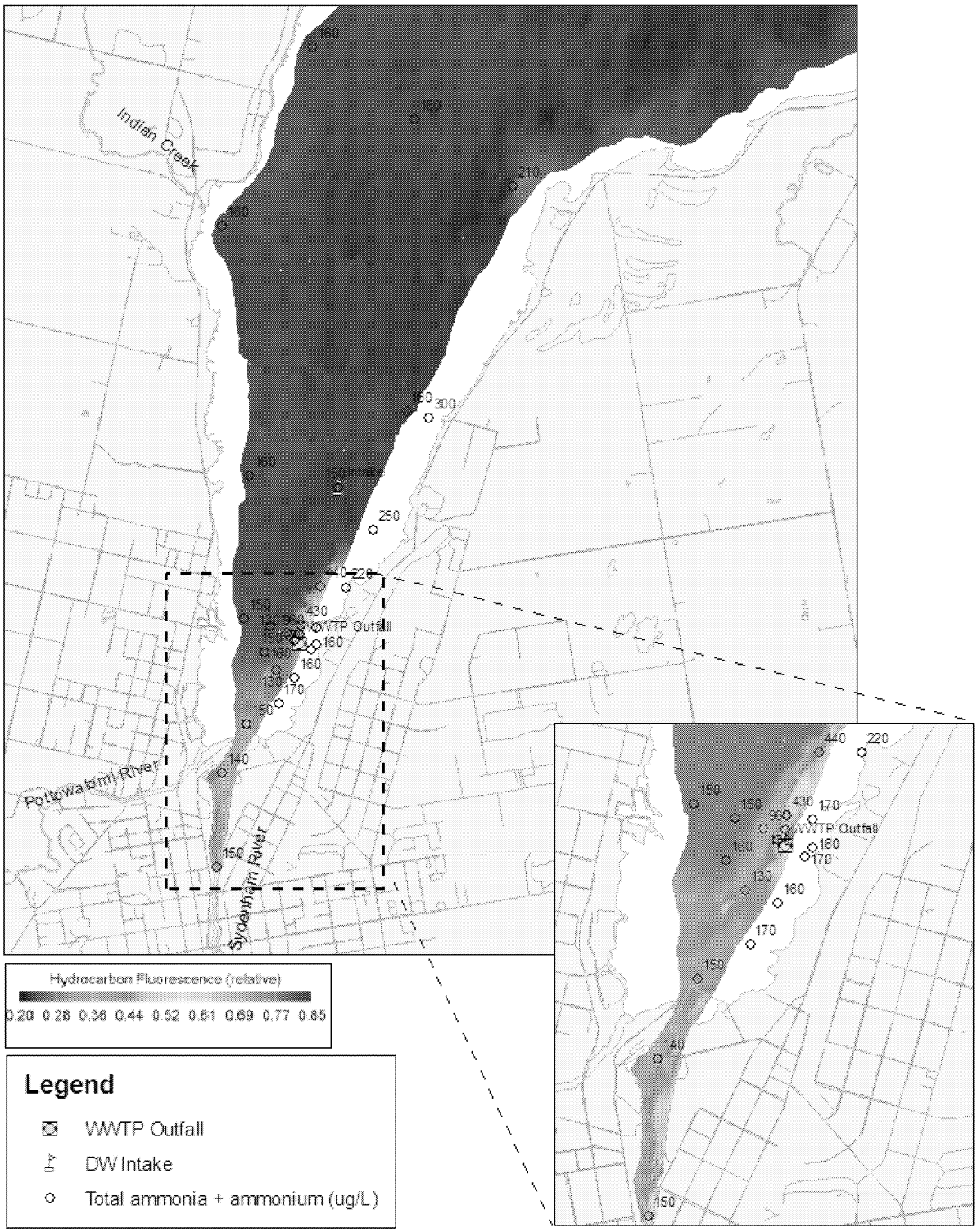

Figure 20: Ammonia + ammonium concentrations in point samples plotted on surface maps of hydrocarbon fluorescence on August 18, 2009 (survey 3).

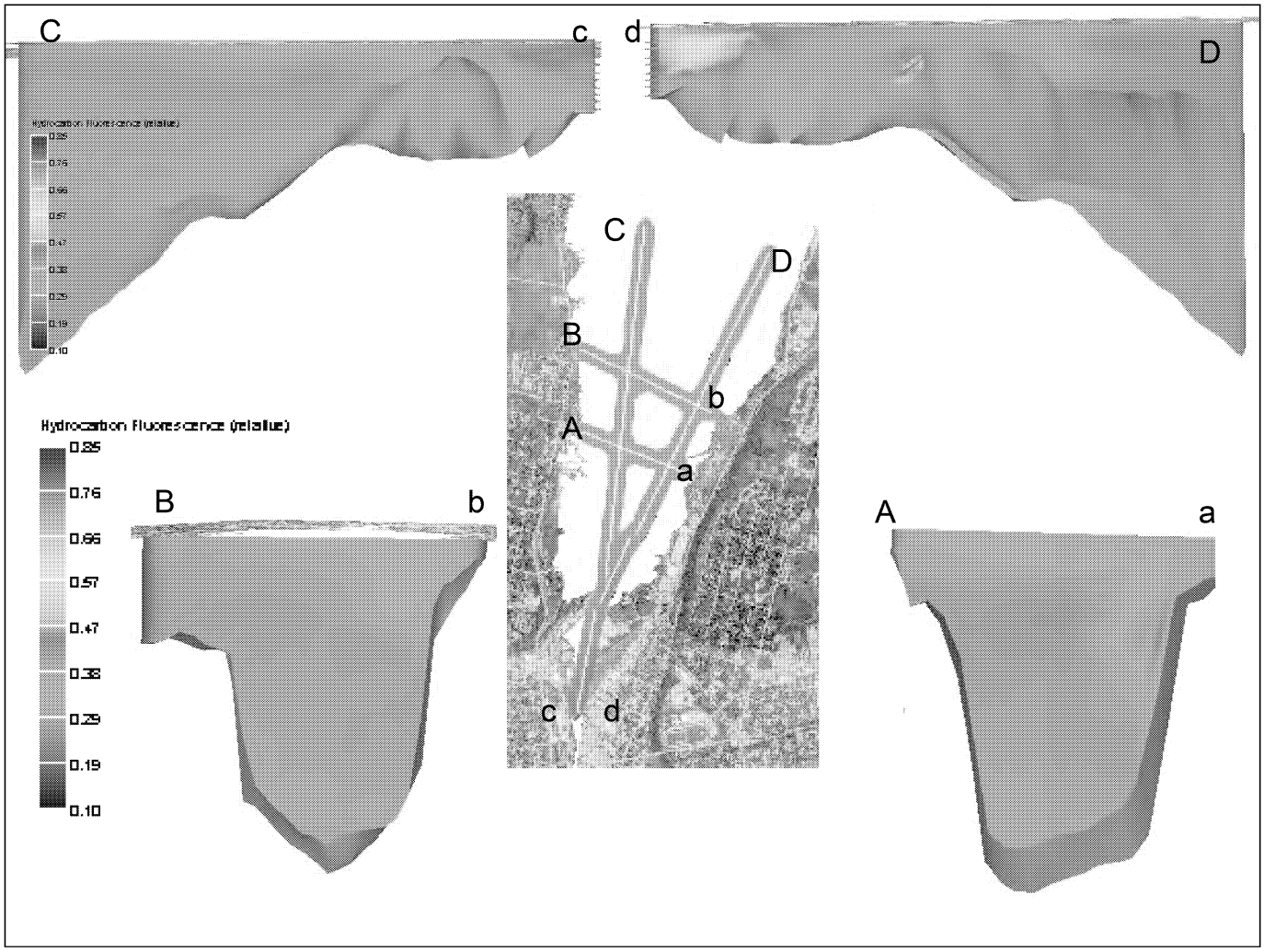

Figure 21: Selected hydrocarbon fluorescence cross sections for Survey 3 (August 18, 2009); refer to the aerial photo for orientation of cross sections.

4.5.4 Owen Sound Water Quality Survey October 27, 2009: Fall Conditions

1. Weather conditions

Winds at Wiarton on October 27 were from the S-SW and W-SW, with a median wind speed of 8 km/h (**Table 3**). Environment Canada reported up to 3.8 mm of precipitation at Wiarton preceding the survey (October 24 - 26), and 1.6 mm on the day of the survey. However, 16.4mm of rain fell in the preceding week (October 21 - 23). This is reflected in discharge measurements in the Sydenham River which increased from approximately 1.3 m^3/s to 1.6 m^3/s on October 26 (**Appendix 6**). Discharge levels during Survey 4 were the second highest after Survey 1.

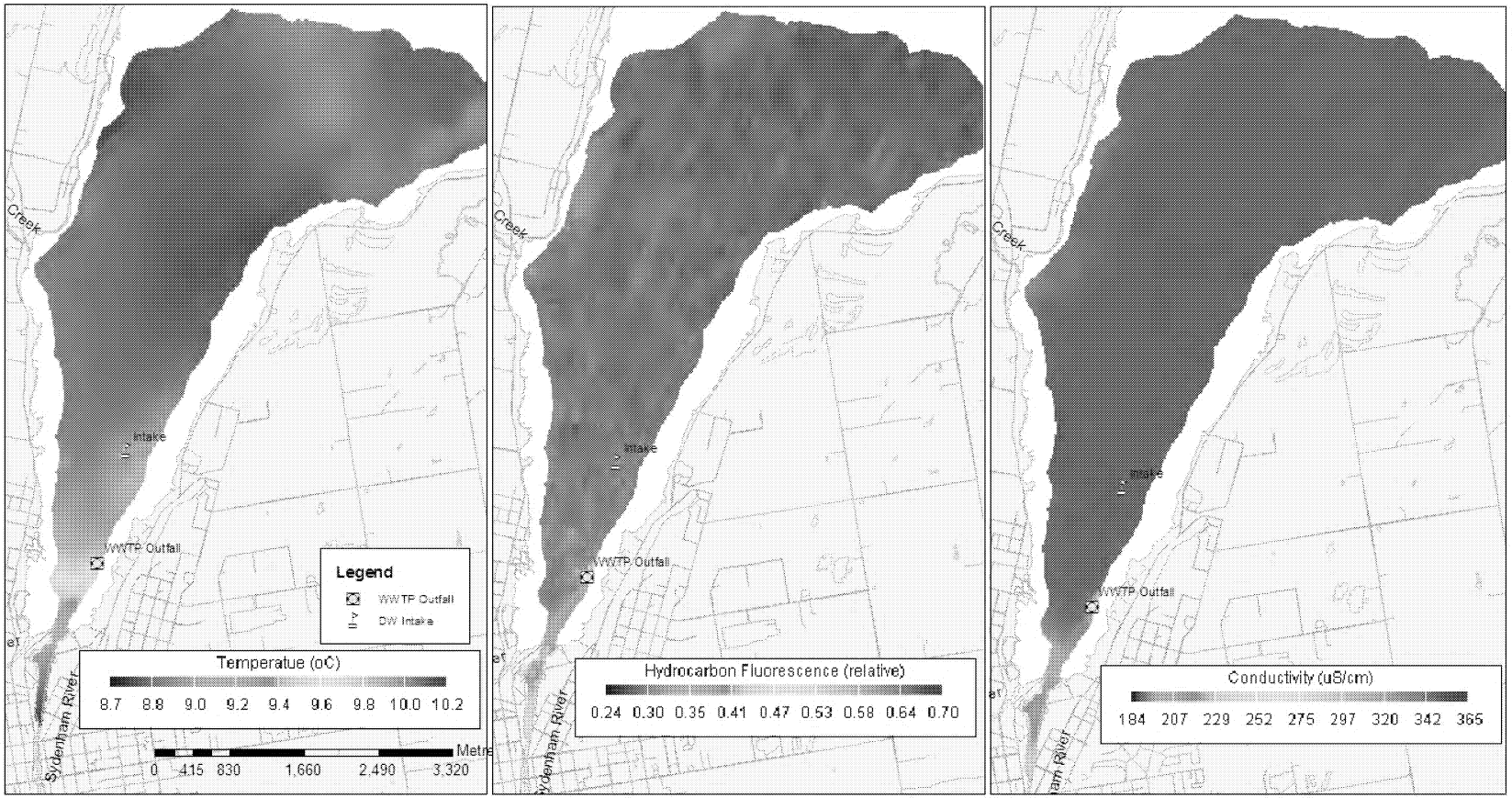

Figure 22: Surface maps of temperature, hydrocarbon fluorescence and conductivity (right to left) on October 27, 2009 (survey 4).

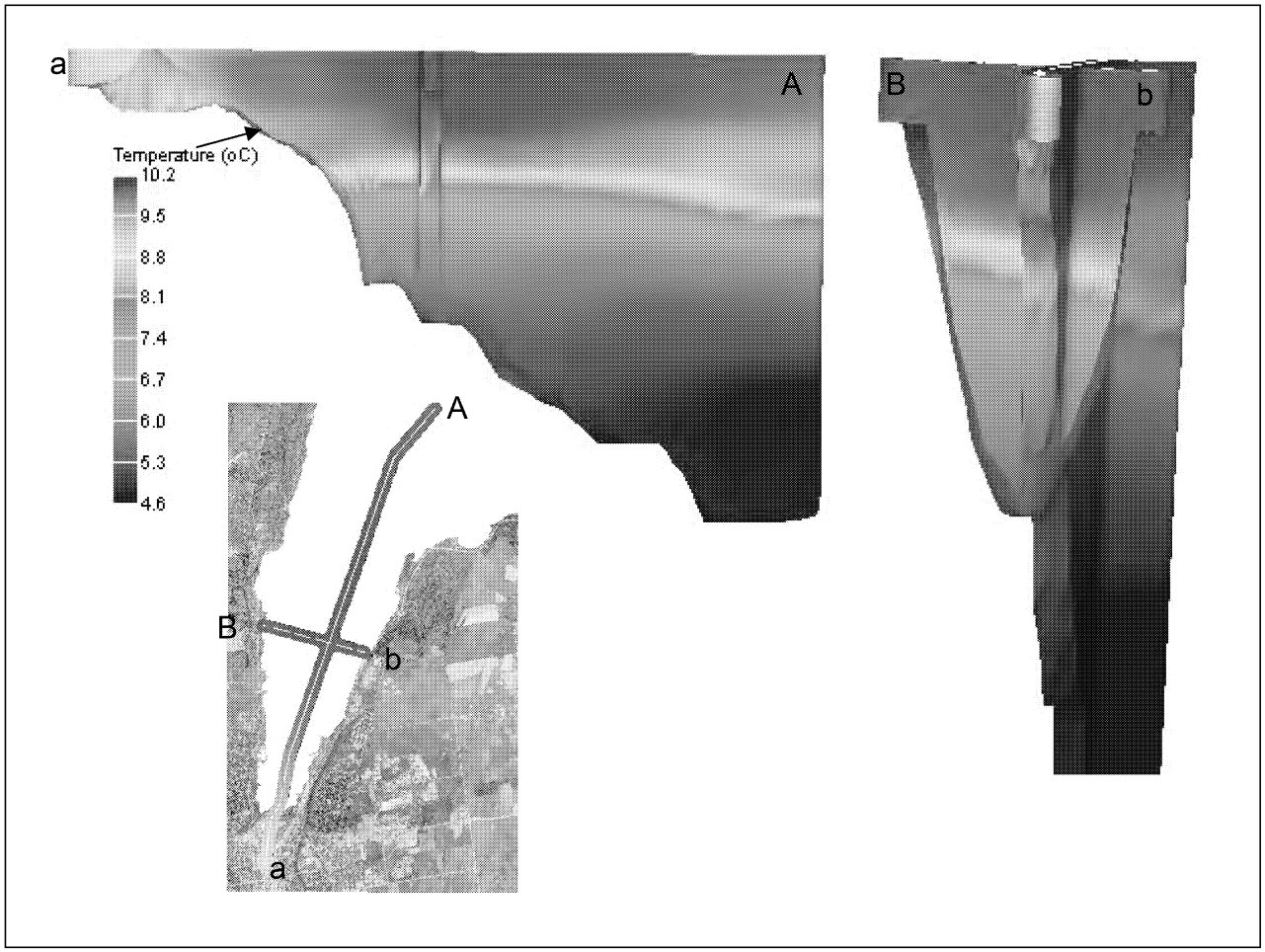

Figure 23: Temperature depth profile in Owen Sound during the fourth survey, October 27, 2009.

2. Lake temperatures and thermal stratification

Surface temperatures during the fourth survey were similar throughout the outer sound and slightly cooler over parts of the inner sound and inner harbour (**Figure 22**). Surface temperatures ranged from 8.7 - 10.2^{o}C over the study area. The cooler water temperature of the inner harbour compared with Owen Sound is likely accounted for by the more rapid cooling of tributaries waters than the open lake during the fall. The sinking of cooler (and denser) inner harbour water moving into the inner sound is suggested in the thermal cross section the water column (a-A) at the position of the arrow in **Figure 23**.

The water column was stratified over the outer sound and portions of the inner sound but approaching isothermal in the harbour (**Figure 23**).

3. Surface circulation

Surface measurements of conductivity and hydrocarbon during the fourth survey provided limited scope for interpretation of mixing within the inner harbour and the inner sound. Mixing of cooler waters from the harbour with the inner sound was evident in surface temperature measurements (**Figure 22**); similarly conductivity and hydrocarbon measurements suggested circulation out of the harbour but the pattern was strongly muted compared with previous surveys. Hydrocarbon fluorescence level in the vicinity of the WWTP outfall were slightly elevated with the suggestion of a mixing area extending southward along the shoreline, however, the extent of the variability in fluorescence is limited making the interpretation uncertain.

4. Conductivity and hydrocarbon fluorescence as tracers of external inputs

Surface hydrocarbon fluorescence in the fourth survey was characterized by an overall homogeneous distribution throughout Owen Sound (**Figure 22**). Hydrocarbon fluorescence in the inner harbour, and particularly at the south end of the harbour, was higher than the rest of the sound as in previous surveys. An increase in hydrocarbon fluorescence was detected in the vicinity of the WWTP outfall, with a localized mixing area detected but with no clear orientation suggestive of direction of movement. Limited movement approximately 200 m north and east along the shoreline from the WWTP outfall was suggested by the pattern in conductivity (**Figure 22**). Conductivity readings also suggested inputs of materials from areas along the western edge of the inner sound in the vicinity of the Pottowatomi River, however, it was not possible to distinguish the possible influence of discharge from the Pottowatomi River from mixing of inner harbour water with the inner sound.

5. Turbidity and Chlorophyll a

Surface turbidity was relatively homogeneous over Owen Sound. Turbidity during the fourth survey was the lowest measured in the study, ranging from 0.4-2.8 FTU (**Figure 24**). Detectable but small increases in turbidity were noted within the inner harbour, and within the inner sound at the confluence of the harbour with Pottowatomi River mouth. A slight increase was observed in the vicinity of the WWTP outfall (up to 1.9 FTU) and extending slightly northward (approximately 120 m).

Surface chlorophyll a concentrations were low within Owen Sound (range 0.58-0.83 µg/L), with only marginally higher levels over portions of the outer sound (**Figure 24**), and inner harbour (**Figure 24**). Oligotrophic conditions were evident in chlorophyll a measurements (**Table 10**).

Table 10: Summary of chlorophyll a concentrations as an indicator of relative productivity in various parts of Owen Sound (Survey 4, October 27, 2009).

Chlorophyll a (µg/L)	**TOTAL STUDY AREA**	**SEPARATE ZONES**			
		Inner Harbour	**Inner sound**	**Outfall**	**Outer sound**
Mean:	0.62	0.63	0.61	0.62	0.62
Median:	0.62	0.63	0.60	0.62	0.62
Range:	0.58-0.83	0.60-0.83	0.58-0.69	0.60-0.65	0.58-0.65
Variance:	0.0002	0.0003	0.0002	0.0001	0.0001

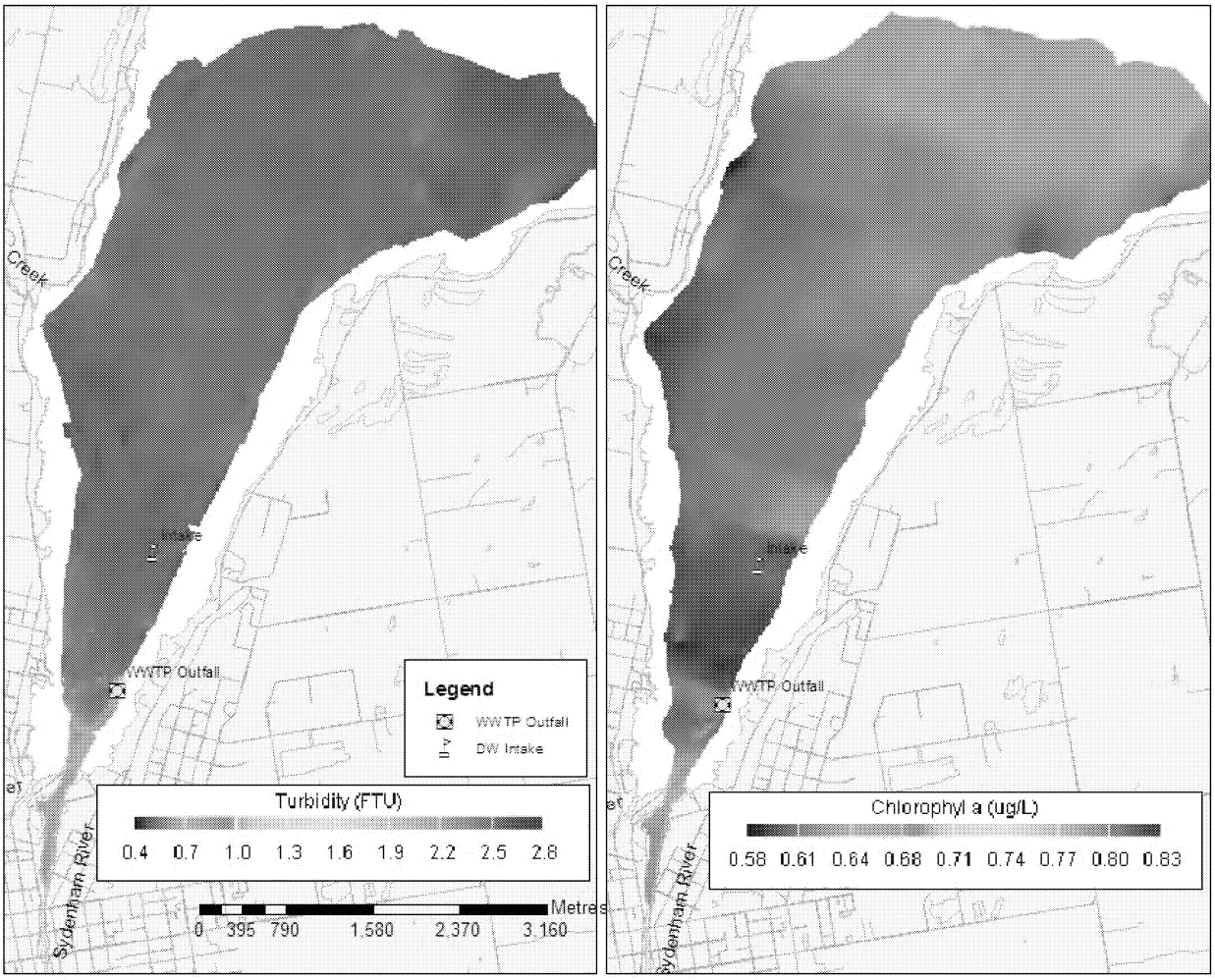

Figure 24: Surface maps of turbidity and chlorophyll a concentrations on October 27, 2009 (survey 4).

6. Nutrients

Total phosphorus concentrations in the outer sound were indicative of highly oligotrophic conditions, ranging from <2 - 3 µg/L **(Figure 25)**. The inner harbour surface concentrations were the lowest detected in the study, suggesting either little input from the watershed and shoreline during this survey or that surface water was not reflective of full water column conditions. Some slight local elevation of phosphorus (up to 5 µg/L) was noted along the shoreline north of the WWTP outfall.

Nitrate + nitrite concentrations were low during the fourth survey (248 - 297 µg/L), resembling outer sound conditions noted in earlier surveys. The highest concentrations were found in samples collected at the north end of the harbour (294 µg/L), and isolated

samples along the shoreline south (294 µg/L) and north (293 µg/L) of the WWTP outfall (**Figure 25**).

Ammonia + ammonium concentrations were among the lowest encountered in the surveys, with the exception of the area near the WWTP outfall (average 174 µg/L), where the concentration in the immediate vicinity of the outfall (487 µg/L) was similar to those encountered in other surveys (**Figure 26**). Ammonia + ammonium concentration at depth at the outfall was also elevated (345 µg/L). Slightly higher levels of ammonia + ammonium were detected in surface samples collected to the east and southwest of the outfall.

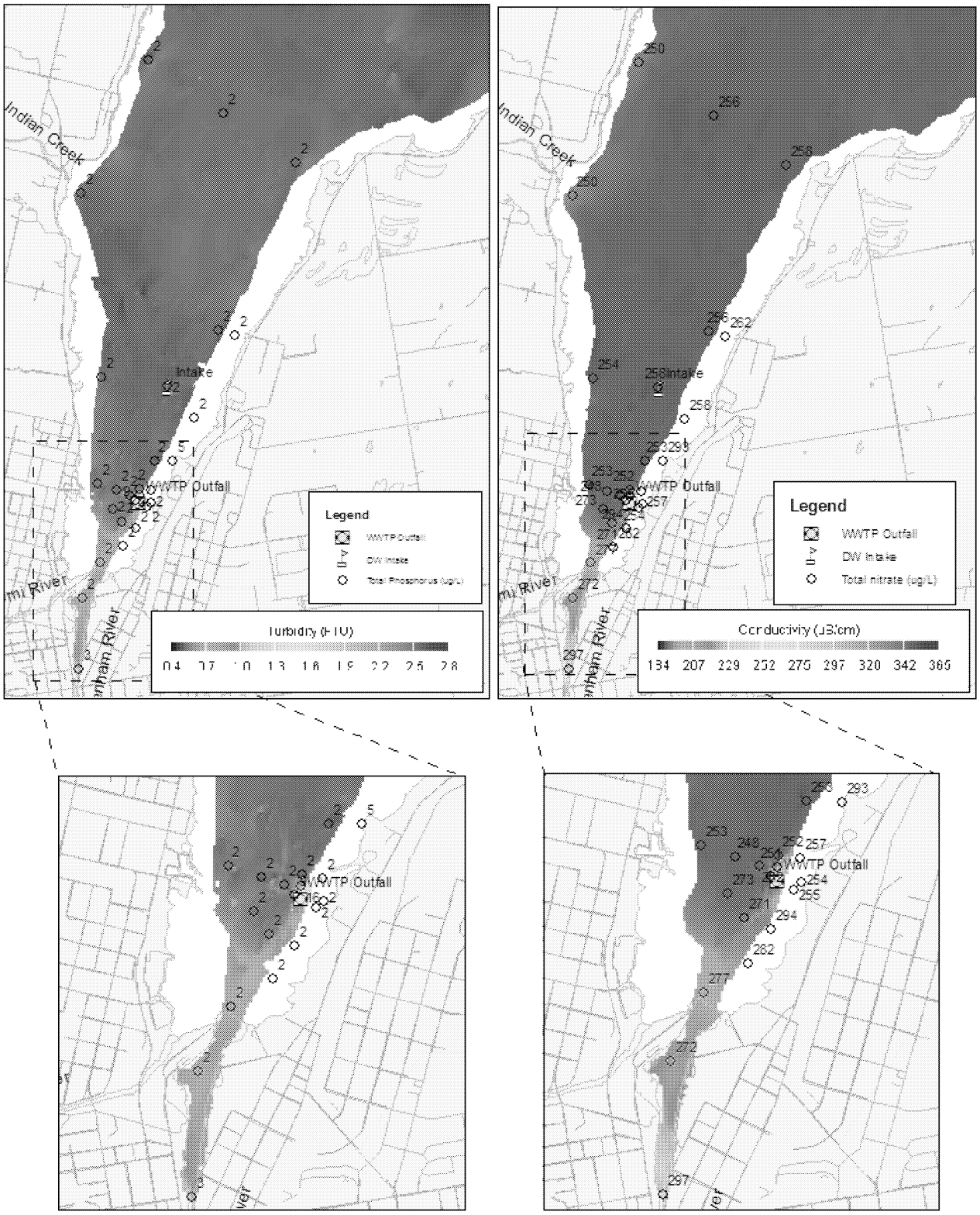

Figure 25: Total phosphorus and nitrate + nitrite concentrations in point samples plotted on surface maps of turbidity and conductivity, respectively on October 27, 2009 (survey 4).

7. Other water quality parameters

As with phosphorus and nitrate + nitrites in Owen Sound, other water quality parameters indicated conditions in the various geographic areas were similar to lake background in the outer sound (**Table 11**).

In the inner harbour, chloride, DOC and TON concentrations were higher in a sample collected near the lakebed compared with surface samples, suggesting that inputs to the harbour were sinking and possibly preferentially circulating near the bottom of the water column (**Table 11**). The surface temperature distribution in the harbour suggests that discharge from the Sydenham River was cooling the south end of the harbour and implies that the inflowing river water was cooler than the inner harbour water and likely moving towards the bottom of the water column. There was little difference between samples collected near the bottom and top of the water column for other area with the exception of the area adjacent to the WWTP outfall.

Levels of *E.coli* were low throughout the study area during the October 27 survey (**Table 11**).

Table 11: Mean values of selected water quality parameters by geographic areas within the Owen Sound study area for the October 27, 2009 survey. Values in brackets are the minimum and maximum values among samples over the respective areas. See Appendix 3 for the distribution of sampling locations over the study area and Figure 1 for stratification of sites into geographic groups.

	Parameter	Inner Harbour	Inner sound	Outer sound	Outfall	Outfall - shoreline	Inner sound - shoreline
Surface (1.5 m)	Chloride (mg L^{-1})	9.0 (7.9-10.0)	6.5 (6.3-7.5)	6.4 (6.3-6.4)	9.1 (6.4-14.5)	7.4 (7.4-7.4)	9.0 (7.0-10.2)
	Ammonia +Ammonium (µg L^{-1})	23 (20-25)	12 (5-29)	5 (3-6)	174 (11-487)	43 (37-53)	20 (12-34)
	TON (µg L^{-1})	153 (115-190)	113 (104-121)	131 (125-135)	174 (123-263)	117 (110-123)	173 (108-391)
	DOC (mg L^{-1})	1.9 (1.7-2.0)	1.7 (1.6-1.9)	1.6 (1.6-1.7)	1.9 (1.7-2.0)	1.6 (1.6-1.6)	1.7 (1.6-1.9)
	E.coli (CFU/100mL)	7 (2-12)	2 (2-4)	2 (2-4)	2 (2-2)	3 (2-4)	5 (2-14)
Bottom (1-2 m above the lakebed)	Chloride (mg L^{-1})	21.3	6.4	6.2	12.2	ns	Ns
	Ammonia +Ammonium (µg L^{-1})	46	10	2	346	ns	ns
	TON (µg L^{-1})	304	120	108	264	ns	ns
	DOC (mg L^{-1})	3.9	1.6	1.5	2	ns	ns
	E.coli (CFU/100mL)	Ns	Ns	ns	ns	ns	ns

Notes: 1) Outfall group includes sampling points distributed within approximately 150 m of the outfall for the water pollution control plant; these data are not included in the calculation of values for the inner sound group. 2) Numbers of samples per group (surface) were 2, 8, 5, 5, 5 and 3 for the harbour, inner sound, inner sound shoreline, outer sound, outfall and outfall shoreline groups respectively. There are single sampling points for the bottom groups. 3) ns - no samples

8. Hydrocarbon fluorescence patterns with depth to infer distribution of mixing areas

A small mixing area adjacent to the WWTP outfall was detected in the fourth survey as inferred from variability in hydrocarbon fluorescence. The mixing area was positioned slightly northward, southward and to the west of the outfall. Highest levels were to the west and southwest suggestive of movement into the inner sound.

Surface patterns in hydrocarbon fluorescence at the interface between the harbour and inner sound were indistinct with a suggestion of movement from the harbour northward into the inner sound (**Figure 27**).

Distribution of hydrocarbon fluorescence through the water column in the vicinity of the WWTP outfall suggested areas of elevated hydrocarbon fluorescence predominantly near the lake surface similar to that of the weak patterns noted at the lake surface (**Figure 27**). Again, this suggests a limited mixing area oriented to the west of the outfall.

In contrast to the WWTP outfall, the distribution of hydrocarbon fluorescence in the harbour was focused towards the lakebed. Water discharged from the Sydenham River

and likely with stronger hydrocarbon fluorescence dispersed towards the bottom of the water column in the inner harbour. Inner harbour water moving into the inner sound appeared to also focus along the lakebed and subsequently move northward and possibly to the northeast into the inner sound (**Figure 27**). As the lakebed of the inner sound deepened the water originating from the inner harbour appeared to move away from the lakebed seemingly trapped in a layer of similar density (presumably determined by temperature). This layer of greater than background fluorescence appeared to extend into the outer sound at mid depth.

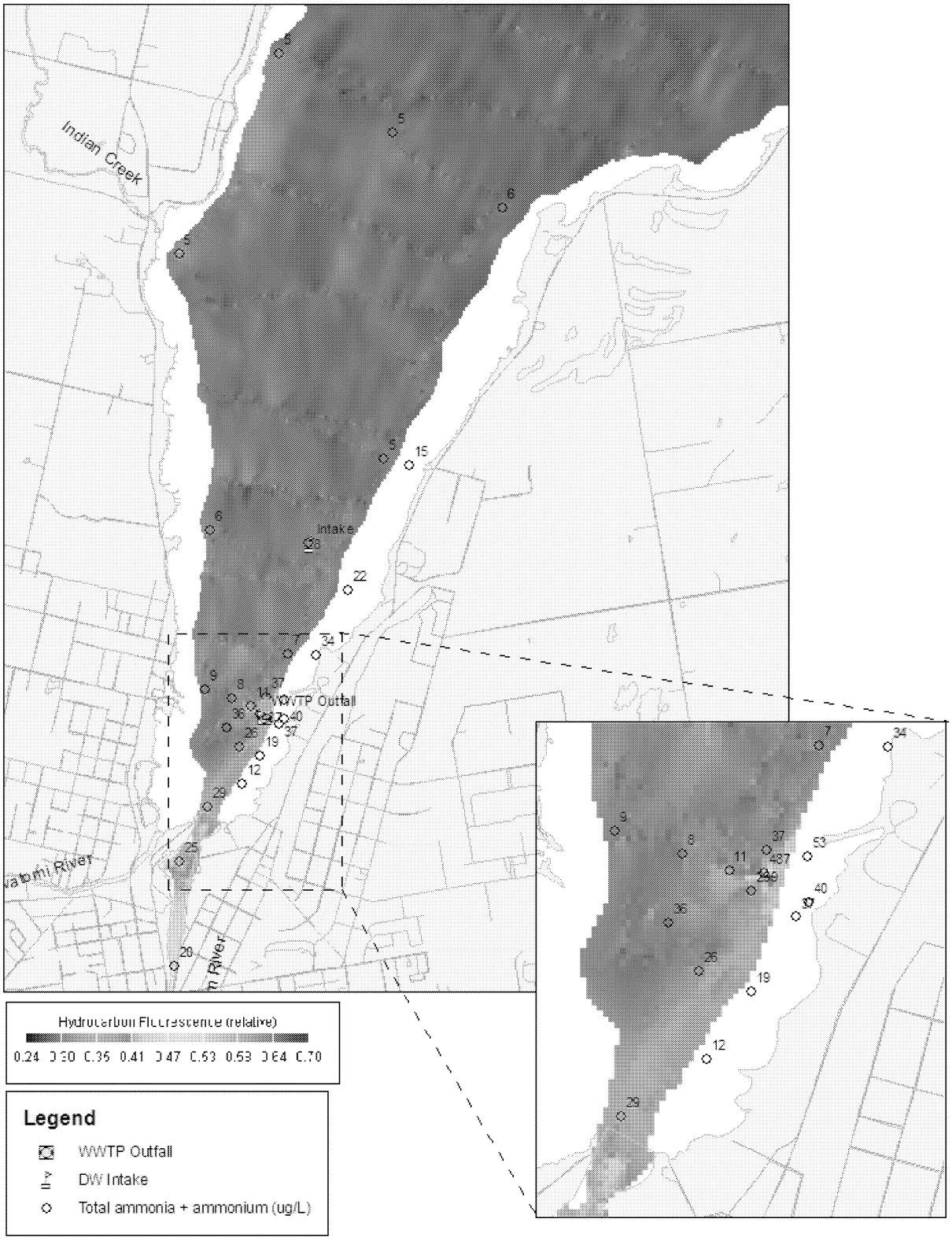

Figure 26: Ammonia + ammonium concentrations in point samples plotted on surface maps of hydrocarbon fluorescence on October 27, 2009 (survey 4).

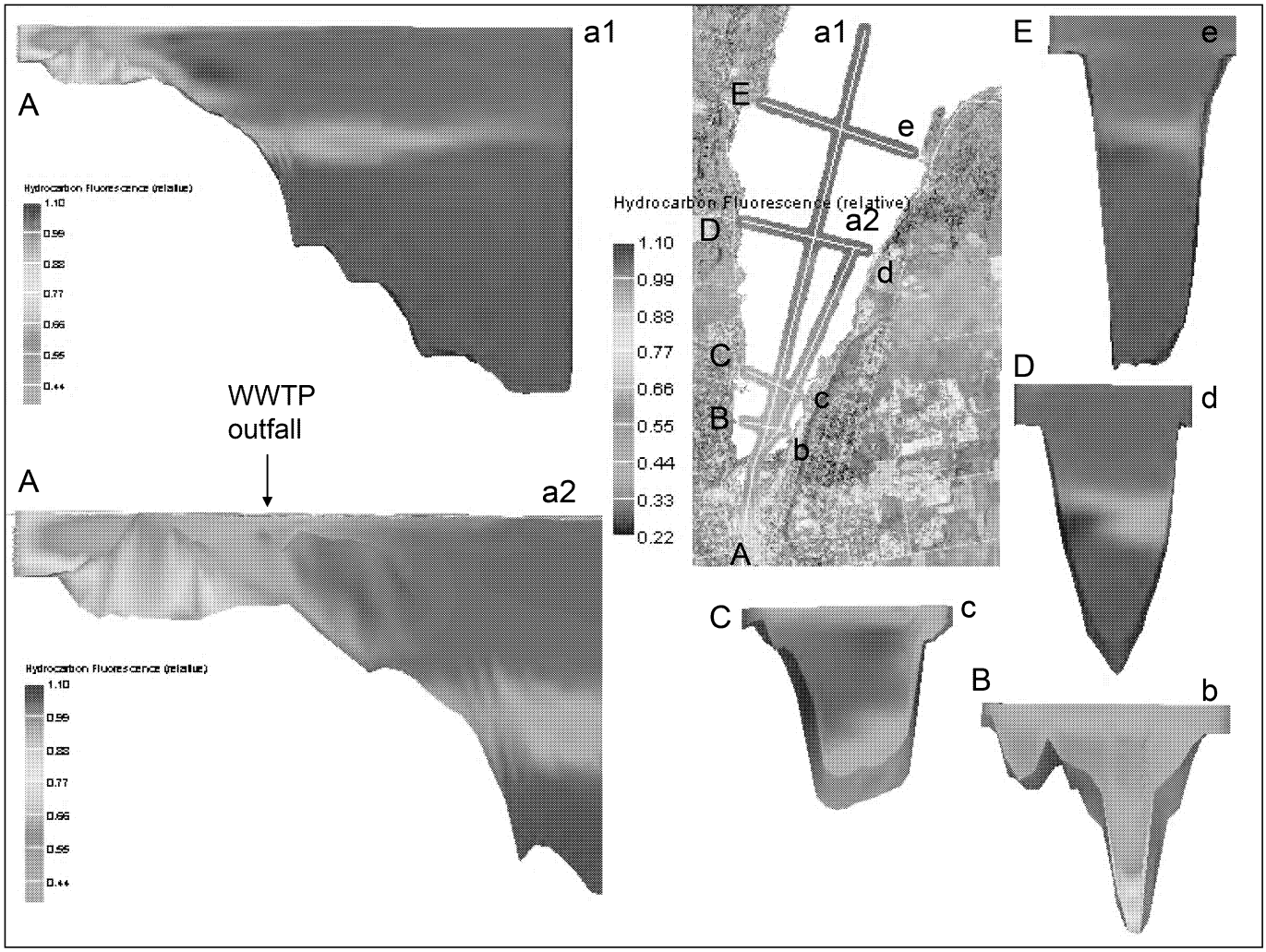

Figure 27: Selected hydrocarbon fluorescence cross sections for Survey 4 (October 27, 2009); refer the aerial photo for orientation of cross sections. Note that cross sections are of varying scale.

4.6 Conductivity: Indicator of Inter-survey scales of variability in water quality in Owen Sound

As discussed above the spatially detailed measurements of surface conductivity provide insight on patterns in variability in water quality. Temperature compensated conductivity is a measure of ion activity, and while the approximately stable levels of the open lake waters generally change in association with exogenous inputs, the fluctuations cannot by themselves be interpreted in terms of causal agents. Patterns in relative conductivity are used to provide an indicator of changing water quality conditions among areas within the sound and to help delineate areas of influence associated with discharge from WWTP outfall and other inputs into the sound. Frequency distributions of conductivity measurements among surveys are used here to provide insight on of the relative influence of inputs on water quality in Owen Sound within and among surveys (**Table 12**).

The widest variability in surface conductivity was found in the first survey followed by the second (**Table 12**) suggesting stronger influence of inputs to the sound on water quality than in the latter surveys. Background conductivity readings in all four surveys were similar (190-200 µS/cm) suggesting that overall water quality in Owen Sound was not widely (i.e. basin scale) affected by external inputs.

The majority of the samples in the first survey (60%) ranged between 190-200 µS/cm in the range of the lake background (**Figure 28**). Conductivity levels at the WWTP outfall and north/northeast of the outfall fell within the 85th percentile of conductivity. Inner harbour levels fell within the 95th percentile, while at the south end of the inner harbour levels fell above the 99th percentile.

In the second survey, background conditions were encountered in over 78% of the conductivity readings (**Figure 28**). Conditions at the WWTP outfall and north/northeast of the outfall fell within the 90th percentile of measurements. Inner harbour levels fell within the 95th percentile of all conductivity readings in the survey, while conditions at the most upstream portion of Sydenham River (labelled river in Figure 28) in the inner harbour fell beyond the 99th percentile.

Table 12: Distribution of in-situ conductivity measurements taken in Owen Sound in 2009.

Conductivity values	**Survey 1**	**Survey 2**	**Survey 3**	**Survey 4**
# of readings	7480	9061	9371	8392
Average	225	207	194	192
Median	196	193	192	189
5th percentile	193	190	191	189
75th percentile	216	198	193	190
95th percentile	369	312	208	214
99th percentile	474	490	230	230
WWTP outfall	291	204	199	212
Background conductivity (percent of readings)	190-200 (60%)	190-200 (78%)	190-200 (90%)	190-200 (91%)

Ninety percent (90%) of the conductivity readings, including at the drinking water intake, were within the range of background conditions in the third survey (**Figure 28**). Conditions at the WWTP outfall also fell within this range, though conditions north/northeast of the outfall were slightly higher. Harbour mixing areas fell within the 95th-98th percentile of the data, while conditions in the river fell outside of the 99th percentile on at least one of the readings.

During the October survey, as with the third survey, background conditions (190-200 µS/cm) prevailed in over 90% of the measurements. The WWTP outfall area fell within the 95th percentile of the conductivity readings in Owen Sound, while areas northeast of the outfall appeared to have higher conductivity (**Figure 28**). Conditions at the harbour appeared to be similar to those at the WWTP outfall, while conductivity in the most upstream portion of Sydenham River in the inner harbour exceeded the 99th percentile of all readings.

The spatial patterns in conductivity at the lake surface observed among surveys are depicted in **Figure 29**.

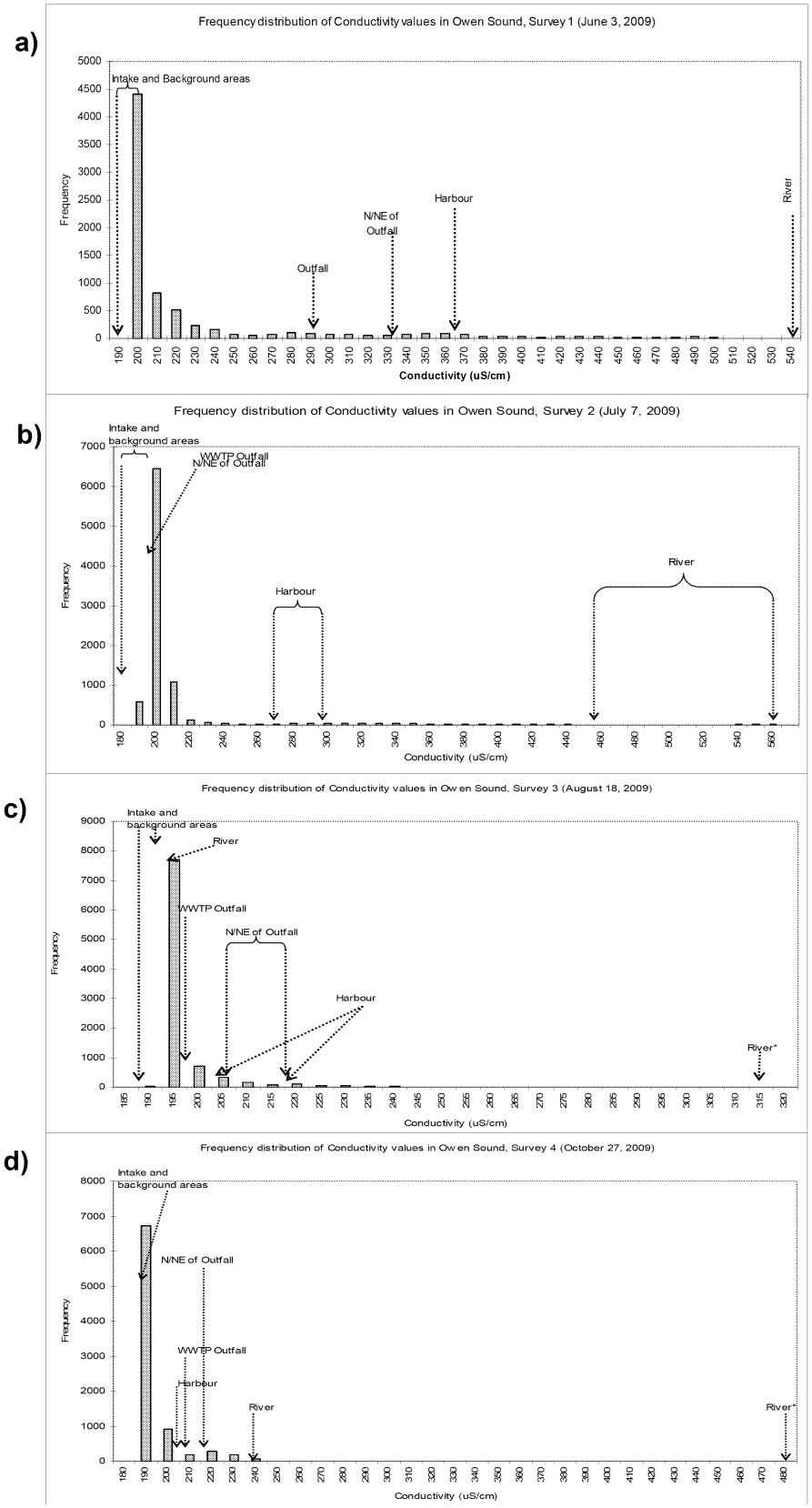

Figure 28: Frequency distributions of conductivity measured during 2009 vessel surveys in Owen Sound. Various features in Owen Sound are indicated with arrows. Features are identified based on measured concentrations in discrete samples.

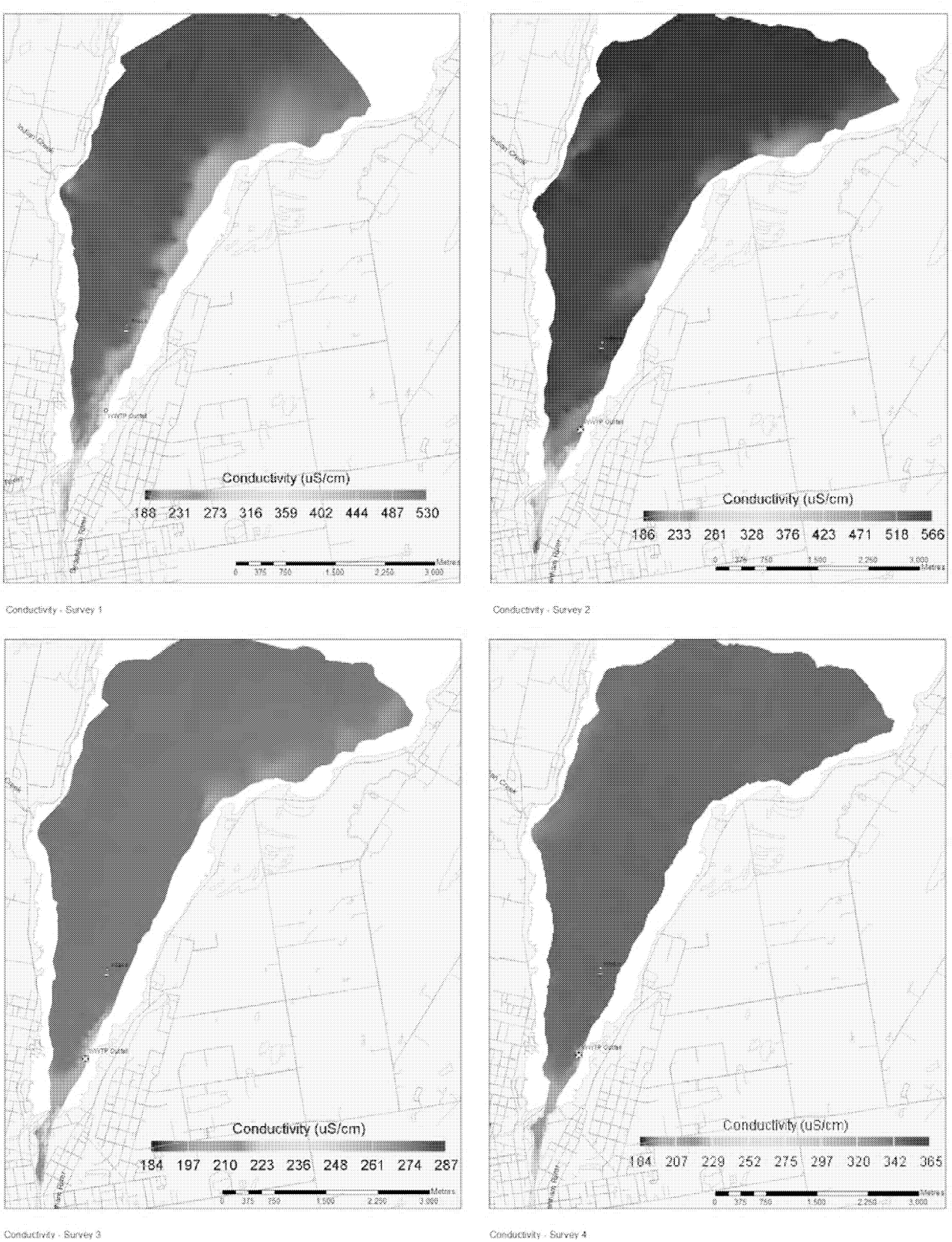

Figure 29: Conductivity measurements in Owen Sound during four surveys in 2009.

4.7 Principal component analysis of water quality data

To gain insight into the interrelations between water quality variables and correspondence with the geographical features of Owen Sound, a principal component analysis (PCA) was conducted for results of chemical analyses of discrete water samples collected in the Owen Sound surveys. Given the difficulty in separating the influence of the inner harbour from that of the WWTP outfall on the inner sound, a PCA was used to separate features most associated with the inner harbour from those more associated with the discharge from the WWTP outfall.

Seventy-four (74%) percent of the variance in the data were associated with the first and second principal components, with the greatest variance (59%) associated with the first axis (**Figure 30**). This first axis is likely attributed to concentration gradients within the data, such that sites with the widest divergence in levels of water chemistry features appeared furthest away on the axis. The second axis, representing 15% of the variance, appeared to separate the site scores associated with relative proportions of some of the water chemistry variables. Separation along the second axis appeared to differentiate stations that were situated near the WWTP outfall from those in or influenced by the inner harbour (**Figure 30**).

Overall, ammonia (NNHTUR), Kjeldahl nitrogen (NNTKUR), TON, Phosphate (PPO4FR) and total phosphorus (PPUT) appeared to be more strongly associated with sites near the WWTP outfall, while DIC, nitrates and nitrites (NNOTUR), pH and silicates (SIO3UR) appeared to be more associated with inner harbour conditions (**Table 13; Figure 30**). Background conditions were notably clustered to the right side of the PCA biplot, and centred.

Loadings on the first axis of the principal component represented concentration distributions of water chemistry variables in Owen Sound; as discussed earlier, these differences in concentration were generally associated with proximity to watershed inputs into Owen Sound (e.g. inner harbour, WWTP outfall) such that samples with the lowest concentrations of water quality variables scored to the right side of the second axis and are taken to represent overall background conditions in the sound.

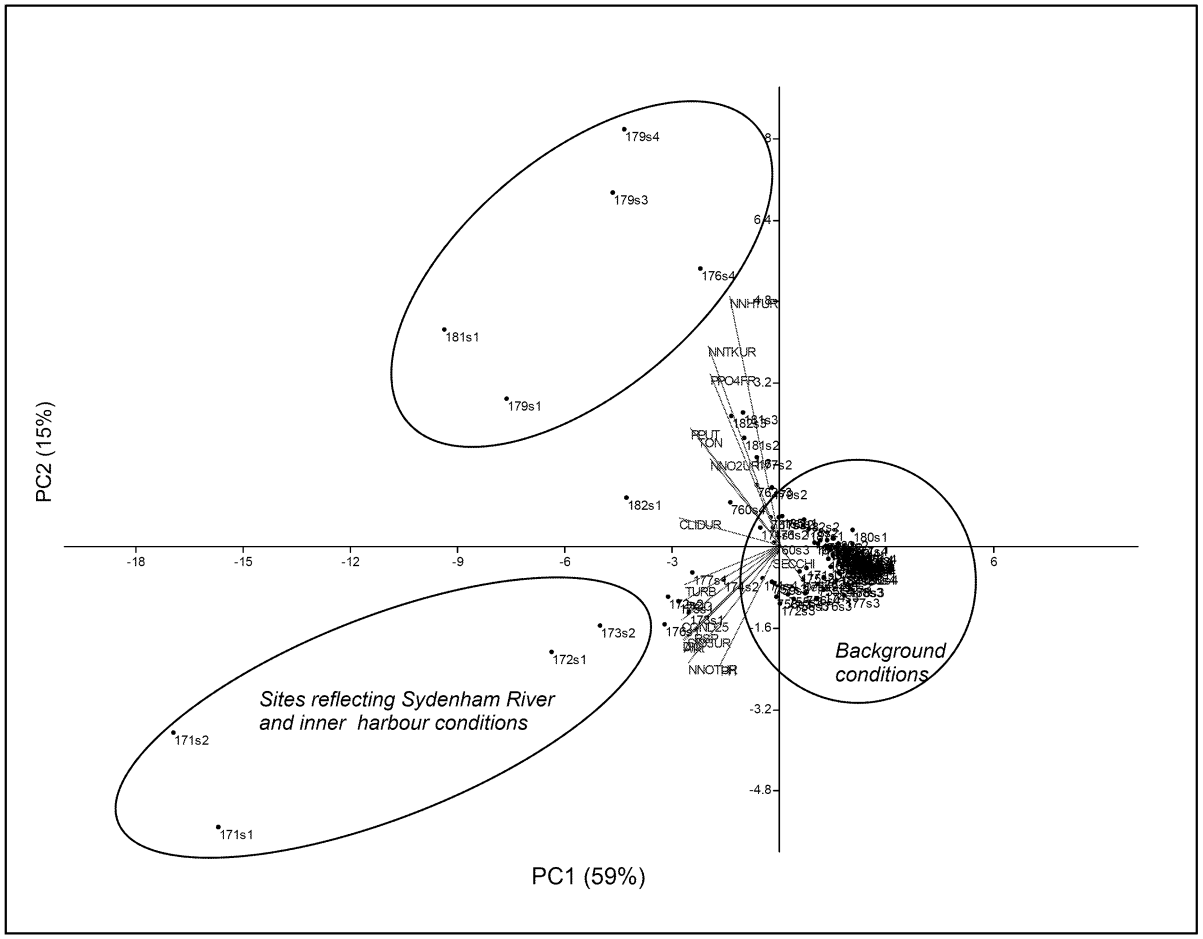

Figure 30: Biplot of principal component analysis of water quality features from discrete samples taken in the Owen Sound Stations in 2009.

Correlations with variable loadings on the second axis were generally lower than in the first axis, with the exception of ammonia + ammonium (NNHTUR, r = 0.87), suggesting that differentiation between samples (and respective influences) was subtle. The selection of ammonia + ammonium in the second axis as a discriminator between the influences of the inner harbour and WWTP effluent is consistent with spatial distributions of ammonia + ammonium concentrations presented earlier.

Despite the variability of conditions between the surveys, pooling of data from all of the surveys in one PCA still resulted in differentiation between sites, suggesting that geographical differences in water chemistry were evident. However, the extent of influence of inputs between surveys varied, since geographic clustering was fairly varied for both the samples influenced by the inner harbour and WWTP discharge (**Figure 30**).

Table 13: Loadings of the PCA analysis conducted on water chemistry features in Owen Sound surveys, 2009.

PCA loadings (Pearson correlations)			
	Axis 1	**Axis 2**	**Axis 3**
DEPTH_B	0.2113	-0.1233	0.8701
ALKT	-0.9259	-0.2982	0.008056
CLIDUR	-0.9568	0.1244	-0.00451
COND25	-0.9452	-0.2225	0.003859
DIC	-0.9342	-0.3041	-8.93E-05
DOC	-0.8943	-0.1533	0.03506
ECOLI	-0.5937	-0.285	-0.00719
SECCHI	-0.07528	-0.03015	0.8888
NNHTUR	-0.4696	0.8658	0.01993
NNO2UR	-0.6748	0.2918	0.08386
NNOTUR	-0.8877	-0.3862	0.05321
TON	-0.7763	0.4017	0.03531
PH	-0.5751	-0.3827	-0.06818
PPO4FR	-0.6619	0.6043	0.06435
PPUT	-0.854	0.4144	0.00415
RSP	-0.8341	-0.2892	-0.0528
SIO3UR	-0.9055	-0.3164	0.01726
TURB	-0.9204	-0.1337	-0.06101

-0.9568	features strongly correlated with Axis 1
0.8658	Features associated with WWTP outfall conditions
-0.3827	Features associated with harbour mouth conditions

5.0 Discussion

Monitoring in 2009 demonstrated that nutrient and limnological features in Owen Sound overall were indicative of a highly oligotrophic environment and similar to ambient conditions in the open waters of western Georgian Bay. The background levels of total phosphorus as judged from the results for the outer sound were in the range <2 - 3 μg/L **(Table 14)** and less than the phosphorus concentration objective of 5 μg/L for Lake Huron underlying the phosphorus loading target identified in the Great Lakes Water Quality Agreement (Depinto et al. 2006). Averaged across surveys, the chlorophyll a concentrations were consistent with the low phosphorus and again indicative of a low state of productivity. The average across the area weighted estimates for the outer sound portion of the study area was 0.85 μg/L and again below the target value of 1.3 μg/L of chlorophyll a underlying the phosphorus load target for Lake Huron (IJC 1980). Physically the waters of Owen Sound on the whole were low in particulate material, uncoloured and of high light transparency.

Determination of a through-time trend in nutrient levels in Owen Sound is difficult because of the limited historical data, however, the sparse data collected at monitoring sites in the Ministry's nearshore monitoring program suggests little change and the possibility of a decline in total phosphorus since 1996. Direct comparison of the findings in 2009 with those from surveys completed in 1974 by Ross and Chatterjee (1977) is difficult because of divergent survey methods and the limited extent to which raw data is presented in the earlier report, however, marked similarity in conditions are suggested. In 1974 the waters of Owen Sound were described as oligotrophic. Chlorophyll a concentration did not exceed 1.8 μg/L in any sample over the study and with few exceptions did not exceed 1.1 μg/L; levels in the outer sound during spring and summer surveys were slightly less than 0.9 and 0.7 μg/L, respectively. Interpretation of total phosphorus levels from line graphs presented in the report is approximate and suggests a range of 30 to 10 μg/L in the harbour to the outer sound during the spring, and 9 to 2 μg/L in the fall, respectively.

Background conditions for Owen Sound prevailed over much of the study area during all surveys. The frequency distributions of conductivity among surveys were used as an

approximate measure of departure from background. With the exception of the June survey, 78 to 91% of the surface area examined had conductivity levels comparable to background and was likely little affected by land-based inputs over the study area. The widest departure from background conductivity (40%) was during the first survey of the study in early June at a time when the volume of tributary discharge into Owen Sound was at its highest among surveys (based on discharge data for the Sydenham River). Volume of discharge from the WWTP on the days of survey did not vary widely among surveys and was not correlated with the extent of departure from background conductivity among surveys. Departure from background conductivity is a sensitive and conservative indicator of change and does not by itself indicate adverse water quality, merely a change in ionic makeup of the lake water likely due to external loading of water of contrasting ionic composition.

Table 14: Mean values of total phosphorus by geographic areas within the Owen Sound study area over surveys in 2009. Values in brackets are the minimum and maximum values among samples over the respective areas. See Appendix 3 for the distribution of sampling locations over the study area and Figure 1 for stratification into geographic groups.

Total Phosphorus (μg/L)	Parameter	Inner Harbour	Inner sound	Outer sound	Outfall
Surface (1.5 m)	Survey 1	12 (9-15)	4.1 (2-10)	2.4 (2-4)	10.2 (6-18)
	Survey 2	15.5 (8-23)	5.4 (3-9)	3.2 (3-4)	8.4 (6-12)
	Survey 3	4.5 (4-5)	3.8 (2-12)	2.6 (2-5)	8.6 (2-20)
	Survey 4	2.5 (2-3)	2 (2-2)	2 (2-2)	6.2 (2-16)
Bottom (1-2 m above the lakebed)	Survey 1	3	2	2	57
	Survey 2	13	2	2	9
	Survey 3	5	2	2	36
	Survey 4	4	2	2	12

Notes: 1) Outfall group includes sampling points distributed within approximately 150 m of the outfall for the waste water treatment plant; these data are not included in the calculation of values for the inner sound group.

Recurrent patterns of variability in water quality associated with geographic locations over the study area were detected. The area of greatest variability in water quality was the inner harbour. The waters of the inner harbour were characterized by higher levels of most of the water quality parameters assessed including particulate material, phosphorus, nitrate + nitrite, chlorophyll a, DOC and chloride. Inflowing water from the Sydenham River was a strong contributor to conditions in the inner harbour as evidenced by gradients in conditions extending from the river mouth to the north end of the inner harbour during several surveys. Undoubtedly other inputs to the inner harbour

such as storm water, surface runoff and physical disturbance by boats contribute to the more nutrient rich and turbid conditions of the inner harbour; the contributing factors could not be distinguished with the methods used here. Levels of phosphorus, nitrogen compounds, suspended solids and the fecal pollution indicator *E.coli,* while variably elevated above levels in the outer sound, were within a range considered low to moderate with respect to broader conditions in the nearshore of the Great Lakes. The interim PWQO for total phosphorus (20 μg/L) applicable to the harbour was exceeded by a small margin in a single sample. The CCME interim guideline for nitrate and PWQO for free ammonia were not exceeded in any sample. *E.coli* levels were < 100 CFU/100mL with the exception a sample during the July survey. Mean chlorophyll a levels in the harbour ranged from 0.6 to 2.0 μg/L among surveys and reached a maximum level of only 3.2 μg/L at any point in the harbour.

The mixing of inner harbour water with the inner sound appeared to be the single largest influence on water quality in Owen Sound. Water circulation in the sound strongly shaped the distribution and mixing of water moving from the inner harbour into the inner sound and conversely variability in the inner harbour due to influx of water from the inner sound. Several circulation regimes were encountered during the four surveys and demonstrate the changeable influence of the inner harbour on the inner sound and the importance of lake circulation in shaping the influence of external inputs to Owen Sound.

The discharge from the WWTP was the second strongest land-based influence on water quality in Owen Sound detected over the four surveys. Circulation within Owen Sound strongly shaped the orientation of mixing areas and determined where the influence of the discharge from the WWTP was encountered. Overall the spatial extent of the influence of the outfall appeared to be attenuated by dilution with surrounding lake waters notwithstanding the fact that during the June survey a very dilute mixing area could be detected some distance from the outfall along the eastern shoreline of the inner and outer sound. Elevated levels of total phosphorus up to but not exceeding 20 μg/L, were found at the lake surface within 150 m of the outfall. Near the lakebed, in the immediate vicinity of the outfall, concentrations ranged from 9 to 57 μg/L among surveys. On two occasions concentrations of 10 μg/L or above, (the interim PWQO applicable to the open water of Georgian Bay), were noted up 0.45 and 0.41 km from

the outfall, respectively. Distribution patterns of other water quality tracers suggested the source was likely the WWTP effluent. It is likely that stimulation of phytoplankton and benthic algae occurs in the area of the outfall given the low background phosphorus in Owen Sound, however, there is little evidence to support this inference. Concentrations of chlorophyll a in the area of the outfall (averaged over 150 m radius of the outfall) did not exceed 1.6 μg/L and remained indicative of oligotrophic conditions. The physically exposed setting of the area near the outfall likely results in too rapid dilution of phosphorus for phytoplankton to respond strongly before nutrient concentrations become diluted. A limited biological assessment in the area of the outfall was conducted in 2009 (CRA 2009). Aquatic macrophytes were detected along the SE shoreline in the area of the outfall as reported in earlier studies (Ross and Chatterjee 1977 and MOE 1980). Similar to the earlier studies, there was no indication of nutrient stimulation of the green algae *Cladophora* in the area of the outfall.

The strongest indication of a potential adverse effect associated with the outfall during the surveys was the elevated levels of ammonia + ammonium observed during some surveys. The PWQO for free ammonia of 20 μg/L was exceeded in two samples, in both cases the samples were collected near the lakebed at the station positioned closest to the WWTP outfall. Calculated concentrations of free ammonia during the June and August surveys were 35 and 32 ug/L, respectively, in the bottom water at station 179.

The Canadian Council of Ministers of the Environment (CCME) guideline for nitrate for the protection of aquatic life of 2940 μg/L N was not exceeded in any sample over the study. Concentrations of inorganic nitrogen are high in the open waters of Georgian Bay relative to phosphorus and it is expected that phosphorus is the nutrient which generally limits the growth of phytoplankton in Lake Huron (Lin & Schelske, 1981). Elevated levels of inorganic nitrogen in the mixing area of the outfall are not expected to have stimulatory effect on the productivity of algae.

There was little indication of bacterial fecal pollution in the vicinity of the outfall at the time of survey based on the low levels of *E.coli* measured.

Separation of the effects of the WWTP discharge from the mixing and circulation of harbour water was at times challenging due to the circulation of diluted inner harbour water into the mixing area of the WWTP discharge. Ammonia + ammonium concentrations were disproportionately higher in the discharge from the WWTP than in the harbour and assisted in distinguishing the relative influences.

There is likely a range of small volume inputs along the shoreline such as storm sewers and drains that contribute to conditions along the immediate shoreline of the inner sound, however, none were detected with any certainty at the resolution of the survey scale used here. It is likely that discharge from the Pottawatomi River contributed of to the comparatively enriched conditions at the south end of the inner sound, however, the shallow water near the river mouth precluded data collection at the river mouth and over the immediate mixing area of river discharge. Weak responses in sensors tracking conductivity, turbidity and hydrocarbon fluorescence in the areas adjacent to the mouths of Indian Creek and Bothwell Creek were noted in some surveys.

Features of circulation within Owen Sound were suggested by the spatial patterns in the field measurements of temperature and tracers of water mixing (conductivity, hydrocarbon fluorescence and turbidity). The extent of the focused alongshore flow over the SE shoreline observed during the June survey demonstrates the capacity for transport of material loaded into the populated south end of the sound to move along the shoreline of the sound with seemingly limited dispersion into the open waters of the sound. While only weakly detected in the limited surveys in this study, it is likely that similar circulation regimes occur periodically over the NW shoreline moving material to the north focused along the western shoreline. The connectivity of seemingly remote portions of Owen Sound by potential strong alongshore circulation should be born in mind when shoreline development has the capacity to affect water quality. The fall survey posed the greatest challenge of interpretation because of the temperature-driven density gradients acting to focus surface water runoff to the lake bed or below the surface layer of the water column. The potential for under representation of land-based influences in surface dominated sampling efforts was evident in the fall survey.

CRA (2009) presents simulations of near and far field mixing areas for the WWTP under selected loading and outfall design scenarios using CORMIX3 and GEMSS models,

respectively. Under the simulation conditions approximating 2009 (outfall as it currently exists and effluent discharge rate of 12.25 MLD (million liters per day) the projected surface and bottom dispersion patterns indicated strongest dispersion to W-SW from the outfall across the sound. Projected distribution of the area of 5% of outfall concentration (1:20 mixing) extended from slightly NE of the outfall to the SW shores of the inner sound. Effluent levels were projected to be higher in the bottom waters of the inner sound than surface waters throughout the area of dispersion. Direct comparison of these simulations with the distribution patterns observed in the 2009 surveys is not possible because of the contrasting time frames/physical conditions between the studies. The period of integration for the CRA modelling is not given but is stated to represent "typical, most frequent climatic and hydrodynamic conditions". This is in contrast to the 2009 study, where results are for the individual days of survey. None-the-less the dominant pattern depicted in the model simulations were not strongly detected over the 2009 surveys. Aspects of the distribution of mixing areas were observed, such as the circulation of effluent along the NE shoreline north of the WWTP outfall. Sub-surface movement away from the outfall across the sound to the SW was suggested in patterns of hydrocarbon fluorescence through the water column on July 7, 2009 (Figure 15). During surveys in 2009, discharge rates were approximately 8-10 MLD compared with the 12.25 MLD used in the model simulations (see Figure 3).

Seasonal changes in weather typically modify features of water quality in coastal areas of the Great Lakes. Surveys were completed over varying seasonal periods and capture a portion of the range in environmental conditions over an annual cycle. Surface temperatures increased through the first three surveys and declined to lowest levels of the study during the final survey. Discharge levels of the Sydenham River also varied among surveys consistent with the usual increased runoff from tributaries during the cooler spring and fall periods. Variation in thermal structure of the water column of Owen Sound among surveys reflected seasonal changes in the relative heating of the open lake and tributary waters. While the data presented here provide a sense of how weather-driven effects on lake thermal structure and tributary runoff may modify water quality in Owen Sound, they are not adequate to provide a description of the full spectrum of conditions that are likely encountered over time. A caution in this regard is that the anticipated periods of strongest interaction between weather and water quality such as at peak spring tributary discharge or during storms events are not represented

with the present data. None-the-less the distribution patterns of conductivity, turbidity and hydrocarbon fluorescence observed among surveys provide insight on possible geographic features of water quality under stronger loading at the outfall or strong wet weather events.

Designs for the WWTP and storm and sanitary sewer systems date back to 1953-1961 (CRA, 2006). A number of combined sewer overflows (CSOs) bypass the sanitary sewer collections during rain events in the city of Owen Sound (CRA 2006). It should be noted that no CSOs were believed to be discharging into Owen Sound or its tributaries during the water quality surveys and the significance of these inputs on water quality in Owen Sound cannot be determined here. Other features to be considered, though not included within the context of this study include storm water run off from developed shoreline properties and small water courses to the shoreline, such as the Kenny Drain, identified as a contributor of sediment and turbidity to the drinking water intake (Stantec, 2008).

Much of the modelling analysis by CRA (2007) to determine assimilative capacity of Owen Sound suggested that the impact of the Sydenham and Pottowatomi rivers would exceed the influence of the discharge from the sewage treatment plant on levels of total suspended solids and total phosphorus. The data collected in the 2009 study appear to support this assessment with respect to turbidity as the observed turbidity seemed to be more prevalent in the harbour and river mouth and along the SE shore of the inner sound south of the WWTP. The relative magnitude of influence of the rivers and the WWTP outfall on TP levels in the sound are not obvious from the observational data collected in this study.

Over the four surveys in this study, water quality in the area of the Owen Sound drinking water intake appeared similar to Owen Sound background for features examined in this study. No obvious influence on conventional water quality originating from the discharge of the WWTP was detected during the four water quality surveys. However, the limited duration and analytical focus of the present study must be recognized when considering the findings here relative to source water questions. The source water protection zones (IPZ 1 and IPZ 2) associated with the drinking water intake are discussed by Stantec (2008).

6.0 Conclusions

The purpose of this study was to document water quality conditions in Owen Sound prior to an anticipated upgrade of the City of Owen Sound waste water treatment plant. A component of the study was to examine the influence of discharge from the waste water treatment plant in 2009 on conventional water quality in Owen Sound. This task necessarily required description of the background conditions for Owen Sound and separation of other influences on water quality from those of the WWTP discharge. The discharge from the WWTP appear to have little systemic effect on nutrient regime or physical attributes of the lake water in the outlying areas of Owen Sound based on surveys reported here. Varying degrees of influence of the outfall on the waters of Owen Sound was observed among four water quality surveys using the conservative criterion of departure from background levels of nutrients, macro ions and physical attributes. Maximal levels of nutrients and turbidity detected in the lake adjacent to the outfall were considered moderately elevated relative to ambient lake conditions. However, the magnitude of the impact on levels of measured water quality parameters over mixing areas contiguous with the outfall was judged to be limited. Levels of ammonia + ammonium resulting in free ammonia concentrations exceeding the Provincial Water Quality Objective for the protection of aquatic life were exceeded at the outfall during two surveys indicating potential for impact on biota at the outfall. Concentrations of free ammonia fell below the PWQO a short distance from the outfall. Similarly, concentrations of TP exceeded the interim PWQO of 20 μg/L at the outfall during two surveys. On two of four surveys concentrations of TP at or above the interim PWQO applicable to the open water of Georgian Bay of 10 μg/L (but below 20 μg/L) were measured up to approximately 0.4 km from the outfall. There was no evidence of bacterial fecal pollution associated with the WWTP discharge at the time of surveys as inferred from levels of *E.coli*. Discharge levels from the WWTP were below the long-term average at the time of surveys and outside periods of any known by-passing of sewage when impacts on water quality are potentially more pronounced.

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Appendix 1 : Monthly average flow data for the Pottowatomi and Sydenham Rivers in Owen Sound (1969-2008). Timeframe was selected based on availability of measured data from the Pottowatomi River. Sydenham River data at the gauge site (02FB007) date back to 1915 and are generally based on continuous flow measurements. See http: //www.wsc.ec.gc.ca/hydat/H2O/ for more details. Pottowatomi River data based on instantaneous flow measurements provided by the Grey-Sauble Conservation Authority and represent collection of data for a variety of programs.

Pottowatomi River Data (1969-2008)

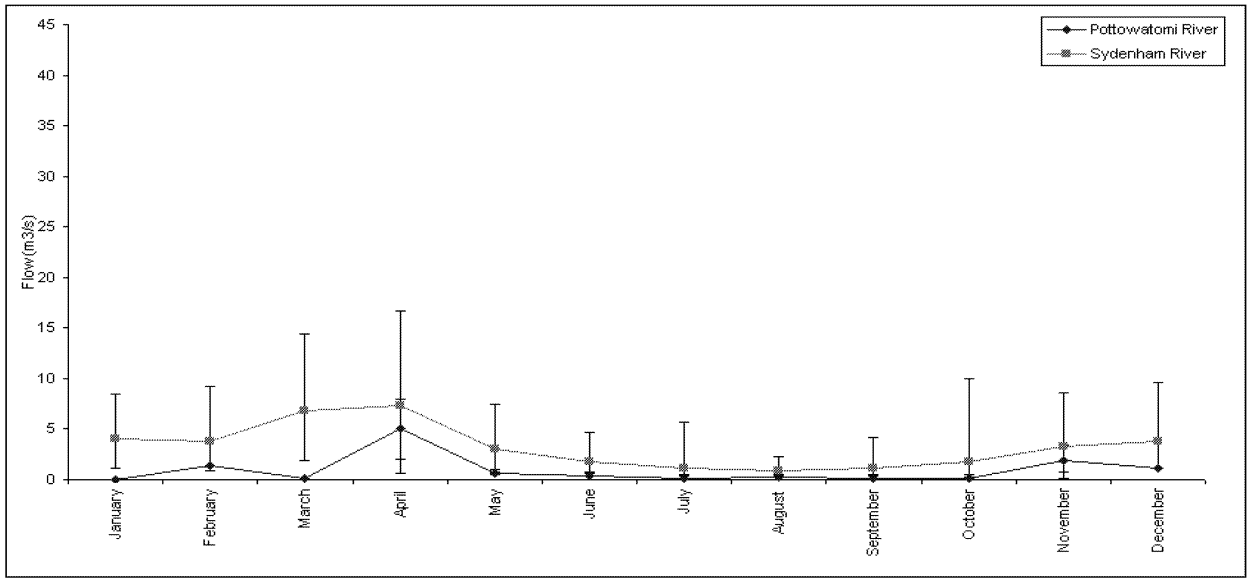
m^3/s

Month	Mean	Max	Min
January	0.03	0.03	0.03
February	1.36	1.36	1.36
March	0.09	0.09	0.09
April	4.99	7.93	0.64
May	0.65	0.79	0.53
June	0.37	0.66	0.04
July	0.15	0.42	0.00
August	0.20	0.32	0.01
September	0.08	0.45	0.03
October	0.08	0.29	0.04
November	1.96	3.43	0.09
December	1.16	1.16	1.16

Sydenham River data (1969-2008)

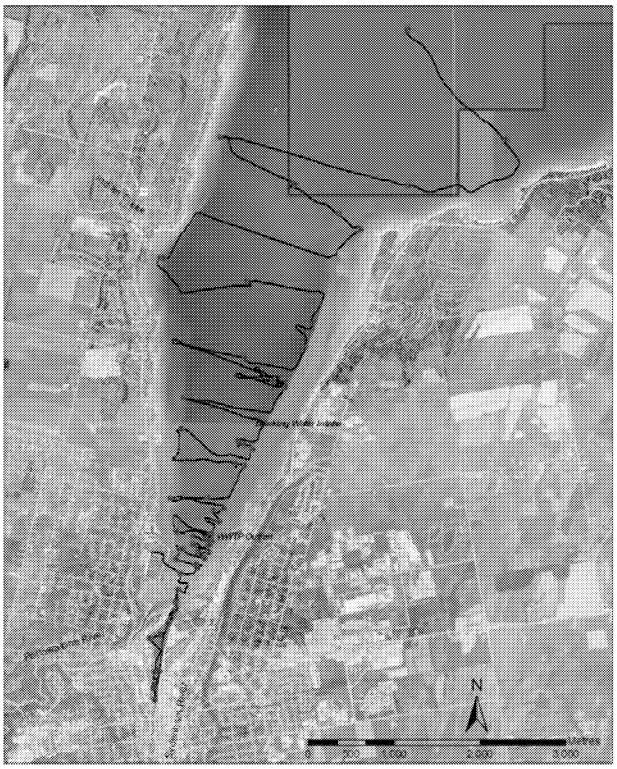
m^3/s

Month	Mean	Max	Min
Jan	4.05	8.43	1.11
Feb	3.75	9.27	0.90
Mar	6.81	14.40	1.91
Apr	7.38	16.70	2.03
May	3.07	7.40	1.00
Jun	1.78	4.65	0.76
Jul	1.20	5.64	0.55
Aug	0.93	2.29	0.45
Sep	1.11	4.20	0.41
Oct	1.79	9.94	0.52
Nov	3.27	8.65	0.77
Dec	3.78	9.61	1.19

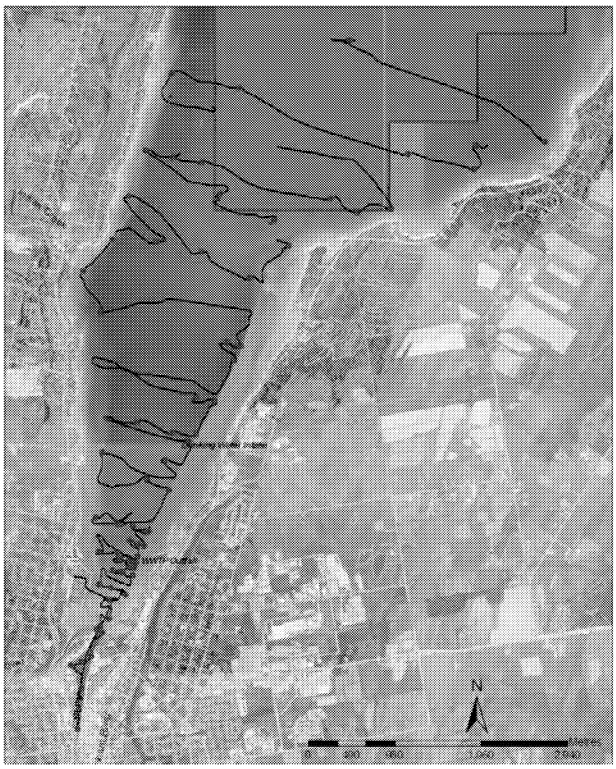


Average monthly flows in the Pottowatomi River (1969-2008) and Sydenham River (2008). Error bars represent minimum and maximum flows recorded during that month. Flow data for Pottowatomi River based on instantaneous flow measurements provided by Grey-Sauble Conservation Authority. Flow data for Sydenham River based on 1968-2008 continuous flow measurements at Environment Canada's gauge station near Owen Sound (02FB007).

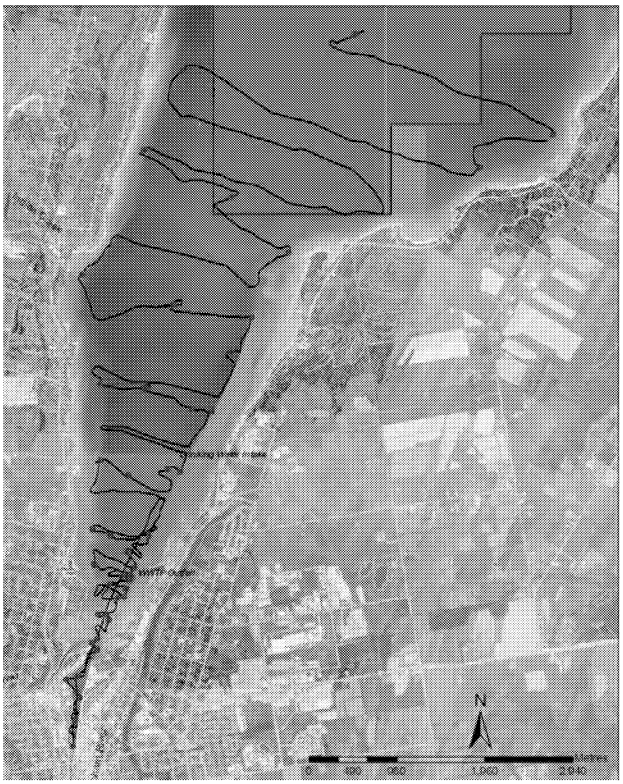
Appendix 2a: Track lines for collection of field data during the water quality surveys in 2009. Red circles indicate locations were depth profiles were taken.



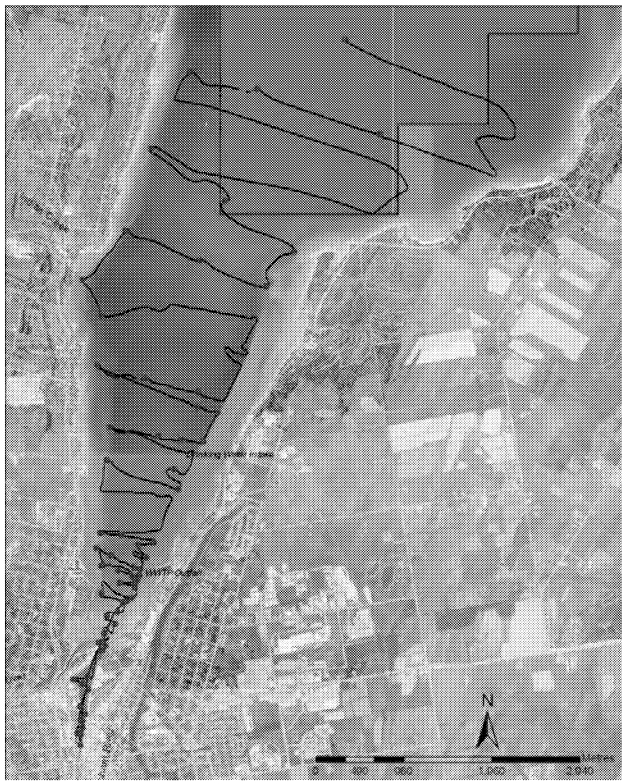
Survey 1: June 3, 2009



Survey 2: July 7, 2009

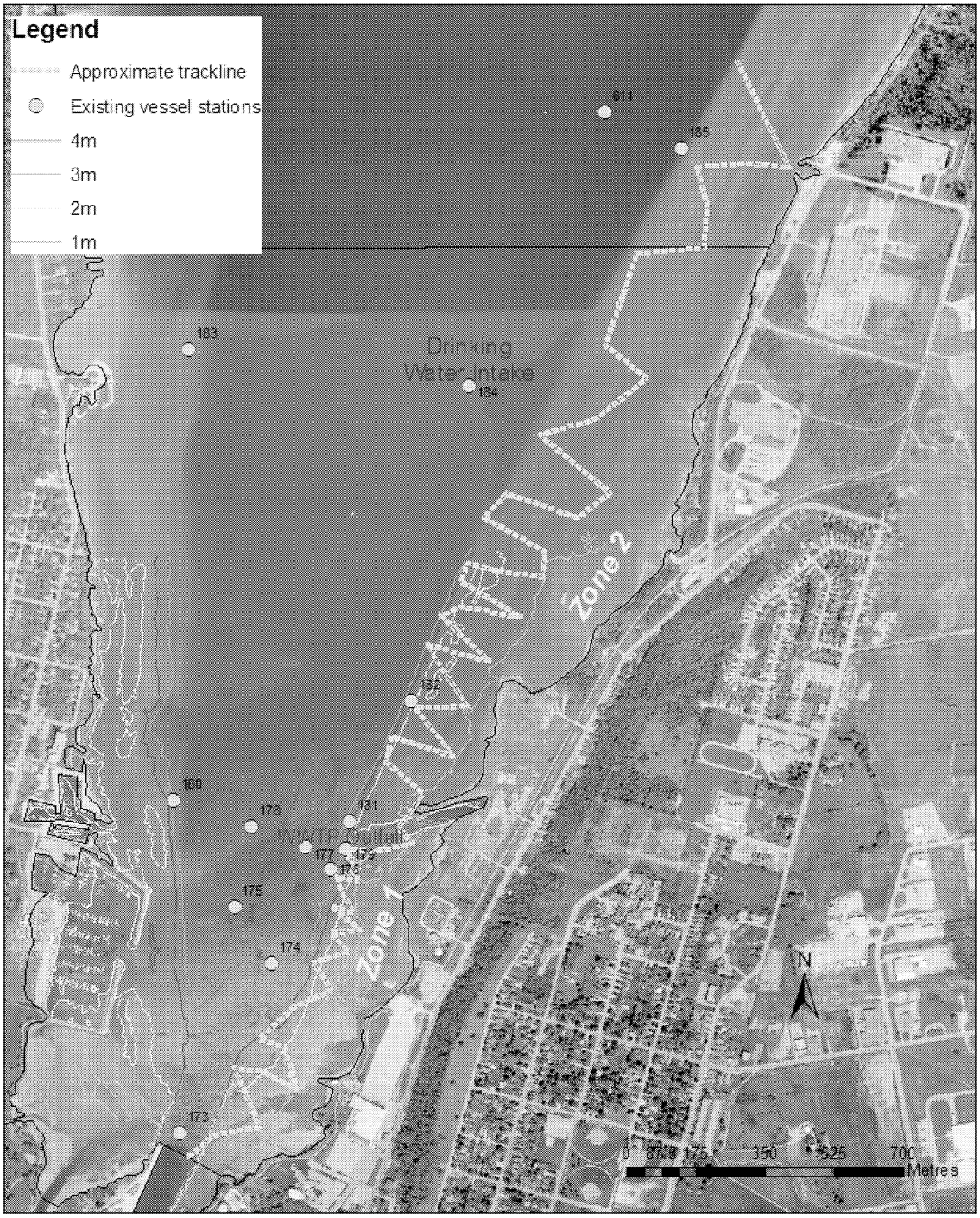


Survey 3: August 18, 2009

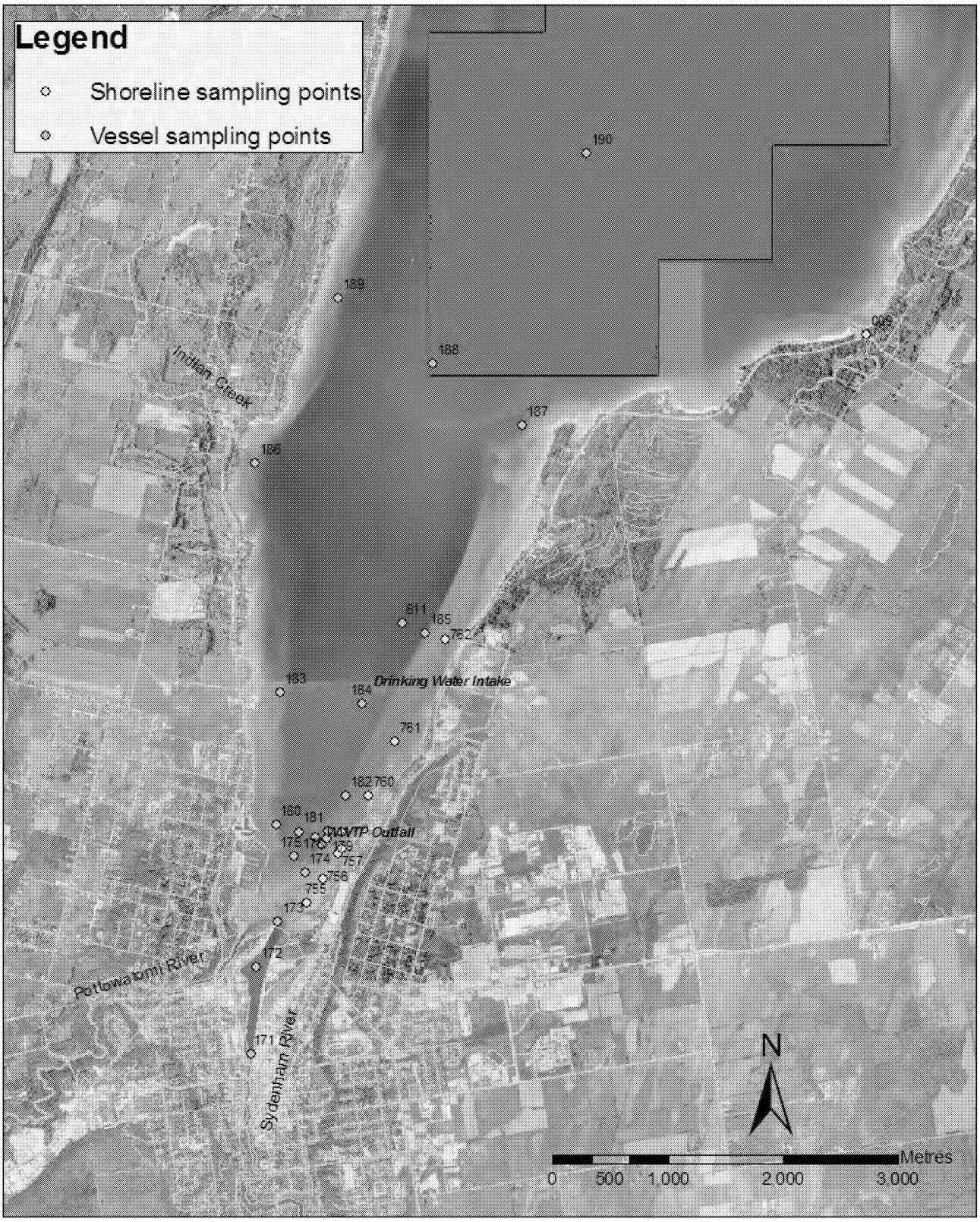


Survey 4: October 27, 2009

Appendix 2b: Track lines for collection of field data along the shoreline during the August 18 and October 27, 2009 water quality surveys.



Appendix 3: Station locations for the collection of discrete water samples for laboratory analyses.



Appendix 4: Analyses results for total phosphorus conducted by the Ontario Ministry of the Environment Dorset Laboratory using method PPUT3036.

Survey 1

Submission	DATE	STATION_FULL	Field Sample Number	Sample depth (m)	Water Depth (m)	PPUT3036 (ug/L)	Remark
C168667	03-Jun-09	300010171	GL095001	1.5	3.9	14.8	
C168667	03-Jun-09	300010171	GL095002			15.2	
C168667	03-Jun-09	300010172	GL095003	1.5	7.6	10	
C168667	03-Jun-09	300010172	GL095004			10	
C168667	03-Jun-09	300010172	GL095005	6.6	7.6		
C168667	03-Jun-09	300010173	GL095006	1.5	7.4	9.6	
C168667	03-Jun-09	300010173	GL095007			10.8	
C168667	03-Jun-09	300010174	GL095008	1.5	6	7.4	
C168667	03-Jun-09	300010174	GL095009			7.4	
C168667	03-Jun-09	300010175	GL095010	1.5	4.6	8.8	
C168667	03-Jun-09	300010175	GL095011			8.8	
C168667	03-Jun-09	300010176	GL095012	1.5	4.5	7.8	
C168667	03-Jun-09	300010176	GL095013			8.2	
C168667	03-Jun-09	300010177	GL095014	1.5	6.4	7.8	
C168667	03-Jun-09	300010177	GL095015			7.6	
C168667	03-Jun-09	300010178	GL095016	1.5	7.7	3.6	
C168667	03-Jun-09	300010178	GL095017			3.4	
C168667	03-Jun-09	300010179	GL095018	1.5	4.2	14	
C168667	03-Jun-09	300010179	GL095019			28.6	
C168667	03-Jun-09	300010179	GL095020	3.5	4.1	70.4	
C168667	03-Jun-09	300010179	GL095021			78.4	
C168667	03-Jun-09	300010180	GL095022	1.5	3.7	2	
C168667	03-Jun-09	300010180	GL095023			2	
C168667	03-Jun-09	300010181	GL095024	1.5	3.6	15.4	
C168667	03-Jun-09	300010181	GL095025			16.6	
C168667	03-Jun-09	300010182	GL095026	1.5	2.8	13	
C168667	03-Jun-09	300010182	GL095027			12.4	
C168667	03-Jun-09	300010183	GL095028	1.5	4.8	1.8	
C168667	03-Jun-09	300010183	GL095029			1.8	
C168667	03-Jun-09	300010184	GL095030	1.5	12.8	1.8	
C168667	03-Jun-09	300010184	GL095031			2.4	
C168667	03-Jun-09	300010184	GL095032	11.8	12.6	1.8	
C168667	03-Jun-09	300010184	GL095033			2	
C168667	03-Jun-09	300010185	GL095034	1.5	5.5	5.8	
C168667	03-Jun-09	300010185	GL095035			6.2	
C168667	03-Jun-09	300010611	GL095036	1.5	12.7	1.6	
C168667	03-Jun-09	300010611	GL095037			1.6	
C168667	03-Jun-09	300010186	GL095038	1.5	3.6	2.6	
C168667	03-Jun-09	300010186	GL095039			1.8	
C168667	03-Jun-09	300010187	GL095040	1.5	6.1	4.6	
C168667	03-Jun-09	300010187	GL095041			3.8	
C168667	03-Jun-09	300010188	GL095042	1.5	46.4	0.8	<T
C168667	03-Jun-09	300010188	GL095043			0.6	<T
C168667	03-Jun-09	300010189	GL095044	1.5	4.9	0.8	<T
C168672	03-Jun-09	300010189	GL095045			0.8	<T
C168672	03-Jun-09	300010190	GL095046	1.5	52.5	1.6	

C168672	03-Jun-09	300010190	GL095047			0.6	<T
C168672	03-Jun-09	300010190	GL095048	49.5	51.6	1	
C168672	03-Jun-09	300010190	GL095049			1.2	
C168672	03-Jun-09	300010190	GL095050			0.2	<=W
C168672	03-Jun-09	300010190	GL095051			0.2	<=W
C168672	03-Jun-09	300010190	GL095052			0.2	<=W
C168672	03-Jun-09	300010190	GL095053			0.2	<=W

Survey 2

C_NUM	DATE	STATION_FULL	FNUM	Sample Depth	Water Depth	PPUT3036	Remark
C169421	07-Jul-09	300010171	GL095054	1.5	3.8	24.2	
C169421	07-Jul-09	300010171	GL095055			24.8	
C169421	07-Jul-09	300010172	GL095056	1.5	7.8	8.4	
C169421	07-Jul-09	300010172	GL095057			8.8	
C169421	07-Jul-09	300010172	GL095058	7	7.8	14.6	
C169421	07-Jul-09	300010172	GL095059			15.6	
C169421	07-Jul-09	300010173	GL095060	1.5	7.8	9.8	
C169421	07-Jul-09	300010173	GL095061			10	
C169421	07-Jul-09	300010174	GL095062	1.5	4.1	8.2	
C169421	07-Jul-09	300010174	GL095063			8.4	
C169421	07-Jul-09	300010175	GL095064	1.5	4.5	7.2	
C169421	07-Jul-09	300010175	GL095065			7.2	
C169421	07-Jul-09	300010176	GL095066	1.5	4.2	7.6	
C169421	07-Jul-09	300010176	GL095067			8	
C169421	07-Jul-09	300010177	GL095068	1.5	7	12.8	
C169421	07-Jul-09	300010177	GL095069			11.2	
C169421	07-Jul-09	300010178	GL095070	1.5	7.4		NDBT
C169421	07-Jul-09	300010178	GL095071			8	
C169421	07-Jul-09	300010179	GL095072	1.5	3.2	10.4	
C169421	07-Jul-09	300010179	GL095073			13.2	
C169421	07-Jul-09	300010179	GL095074	2.5	3.7	9.4	
C169421	07-Jul-09	300010179	GL095075			9	
C169421	07-Jul-09	300010180	GL095076	1.5	3.5	8	
C169421	07-Jul-09	300010180	GL095077			6.4	
C169421	07-Jul-09	300010181	GL095078	1.5	3.9	14.4	
C169421	07-Jul-09	300010181	GL095079			12	
C169421	07-Jul-09	300010182	GL095080	1.5	4	5.4	
C169421	07-Jul-09	300010182	GL095081			7.2	
C169421	07-Jul-09	300010183	GL095082	1.5	4.9	4.8	
C169421	07-Jul-09	300010183	GL095083			5.6	
C169421	07-Jul-09	300010184	GL095084	1.5	13.6	4.2	
C169421	07-Jul-09	300010184	GL095085			4.4	
C169421	07-Jul-09	300010184	GL095086	11	12.7	4.6	
C169421	07-Jul-09	300010184	GL095087			5	
C169421	07-Jul-09	300010185	GL095088	1.5	7.4	4.4	
C169421	07-Jul-09	300010185	GL095089			3.6	
C169421	07-Jul-09	300010186	GL095090	1.5	3.5	3.8	
C169421	07-Jul-09	300010186	GL095091			5.2	
C169421	07-Jul-09	300010187	GL095092	1.5	6.8	4.4	
C169421	07-Jul-09	300010187	GL095093			5.4	
C169422	07-Jul-09	300010188	GL095094	1.5	45.6	3.6	
C169422	07-Jul-09	300010188	GL095095			3	

C169422	07-Jul-09	300010189	GL095096	1.5	26.6	3.6	
C169422	07-Jul-09	300010189	GL095097			3.4	
C169422	07-Jul-09	300010190	GL095098	1.5	51.9	4.8	
C169422	07-Jul-09	300010190	GL095099			3.4	
C169422	07-Jul-09	300010190	GL095100	46.7	47.6	2.4	
C169422	07-Jul-09	300010190	GL095101			3	
C169422	07-Jul-09	300010190	GL095102	0	0	0.8	<T
C169422	07-Jul-09	300010190	GL095103	0	0	1	
C169422	07-Jul-09	300010190	GL095104	0	0	0.4	<T
C169422	07-Jul-09	300010190	GL095105	0	0	0.8	<T

Survey 3

C_NUM	DATE	STATION_FULL	FNUM	Sample depth	Water Depth	PPUT3036	Remark
C170709	18-Aug-09	300010171	GL095500	1.5	4	8	
C170709	19-Aug-09	300010171	GL095501			7	
C170709	18-Aug-09	300010172	GL095502	1.5	3.9	5.8	
C170709	19-Aug-09	300010172	GL095503			5.4	
C170709	18-Aug-09	300010172	GL095504	6.4	7.4	7.6	
C170709	19-Aug-09	300010172	GL095505			7.6	
C170709	18-Aug-09	300010173	GL095506	1.5	7.6	4.6	
C170709	19-Aug-09	300010173	GL095507			5.8	
C170709	18-Aug-09	300010174	GL095508	1.5	6.2	4.8	
C170709	19-Aug-09	300010174	GL095509			4.4	
C170709	18-Aug-09	300010175	GL095510	1.5	4.3	5.6	
C170709	19-Aug-09	300010175	GL095511			5.4	
C170709	18-Aug-09	300010176	GL095512	1.5	4.3	5.2	
C170709	19-Aug-09	300010176	GL095513			5	
C170709	18-Aug-09	300010177	GL095514	1.5	7.4	4	
C170709	19-Aug-09	300010177	GL095515			3.2	
C170709	18-Aug-09	300010178	GL095516	1.5	7	2	
C170709	19-Aug-09	300010178	GL095517			3.2	
C170709	18-Aug-09	300010179	GL095518	1.5	4.1	5.4	
C170709	19-Aug-09	300010179	GL095519			5.4	
C170709	18-Aug-09	300010179	GL095520	3.2	4.1	16.6	
C170709	19-Aug-09	300010179	GL095521			45.8	
C170709	18-Aug-09	300010180	GL095522	1.5	3.4	2.2	
C170709	19-Aug-09	300010180	GL095523			2.4	
C170710	18-Aug-09	300010181	GL095524	1.5	4.2	9.6	
C170710	19-Aug-09	300010181	GL095525			17.8	
C170710	18-Aug-09	300010182	GL095526	1.5	2.7	12.2	
C170710	19-Aug-09	300010182	GL095527			15.6	
C170710	18-Aug-09	300010183	GL095528	1.5	4.8	2.4	
C170710	19-Aug-09	300010183	GL095529			3.6	
C170710	18-Aug-09	300010184	GL095530	1.5	10.8	2.4	
C170710	19-Aug-09	300010184	GL095531			2	
C170710	18-Aug-09	300010184	GL095532	11	12.5	2.4	
C170710	19-Aug-09	300010184	GL095533			3.6	
C170710	18-Aug-09	300010185	GL095534	1.5	10.4	1.6	
C170710	19-Aug-09	300010185	GL095535			1.4	
C170710	18-Aug-09	300010186	GL095536	1.5	3.5	2.8	
C170710	19-Aug-09	300010186	GL095537			2.4	
C170710	18-Aug-09	300010187	GL095538	1.5	5.7	6.2	

C170710	19-Aug-09	300010187	GL095539			6.2	
C170710	18-Aug-09	300010188	GL095540	1.5	46	2	
C170710	19-Aug-09	300010188	GL095541			2	
C170710	18-Aug-09	300010189	GL095542	1.5	4.8	2	
C170710	19-Aug-09	300010189	GL095543			2	
C170710	18-Aug-09	300010190	GL095544	1.5	50.9	2	
C170710	19-Aug-09	300010190	GL095545			2	
C170710	18-Aug-09	300010190	GL095546	45	47	2	
C170710	19-Aug-09	300010190	GL095547			1.6	
C170709	18-Aug-09	300010190	GL095548	0.1	1	1	
C170709	19-Aug-09	300010190	GL095549	0	0	1.6	
C170709	20-Aug-09	300010190	GL095550	0	0	2	
C170709	21-Aug-09	300010190	GL095551	0	0	0.8	<T
C170709	18-Aug-09	300010755	GL092068	0.2	2	7	
C170709	19-Aug-09	300010755	GL092069	0.2	2	6.6	
C170709	18-Aug-09	300010756	GL092070	0.2	1.5	5.8	
C170709	19-Aug-09	300010756	GL092071	0.2	1.5	5	
C170709	18-Aug-09	300010757	GL092072	0.2	1.5	7	
C170709	19-Aug-09	300010757	GL092073	0.2	1.5	7	
C170709	18-Aug-09	300010758	GL092074	0.2	1.5	9.8	
C170709	19-Aug-09	300010758	GL092075	0.2	1.5	9.6	
C170709	18-Aug-09	300010759	GL092076	0.2	2	6.6	
C170709	19-Aug-09	300010759	GL092077	0.2	2	6.8	
C170709	18-Aug-09	300010760	GL092078	0.2	1.2	9.8	
C170709	19-Aug-09	300010760	GL092079	0.2	1.2	9.6	
C170709	18-Aug-09	300010761	GL092080	0.2	1.8	9.8	
C170709	19-Aug-09	300010761	GL092081	0.2	1.8	9.6	
C170709	18-Aug-09	300010762	GL092082	0.2	2.1	12.8	
C170709	19-Aug-09	300010762	GL092083	0.2	2.1	11.8	

Survey 4

C_NUM	DATE	STATION_FULL	FNUM	Sample depth	Water depth	PPUT3036	Remark
C172728	27-Oct-09	300010171	GL095640	1.5	3.8	6	
C172728	27-Oct-09	300010171	GL095641	0	0	16.2	
C172728	27-Oct-09	300010172	GL095642	1.5	7.4	3	
C172728	27-Oct-09	300010172	GL095643	0	0	13.4	
C172728	27-Oct-09	300010172	GL095644	7	8	3	
C172728	27-Oct-09	300010172	GL095645	0	0	12.6	
C172728	27-Oct-09	300010173	GL095646	1.5	3.9	2.6	
C172728	27-Oct-09	300010173	GL095647	0	0	3	
C172728	27-Oct-09	300010174	GL095648	1.5	6	3.2	
C172728	27-Oct-09	300010174	GL095649	0	0	4.8	
C172728	27-Oct-09	300010175	GL095650	1.5	4.2	3	
C172728	27-Oct-09	300010175	GL095651	0	0	3	
C172728	27-Oct-09	300010176	GL095652	1.5	4	8.4	
C172728	27-Oct-09	300010177	GL095654	1.5	6.2	1.6	
C172728	27-Oct-09	300010177	GL095655	0	0	1.4	
C172728	27-Oct-09	300010178	GL095656	1.5	7.5	1.2	
C172728	27-Oct-09	300010178	GL095657	0	0	1.2	
C172728	27-Oct-09	300010179	GL095658	1.5	4	38.8	
C172728	27-Oct-09	300010179	GL095659	0	0	30.2	
C172728	27-Oct-09	300010179	GL095660	1.8	2.8	17.8	

C172728	27-Oct-09	300010179	GL095661	0	0	17.8	
C172731	27-Oct-09	300010180	GL095662	1.5	4.3	2.8	
C172731	27-Oct-09	300010180	GL095663	0	0	1.8	
C172731	27-Oct-09	300010181	GL095664	1.5	5.1	6.4	
C172731	27-Oct-09	300010181	GL095665	0	0	5.6	
C172731	27-Oct-09	300010182	GL095666	1.5	4.1	2	
C172731	27-Oct-09	300010182	GL095667	0	0	1.8	
C172731	27-Oct-09	300010183	GL095668	1.5	6.5	9.2	
C172731	27-Oct-09	300010183	GL095669	0	0	2.6	
C172731	27-Oct-09	300010184	GL095670	1.5	13.2	1.8	
C172731	27-Oct-09	300010184	GL095671	0	0	1.8	
C172731	27-Oct-09	300010184	GL095672	11.8	1.2	2	
C172731	27-Oct-09	300010184	GL095673	0	0	2.2	
C172731	27-Oct-09	300010185	GL095674	1.5	4.3	1.8	
C172731	27-Oct-09	300010185	GL095675	0	0	1.8	
C172731	27-Oct-09	300010186	GL095676	1.5	3.4	2	
C172731	27-Oct-09	300010186	GL095677	0	0	2.2	
C172731	27-Oct-09	300010187	GL095678	1.5	6.3	1.8	
C172731	27-Oct-09	300010187	GL095679	0	0	2	
C172731	27-Oct-09	300010188	GL095680	1.5	46.2	1.8	
C172731	27-Oct-09	300010188	GL095681	0	0	1.6	
C172731	27-Oct-09	300010189	GL095682	1.5	5.2	1.8	
C172731	27-Oct-09	300010189	GL095683	0	0	1.8	
C172731	27-Oct-09	300010190	GL095684	1.5	52.5	1.8	
C172731	27-Oct-09	300010190	GL095685	0	0	1.4	
C172731	27-Oct-09	300010190	GL095686	50.6	51.7	41.2	
C172731	27-Oct-09	300010190	GL095687	0	0	33.6	
C172728	27-Oct-09	300010755	GL091764	0.2	1.6	2.8	
C172728	27-Oct-09	300010755	GL091765	0	0	3	
C172728	27-Oct-09	300010756	GL091766	0.2	0.9	3.4	
C172728	27-Oct-09	300010756	GL091767	0	0	3.2	
C172728	27-Oct-09	300010757	GL091768	0.2	1	4.6	
C172728	27-Oct-09	300010757	GL091769	0	0	6.6	
C172728	27-Oct-09	300010758	GL091770	0.2	1.1	3.4	
C172728	27-Oct-09	300010758	GL091771	0	0	4	
C172728	27-Oct-09	300010759	GL091772	0.2	1.5	4.4	
C172728	27-Oct-09	300010759	GL091773	0	0	4.4	
C172728	27-Oct-09	300010760	GL091774	0.2	1	3.8	
C172728	27-Oct-09	300010760	GL091775	0	0	4	
C172728	27-Oct-09	300010761	GL091776	0.2	1.2	2.4	
C172728	27-Oct-09	300010761	GL091777	0	0	3.6	
C172728	27-Oct-09	300010762	GL091778	0.2	1.4	2.6	
C172728	27-Oct-09	300010762	GL091779	0	0	2.6	
C172728	27-Oct-09	300150009	GL091780	0.1	0.5	10	
C172728	27-Oct-09	300150009	GL091781	0	0	9.2	

Appendix 5: Methods used to assess total phosphorus conditions in Owen Sound.

Total Phosphorus (TP) was measured using two methods. The Toronto laboratory method (Method 3367) has a minimum reporting limit (<W) of 2 μg/L, with values < 10 μg/L flagged as trace (<T). The Dorset method (Method 3036) has a minimum reporting limit of 0.5 μg/L (<W) with values <1 μg/L flagged as trace (<T). In three of four surveys, the majority of TP sample points were found in the 5 - 10 μg/L range (Figure 1), corresponding to the < T value in Toronto laboratory data. Overall, total phosphorus concentrations were strongly correlated above 2 μg/L, with the exception of a small number of outliers (Figure 2). A relatively low number of samples were found below 2 μg/L (19 of 100 samples). The Toronto laboratory TP data (Method 3367) were used for data interpretation throughout the report. Dorset results are listed in Appendix 4.

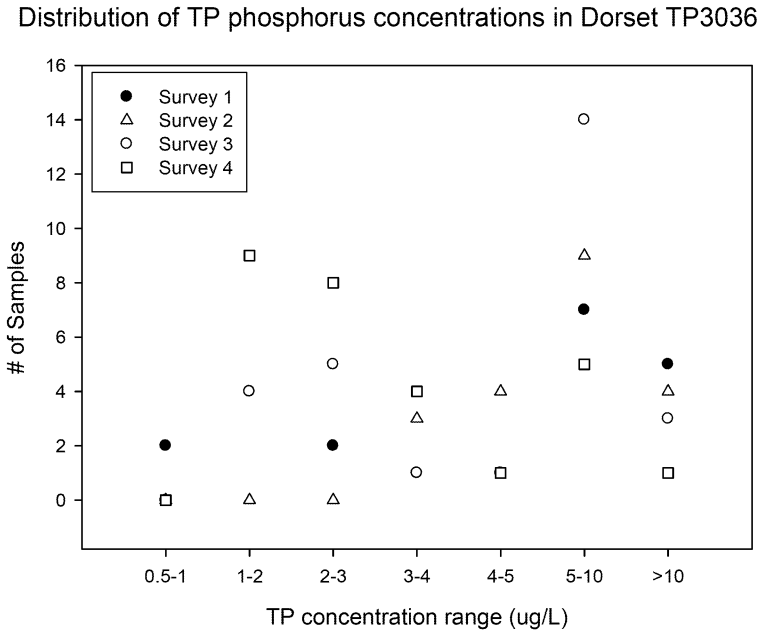


Figure 1: Frequency of detection of total phosphorus concentrations using the results of analyses using the Dorset total phosphorus analysis method.

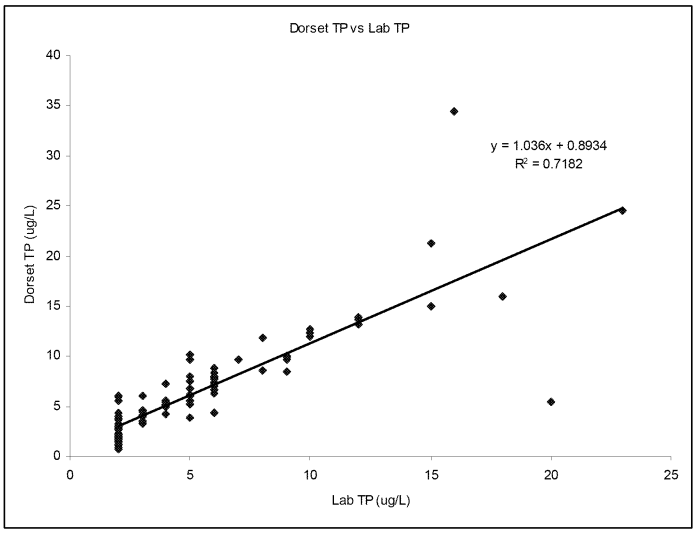
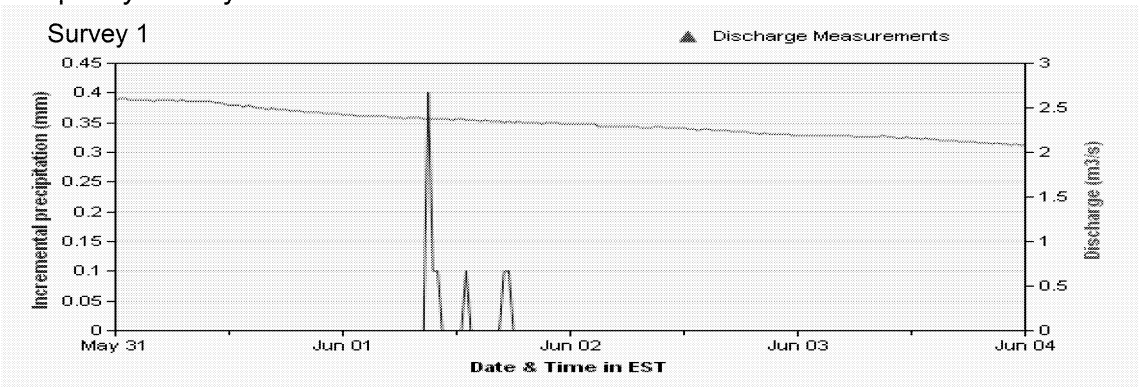


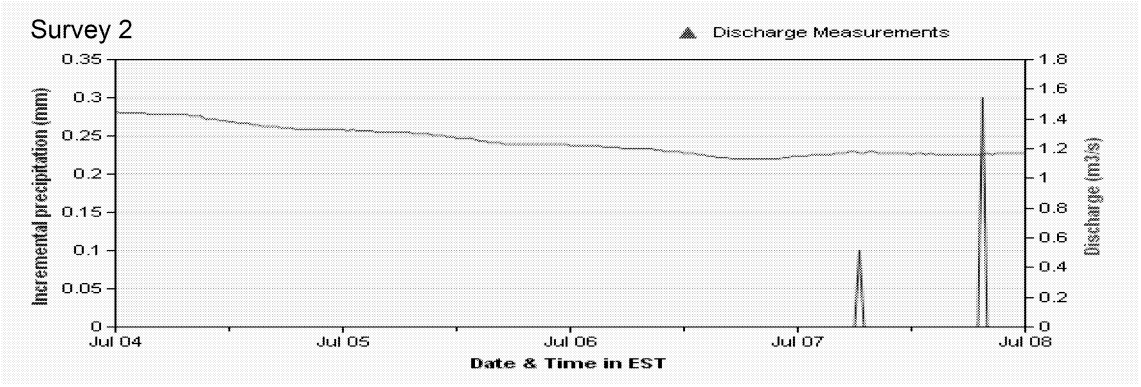
Figure 2: Comparison of total phosphorus concentrations for samples analyzed in the Dorset laboratory compared to Toronto laboratory (method 3367).

Appendix 6: Discharge measurements and precipitation measured at Environment Canada site 02FB007 on the Sydenham River near Owen Sound during and prior to water quality surveys in 2009

Survey 1

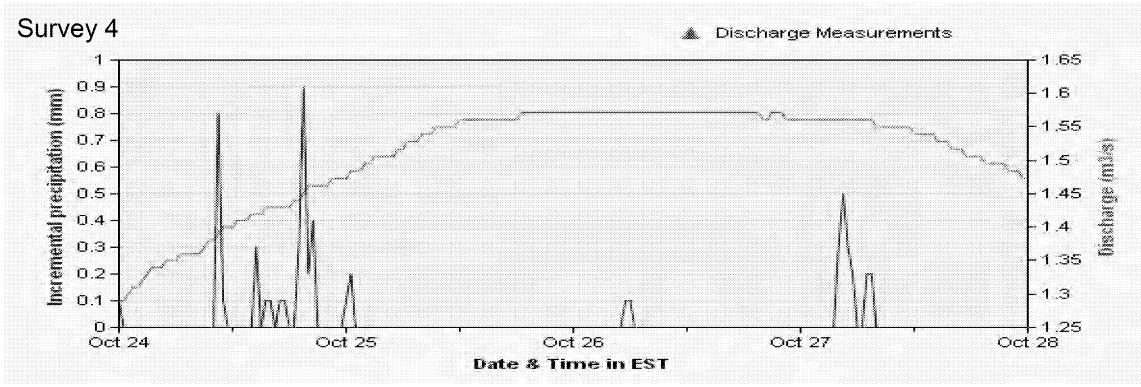


Survey 2



Survey 3

Survey 4



From: Howell, Todd (MECP)
To: Geurts, Hugh (MECP)
Subject: RE: Colpoy"s Bay Modelling
Date: June 2, 2021 10:44:44 AM

Hello Hugh

I believe Nadine Benoit has already sent to the consultant. I do not see a problem.

All the best.
Todd

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: June 2, 2021 10:40 AM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

Thanks Todd.

I was aware of it but parked it as I was not sure the modelling dynamics of Colpoy bay was the same as Owen Sound. Do you think I should show it to their consultant?? (its an internal document to southwest Region so not sure)

From: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Sent: June 02, 2021 9:00 AM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Subject: FW: Colpoy's Bay Modelling

Hello Hugh

I am not sure if you have ever seen the Owen Sound study report from some years back but you might find it helpful background.

Todd

From: Benoit, Nadine (MECP) <Nadine.Benoit@ontario.ca>
Sent: June 2, 2021 8:41 AM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>; Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

Hi Deborah,

As requested, here is the report for Owen Sound.

Cheers!

Nadine

Nadine Benoit
Surface Water Specialist
Great Lakes Monitoring Unit
Water Monitoring and Reporting Section

Environmental Monitoring and Reporting Branch
Ontario Ministry of the Environment, Conservation and Parks
125 Resources Rd., West Wing
Etobicoke, ON M9P 3V6

Tel: (416)235-6229
Fax: (416)235-6235
e-mail: nadine.benoit@ontario.ca

If you have any accommodation needs or require communication supports or alternate formats, please let me know.
Si vous avez besoin d'un aménagement particulier, de soutien à la communication ou de supports de remplacement, veuillez m'en aviser.

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: Tuesday, June 1, 2021 5:12 PM
To: Benoit, Nadine (MECP) <Nadine.Benoit@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

Hi Nadine,

I am just following up on Todd's email. Do you have a report or the data for the Owen Sound study you conducted in 2010?

Thanks, Deb

From: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Sent: June 1, 2021 12:35 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Benoit, Nadine (MECP) <Nadine.Benoit@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

Hello Deborah

The data collections at While Cloud Island in outer Colpoy's Bay (station 03 610) represents near all the data our group has collected in Colpoys Bay. The station was first sampled in 1996 and also in 2002, 2003 as well as 2009 and 2015 as noted. But note that the 1996 and 2002 sampling consisted of only single station visits due to labour issues those years. I am assuming that you are familiar with the striking changes in water quality in Lake Huron over this periods which will to an undetermined extent be relevant to the area. The sampling regime includes water column profiles of temperature and oxygen. In recent years there are also light profiles which may be useful depending on the nature of your modelling. Benthic invertebrate and sediment chemistry have also been periodically monitored over the years of sampling at station 610. I am not aware of any current-circulation data for the bay.

Our group conducted a water quality study in Owen Sound in 2010 and the report may be helpful as background of sorts given the similar physical aspects of the two bays. Nadine Benoit was the study lead who I have copied here. The only other lead I can think of is Ministry Water Intakes Surveillance program which may or may not have the Wiarton plant as part of the program. The program collects a modest amount of raw water chemistry data from the participating facilities. Reach out to Cheung, Patrick (MECP) Patrick.Cheung@ontario.ca if you want to follow up.

You likely know Yerubandi, Ram (EC/EC) Ram.Yerubandi@canada.ca who is the best one to start with at ECCC concerning any physical data collection in the area.

It is not a rich data area, nor is the coastline north from there.

All the best
Todd

E. Todd Howell Ph.D.
Great Lakes Ecologist
Water Monitoring and Reporting Section
Environmental Monitoring and Reporting Branch
Ontario Ministry of the Environment, Conservation and Parks
125 Resources Road, Toronto
Ontario, Canada
M9P 3V6
416-235-6225 fax 416-235-6235
todd.howell@ontario.ca

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: May 31, 2021 5:04 PM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>

Subject: Colpoy's Bay Modelling

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Todd,

s.N/R I'm currently putting together a work plan for the MECP (Hugh Geurts and Ian Mitchell) for water quality modelling for Colpoy's Bay and wanted to touch base re available information. We have 2009 & 2015 GLIS data for Colpoy's Bay (station 300010610) and bathymetry. I was wondering if there is any more recent or historical water quality data for the GLIS, other water quality data (including temp/DO profile data) for the bay (within the bay itself), and any water current information?

Thanks, Deborah

Deborah Sinclair, M.A.Sc. | Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

From:	Geurts, Hugh (MECP)
To:	Howell, Todd (MECP)
Subject:	RE: Colpoy"s Bay Modelling
Date:	June 2, 2021 10:53:00 AM

Ok . thanks todd.

From: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Sent: June 02, 2021 10:45 AM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

Hello Hugh

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All the best.
Todd

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: June 2, 2021 10:40 AM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
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Sent: June 2, 2021 8:41 AM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>; Howell, Todd (MECP) <Todd.Howell@ontario.ca>

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Sent: June 1, 2021 12:35 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Benoit, Nadine (MECP) <Nadine.Benoit@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>
Subject: RE: Colpoy's Bay Modelling

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It is not a rich data area, nor is the coastline north from there.

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Todd

E. Todd Howell Ph.D.
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Ontario Ministry of the Environment, Conservation and Parks
125 Resources Road, Toronto
Ontario, Canada
M9P 3V6
416-235-6225 fax 416-235-6235

todd.howell@ontario.ca

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: May 31, 2021 5:04 PM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Subject: Colpoy's Bay Modelling

Hi Todd,

I hope you are doing well. I'm currently putting together a work plan for the MECP (Hugh Geurts and Ian Mitchell) for water quality modelling for Colpoy's Bay and wanted to touch base re available information. We have 2009 & 2015 GLIS data for Colpoy's Bay (station 300010610) and bathymetry. I was wondering if there is any more recent or historical water quality data for the GLIS, other water quality data (including temp/DO profile data) for the bay (within the bay itself), and any water current information?

Thanks, Deborah

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Hutchinson Environmental Sciences Ltd.
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P: 519-576-1711 x 302
www.environmentalsciences.ca

From:	Deborah Sinclair s.21
To:	Mitchell, Ian (MECP); Belanger, Renee (MECP); Geurts, Hugh (MECP)
Cc:	Christine Geiger; Brent Parsons; Dan Hurley; Eric Watkin; [redacted] Amanda Kellett
Subject:	RE: GBIG Aquafarm - Wiarton - discussion re: work scope for water quality assessment for ECA
Date:	June 4, 2021 9:45:20 AM
Attachments:	2021-06-02_210049_GBIG RWA_May 27 2021 MECP meeting minutes.pdf

Hi All,

I have attached minutes from our meeting last week. Please review and let me know if you have any edits/comments.

Many thanks, and looking forward to our meeting next Thursday.

Deborah Sinclair, M.A.Sc. | Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

-----Original Appointment-----
From: Dan Hurley <dhurley@tathameng.com>
Sent: May 19, 2021 4:30 PM
To: Dan Hurley; Mitchell, Ian (MECP); Belanger, Renee (MECP); Hugh Geurts; s.21 [redacted] Deborah Sinclair; Eric Watkin
Cc: Belanger, Renee (MECP); Christine Geiger; Brent Parsons; s.21 [redacted]
Subject: GBIG Aquafarm - Wiarton - discussion re: work scope for water quality assessment for ECA
When: May 27, 2021 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Agenda items to follow

Microsoft Teams meeting

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Page 255

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From: Deborah Sinclair
To: Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: June 10, 2021 4:06:21 PM
Attachments: 2021-06-09_210049_Colpy"s Bay MECP meeting.pdf

Hi All,

Please find attached a pdf of today presentation.

If you have any questions, please let me know. I will circulate a detailed work plan next week.

Many thanks,

Deborah Sinclair, M.A.Sc. | Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

s.21

-----Original Appointment-----
From: Deborah Sinclair
Sent: June 2, 2021 5:21 PM
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: Colpoy's Bay Water Quality Assessment
When: June 10, 2021 2:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hi All,

Further to our meeting last week, we will have another meeting next Thursday for HESL to present our proposed work plan for the water quality assessment for Colpoy's Bay. The intent of this meeting is to get feedback from MECP on the proposed modelling and their inputs.

I will circulate an agenda closer to the date. Please forward this meeting invite to anyone else who should to attend.

Microsoft Teams meeting

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Pages 258 to / à 277

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17

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From: Geurts, Hugh (MECP)
To: Howell, Todd (MECP)
Subject: FW: Colpoy"s Bay Water Quality Assessment
Date: June 14, 2021 10:54:00 AM
Attachments: 2021-06-09_210049_Colpy"s Bay MECP meeting.pdf

Hello Todd.

Attached is the preliminary proposal for modelling that we have developed between the Region and The consultant for the proposed inland fish farm near Wiarton. If you have time can you take a peak and give me any first thoughts or additional work that needs to be looked at.

s.N/R [redacted] If you think she needs to look at it as well, by all means please feel free to forward it to her.

I did fill out the EMRB tech support request and left it with my supervisor [redacted] hopefully it has been completed.
Anyway, we are meeting likely two weeks today , so if you get to it great, if not, we will muddle thru.

s.N/R Thanks. [redacted]

Hugh

From: Winter, Jennifer (MECP) <Jennifer.Winter@ontario.ca>
Sent: May 26, 2021 4:02 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Howell, Todd (MECP) <Todd.Howell@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>
Subject: RE: Fish farm proposed for Colpoy bay near wiarton - Lake Huron.

Hi Hugh, this is an area and issue we have expertise in and likely can provide support on; I suggest you include Ngan Diep in the conversations too, together with Todd. The preferred approach would be that you & Jason fill in & submit the technical services request form as it helps us with our work planning and tracking. I'll let the group who receives the forms know it's coming.

Thanks so much,
Jenny

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: May 26, 2021 3:55 PM
To: Winter, Jennifer (MECP) <Jennifer.Winter@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Howell, Todd (MECP)

<Todd.Howell@ontario.ca>
Subject: Fish farm proposed for Colpoy bay near wiarton - Lake Huron.

Hello Jennifer.

Southwest Region Tech Support could use your unit's assistance on a proposed project.

A very large inland fish farm is proposed near Wiarton . Initial production will be 50,000 atlantic salmon per year (picture a building the size of a Costco filled with huge 200,000 litre tanks) .

The Municipality and the Province are supposedly big proponents of this project so there is already political interest on the project

The proposed discharge is to Colpoy Bay on Lake Huron. This area of Huron is extremely oligotrophic and the discharge point is an enclosed bay. Simply , the Region has serious concerns about the potential impact this discharge may have on the Bay with regard to phosphorus.

Given Todd's extensive knowledge of Lake Huron and phosphorus patterns in the lakes, we would like to consult with Todd as we develop conditions for the ECA to ensure that we have everything covered with respect to providing initial up front and post development monitoring and modelling .

I would envision his assistance would be measured in hours to possibly a few days as required over the next 4 months , I do not believe any major commitment in time is necessary. Likely some time after project completion to review monitoring and modelling results of real time discharge data.

I have spoken to Todd about this project already and Todd noted he can offer his services as required provided you were made aware and had no concerns.

Hopefully this is something your unit can assist with. If you need more information, I'd be happy to discuss further at your leisure
Hope you are staying well.

Hugh

Hugh Geurts
Surface Water Evaluator
Southwest Regional Office
Ontario Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

733 Exeter Road, London
N6E 1L3
(548) 388-7471

From:	Howell, Todd (MECP)
To:	Geurts, Hugh (MECP)
Cc:	Hlevca, Bogdan (MECP); Martherus, Jim (MECP); Winter, Jennifer (MECP)
Subject:	RE: Colpoy"s Bay Water Quality Assessment
Date:	June 18, 2021 10:51:02 AM
Attachments:	SOGL-2019-Technical-Reports-Cladophora.pdf 1-s2.0-S0380133010000481-main.pdf

Hello Hugh

This is an interesting piece of work. I have been waiting for feedback and direction related to an EMRB request for technical support before getting back but since it has been a few days I will acknowledge getting the PP outlining the consultants approach and offer an early comment that should be included from the get go. I have shared the PP with our group modeler who will be better positioned to comment on the mixing zone analysis.

The missing point that I suggest be considered from the start is that the concern with respect to stimulation of algal growth because of the loading of phosphorus extends beyound phytoplankton and the water column to the lakebed. The potential stimulation of benthic algae, notably the green algae Cladophora, also needs to be considered, and if the mixing zone analysis indicates phosphorus levels sufficient to promote growth (based on literature values) extends to shallow water underlain by hard substrate, this will need to be evaluated. In clear water oligotrophic lakes the overabundance of Cladophora fouls shoreline garnering public complaint.

I have attached two documents that provide a little background on Cladophora that might be useful. It is generally considered that overabundance of Cladophora is not a problem in Georgian Bay at present.

All the best.
Todd

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: June 14, 2021 10:54 AM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Subject: FW: Colpoy's Bay Water Quality Assessment

Hello Todd.

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I apologize in advance but I am not familiar with Ngan Diep's role at EMRB. If you think she needs to look at it as well, by all means please feel free to forward it to her.

s.N/R I did fill out the EMRB tech support request and left it with my supervisor [redacted]

s.N/R [redacted] hopefully it has been completed.

Anyway, we are meeting likely two weeks today , so if you get to it great, if not, we will muddle thru.

Thanks. [redacted]

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From: Winter, Jennifer (MECP) <Jennifer.Winter@ontario.ca>
Sent: May 26, 2021 4:02 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Howell, Todd (MECP) <Todd.Howell@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>
Subject: RE: Fish farm proposed for Colpoy bay near wiarton - Lake Huron.

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Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Howell, Todd (MECP) <Todd.Howell@ontario.ca>
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Hope you are staying well.

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Pages 284 to / à 310

are withheld pursuant to section

sont retenues en vertu de l'article

22

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From:	Howell, Todd (MECP)
To:	Geurts, Hugh (MECP)
Cc:	Hlevca, Bogdan (MECP); Martherus, Jim (MECP); Winter, Jennifer (MECP)
Subject:	RE: Colpoy"s Bay Water Quality Assessment
Date:	June 18, 2021 12:57:03 PM

Hello Hugh

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From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: June 18, 2021 12:12 PM
To: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Cc: Hlevca, Bogdan (MECP) <Bogdan.Hlevca@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>; Winter, Jennifer (MECP) <Jennifer.Winter@ontario.ca>
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I have attached two documents that provide a little background on Cladophora that might be useful. It is generally considered that overabundance of Cladophora is not a problem in Georgian Bay at present.

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From: Geurts, Hugh (MECP)
To: Howell, Todd (MECP)
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: June 18, 2021 1:12:00 PM

Ok thanks

From: Howell, Todd (MECP) <Todd.Howell@ontario.ca>
Sent: June 18, 2021 12:57 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Cc: Hlevca, Bogdan (MECP) <Bogdan.Hlevca@ontario.ca>; Martherus, Jim (MECP) <Jim.Martherus@ontario.ca>; Winter, Jennifer (MECP) <Jennifer.Winter@ontario.ca>
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s.21

From:	Deborah Sinclair
To:	Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Christine Geiger
Subject:	RE: Colpoy"s Bay Water Quality Assessment
Date:	June 22, 2021 9:07:27 AM
Attachments:	2021-06-22_210049_Colpoy"s Bay RWA_Agency Meeting #2 Minutes.pdf

Hi All,

Please find attached the minutes from our meeting on June 10, 2021. Please review the minutes and let me know if you have any edits or additions.

Many thanks, Deb

-----Original Appointment-----
From: Deborah Sinclair
Sent: June 2, 2021 5:21 PM
s.21
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted]; Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: Colpoy's Bay Water Quality Assessment
When: June 10, 2021 2:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hi All,

Further to our meeting last week, we will have another meeting next Thursday for HESL to present our proposed work plan for the water quality assessment for Colpoy's Bay. The intent of this meeting is to get feedback from MECP on the proposed modelling and their inputs.

I will circulate an agenda closer to the date. Please forward this meeting invite to anyone else who should to attend.

Microsoft Teams meeting

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From: Deborah Sinclair
To: Geurts, Hugh (MECP) s.21
Cc: Dan Hurley; [redacted] Eric Watkin; Christine Geiger
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: June 30, 2021 5:04:20 PM
Attachments: 2021-06-30_210049_Colpoy"s Bay ACS Work Plan.pdf

Hi Hugh,

Please find attached a detailed work plan outlining our approach to the Colpoy's Bay Assessment. We have incorporated MECP's comments and suggestions from our last meeting.

Please review and distribute the work plan and provide comment. If you have any questions, please let us know.

Many thanks,
Deborah Sinclair, M.A.Sc. | Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

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Sent: June 2, 2021 5:21 PM s.21
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
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To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
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CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

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From: Deborah Sinclair
To: Geurts, Hugh (MECP)
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: July 5, 2021 3:39:06 PM

Thanks for the feedback Hugh – much appreciated. I will update the work plan to address these two comments.

Also – I apologize about our phone call Friday, my cell phone reception was bad (as you noted) and so didn't get your follow up calls.

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From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: July 2, 2021 2:51 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: FW: Colpoy's Bay Water Quality Assessment

Hello Deborah.

Thank you for the attached work plan. I have forwarded it on to our Great Lakes people for comment. I have also included our District staff as Public interest on this project remains high - The District may add to this based on input received. . Below are the MECP Region's comments. Feel free to circulate within your group as you deem warranted. Also, I trust this information will be circulated with respect to Indigenous Consultation as warranted

1. The plan notes that the design capability of the plant will be based on a average daily volume of 430 m3/day with a maximum treatment capacity of 1440 m3/day. On Page 6 of the report the following is noted

   "The mixing zone modelling will be completed with total phosphorus, total ammonia, and TSS at the ADF of 430 m3/d (Table 2)."

As the potential impact of the proposed plant will likely be seasonal , The Region asks that modelling also incorporate a four season review as well as a "worst case scenario" modelling during the warmer weather period- April to October inclusive. In this regard, the modelling would compare most likely highest sustained discharge volumes during this window . In other words, if discharge is to be 800 m3/day in the summer and only 100 m3/day winter - the 430 m3/day modelling will not truly reflect the impact to Colpoy's Bay. To this end, any projected sustained increase in flow (considered routine and anticipated changes to daily waste flow) that lasts for a week or more should be considered and incorporated into the proposed modelling.

2. The plan notes that plume modelling will be based on 0.1 mg/L TP. However the plan goes on to state the following (page 6) .

"The mixing zone modelling will be completed with total phosphorus, total ammonia, and TSS at the ADF of 430 m3/d (Table 2)."

I could not find the assumed TSS or TAN concentrations for the modelling parameters. Table 1 does provide TSS and Ammonia values based on 0.3 mg/l; However its reasonable to assume these values will likely be less given a TP of 0.1 mg/l (especially for TSS) . I would ask that narrative be present as to whether Table 1. values are appropriate, or alternatively, projected values based on a 0.1 mg/l TP design and operational capability.

I trust these comments are of assistance. Feel free to reach out if clarification is required.

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From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: June 30, 2021 5:04 PM

To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Cc: Dan Hurley <dhurley@tathameng.com>; Gerry Sullivan <gerry@gbigroup.ca>; Eric Watkin <ewatkin@tathameng.com>; Christine Geiger <Christine.Geiger@environmentalsciences.ca>
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From: Geurts, Hugh (MECP)
To: Perez, Emerson (MECP)
Subject: FW: Colpoy"s Bay Water Quality Assessment
Date: July 6, 2021 9:18:00 AM

Hello Emerson. See below. This is for a large proposed fish farm in very oligotrophic Colpoy bay so its getting a lot of public backlash. Would you happen to know any private labs that can do better than 3 ppb for TP. Colpoys Bay can have TP of 2.5 ppb so we would be looking for a private lab that can do slightly better than 3 ppb.

They also want to know if they can use our lab if a private lab is not possible, I don't know if we would consider that. Any feedback on that request would be appreciated. I think the samples they want would be considerable -likely in the dozens of samples maybe as many as 100.

Thanks for the help Emerson

Hugh

Hugh Geurts
Surface Water Evaluator
Southwest Regional Office
Ontario Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs
733 Exeter Road, London
N6E 1L3
(548) 388-7471

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: July 06, 2021 8:36 AM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

Hi Hugh,

I also wanted to follow up on the TP analysis. The lowest detection limit we can get through commercial laboratories is 3 ug/L. Is there an MECP laboratory we can use to get the low levels observed in Colpoy's?

Thanks, Deb

Pages 345 to / à 347

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Hi All,

Further to our meeting last week, we will have another meeting next Thursday for HESL to present our proposed work plan for the water quality assessment for Colpoy's Bay. The intent of this meeting is to get feedback from MECP on the proposed modelling and their inputs.

I will circulate an agenda closer to the date. Please forward this meeting invite to anyone else who should to attend.

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting

Learn More | Meeting options

From: Deborah Sinclair
To: Geurts, Hugh (MECP)
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: July 26, 2021 10:25:59 AM

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Hugh,

Both ALS and Maxxam are able to get 1 ppb at their labs out west; so we are able to get a lower DL.

Thanks, Deb

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: July 20, 2021 7:56 AM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

Hello Deb>

The Ministry reached out to our private contacts and received the same response as you have - basically 3 ppb. The MECP lab currently is not set up to receive private samples.

Our lab suggests you contact one of the larger labs and see if they can set up a method for the more sensitive requirement if necessary.

Hugh

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: July 06, 2021 8:36 AM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

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Hi Hugh,

I also wanted to follow up on the TP analysis. The lowest detection limit we can get through commercial laboratories is 3 ug/L. Is there an MECP laboratory we can use to get the low levels observed in Colpoy's?

Thanks, Deb

Pages 350 to / à 358

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From:	Mitchell, Ian (MECP)
To:	Gass, Scott (MECP)
Cc:	Geurts, Hugh (MECP); Belanger, Renee (MECP)
Subject:	Aquafarm article
Date:	June 15, 2021 7:57:42 AM

https://www.bayshorebroadcasting.ca/2021/06/14/citizens-concerned-about-proposed-peninsula-fish-farm/

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

From: Mitchell, Ian (MECP)
To: Gass, Scott (MECP); Geurts, Hugh (MECP)
Cc: Belanger, Renee (MECP)
Subject: More media
Date: June 15, 2021 2:50:16 PM

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https://www.bayshorebroadcasting.ca/2021/06/15/company-outlines-peninsula-aquaculture-farm-plan/

Ian Mitchell
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Owen Sound District
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13

of the Freedom of Information and Protection of Privacy Act
de la Freedom of Information and Protection of Privacy Act

From: Smith, Ryan (MECP)
To: Ritchie, John (MECP); Mitchell, Ian (MECP)
Cc: Gass, Scott (MECP)
Subject: RE: MECP contact for Wiarton area
Date: March 5, 2021 9:00:45 AM

Thanks everyone for looking into all of this. I was radio silent at the end of the day yesterday when this was all unfolding but I appreciate the updates.
I look forward to working on this file as historically these haven't been something I dealt with.
Any advice is always appreciated,
Stay well everyone,
Ryan.

From: Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>
Sent: Thursday, March 4, 2021 5:01 PM
To: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>; Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>
Cc: Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Yes – this would appear to require a consultation.

From: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Sent: March 4, 2021 4:16 PM
To: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>; Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>
Cc: Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hey Ryan and John
Further to this mystery proposal, would they need to consult with indigenous communities for a discharge to Colpoy's Bay? What do you think?

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
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Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905
We want to hear from you. How was my service? You can provide feedback at 1-888-745-8888

From: Mitchell, Ian (MECP)
Sent: March 4, 2021 4:13 PM
To: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>; Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Ryan
The consultant (Tatham) happened to call me yesterday about this. I don't know anything yet about this proposal but they are apparently proposing a sewage

discharge to Colpoy's Bay. Since our EO for this area is in flux I suggested they send information to me for pre-submission consultation. When I get something I'll let you know.

Ian Mitchell
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Ministry of the Environment, Conservation and Parks
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Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905
We want to hear from you. How was my service? You can provide feedback at 1-888-745-8888

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 4, 2021 3:57 PM
To: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Ryan,

That sound great! The client is working on their initial stages of PTTW and ECA applications. Ian has advised the Client's consultant to contact the PTTW unit in Toronto for more information and Ian himself has offered to review their ECA application when they are ready to submit one. I have copied Ian here to inform him that you are interested in assisting on the reviews of their applications.

Thank you again,

Nilima

From: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>
Sent: March 4, 2021 3:48 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Nilima et al.: I'm happy to take on this file if no one else wants it. I haven't worked on Aquaculture files before but thought that they sound interesting and I'd be happy to learn more about them.

Please feel free to forward on my information to Mike from OMAFRA if you'd like and I'll reach out to Ian Mitchell as well to follow up on our end if this works for everyone.

Stay well everyone,

Ryan.

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: Thursday, March 4, 2021 9:36 AM
To: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Good morning,
Thank you for your response and guidance on how to move forward on this request! I have sent an e-mail to Ian to find out more on this, if he knows.
Moving forward if anyone of you would like to take a lead on this, please let me know. If not, I will be happy to continue working with Mike on this file. As Jason suggested, I may seek input from you all as well NR from time to time.
Have a great day!
Nilima

From: Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>
Sent: March 3, 2021 5:50 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hello all:
I am wondering if this is something that Scott A may have been handling prior to his retirement? The only reference I could find in his files is "Grey County, Aquaculture Report, Bighead River", which I don't think is exactly in the "Wiarton/Owen Sound area". The Bighead River ultimately discharges near Meaford which is ~somewhat~ in the same area but highly unlikely the same one that is being referenced.
If possible, an address would be helpful…
That being said, I can also confirm that I have not had any previous involvement. We can always follow up with Scott Gass/Ian Mitchell who have a good idea of these types of files in the Owen Sound District Office if we are still having trouble tracking this information down.
Thanks,
Ryan.

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: Wednesday, March 3, 2021 4:30 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Smith, Ryan (MECP) <Ryan.Smith@ontario.ca>; Munro, Alison (MECP) <Alison.Munro@ontario.ca>
Cc: Lehouillier, Jason (MECP) <Jason.Lehouillier@ontario.ca>
Subject: FW: MECP contact for Wiarton area

Good afternoon everyone,
I have been contacted by Michael from OMAFRA to find an MECP contact for the below Client and their Aquaculture project (please see the message below). I could not find any information in IDS based on the Client's name and Site address. There is no ECA or PTTW issued, unless it is registered under a different Client's name. If this rings a bell to you or you provided reviews on their ECA and/or PTTW applications, could you please help out Michael?
Thank you,
Nilima

From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Sent: March 3, 2021 1:51 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>; Relf, Mike (OMAFRA) <mike.relf@ontario.ca>

Subject: RE: MECP contact for Wiarton area

Hi Nilima,

s.21 I was contacted in February by [redacted] regarding an aquaculture development project in the Wiarton area by a company called Georgian Bay Innovation Group. The address of the project is 83 Berford lake rd, South Bruce Peninsula. I provided support in completing the company's aquaculture license application to [redacted]

Due to the large-scale nature of the project OMAFRA is doing some due-diligence on the project proposal and would like to speak with the MECP contact the company (Georgian Bay Innovation Group) has dealt with regarding PTTW and ECA for aquaculture facilities. Can you provide the MECP contact the company has been working with? So that we can follow-up and complete the due-diligence process.

Thanks

Mike

Michael McQuire
Aquaculture and Aquaponics Specialist
Ontario Ministry of Agriculture, Food and Rural Affairs
Agricultural Development Branch
(519) 841-4699
michael.mcquire@ontario.ca

Note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 3, 2021 12:52 PM
To: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Cc: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Subject: Re: MECP contact for Wiarton area

Good afternoon Michael,

I am a surface water specialist in the Southwest Region office (London) of MECP. I will be happy to assist you or direct you to an appropriate technical support staff in our office if you could please let me know the specifics of information or assistance that you need.

Thank you,

Nilima

From: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Sent: March 3, 2021 12:39 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Nilima,

This is in your region, could you please help Michael? Thanks.

Sajjad

==========

Mohammad Sajjad Khan, Ph.D., P.Eng.
Surface Water Specialist, West Central Region
Ontario Ministry of the Environment, Conservation and Parks
119 King Street West, 12th Floor, Hamilton ON L8P 4Y7
Tel: 365-889-1553 (off); Fax: 905 521-7820

E-mail: mohammad.khan@ontario.ca
We want to hear from you. How was my service?
You can provide feedback at 1-888-745-8888
==========

From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Sent: March 3, 2021 12:10 PM
To: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Subject: MECP contact for Wiarton area

Hi Sajjad,
I am emailing you looking for a contact person within MECP that would work on ECA's and PTTW for aquaculture in the Wiarton/Owen Sound area. I'm working on a development project in that area and need a contact at MECP for support.
Thanks
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Michael McQuire
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michael.mcquire@ontario.ca

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From: Mitchell, Ian (MECP)
To: Ritchie, John (MECP)
Cc: Gass, Scott (MECP); Smith, Ryan (MECP)
Subject: RE: MECP contact for Wiarton area
Date: March 5, 2021 8:10:36 AM

I have left a message for Dan Hurley regarding the need for indigenous consultation. We'll see where this goes since we don't know anything about the proposal

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
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Cc: Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Yes – this would appear to require a consultation.

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Cc: Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

s.N/R Hey Ryan and John

[redacted] would they need to consult with indigenous communities for a discharge to Colpoy's Bay? What do you think?

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Pages 396 to / à 397

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From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
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s.21

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Sajjad

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Mohammad Sajjad Khan, Ph.D., P.Eng.
Surface Water Specialist, West Central Region
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Thanks
Mike

Michael McQuire
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Pages 417 to / à 450

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Call Report Summary

Reference Number
1-HTW49

LOCATION:

Event Location:

Property(ies):

CALL REPORT DETAILS:

Summary: Concerns of proposed aquafarm

Report Details: June 09 - OSDO MEPC received a duty call from Dan Boisvert of 38 Beckons Lane, South Bruce Peninsula. DB called as he has concerns with a 200 acre property on Beckons Lane. Last week the callers neighbour observed an excavator on the site, the neighbour approached the operator and asked what was being done. The neighbour advised DB that he was informed that an aquafarm is being built and that lines will be run down to the bay to take and dispose of water.

R.Belanger call to Dan Boisvert - June 10 09:10
Called to confirm information, DB advised the same as above, that he is unhappy about the proposed work and has inquired with the municipality who would not give him much information. DB advised he plans on retiring at the property he has on Beckons Lane and opposes having an aquaculture facility in the area. DB will be taking avenues to request information from multiple authorities and will be expressing concerns along with other members of the community.

R.Belanger informed DB that the MECP has been informed of the proposed facility and that MECP is in pre consultation with the client at this time and nothing formal has been submitted to the MECP. R. Belanger also advised DB that if he would like more information he would need to submit a FOI request.

Created By: Renee Belanger

Date Created:	06/10/2021 10:50:28	**Date Reported:**	06/09/2021 00:00:00
Report Method:	Phone	**Date Occurred:**	
Referral Type:		**Referred To:**	
Outcome:	Outreach Created	**Event Number:**	

POLLUTION REPORT:

[redacted]

[redacted] s.21

1500 Meeting with Dan Hurley, [redacted] s.21
Georgian Bay Innovation Group. Spoke about PTTW and ECA for Industrial Sewage.
Intake / outfall pipes proposed in Colpoys Bay.
water taking 900 - 1400 L/min, Discharge 100 - 1000 L/m
> 1,000,000 L/Day. Recirculating salmon farm (Atlantic)
Water from Bay is treated, used, recycled, small quantity is discharged. Proposed volumes and phosphorous levels are a concern due to nutrient starved bay. Company has municipal council support and is in the process of consulting with FN RB inquired about plan for solid waste generated by ASM, company plans to sell the waste as fertilizer. Company to look into requirements to comply with the NMA.

1615 End Shift RB.

[redacted]

26

1619 [redacted]

1630 s.21 [redacted]

Thurs May 27, 2021

0800 [redacted]

0947 [redacted]

1000 GBIG preconsult meeting with Hutchinson Env. / GBIG, Tahaum Engineering. Discussed PTW up to 2000 m³/day and discharge of 400-1400 m³/day. Facility is hatchery / grow out. Concerns with effluent to nutrient status of bay discussed. FN consultations are ongoing. MECP brought up concern over shorewells and that HU should be contacted. future meeting to be arranged to discuss water quality assessment of Calpoy's Bay.

1608 s.21 [redacted]

Fri May 28, 2021

0800 [redacted]

0900

0939

1010

30

[redacted]

1055

09

15:14

1

11:05

Thur June 10 2021 s.N/R

s.21

0800

s.21

0900 call to South Bruce Peninsula

inquiring about 200 acre lot on Beckin L in

South Bruce Peninsula. Seeking information on if any work has been done by or approved by the municipality.

s.21 [redacted] Checked with the Public works manager and they are not aware of any work being done in the area as described. OSDG received a Duty call the day prior about an excavator putting lines in near Bethel Lake Road.

09:10 Call to complainant Dan Boisvert (519-796-7245) DB has a property at 33 Beckers Lane and is concerned that an aggregate facility is being developed on a 200 acre property on his road. I advised that the MECP is in pre-consultation stages only with the company and nothing formal has been submitted to the MECP. I advised that a PTTW and Industrial Sewage approval would be a requirement of MECP. I advised that if DB would like any more information he would need to follow our FOI process.

1400 meeting (pre-consultation) with Georgian Bay Innovation Group and consultants where the presented on proposed work plan for water quality assessment for Colpoys Bay. At the end of the meeting I brought up the complaint concerns and inquired what work was being done at the site. GBIG advised they had someone on site doing test pits for their geo preliminary work. I inquired if there had been any thought of outreach with the local community and GBIG advised they will be - although not required to by the municipality, but because they are also aware of the communities growing concerns over the project.

I was also assured by GBIG that there are no odours or noise associated with the operation of the facility. AD

s.21

[redacted]

Pages 458 to / à 460

are withheld pursuant to sections

sont retenues en vertu des articles

22, N/R

of the Freedom of Information and Protection of Privacy Act

de la Freedom of Information and Protection of Privacy Act

From: Deborah Sinclair
To: Geurts, Hugh (MECP); Belanger, Renee (MECP); Mitchell, Ian (MECP)
Cc: Eric Watkin; Dan Hurley; [redacted] s.21
Subject: BGIB Aquafarm - RWA work plan discussion
Date: June 1, 2021 11:00:13 AM

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi All,
We would like to set up a meeting for HESL to present an approach for the receiving water assessment for Colpoy's Bay. Please provide your availability for a ~1.5 hr meeting on the following days:

Monday June 7 - am and pm
Tuesday June 8 – am and pm
Wednesday June 9 am and pm
Thursday June 10 – am and pm.

Please circulate this email to anyone else who may need to attend.

Many thanks,

Deborah Sinclair, M.A.Sc. l Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: May 27, 2021 12:03 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>; Dan Hurley <dhurley@tathameng.com>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: assimilative studies _ Wiarton Waste water treatment plant

Hello Deborah.

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Once Ian can confirm he has the latest copy of the Wiarton ECA, he or I will send it to you.

Thanks

Hugh

Hugh Geurts
Surface Water Evaluator
Southwest Regional Office
Ontario Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs
733 Exeter Road, London
N6E 1L3
(548) 388-7471

Pages 463 to / à 464

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sont retenues en vertu de l'article

13

of the Freedom of Information and Protection of Privacy Act

de la Freedom of Information and Protection of Privacy Act

s.13

From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: June 30, 2021 5:04 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
s.21 **Cc:** Dan Hurley <dhurley@tathameng.com>; [redacted] Eric Watkin <ewatkin@tathameng.com>; Christine Geiger <Christine.Geiger@environmentalsciences.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

Hi Hugh,

Please find attached a detailed work plan outlining our approach to the Colpoy's Bay Assessment. We have incorporated MECP's comments and suggestions from our last meeting.

Please review and distribute the work plan and provide comment. If you have any questions, please let us know.

Many thanks,
Deborah Sinclair, M.A.Sc. l Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

-----Original Appointment-----
From: Deborah Sinclair
Sent: June 2, 2021 5:21 PM
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); s.21 Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: Colpoy's Bay Water Quality Assessment
When: June 10, 2021 2:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hi All,

Further to our meeting last week, we will have another meeting next Thursday for HESL to present our proposed work plan for the water quality assessment for Colpoy's Bay. The intent of this meeting is to get feedback from MECP on the proposed modelling and their inputs.

I will circulate an agenda closer to the date. Please forward this meeting invite to anyone else who should to attend.

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting

Learn More | Meeting options

Pages 467 to / à 475

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sont retenues en vertu de l'article

13

of the Freedom of Information and Protection of Privacy Act

de la Freedom of Information and Protection of Privacy Act

s.N/R

Hello Nilima

The EO for Wiarton is Helmut Pfeiffer and the Supervisor Scott Gass, both copied on this email

I did get a call from the consultant for this project yesterday and I suggested he call the PTTW group in Toronto since they are the lead for PTTW applications now and that he can send the District (me) their ECA information for their pre-submission consultation when it is available.

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

We want to hear from you. How was my service? You can provide feedback at 1-888-745-8888

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 4, 2021 9:31 AM
To: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: FW: MECP contact for Wiarton area

Good morning Ian,
Hope you are doing well!
I have been contacted by Michael from OMAFRA to find an MECP contact for the below client and their aquaculture project (please see the message below). I could not find any information in IDS based on the client's name and Site address. There is no ECA or PTTW issued, unless it

is registered under a different Client's name. I was wondering if you or anyone in your office remember dealing with this file and have any information to provide. If this rings a bell to you or you provided guidance on their ECA and/or PTTW applications, could you please help out Michael?
Thank you,
Nilima

From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Sent: March 3, 2021 1:51 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>; Relf, Mike (OMAFRA) <mike.relf@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Nilima,

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s.21

Due to the large-scale nature of the project OMAFRA is doing some due-diligence on the project proposal and would like to speak with the MECP contact the company (Georgian Bay Innovation Group) has dealt with regarding PTTW and ECA for aquaculture facilities. Can you provide the MECP contact the company has been working with? So that we can follow-up and complete the due-diligence process.

Thanks

Mike

Michael McQuire
Aquaculture and Aquaponics Specialist
Ontario Ministry of Agriculture, Food and Rural Affairs
Agricultural Development Branch
(519) 841-4699
michael.mcquire@ontario.ca

-

Note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

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Pages 478 to / à 479

are not relevant

sont non pertinentes

From: Mitchell, Ian (MECP)
To: Belanger, Renee (MECP)
Subject: FW: MECP contact for Wiarton area
Date: March 4, 2021 9:54:47 AM

Hi Renee Am I correct that you're taking over Helmut's area? I don't know anything about this proposal but if I hear anything further I'll let you know. It appears to be at very early stages

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
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From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 4, 2021 9:45 AM
To: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Cc: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>; Gass, Scott (MECP) <Scott.gass@ontario.ca>; Pfeiffer, Helmut (MECP) <Helmut.Pfeiffer@ontario.ca>
Subject: FW: MECP contact for Wiarton area

Good morning Mike,

Finally we are able to track it down....please see a response from our Owen Sound office. It seems like the client is working on an early stage of application process for both PTTW and ECA. If you have any question, I suggest you directly contact Ian Mitchell (copied here) on this matter.

Thank you and have a great day!
Nilima

From: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Sent: March 4, 2021 9:36 AM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: Pfeiffer, Helmut (MECP) <Helmut.Pfeiffer@ontario.ca>; Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

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Ian Mitchell
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Thank you,
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To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
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Due to the large-scale nature of the project OMAFRA is doing some due-diligence on the project proposal and would like to speak with the MECP contact the company (Georgian Bay Innovation Group) has dealt with regarding PTTW and ECA for aquaculture facilities. Can you provide the MECP contact the company has been working with? So that we can follow-up and complete the due-diligence process.

Thanks

Mike

Michael McQuire
Aquaculture and Aquaponics Specialist
Ontario Ministry of Agriculture, Food and Rural Affairs
Agricultural Development Branch
(519) 841-4699
michael.mcquire@ontario.ca

Note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 3, 2021 12:52 PM
To: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Cc: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Subject: Re: MECP contact for Wiarton area

Good afternoon Michael,
I am a surface water specialist in the Southwest Region office (London) of MECP. I will be happy to assist you or direct you to an appropriate technical support staff in our office if you could please let me know the specifics of information or assistance that you need.
Thank you,
Nilima

From: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Sent: March 3, 2021 12:39 PM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>

Cc: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hi Nilima,

This is in your region, could you please help Michael? Thanks.

Sajjad

==========

Mohammad Sajjad Khan, Ph.D., P.Eng.
Surface Water Specialist, West Central Region
Ontario Ministry of the Environment, Conservation and Parks
119 King Street West, 12th Floor, Hamilton ON L8P 4Y7
Tel: 365-889-1553 (off); Fax: 905 521-7820
E-mail: mohammad.khan@ontario.ca

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From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Sent: March 3, 2021 12:10 PM
To: Khan, Mohammad Sajjad (MECP) <mohammad.khan@ontario.ca>
Subject: MECP contact for Wiarton area

Hi Sajjad,

I am emailing you looking for a contact person within MECP that would work on ECA's and PTTW for aquaculture in the Wiarton/Owen Sound area. I'm working on a development project in that area and need a contact at MECP for support.

Thanks

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From: Pfeiffer, Helmut (MECP)
To: Belanger, Renee (MECP)
Subject: FW: MECP contact for Wiarton area
Date: March 4, 2021 10:14:11 AM

From: McQuire, Michael (OMAFRA) <Michael.McQuire@ontario.ca>
Sent: March 4, 2021 10:02 AM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>; Gass, Scott (MECP) <Scott.gass@ontario.ca>; Pfeiffer, Helmut (MECP) <Helmut.Pfeiffer@ontario.ca>
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Nilima,

thanks again for getting to the bottom of this

Mike

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Electronic Notes of

Renee Belanger

Badge Number: 1995

Event Number
1-29930558

Event Summary: GBIG Aquafarm pre consultation

Created Date:	06/10/2021 10:00:11	**Locked Date:**	06/11/2021 10:00:11
Subject:	Pre consultation request - April 1 meeting		
Details:	April 1, 2021 Meeting with Tatham Engineering and GBIG Discussed proposed project and the need for a PTTW and ECA for industrial sewage for a recirculating Atlantic salmon farm. Proposal is that water for the facility will be pulled from Colpoys Bay, treated, used, recycled, and treated prior to being discharged back into Colpoys Bay. Water taking in the range of 900-1400L/min and discharge of 100-1000L/min. Company has advised that they have been in talks with the municipality as well as have started consultations with FN. Another meeting to be arranged to discuss the project further in a few weeks.		

Created Date:	06/10/2021 10:40:10	**Locked Date:**	06/11/2021 10:40:10
Subject:	Pre consultation meeting - May 27		
Details:	May 27, 2021 Meeting with Hutchinson Environmental, Georgian Bay Innovation Group, Tatham Engineering see attached meeting minutes.		

Created Date:	06/10/2021 15:02:03	**Locked Date:**	06/11/2021 15:02:03

Electronic Notes of

Renee Belanger

Badge Number: 1995

Event Number
1-29930558

Event Summary: GBIG Aquafarm pre consultation

Subject: Meeting - Colpoy's Bay Water Quality Assessment

Details:
June 10, 2021
Meeting with Tatham Engineering, GBIG, MECP, and Hutchinson Environmental
Proposed water quality assessment plan presented to the group by Hutchinson Environmental.

See attached meeting minutes

From: Deborah Sinclair
To: Geurts, Hugh (MECP); Dan Hurley
Cc: Belanger, Renee (MECP); Mitchell, Ian (MECP)
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant
Date: May 27, 2021 12:07:33 PM

Perfect – thank you.

I look forward to the ECA.

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: May 27, 2021 12:03 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>; Dan Hurley <dhurley@tathameng.com>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
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Hugh Geurts
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Southwest Regional Office
Ontario Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs
733 Exeter Road, London
N6E 1L3

(548) 388-7471

From:	Dan Hurley
To:	Geurts, Hugh (MECP); Deborah Sinclair
Cc:	Belanger, Renee (MECP); Mitchell, Ian (MECP)
Subject:	RE: assimilative studies _ Wiarton Waste water treatment plant
Date:	May 27, 2021 12:27:25 PM
Attachments:	2017-Annual-Performance-Report-Wiarton-Wastewater-Treatment-Plant.pdf Colpoys Bay Bathymetry Map - mark up.pdf

Hello - attached is a map that identifies the location of the Wiarton WTP and WWTP. The WTP was the one I was thinking of that is along the same shore between Wiarton and Colpoys Dock. The WWTP outfall is right in Wiarton at back end of bay. For either I do not have information on how long the outfalls are.. Also of relevance I did locate the attached 2017 performance report for the pant which may be of interest. I do not have a copy of the most recent ECA.

Dan

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: May 27, 2021 12:03 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>; Dan Hurley <dhurley@tathameng.com>
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To: Dan Hurley; Deborah Sinclair
Cc: Belanger, Renee (MECP); Geurts, Hugh (MECP)
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant
Date: May 27, 2021 12:48:06 PM
Attachments: Wiarton NUMBER 6045-ARDJS7.pdf

Attached is Amended ECA No. 6045-ARDJS7 dated November 23, 2017 which is the current WWTP control document.

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

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Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant

Hello - attached is a map that identifies the location of the Wiarton WTP and WWTP. The WTP was the one I was thinking of that is along the same shore between Wiarton and Colpoys Dock. The WWTP outfall is right in Wiarton at back end of bay. For either I do not have information on how long the outfalls are.. Also of relevance I did locate the attached 2017 performance report for the pant which may be of interest. I do not have a copy of the most recent ECA.

Dan

From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Sent: May 27, 2021 12:03 PM
To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>; Dan Hurley <dhurley@tathameng.com>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: assimilative studies _ Wiarton Waste water treatment plant

Hello Deborah.

I just went through the Wiarton Files to see if there was an assimilative capacity study done.

The last time the plant went thru a re rating was 2017. It appears that through each staged progressive expansion of the plant, they have committed to improving their treatment to remain within their previous loading limits. As such they are not required to do an assimilative study so that information does not exist.

Once Ian can confirm he has the latest copy of the Wiarton ECA, he or I will send it to you.

Thanks

Hugh

Hugh Geurts
Surface Water Evaluator
Southwest Regional Office
Ontario Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs
733 Exeter Road, London
N6E 1L3
(548) 388-7471

From: Deborah Sinclair
To: Mitchell, Ian (MECP); Dan Hurley
Cc: Belanger, Renee (MECP); Geurts, Hugh (MECP); Christine Geiger
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant
Date: May 27, 2021 1:39:21 PM

Thanks Ian,

It would be interesting to know if algal growth has been a concern in the vicinity of the WWTP outfall. The ECA TP objective and limit are 0.10 and 0.3 mg/L, respectively. The rated capacity is 4,400 m3/d, ~ 10x the ADF for GBIG. The outfall is in Wiarton where there is likely (?) the least amount of circulation/movement in the bay. I'm guessing that MECP has not been informed of any nuisance algal blooms in the vicinity of the WWTP outfall?

Thanks, Deb

From: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Sent: May 27, 2021 12:48 PM
To: Dan Hurley <dhurley@tathameng.com>; Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant

Attached is Amended ECA No. 6045-ARDJS7 dated November 23, 2017 which is the current WWTP control document.

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

We want to hear from you. How was my service? You can provide feedback at 1-888-745-8888 or ontario.ca/inspectionfeedback

From: Dan Hurley <dhurley@tathameng.com>
Sent: May 27, 2021 12:27 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Mitchell, Ian (MECP)

<ian.mitchell@ontario.ca>
Subject: RE: assimilative studies _ Wiarton Waste water treatment plant

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(548) 388-7471

Page 499

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From: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
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To: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>; Dan Hurley <dhurley@tathameng.com>
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From: Deborah Sinclair <Deborah.Sinclair@environmentalsciences.ca>
Sent: June 30, 2021 5:04 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
s.21 **Cc:** Dan Hurley <dhurley@tathameng.com>; [redacted] Eric Watkin <ewatkin@tathameng.com>; Christine Geiger <Christine.Geiger@environmentalsciences.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Hugh,

Please find attached a detailed work plan outlining our approach to the Colpoy's Bay Assessment. We have incorporated MECP's comments and suggestions from our last meeting.

Please review and distribute the work plan and provide comment. If you have any questions, please let us know.

Many thanks,
Deborah Sinclair, M.A.Sc. l Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
Suite 202, 501 Krug Street, Kitchener ON N2B 1L3
P: 519-576-1711 x 302
www.environmentalsciences.ca

-----Original Appointment-----
From: Deborah Sinclair
Sent: June 2, 2021 5:21 PM
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: Colpoy's Bay Water Quality Assessment
When: June 10, 2021 2:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hi All,

Further to our meeting last week, we will have another meeting next Thursday for HESL to present our proposed work plan for the water quality assessment for Colpoy's Bay. The intent of this

meeting is to get feedback from MECP on the proposed modelling and their inputs.

I will circulate an agenda closer to the date. Please forward this meeting invite to anyone else who should to attend.

Microsoft Teams meeting

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s.21

From: Deborah Sinclair
To: Belanger, Renee (MECP); Geurts, Hugh (MECP); [redacted] Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: RE: Colpoy"s Bay Water Quality Assessment
Date: June 10, 2021 4:06:21 PM
Attachments: 2021-06-09_210049_Colpy"s Bay MECP meeting.pdf

Hi All,

Please find attached a pdf of today presentation.

If you have any questions, please let me know. I will circulate a detailed work plan next week.

Many thanks,

Deborah Sinclair, M.A.Sc. l Senior Aquatic Scientist
Hutchinson Environmental Sciences Ltd.
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From:	Deborah Sinclair
To:	Belanger, Renee (MECP); Geurts, Hugh (MECP); Gerry Sullivan; Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Christine Geiger
Subject:	RE: Colpoy"s Bay Water Quality Assessment
Date:	June 22, 2021 9:07:27 AM
Attachments:	2021-06-22_210049_Colpoy"s Bay RWA Agency Meeting #2 Minutes.pdf

Hi All,

Please find attached the minutes from our meeting on June 10, 2021. Please review the minutes and let me know if you have any edits or additions.

Many thanks, Deb

-----Original Appointment-----
From: Deborah Sinclair
Sent: June 2, 2021 5:21 PM
To: Deborah Sinclair; Belanger, Renee (MECP); Geurts, Hugh (MECP); Gerry Sullivan; Amanda Kellett; Mitchell, Ian (MECP); Eric Watkin; Dan Hurley; Christine Geiger
Subject: Colpoy's Bay Water Quality Assessment
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Sent: June 30, 2021 5:04 PM
To: Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>
Cc: Dan Hurley <dhurley@tathameng.com>; s.21 Eric Watkin <ewatkin@tathameng.com>; Christine Geiger <Christine.Geiger@environmentalsciences.ca>
Subject: RE: Colpoy's Bay Water Quality Assessment

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From:	Rising, Lareina (MECP)
To:	Mitchell, Ian (MECP)
Cc:	Belanger, Renee (MECP); Geurts, Hugh (MECP); Ritchie, John (MECP); Gass, Scott (MECP)
Subject:	RE: Consultation
Date:	May 28, 2021 5:44:20 PM
Attachments:	A Proponent"s Introduction to the Delegated Aspects of Consultation with....pdf image001.png

Hi Ian,
Yes, they should also be talking to the MNO.

MNO Lands and resources department : consultations@metisnation.org (with a copy to Region 7 Councillor David Dusome DavidD@metisnation.org)

I have also attached the "Proponent's Introduction to the Delegated Aspects of Consultation". This document is a bit dated and a newer version is due out soon but there is still some good advice there.

Miigwetch,
Lareina

Lareina Rising (She/Her)
Senior Advisor

Ontario Ministry of the Environment, Conservation and Parks
Email: Lareina.Rising@ontario.ca
Ph: (519) 381-0957

NATION TO NATION

Celebrate Indigenous History Month with us in June!

Please Note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Sent: May 27, 2021 11:16 AM
To: Rising, Lareina (MECP) <Lareina.Rising@ontario.ca>
Cc: Belanger, Renee (MECP) <Renee.Belanger@ontario.ca>; Geurts, Hugh (MECP) <Hugh.Geurts@ontario.ca>; Ritchie, John (MECP) <John.S.Ritchie@ontario.ca>; Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: Consultation

Hello Lareina

We just got off the phone regarding a proposed aquafarm that will be discharging waste water to Colpoy's bay and will also be taking water from Colpoy's Bay. We mentioned the need for consultation and they have initiated discussion with SON. I am wondering if there are any other communities they should be engaging (MNO? HSM?)? If so do you have the name and contacts?

Also any advice you have that I can pass on to the proponent regarding consultation would be appreciated.

Thanks

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
Owen Sound District
101-17th St E
Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

Pages 513 to / à 522
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From:	Mitchell, Ian (MECP)
To:	Dan Hurley s.21
Cc:	Belanger, Renee (MECP); Christine Geiger; Geurts, Hugh (MECP) [redacted] Belanger, Renee (MECP); Deborah Sinclair; [redacted] s.21
Subject:	RE: GBIG Aquafarm - Wiarton - discussion re: work scope for water quality assessment for ECAEric Watkin <ewatkin@tathameng.com>
Date:	May 31, 2021 8:20:12 AM
Attachments:	A Proponent"s Introduction to the Delegated Aspects of Consultation with....pdf

Hello Dan

Further to our discussion on May 27th regarding the proposed GBIG Aquafarm. In addition to consulting with SON, the proponent should also be talking to the Metis Nation of Ontario.

MNO Lands and resources department : consultations@metisnation.org (with a copy to Region 7 Councillor David Dusome DavidD@metisnation.org)

I have attached the "Proponent's Introduction to the Delegated Aspects of Consultation". This document is a bit dated and a newer version is due out soon but there is still some good advice in this document.

I thrust this is of assistance to you

Ian Mitchell
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Ministry of the Environment, Conservation and Parks
Owen Sound District
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Owen Sound ON N4K 0A5
Phone (519) 374-1388
Fax (519) 371-2905

Pages 524 to / à 525

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From:	Dan Hurley
To:	Geurts, Hugh (MECP); Belanger, Renee (MECP)
Cc:	Mitchell, Ian (MECP); Deborah Sinclair; [redacted] s.21
Subject:	RE: GBIG Land Based Fish Farm - Berford Road Wiarton
Date:	May 26, 2021 8:56:53 AM
Attachments:	image001.png image002.png 2021-05-25_210049_GBIG MECP Meeting 1_Agenda.pdf

Hello Hugh – as discussed attached is a brief agenda for our meeting tomorrow to assist in our discussions related to the proposed fish farm discharge and requirements for the ECA submission. Further to our first meeting GBIG has retained the services of HESL to undertake the water quality assessment and necessary modelling to support the application for ECA for the proposed discharge from the facility to Colpoy's bay. This meeting is intended to advance the discussions from our first meeting and provide context for HESL to advance their work. Please pass along the invite to any others at MECP who might be interested or involved int eh review if you deem appropriate.

Dan Hurley, B.A.Sc., P.Eng., LEED AP
President

Tatham Engineering Limited
115 Sandford Fleming Drive, Suite 200 | Collingwood | Ontario | L9Y 5A6
T 705-444-2565 x2040 | **C** 705-444-7571 | dhurley@tathameng.com | tathameng.com

Page 527

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s.N/R [redacted]

From: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Sent: March 4, 2021 9:36 AM
To: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Cc: Pfeiffer, Helmut (MECP) <Helmut.Pfeiffer@ontario.ca>; Gass, Scott (MECP) <Scott.gass@ontario.ca>
Subject: RE: MECP contact for Wiarton area

Hello Nilima

The EO for Wiarton is Helmut Pfeiffer and the Supervisor Scott Gass, both copied on this email

I did get a call from the consultant for this project yesterday and I suggested he call the PTTW group in Toronto since they are the lead for PTTW applications now and that he can send the District (me) their ECA information for their pre-submission consultation when it is available.

Ian Mitchell
District Engineer
Ministry of the Environment, Conservation and Parks
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Owen Sound ON N4K 0A5
Phone (519) 374-1388
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From: Gandhi, Nilima (MECP) <Nilima.Gandhi@ontario.ca>
Sent: March 4, 2021 9:31 AM
To: Mitchell, Ian (MECP) <ian.mitchell@ontario.ca>
Subject: FW: MECP contact for Wiarton area

Good morning Ian,
Hope you are doing well!
I have been contacted by Michael from OMAFRA to find an MECP contact for the below client and their aquaculture project (please see the message below). I could not find any information in IDS based on the client's name and Site address. There is no ECA or PTTW issued, unless it is registered under a different Client's name. I was wondering if you or anyone in your office remember dealing with this file and have any information to provide. If this rings a bell to you