Fisheries Management Plan for the Recovery of Atlantic Salmon Population in the Shediac Bay Watershed

Phase III

Shediac Bay Watershed Association
2023

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Contents

List of Figures

List of Tables

1. *Introduction to the Fisheries Management Plan*

1.1 SBWA History

The Shediac Bay Watershed Association (SBWA) is a not-for-profit organization located in Shediac, New Brunswick. The SBWA was founded in 1999 as a result of growing concerns among residents from various local communities over the ecological health of the Shediac Bay. A Board of Directors, representing the various communities found within the 420 km^2 watershed boundaries, oversees its activities. The Association deals with issues related to water quality and habitat integrity.

The Shediac Bay Watershed Association has been enhancing our coastline, rivers, brooks and streams for over a decade. Our watershed has recovered from a series of setbacks and is now in an improved state of environmental health. One of our priority goals is to enhance the numbers of natural salmonid (*Salmonidae spp.*) populations. The Shediac and Scoudouc rivers and their tributaries have potential for ideal spawning habitat. This project is also designed to engage and educate the stakeholders who have a vested interest in the health and use of the two rivers.

1.2 History of the Shediac Bay Watershed

The name Shediac comes from the Mi'kmag word "Es-ed-ei-ik" meaning "a stream between two lands" or "running far in". Shediac was the location of the most important Mi'kmag encampment of Westmorland County. The Shediac Harbour had many resources to offer the Mi'kmag families such as an abundance of fish and big game species. Acadians named the actual location of the Town of Shediac "La Batture" because of the abundance of oysters (*Crassostrea virginica*) at the mouth of the Scoudouc River. Few Acadians were already established during the 1760's, but the first Acadian families settled permanently in what would become the Town of Shediac, between 1798 and 1805. Mainly English families settled at Pointe-du-Chêne after 1855 to take advantage of the wharf and railway. By the beginning of the 20th century, Shediac and surroundings had ferry service to Prince Edward Island, a wharf, a lighthouse, roads, houses and a school.

The local economy took advantage of the geographic location and its many forms of transportation by ship, train and public roads. Shipbuilding yards, steam sawmills, the timber industry, agriculture and seafood products were among the most important industries in the 19th and beginning of the 20th centuries. Shediac area's present economic development is comprised of diverse industries in tourism, retail and services, government services, manufacturing, seafood production and information technology.

1.3 Fisheries Management Plan

The Shediac Bay watershed covers 420 km^2 of land area and stretches along approximately 36 km of coastline, from Cap de Cocagne to Cap Bimet, in south-eastern New Brunswick (NB) (Figure 1). The watershed's boundaries extend inland from Scoudouc to Lutes Mountain. The watershed's landscape is fairly flat, with the highest point of the far inland reaches of the Shediac River at approximately 560 meters above sea level. The Shediac Bay watershed is composed of two major river systems: the Shediac River and the Scoudouc River. Both rivers empty into Shediac Bay which drains directly into the Northumberland Strait. Because of the flat terrain, the current of the rivers and tributaries emptying into the Bay are typically slow moving. The Bay itself has a weak current flowing eastward to the Northumberland Strait.

The urban area of the watershed – Town of Shediac - makes up 2.5% of the watershed and consists of light industrial, commercial, and residential land. The remaining rural areas include the following land uses: forest areas, beaches, dunes, wetlands, agricultural practices, industrial (fish plants, glass manufacturing, etc.), natural resource extraction (forestry and pits), commercial services, and residential and commercial development (Jordan, 2000).

The purpose of this *Fisheries Management Plan* is to gather and organize all the available data collected, by the SBWA or by any other group or individual, which relates to fish populations and habitat quality in the Shediac Bay Watershed. The compilation of this data will be used to determine future recommendations for actions and partnerships to increase the conservation efforts for salmonid populations in the watershed.

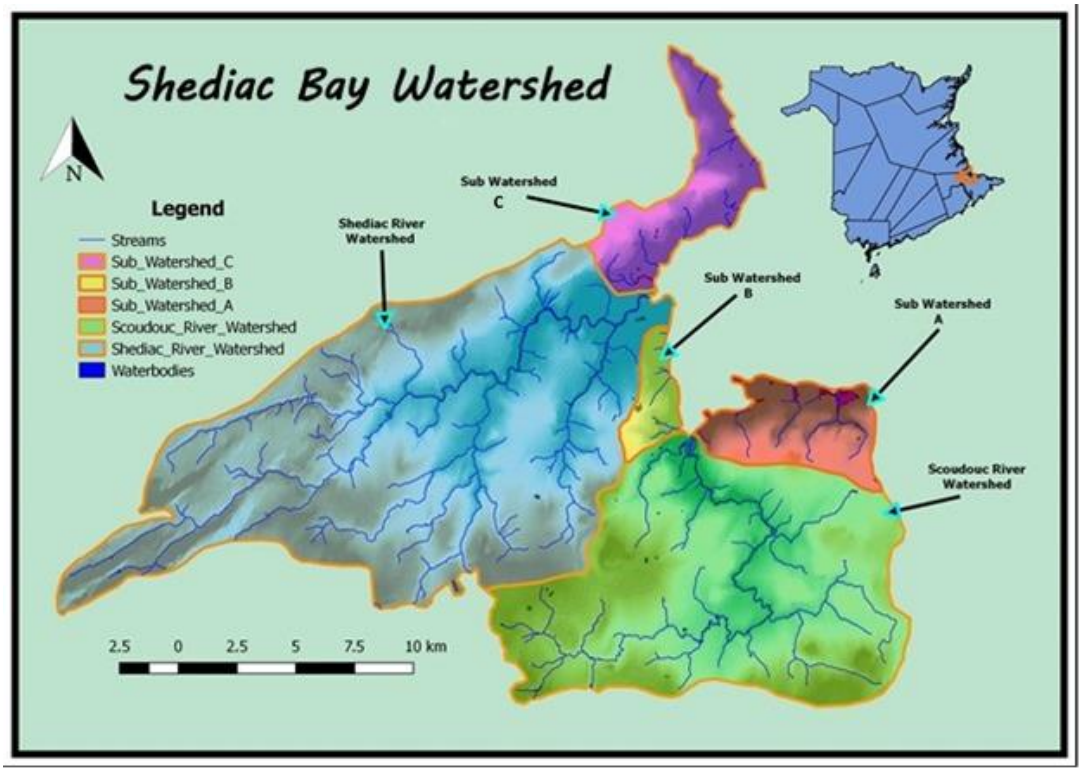

Figure 1: Shediac Bay watershed with major tributaries

2. *Watershed Assessment Methods*

2.1 Water Quality Assessment

Water quality monitoring began in the Shediac Bay Watershed during the water classification program in 1999-2001. Basic physical measurements were taken at the same 18 sites from 1999 - 2005. In 2007, the sampling was resumed thanks to funding from the *Environmental Trust Fund.* Some funding was received for watershed groups in Southeastern NB to form a partnership and get the necessary equipment to analyze *E. coli*, total coliforms, nitrate-nitrogen and phosphorus. With less available funding, the number of sites had to be cut by half. Only nine water classification stations were monitored until 2015, when new development in Irishtown brought the need to readopt the historical site nearby (ShdA). In 2013, the *Petitcodiac Watershed Alliance* assembled their own laboratory and the SBWA began using their services for water testing. In 2016, 11 new sampling sites were added to evaluate small tributaries of the Shediac Bay, from Shediac to Grande-Digue. As of 2016, all the samples from the 21 monitoring sites are being analyzed at *RPC Laboratory*.

In 2000, the SBWA formed a partnership with the Department of Environment and Local Government of New Brunswick. Water sampling was then performed using the provincial protocol and analysis of water samples. Water analysis includes bacterial (*E. coli*), nutrients and inorganic elements. Basic water quality parameters (DO, temperature, pH, conductivity and salinity) were measured in the field using a multi-parameter probe metre (YSI- Professional Plus).

The water quality monitoring program is used to support and detect the need for remediation actions and measures to help improve and protect water quality. It is also used to complete detailed sanitary surveys and establish the status of our rivers for the protection of aquatic life. Such monitoring helps determine if changes to water quality occur and if sections of the stream or river remain suitable for aquatic life. It is of the upmost importance to have accurate and continuous data of water parameters for the watershed. This allows for effective management strategies and the creation of strategic plans.

The present report has gathered the historical water quality data collected by the SBWA since 1999. The SBWA does not claim to be an expert in water chemistry interpretation. Basic interpretation is done using the CCME Recommendation Guidelines for the Protection of Aquatic Life for Freshwater (Tables 1 – 5). For additional in-depth analysis of water chemistry in regards to salmonid health and population growth, additional research and consultations with experts is needed.

Table 1: CCME Recommendation Guidelines for the Protection of Aquatic Life (Freshwater)

CCME RECOMMENDED GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE (FRESHWATER) SUMMARY OF OTHER PARAMETERS				
Parameter	Description	Value	Units	Notes
Dissolved O_2	Early life stages, cold water biota†	**9.5**	mg/L	† The guidelines for dissolved oxygen are divided into four different categories to accommodate the wide range of tolerances exhibited by freshwater species at various life stages, and with warmer or colder temperature preferences.
	Other life stages, cold water biota	**6.5**	mg/L	
	Early life stages, warm water biota	**6.0**	mg/L	
	Other life stages, warm water biota	5.5	mg/L	
pH	Lower long-term limit	**6.5**	—	‡ There is no limit for the protection of aquatic wildlife for *E. coli*. The limit of 400 MPN/100mL for the protection of environmental and human health is used instead.
	Upper long-term limit	**9.0**	—	
E. coli	Upper limit‡	**400**	MPN/100mL	

Table 2: Summary of the CCME Canadian Environmental Quality Guidelines

CCME RECOMMENDED GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE (FRESHWATER) SUMMARY						
Parameter	**Condition**	**Value (mg/L)**	**Condition**	**Value (mg/L)**	**Equation Between Conditions**	**Notes**
Ag	—		Long-Term	**0.00025**	—	The following parameters did not have CCME recommended guidelines for the protection of aquatic life and were therefore omitted from the table: ALK_T, Ba, Be, HCO3, Bi, BR, Ca, CO3, Co, COND, Cr, F, HARD, K, Land_Ind (20˚C), Li, Mg, Mn, Na, NOX, Rb, pH (Sat), Sb, Sn, SO4, Sr, TDS, Te, TKN, TOC, TP-L, TURB, V. † The guideline for dissolved oxygen is separated into warm water biota, early life stages; warm water biota, other life stages; cold water biota, early life stages; and cold-water biota, other life stages. ‡ There is no limit for the protection of aquatic wildlife. The limit of 400MPN/100mL for the protection of environmental and human health is used instead.
Al	pH<6.5	**0.005**	pH≥6.5	**0.1**	—	
As	—		Upper	**0.005**	—	
B	Short-Term	**29**	Long-Term	**1.5**	—	
Cd (Short-Term)	HARD<5.3	**0.00011**	HARD>360	**0.0077**	10^(1.016*LOG(HARD)-1.71)	
Cd (Long-Term)	HARD<17	**0.00004**	HARD>280	**0.00037**	10^(0.83*LOG(HARD)-2.46)	
Cl	Short-Term	**640**	Long-Term	**120**	—	
CLRA	Narrative; refer to CCME website for more information.					
Cu	HARD<82	**0.002**	HARD>180	**0.004**	0.2*EXP(0.8545*LN(HARD)-1.465)	
DO (warm)†	Early	**6**	Other	**5.5**	—	
DO (cold)	Early	**9.5**	Other	**6.5**	—	
E-coli‡	—		Upper	**400 MPN/100mL**	—	
Fe	—		Upper	**0.3**	—	
Mo	—		Upper	**0.073**	—	
NH3_T	Table; refer to CCME website for more information.					
NH3_Un	—		Long-Term	**0.019**	—	
Ni	HARD≤60	**0.025**	HARD>180	**0.15**	EXP(0.76*LN(HARD)+1.06)	
NO2 (as N)	—	—	Upper	**0.06**	—	
NO3 (as N)	Short-Term	**124**	Long-Term	**3**	—	
Pb	HARD≤60	**0.001**	HARD>180	**0.007**	EXP(1.273*LN(HARD)-4.705)	
pH	Lower L-T	**0.0065**	Upper L-T	**0.01**	—	
Se	—	—	Upper	**0.001**	—	
Tl	—	—	Upper	**0.0008**	—	
U	Short-Term	**0.033**	Long-Term	**0.015**	—	
Zn	—		Upper	**0.03**	—	

Table 3: CCME Guidance framework for Phosphorus

CCME GUIDANCE FRAMEWORK FOR TOTAL PHOSPHORUS (TP-L)					
Parameter	**Description**	**Value**	**Units**	**Notes**	
TP-L *	Hyper-eutrophic	**> 0.100**	mg/L	†	The CCME recommended guidelines for the protection of aquatic life (freshwater) indicates the concentrations of total phosphorus at which each condition may occur. This does not suggest that a stream with hyper-eutrophic levels of total phosphorus will necessarily exhibit hyper-eutrophic properties, for example.
	Eutrophic	**0.035 – 0.100**	mg/L		
	Meso-eutrophic	**0.020 – 0.035**	mg/L		
	Mesotrophic	**0.010 – 0.020**	mg/L		
	Oligotrophic	**0.004 – 0.010**	mg/L		
	Ultra-oligotrophic	**< 0.004**	mg/L	*	Total phosphorus level

Table 4: Terms and definitions for water chemistry and bacterial data tables.

TERMS AND DEFINITIONS FOR FIELD DATA COLLECTED BY YSI AND LABORATORY SAMPLES		
Parameter	**Unit**	**Definition**
Temperature	˚C	Air and water temperature measured in degrees Celsius.
SAL	Ppt	Salinity measures in parts per thousand.
Dissolved Oxygen	mg/L, %	Dissolved oxygen measured in milligrams per litre and percentage.
E. coli	MPN/100mL	*Escherichia coli* concentration measured in most probable number per 100 milliliters.
ALK_T	mg/L	Total alkalinity measured in milligrams per litre.
CLRA	TCU	Water colour measured in true colour units.
COND	µs/cm	Conductivity measured in microsiemens per centimetre in the field and laboratory.
HARD	mg/L	Hardness measured in milligrams per litre.
Land Ind (20˚C)	—	Langlier index at 20 degrees Celsius.
pH	—	Potential of hydrogen measured in the field and laboratory, and the saturation pH at 20 degrees Celsius.
Sat (20˚C)	—	The pH at which water at 20 degrees Celsius is saturated with calcium carbonate.
TDS	mg/L	Total dissolved solids measured in milligrams per litre.
TURB	NTU	Water turbidity measured in nephelometric turbidity units.

Table 5: Terms and definitions for inorganics data tables

TERMS AND DEFINITIONS FOR HEAVY METAL DATA					
Parameter	**Unit**	**Definition**	**Parameter**	**Unit**	**Definition**
Al	µg/L	Aluminum measured in micrograms per litre.	Mn	µg/L	Manganese measured in micrograms per litre.
As	µg/L	Arsenic measured in micrograms per litre.	Mo	µg/L	Molybdenum measured in micrograms per litre.
B	µg/L	Boron measured in micrograms per litre.	Ni	µg/L	Nickel measured in micrograms per litre.
Ba	µg/L	Baryium measured in micrograms per litre.	Pb	µg/L	Lead measured in micrograms per litre.
Cd	µg/L	Cadmium measured in micrograms per litre.	Rb	µg/L	Rubidium measured in micrograms per litre.
Co	µg/L	Cobalt measured in micrograms per litre.	Sb	µg/L	Antimony measured in micrograms per litre.
Cr	µg/L	Chromium measured in micrograms per litre.	Sr	µg/L	Strontium measured in micrograms per litre.
Cu	µg/L	Copper measured in micrograms per litre.	U	µg/L	Uranium measured in micrograms per litre.
Fe	µg/L	Iron measured in micrograms per litre.	V	µg/L	Vanadium measured in micrograms per litre.
Li	µg/L	Lithium measured in micrograms per litre.	Zn	µg/L	Zinc measured in micrograms per litre.

Table 6: Terms and definitions for nutrients data tables

TERMS AND DEFINITIONS FOR NUTRIENT DATA					
Parameter	**Unit**	**Definition**	**Parameter**	**Unit**	**Definition**
HCO3	mg/L	Bicarbonate measured in milligrams per litre.	NH3_Un	µg/L	Ammonia unionized at 20˚C measured in micrograms per litre.
Br	µg/L	Bromine measured in micrograms per litre.	NO2	µg/L	Nitrite measured in micrograms per litre.
Ca	mg/L	Calcium measured in milligrams per litre.	NO3	µg/L	Nitrate measured in micrograms per litre.
CO3	µg/L	Carbonate measured in micrograms per litre.	NOX	µg/L	Nitrite + Nitrate measured in micrograms per litre.
Cl	mg/L	Chloride measured in milligrams per litre.	SO4	mg/L	Sulphate measured in milligrams per litre.
F	µg/L	Fluoride measured in micrograms per litre.	TKN	mg/L	Total Kjedhal nitrogen measured in milligrams per litre.
K	mg/L	Potassium measured in milligrams per litre.	TN	mg/L	Total nitrogen calculated in milligrams per litre.
Mg	mg/L	Magnesium measured in milligrams per litre.	TOC	mg/L	Total organic carbon measured in milligrams per litre.
Na	mg/L	Sodium measured in milligrams per litre.	TP-L	mg/L	Total phosphorus measured in milligrams per litre.
NH3	µg/L	Total ammonia measured in micrograms per litre.	—	—	—

2.2 Water Temperature Monitoring

Water temperature monitoring using pendant light temperature loggers are an important part of the overall assessment of the watershed's ability to sustain a healthy salmonid population. In 2016, the SBWA formed a partnership with the "*Institut national de la recherche scientifique*" (INRS) in the province of Quebec, to begin a water temperature monitoring program. Three sites were established for the first year, using equipment (HOBO light pendants) provided by INRS-Quebec. In 2017, the SBWA purchased four additional pendant loggers, and placed them in strategic locations to monitor temperature fluctuations. Having a total of seven loggers, the strategy was to monitor temperatures in areas determined to be high risk for thermal stress in juvenile salmonids, and to monitor areas that are determined to be cold zones suitable for thermal refugia. The recommended temperature limits indicate the threshold for thermal stress begins at 22.5°C for juvenile Atlantic salmon (*Salmo salar*), and upper lethal limits are 25°C or greater (Crisp 1999).

2.3 Electrofishing

In an effort to evaluate salmonid populations in the Shediac Bay watershed, electrofishing surveys have historically been used as the primary method of assessment. The oldest known data to have been collected using this method comes from a study conducted in the Shediac River by the Southeastern Anglers Association "*Recreational Fisheries Management Studies for Kouchibouguacis, Richibouctо, Chockpish, Bouctouche, Cocagne and Shediac Rivers"* (Maillet, 1996). The study found that the Shediac River system had low population densities of both Atlantic salmon and brook trout (*Salvelinus fontinalis*) (Turcotte-Lanteigne & Ferguson, 2008).

The SBWA undertook another electrofishing study in 2005 in partnership with the *Southeastern Anglers Association*, evaluating six sites in the watershed. These surveys revealed that Atlantic salmon parr and other salmonids such as brook trout were present in both main river systems within the Shediac Bay watershed; the Shediac and Scoudouc rivers. However, according to local anglers, many fish species had drastically decreased over the last two decades in those rivers.

Population assessments was then relaunched in 2014, are being conducted annually based on available funding and equipment. Surveys are being done due to the need for additional information on salmonid population numbers and trends in the Shediac Bay watershed. Electrofishing can be used to identify early life stage habitat (0+, 1+, parr) for salmon in need of protection or restoration. It can also be a method used to measure the effectiveness of these restoration or enhancement projects. Future goals of restocking and drafting the watershed management plan around Atlantic salmon brings the need for better information on population numbers and trends in the Shediac Bay catchment basin.

2.4 Redd Count Surveys

Identifying spawning habitat is an important component of the fisheries management plan, in order to better understand migration of salmon though the watershed and identifying habitats needing protection, restoration or enhancement. This survey is done by walking a section of a river, normally in the higher reaches where spawning habitat characteristics exists, and carefully scanning the riverbed for any signs of depressions in the substrate.

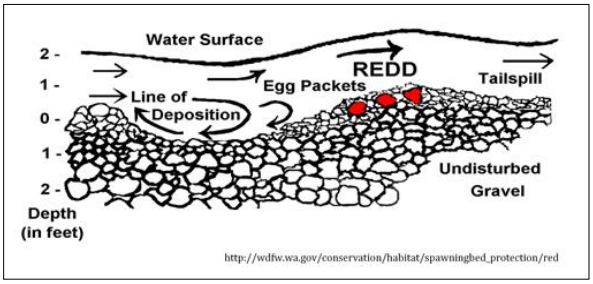

Figure 2: Redd Count Survey - Spawning Habitat Diagram

These depressions are accompanied by a small mound of gravel downstream of the nest (tailspill slope). The slight elevation of the tailspill is made to capture the current and create a flow through the nest, to provide sufficient dissolved oxygen to the eggs (Figure 2). A limitation factor to this method is that redd count surveys may include "false redds" or "practice redds", caused by females creating one or more nests before choosing one to spawn.

2.5 Fish Passage – Culvert Assessment Study

2.5.1 Culvert Assessment 2007

Migration barriers at stream crossings have been identified as a fish conservation concern in many areas of North America (McCleary et al., 2004). Stream crossings occur wherever roads or railways intersect streams. The installation of culverts is the most common method to provide access over small and medium sized streams. These road crossings can become barriers for fish migration, create habitat fragmentation and alter stream and riparian habitat integrity (Department of Fisheries and Oceans, 2006). Ensuring river systems and landscapes connectivity, as well as habitat integrity is a critical component for maintaining healthy fish populations (Parker, 2000).

Over the long-term, fish habitat fragmentation has the potential to reduce the productivity and distribution of various species. Many of the crossings occur on small streams that are not necessarily used for commercial or sport fishing purposes, but these watercourses may contribute to downstream productivity by providing juvenile rearing or other important habitats. These obstacles can prevent migratory and resident fishes from reaching their spawning habitats as well as reduce food availability and their ability to escape predators. Fish migrate to different locations in a watershed in order to meet a variety of needs as they develop (Whyte, Babakaiff, Adams, & Giroux, 1997). It is the cumulative fragmentation effect that

can create fish and wildlife segregation and significantly reduce their ability to reproduce and feed (Taylor, 2000). The ideal crossing allows passage to all aquatic and terrestrial species that use the stream or riparian zone habitats.

Hundreds or even thousands of culverts can be found in a watershed. The following culvert conditions are the most common issues contributing to habitat degradation:
1) Excess drop at the culvert outlet;
2) High velocity within the culvert;
3) Inadequate water depth within the culvert;
4) Turbulence within the culvert and
5) Debris and sediment accumulation in the culvert or at the culvert inlet (Washington Department of Fish and Wildlife, 2003).

A single barrier culvert can block access to kilometres of habitat (Island County Restoration Planning - Fish Passage, 2004). Consequently, the restoration of fish passage at these impasses appears to be an efficient way to improve the overall stream productivity and habitat integrity.

In order to identify potential fish passage barriers, a fish passage assessment at road crossings was performed within the Shediac Bay watershed in 2007. The project consisted in conducting overview assessments of habitat integrity, bank stability, and fish passage at all crossings within the watershed. This survey allowed for the identification of culverts that are either contributing to erosion and stream siltation or are barriers to passage of fish and other aquatic life.

The method used to perform the fish passage assessment was based on a protocol developed by the Department of Fisheries and Oceans (DFO) (Godin, 2007). Field training and quality control evaluations were conducted by DFO. Watershed culverts mapping was performed by the DFO using geographic information provided by the New Brunswick Department of Transportation (NBDOT).

The survey was performed in a manner to prioritize culverts situated on major tributaries starting downstream of each river system. This allowed for the identification of fragmentation issues that were affecting fish passage from the estuarine level. Various culvert shape and elevation measurements were recorded using surveying equipment (Sokkia Surveying Instrument C3-30). A total of eight elevation measurements were taken at the water surface and stream bottom (or culvert bottom), at both culvert ends, as well as at the pools and riffles on each culvert side (Figure 3). The culvert fallout drop height was also measured from the lip of the culvert to the water surface and all other measurements were omitted when the drop exceeded 60 cm. Distance from each data location to the fixed surveying level was measured to allow for elevation comparisons. The condition of the culvert was also evaluated and other potential blockages were identified.

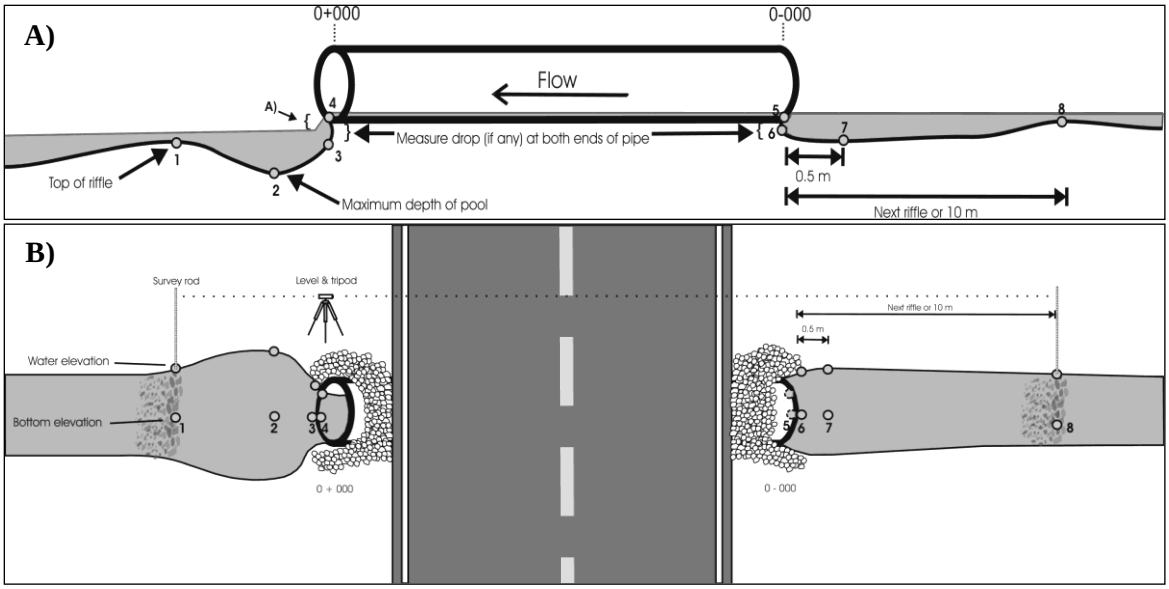

Figure 3: A) Lateral views of culvert assessments measurements' locations. B) Aerial view

During this study, a total of 311 road crossings were identified within the Shediac Bay watershed. In 2007, a total of 100 crossings were visited and 76 culverts were assessed (Figure 4). Most culverts were in good condition (35.14%) meaning that they were not heavily deformed, pierced or collapsed. However, some were heavily rusted (22.97%) or collapsed (14.86%) (Figure 4.). The majority were round (98.7%) constructed of corrugated steel pipes (70.3%) and some were tar covered (8.11%). Smaller sized culverts were occasionally made out of concrete (20.27%) and PVC (1.35%).

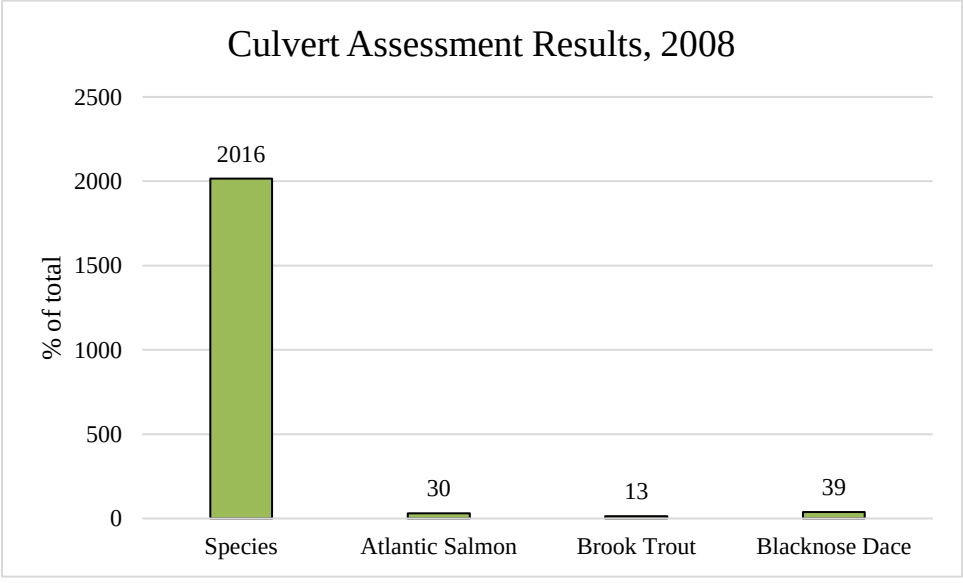

Figure 4: Culvert assessment results 2008

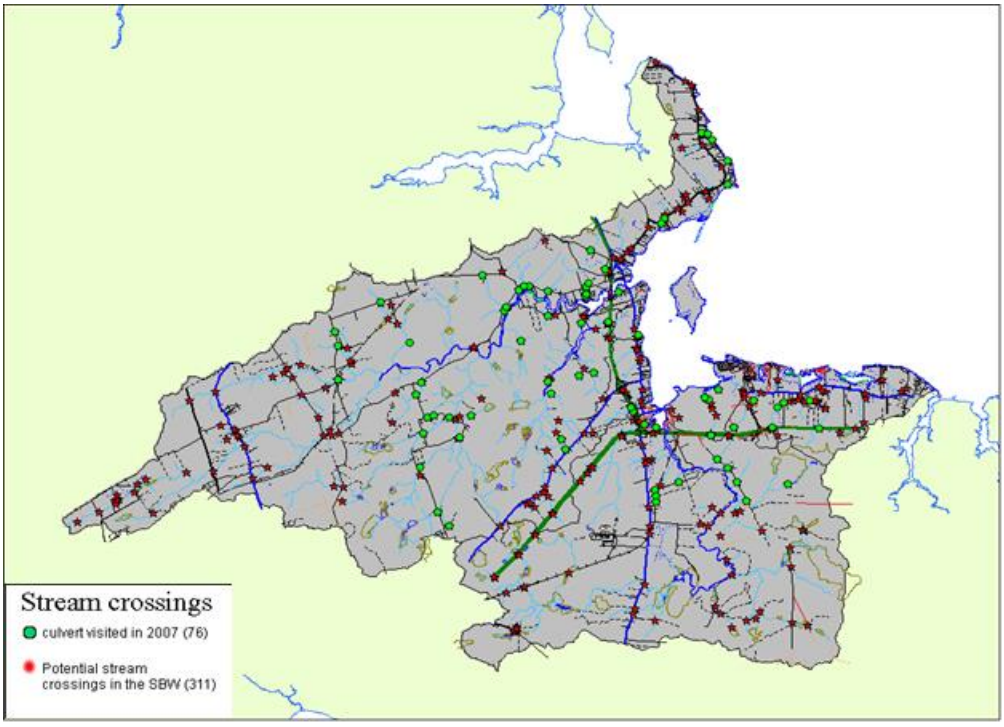

Figure 5: Scoudouc River and Shediac River stream crossings' positions (map produced by DFO)

The study revealed that 25.6% and 30.8% of culverts presented a downstream outfall drop and an upstream drop, respectively. Nine culverts showed a drop at both openings (Figures 5 – 10). Most culverts visited (64.5%) were installed at an adequate slope (<0.5%), however 26.9 % were positioned in an angle exceeding the 0.5% elevation proposed requirement. Other potential blockages for fish and wildlife migration were observed in 36.8% of visited culverts. Most were caused by debris accumulation (wood, silt and rocks) or due to the presence of a trash rack.

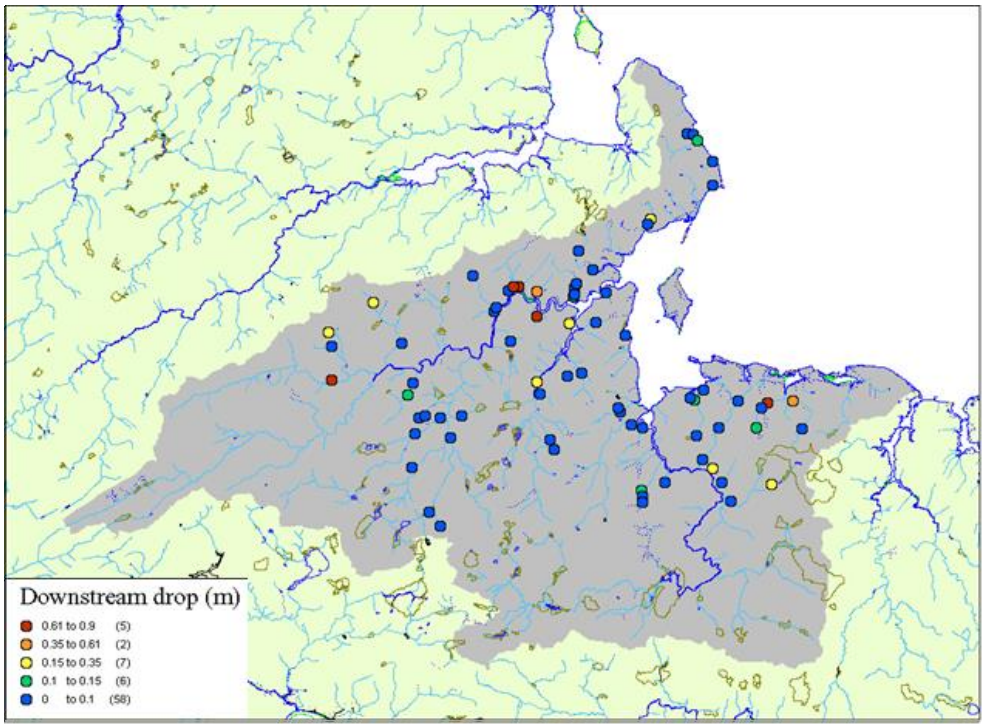

Figure 6: Culverts' classification relatives to the height (m) of the downstream drop. (Map produced by DFO)

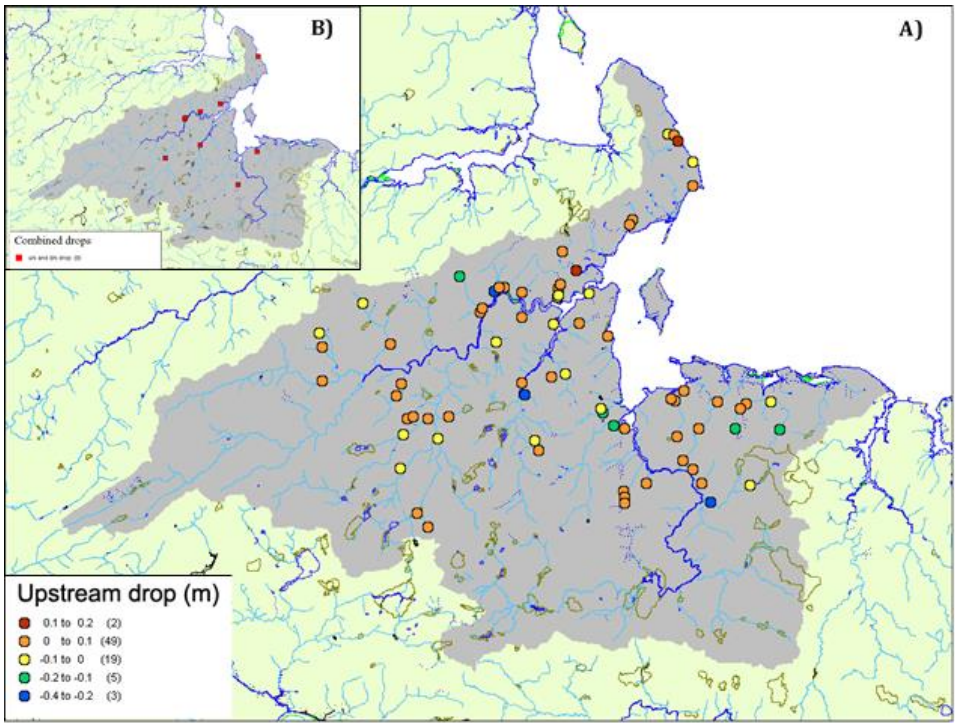

Figure 8: A) Culverts' classification relatives to the height (m) of the upstream drop. B) Culverts presenting both upstream and downstream drops. (Maps produced by DFO)

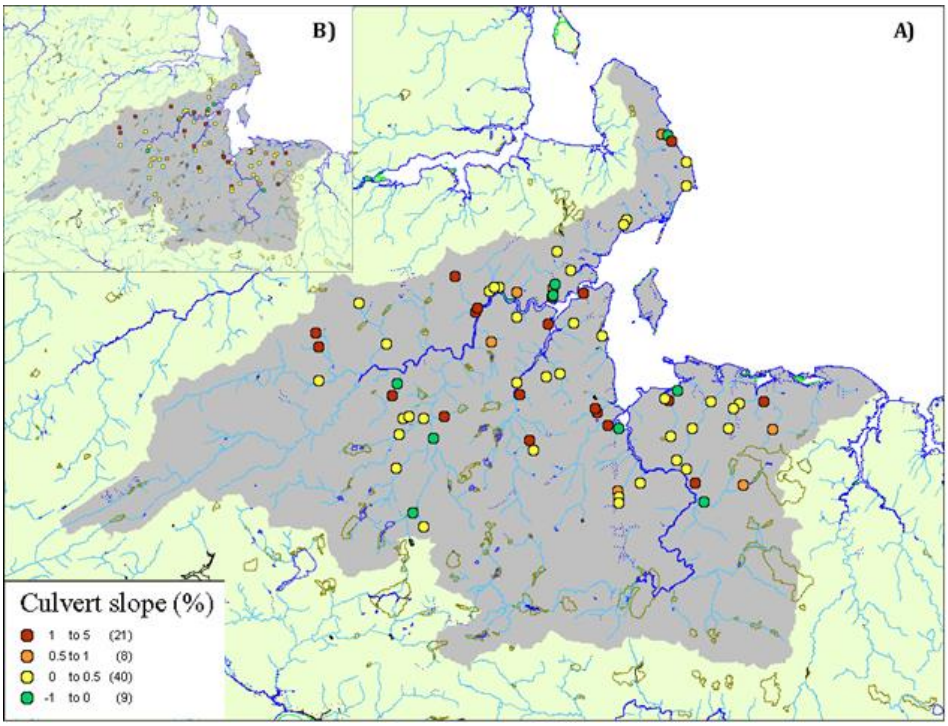

Figure 9: A) Classification relatives to the slope (%) of the culvert and B) classification relatives to the slope (%) of the stream. (map produced by DFO)

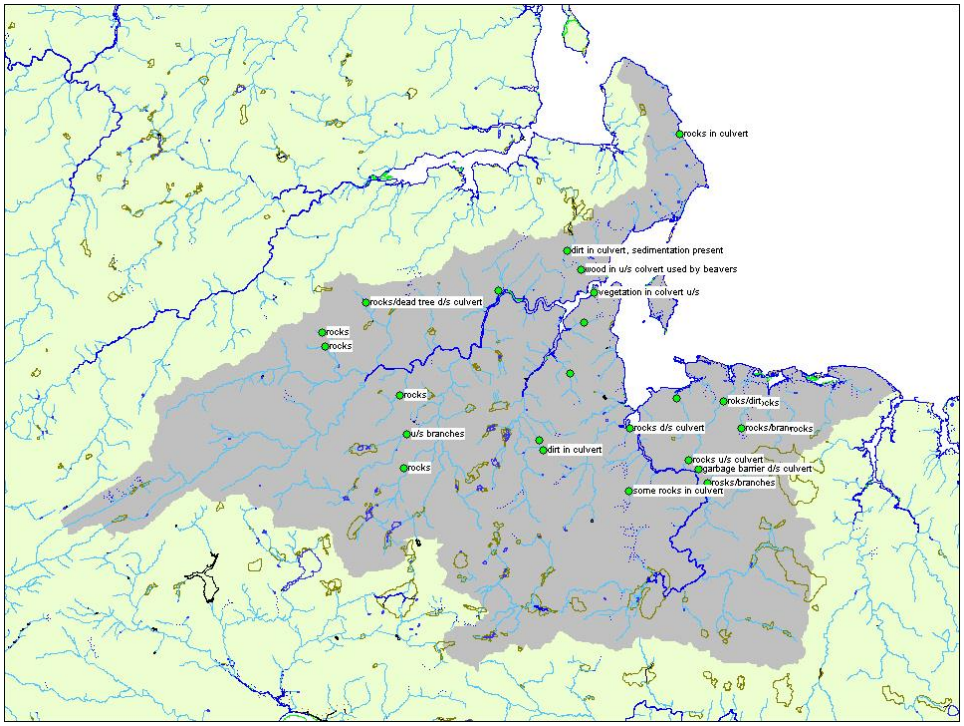

Figure 10: Other potential fish passage barriers in culverts or at culverts' openings (map produced by DFO)

2.5.2 Culvert Assessment 2018

In 2018, the SBWA received funding to reassess culverts in the watershed, a decade after the initial assessment. Staff sought out training from the *Petitcodiac Watershed Alliance* and their culvert assessment protocol "Atlantic Canadian Culvert Assessment Toolkit". The objective of this assessment was to target culverts located in fish bearing streams. The protocol is used to classify these culverts, in terms of fish passage. Categories are "Passable", "Partial Barrier" or "Full Barrier".

Using this assessment method, 35 culverts were re-evaluated (Figure 11). Twenty culverts were evaluated using the full protocol, and 15 were evaluated using the rapid assessment. Seven locations were identified as seasonal streams as they were dry at the time. The protocol is not yet adapted for tidal zones, and this is especially important to note for the Bateman Brook. The results indicated that it is not a barrier for fish migration, when at low tide there is a visible drop.

The results for the 20 crossings that were assessed using the full protocol; 20% were full barriers, 40% were partial barriers and 40 % were passable. The results for the 15 crossings that were rapidly assessed; 7 % were full barriers, none were partial barriers, and 46.5 % were passable.

The results of this assessment will be used to determine a remediation plan for any critical barriers impacting Atlantic salmon. In depth analysis of culvert crossings for each major fish bearing stream will be done in a future phase of this plan.

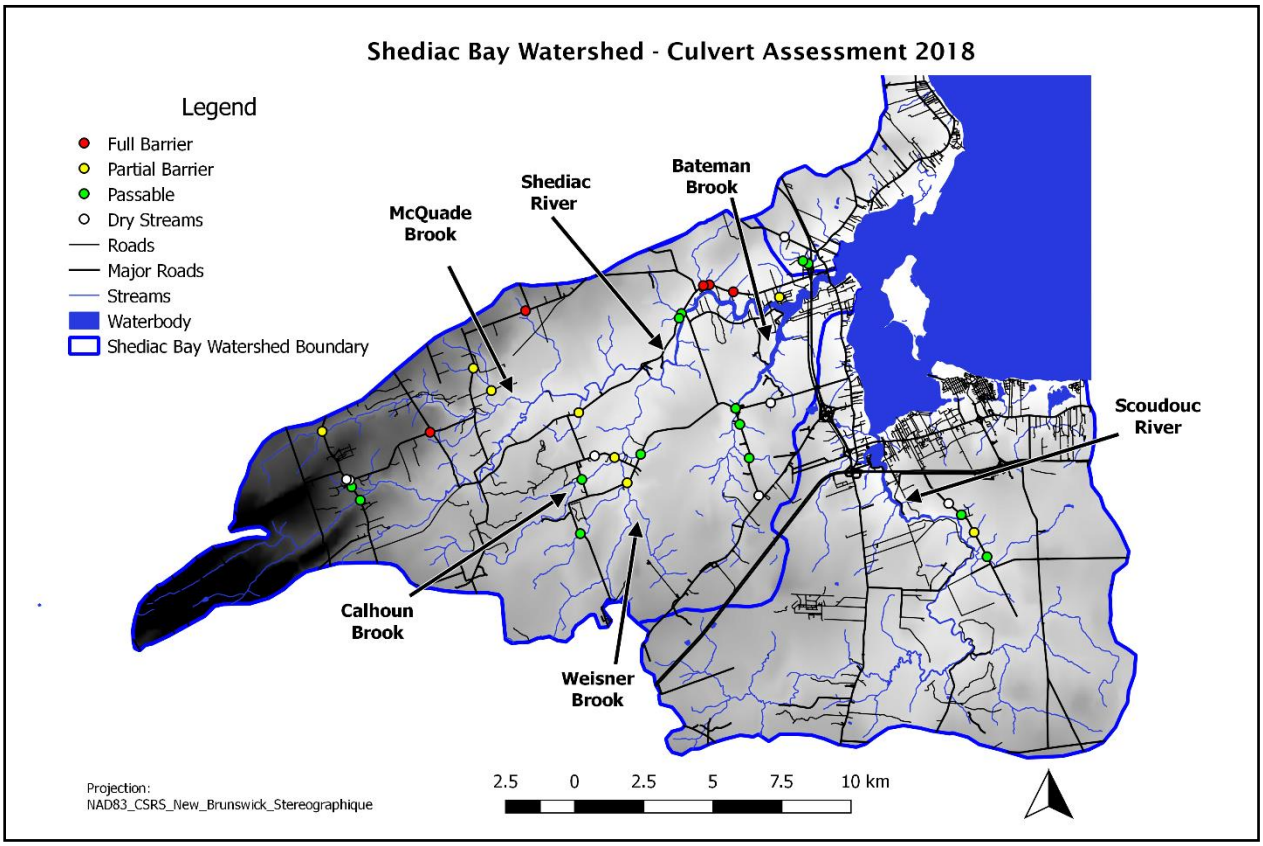

Figure 11: Map Culvert Assessment Results in the Shediac Bay Watershed, 2018

2.6 Land Uses

There are many human activities and usage of the land surrounding watercourses that are capable of impacting water quality and fish habitat integrity. There are many recommendations on good practices for both residential and commercial uses of the land, to minimize the impacts on aquatic life. All too often, poor practices of land management cause the degradation of fish habitat. Common examples of industrial and residential activities causing negative impacts includes, but are not limited to:

- Clear cutting of trees and vegetation in the riparian zones of watercourses, creating the conditions for bank erosion and siltation into streams and increasing water temperatures
- Poor management of sediment runoff originating from agriculture, construction, mineral extraction, etc.
- Discharge of wastewater containing harmful chemicals, pathogens or nutrients impacting water quality

Sedimentation in watercourses can be caused by various human activities. When large quantities of suspended sediments are present in a waterbody, impacts to fish include:

- reduced visibility of surrounding, sources of food and predators,
- impairment of fish's gills,
- erosion of the protective mucus from fish's scales,
- smothering of fish eggs and benthic organisms

Suspended sediments also have to capacity to increase water temperature. The introduction of sediment can also bring other minerals, heavy metals and nutrients naturally present in the soil.

Anthropogenic sources, such as fish plant effluent, municipal wastewater, faulty septic systems, agriculture and land run-off (Jordan, 2000) (Richard & Robichaud, 2002) (Morrissey, Poirier, & Gauvin, 2003), can increase nutrient levels in aquatic ecosystems resulting in excessive algal growth. Excessive amounts of decomposing algae can deplete oxygen levels in the water and produce anoxic conditions.

Table 7 presents a summary of the main issues of concern that were outlined for the Shediac Bay Watershed in the "Ecosystem Overview of the Overview of the Shediac Bay Watershed in New Brunswick" (Turcotte-Lanteigne & Ferguson, 2008). These issues should be taken into consideration in the preparation of an integrated management plan.

For each watercourse reported on in this *Fisheries Management Plan*, the surrounding land uses will be presented using mapping layers sourced from the Department of Natural Resources of New Brunswick. (Contains information licensed under the GeoNB Open Data License). Mapping layers showing forest cover loss were sources from the Global Forest Watch website.
(Credit/source: Hansen/UMD/Google/USGS/NASA, accessed through Global Forest Watch)

Table 7: Summary of main issues of concern for the Shediac Bay Watershed

Threats and impacts	Activity of concern	Details	Major consequences
Water quality stressors			
Introduction of sediment	- Agriculture and farm run-off ATV trails - Dirt roads and ditches	- Access of livestock to watercourse - Trails in proximity to streams and rivers	- Habitat change - Disturbance to aquatic life
Introduction of nutrients	- Municipal and domestic wastewater treatment - Fish processing plant effluent	- Sewage waste improperly or not treated. - Plant effluents improperly processed	- Closing of shellfish beds - Eutrophication of water body
Introduction of pathogens	- Municipal and domestic wastewater treatment - Fish processing plant effluent - Farm run-off	- Sewage waste and effluents improperly or not treated - Access of livestock to watercourse	- Closing of shellfish beds - Health risks
Non-point source pollution	Introduction of organic waste causing algal blooms	- Eutrophication of water body - Mats of decaying organic matter in intertidal zones	Foul smelling gases produced by anoxic conditions
Biota stressors			
Threat to ecosystem biodiversity	Nutrient pollution, infilling of saltmarshes sedimentation threaten coastal habitats	Loss of coastal habitats such as eelgrass, oyster reefs and wetlands	Loss of important and essential habitats for wildlife
Physical changes to the habitat			
Factors contributing to anoxic conditions	Activities that introduce excess nutrients	- Proliferation of algae - Excess of decaying organic matter in intertidal zones	- Eutrophication - Depleted oxygen in water column
Factors contributing to shoreline changes	Sea-level rise, storm surges and coastal development	Coastal erosion and coastal flooding	- Extensive damage to coastal infrastructure and residences - Economic and social concern

****Source: "Ecosystem Overview of the Overview of the Shediac Bay Watershed in New Brunswick" (C. Leblanc, A. Turcotte-Lanteigne et al. 2009)***

2.7 Stream Habitat Assessment

Fish Habitat restoration is a major initiative of the SBWA. In 2008, a Riparian Health Assessment project was performed to identify problems and areas of focus for future conservation and restoration work.

The method for conducting the Riparian Health Assessment followed the protocol developed in conjunction with DFO in 2008. The Riparian Health Assessment protocol used during the 2008 field season has been widely used by agricultural organisations such as the NS Department of Agriculture who adapted it to Maritimes ecosystems. The tool allows for an assessment of physical conditions of riparian zones and field evaluation is facilitated by the use of the *NS Riparian Health Assessment User's Guide 2008*. Reaches characterized by similar habitat are evaluated individually. The assessment is based on a 13-point evaluation process and allows for an instant condition rate value. Most aspects are subjectively evaluated, but a well-trained team can offer a standard assessment. Results are analyzed using GIS software which provides a visual description of riparian health status. A detailed description of the 13 point evaluation process and copies of the *NS Riparian Health Assessment User's Guide* are available online at http://www.extensioncentral.com/eng/images/stories/web/ns%20riparian%20assessment%20manual%202008.pdf. An Aquatic Habitat Assessment is combined with the Riparian Health Assessment to confirm the relationship between riparian and stream health conditions and evaluate the health of the stream in terms of fish habitat.

The information collected included land use details, riparian vegetation composition and density, riparian area width and slope, presence of natural structures such as beaver dams or woody debris jams, and potential sources of sedimentation such as access points and erosion issues. In addition, in-stream substrata was characterised and a quality index was also attributed as part of the assessment. In this case, substrata composition was visually identified and embeddedness measured. The quantity of ligneous material and the presence of deltas and islands was noted as well as physical information such as stream bankfull width, current speed and basic water quality information (temperature, dissolved oxygen, conductivity, pH, *E. coli*, nitrate, and turbidity) for each evaluated reach.

A complete Sanitary Survey was also performed along the Scoudouc River using a basic approach to identify any potential sedimentation and pollution sources that might have a negative impact on water quality or habitat integrity. Man-made structures or physical alterations observed along the shoreline were inspected. All potential point pollution sources (pipe, ditch, dumps, etc.) and non-point (riparian zone alterations) were described and the geographic position and picture were recorded. The potential gravity of a pollution source was also evaluated at the time of the survey. Potential riparian zone alterations (farm lands, clear cuts, cottages, etc.) were recorded and information regarding bank erosion, vegetation status, sedimentation potential and bank slope were gathered. Potential and definite sedimentation sources were identified for further action and remediation plan development (e.g. gullying, landscape scars, ATV crossings, road and bridge washouts, cattle crossings, etc.).

The results of this sanitary survey will be organized for each watercourse assessed in the next phase of this Fisheries Management Plan.

2.8 Environmental DNA

The use of environmental DNA (eDNA) is a tool that is becoming more and more available and affordable. The use of electrofishing for the detection of presence and absence of fish species is costly, and does not come without risk to the employees and to aquatic species. Having the ability to confirm the presence of a species in a watercourse, such as Atlantic salmon, using only a filtration process of a water sample, eliminates those risks. In 2023 the SBWA collected water samples at ten different sites for the analysis of eDNA. The analysis of these samples was performed at the CRI Genomics Lab at UNB Saint John.

3. *Shediac River Results– Data Compilation*

3.1 Main stem of the Shediac River

3.1.1 Characteristics

The Shediac River is divided in two major water arms (Figures 12 & 13). The northern arm is created by the convergence of the McQuade, Weisner and Calhoun Brooks. The McQuade Brook runs through Scotch Settlement, and the Weisner and Calhoun Brooks flow south of the Saint Philippe area. All three named brooks and many other unnamed brooks join to form the northern arm of Shediac River. The southern arm of the Shediac River is the continuation of the Bateman Brook which runs towards Bateman Mills and past Highway 15. The Shediac River tributaries stretch as far as the Irishtown area, cross both the Shediac and Moncton parishes, and meanders through many agricultural, forested and residential areas.

Figure 12: Photo of the Shediac River

Water velocity in this river is weak due to the gentle regional elevation. The landscape is characterized as gently undulating slopes, rising from sea to land reaching an elevation of 560 meters inland, near Lutes Mountain. The Shediac River is characterized by dendritic patterns of small tributaries covering a watershed of 201.8 km2 (Henderson, 1999). The river bottom type is mainly composed of a balanced mixture of bedrock, cobbles, gravel and sand. The substrate along most of the Shediac River is suitable to sustain freshwater mussel populations, such as the Eastern pearlshell mussel (*Margaritifera margaritifera*).

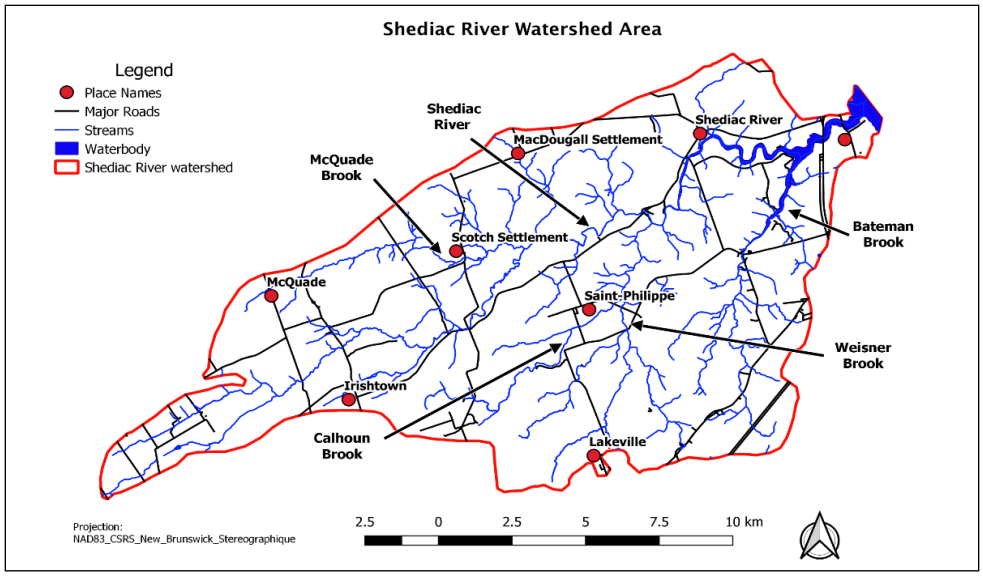

Figure 13: Map of Shediac River Watershed

3.1.2 Water Quality Monitoring Stations

The water quality monitoring sites in the Shediac River were first established in 1999 as part of the *New Brunswick Water Classification* program. Initially, eight sites were monitored (1999-2003). There are now ten sites that are monitored four times per year (Figure 14). The following section provides an overview of the monitoring stations located in the Shediac River watershed. All water quality data pertaining to the Shediac River monitoring stations is included in Appendix A.

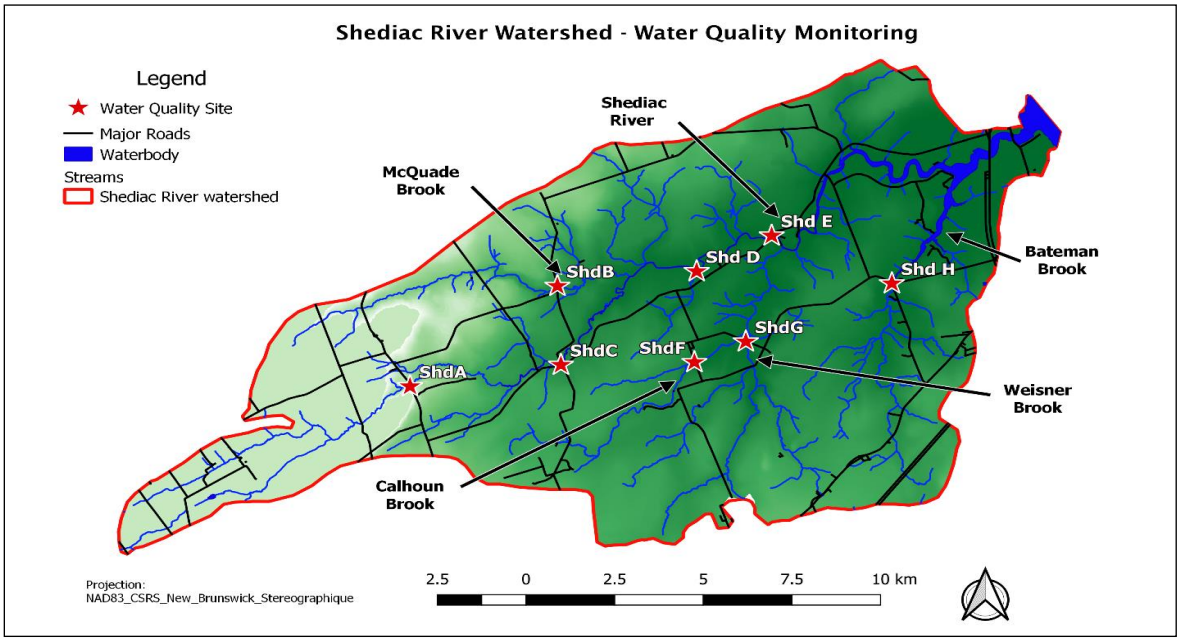

Figure 14: Map of Shediac River Watershed's Water Quality Monitoring Sites

Shediac A (ShdA)

This water quality sampling site is located in the main branch of the Shediac River off Route 115 in Irishtown, between the junctions with Ammon Road and Scotch Settlement Road (Figure 15). The surrounding land use includes residential, active agricultural fields, farmlands containing cattle, a mineral extraction pit and a golf course. It is important to note that there is intense development of new residential sectors and roads upstream of the sampling site (off Route 490).

Figure 15. Site Photos of the Water Quality Monitoring Station ShdA, spring 2018

Shediac C (ShdC)

This water quality sampling site is located in the main branch of the Shediac River, at the bridge on MacLean Crossroad. (Figure 16). The sample is taken upstream of the bridge. The surrounding land use is residential and forested land. There is a history of agriculture in this area. This site is located over 5.3 km downstream of the site ShdA. From aerial imagery, there is evidence of an ATV crossing without a bridge approx. 1.6 km downstream of the site.

Figure 16: Site Photos of the Water Quality Monitoring Station ShdC, spring 2018

Shediac D (ShdD)

This water quality sampling site is located in the main branch of the Shediac River (Figure 17), approximately 7.2 km downstream from ShdC. The surrounding land use includes residences, agriculture, ATV trails with a crossing bridge, forested land, inactive forestry logging lands and logging roads. This site was not sampled from 1999 to 2002, then it was sampled again from 2006 to 2012. It is not currently a regularly sampled site.

Figure 17: Site Photos of the Water Quality Monitoring Station ShdD, summer 2014

Shediac E (ShdE)

This water quality sampling site is located in the main branch of the Shediac River, at the Joshua Gallant Covered Bridge (Figure 18). The sample is taken upstream of the bridge. This site is approximately 3.5 km downstream of the site ShdD. The surrounding land use is mainly residential, forested land, ATV trails, and transmission power lines crossing overhead of the site. In 2018, new blocks of forested land cut by a logging company, just north of the river. Small tributaries surrounding the clear cutting of woodlots could be a vehicle for sediment and other contamination to make its way into the Shediac River.

Figure 18: Site Photos of the Water Quality Monitoring Station ShdE, spring 2018

3.1.3 Temperature Monitoring Stations

The water temperature monitoring stations using temperature loggers in the Shediac River were first established in 2016 as part of salmon conservation efforts by the SBWA. Locations were determined strategically based on habitat characteristics and past temperature recordings. There are currently two temperature monitoring sites in the main stem of the Shediac River: 'T-ShdA' and 'T-ShdE' (Figure 19). The following section provides an overview of temperature fluctuations in relations to the impacts on salmonid populations in the main branch of the Shediac River. The site 'T-ShdB' is located in the McQuade Brook, and is reported on further in this report. The monitoring sites 'T-ShdE-2A' and 'T-ShdM', located in the Weisner Brook, and will also be reported on further in this report.

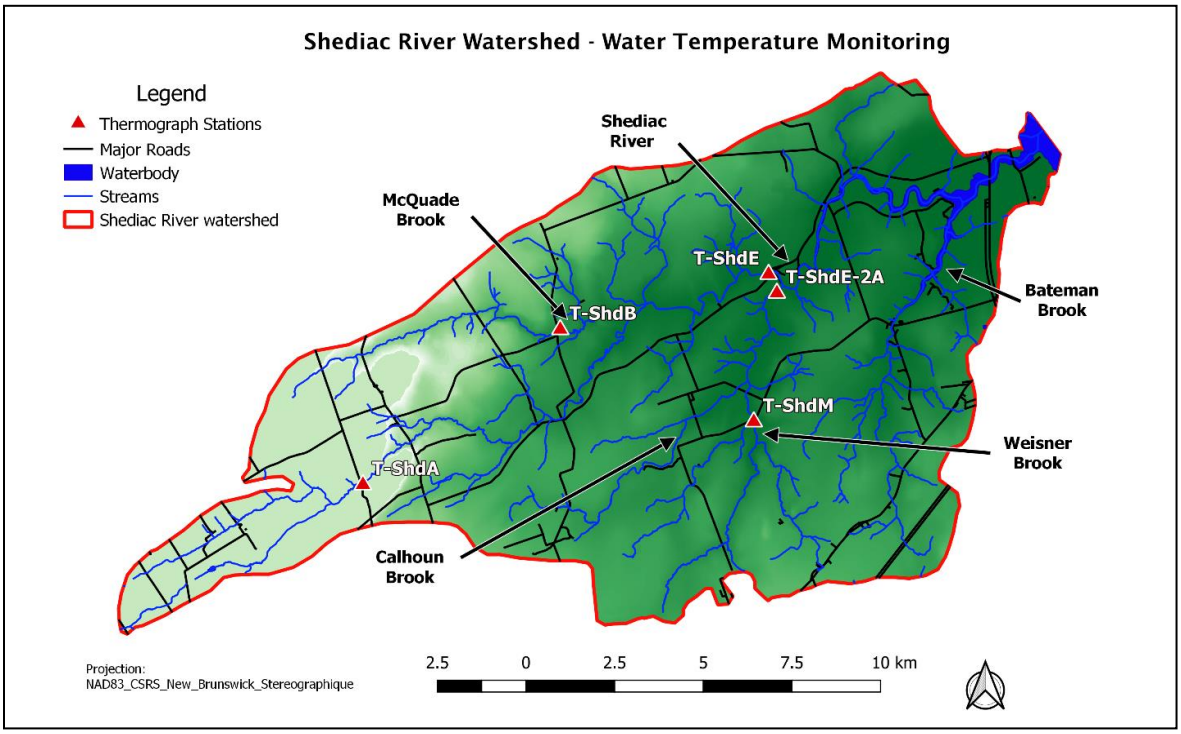

Figure 19: Map of Shediac River Watershed's Water Temperature Monitoring Sites

Thermograph station T-ShdA

This temperature logger is located in the main branch of the Shediac River, in the upper-reaches near Irishtown. The area was predicted to have lower temperatures due to canopy coverage and its narrow channel. However, the logger is placed in the same area where new development of a residential area is currently taking place. This logger is collecting baseline data of current water temperatures (Table 8), and could be used to measure the impact of the deforestation taking place directly next to the site. Gaps in data are due to the loss of temperature logger.

Table 8: Thermograph Station T-ShdA Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2017	July 1st - September 30th	25 (7 consecutively)	1	25.22	17.59
2018	May 29th - September 26th	41 (32 consecutively)	12	26.68	18.1
2020	July 1st - September 30th	36 (24 consecutively)	8	26	18.57
2022	June 1st - September 15th	27 (12 consecutively)	6	26.39	18.94
2023	June 14th – September 7th	26 (25 consecutively)	6	26.20	19.19

Thermograph station T-ShdE

This temperature logger is located in the main branch of the Shediac River, in the mid-lower reaches near the covered bridge. This area was predicted to have warmer waters due to the lack of canopy coverage, and its wide and shallow channel (Table 9).

Table 9: Thermograph Station T-ShdE Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22◦C) (# days)	Thermal lethal limits exceedance (25◦C) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2017	June 1st - September 30th	56 (22 consecutively)	23	29.25	18.72
2018	May 29th - September 26th	63 (48 consecutively)	33	30.05	19.07
2019	June 12th - September 30th	40 (17 consecutively)	12	29.05	17.49
2020	June 3rd - September 30th	61 (33 consecutively)	46	30.46	19.56
2021	June 3rd - September 27th	-	-	21.86	16.08
2022	June 1st - September 14th	53 (25 consecutively)	39	34.90	18.88
2023	June 14th – September 7th	38 (24 consecutively)	22	28.55	19.11

3.1.4 Electrofishing Surveys

Surveys along the Shediac River has identified habitat characteristics suitable for spawning and rearing of early life stage Atlantic salmon and brook trout. Historical data and recent electrofishing data has confirmed that there is good habitat for salmonid populations (Table 10) (Maillet, 1996). The only surveys performed in the main branch of the Shediac River were in 2006. Since 2014, primarily the Weisner Brook and McQuade Brook have been assessed (Figure 20). In 2022, a new site was surveyed on the Weisner Brook (EShdM-03).

Table 10: Physical characteristics of the Shediac River

Physical characteristics	Main Shediac River (20.1 km)
Rearing area	153 724.7 m^2
Riffle area	26 123 m^2
Pool area	15 002 m^2
Run area	112 482 m^2
Ledge bottom stretches	118 m^2

*Maillet (1996), *"Ecosystem Overview of the Overview of the Shediac Bay Watershed in New Brunswick"*

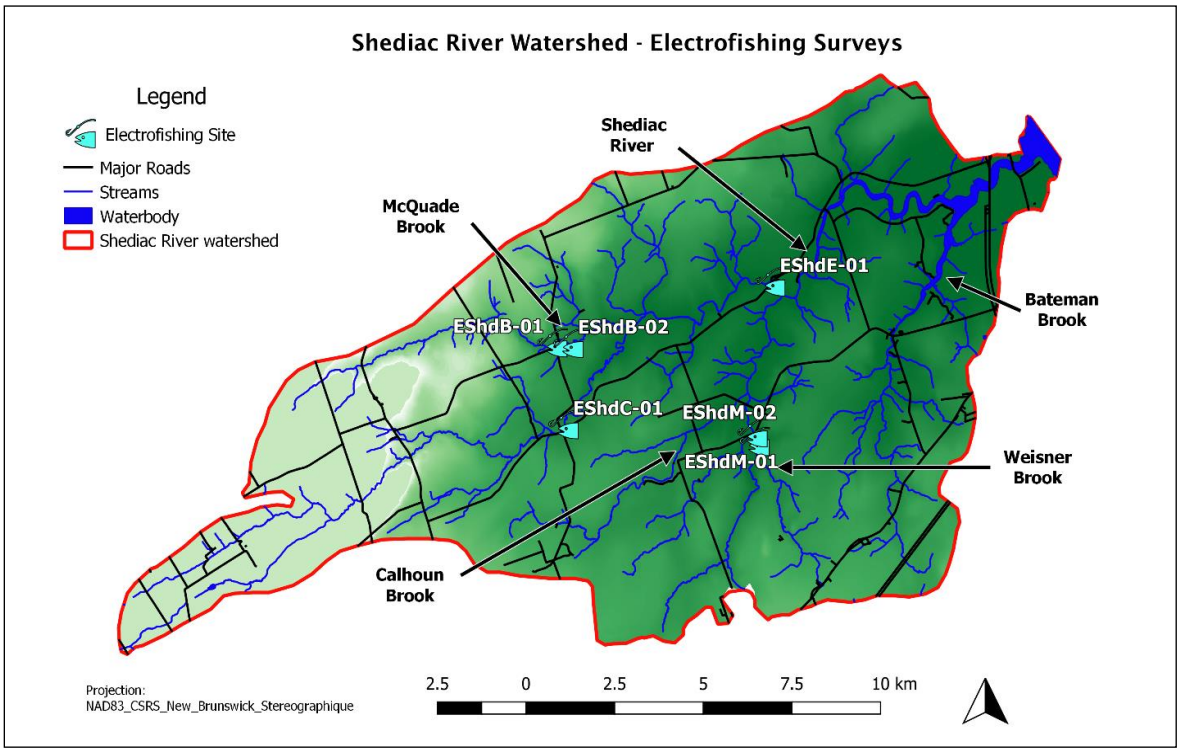

Figure 20: Map of Shediac River Watershed's Water Electrofishing Sites

Electrofishing Site Evangeline/Covered Bridge (EShdE-01)

This site is located in the main branch of the Shediac River, at the covered bridge in Evangeline. This site was surveyed only once in 2006 as part of the freshwater mussel inventory project. It was done using a single pass protocol; seven Atlantic salmon and one brook trout were caught, suggesting suitable habitat is present (Figure 21).

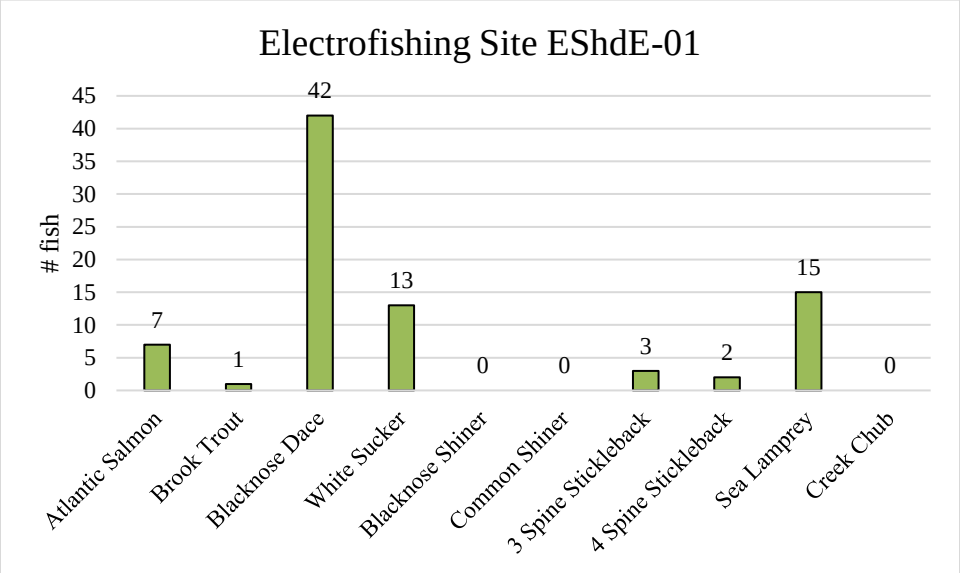

Figure 21: Electrofishing data chart for site EshdE-01, Shediac River 2006

Electrofishing Site Cape Breton (EShdC-01)

This site is located in the main branch of the Shediac River, downstream of the bridge between Cape Breton Road and MacLean Crossroad (Figure 22). This site was surveyed only once in 2006 as part of the freshwater mussel inventory project. It was done using a single pass protocol; ten Atlantic salmon and four brook trout were caught, suggesting suitable habitat is present (Figure 23).

Figure 22: Photo of the Shediac River in the Cape Breton area, survey performed downstream of bridge

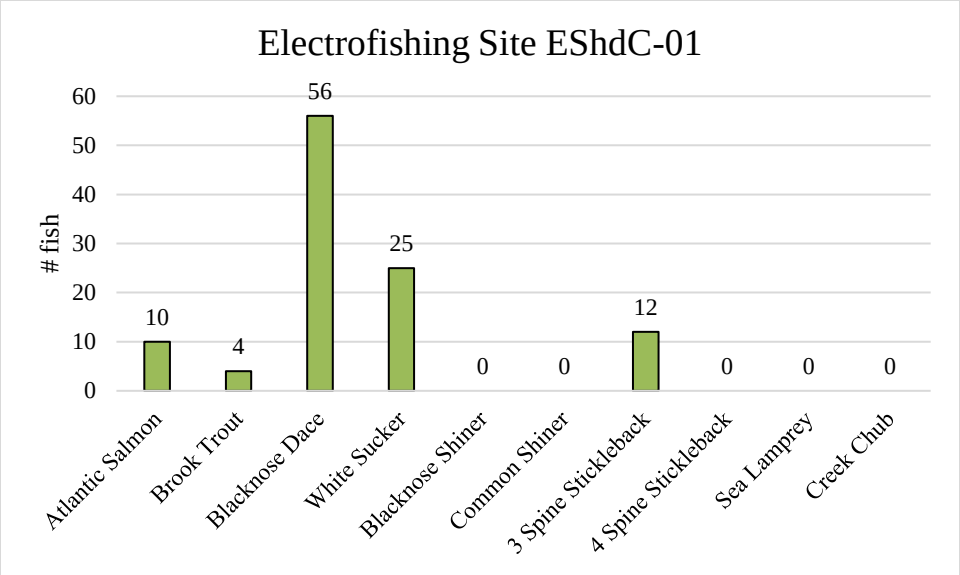

Figure 23: Electrofishing data chart for site EshdC-01, Shediac River 2006

Electrofishing Site Cap Breton II (EShdC-02)

This site is located further upstream in the main branch of the Shediac River. It is located across from Jardins St, a new housing development. This site was surveyed for the first time in 2022 as partnership project with the Atlantic Salmon Conservation Foundation. The Catch per Unit Effort method was used for this electrofishing survey. A total of four Atlantic salmon were caught during the survey (Figure 24 & 25).

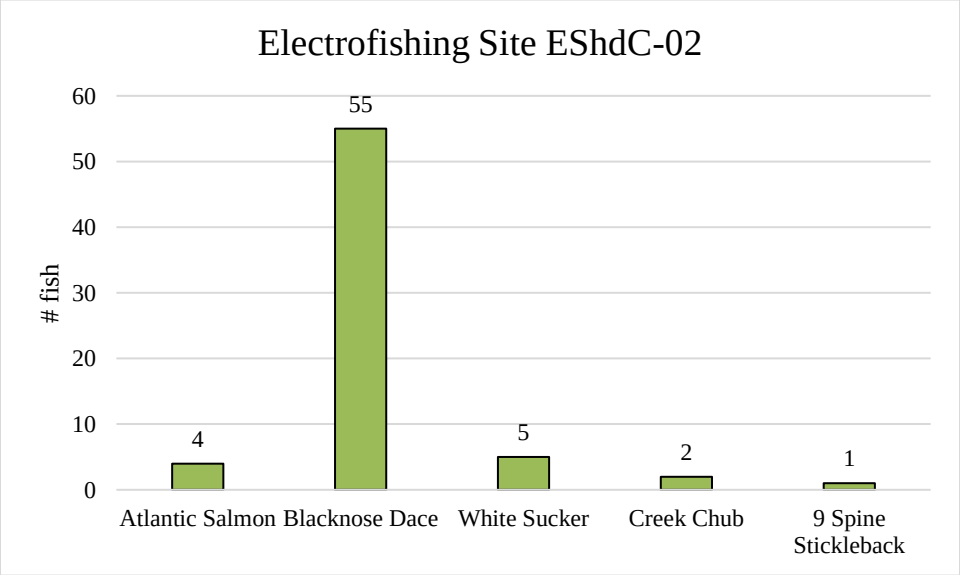

Figure 24: Electrofishing chart for site EshdC-02, Shediac River 2022

Figure 25: Atlantic salmon caught at electrofishing site EShdC-02, Shediac River 2022.

3.1.5 Redd Count Surveys

The SBWA conducted a redd count survey for the first time in the fall of 2017. The location was in the higher reaches of the Shediac River, off Cape Breton Road near Irishtown (Figure 26). A snowmobile trail was used as an access path to the river, and the survey began directly above the small crossing bridge, travelling upstream. This site has been identified with the code RD-ShdA-01. This site was chosen based on the substrate characteristics of clean gravel, rubble and sand. This location was suspected to be suitable spawning ground for Atlantic salmon.

A total of 14 possible salmon redds were found within the 600 m survey. This survey confirms that this section of the river is in fact suitable spawning habitat.

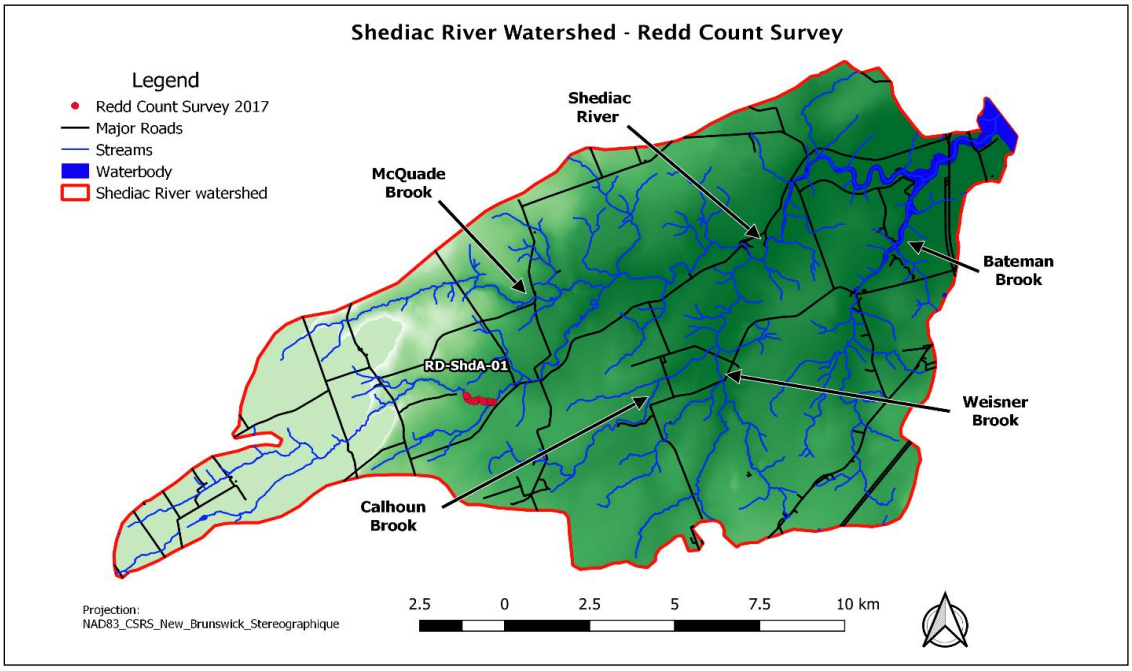

Figure 26: Map of Shediac River Watershed's Redd Count Survey Site

3.1.6 Culvert Assessments

The stream crossing inventory was conducted in 2007 to evaluate possible impediments to fish passage throughout the watershed. Please refer to section 2.5.1 of this report, or the project report "Stream Crossing Inventory and Assessment, 2008"in 'Reports and Archives' on the SBWA website for a more detailed description of the results. A map was recreated for clearer view of the Shediac River watershed for this report (Figure 27).

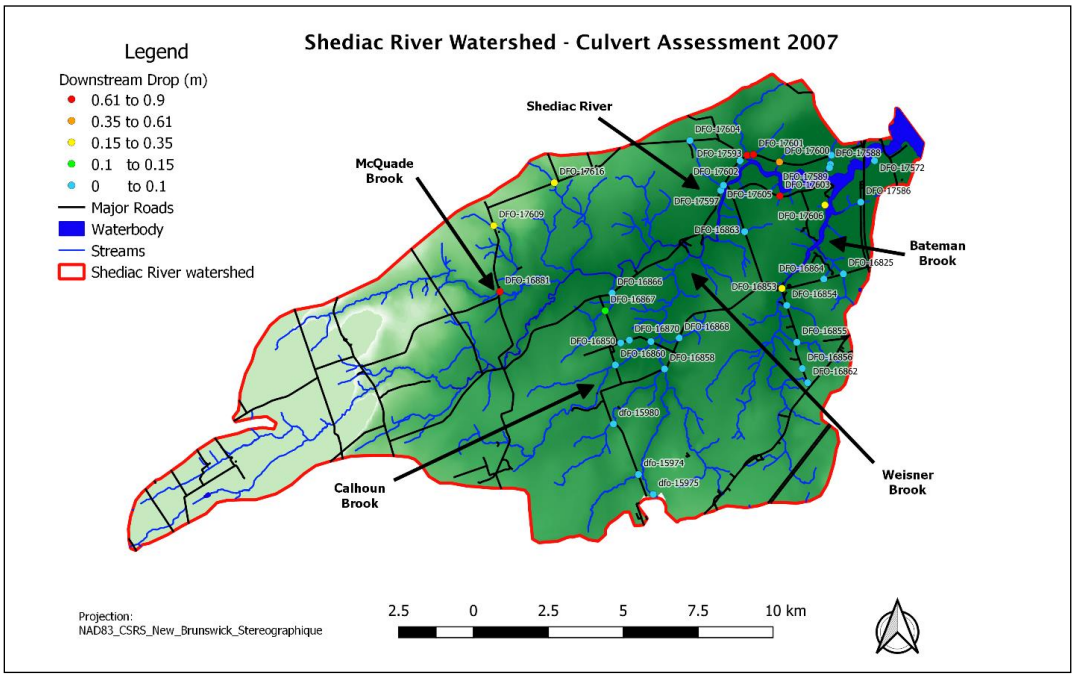

Figure 27: Map of culvert assessment classification results of the Shediac River watershed, 2007

In 2018, the culvert assessments were conducted on smaller tributaries as they join the main branch, due to the fact that the lower Shediac River is mostly crossed by bridges. Of the 12 culverts assessed, five were determined to have full barriers, one was a partial barrier and four were passable (Figure 28) (Table 11 & 12). Two culverts crossed streams that were dry during the site visits. For more information on this culvert assessment (field measurements, culvert photos, assessment protocol, etc.), please refer to the report "Salmonid Habitat Evaluation, Restoration and Education for the Shediac Bay Watershed, 2018" in the 'Reports and Archives' section on the SBWA website.

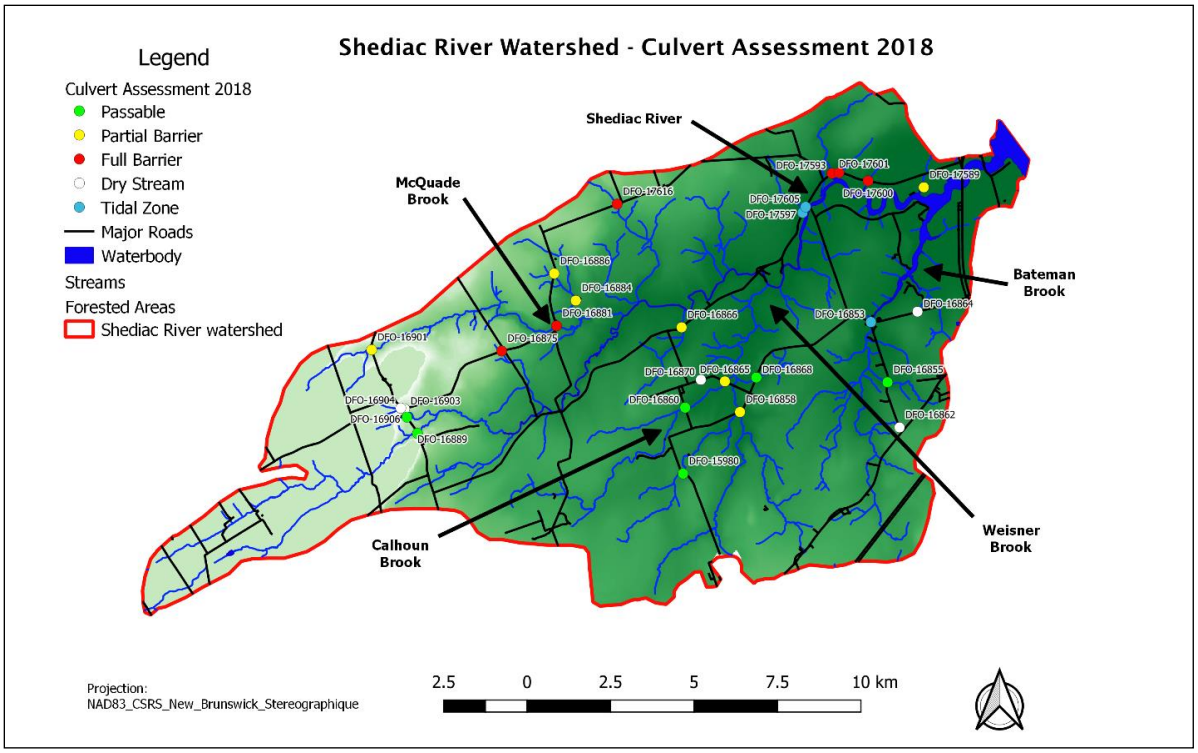

Figure 28: Map of culvert assessment classification results of the Shediac River watershed, 2018

Table 11: Culvert Assessment Summary Results for Shediac River, 2018

Culvert ID	Stream	Stream Type	Available habitats (km)	Culvert slope (%)	Outflow drop (m)	Classification
DFO-16866	Shediac River tributary	Non-tidal	1.11	1.55	0.1	Partial barrier
DFO-17616	Shediac River tributary	Non-tidal	3.15	0.30	0.6	Full barrier
DFO-16853	Bateman Brook	Tidal*	18.96	0.19	-0.8	Unknown*
DFO-16858	Weisner Brook	Non-tidal	0.86	-0.94	-0.13	Partial barrier
DFO-16868	Weisner Brook tributary	Non-tidal	2.88	0.33	-0.16	Passable
DFO-15974	Weisner Brook	Non-tidal	3.22	-1.19 and -0.86	-	Passable
DFO-15980	Weisner Brook	Non-tidal	5.86	-0.49, 0.20- and -0.83	0.19, -0.01 and 0.16	Full, Passable, Full
DFO-16860	Calhoun Brook	Non-tidal	10	-0.19	-0.36	Passable
DFO-16865	Calhoun Brook	Non-tidal	1.68	1.71	-0.74	Partial barrier
DFO-17589	Shediac tributary	Tidal*	1.97	2.85	0.08	Unknown*

DFO-17593	Shediac tributary	Tidal*	3.08	-0.26	0.30	Full barrier
DFO-17597	Shediac tributary	Tidal*	0.75	0.99	0	Unknown*
DFO-17600	Shediac tributary	Tidal*	0.79	6.23	0.30	Full barrier
DFO-17601	Shediac tributary	Tidal*	1.48	1.51	0.72	Full barrier
DFO-17605	Shediac tributary	Tidal*	2.23	0.27	0	Unknown*

*Protocol not adapted for tidal sites, to be reassessed

Table 12: Rapid Assessment Summary Results for Shediac River, 2018

Culvert ID	Stream	Stream Type	Classification
DFO-16889	Shediac River main branch	Non-tidal	Passable
DFO-16903	Shediac River tributary	Seasonal	Dry
DFO-16904	Shediac River tributary	Seasonal	Dry
DFO-16906	Shediac River tributary	Seasonal	Passable
DFO-17580	Ruisseau Albert-Gallant	Non-tidal	Passable
DFO-17581	Ruisseau Albert-Gallant	Seasonal	Dry
DFO-17582	Ruisseau Albert-Gallant	Tidal*	Unknown*
DFO-16854	Batemans Brook tributary	Non-tidal	Passable
DFO-16855	Batemans Brook tributary	Non-tidal	Passable
DFO-16862	Batemans Brook tributary	Seasonal	Dry
DFO-16864	Batemans Brook tributary	Seasonal	Dry
DFO-16870	Weisner Brook tributary	Seasonal	Dry

*Protocol not adapted for tidal sites, to be reassessed.

3.1.7 Land Uses Around the Shediac River

There are many human activities and usage of the land surrounding watercourses that are capable of impacting water quality and fish habitat integrity. The surrounding land use of the Shediac River includes:

- Residential sectors,
- Agriculture and cattle pastures,
- Apple orchard
- Golf Course
- ATV trails and crossings
- Dirt roads/logging roads
- Forestry exploitations
- Mineral extraction pits
- Transmission powerlines crossing
- Natural gas pipeline crossing

In the next phase of this report, the shoreline sanitary survey carried out by the Southeastern Anglers Association, and other stream habitat and riparian zone assessments done by the SBWA, will be compiled and reported. These assessment results will discuss the impacts of these surrounding land uses on the river (Figures 29 – 31). Future recommendations for actions and partnerships will be examined along with these results.

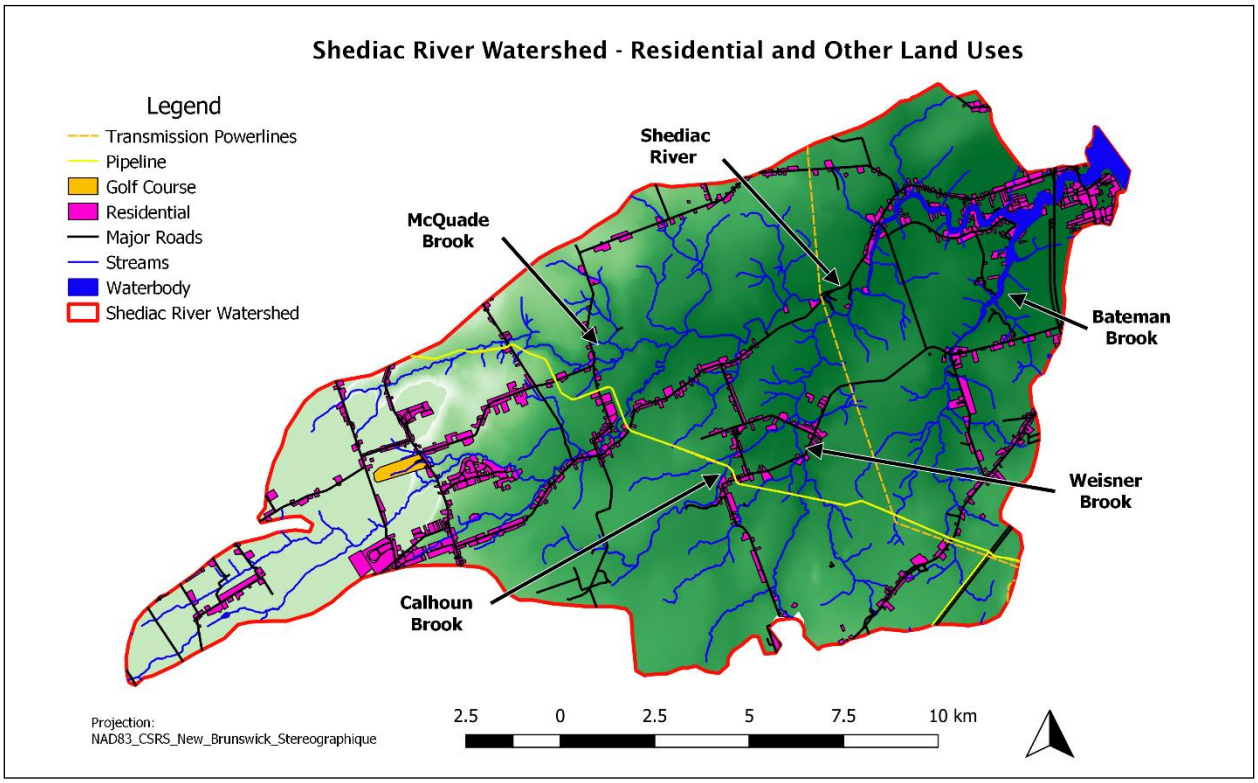

Figure 29: Map of Shediac River Watershed's Residential and Other Land Uses

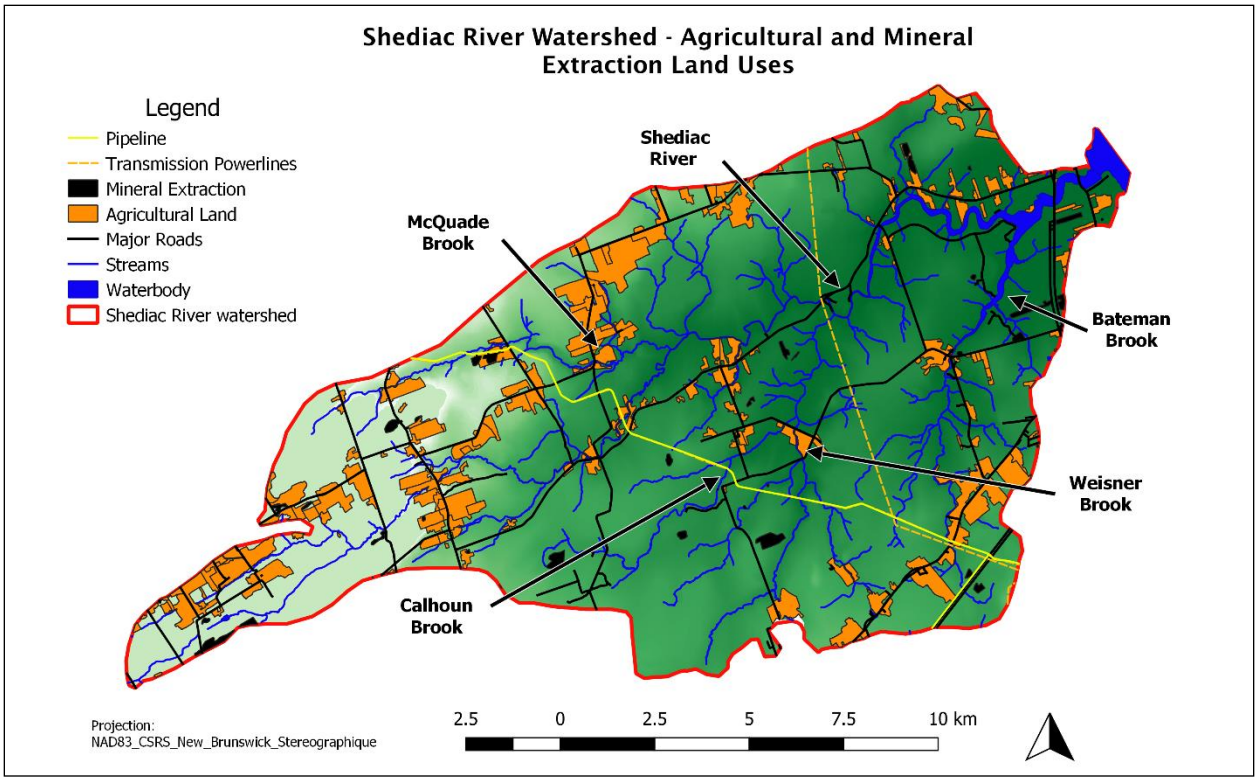

Figure 30: Map of Shediac River Watershed's Agricultural and Mineral Extraction Land Uses

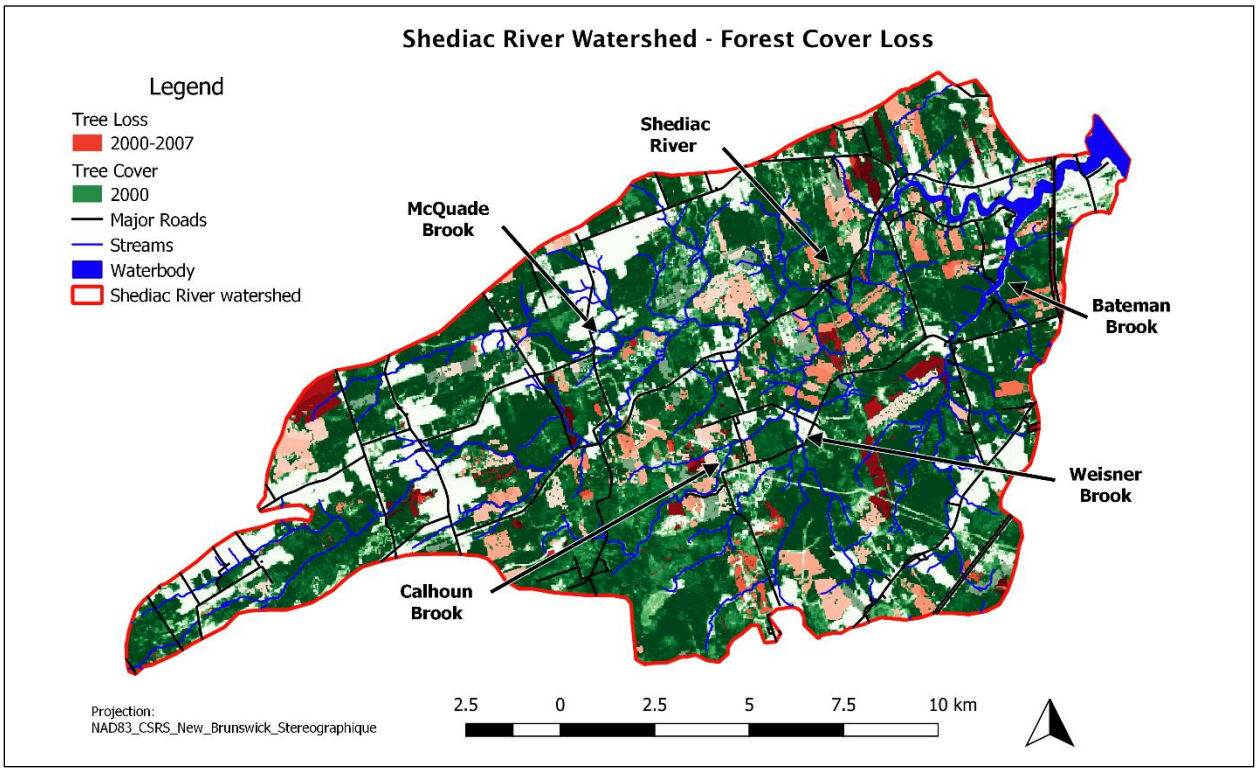

Figure 31: Map of Shediac River Watershed's Forest Cover Loss to Industry and Other Development

3.1.8 Restoration Actions in the Shediac River

The first restoration project that took place in the main branch of the Shediac River was in the early years of the Association. In 1999, a partnership was formed with the *Kenneth Kelly Farm* in Irishtown, to help install a cattle fence in the upper region of the Shediac River (Figure 32). The project was designed to restrict livestock access to the river, to help reduce sedimentation and coliform contamination. There is one designated crossing area for the cattle (Figure 33). Trees were also planted to increase the integrity of the riverbank along the watercourse (Figure 34 & 35).

Figure 32: Cattle fence work

Figure 33: Photo downstream of farm in 2018

Figure 34: Designated cattle crossing

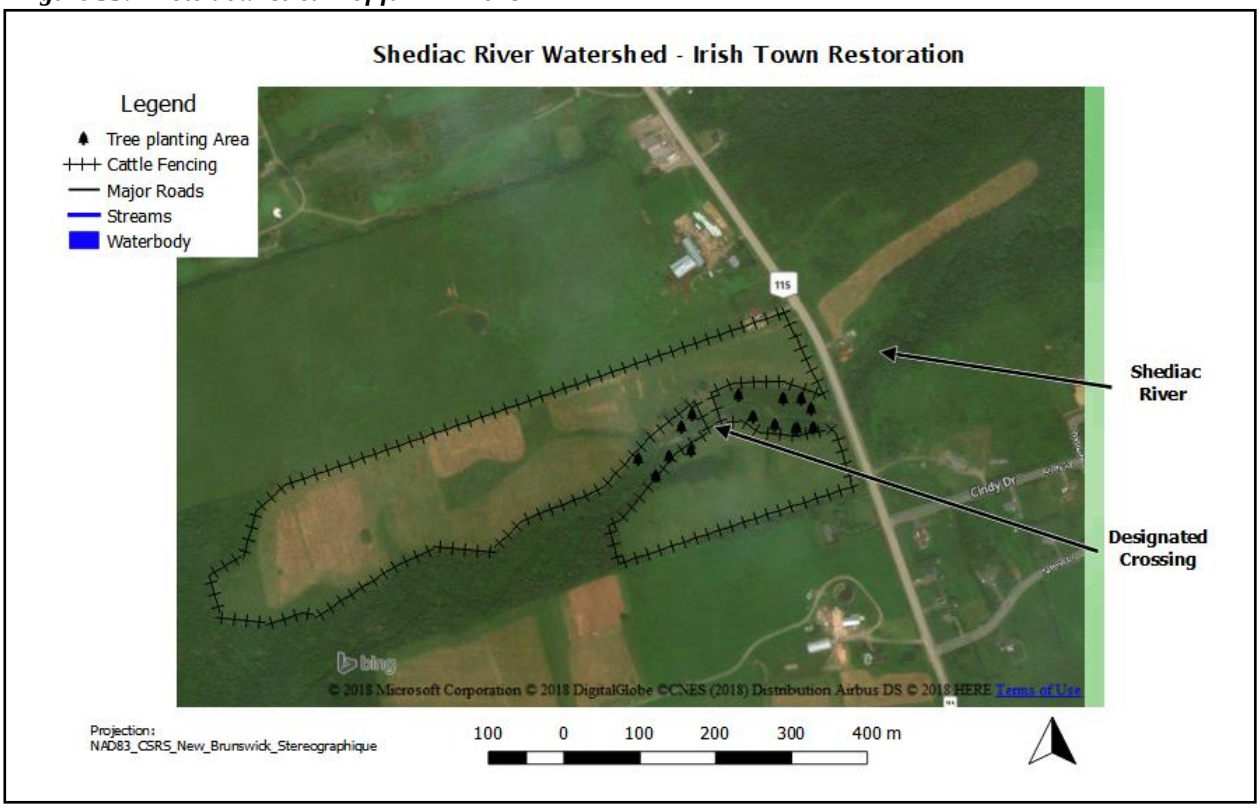

Figure 35: Map of Irish Town Restoration Project 1999-2000

3.1.9 Shediac River Debris Jam Removal

In 2023 two restoration projects took place along the Shediac River. The first was in the Cape Breton area, where a large tree had fallen over the river. Over the years debris has piled up at this site from upstream, creating an area of restricted flow (Figure 36). Using power saws and manual hand tools this debris jam was cleared in September 2023 (Figure 37). More than ten kilometers of upstream habitat was opened.

Figure 36: Debris jam before removal.

Figure 37: Debris jam after removal.

3.1.10 ATV River Crossing Restoration

The second large project of 2023 was the blocking of three ATV river crossings on the Shediac River near Evangeline (Figure 38). One of these crossings was blocked using large trees and staked hay bales to create a sediment catch in areas with exposed soil (Figure 39). The other two crossings were blocked using a combination of metal cables, large trees and more rows of haybales.

Figure 38: Location of ATV river crossing restoration site.

Figure 39: Large trees and stakes haybales were placed to prevent ATV's from entering the river.

In total 40 native trees were planted on site, including spruce, maples (Figure 40). We had several volunteers from the United ATV Club join us to help make quick work of this project.

Figure 40: Maple and spruce were planted in three areas at the site.

3.1.11 eDNA Sampling

Two sites were sampled on the main branch of the Shediac River in 2023 (Figure 41). These were both collected from the Cape Breton area near the debris jam the SBWA worked to clear in the fall. Results from sampling will be added to this report when they become available.

Figure 41: eDNA sampling locations on the Shediac River.

3.1.12 Future Recommendations

The purpose of this Fisheries Management Plan is to identify information gaps and determine future recommendations to guide the SBWA's future project endeavours. The following presents a list of these recommendations for the Shediac River watershed, and will be continuously updated as this strategic plan evolves.

Stewardship

- Identify foresters having a possible effect on the Shediac River.
- Establish communication and engage the participation towards better land management with these foresters.
- Educate to encourage a better sense of stewardship towards the Shediac River.
- Approach riverfront landowners to educate about maintaining a better buffer zone (reduce lawn mowing to close to river).
- Form partnerships with riverfront landowners suffering from erosion problems to stabilize banks using biotechnical materials.
- Continue partnership with local ATV clubs to educate members on fish habitat protection, impacts of in-stream vehicle crossing, and sediment runoff from trails.
- Promote better maintenance of dirt roads to reduce sediment runoff impacting the river and its tributaries.
- Form partnership with local farmers to enhance buffer zone and manage their surface runoff.

Data Gaps and Actions

- Compile stream assessment data for the Shediac River, then identify actions to remediate problems.
- Continue fish population surveys using a standardized electrofishing protocol, to include larger reaches of the watershed.
- Re-evaluate past electrofishing survey sites.
- Continue Redd Count surveys in the Shediac River to identify other spawning habitat.
- Continue restoration work/maintenance, protection and education around Edna's pond.
- Identify new locations requiring buffer zone enhancements
- Continue buffer zone enhancements in existing known problematic locations
- Promote better forestry practices in the riparian areas of the Shediac River and its tributaries
- Continue water quality monitoring to make sure measured parameters stay within the CWQG for the protection of aquatic life
- Consult with experts on water chemistry in relations to the specific health of salmonids.
- Continue water temperature monitoring and form partnership with universities and/or governmental agencies to better understand the impacts of climate change on fish populations.
- Identify fish passage barriers that can be remediated within the Association's capacity.
- Investigate abandoned dump sites possibly affecting water quality.

4. *Weisner Brook Results – Data Compilation*

4.1 Weisner Brook Sub-Watershed

4.1.1 Characteristics

The Weisner Brook is a Tributary of the Shediac River consisting of approximately 54 km^2 of drainage area that feeds into the brook (Figure 42). The Weisner Brook and its tributaries run through the Saint-Philippe area and to the edge of Irish Town and Lakeville. The longest reach of the Weisner brook is approximately 14.5 km. A defining characteristic of this brook is the cold-water temperatures, in comparison to the rest of the Shediac River system. This is due to long stretches of forested riparian habitats and cold springs inputs into the tributaries. The Weisner Brook is recognized by the Department of Natural Resources as a "summer resting refuge for mature trout" due to the cooler temperatures.

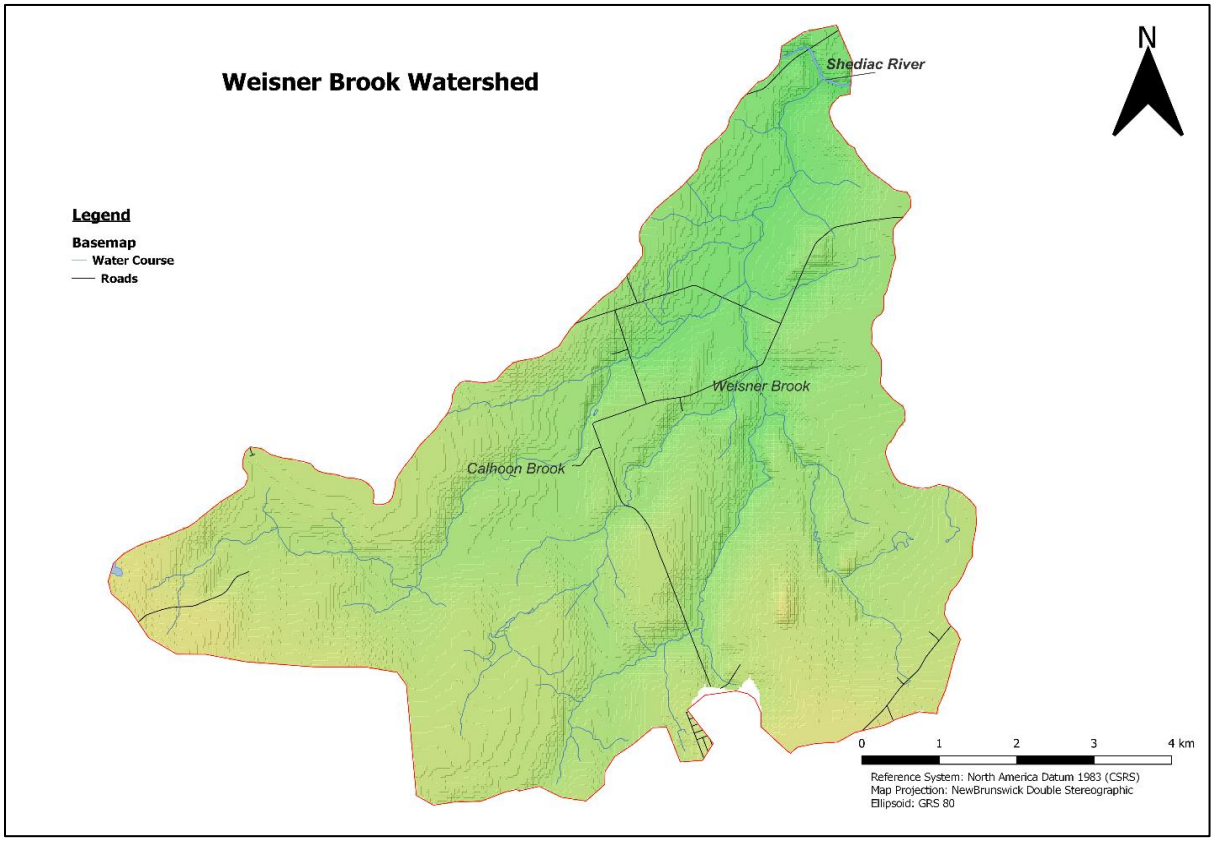

Figure 42: Map of Weisner Brook Watershed

4.1.2 Water Quality Monitoring Station

The water quality monitoring sites in the Weisner Brook were first established in 1999 as part of the New Brunswick Water Classification program. The following section provides an overview of the monitoring stations located in the Shediac River watershed (Figure 43). All water quality data pertaining to the Shediac River monitoring stations is included in Appendix

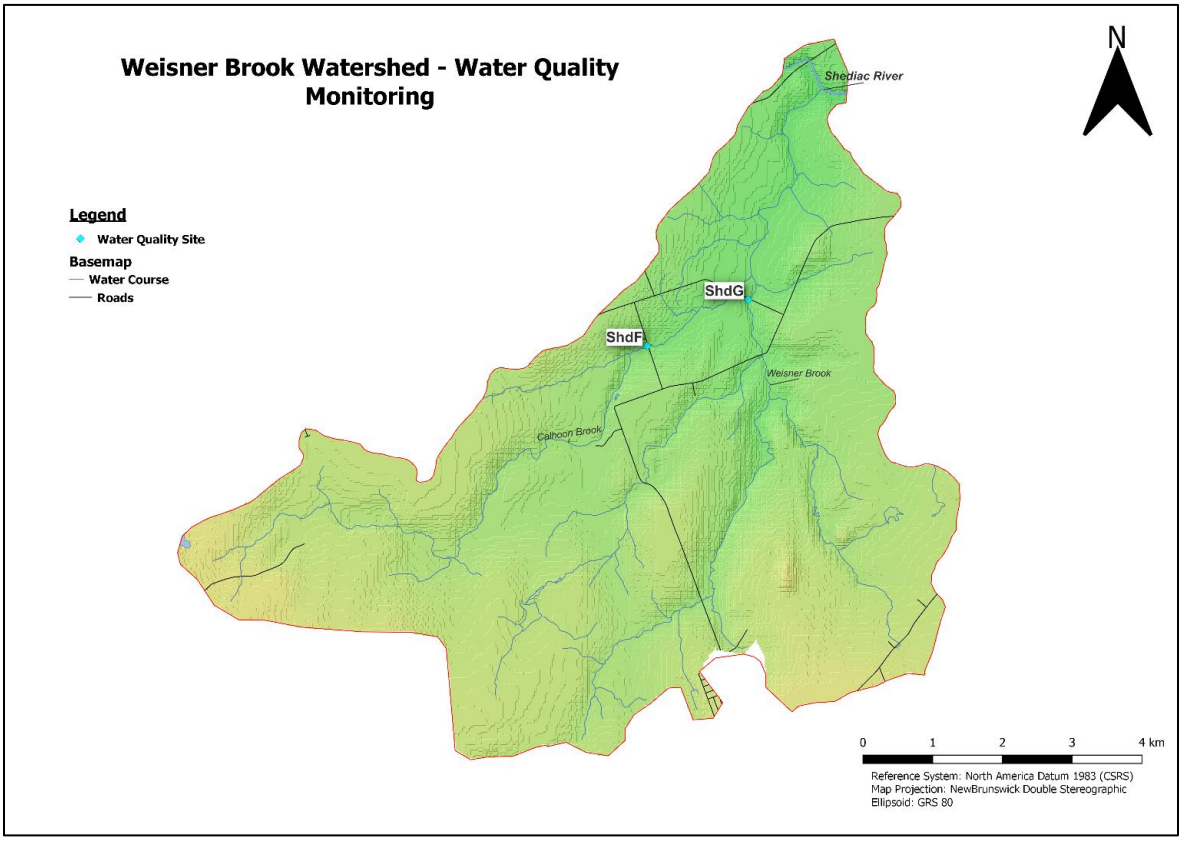

Figure 43: Map of Weisner Brook Watershed's Water Quality Monitoring Sites

Shediac G (ShdG) – Weisner Brook

This water quality sampling site is located off St Philippe Rd. (half a kilometer after turning right off Bateman Mill Rd). The sample is taken upstream of the bridge (Figure 44). The surrounding land uses includes mostly agricultural fields and forest. In addition, the Department of Fisheries and Oceans Canada has placed a variation order (GVO-2004-004) on this watercourse that prohibits any retention of brook trout (catch and release only, bag limit 0 at all times) within the "Weisner Brook from its confluence with the Shediac River upstream to its source, including all tributaries."

Figure 44: Site Photos of the Water Quality Monitoring Station ShdG, 2020

Shediac F (ShdF) – Calhoun Brook

This quality sampling site is located in the Calhoun Brook, off the Weisner Road. The site is located off the Weisner Rd (Figure 45). Composed of mostly of agricultural field and forest, surrounding land is very similar to ShdG. There are some forestry activities and ATV trails in the vicinity. This site has not been sampled since 2012.

Figure 45: Site Photos of the Water Quality Monitoring Station ShdF, 2017

4.1.3 Temperature Monitoring Stations

The first water temperature monitoring station in the Wiesner Brook was established in 2016 as part of the salmon conservation efforts of the SBWA. In 2018, a second temperature monitoring station was established further downstream. The first temperature logger (T-ShdM) is installed about a one kilometer upstream from the water quality site (ShdG) on Bateman Mill Rd. The second temperature logger (T-ShdE-2A) is installed approximately 300 metres upstream from the convergence with the Shediac River. This site is located approximately five kilometres downstream from the other Weisner brook temperature logger (T-ShdM) (Figure 46). The following section provides an overview of temperature fluctuations in relations to the impacts on salmonid populations in the McQuade Brook.

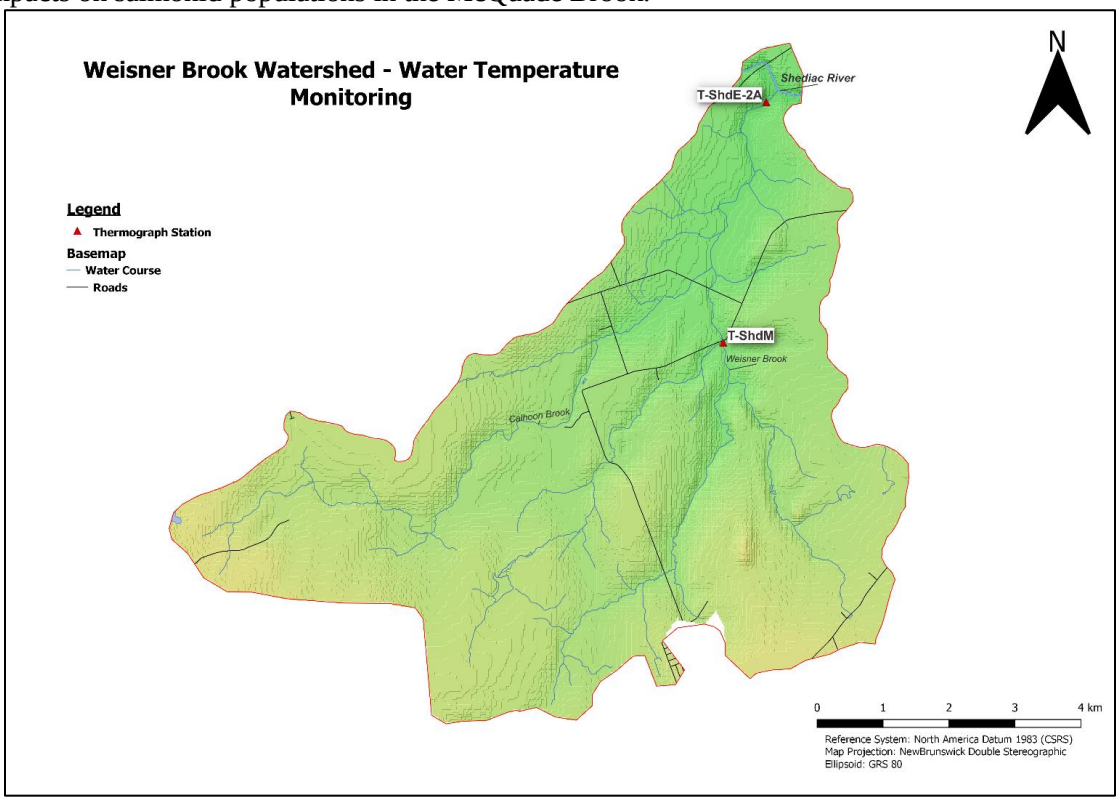

Figure 46: Map of Weisner Brook Watershed's Water Temperature Monitoring Sites

Thermograph station T-ShdM

This temperature logger is placed in the stream where there is excellent tree coverage and undeveloped forested lands along the majority of the brook. It also has many inputs of cold water from natural underground springs. These conditions of shade from the forest and cold-water springs are great to keep the water temperatures cool. No data was recorded in 2017 due to the loss of temperature logger (Table 13).

Table 13: Thermograph Station T-ShdM Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2016	May 21st - October 3rd	1	-	23.2	16.16
2018	May 29th - September 26th	2 (2 consecutively)	-	22.91	15.67
2019	June 12th - October 30th	-	-	21	15.1
2020	June 3rd - September 30th	-	-	21.38	14.64
2021	June 3rd - September 27th	27 (6 consecutively)	4	26	18.55
2022	June 1st - September 14th	10 (5 consecutively)	-	24.93	17.69
2023	June 14th – September 7th	9 (4 consecutively)	-	23.48	17.86

Thermograph Station T-ShdE-2A

This temperature logger is placed in a deep section of the Weisner Brook with an abundant canopy of trees on both sides providing adequate shade. No data was recorded in 2019 and 2021 due to the loss of temperature logger (Table 14.).

Table 14: Thermograph Station T-ShdE-2A Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2018	May 28th - September 26th	33 (17 consecutively)	10	26.98	17.21
2020	June 1st - September 30th	31 (13 consecutively)	10	26.2	17.42
2022	June 1st - September 15th	23 (9 consecutively)	7	26.59	17.87
2023	June 14th – September 7th	14 (4 consecutively)	-	24.44	18.02

4.1.4 Electrofishing Sites Surveys

A total of three different electrofishing sites have been surveyed on the Weisner Brook (Figure 47). The SBWA conducted electrofishing surveys for the first time in the Weisner Brook in 2006. Due to the cold temperature of the water and other habitat characteristics, the Weisner Brook was predicted to be suitable for the rearing of early life stage Atlantic salmon. Electrofishing surveys were subsequently used to confirm these assumptions.

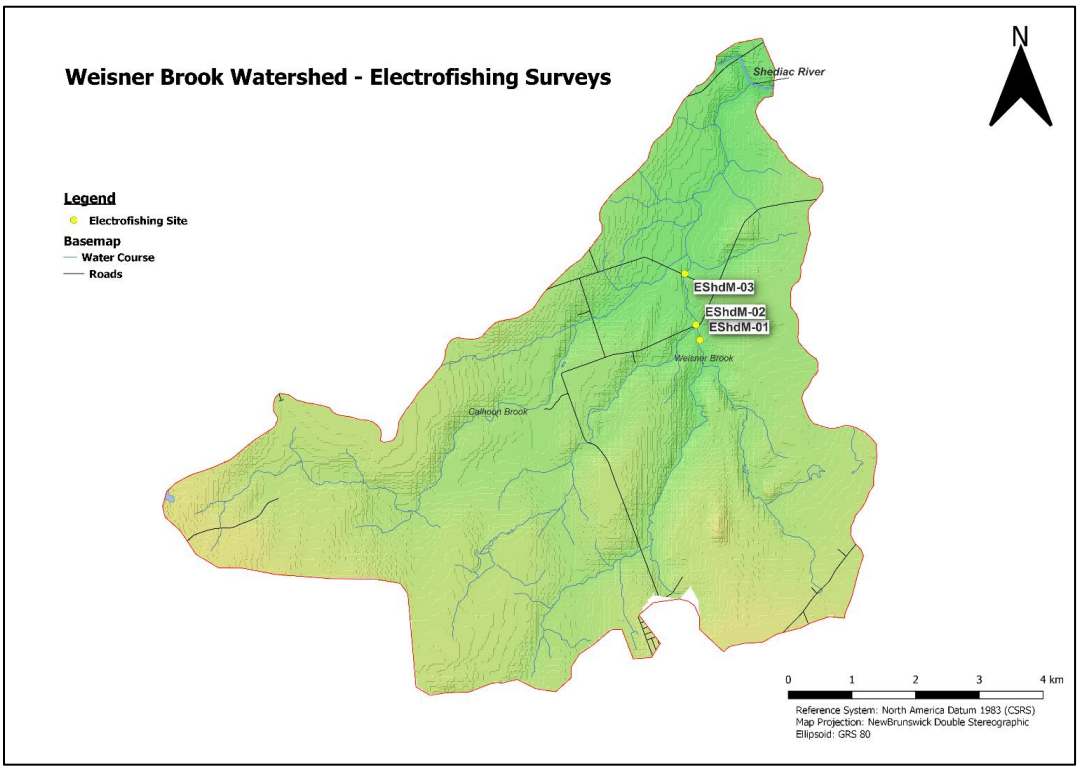

Figure 47: Weisner Brook Watershed Electrofishing Survey Map

Electrofishing Site Weisner Brook 1 (EShdM-02)

The first site (EShdM-02), was surveyed once in 2006. The site is located downstream from a culvert on Bateman Mill Rd. The objectives of the survey were to collect data on fish species richness, diversity and abundance. Habitat data such as stream width and depth were also recorded. The surveys used the Catch Per Unit Effort (CPUE) electrofishing protocol which involved a single sweep of 1200 seconds.

Electrofishing Site Weisner Brook 2 (EShdM-01)

The second site (EShdM-01), was surveyed from 2016 to 2018. The site is located near of the temperature monitoring station in Weisner brook (T-ShdE-2A). This site had a high success rate in it's first year. The substrate (large flat rocks, rubble and gravel), some undercut banks on both sides of the stream, riffles and a deep pool makes this site a favorable habitat for the Atlantic salmon (Figure 48).

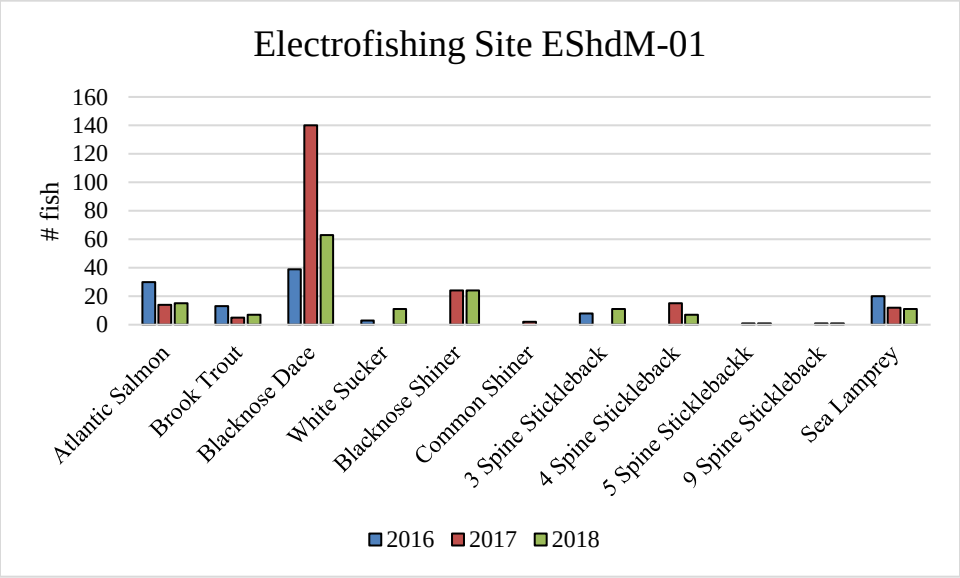

Figure 48: Electrofishing catch for site EShdM-01, Weisner Brook 2016 - 2018

Electrofishing Site St. Phillippe Road (EShdM-03)

In 2022, this new site was established further downstream. The site is located downstream of the first bridge on St. Philippe road turning off Bateman Mill road. The substrate and overhanging vegetation were conducive to favorable fish habitat; however, the lack of undercut bank might have caused to lack of Atlantic salmon and brook trout caught during the electrofishing surveys (Figures 49 & 50).

Figure 49: Weisner Brook Electrofishing EShdM-03, 2022

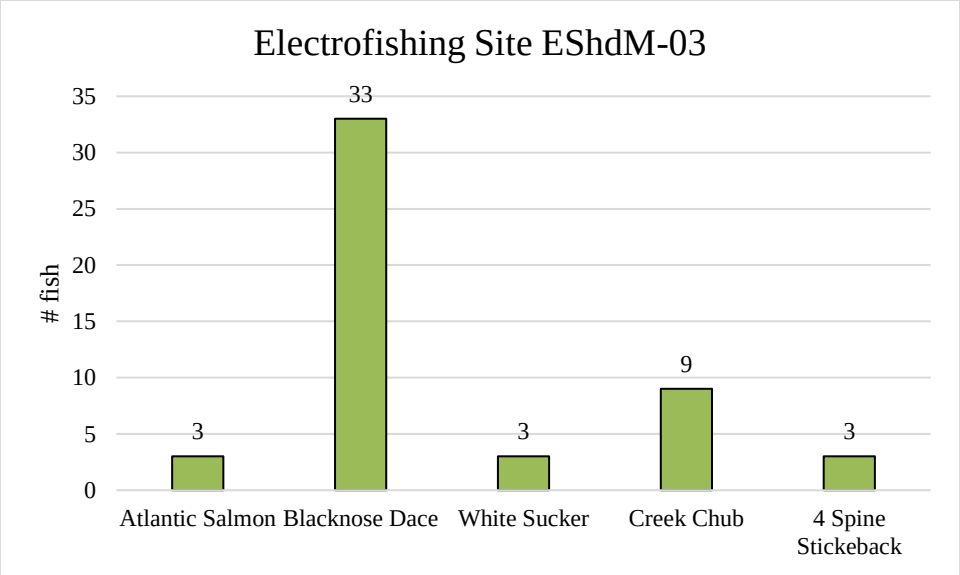

Figure 50: Electrofishing catch for site EShdM-03, Weisner Brook 2022

4.1.5 Culvert Assessments

The stream crossing inventory was conducted in 2007 to evaluate possible impediments to fish passage throughout the watershed. Please refer to section 2.5.1 of this report, or the project report "Stream Crossing Inventory and Assessment, 2008" in the 'Reports and Archives' section on the SBWA website for a more detailed description of the results. A map was recreated for clearer view of the Weisner Brook watershed for this report.

In 2007, the culvert assessment concluded that all culverts in the Weisner Brook watershed had a downstream drop less than 0.1 m. The lack of a downstream drop is beneficial for fish passage (Figure 51).

In 2018, six culverts were assessed on the Weisner Brook, an important tributary of the Shediac River in terms of fish habitat. Two culverts were classified as partial barriers and four culverts were classified as passable (Figure 52). For more information on this culvert assessment (field measurements, culvert photos, assessment protocol, etc.), please refer to the report "Salmonid Habitat Evaluation, Restoration and Education for the Shediac Bay Watershed, 2018" in the 'Reports and Archives' on the SBWA website.

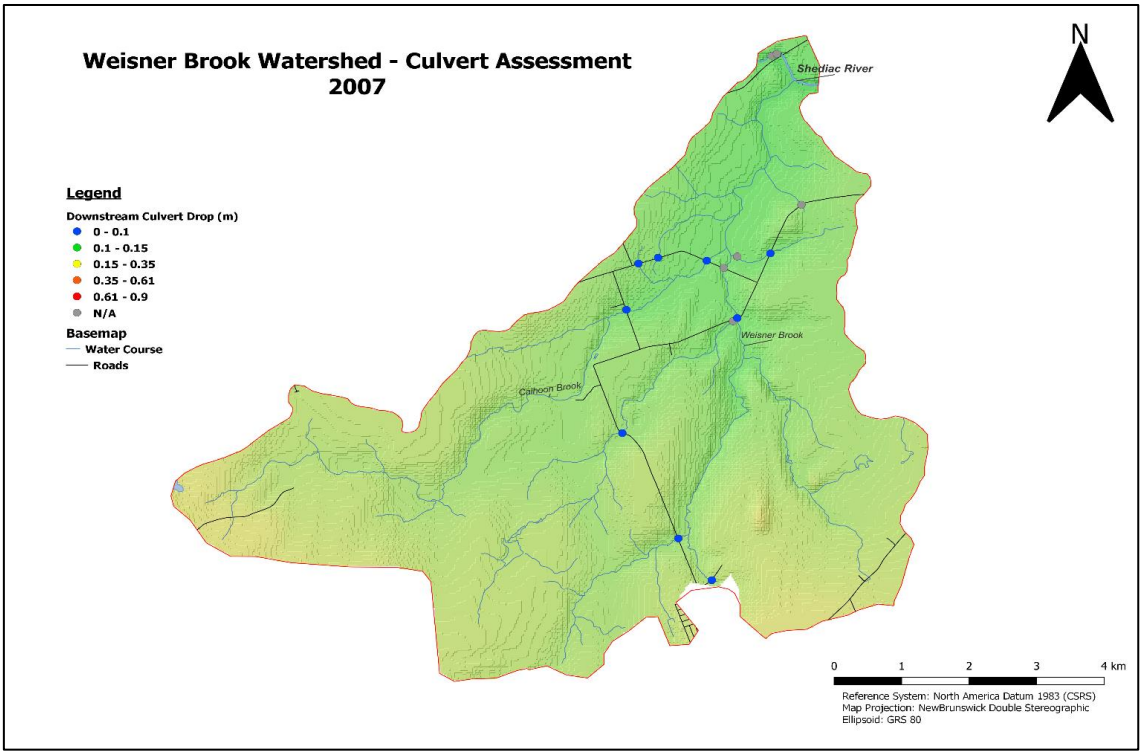

Figure 51: Map of culvert assessment classification results of the Weisner Brook watershed, 2007

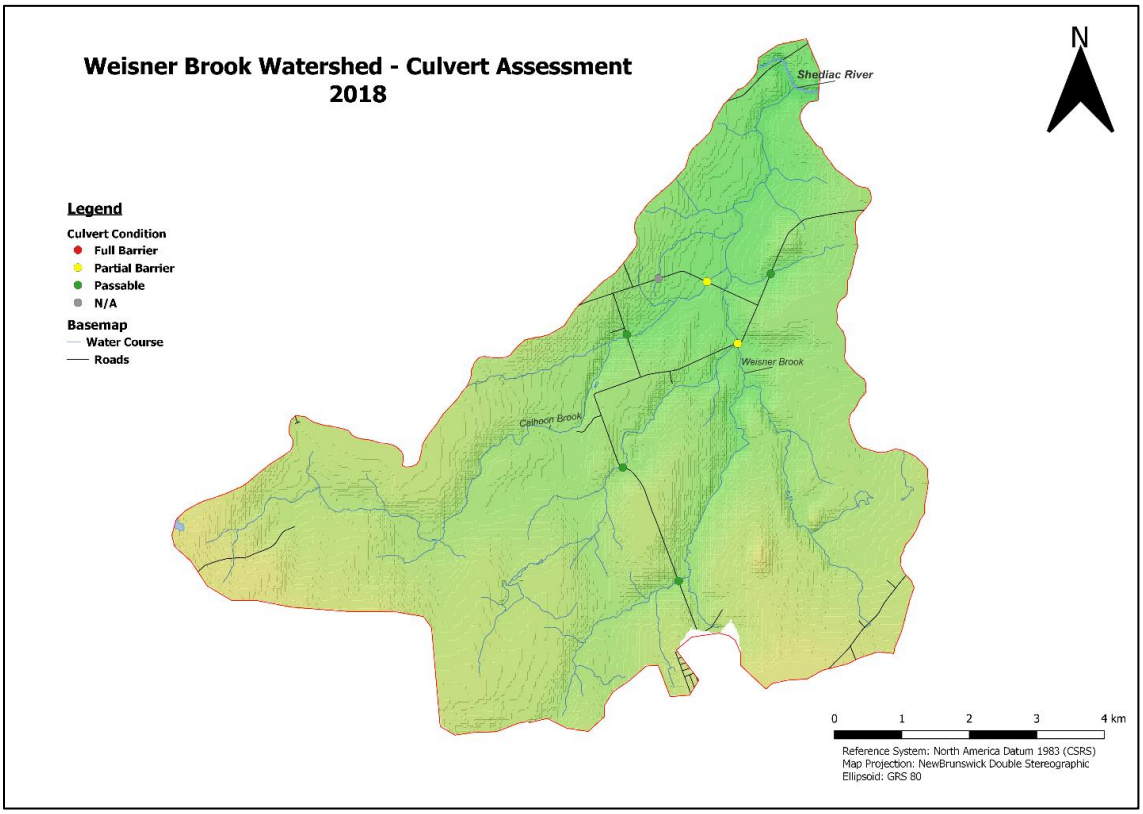

Figure 52: Map of culvert assessment classification results of the Weisner Brook watershed, 2018

4.1.6 Land Uses Around the Weisner Brook

There are many human activities and usage of the land surrounding watercourses that are capable of impacting water quality and fish habitat integrity. The surrounding land uses of the Weisner Brook watershed includes (Figure 53):

- Residential
- Agriculture
- Industrial
- Forestry
- Natural gas pipeline
- Powerline
- Protected wellfield

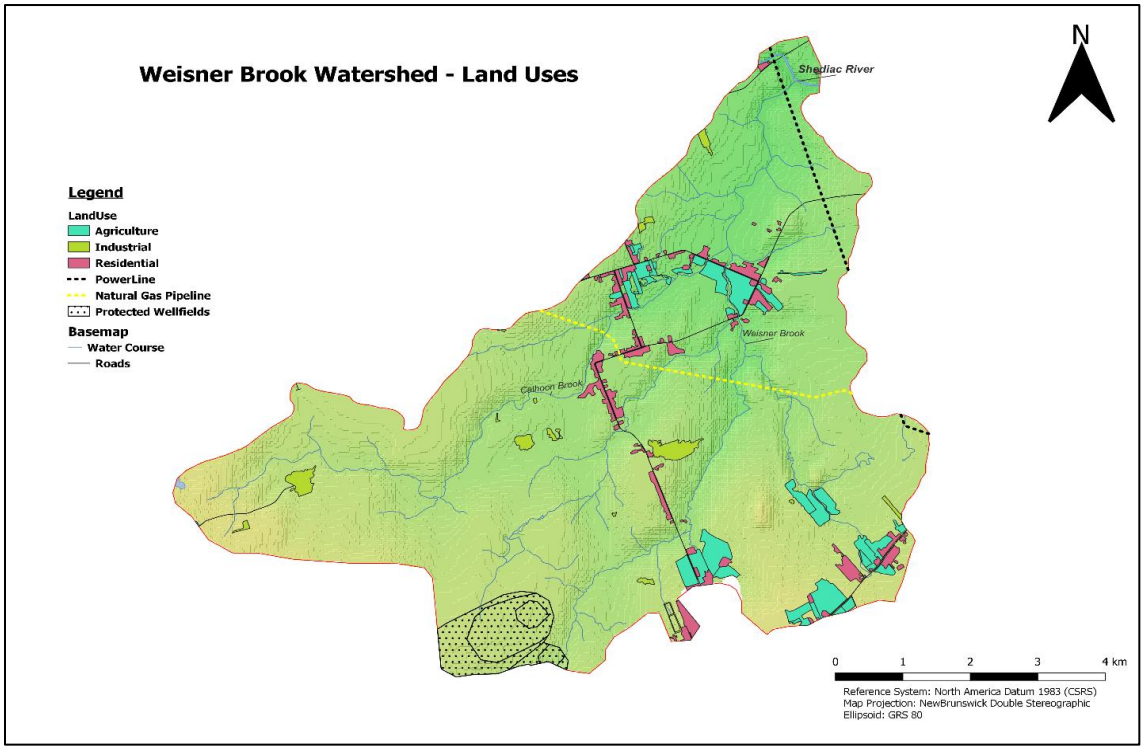

Figure 53: Map of Weisner Brook Watershed's Residential and Other Land Uses

4.1.7 Restoration Actions in the Weisner Brook

In 2014, a restoration project was carried out in the Weisner Brook. A beaver dam located under the St. Phillippe road was removed. The first phase of the project included the clearance of debris and the restoration of proper flow (Figure 54). The second part of the project consisted of planting trees to stabilize the banks and re-establish a buffer zone. An informative sign was installed following the restoration effort (Figure 55).

Figure 54: Restoration sign at the ShdG site

Figure 55: Weisner Brook Before (left) and After (right) Restoration, 2014

In 2022, the SBWA planted trees and installed a sediment catch. The goal of this project was to reduce erosion and sedimentation entering the Weisner brook. The sediment catches and trees have been planted along approximately 50m of the brook's bank. The trees planted are all native to the province of New-Brunswick and were provided by the SBWA nursery. The trees were planted behind the sediment catch to avoid losing the trees to agricultural activities. The trees include:

- 4 Pine
- 6 maple
- 8 Spruce

The sediment catch is comprised of a waddle fence and haybales. The haybales are secured in place with wooden stakes. The waddle fence is made of woven Alder branches sourced from the neighboring wooded area on the property (Figure 56).

Figure 56: Weisner Brook Restoration Project, 2022

4.1.8 eDNA Sampling

One site in the Calhoun Brook, which runs into the Weisner Brook, was sampled in 2023 (Figure 57). The sample was collected where the Calhoun Brook passes under Weisner Road. Results from sampling will be added to this report when they become available.

Figure 57: eDNA sampling locations in the Weisner Brook sub-watershed.

4.1.9 Future Recommendations

The purpose of this Fisheries Management Plan is to identify information gaps and determine future recommendations to guide the SBWA's future project endeavours. The following presents a list of recommendations for the Weisner Brook sub watershed, and will be continuously updated as this strategic plan evolves.

Stewardship

- Identify and educate stakeholders having a possible effect on this sampling site.
- Educate to encourage a better sense of stewardship towards the Weisner Brook.
- Approach riverfront landowners to educate about maintaining a better buffer zone (reduce lawn mowing to close to river).
- Form partnership with local farmers to enhance buffer zone and manage their surface runoff.
- Promote better forestry practices.
- Maintain E. coli levels through time.
- Educate on the importance of the Weisner Brook as a fish refugee.

Data Gaps and Actions

- Continue fish population surveys using a standardized electrofishing protocol, to include larger reaches of the watershed.
- Re-evaluate past electrofishing survey sites.
- Perform Redd Count surveys in the Weisner Brook to identify other spawning habitat.
- Identify new locations requiring buffer zone enhancements
- Identify tributaries that may impact the water quality of the Weisner Brook.
- Continue water quality monitoring to make sure measured parameters stay within the CWQG for the protection of aquatic life
- Consult with experts on water chemistry in relations to the specific health of salmonids.
- Continue water temperature monitoring and form partnership with universities and/or governmental agencies to better understand the impacts of climate change on fish populations.
- Identify fish passage barriers that can be remediated within the Association's capacity.

5. *McQuade Brook Results– Data Compilation*

5.1 McQuade Brook Sub-watershed

5.1.1 Characteristics

The McQuade Brook is a tributary of the Shediac River, consisting of approximately 29 km^2 of drainage area that feeds into the brook (Figure 58). The McQuade Brook and its unnamed tributaries runs through the Scotch Settlement area and reaches inland as far as the community of McQuade. The main branch has an approximate length of 12.5 km from its headwaters to its convergence with the main branch of the Shediac River.

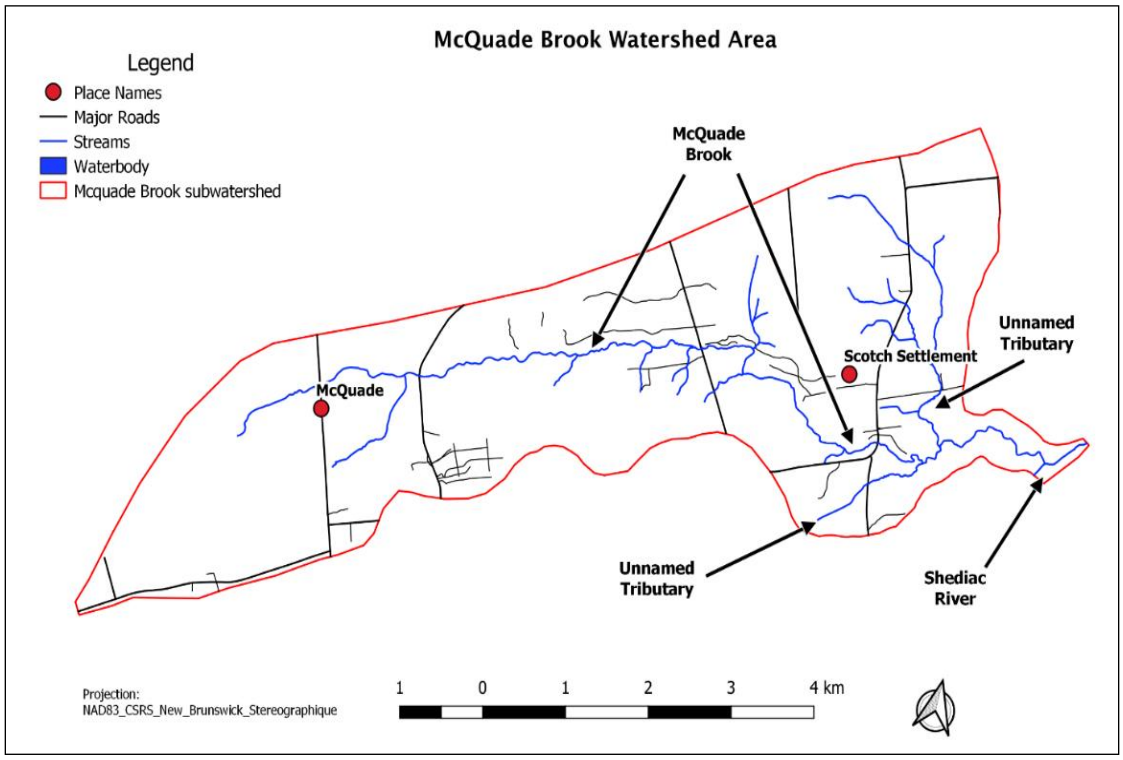

Figure 58: Map of McQuade Brook watershed

5.1.2 Water Quality Monitoring Stations

The water quality monitoring site in the McQuade Brook was first established in 1999 as part of the New Brunswick Water Classification program (Figure 59). All water quality data pertaining to the Shediac River monitoring stations is included in Appendix A.

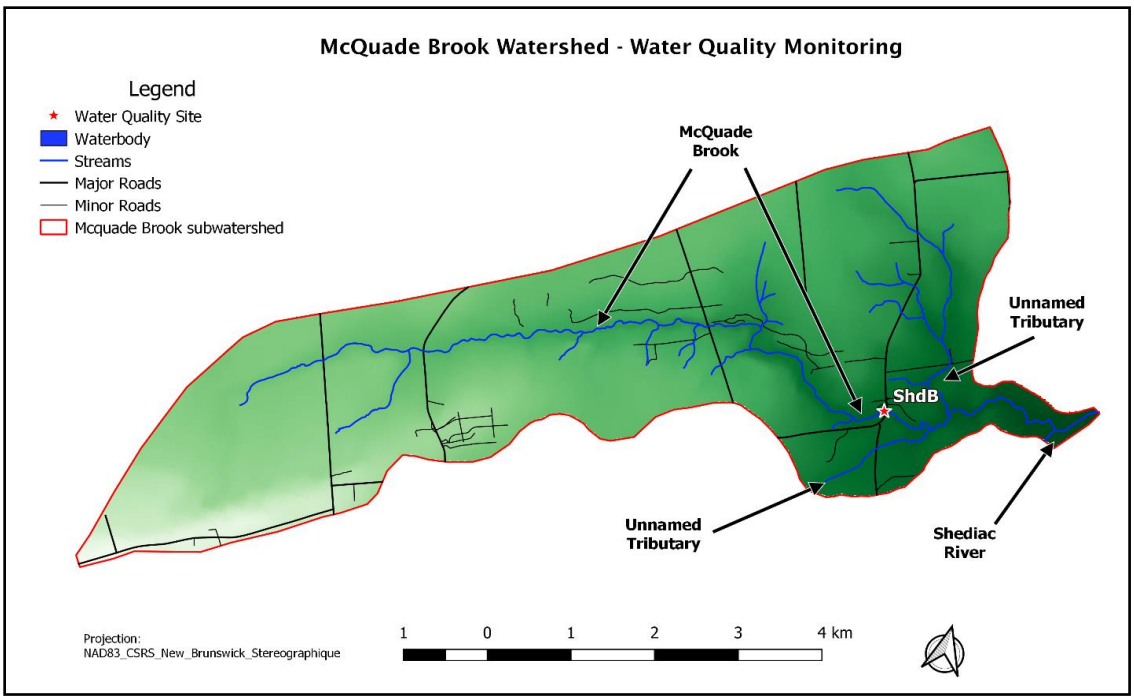

Figure 59: Map of McQuade Brook Watershed's Water Quality Monitoring Sites

Shediac B (ShdB) – McQuade Brook

This water quality sampling site is located in the McQuade Brook, off Scotch Settlement Road. The sample is taken upstream of the culvert (Figure 60). The surrounding land use includes residences, agricultural fields, cattle farms, and a mineral extraction pit. Most of the drainage providing from agricultural and cattle fields around the site would flow into other small tributaries of the McQuade Brook, converging at a lower point in the system.

Figure 60: Site Photos of the Water Quality Monitoring Station ShdB, spring 2018

5.1.3 Temperature Monitoring Stations

The water temperature monitoring station using a temperature logger in the McQuade Brook was first established in 2016 as part of the salmon conservation efforts of the SBWA. The temperature logger is installed downstream of the culvert on Scotch Settlement Road (Figure 61). The following section provides an overview of temperature fluctuations in relations to the impacts on salmonid populations in the McQuade Brook.

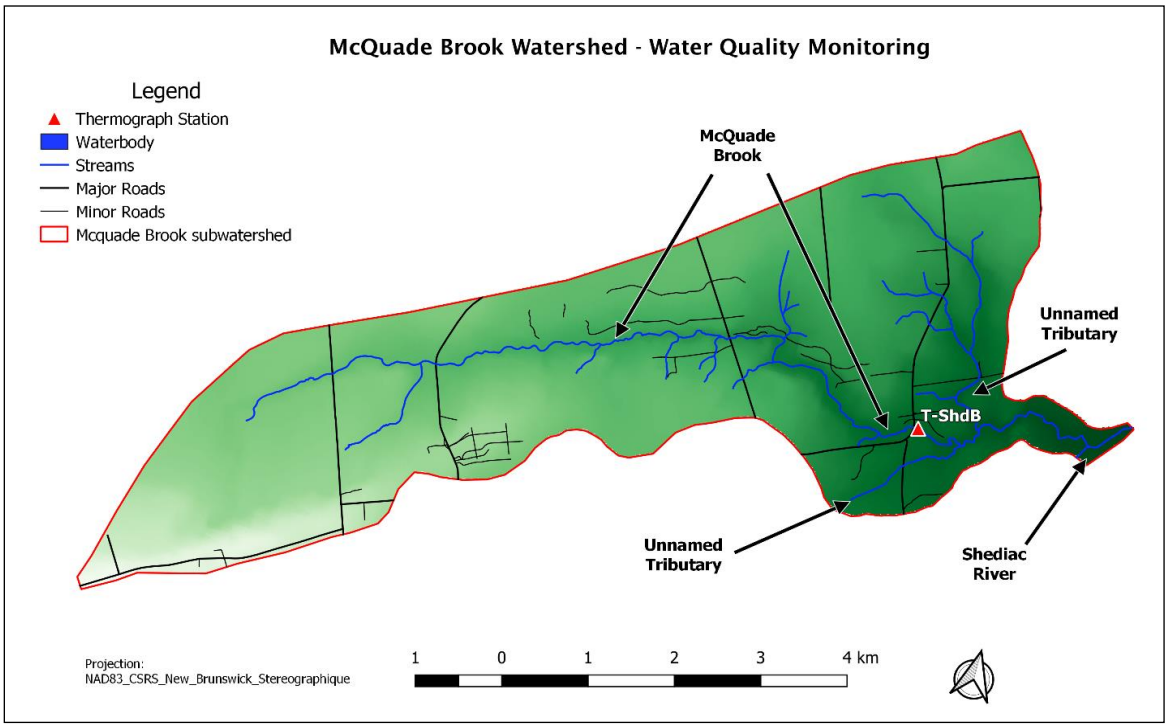

Figure 61: Map of McQuade Brook Watershed's Water Temperature Monitoring Sites

Thermograph station T-ShdB

This temperature logger was installed in the McQuade Brook, approximately 35 metres downstream of the fish ladder, and upstream of the electrofishing site EShdB-02 (Table 15.).

Table 15: Thermograph Station T-ShdB Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2016	May 21st - October 3rd	16 (4 consecutively)	-	24.74	15.96
2018	May 29th - September 26th	43 (33 consecutively)	15	26.59	17.94
2019	June 1st - September 30th	29 (18 consecutively)	14	31.47	15.98
2020	June 3rd - September 30th	51 (27 consecutively)	28	28.06	18.75
2021	June 3rd - September 27th	56 (13 consecutively)	23	28.26	19.32
2022	June 1st - September 14th	43 (25 consecutively)	13	27.67	18.36
2023	June 14th – September 7th	19 (7 consecutively)	5	26.20	17.81

5.1.4 Electrofishing Sites Surveys

The SBWA conducted electrofishing surveys for the first time in the McQuade Brook in 2014. The first site surveyed (EShdB-01) is located in the restoration project area located above Scotch Settlement Road. This site was chosen in an attempt to measure the benefit of the restoration work in relation to community species composition and numbers before and after the project (Figure 62).

In 2016, a second site was established downstream of the Scotch Settlement Road where habitat characteristics were predicted to be suitable for rearing of early life stage Atlantic salmon. Electrofishing surveys were subsequently used to confirm the assumptions. The following sections provides a summary of the electrofishing results for the McQuade Brook.

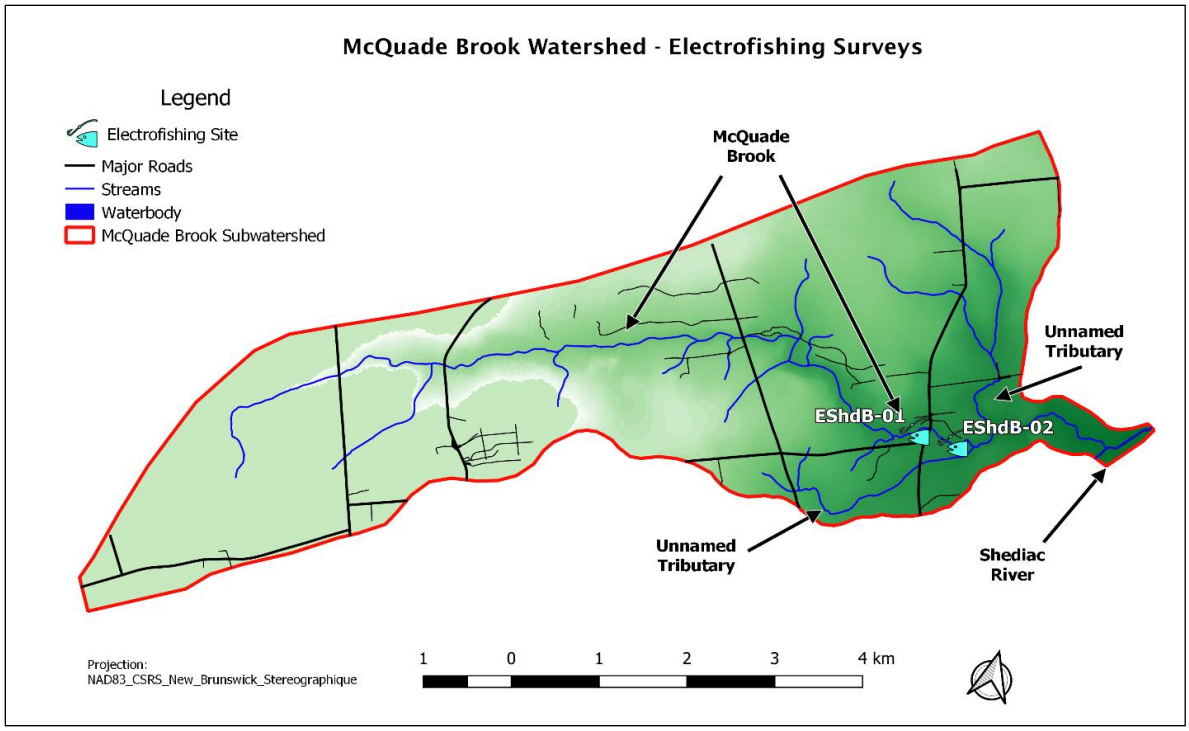

Figure 62: McQuade Brook Watershed Electrofishing Survey Map

Electrofishing Site McQuade Brook (EShdB-01)

This site is located in the McQuade Brook, a tributary to the Shediac River. It was accessed through a private property with landowner permission at 566 Scotch Settlement Rd. The site is upstream from the bridge on Scotch Settlement Road, approximately 170 m from the intersection of Maclean Crossroads.

This site is located in a zone where habitat restoration began in 2014. There were significant blockages of woody debris and sediments caused by washed-out beaver dams upstream. There is also severe erosion along multiple banks in this area, causing thick sediment to build up between the blockages and the Scotch Settlement Road culvert, which is approximately 100 metres in distance. In 2014, the blockages were cleaned up and trees were planted along the shoulder banks. In 2015, the transformation of one section (approx. 50 metres) of the habitat was remarkable. The heavy load of fine sediments in the debris area was flushed out and revealed clean gravel bars, sand bars and natural riffles (Figure 63). The other half of this site still contains thick sediment as a substrate type, which should continue to flush out over time.

Figure 63: Site photos of the electrofishing site EShdB-01 (2015)

During the survey in 2014, four species were found including brook trout, blacknose dace, common shiner and 3 spine stickleback. During the survey in 2015, 3 Atlantic salmon were found along with brook trout, blacknose dace, white sucker, common shiner and 3 spine stickleback. In 2016, only blacknose dace and 3 spine stickleback were found (Figure 64).

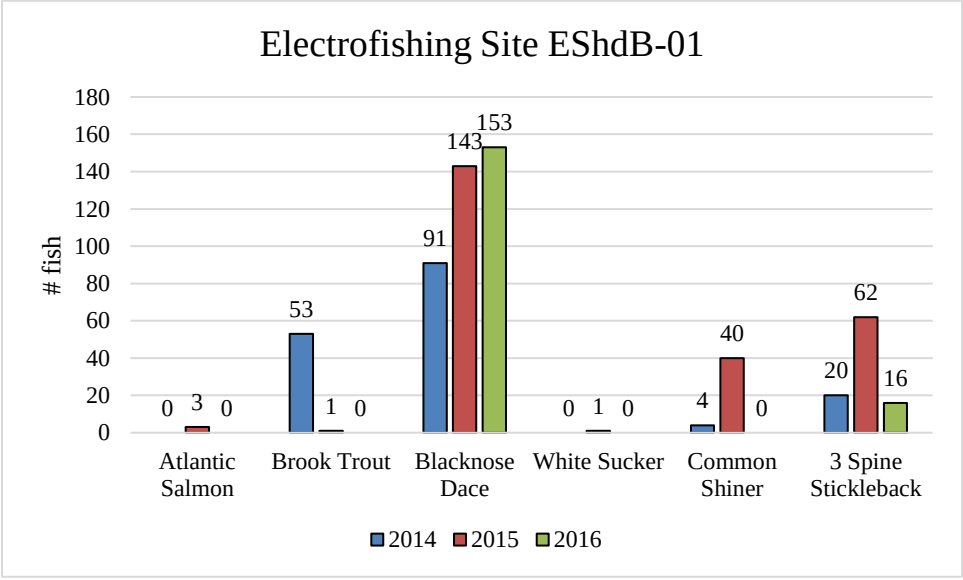

Figure 64: Electrofishing data chart for site EShdB-01, McQuade Brook 2014 - 2016

When comparing the yearly results, there is a steady increase in blacknose dace species, a fluctuation in 3 spine sticklebacks, and an overall drop in common shiners. When looking at the salmonids, there is a decrease in brook trout and presence of Atlantic salmon only in 2015 (Figure 65).

Figure 65: On the left is a Brook trout (Salvelinus fontinalis) in 2014 and on the right is an Atlantic salmon parr (Salmo salar) in 2015

It is difficult to measure the impacts of the restoration work. In 2017, the site could not be surveyed due to a new beaver dam being built downstream, flooding out the survey site. No additional data could be collected. However, the composition of the aquatic community did change, favoring more blacknose dace and other minnows instead of salmonids.

Electrofishing Site McQuade Brook (EShdB-02)

This is the second electrofishing site in the McQuade Brook. It is located approximately 345 metres below the culvert of Scotch Settlement Road (below the fish ladder). The location was accessed by the use of the farmer's road, with landowner permission, to the end of the corn field.

This site was selected due to the characteristics of the habitat, suspected of being favorable for rearing of early life stage Atlantic salmon. The habitat characteristics are described as follows: large flat rocks, rubble and gravel, surrounding undercut banks, pools and riffles, ledges and a large crease formation in the bedrock (Figure 66).

Figure 66: Site photos of the electrofishing site EShdB-02 (2016)

During the survey in 2016, six species were found. There were Atlantic salmon (fry and parr), brook trout, blacknose dace, white sucker, 3 spine sticklebacks and brook stickleback. During the survey in 2017, Atlantic salmon, brook trout, blacknose dace, white sucker, blacknose shiner, common shiner, 3 spine stickleback and 4 spine stickleback were found.

During the survey in 2018, nine species were found. There were Atlantic salmon, brook trout, blacknose dace, white sucker, blacknose shiner, common shiner, 3 spine stickleback, brook stickleback, and young of the year sticklebacks that could not be fully identified. It is important to note that there were issues with the batteries during this survey. The machine lost power about half way into the second sweep of the site. The second battery was installed, but it was defective and did not have any power despite being fully charged the day before the survey. Therefore, these results are based on only half of the survey being performed (Figure 67).

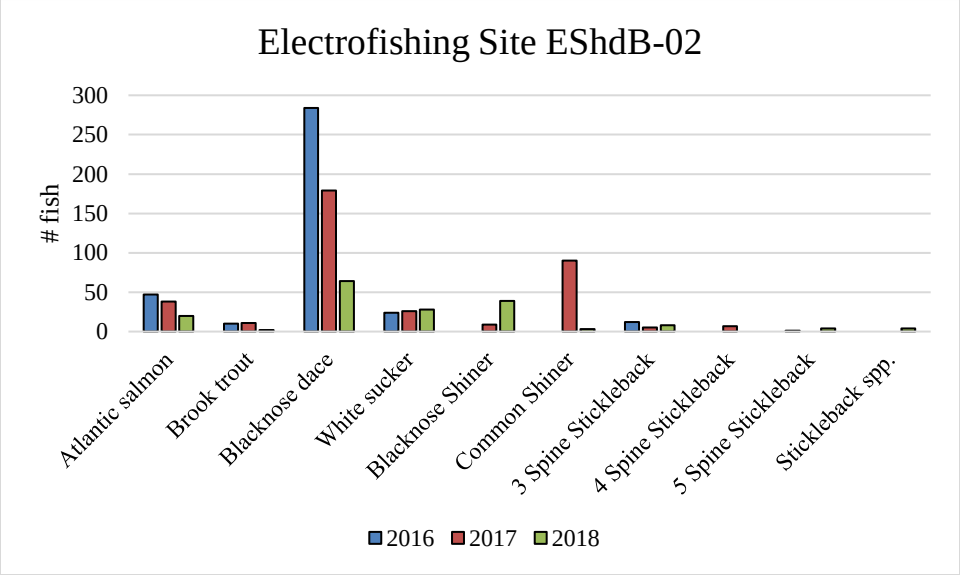

Figure 67: Electrofishing data chart for site EShdB-02, McQuade Brook 2016 - 2018

Based on these results, the assumption that this location contains habitat that is suitable for the rearing of early life stage Atlantic salmon was correct (Figure 68). No other population assessment has been done so far using this data.

Figure 68: Atlantic salmon found in the McQuade Brook (parr on left, fry on right), 2017

For more information on specific measurements of fish and of habitat characteristics, please refer to the following reports in the reports and archives on the SBWA website

- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2016"
- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2017"
- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2018"

5.1.5 Culvert Assessments

The stream crossing inventory was conducted in 2007 to evaluate possible impediments to fish passage throughout the watershed. Please refer to section 2.5.1 of this report, or the project report "Stream Crossing Inventory and Assessment, 2008" in 'Reports and Archives' on the SBWA website for a more detailed description of the results. A map was recreated for clearer view of the McQuade Brook watershed for this report (Figure 69) (Table 16.).

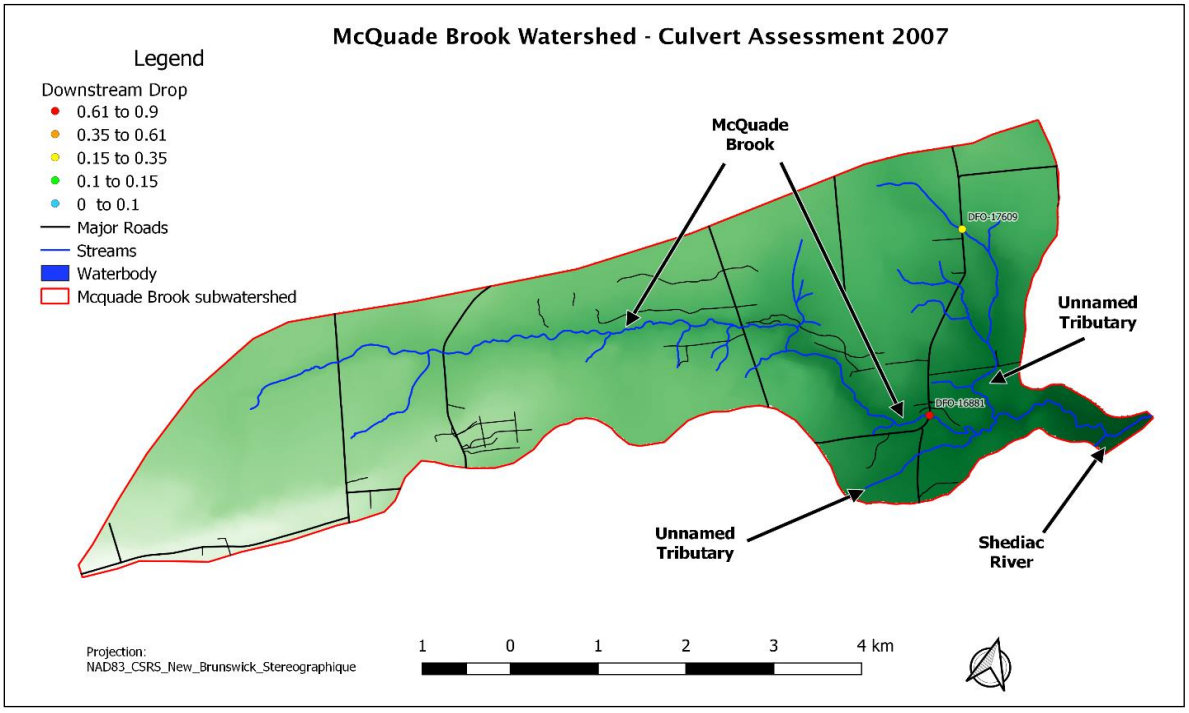

Figure 69: Map of culvert assessment classification results of the McQuade Brook watershed, 2007

In 2018, four culverts were assessed on the McQuade Brook, an important tributary of the Shediac River in terms of salmonid habitat. One full barrier was identified and three culverts were classified as partial barriers. For more information on this culvert assessment (field measurements, culvert photos, assessment protocol, etc.), please refer to the report "Salmonid Habitat Evaluation, Restoration and Education for the Shediac Bay Watershed, 2018" in the 'Reports and Archives' on the SBWA website (Figure 70) (Table 17.).

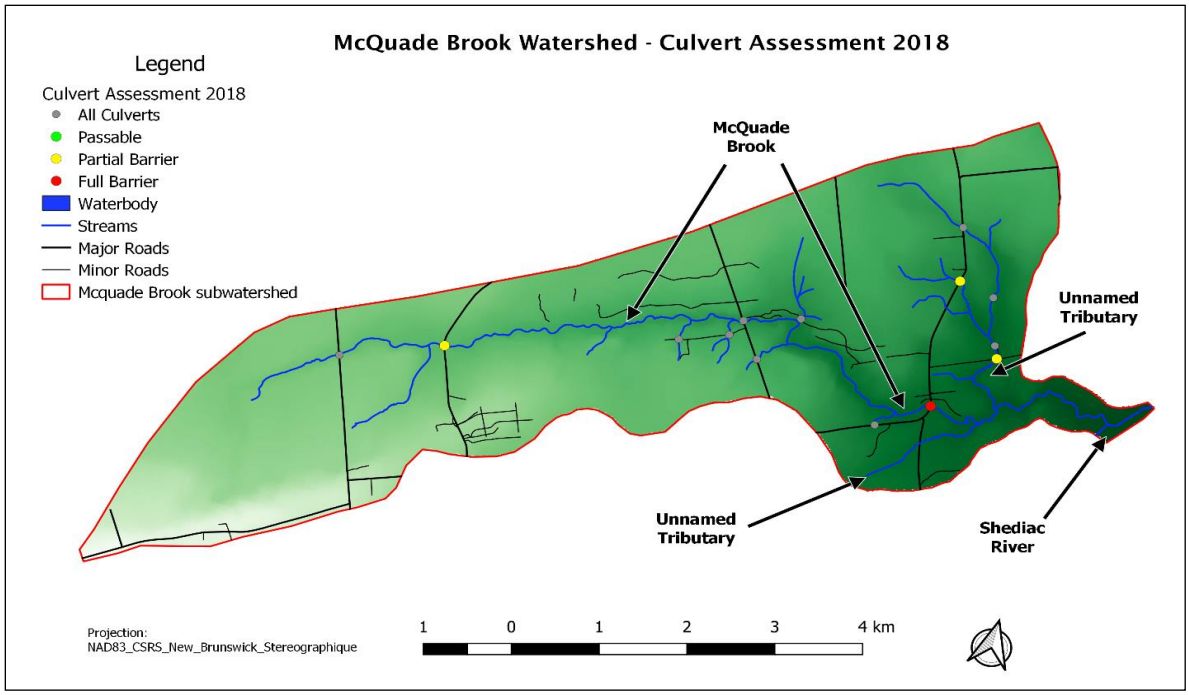

Figure 70: Map of culvert assessment classification results of the McQuade Brook watershed, 2018

Table 16: Culvert Assessment Summary Results for McQuade Brook, 2018

Culvert ID	Stream	Stream Type	Available habitats (km)	Culvert slope (%)	Outflow drop (m)	Classification
DFO-16901	McQuade Brook	Non-tidal	2.78	1.21 and 0.93	0.05 and 0.02	Both Partial barrier
DFO-16884	McQuade Brook tributary	Non-tidal	1.85	-4.76 and -4.80	-	Both Partial barrier
DFO-16886	McQuade Brook tributary	Non-tidal	1.05	1.06	-0.18	Partial barrier

Table 17: Rapid Assessment Summary Results for McQuade Brook, 2018

Culvert ID	Stream	Stream Type	Classification
DFO-16875	McQuade Brook tributary	Non-tidal	Full barrier

5.1.6 Fish Ladder

A culvert on the McQuade Brook was identified as being an impediment to fish migration during the culvert assessment in 2007. The old elevated culvert was a full barrier to access habitat and suitable spawning areas above the Scotch Settlement Road.

Figure 71: Fish ladder on the McQuade Brook

In 2015, the SBWA received funding from the *Department of Fisheries and Ocean's Recreational Fisheries Partnership Program* to install a 10-foot aluminum fish ladder (Figure 71 & 72).

After the initial installation, it was determined that not enough water was flowing into the structure to ensure the optimum efficiency. Therefore, water deflectors were installed to close the gaps between the structure and the edges of the culvert.

The fish ladder has since been maintained yearly by the Association; small repairs from winter damages, removing and re-installing the deflectors before and after winter, and clearing the occasional accumulation of woody debris.

Figure 72: Installation of the fish ladder in 2015.

5.1.7 Land Uses Around the McQuade Brook

There are many human activities and usage of the land surrounding watercourses that are capable of impacting water quality and fish habitat integrity. The surrounding land uses of the McQuade Brook sub watershed includes (Figure 73 – 75).

- Residential
- Agriculture and cattle pastures
- Dirt roads/logging roads
- Forestry exploitations
- Mineral extraction pits
- Transmission powerlines crossing
- Natural gas pipeline crossing

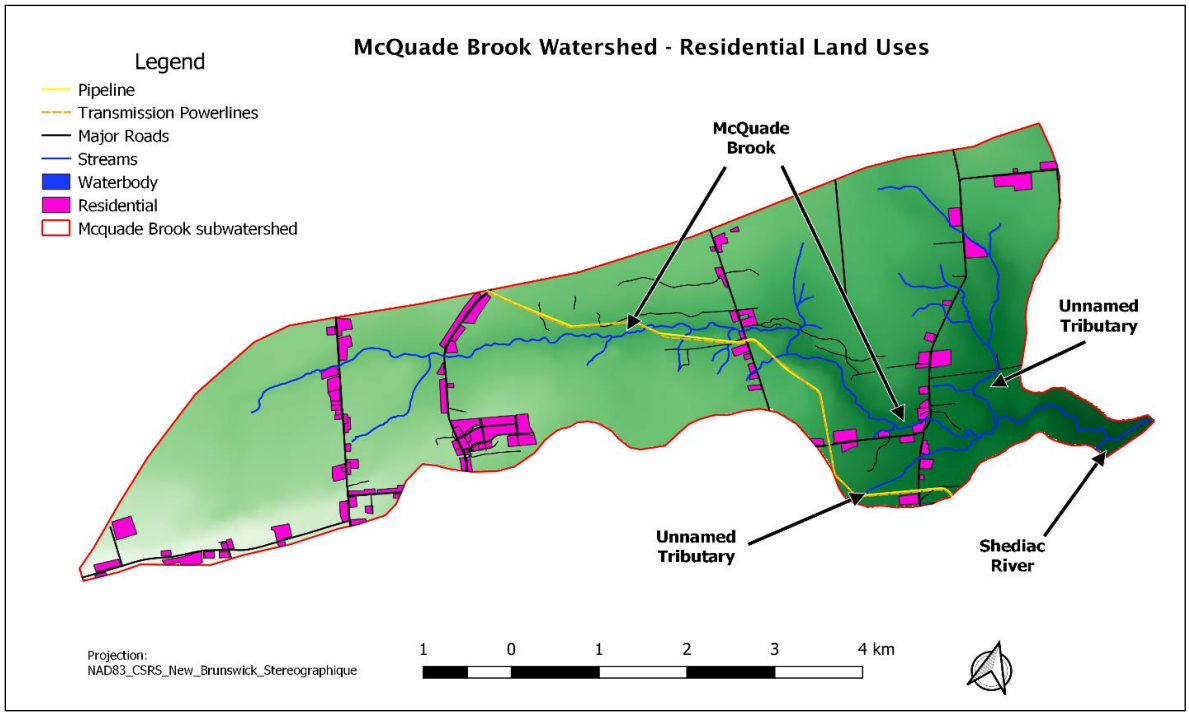

Figure 73: Map of McQuade Brook Watershed's Residential and Other Land Uses

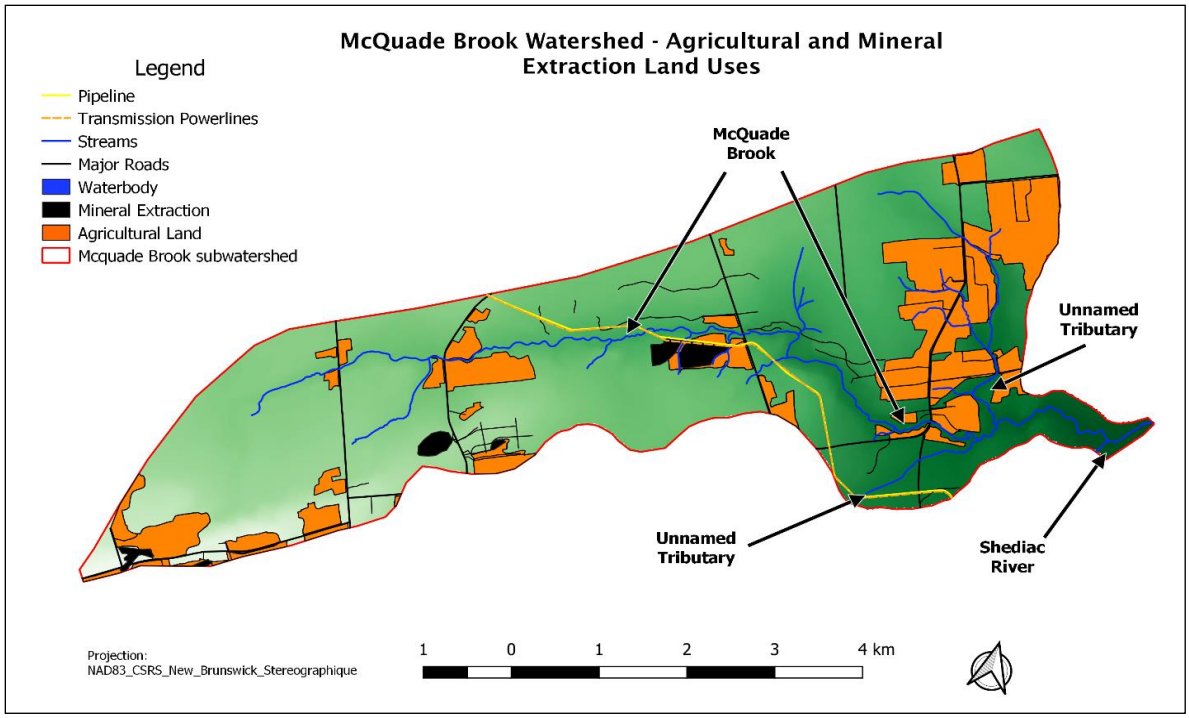

Figure 74: Map of McQuade Brook Watershed's Agricultural and Mineral Extraction Land Uses

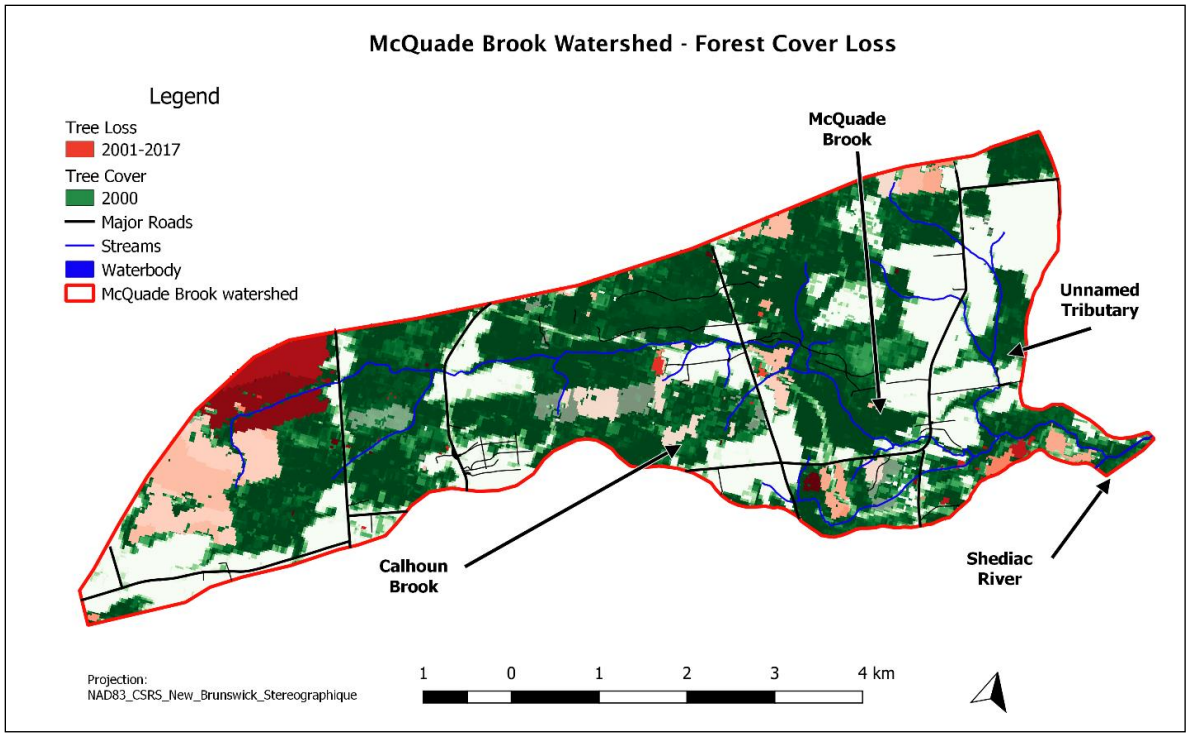

Figure 75: Map of McQuade Brook Watershed's Forest Cover Loss to Industry and Other Development

5.1.8 Restoration Actions in the McQuade Brook

In 2014, a restoration project was started in the McQuade Brook. Several abandoned beaver dams had created debris piles-ups over a 400 meter stretch of the stream. The riverbanks were also deteriorating due to the loss of vegetation from beaver activity and flow change due to the debris jams. The first phase of the project was to clear the debris and restore proper flow (Figure 76). The second part of the project was to plant trees to stabilize the banks and re-establish a buffer zone. Over 300 native trees were planted in a 200 square meter area (Figure 77). In 2015, additional trees were planted to replace some mortality and to continue to thicken the vegetation in the riparian zone.

Figure 76: Before and after pictures of debris jam in the McQuade Brook, 2014

Figure 77: Photos of a few trees planted along the McQuade Brook, 2014

In 2016, a stream survey identified some habitat issues for trout and salmon. The stream needed to become narrower and deeper for these fish species. The recommendation for this was to install tree deflectors and digger logs at strategic locations to help catch sediments. The first phase consisted of walking along the McQuade Brook, 2.82 km downstream of the culvert, to find and remove debris blockages (Figure 78). A selective trimming of alder overgrowth was also done using manual tools.

Figure 78: Before and after photos of debris jam below the fish ladder

Afterwards, the six tree deflectors (balsam fir) were installed, five upstream and one downstream of the culvert. The deflectors were installed by digging out a section of the side bank, placing the trees within the dug trench and securing them (Figure 79). The two digger logs were installed upstream of the culvert (Figure 80). A total of 46 native trees and 150 Red Oak acorns were planted along the stream to help stabilize the eroding banks and to improve the overall biodiversity of the area.

Figure 79: Deflectors installed in the McQuade Brook, 2016

Figure 80: Digger logs installed in the McQuade Brook, 2016

5.1.9 eDNA Sampling

One eDNA sample was collected from the McQuade Brook in 2023 (Figure 81). This sample was collected where Scotch Settlement Road crosses over the brook. Results from sampling will be added to this report when they become available.

Figure 81: eDNA sampling locations in the McQuade Brook.

5.1.10 Future Recommendations

The purpose of this Fisheries Management Plan is to identify information gaps and determine future recommendations to guide the SBWA's future project endeavours. The following presents a list of these recommendations for the McQuade Brook sub watershed, and will be continuously updated as this strategic plan evolves.

Stewardship

- Identify and educate stakeholders having a possible effect on this sampling site.
- Identify foresters having a possible effect on the McQuade Brook.
- Establish communication and promote sustainable forestry practices.
- Educate to encourage a better sense of stewardship towards the McQuade Brook.
- Approach riverfront landowners to educate about maintaining a better buffer zone (reduce lawn mowing to close to river).
- Form partnerships with riverfront landowners suffering from erosion problems to stabilize banks using biotechnical materials.
- Form partnership with local farmers to enhance buffer zone and manage their surface runoff.
- Maintain E. coli levels through time.

Data Gaps and Actions

- Continue fish population surveys using a standardized electrofishing protocol, to include larger reaches of the watershed.
- Re-evaluate past electrofishing survey sites.
- Perform REDD count surveys in the McQuade Brook to identify more spawning habitat.
- Continue maintenance of fish ladder
- Identify new locations requiring buffer zone enhancements
- Identify tributaries that may impact the water quality of the McQuade Brook
- Continue water quality monitoring to make sure measured parameters stay within the CWQG for the protection of aquatic life
- Consult with experts on water chemistry in relations to the specific health of salmonids.
- Continue water temperature monitoring and form partnership with universities and/or governmental agencies to better understand the impacts of climate change on fish populations.
- Identify fish passage barriers that can be remediated within the Association's capacity.

6. *Scoudouc River Results – Data Compilation*

6.1 Main Stem of the Scoudouc River

6.1.1 Characteristics

The mouth of the Scoudouc River system is located in the Town of Shediac and stretches into the Scoudouc area (Figure 82). The various tributaries of the Scoudouc River branch towards the Malakoff area and out near Ohio Road. Its tributaries run through wetlands, near an industrial park, residential and forested areas. The major part of the Scoudouc River system is located in Shediac Parish, but does stretch into Moncton Parish as well. Like the Shediac River, the Scoudouc River is characterized by dendritic patterns of small tributaries, covering a watershed of 143.3 km^2 (Henderson, 1999). Water velocity in both rivers is weak due to the gentle regional elevation (Henderson, 1999).

Figure 82: Photo of the Scoudouc River

The Scoudouc River has several major tributaries that are unnamed. Only two tributaries are officially identified; the Cornwall Brook and the Dionne Brook (Figure 83). The river bottom type of the main branch is mainly composed of a balanced mixture of bedrock, cobbles, gravel and sand. The substrate along most of the Scoudouc River is suitable to sustain freshwater mussel populations, such as the Eastern pearlshell mussels (*Margaritifera margaritifera*) and the Eastern Elliptio (*Elliptio complanata*).

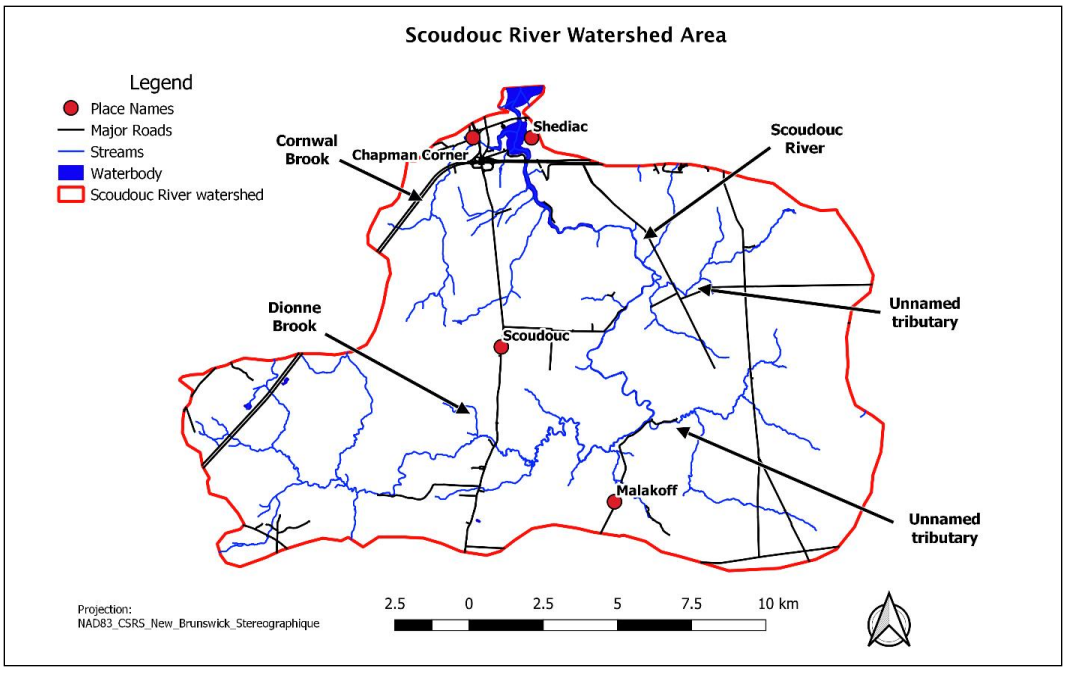

Figure 83: Map of Scoudouc River Watershed Area

6.1.2 Water Quality Monitoring Stations

The water quality monitoring sites in the Scoudouc River were first established in 1999 as part of the New Brunswick Water Classification program. A total of seven sites were monitored from 1999-2003. In 2006, based on results and less available funding, the number of sites was reduced to four; ScdA, ScdC, ScdD and ScdG were removed from the sampling program. The site ScdE was sampled for several years before land use changes forced the SBWA to change its location. A new site was chosen 1 km away and renamed to ScdE-2A. A new site, ScdH, was also established to sample the Cornwall Brook (Figure 84). All water quality data pertaining to the Scoudouc River monitoring stations is included in Appendix A. Sampling sites in other tributaries will be reported in the next phases of this Fisheries Management Plan.

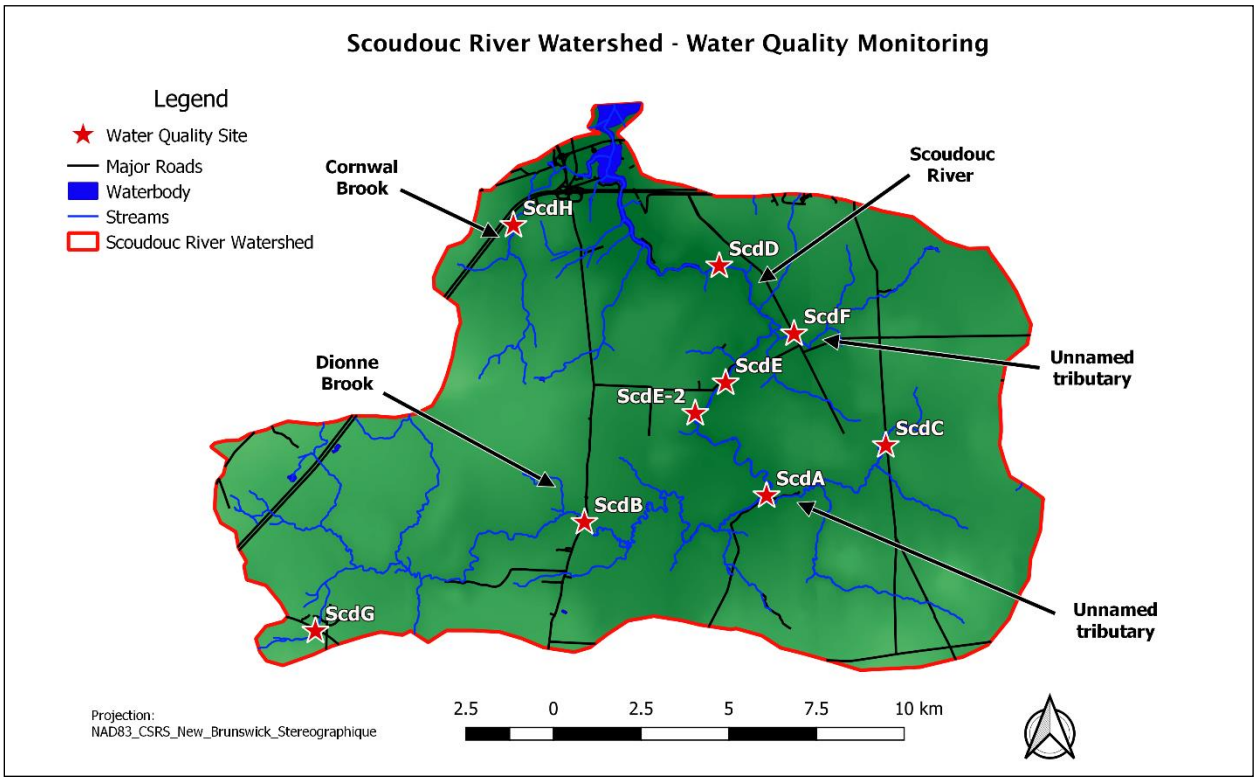

Figure 84: Map of Scoudouc River Watershed's Water Quality Monitoring sites

Scoudouc B (ScdB)

This water quality sampling site is located in the main branch of the Scoudouc River, at the bridge on Route 132, next to the *Waggin' Tail Inn*. The sample is taken downstream of the bridge (Figure 85). The surrounding land uses includes; residences, the Greater Shediac Sewerage Commission's aeration lagoons, the Scoudouc Industrial Park, Highway 15 (in the headwaters of the river) and forested land. The sample site is upstream from the treated wastewater's discharge pipe.

Figure 85: Site photos of water quality monitoring station ScdB, spring 2018

Scoudouc D (ScdD)

This water quality sampling site was located in the main branch of the Scoudouc River, beneath the powerlines accessed by Red Bridge Road. This site was only sampled in 2000 and 2001. The surrounding land uses is mainly forested, ATV/dirt roads, powerlines passing directly above the site (Figure 86).

Figure 86: Site photos of water quality monitoring station ScdD

Scoudouc E (ScdE)

This water quality sampling site was located in the main branch of the Scoudouc River, beneath the powerline near Leo-Gaudet Road in Scoudouc. The surrounding land uses is mainly forested, ATV/dirt roads and a pipeline passing directly below (Figure 87). This site is no longer routinely sampled.

Figure 87: Site Photo of the Water Quality Monitoring Station ScdE, Google Earth aerial imagery (field photo unavailable)

Scoudouc E (ScdE-2)

When water sampling was restarted in 2006, SBWA staff found an alternate access point to reach the area where the site ScdE was sampled in 1999-2003. However, due to the fact that the site is 1.1 km away from the original station, and that surrounding land uses are different, the station was later renamed as ScdE-2. This water quality sampling site is accessed through a private property with landowner permission. Off Scoudouc River Road, there is a large field that the staff uses to access a trail in the far-right corner (1 km from the road). The path is marked with flagging tape and leads to the river (Figure 88).

Figure 88: Site Photos of the Water Quality Monitoring Station ScdE-2, spring 2018

This site is located approx. 11 km downstream from the Greater Shediac Sewage Commission's aeration lagoons. The surrounding land use is mainly residential, forested land, wetlands, ATV trails, and one mineral extraction pit. The pit has a dense tree buffer between the outer limit and the beginning of the wetlands surrounding the river (> 350 m).

Scoudouc G (ScdG)

This water quality sampling site was located in the headwaters of the Scoudouc River, next to the Trans-Canada Highway. This site was only sampled in 2000 and 2001. The surrounding land use includes roads, forestry, and the Dieppe Airport (Figure 89).

Figure 89: Site Photo of the Water Quality Monitoring Station ScdG, Google Earth street view (field photo unavailable)

6.1.3 Temperature Monitoring Stations

The water temperature monitoring stations using temperature loggers in the Scoudouc River were first established in 2016 as part of the salmon conservation efforts by the SBWA. Locations were determined strategically based on habitat characteristics and past temperature recordings. There are currently two temperature monitoring sites in the main stem of the Scoudouc River; T-ScdB and T-ScdD (Figure 90). The following section provides an overview of temperature fluctuations in relations to the impacts on salmonid populations in the Shediac River.

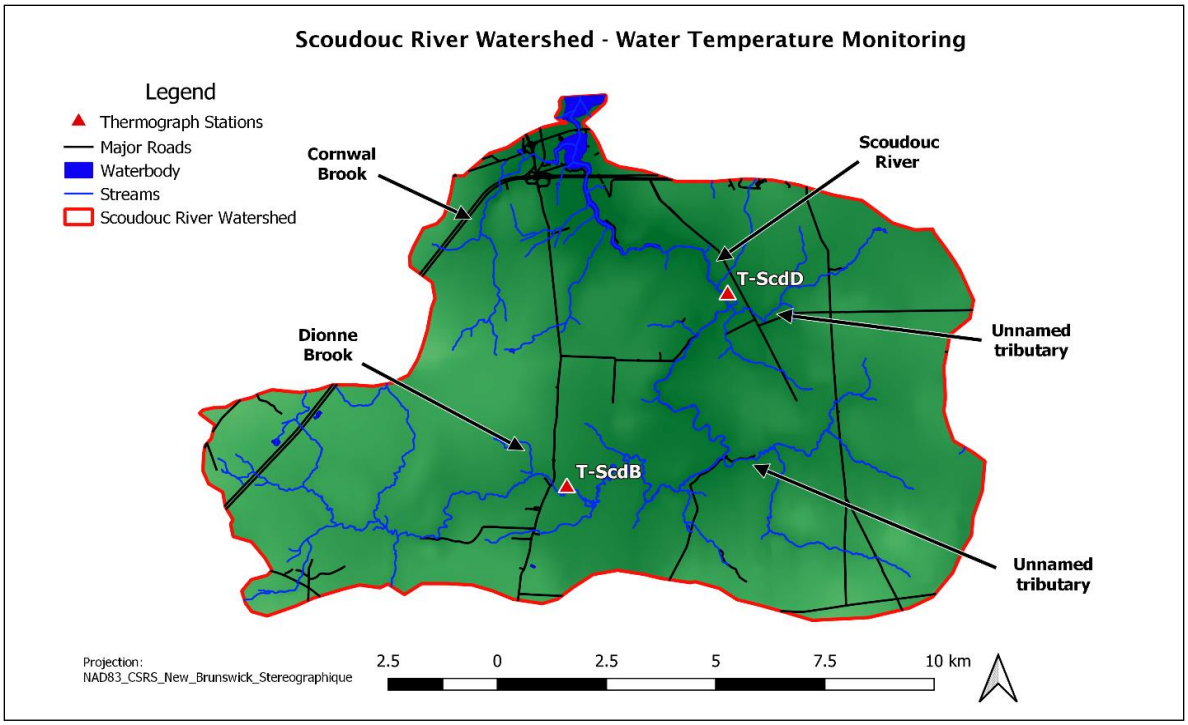

Figure 90: Scoudouc River Watershed Water Temperature Monitoring Map

Thermograph station T-ScdB

This temperature logger site is located in the Scoudouc River, next to the Greater Shediac Sewerage Commission's Aeration Lagoons (Table 18.). The logger is placed just above an access to the right of the lagoon. This site was established for the first time in 2016.

Table 18: Thermograph Station T-ScdB Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2016	May 21th - October 3rd	9 (6 consecutively)	-	24.45	17.23
2018	May 29th - September 26th	26 (19 consecutively)	-	24.55	18.03
2019	June 1st - September 30th	12 (6 consecutively)	-	24.25	17.18
2020	July 1st - September 30th	35 (15 consecutively)	3	25.71	18.69
2022	June 1st - September 15th	31 (17 consecutively)	7	26.29	19.31
2023	June 14th – September 7th	29 (27 consecutively)	8	26.29	19.62

Thermograph station T-ScdD

This temperature logger site is located in the Scoudouc River, at the site known as Edna's Pond (Table 19). This location was chosen based on electrofishing surveys confirming early life stage habitat for Atlantic salmon. This site is also a popular stop for recreational vehicles, and is connected to several ATV trails. This area has been a site for restoration by the SBWA since 2017. This site was also shown to be habitat for American eel (*Anguilla rostrata*), which was discovered during electrofishing surveys.

Table 19: Thermograph Station T-ScdD Data Summary

Year	Monitoring period	Thermal stress threshold exceedance (22ºC) (# days)	Thermal lethal limits exceedance (25ºC) (# days)	Highest recorded temperature (ºC)	Average water temperature (ºC)
2017	June 1st - October 1st	40 (6 consecutively)	9	29.15	19.47
2018	May 28th - September 26th	50 (19 consecutively)	26	27.27	18.81
2022	June 1st - September 14th	48 (25 consecutively)	28	31.37	19.32
2023	June 14th – September 7th	34 (28 consecutively)	18	27.67	20.15

6.1.4 Electrofishing Sites Surveys

The first known electrofishing surveys performed in the Scoudouc River system were done in partnership with *Canadian Rivers Institute* and the *UNBSJ Department of Biology*, as part of the freshwater mussel inventory project. This study was done to better understand the recruitment potential of freshwater mussels in relation to fish population. Not a lot of data exists on these surveys, other than they were performed using a single-pass protocol, and the fish count per species caught (Figure 91).

Figure 91: Atlantic salmon parr

In 2014 and 2015, surveys were performed in an unnamed tributary of the Scoudouc River. In 2016, a new site was established in the main branch of the Scoudouc River, in the location known as Edna's pond (Figure 92).

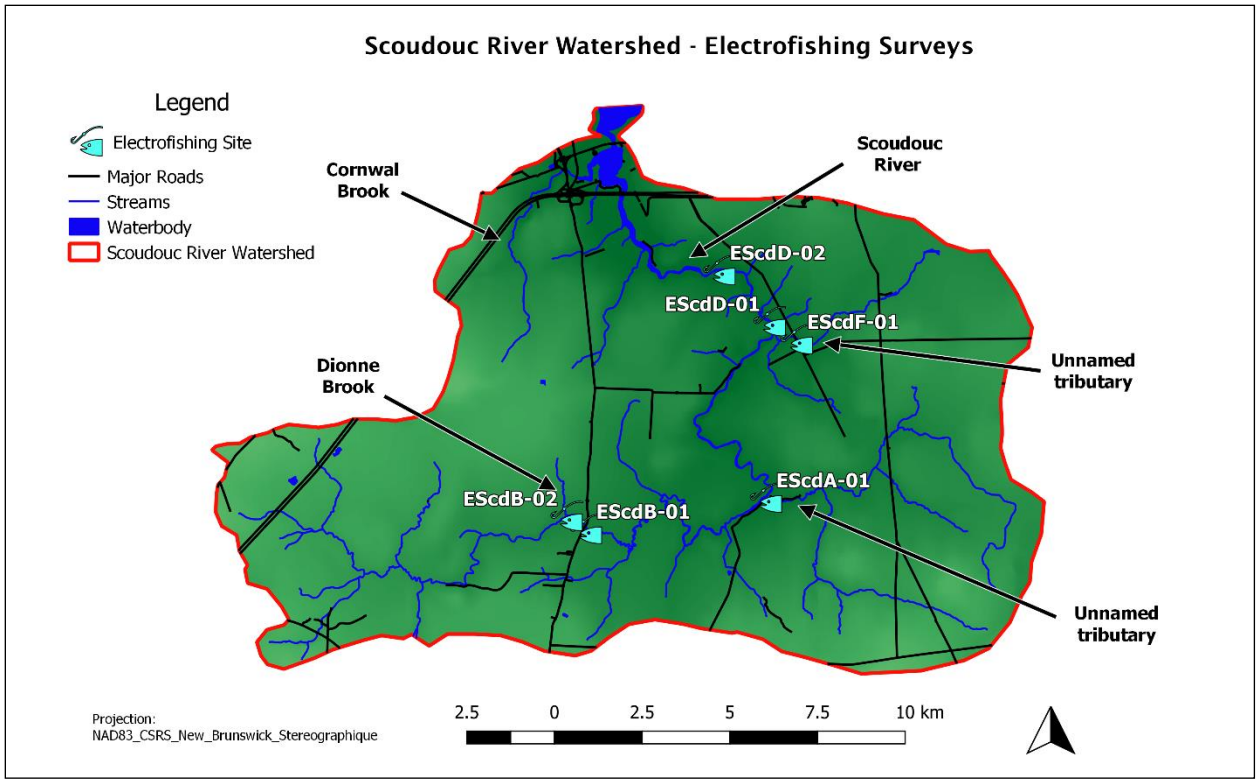

Figure 92: Scoudouc River Watershed Electrofishing Survey Map

Electrofishing Site EScdB-01

This site is located in the Scoudouc River, below the bridge on Route 132, next to the *Waggin' Tail Inn*. This site was surveyed only once in 2006 as part of the freshwater mussel inventory project. It was done using a single pass protocol. No salmonid was caught during this survey (Figure 93).

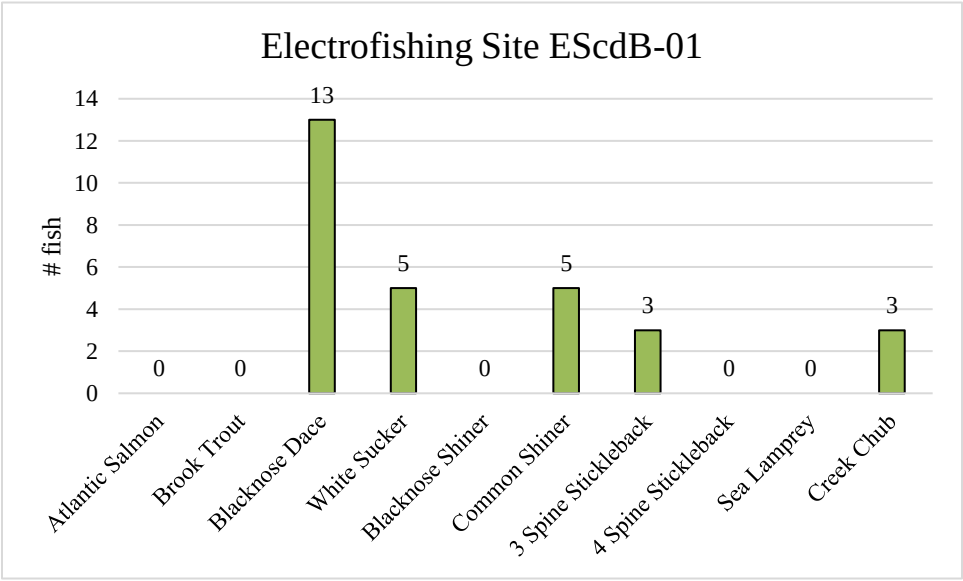

Figure 93: Electrofishing data chart for site EScdB-01, Scoudouc River 2006

Electrofishing Site EScdB-02

This site is located in the Scoudouc River, directly below the convergence of the Dionne Brook (Figure 94). This area is accessed through a private property, for which the SBWA had landowner permission. The habitat here was modified by a severed erosion issue caused by a meander located in an old agricultural field. The soil is loose and only held by grasses, allowing this area of the Scoudouc River to continuously erode. This erosion problem had caused heavy loads of fine sediments to be discharge into the brook, therefore covering the substrate and modifying the habitat. The habitat was also modified by beaver activity.

Figure 94: Field team conducting electrofishing survey

Two electrofishing surveys were performed here in 2014 and 2015. In 2016, beavers re-established themselves in the area. Due to the flooding of the site, no other surveys were performed. A total of 9 species of fish were found during the surveys. Only one Atlantic salmon and one brook trout were found (11.0 cm and 11.5 cm respectively) in 2015 (Figure 95).

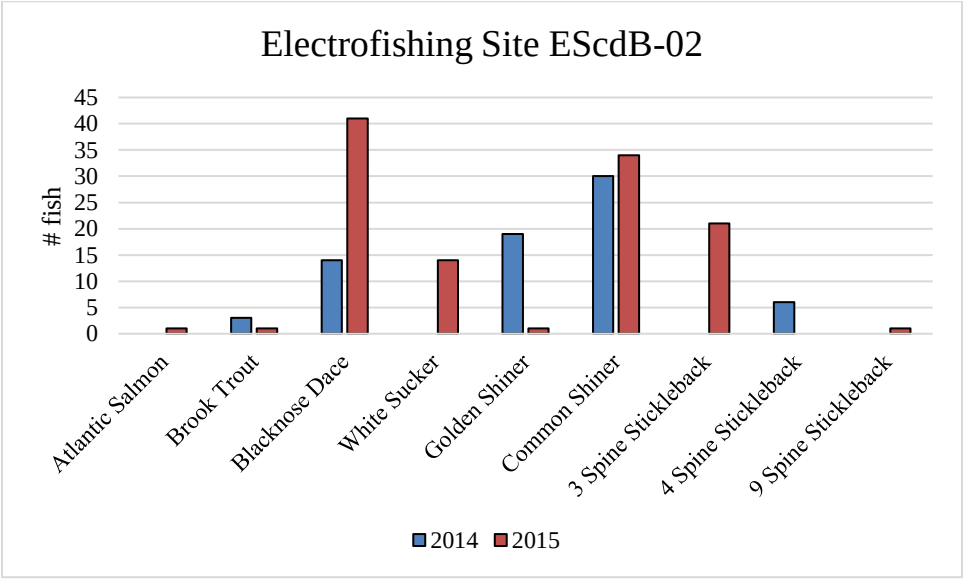

Figure 95: Electrofishing data chart for site EScdB-02, 2014-2015

Electrofishing Site EScdD-01

This electrofishing survey site is located in the lower reaches of the Scoudouc River, approximately 2.5 km above the highest tidal zone. This area is commonly known as Edna's pond (Figure 96). It is accessed by walking down the path of an ATV trail, off of the Pellerin Road. The survey method used for this electrofishing site is the same method used by the Department of Fisheries and Oceans Canada; Catch Per Unit Effort (CPUE). This process is a continued back and forth sweeping along a large rectangular riffle, from bank to bank until a minimum of 500 seconds has been reached.

Figure 96: Site photo of electrofishing site at Edna's Pond

This site was established in 2016, and was chosen due to the characteristics of the habitat – a long deep pool believed to be a salmon pool, and large flat rocks creating large riffles downstream of the pool. Another reason we wanted to assess this habitat was the presence of ATV trails, and the knowledge that ATVs use this area to cross the river. This site is now receiving restoration efforts to minimize sedimentation and erosion.

During the first survey in 2016, conditions became unfavorable for electrofishing due to a heavy rainfall event approximately 48 hours earlier, creating high water levels and strong currents. These conditions during the sampling caused the loss of most fish and significantly reduced visibility. This brought inaccurate results for fish populations present in this site. However, two salmon, one trout and two eels were caught, in addition to other small fish (Figure 97).

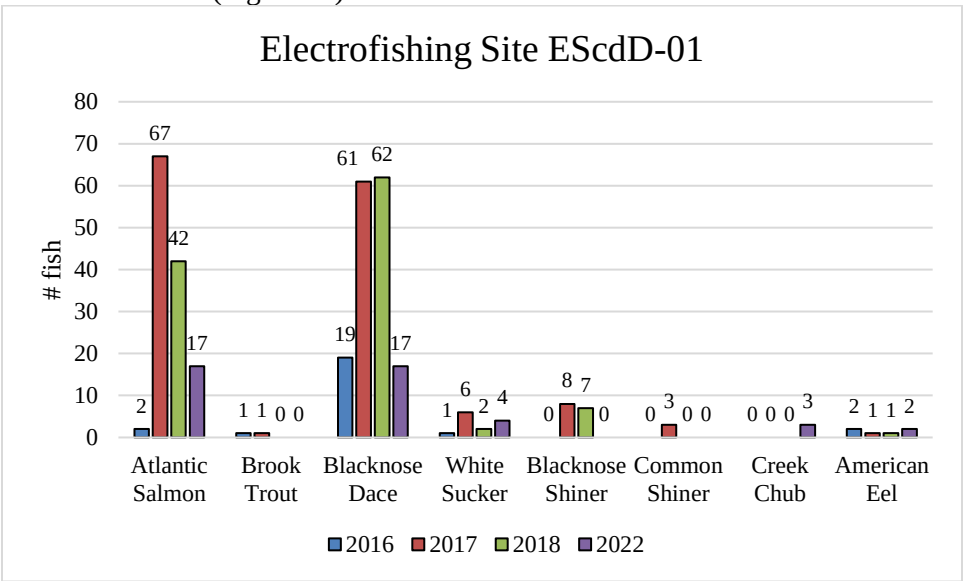

Figure 97: Electrofishing data chart for site EScdD-01, Shediac River 2022

In 2017, the survey was redone under excellent conditions. Compared to 2016 when only two salmon were caught, a total of 67 fry and parr were found. Salmon sizes ranged from 40 mm to 140 mm and a trout measuring 124 mm was caught.

In 2018, 42 Atlantic salmon between the sizes of 58 mm and 160 mm were caught during the survey. No trout were found, but an American eel was caught.

In 2022, the total catch was low compared 2017 and 2018. Atlantic salmon and American eel were found again after the four-year electrofishing hiatus. The salmon ranged from 52mm to 160mm (Figure 98).

These results confirm the importance of the restoration and protection work being done upstream of this habitat.

Figure 98: Atlantic salmon and American eel

For more information on specific measurements of fish and of habitat characteristics, please refer to the following reports in the "Reports and Archives" on the SBWA website

- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2016"
- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2017"
- "Fish Habitat Restoration, Evaluation Restauration and Education for the Salmonid populations in SBW-Final Report 2018"

Electrofishing Site EScdD-02

This electrofishing survey site is located in the lower reaches of the Scoudouc River, above the transmission powerlines access through Red Bridge Road (Figure 99). This site was surveyed only once in 2006 as part of the freshwater mussel inventory project. It was done using a single pass protocol. No salmonids were caught during this survey (Figure 100).

Figure 99: Area upstream of powerlines, Scoudouc River

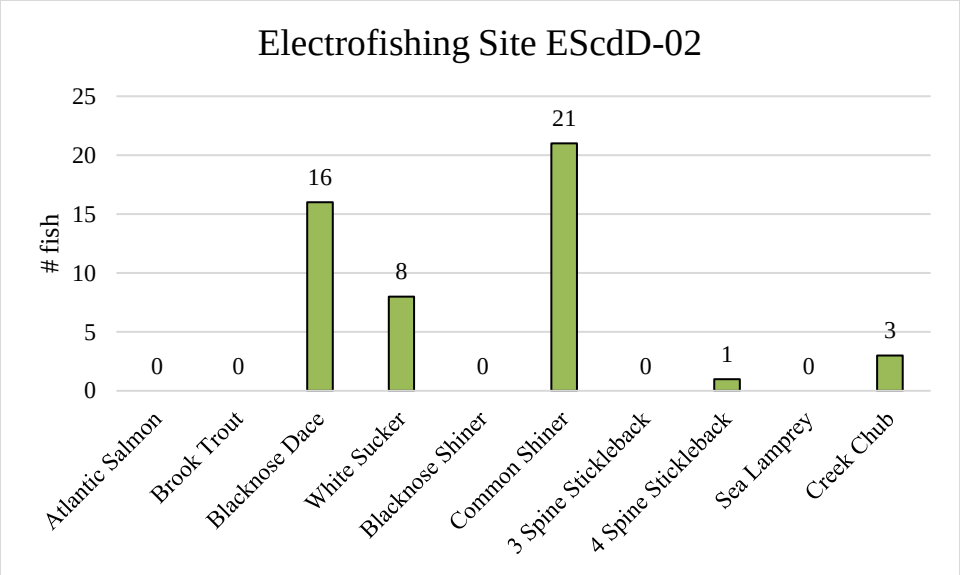

Figure 100: Electrofishing data chart, EScdD-02 2006

6.1.5 Culvert Assessments

A stream crossing inventory was conducted in 2007 to evaluate possible impediments to fish passage throughout the watershed (Figure 101). Please refer to section 2.5.1 of this report, or the project report "Stream Crossing Inventory and Assessment, 2008" in the 'Reports and Archives' section of the SBWA website for a more detailed description of the results. A map was recreated for the Scoudouc River watershed for this report.

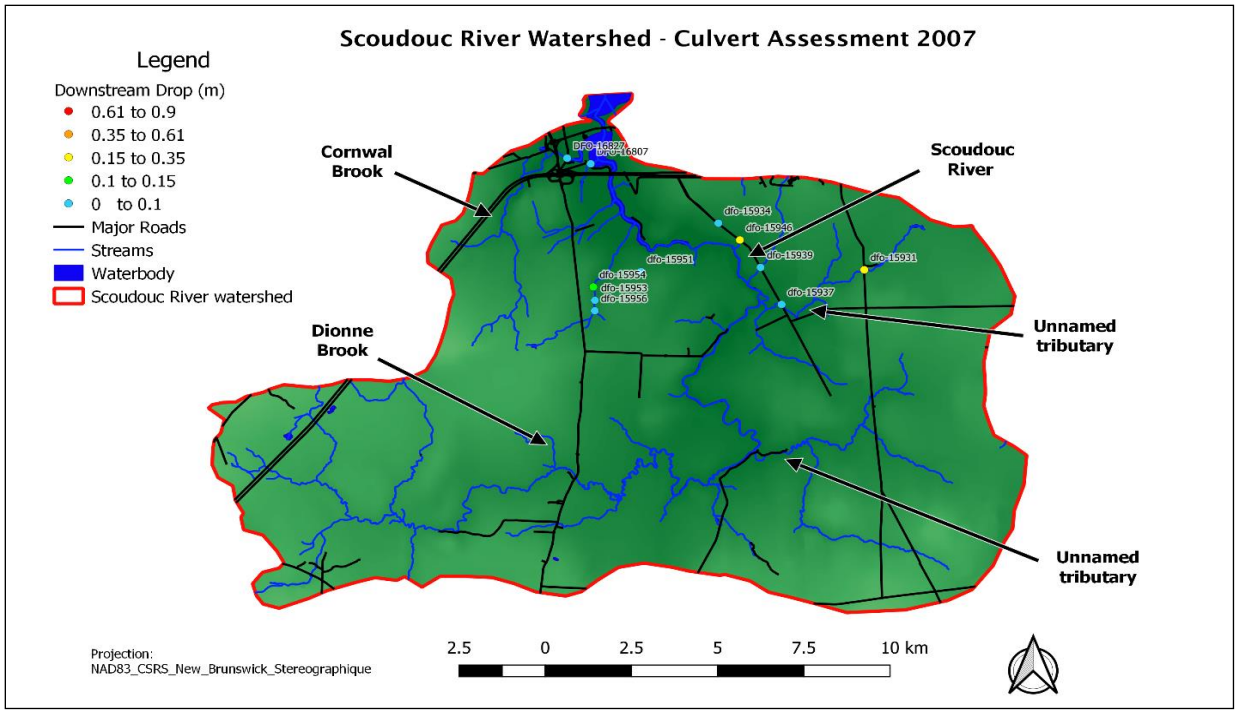

Figure 101: Map of culvert assessment classification results of the Scoudouc River watershed, 2007

In 2018, four culverts were evaluated in the lower Scoudouc River watershed (Figure 102), as they have the most potential to block large areas of upstream habitat. The Scoudouc River watershed is mostly forested land, and has a relatively low number of stream culvert crossings. Two culverts were identified as passable, and one culvert was considered a partial barrier (Table 20 & 21.). The last culvert crosses a seasonal stream that was dry at the time of assessment. For more information on this culvert assessment, please refer to the report "Salmonid Habitat Evaluation, Restoration and Education for the Shediac Bay Watershed, 2018" in the 'Reports and Archives' on the SBWA website.

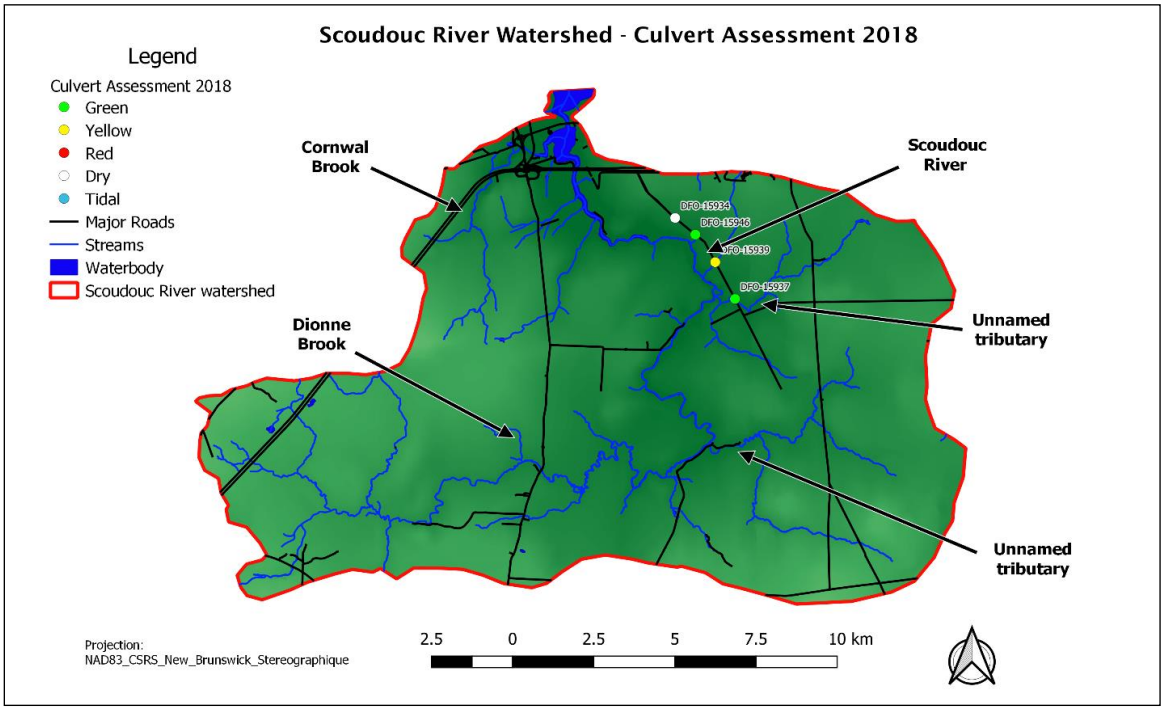

Figure 102: Map of culvert assessment classification results of the Scoudouc River watershed, 2018

Table 20: Culvert Assessment Summary Results for Scoudouc River, 2018

Culvert ID	Stream	Stream Type	Available habitats (km)	Culvert slope (%)	Outflow drop (m)	Classification
DFO-15937	Scoudouc tributary	Non-tidal	3.24	-0.2	-0.13	Passable
DFO-15939	Scoudouc tributary	Non-tidal	2.47	0.4	0.02	Partial barrier

*Protocol not adapted for tidal sites, to be reassessed.

Table 21: Rapid Assessment Summary Results for Scoudouc River, 2018

Culvert ID	Stream	Stream Type	Classification
DFO-15934	Scoudouc River tributary	Non-tidal	Dry
DFO-15946	Scoudouc River tributary	Non-tidal	Passable

6.1.6 Land Uses Around the Scoudouc River

There are many human activities and usage of the land surrounding watercourses that are capable of impacting water quality and fish habitat integrity. The surrounding land uses of the Scoudouc River includes (Figure 103 – 105):

- Residential sectors,
- Agriculture and cattle pastures,
- Sewage aeration lagoon
- ATV trails and crossings
- Dirt roads/logging roads
- Forestry exploitations
- Mineral extraction pits
- Industrial park
- Transmission powerlines crossing
- Natural gas pipeline crossing

In the next phase of this report, the shoreline sanitary survey carried out by the Southeastern Anglers Association, and other stream habitat and riparian zone assessments done by the SBWA, will be compiled and reported. These assessment results will discuss the impacts of these surrounding land uses on the river. Future recommendations for actions and partnerships will be examined along with these results.

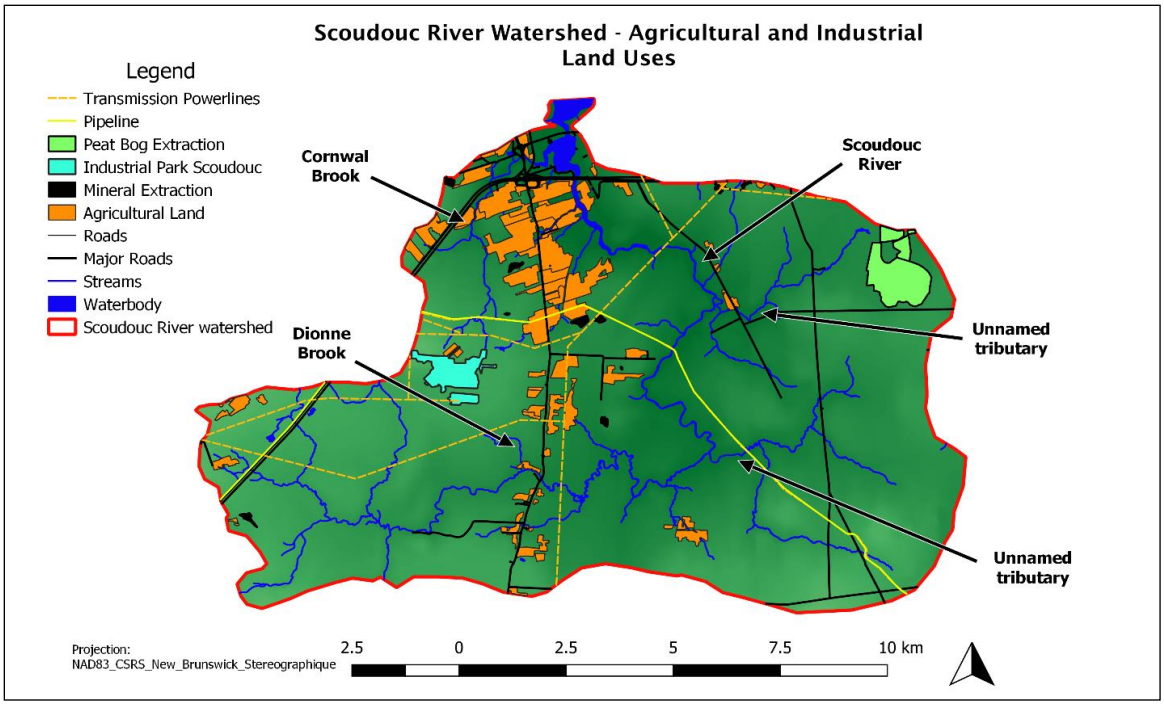

Figure 103: Map of Scoudouc River Watershed's Agricultural, Mineral Extraction and Industrial Land Uses

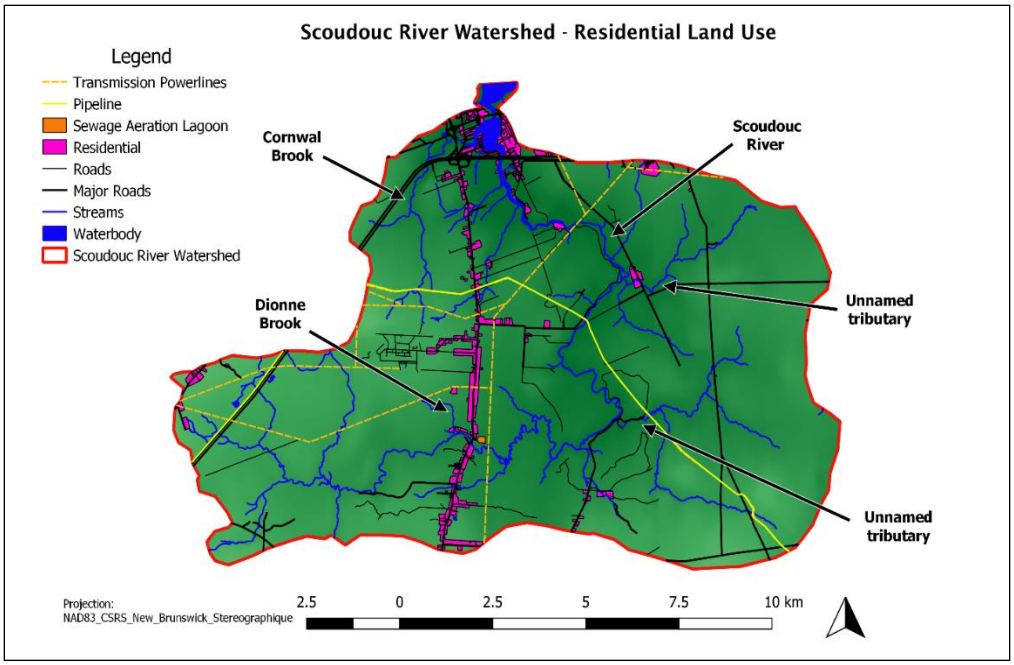

Figure 104: Map of Scoudouc River Watershed's Residential Land Uses

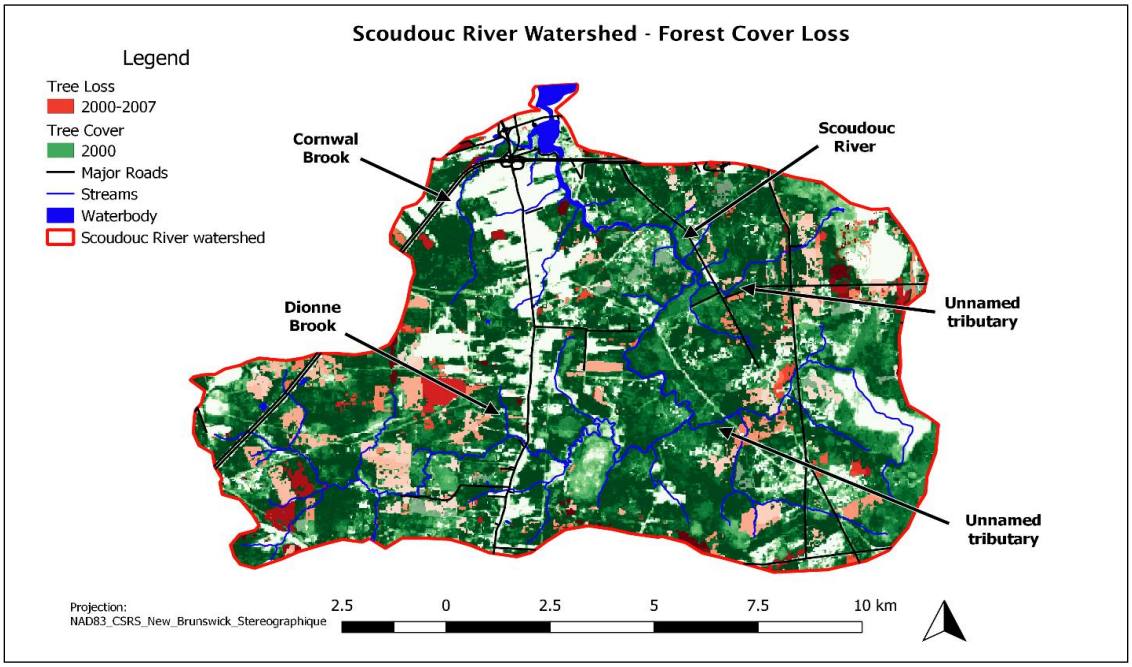

Figure 105: Map of Scoudouc River Watershed's Forest Cover Loss to Industry and Other Development

Scoudouc River Canoe Run

In April 2016, the SBWA participated in the yearly Scoudouc River Canoe run, to better understand a significant portion of the river. Travelling down the Scoudouc River, the team was able to see the wetlands and wide-open areas in the beginning of the run, old beaver huts, wildlife including two river otters and Canadian geese, the healthy forested areas, and the other beauties of this river (Figure 106).

Figure 106: Great Canadian Geese, River Otter, beaver hut and freshwater wetland, Scoudouc River

They also noted forested areas being exploited for lumber, sections that had significant erosion, and farm fields with very little vegetation within the buffer zones (Figure 107). This activity was important for the staff to see the river as a whole, to see the areas to be protected and areas to be remediated.

Figure 107: Logging within riparian zone and agricultural land.

6.1.7 Restoration Actions

Several restoration projects have taken place in the Scoudouc River. Great partnerships have been formed with landowners and concerned stakeholders to enhance or restore fish habitat impacted by human activities. The following section reports on the restoration initiative in the main branch of the Scoudouc River.

Septic Improvements

A major water quality issue was resolved thanks to the Septic Improvement Project along the Scoudouc River in 2005-2006. The Association had identified a senior's home in Scoudouc that did not have any septic system, and was discharging raw sewage directly into the river, causing an enormous bacterial and water contamination problem. A partnership was formed and funding was received to install a septic system with a peat moss cell drainage field (developed by Shaw Peat, a division of Shaw Pipe, installed by Gallant Septic Service) (Figure 108). The peat moss system is very advantageous when space is limited and soil type is not adequate. This is an example of a successful project that resolved a very serious pollution source in the Scoudouc River.

Figure 108: New septic system at Arsene Richard Seniors Home, Scoudouc

Cattle Fencing Scoudouc River

In 2003, a partnership was formed to help install a new cattle fence on the Alvin Bourque Farm in Scoudouc (Figure 109). The farmer had already installed an independent well for his cattle, which limited the cattle from accessing the stream. Blocking the entire watercourse was not possible due to spring flooding which would cause damage and other problems to the fencing project. The project was still successful in limiting bacteria inputs and reduced erosion of the stream banks caused by cattle accessing the stream. With the cattle restricted, the vegetation finally had the opportunity to develop and stabilize the sediment, hence minimizing the amount of silt in the watercourse.

Figure 109: Cattle Fencing

Scoudouc River Bank Stabilization (Dionne Brook)

The SBWA identified a severe erosion problem in the Scoudouc River, directly below the convergence of the Dionne Brook. A meander in an old agricultural field was continually shifting and eroding the loose, nutrient rich soil, containing no root systems other than grasses. This erosion was creating heavy loads of sediment that covered the substrate on a 475 m stretch downstream of this site.

In 2015, an 18 ft. (5.5m) retaining wall was built into the eroding bank to halt erosion (Figure 110). On both sides of the wall, deflector trees (Balsam fir) were installed along the bank using 7 ft. metal T-Bars and metallic wire (Figure 111). The deflectors where installed on a 30-meter stretch, mostly upstream of the wall where the erosion was most severe. The retaining wall and the deflectors were built and installed according to the guidelines in the manual "Ecological Restoration of Aquatic Degraded Habitats", prepared by the Dept. of Fisheries and Oceans, 2006. In 2016, additional trees were planted with available funding.

Figure 110: Retaining wall construction in 2015, Scoudouc River

This project remains a success in 2018; the retaining wall has withstood winter ice and the erosion has been halted. However, the deflector trees did degrade and did not collect sediment to rebuild the bank.

Figure 111: Retaining Wall Scoudouc River

Edna's Pond

In 2017 an area in the Scoudouc River, known as Edna's Pond, was selected for remediation work due to erosion and sedimentation problems surrounding sensitive salmon habitat. The site is surrounded by ATV trails and is a popular stop for the annual Scoudouc River canoe and ATV run. The primary trail was causing heavy sediment to runoff in the river after rainfall events (Figure 112). The site is also impacted by erosion problems. The purpose of the restoration work was to control sediment runoff and stabilize the eroding banks, using biotechnical techniques.

Figure 112: Sediment loading from ATV trails into the Scoudouc

The section of ATV trail in question is aligned with the Scoudouc River and has a steep slope, which causes sediment-filled runoff to flow down into the river. The riverbanks surrounding the popular resting area had damage and erosion problems, bringing even more sediments in the water. The remediation strategy was to redirect rainwater runoff towards the wooded area, to be filtered from its sediment by the natural vegetation.

The first step was to widen the trail to allow the excavator to come in to do its work. Members of the Scoudouc ATV Club volunteered to help clear cut a small section of trees on the right-hand side of the trail. An excavator was brought in through the ATV road connected to Red Bridge Road in Scoudouc. The excavator began its work by rebuilding the trail to reduce the slope, shifting the soil in several bulldozing passes (Figure 113). Next, four large cross-slope trenches were dug along the trail. Machinery work was done over two days.

Figure 113: Restoration work done on ATV trail at Edna's pond, 2017

Trees of similar diameters were selected and cut to serve as channel stabilizers; they were anchored in the trenches using steel rebar (3-feet in length). Once the logs were installed along each trench, strips of geotextile material were stapled along the logs to prevent water from eroding the soil beneath them. Rocks found on site were used to weigh down the geotextile material on the ground. Grass seed (110 Lbs fall rye) was spread over the entire area where soil was disturbed by machinery, to minimize the impact of the work. Trees were replanted along the site and in the area cleared for the work.

The SBWA became aware that not only were the ATV's crossing the river at the restoration site, but they were also crossing at a secondary site approximately 1.2 km upstream. In some areas, the ATV's also drive within the watercourse to get to that area. A decision was taken to install two large metal cables to block the access and placed a habitat protection sign (Figure 114).

Figure 114: ATV access blocked, Scoudouc

A total of five signs were installed around the Scoudouc River restoration site to inform and educate the people who use the area for recreational activities, of the work that has been done and the ecological importance of this area. Three different signs were designed for this area: "Riverbank Protection Zone", "Working Together to Restore Fish Populations", and the primary large sign of the restoration work "Sediment Mitigation of the Scoudouc River: Edna`s Pond". All signs were installed around the restoration area, except for one "Working Together to Restore Fish Populations" was installed further upstream where the SBWA blocked the access of one river crossing area (Figure 115).

Figure 115: Signs installed at Edna's pond

6.1.8 eDNA Sampling

Five locations were sampled in the Scoudouc River and its tributaries in 2023 (Figure 116). Samples were taken from water quality sites ScdH, ScdF and ScdB, which are current monitoring sites, and ScdI, ScdA which are sites that have been sampled in the past.

Figure 116: eDNA sampling locations on the Scoudouc River.

6.1.9 Future Recommendations

The purpose of this Fisheries Management Plan is to identify information gaps and determine future recommendations to guide the SBWA's future project endeavours. The following presents a list of these recommendations for the Scoudouc River watershed, and will be continuously updated as this strategic plan evolves.

Stewardship

- Identify foresters having a possible effect on the Scoudouc River.
- Establish communication and engage the participation towards better land management with these foresters.
- Educate to encourage a better sense of stewardship towards the Scoudouc River.
- Approach riverfront landowners to educate about maintaining a better buffer zone (reduce lawn mowing to close to river).
- Form partnerships with riverfront landowners suffering from erosion problems to stabilize banks using biotechnical materials.
- Continue partnership with local ATV clubs to educate members on fish habitat protection, impacts of in-stream vehicle crossing, and sediment runoff from trails.
- Promote better maintenance of dirt roads to reduce sediment runoff impacting the river and its tributaries.
- Form partnership with local farmers to enhance buffer zone and manage their surface runoff.
- Identify quarries or pits that may have an impact on water quality
- Work with landowners to remediate quarry sites

Data Gaps and Actions

- Compile stream assessment data for the Scoudouc River, then identify actions to remediate problems.
- Continue fish population surveys using a standardized electrofishing protocol, to include larger reaches of the watershed.
- Re-evaluate past electrofishing survey sites.
- Conduct Redd Count surveys in the Scoudouc River to identify spawning habitat.
- Continue restoration work/maintenance, protection and education around Edna's pond.
- Identify new locations requiring buffer zone enhancements
- Continue buffer zone enhancements in existing known problematic locations
- Promote better forestry practices in the riparian areas of the Scoudouc River and its tributaries
- Continue water quality monitoring to make sure measured parameters stay within the CWQG for the protection of aquatic life
- Consult with experts on water chemistry in relations to the specific health of salmonids.
- Continue water temperature monitoring and form partnership with universities and/or governmental agencies to better understand the impacts of climate change on fish populations.
- Identify fish passage barriers that can be remediated within the Association's capacity.
- Investigate abandoned dump sites possibly affecting water quality.

7. *Closing Statement*

This *Fisheries Management Plan for the Enhancement of Salmonid Population in the Shediac Bay Watershed* is the second phase of the larger task of compiling 20 years' worth of data from the Shediac Bay Watershed Association's work. Reports are written on a yearly basis containing the results of each year's projects. It was time to compile all the great work and data collected since the creation of the Association in 1999. This compilation is necessary to create a strategy moving forward, based on the clear information gaps and future recommendations. The template structure for this report was designed to be easily updatable year after year, and to continue to add the data from other tributaries of the watershed to future phases of this management plan.

In the Phase III of this management plan, the data from other sub-watersheds will be added in following the same template. The next priority will be the reporting on the Weisner Brook/Calhoun Brook watershed of the Shediac River. In the Scoudouc River, the data from the Cornwall Brook watershed will be added. This report will evolve and be continually updated as new data is collected and more projects are completed.

This report is meant to be used internally, as a guidance for the development future SBWA projects. As a non-profit, charitable environmental organization, all reports and data collection are fully transparent and available to interested parties. Therefore, this report is made available to the public, governmental agencies and other interested groups and associations.

The Shediac Bay Watershed Association will continue to monitor and assess the work that has been done in order to improve water quality and fish habitats of the watershed. Many projects have been successfully implemented in the last 20 years to increase knowledge and stewardship towards the watershed, and to create partnership for habitat protection and remediation. The Association will continue to improve the environment to ensure a future for all aquatic species in the watershed.

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9. *Appendix A – Water Quality Data*

Table A 1: Site ScdA Field and Lab Data

SITE ScdA: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
99-10-14	—	—	—	—	—	10	10.8	150	—	70	20	—	—	6.5	—	—	35.725	1.2
99-11-18	—	—	—	—	—	60	16.3	100	—	91.5	22.7	—	—	7.1	—	—	42.882	1.1
00-10-04	15.0	13.3	—	—	—	10	58.6	40	—	185	60	—	—	7.7	—	—	91.302	0.8
00-11-12	6.0	—	—	—	—	20	7.71	120	—	66.6	17	—	—	6.2	—	—	32.153	1.1
00-12-03	-3.0	—	—	—	—	30	5.61	150	—	54.9	13.4	—	—	6.4	—	—	26.799	1
01-05-16	14.2	9.30	—	10.00	84	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	21.9	17.40	—	9.30	96	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	5.73	200	—	28.7	8.5	—	—	5.9	—	—	14.28	0.8
01-06-12	21.8	17.20	—	9.20	96	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	24.5	19.60	—	8.80	96	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	60	38.6	150	—	134	40.6	—	—	7.6	—	—	66.524	2.2
01-07-12	22.0	19.00	—	9.40	102	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	28.0	22.80	—	8.30	98	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	20	60.4	40	—	180	56.8	—	—	7.9	—	—	94.298	0.9
01-08-09	27.8	23.10	—	6.40	74	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	10	54.7	40	—	165	48	—	—	7.9	—	—	83.618	1.1
01-10-09	—	—	—	—	—	10	68.9	20	—	186	51	—	—	7.9	—	—	100.183	1
01-11-18	2.0	—	—	10.60	—	120	12.5	75	—	149	42.6	—	—	6.7	—	—	77.385	1.7
02-05-09	16.9	12.0	—	10.30	95	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	20.0	16.0	—	9.40	96	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	13.9	13.4	—	9.80	92	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	90	18	150	—	93.6	24.5	—	—	7.0	—	—	47.104	2.08
02-06-20	24.1	17.40	—	9.30	96	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	25.0	21.40	—	9.00	100	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	40	28	250	—	120	34.8	—	—	6.9	—	—	61.872	1.71
02-07-18	23.2	19.30	—	9.00	96	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	23.0	18.50	—	10.30	110	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	27.4	21.70	—	8.10	92	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	30	35.1	140	—	144	36.8	—	—	7.2	—	—	—	1.25

02-08-30	21.8	18.50	—	**5.80**	61	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	40	11.3	150	—	113	23.5	—	—	**6.4**	—	—	—	1.68
02-09-18	—	—	—	—	—	<10	11.6	100	—	113	23.3	—	—	**6.5**	—	—	—	1.73
02-09-19	23.2	15.30	—	**4.40**	44	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	13.7	11.70	—	10.70	97	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	18.5	17.70	—	9.30	96	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	20.7	19.00	—	9.20	99	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	20.2	19.00	—	9.50	101	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	23.6	21.80	—	9.40	107	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	20.4	18.10	—	9.30	98	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	19.1	18.80	—	9.20	98	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	18.2	15.60	—	9.20	91	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	24.3	20.50	—	8.60	95	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	12.6	12.60	—	10.00	89	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	12.6	10.60	—	10.50	92	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	15.8	11.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	5.6	2.80	—	13.60	99	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	12.2	7.20	—	12.10	98	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-07	24.0	19.00	0.00	7.52	—	—	—	—	75	—	—	—	—	—	—	—	—	—
06-08-10	22.1	18.50	0.00	**6.35**	—	—	—	—	51	—	—	—	—	—	—	—	—	—
06-09-28	13.0	10.62	0.05	11.50	—	—	—	—	72	—	—	—	7.5	—	—	—	—	—
06-11-02	9.7	5.62	0.02	11.34	—	—	—	—	36	—	—	—	**5.7**	—	—	—	—	—
07-05-15	13.6	9.62	0.02	12.37	—	56.8	—	—	46	—	—	—	7.1	—	—	—	—	—
07-06-19	17.8	16.39	0.04	11.57	—	14.8	—	—	81	—	—	—	7.7	—	—	—	—	—
07-07-18	24.5	18.30	0.04	11.04	—	9.6	—	—	91	—	—	—	7.5	—	—	—	—	—
07-08-14	19.1	17.44	0.04	11.40	—	2.0	—	—	81	—	—	—	7.9	—	—	—	—	—
07-09-17	14.5	10.03	0.04	13.73	—	325.5	—	—	92	—	—	—	7.9	—	—	—	—	—
07-10-17	—	6.63	0.03	14.04	—	85.6	—	—	63	—	—	—	7.3	—	—	—	—	—
08-05-21	12.2	9.30	0.01	11.01	—	70.6	—	—	32	—	—	—	6.6	—	—	—	—	—
08-06-25	25.0	18.23	0.04	9.46	—	85.7	—	—	85	—	—	—	7.7	—	—	—	—	—
08-07-21	20.0	17.88	0.04	9.51	—	172.2	—	—	93	—	—	—	7.6	—	—	—	—	—
08-08-20	—	15.23	0.02	9.40	—	**816.4**	—	—	50	—	—	—	7.4	—	—	—	—	—
08-09-17	—	12.39	0.02	9.59	—	135.4	—	—	49	—	—	—	7.0	—	—	—	—	—
08-10-23	—	5.23	0.03	12.18	—	69.1	—	—	63	—	—	—	7.7	—	—	—	—	—
09-05-20	14.1	11.73	0.02	10.26	—	61.7	—	—	28	—	—	—	6.6	—	—	25	—	—
09-06-24	16.5	14.42	0.02	9.29	—	143.9	—	—	31	—	—	—	6.9	—	—	26	—	—
09-07-23	19.4	17.63	0.02	8.54	—	**517.2**	—	—	39	—	—	—	6.6	—	—	29	—	—

09-08-19	21.6	20.24	0.03	7.71	—	178.9	—	—	59	—	—	—	7.1	—	—	42	—	—
09-09-23	22.2	14.60	0.04	10.12	—	**727.0**	—	—	66	—	—	—	7.8	—	—	54	—	—
09-10-20	11.4	6.61	0.01	11.19	—	98.8	—	—	21	—	—	—	**6.5**	—	—	21	—	—
10-05-28	—	11.00	0.03	10.33	—	235.9	—	—	30	—	—	—	8.2	—	—	24	—	—
10-06-25	—	17.18	0.03	8.20	—	24.3	—	—	53	—	—	—	7.7	—	—	40	—	—
10-07-22	—	18.88	0.03	7.56	—	88.4	—	—	66	—	—	—	7.8	—	—	48	—	—
10-08-25	—	13.04	0.05	**5.10**	—	98.7	—	—	85	—	—	—	8.4	—	—	72	—	—
10-09-21	—	11.25	0.02	**4.85**	—	59.1	—	—	40	—	—	—	8.4	—	—	35	—	—
11-06-23	—	14.85	0.02	—	—	—	—	—	50	—	—	—	8.5	—	—	—	—	—
11-07-20	—	18.25	0.01	—	—	—	—	—	35	—	—	—	8.2	—	—	—	—	—
11-08-24	—	16.20	0.02	—	—	—	—	—	45	—	—	—	8.0	—	—	—	—	—
12-06-25	—	15.70	0.02	9.13	—	**410.6**	—	—	40	—	—	—	8.6	—	—	—	—	—
12-07-24	—	18.08	0.04	8.46	—	307.6	—	—	76	—	—	—	7.6	—	—	—	—	—
12-08-29	—	14.81	0.05	7.36	—	5.2	—	—	94	—	—	—	8.2	—	—	—	—	—
12-09-24	—	14.50	0.03	7.84	—	98.7	—	—	49	—	—	—	7.8	—	—	—	—	—
12-10-18	2.0	7.32	0.03	**6.41**	—	11.0	—	—	380	—	—	—	7.6	—	—	36	—	—

Table A 2: Site ScdA Nutrient Data

SITE ScdA: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	6.36	—	10.3	<0.1	0.29	1.00	7.82	0.012	—	<0.05	<0.05	<0.05	2.10	0.77	—	26.7	**0.023**
99-11-18	—	—	7.21	—	12.6	<0.1	0.54	1.14	8.20	0.014	—	<0.05	<0.05	<0.05	2.47	0.54	—	17.0	**0.016**
00-10-04	—	—	19.10	—	16.0	<0.1	0.73	3.01	13.00	0.011	—	<0.05	<0.05	<0.05	3.70	0.50	—	10.7	**0.013**
00-11-12	—	—	5.19	—	9.7	<0.1	0.55	0.99	6.22	0.020	—	<0.05	<0.05	<0.05	3.64	0.65	—	24.7	**0.017**
00-12-03	—	—	4.08	—	8.4	<0.1	0.32	0.79	6.07	0.013	—	<0.05	<0.05	<0.05	2.80	0.51	—	17.7	**0.012**
01-06-03	—	—	2.56	—	2.4	<0.1	0.23	0.51	3.23	0.043	—	<0.05	<0.05	<0.05	0.92	—	0.50	22.5	**0.017**
01-07-03	—	—	12.80	—	12.7	<0.1	0.36	2.11	11.60	0.013	—	<0.05	<0.05	<0.05	2.50	—	0.49	15.1	**0.026**
01-08-07	—	—	17.60	—	15.2	0.108	0.35	3.09	16.90	0.013	—	<0.05	<0.05	<0.05	4.38	—	0.38	10.4	**0.011**
01-09-05	—	—	14.90	—	13.0	0.120	0.48	2.64	14.10	<0.010	—	<0.05	<0.05	<0.05	5.10	—	<0.3	8.0	**0.009**

01-10-09	—	—	16.00	—	14.7	0.160	0.62	2.66	19.40	<0.010	—	<0.05	<0.05	<0.05	4.85	—	<0.3	6.6	0.012
01-11-18	—	—	13.20	—	16.4	<0.1	0.57	2.37	13.40	0.037	—	<0.05	0.082	0.132	22.50	—	0.63	22.2	0.033
02-06-19	—	—	7.84	—	13.6	<0.1	0.31	1.18	10.20	0.015	—	<0.05	<0.05	<0.05	1.76	—	0.59	24.8	0.027
02-07-17	—	—	11.20	—	15.8	<0.1	0.36	1.65	12.40	0.024	—	<0.05	<0.05	<0.05	1.89	—	0.78	28.4	0.038
02-08-21	—	—	11.90	—	17.9	<0.1	0.66	1.73	13.10	0.019	—	<0.05	<0.05	<0.05	1.83	—	0.73	24.6	0.018
02-09-18	—	—	7.41	—	17.2	<0.1	0.82	1.22	11.20	0.013	—	<0.05	<0.05	<0.05	5.03	—	0.78	32.6	0.029
02-09-18	—	—	7.34	—	17.0	<0.1	0.78	1.21	11.20	0.010	—	<0.05	<0.05	<0.05	5.79	—	0.79	31.8	0.029

Table A 3: Site ScdA Heavy Metals Data

SITE ScdA: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.286**	<0.001	—	—	<0.0001	0.40912	—	0.001	0.0005	**0.730**	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.187**	<0.001	—	—	<0.0001	0.46529	—	0.002	0.0005	**0.400**	—	0.032	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.021	<0.001	—	—	<0.0001	1.24911	—	0.002	0.0019	0.211	—	0.024	—	<0.005	<0.001	—	<0.001	—	—	—	0.020
00-11-12	**0.318**	<0.001	—	—	<0.0001	0.34685	—	0.001	0.0007	**0.595**	—	0.048	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
00-12-03	**0.232**	<0.001	—	—	<0.0001	0.27236	—	0.001	0.0006	**0.428**	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.230**	<0.001	—	—	<0.0001	0.17151	—	0.002	0.0006	**0.690**	—	0.051	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.060	<0.001	—	—	<0.0001	0.83997	—	0.003	0.0008	**0.807**	—	0.102	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.022	<0.001	—	—	<0.0001	1.18146	—	0.002	0.0007	0.150	—	0.029	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.023	<0.001	—	—	<0.0001	0.99573	—	0.003	0.0006	0.115	—	0.090	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.035	<0.001	—	—	<0.0001	1.05899	—	0.004	0.0014	0.133	—	0.058	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.259**	<0.001	—	—	<0.0001	0.88202	—	0.002	0.0012	**0.415**	—	0.077	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
02-06-19	**0.246**	<0.001	—	—	<0.0001	0.5028	—	0.001	0.0006	**0.753**	—	0.087	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.207**	0.0013	—	—	<0.0001	0.7182	—	0.002	0.0007	**1.060**	—	0.177	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

02-08-21	0.091	<0.001	—	—	<0.001	0.76015	—	0.002	0.0005	**0.582**	—	0.968	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.283**	<0.001	—	—	<0.001	0.48195	—	0.003	0.0012	**0.832**	—	0.106	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
02-09-18	**0.281**	<0.001	—	—	<0.001	0.47779	—	0.003	0.0011	**0.830**	—	0.108	—	<0.005	<0.001	—	<0.001	—	—	—	0.006

Table A 4: Site ScdB Field and Lab Data

SITE ScdB: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	10	11.5	150	—	78.1	20.2	—	—	6.6	—	—	38.695	1.6
99-11-18	—	—	—	13.8	—	10	17.5	100	—	94.1	25.4	—	—	7.2	—	—	46.168	0.9
00-10-04	—	13.3	—	—	—	10	49.7	50	—	233	64	—	—	7.7	—	—	111.13	2.2
00-11-12	6.0	—	—	—	—	10	6.79	120	—	61.3	17.1	—	—	**6.4**	—	—	31.01	3.3
00-12-03	-3.0	—	—	—	—	10	1.8	75	—	48	9.31	—	—	**5.4**	—	—	22.006	0.3
01-05-16	13.0	9.30	—	10.00	86	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	21.6	18.50	—	7.60	82	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	60	25	200	—	95.4	30.6	—	—	7.3	—	—	50.09	2.9
01-06-12	21.6	16.40	—	9.00	92	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	24.5	20.20	—	7.10	77	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	160	75	100	—	211	81.5	—	—	8.0	—	—	107.105	2.7
01-07-12	22.6	19.50	—	7.20	77	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	25.9	**22.50**	—	7.20	83	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	150	110	30	—	285	128	—	—	8.2	—	—	149.781	2.7
01-08-09	25.9	21.30	—	**6.50**	73	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	110	98	30	—	243	89.6	—	—	8.1	—	—	124.94	4.3
01-10-09	—	—	—	—	—	20	115	20	—	280	119	—	—	8.1	—	—	154.829	3.8
01-10-09	—	—	—	—	—	10	116	20	—	282	117	—	—	8.1	—	—	154.545	3
01-11-18	2.0	—	—	—	—	30	12	75	—	145	41.4	—	—	6.9	—	—	74.713	1.2
02-05-09	18.5	13.1	—	10.20	96	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	22.0	16.0	—	9.00	94	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	13.3	13.0	—	9.70	89	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	<10	18.6	200	—	102	26.7	—	—	7.1	—	—	50.631	1.67
02-06-20	20.1	16.50	—	9.20	93	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	26.9	19.70	—	7.70	83	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	180	36.8	200	—	135	44.8	—	—	7.3	—	—	72.653	3.52

02-07-18	23.7	19.50	—	7.10	76	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	23.1	18.10	—	6.90	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	25.8	21.40	—	7.50	81	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	310	68	100	—	231	78.6	—	—	7.7	—	—	—	4.66	
02-08-21	—	—	—	—	—	220	68	100	—	231	77.8	—	—	7.7	—	—	—	4.61	
02-08-30	20.8	16.90	—	8.20	83	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	**1300**	10.2	150	—	107	22.4	—	—	6.6	—	—		2.14	
02-09-19	20.3	14.10	—	9.50	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	15.9	12.20	—	10.70	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	19.8	18.10	—	8.80	94	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	22.0	19.40	—	9.10	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	22.1	19.20	—	8.80	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	21.4	**27.70**	—	10.00	113	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	19.5	18.50	—	8.80	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	18.6	20.80	—	9.50	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	18.3	14.90	—	9.70	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	26.7	19.40	—	8.70	94	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	14.5	13.70	—	8.80	78	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	13.3	11.90	—	9.20	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	19.8	12.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	7.0	3.70	—	13.30	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	12.4	8.40	—	12.00	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-07	24.0	18.60	0.10	**6.03**	—	—	—	—	150	—	—	—	—	—	—	—	—	—	—
06-08-10	21.0	16.50	0.00	6.76	—	—	—	—	69	—	—	—	—	—	—	—	—	—	—
06-09-28	19.8	11.58	0.08	10.78	—	—	—	—	133	—	—	—	7.4	—	—	—	—	—	—
06-11-02	8.5	5.47	0.02	11.97	—	—	—	—	49	—	—	—	**6.2**	—	—	—	—	—	—
07-05-15	12.7	10.01	0.01	12.30	—	77.6	—	—	78	—	—	—	7.2	—	—	—	—	—	—
07-06-19	15.5	17.37	0.07	10.97	—	146.7	—	—	151	—	—	—	7.7	—	—	—	—	—	—
07-07-18	22.6	19.58	0.04	9.31	—	29.2	—	—	92	—	—	—	7.4	—	—	—	—	—	—
07-08-14	19.8	17.18	0.10	9.82	—	64.5	—	—	204	—	—	—	7.6	—	—	—	—	—	—
07-09-17	14.0	10.83	0.09	13.08	—	127.4	—	—	189	—	—	—	7.8	—	—	—	—	—	—
07-10-17	—	6.47	0.09	13.85	—	56.1	—	—	196	—	—	—	7.5	—	—	—	—	—	—
08-05-21	12.2	9.78	0.03	10.93	—	66.3	—	—	72	—	—	—	7.0	—	—	—	—	—	—
08-06-25	25.0	19.94	0.08	8.54	—	47.4	—	—	175	—	—	—	7.6	—	—	—	—	—	—
08-07-21	20.0	18.70	0.10	8.08	—	**461.1**	—	—	219	—	—	—	7.6	—	—	—	—	—	—
08-08-20	—	15.47	0.06	8.75	—	68.4	—	—	124	—	—	—	7.3	—	—	—	—	—	—
08-09-17	—	12.55	0.04	9.39	—	54.6	—	—	96	—	—	—	7.1	—	—	—	—	—	—

08-10-23	—	4.63	0.05	12.43	—	165.8	—	—	113	—	—	—	7.5	—	—	—	—	—
09-05-20	13.5	13.07	0.03	10.21	—	40.2	—	—	57	—	—	—	6.8	—	—	48	—	—
09-06-24	16.0	14.62	0.04	9.17	—	129.1	—	—	66	—	—	—	6.7	—	—	103	—	—
09-07-23	18.6	18.07	0.05	8.62	—	260.3	—	—	91	—	—	—	7.2	—	—	68	—	—
09-08-19	24.2	21.42	0.05	7.30	—	155.3	—	—	102	—	—	—	7.2	—	—	71	—	—
09-09-23	21.8	15.28	0.07	9.43	—	47.9	—	—	116	—	—	—	7.8	—	—	93	—	—
09-10-20	8.0	6.13	0.02	11.98	—	165.8	—	—	33	—	—	—	7.5	—	—	34	—	—
10-05-28	—	11.67	0.07	9.92	—	65.7	—	—	107	—	—	—	7.9	—	—	93	—	—
10-06-25	—	18.77	0.05	7.51	—	178.5	—	—	90	—	—	—	7.8	—	—	66	—	—
10-07-22	—	19.92	0.06	7.12	—	**2419.6**	—	—	126	—	—	—	7.7	—	—	91	—	—
10-08-25	—	14.71	0.09	**5.25**	—	23.8	—	—	153	—	—	—	8.0	—	—	124	—	—
10-09-21	—	10.91	0.03	**5.76**	—	76.7	—	—	49	—	—	—	8.1	—	—	44	—	—
11-06-23	—	16.31	0.05	—	—	—	—	—	92	—	—	—	8.3	—	—	—	—	—
11-07-20	—	19.16	0.00	—	—	—	—	—	1	—	—	—	8.1	—	—	—	—	—
11-08-24	—	16.00	0.02	—	—	—	—	—	40	—	—	—	7.9	—	—	—	—	—
12-06-25	—	10.20	0.05	9.45	—	**579.4**	—	—	90	—	—	—	8.1	—	—	—	—	—
12-07-26	—	16.40	0.08	7.49	—	114.5	—	—	1440	—	—	—	7.8	—	—	—	—	—
12-08-27	25.0	17.53	0.12	**6.14**	—	238.2	—	—	248	—	—	—	8.1	—	—	—	—	—
12-09-24	—	14.16	0.09	8.10	—	248.1	—	—	144	—	—	—	8.4	—	—	—	—	—
12-10-18	2.0	6.79	0.05	6.79	—	16.1	—	—	66	—	—	—	8.0	—	—	61	—	—
13-05-30	14.0	14.22	0.03	10.50	—	121.0	—	—	59	—	—	—	7.6	—	—	—	—	—
13-06-27	13.0	14.81	0.06	7.76	—	96.0	—	—	109	—	—	—	7.8	—	—	—	—	—
13-07-30	20.0	17.85	0.03	9.40	—	88.0	—	—	680	—	—	—	7.4	—	—	—	—	—
13-08-27	18.0	15.80	0.10	**5.69**	—	114.5	—	—	166	—	—	—	8.2	—	—	—	—	—
13-10-01	20.0	12.24	0.06	9.41	—	83.6	—	—	90	—	—	—	8.1	—	—	—	—	—
13-10-29	3.0	3.72	0.06	9.92	—	—	—	—	129	—	—	—	8.4	—	—	—	—	—
14-06-25	16.0	17.20	0.04	10.61	—	77.1	—	—	66	—	—	—	7.2	—	—	—	—	—
14-07-23	26.0	20.10	0.10	—	—	81.6	—	—	107	—	—	—	8.0	—	—	—	—	—
14-08-28	19.0	17.63	0.07	9.29	—	29.6	—	—	125	—	—	—	7.9	—	—	—	—	—
14-09-24	6.0	10.90	0.06	—	—	172.5	—	—	98	—	—	—	7.6	—	—	—	—	—
14-10-29	9.0	7.26	0.03	—	—	39.5	—	—	40	—	—	—	6.7	—	—	—	—	—
15-06-01	12.0	12.80	0.00	8.29	—	—	—	—	72	—	—	—	7.2	—	—	—	—	—
15-06-29	14.0	13.38	0.02	—	—	109.1	—	—	42	—	—	—	7.7	—	—	—	—	—
15-08-05	21.0	19.40	0.07	7.00	—	65.9	—	—	159	—	—	—	7.6	—	—	—	—	—
15-08-26	23.0	19.76	0.12	6.51	—	165.2	—	—	221	—	—	—	8.0	—	—	—	—	—
15-10-06	9.0	8.95	0.03	8.93	—	83.1	—	—	46	—	—	—	7.7	—	—	—	—	—
15-11-03	4.0	5.60	0.03	12.42	—	15.0	—	—	45	—	—	—	7.5	—	—	—	—	—

16-05-31	19.0	13.50	0.06	9.15	—	**598.0**	—	—	98	—	—	—	7.6	—	—	82	—	—
16-06-29	22.0	19.30	0.08	6.62	—	**613.1**	—	—	153	—	—	—	7.4	—	—	108	—	—
16-07-27	21.0	20.10	0.09	**5.83**	—	182.1	—	—	175	—	—	—	7.7	—	—	125	—	—
16-08-24	21.0	17.90	0.08	7.40	—	139.6	—	—	144	—	—	—	7.5	—	—	108	—	—
16-09-28	12.0	9.20	0.10	9.63	—	65.7	—	—	140	—	—	—	7.7	—	—	130	—	—
16-10-25	5.0	6.70	0.06	11.05	—	66.3	—	—	83	—	—	—	8.0	—	—	83	—	—
17-05-31	9.0	11.5	0.03	9.81	—	49.5	—	—	43	—	—	—	7.6	—	—	37.7	—	—
17-06-27	18.0	16.0	0.06	8.17	—	198.9	40	170	103	124	39.5	-1.42	7.8	7.2	8.6	80.6	69.0	4.20
17-07-26	16.0	15.6	0.12	**6.2**	—	**488.4**	93	37	210	259	89.4	-0.23	7.8	7.7	7.9	167.1	132.0	10.60
17-08-30	15.0	13.7	0.14	7.05	—	54.0	120	22	234	298	116	-0.11	7.9	7.6	7.7	194.4	159.0	12.00
17-09-27	14.0	16.1	0.13	**5.75**	—	387.3	96	45	219	261	89.2	-0.12	7.4	7.8	7.9	171.6	143.0	7.50
17-10-24	14.0	7.0	0.12	8.74	—	68.0	75	67	167	249	81.8	-0.66	8.2	7.4	8.1	165.1	129.0	7.40
18-05-30	11.0	13.00	0.06	7.23	—	82.0	30	120	92	118	35.2	-2.12	7.5	7.1	8.8	77.35	60	3.4
18-06-27	21.0	13.70	0.04	8.88	—	146.7	15	202	64	80	19.5	-2.44	7.3	6.9	9.3	53.30	45	2.4
18-07-31	26.0	20.90	0.07	**4.65**	—	344.8	50	140	134	139	47.5	-1.24	8.0	7.2	8.4	94.90	80	7.7
18-08-28	—	17.40	0.08	**4.52**	—	**626.0**	60	170	141	160	57.2	-0.89	7.9	7.4	8.3	107.25	85	9.2
18-09-26	18.0	10.60	0.11	**6.02**	—	**522.6**	80	61	174	226	86.2	-0.2	8.0	7.8	8	156.00	119	13.4
19-06-26	16.0	15.6	0.03	8.59	—	59.8	20	250	53	63	19.2	-2.01	7.3	7.2	9.2	42.25	66	2.3
19-07-24	20.0	17.8	0.07	**5.86**	—	51.0	50	160	130	149	51.1	-1.01	7.6	7.4	8.4	98.15	101	6.3
19-08-21	19.0	19.5	0.07	**4.36**	—	167.8	41	128	181	142	45.9	-0.94	7.5	7.6	7.6	93.60	90	4.2
19-09-26	—	13.1	0.03	9.24	—	171.0	10	210	47	60	14.1	-2.96	**4.8**	6.7	9.7	39.00	59	2.6
20-06-24	23	21.5	0.10	**4.69**	—	96	69	54	196	218	71.5	-0.44	7.3	7.7	8.1	137.15	112	7.0
20-07-28	25	20.5	0.14	**3.24**	—	**2,187**	110	27	261	283	111.0	-0.17	7.4	7.6	7.8	185.25	157	5.1
20-08-25	21	18.9	0.14	DND	—	134	120	15	266	304	129.0	0.13	7.4	7.8	7.7	195.65	170	3.9
20-09-29	23	15.7	0.10	**5.66**	—	108	58	43	179	212	64.4	-1.17	7.6	7.1	8.3	141.70	120	5.4
20-10-15	12	10.0	0.09	7.70	—	199	28	128	133	187	52.7	-1.18	7.1	7.5	8.7	120.90	118	5.1
21-05-27	22	16.6	0.04	8.79	—	31	16	233	69	76	18.4	-2.44	6.8	6.9	9.3	52.00	66	1.8
21-06-29	—	20.8	0.09	—	—	110	66	83	177	211	74.6	-0.75	7.0	7.4	8.1	125.45	124	4.7
21-07-27	20	18.1	N/A	6.86	—	145	28	290	96	94	29.5	-1.99	7.2	6.9	8.9	48.00	87	4.2
21-08-24	26	20.6	0.08	**3.14**	—	**465**	65	162	156	173	63.2	-1.11	7.1	7.1	8.2	110.50	91	6.2
21-09-29	15	14.6	0.06	7.49	—	110	25	248	102	130	31.7	-1.83	7.1	7.1	8.9	82.55	97	5.1
21-10-25	7	8.3	0.05	9.89	—	41	18	243	72	103	23.3	-2.30	7.8	6.9	9.2	41.00	56	2.5
22-06-30	24	19.9	0.07	**5.39**	—	295	45	198	126	137	43.9	-1.32	7.4	7.2	8.5	90.35	77	9.1
22-07-26	24	21.8	0.09	**3.43**	—	259	56	160	171	163	56.0	-0.93	7.5	7.4	8.3	118.30	97	10.4
22-08-29	21	17.0	0.06	7.02	—	275	38	254	101	112	41.0	-1.42	7.6	7.2	8.6	77.35	98	4.6
22-09-28	16	13.2	0.03	9.61	—	135	10	269	46	57	16.3	-3.19	6.6	**6.4**	9.6	38.35	64	1.7
23-06-26	13	17.3	0.04	8.08	—	253	22	214	76	89	24.8	-1.87	7.08	7.2	9.1	57.85	68	3.1

23-07-25	25	22.2	0.06	7.77	—	175	36	224	121	129	45.6	-1.40	7.20	7.2	8.6	83.20	105	5.3
23-08-29	19	16.7	0.05	9.39	—	359	24	210	92	112	28.5	-1.88	7.16	7.1	9	70.85	87	5.0
23-09-26	11	10.9	0.03	11.17	—	169	20	233	58	72	22.1	-2.26	7.06	6.9	9.2	45.50	72	4.8

Table A 5: Site ScdB Nutrient Data

SITE ScdB: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	6.37	—	11.3	<0.1	0.30	1.05	8.60	<0.010	—	<0.05	<0.05	<0.05	2.73	0.71	—	24.9	**0.015**
99-11-18	—	—	7.97	—	13.1	<0.1	0.53	1.34	8.66	0.012	—	<0.05	<0.05	<0.05	3.08	0.52	—	17.7	**0.015**
00-10-04	—	—	20.80	—	32.6	<0.1	0.91	2.95	19.20	0.018	—	<0.05	<0.05	<0.05	3.76	0.47	—	11.3	**0.015**
00-11-12	—	—	5.16	—	9.1	<0.1	0.48	1.03	5.84	0.015	—	<0.05	<0.05	<0.05	4.01	0.65	—	24.8	**0.017**
00-12-03	—	—	2.64	—	8.1	<0.1	0.08	0.66	5.40	0.013	—	<0.05	<0.05	<0.05	3.07	0.41	—	17.1	**0.008**
01-06-03	—	—	9.79	—	11.6	<0.1	0.51	1.50	7.99	0.025	—	<0.05	<0.05	<0.05	2.33	—	0.43	17.6	**0.025**
01-07-03	—	—	27.00	—	13.6	<0.1	0.60	3.42	10.00	0.023	—	<0.05	<0.05	<0.05	6.39	—	0.37	9.0	**0.017**
01-08-07	—	—	43.00	—	12.9	0.113	0.93	5.07	11.30	0.022	—	<0.05	<0.05	<0.05	9.52	—	<0.3	3.4	**0.009**
01-09-05	—	—	29.90	—	12.7	0.112	0.68	3.61	9.95	<0.010	—	<0.05	<0.05	<0.05	8.47	—	<0.3	5.6	**0.012**
01-10-09	—	—	39.90	—	15.0	0.128	1.14	4.62	14.40	<0.010	—	<0.05	<0.05	<0.05	9.84	—	<0.3	4.5	**0.013**
01-10-09	—	—	39.40	—	14.9	0.126	1.13	4.56	14.20	<0.010	—	<0.05	<0.05	<0.05	9.84	—	<0.3	4.5	**0.012**
01-11-18	—	—	12.60	—	17.3	<0.1	0.68	2.41	13.10	0.019	—	<0.05	<0.05	0.074	20.10	—	0.62	22.4	**0.017**
02-06-19	—	—	8.56	—	15.2	<0.1	0.32	1.30	10.90	<0.010	—	<0.05	<0.05	<0.05	1.79	—	0.56	24.4	**0.023**
02-07-17	—	—	14.70	—	15.8	<0.1	0.44	1.99	12.80	0.051	—	<0.05	<0.05	<0.05	2.81	—	0.74	25.1	**0.032**
02-08-21	—	—	26.10	—	24.1	<0.1	0.76	3.25	16.70	0.026	—	<0.05	<0.05	0.080	4.40	—	0.49	14.6	**0.015**
02-08-21	—	—	25.80	—	24.0	<0.1	0.81	3.23	16.90	0.025	—	<0.05	<0.05	0.060	5.04	—	0.51	14.4	**0.015**
02-09-18	—	—	6.99	—	15.6	<0.1	0.48	1.19	11.40	0.024	—	<0.05	<0.05	<0.05	6.15	—	0.62	29.0	**0.020**

17-06-27	39.9	0.06	12.90	0.059	18.0	0.270	0.57	1.78	10.40	<0.250	<0.001	<0.25	<0.25	<0.25	<5	0.70	0.70	18.8	**0.036**
17-07-26	92.5	0.09	29.60	0.436	19.8	0.230	0.79	3.77	13.90	<0.050	<0.001	<0.05	<0.05	0.060	6	0.30	0.30	4.7	**0.045**
17-08-30	120	0.12	38.80	0.447	18.4	0.140	0.95	4.58	13.50	<0.050	<0.001	<0.05	<0.05	<0.05	8	0.20	0.20	2.7	**0.046**
17-09-27	95.4	0.10	29.70	0.566	24.8	0.190	0.99	3.64	16.30	<0.050	<0.001	<0.05	**0.08**	0.080	7	0.40	0.50	8.3	**0.031**
17-10-24	74.8	0.10	27.00	0.177	28.7	0.170	1.05	3.49	16.00	<0.050	<0.001	<0.05	<0.05	<0.05	6	0.40	0.40	9.1	**0.042**
18-05-30	30.0	0.04	11.50	0.036	14.0	0.200	0.51	1.58	10.20	<0.25	<0.001	<0.25	<0.25	<0.25	3	0.50	0.50	15.3	**0.036**
18-06-27	15.0	0.03	6.24	0.011	13.5	0.350	0.27	0.94	9.29	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.70	0.70	5.1	**0.024**
18-07-31	49.9	0.06	15.60	0.074	19.0	0.290	0.60	2.07	9.46	<0.25	<0.001	<0.25	<0.25	<0.25	<5	0.80	0.80	19.2	**0.060**
18-08-28	59.8	0.08	19.00	0.140	15.0	0.300	0.66	2.38	9.05	<0.25	<0.001	<0.25	<0.25	<0.25	<5	0.80	0.80	20.0	**0.058**
18-09-26	79.5	0.11	28.90	0.470	18.4	0.200	0.94	3.42	11.10	<0.50	<0.001	<0.05	<0.05	<0.05	5	0.40	0.40	7.7	**0.053**
19-06-26	20.0	0.03	6.2	0.030	8.0	0.31	0.24	0.93	6.0	<0.25	<0.001	<0.25	<.0.25	<.0.25	2	—	0.7	29.0	**0.031**
19-07-24	49.9	0.08	16.8	0.118	17.0	0.24	0.50	2.23	9.6	<0.25	<0.001	<0.25	<0.25	<0.25	<5	—	0.7	22.0	**0.051**
19-08-21	40.8	0.06	15.1	0.153	15.6	0.25	0.63	1.99	9.5	<0.05	<0.001	<0.05	<0.05	<0.05	3	—	0.6	17.3	**0.040**
19-09-26	10.0	0.03	4.36	0.005	10.0	0.35	0.58	0.79	6.1	<0.25	<0.001	<0.25	<0.25	<0.25	2	—	0.6	28	**0.024**
20-06-24	68.7	0.08	23.6	0.324	20.6	0.25	0.77	3.06	12.2	0.070	0.001	<0.05	<0.05	<0.05	<1	—	0.4	8.3	**0.034**
20-07-28	110.0	0.11	37.2	0.410	22.0	0.17	0.92	4.29	11.8	<0.05	<0.001	<0.05	<0.05	<0.05	6.0	—	0.3	5.4	**0.030**
20-08-25	119.0	0.10	43.6	0.708	24.2	0.06	0.96	4.90	11.5	<0.05	<0.001	<0.05	<0.05	<0.05	7.0	—	<0.2	2.9	**0.021**
20-09-29	57.9	0.06	21.1	0.069	23.5	0.11	1.11	2.84	13.1	<0.05	<0.001	<0.05	0.10	0.10	13.0	—	0.3	9.2	**0.038**
20-10-15	27.9	0.04	16.8	0.083	29.1	0.24	1.20	2.61	14.8	<0.05	<0.001	<0.05	<0.05	0.09	19.0	—	0.6	16.6	**0.025**
21-05-27	16.0	0.03	5.8	0.012	13.6	0.30	0.36	0.94	7.9	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.5	27.0	**0.015**
21-06-29	65.8	0.07	24.4	0.155	25.2	0.27	0.84	3.33	14.2	0.060	<0.001	<0.05	<0.05	<0.05	<1	—	0.6	13.6	**0.052**
21-07-27	28.0	0.04	9.6	0.021	12.9	0.60	0.43	1.33	8.1	<0.05	<0.001	<0.05	<0.05	<0.05	2.0	—	0.9	33.0	**0.048**
21-08-24	64.9	0.07	9.8	0.077	14.9	0.37	0.68	2.68	9.8	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.7	20.0	**0.044**
21-09-29	25.0	0.05	13.4	0.030	26.7	0.64	0.95	1.64	13.4	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.9	26.0	**0.052**

21-10-25	18.0	0.04	7.3	0.013	22.5	0.57	0.85	1.25	11.2	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.8	30.0	**0.035**
22-06-30	44.9	0.05	14.4	0.067	20.0	0.30	0.44	1.94	9.97	0.06	<0.001	<0.05	<0.05	<0.05	<5	—	0.9	23.0	**0.064**
22-07-26	55.9	0.06	18.5	0.132	24.4	0.29	0.61	2.37	13.7	0.06	<0.001	<0.05	<0.05	<0.05	<1	—	0.8	17.9	**0.069**
22-08-29	37.9	0.05	13.6	0.056	13.9	0.43	0.60	1.72	8.42	0.06	<0.001	<0.05	<0.05	<0.05	3	—	0.7	31.0	**0.049**
22-09-28	10.0	0.03	5.1	0.002	10.5	0.52	0.42	0.85	5.6	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	0.7	32.0	**0.023**
23-06-26	22	0.03	7.95	0.033	14.9	0.36	0.34	1.2	8.84	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 5	—	0.3	19.6	**0.042**
23-07-25	35.9	0.06	15.0	0.053	16.9	0.31	0.53	1.98	8.8	0.06	< 0.001	< 0.05	0.06	0.06	2	—	0.9	35.0	**0.048**
23-08-29	24.0	0.05	9.2	0.028	23.2	0.58	0.66	1.33	11.6	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 5	—	0.7	25.0	**0.042**
23-09-26	20.0	0.04	7.0	0.015	12.1	0.60	0.51	1.10	6.7	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 5	—	0.6	31.0	**0.036**

Table A 6: Site ScdB Heavy Metals Data

SITE ScdB: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.294**	<0.001	—	—	<0.0001	0.41327	—	0.001	0.0005	**0.770**	—	0.058	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.205**	<0.001	—	—	<0.0001	0.52157		0.002	0.0005	**0.410**	—	0.050	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.035	<0.001	—	—	<0.0001	1.33376	—	0.002	0.0017	**0.608**	—	0.108	—	<0.005	<0.001	—	<0.001	—	—	—	0.020
00-11-12	**0.342**	<0.001	—	—	<0.0001	0.34892	—	0.001	0.0007	**0.595**	—	0.098	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
00-12-03	**0.168**	<0.001	—	—	<0.0001	0.18813	—	0.001	0.0008	**0.330**	—	0.104	—	<0.005	<0.001	—	<0.001	—	—	—	0.009
01-06-03	**0.173**	<0.001	—	—	<0.0001	0.63022	—	0.002	0.0006	**0.761**	—	0.111	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.063	<0.001	—	—	<0.0001	1.70505	—	0.005	0.0008	**0.540**	—	0.165	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.038	<0.001	—	—	<0.0001	2.69728	—	0.003	<0.00005	**0.410**	—	0.274	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.050	<0.001	—	—	<0.0001	1.87735	—	0.005	0.0006	**0.336**	—	0.097	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
01-10-09	0.051	<0.001	—	—	<0.0001	2.5047	—	0.007	<0.00005	**0.394**	—	0.128	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.052	<0.001	—	—	<0.0001	2.46194	—	0.007	<0.00005	**0.380**	—	0.129	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

01-11-18	**0.254**	<0.001	—	—	<0.0001	0.85679	—	0.001	0.0022	**0.467**	—	0.160	—	<0.005	<0.001	—	<0.001	—	—	—	0.011
02-06-19	**0.268**	<0.001	—	—	<0.0001	0.5487	—	0.001	0.0006	**0.713**	—	0.092	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.207**	0.0011	—	—	<0.0001	0.92832	—	0.002	0.0007	**1.240**	—	0.258	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.072	<0.001	—	—	<0.0001	1.64342	—	0.003	<0.0005	**0.922**	—	0.274	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
02-08-21	0.073	<0.001	—	—	<0.0001	1.62643	—	0.003	0.0005	**0.887**	—	0.303	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
02-09-18	**0.338**	<0.001	—	—	<0.0001	0.45904	—	0.002	0.0009	**0.781**	—	0.132	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	**0.163**	<0.001	0.004	0.028	0.00001	0.81685	0.0003	<0.001	<0.001	**0.890**	0.0007	0.114	0.0002	<0.001	0.004	0.010	<0.0001	0.056	0.0002	<0.001	0.016
17-07-26	**0.870**	<0.001	0.008	0.053	<0.00001	1.87309	0.0003	<0.001	<0.001	**0.660**	0.0013	0.311	0.0005	<0.001	0.005	0.013	<0.0001	0.125	0.0009	<0.001	0.003
17-08-30	0.097	<0.001	0.008	0.056	0.00001	2.44056	0.0003	<0.001	<0.001	**0.710**	0.0015	0.393	0.0005	<0.001	0.005	0.013	<0.0001	0.145	0.0014	<0.001	0.008
17-09-27	0.079	<0.001	0.015	0.053	<0.00001	1.86883	0.0003	<0.001	<0.001	**0.610**	0.0014	0.446	0.0004	<0.001	0.004	0.015	<0.0001	0.124	0.0008	<0.001	0.008
17-10-24	0.097	<0.001	0.010	0.047	0.00001	1.71142	0.0003	<0.001	<0.001	**0.460**	0.0013	0.215	0.0003	<0.001	0.005	0.013	<0.0001	0.114	0.0007	<0.001	0.012
18-05-30	**0.149**	<0.001	0.009	0.027	0.00001	0.72659	0.0003	<0.001	<0.001	**0.570**	0.0006	0.184	0.0002	<0.001	0.004	0.008	<0.0001	0.049	0.0002	<0.001	0.008
18-06-27	**0.306**	<0.001	0.008	0.024	0.00002	0.39873	0.0002	<0.001	<0.001	**0.750**	0.0006	0.089	<0.0001	<0.001	0.003	0.005	<0.0001	0.028	0.0001	<0.001	0.009
18-07-31	**0.162**	0.001	0.008	0.039	0.00003	0.98519	0.0006	<0.001	<0.001	**1.620**	0.0009	0.548	0.0002	<0.001	0.008	0.014	<0.0001	0.076	0.0003	0.001	0.004
18-08-28	**0.141**	<0.001	0.011	0.041	<0.00001	1.18991	0.0007	<0.001	<0.001	**1.480**	0.0009	0.866	0.0003	<0.001	0.006	0.015	<0.0001	0.079	0.0005	0.001	0.002
18-09-26	**0.187**	<0.001	0.008	0.054	0.00002	1.80499	0.0007	<0.001	<0.001	**1.180**	0.0012	0.561	0.0002	<0.001	0.014	0.015	<0.0001	0.109	0.0009	0.004	0.004
19-06-26	**0.305**	<0.001	0.006	0.024	0.00001	0.39873	0.0003	<0.001	<0.001	**0.940**	0.0005	0.095	<0.0001	<0.001	0.004	0.005	<0.0001	<0.001	0.0001	<0.001	0.005
19-07-24	**0.129**	0.0010	0.005	0.033	0.00002	0.98519	0.0005	<0.001	<0.001	**1.600**	0.0008	0.334	0.0003	<0.001	0.005	0.012	<0.0001	<0.001	0.0004	<0.001	0.008
19-08-21	0.091	0.0010	0.015	0.032	0.00001	1.18991	0.0004	<0.001	<0.001	**1.030**	0.0008	0.404	0.0002	<0.001	0.004	0.013	<0.0001	<0.001	0.0003	<0.001	0.002
19-09-26	**0.301**	<0.001	0.011	0.025	0.00001	1.80499	0.0002	<0.001	<0.001	**0.810**	0.0006	0.062	<0.0001	<0.001	0.004	0.009	<0.0001	<0.001	<0.0001	<0.001	0.004
20-06-24	0.083	<0.001	0.010	0.037	<0.00001	1.49271	0.0005	<0.001	<0.001	**0.710**	0.0009	0.554	0.0004	<0.001	0.005	0.015	<0.0001	0.091	0.0005	<0.001	0.001
20-07-28	0.040	0.0020	0.009	0.056	<0.00001	2.33372	0.0005	<0.001	<0.001	**0.890**	0.0011	0.952	0.0004	<0.001	0.002	0.019	<0.0001	0.132	0.001	<0.001	0.002
20-08-25	0.087	<0.001	0.010	0.062	<0.00001	2.71869	0.0004	<0.001	<0.001	**0.880**	0.0012	0.576	0.0005	<0.001	0.005	0.016	<0.0001	0.148	0.0013	<0.001	0.002
20-09-29	0.070	<0.001	0.019	0.041	<0.00001	1.34223	0.0002	<0.001	<0.001	**0.530**	0.0010	0.240	0.0002	<0.001	0.002	0.018	<0.0001	0.098	0.0004	<0.001	0.001

20-10-15	0.287	<0.001	0.025	0.046	0.00001	1.09486	0.0002	<0.001	<0.001	0.500	0.0012	0.101	0.0001	<0.001	0.0003	0.0017	<0.0001	0.073	0.0002	<0.001	0.012
21-05-27	0.298	<0.001	0.016	0.023	0.00001	1.49271	0.0002	<0.001	<0.001	0.61	0.0006	0.058	0.0001	<0.001	0.0003	0.0007	<0.0001	0.026	0.0001	<0.001	0.003
21-06-29	0.080	<0.001	0.012	0.045	0.00001	—	0.0005	<0.001	<0.001	0.94	0.0009	0.554	0.0003	<0.001	0.0004	0.0018	<0.0001	0.090	0.0004	<0.001	0.001
21-07-27	0.286	<0.001	0.017	0.027	<0.00001	2.33372	0.0006	<0.001	<0.001	1.66	0.0007	0.318	0.0002	0.001	0.0006	0.0010	<0.0001	0.042	0.0002	<0.001	0.003
21-08-24	0.121	<0.001	0.013	0.041	<0.00001	2.71869	0.0007	<0.001	<0.001	1.63	0.0008	0.883	0.0003	<0.001	0.0005	0.0016	<0.0001	0.073	0.0004	<0.001	0.002
21-09-29	0.225	<0.001	0.010	0.038	0.00002	1.34223	0.001	<0.001	<0.001	1.96	0.0007	0.465	0.0001	<0.001	0.0005	0.0018	<0.0001	0.048	0.0001	<0.001	0.003
21-10-25	0.230	<0.001	0.009	0.031	0.00001	1.09486	0.0004	<0.001	<0.001	1.53	0.0007	0.219	<0.00001	<0.001	0.0004	0.0015	<0.0001	0.034	<0.00001	<0.001	0.003
22-06-30	0.144	<0.001	0.011	0.034	0.00002	—	0.0006	<0.001	<0.001	1.37	0.0006	0.566	0.0003	<0.001	0.0005	0.0012	<0.0001	0.059	0.0002	<0.001	0.005
22-07-26	0.120	0.001	0.010	0.040	0.00001	—	0.0007	<0.001	<0.001	1.69	0.0007	0.779	0.0003	<0.001	0.0006	0.0016	<0.0001	0.075	0.0003	<0.001	0.004
22-08-29	0.198	<0.001	0.016	0.035	0.00002	—	0.0007	<0.001	<0.001	1.60	0.0008	0.504	0.0003	<0.001	0.0005	0.0014	<0.0001	0.053	0.0002	<0.001	0.003
22-09-28	0.357	<0.001	0.011	0.025	0.00001	—	0.0002	<0.001	<0.001	0.83	0.0007	0.067	<0.00001	<0.001	0.0004	0.0008	<0.0001	0.023	<0.00001	<0.001	0.004
23-06-26	0.228	<0.001	0.009	<0.001	0.00001	—	0.0003	<0.001	<0.001	0.88	0.0005	0.13	0.0001	<0.001	0.0005	0.0008	<0.0001	0.035	0.0001	<0.001	0.002
23-07-25	0.130	<0.001	0.015	0.035	0.00001	—	0.0005	<0.001	<0.001	1.61	0.0007	0.304	0.0003	<0.001	0.0005	0.0013	<0.0001	0.060	0.0002	<0.001	0.002
23-08-29	0.206	<0.001	0.012	0.028	0.00001	—	0.0003	<0.001	<0.001	0.93	0.0006	0.129	0.0001	<0.001	0.0004	0.0011	<0.0001	0.038	0.0001	<0.001	0.002
23-09-26	0.287	<0.001	0.009	0.026	0.00001	—	0.0003	<0.001	<0.001	1.07	0.0007	0.147	<0.0001	<0.001	0.0005	0.0008	<0.0001	0.030	0.0001	<0.001	0.003

Table A 7: Site ScdC Field and Lab Data

SITE ScdC: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																			
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
00-10-03	—	13.3	—	—	—	10	8.62	100	—	45.1	13	—	—	6.4	—	—	21.048	0.3
00-11-12	6.0	—	—	—	—	10	1.22	120	—	43.2	10.4	—	—	5.0	—	—	18.03	1
00-12-03	-3.0	—	—	—	—	10	1	100	—	32	7.42	—	—	5.1	—	—	13.3	0.2
01-05-16	17.2	8.80	—	5.20	42	—	—	—	—	—	—	—	—	—	—	—	—	—

01-05-24	18.3	18.00	—	**3.70**	39	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	25.3	200	—	93	26.7	—	—	7.1	—	—	47.588	2.4	
01-06-12	29.0	16.60	—	**3.00**	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	22.9	20.40	—	**1.70**	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	**670**	24	300	—	63.5	26.7	—	—	6.8	—	—	36.08	3	
01-07-12	21.1	19.60	—	**1.80**	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	25.9	22.30	—	**0.90**	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	20	20.8	300	—	56.2	20.5	—	—	6.9	—	—	29.975	2.8	
01-08-09	25.6	21.10	—	**0.90**	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	10	27.4	200	—	70.1	23.8	—	—	7.0	—	—	35.315	4.9	
01-10-09	—	—	—	—	—	50	20.1	150	—	61	19.4	—	—	6.9	—	—	31.731	1.5	
01-11-18	2.0	—	—	—	—	30	2.54	100	—	76.8	22.4	—	—	**5.2**	—	—	35.935	0.5	
02-05-09	13.0	12.4	—	**5.60**	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	22.0	15.8	—	**5.50**	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	16.4	14.1	—	**4.40**	41	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-20	22.7	15.20	—	**4.40**	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	24.1	22.40	—	**1.80**	21	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-18	20.2	18.80	—	**1.30**	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	24.0	18.20	—	**0.20**	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	22.6	20.70	—	**2.30**	24	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-30	22.4	16.50	—	**1.70**	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-19	22.5	13.00	—	**2.40**	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	15.0	11.50	—	11.10	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	20.5	18.30	—	9.20	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	20.6	19.40	—	9.00	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	22.3	22.40	—	9.30	107	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	25.1	**23.20**	—	7.40	87	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	20.6	19.40	—	**4.00**	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	22.8	**23.30**	—	10.20	119	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	22.5	21.00	—	11.30	127	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	27.7	**26.30**	—	10.30	130	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	14.6	14.30	—	11.10	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	15.8	12.60	—	11.00	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	21.3	13.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	5.9	2.70	—	13.70	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	11.0	7.80	—	12.50	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-09-28	—	12.20	0.02	—	—	—	—	—	39	—	—	—	**5.9**	—	—	—	—	—	—

06-11-02	5.7	5.51	0.01	7.59	—	—	—	—	33	—	—	—	4.6	—	—	—	—	—
12-07-24	—	19.93	0.02	4.90	—	27.5	—	—	39	—	—	—	7.7	—	—	—	—	—
12-08-29	—	19.69	0.02	4.42	—	45.0	—	—	47	—	—	—	6.3	—	—	—	—	—
12-09-24	—	16.21	0.02	5.21	—	101.4	—	—	40	—	—	—	6.4	—	—	—	—	—
12-10-18	2.0	8.12	0.02	5.12	—	7.5	—	—	270	—	—	—	6.3	—	—	63	—	—

Table A 8: Site ScdC Nutrient Data

SITE ScdC: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
00-10-03	—	—	4.00	—	5.0	<0.1	0.05	0.73	3.83	0.014	—	<0.05	<0.05	<0.05	1.20	0.55	—	22.7	0.012
00-11-12	—	—	3.01	—	6.7	<0.1	0.22	0.71	3.67	0.013	—	<0.05	<0.05	<0.05	1.96	0.43	—	24.6	0.009
00-12-03	—	—	2.10	—	4.3	<0.1	0.10	0.53	2.87	<0.010	—	<0.05	<0.05	<0.05	1.90	0.36	—	18.1	0.006
01-06-03	—	—	8.52	—	10.6	<0.1	0.42	1.32	7.63	0.054	—	<0.05	<0.05	<0.05	2.34	—	0.50	16.7	0.031
01-07-03	—	—	8.84	—	2.6	<0.1	0.24	1.13	4.03	0.040	—	<0.05	<0.05	<0.05	0.05	—	0.64	26.5	0.046
01-08-07	—	—	6.59	—	2.8	<0.1	0.21	0.99	3.94	<0.010	—	<0.05	<0.05	<0.05	0.43	—	0.64	24.0	0.022
01-09-05	—	—	7.80	—	3.1	<0.1	0.24	1.05	4.27	<0.010	—	<0.05	<0.05	<0.05	0.06	—	0.48	21.1	0.014
01-10-09	—	—	6.23	—	5.2	<0.1	0.30	0.94	5.22	0.011	—	<0.05	<0.05	<0.05	0.64	—	0.66	19.1	0.013
01-11-18	—	—	6.38	—	6.8	<0.1	0.32	1.56	4.88	0.013	—	<0.05	<0.05	<0.05	13.20	—	0.55	27.4	0.014

Table A 9: Site ScdC Heavy Metals Data

SITE ScdC: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
00-10-03	0.136	<0.001	—	—	<0.00001	0.2641	—	0.001	0.0015	0.513	—	0.040	—	<0.005	<0.001	—	<0.001	—	—	—	0.011
00-11-12	0.216	<0.001	—	—	<0.00001	0.21053	—	0.001	<0.00005	0.476	—	0.041	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	0.176	<0.001	—	—	<0.00001	0.14939	—	0.001	<0.00005	0.391	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	0.201	<0.001	—	—	<0.00001	0.5487	—	0.002	0.0006	0.891	—	0.160	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

01-07-03	**0.147**	0.00299	—	—	<0.0001	0.5487	—	0.003	0.0005	**2.650**	—	1.690	—	0.007	<0.001	—	<0.001	—	—	—	0.009
01-08-07	**0.111**	0.00147	—	—	<0.0001	0.41951	—	0.002	0.0008	**1.370**	—	0.737	—	<0.005	<0.001	—	<0.001	—	—	—	0.010
01-09-05	0.081	0.00206	—	—	<0.0001	0.4882	—	0.003	<0.0005	**1.500**	—	0.421	—	<0.005	<0.001	—	<0.001	—	—	—	0.008
01-10-09	**0.107**	<0.001	—	—	<0.0001	0.39665	—	0.002	0.0005	**0.623**	—	0.104	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.241**	<0.001	—	—	<0.0001	0.45904	—	0.002	0.0032	**0.620**	—	0.106	—	<0.005	<0.001	—	<0.001	—	—	—	0.008

Table A 10: Site ScdD Field and Lab Data

SITE ScdD: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																			
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
00-10-03	—	13.3	—	—	—	10	43.6	60	—	145	45.2	—	—	7.9	—	—	72.232	3.1
00-11-12	6.0	—	—	—	—	10	6.3	120	—	56.9	15.9	—	—	**6.2**	—	—	28.879	4.5
00-12-03	-3.0	—	—	—	—	20	4.71	100	—	47.5	11.6	—	—	**6.3**	—	—	22.817	1.5
01-05-16	12.0	9.00	—	10.00	84	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	19.0	18.20	—	9.20	90	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	26.5	150	—	87.8	27.9	—	—	7.5	—	—	45.849	2.7
01-06-03	—	—	—	—	—	30	26.6	150	—	86.5	29.6	—	—	7.5	—	—	47.026	2.8
01-06-12	20.9	17.30	—	9.40	98	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	20.9	21.30	—	8.00	88	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	60	42.7	80	—	126	40.5	—	—	8.0	—	—	65.333	2.7
01-07-12	20.1	19.80	—	8.00	87	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	25.7	**24.30**	—	7.90	96	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	190	57.1	30	—	189	54.1	—	—	8.2	—	—	93.711	2
01-08-09	23.9	22.10	—	7.80	89	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	80	55.5	30	—	175	56.7	—	—	8.0	—	—	90.521	3.6
01-10-09	—	—	—	—	—	30	67.6	30	—	435	79.1	—	—	8.0	—	—	212.382	1.5
01-11-18	2.0	—	—	—	—	50	10.3	75	—	124	35.3	—	—	6.9	—	—	62.533	2
02-05-09	15.7	12.0	—	10.70	97	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	19.7	15.8	—	9.50	97	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	15.2	14.2	—	10.00	95	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-20	21.2	16.50	—	9.80	96	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	26.0	**23.40**	—	7.70	89	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-18	19.0	19.40	—	8.10	86	—	—	—	—	—	—	—	—	—	—	—	—	—

02-08-02	22.0	18.40	—	8.60	91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	23.8	22.30	—	7.80	87	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-30	18.1	17.60	—	9.70	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-19	17.7	12.80	—	10.80	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	12.8	11.50	—	11.30	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	22.8	21.30	—	9.30	106	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	20.1	20.30	—	9.80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	23.9	**23.20**	—	8.80	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	29.8	**27.60**	—	9.50	123	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	19.8	20.40	—	9.20	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	20.3	**23.00**	—	9.60	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	20.7	19.60	—	9.50	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	27.6	**24.70**	—	8.90	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	15.0	14.90	—	11.80	115	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	15.7	12.10	—	11.50	107	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	19.1	15.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	3.6	2.30	—	14.20	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	11.0	8.40	—	12.50	106	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-07	20.8	18.80	0.10	**6.38**	—	—	—	—	94	—	—	—	—	—	—	—	—	—	—
06-08-10	19.1	18.40	—	**6.20**	—	—	—	—	76	—	—	—	—	—	—	—	—	—	—
06-09-28	14.9	9.49	0.06	11.17	—	—	—	—	94	—	—	—	7.6	—	—	—	—	—	—
07-05-15	12.2	10.46	0.03	12.12	—	18.7	—	—	67	—	—	—	7.8	—	—	—	—	—	—
07-06-19	15.8	18.27	0.05	11.14	—	56.5	—	—	105	—	—	—	8.3	—	—	—	—	—	—
07-07-18	20.9	20.88	0.05	9.47	—	33.1	—	—	99	—	—	—	7.6	—	—	—	—	—	—
07-08-14	18.2	18.52	0.10	9.72	—	28.1	—	—	216	—	—	—	8.3	—	—	—	—	—	—
07-09-17	14.9	9.92	0.06	13.14	—	33.6	—	—	145	—	—	—	8.2	—	—	—	—	—	—
07-10-17	—	6.49	0.06	14.67	—	15.5	—	—	134	—	—	—	8.5	—	—	—	—	—	—
08-05-21	12.2	10.37	0.03	10.90	—	90.9	—	—	71	—	—	—	7.7	—	—	—	—	—	—
08-06-25	25.0	20.34	0.06	8.64	—	85.7	—	—	119	—	—	—	7.8	—	—	—	—	—	—
08-07-21	20.0	20.26	0.06	7.85	—	**686.7**	—	—	132	—	—	—	7.6	—	—	—	—	—	—
08-08-20	—	16.54	0.04	9.15	—	52.0	—	—	83	—	—	—	8.3	—	—	—	—	—	—
08-09-17	—	12.68	0.03	9.45	—	69.7	—	—	61	—	—	—	8.2	—	—	—	—	—	—
08-10-23	—	5.61	0.07	12.39	—	52.1	—	—	142	—	—	—	8.0	—	—	—	—	—	—
09-05-20	12.6	12.11	0.03	10.36	—	101.7	—	—	49	—	—	—	7.4	—	—	42	—	—	—
09-06-24	15.1	15.20	0.03	9.22	—	235.9	—	—	17	—	—	—	7.8	—	—	48	—	—	—
09-07-23	17.7	18.01	0.04	9.22	—	**461.1**	—	—	79	—	—	—	7.5	—	—	59	—	—	—
09-08-19	23.3	21.25	0.04	7.87	—	214.3	—	—	74	—	—	—	7.5	—	—	52	—	—	—

09-09-23	16.0	13.86	0.04	10.05	—	12.0	—	—	75	—	—	—	8.1	—	—	62	—	—
09-10-20	9.2	6.90	0.02	11.52	—	124.6	—	—	46	—	—	—	6.7	—	—	30	—	—
10-06-25	—	18.06	0.04	8.74	—	193.5	—	—	69	—	—	—	7.8	—	—	52	—	—
10-07-22	—	18.64	0.04	8.25	—	**2419.6**	—	—	69	—	—	—	8.0	—	—	51	—	—
10-08-25	—	16.74	0.07	**5.72**	—	15.2	—	—	129	—	—	—	8.3	—	—	99	—	—
10-09-21	—	12.12	0.03	6.76	—	35.0	—	—	56	—	—	—	7.9	—	—	48	—	—
11-06-23	—	14.36	0.04	—	—	—	—	—	79	—	—	—	**9.6**	—	—	—	—	—
11-07-20	—	18.12	0.04	—	—	—	—	—	68	—	—	—	**9.1**	—	—	—	—	—
11-08-24	—	16.74	0.03	—	—	—	—	—	61	—	—	—	8.5	—	—	—	—	—
12-06-25	—	17.10	0.15	**4.73**	—	290.9	—	—	71	—	—	—	8.2	—	—	—	—	—
12-07-24	—	20.36	0.62	7.81	—	**721.5**	—	—	114	—	—	—	7.6	—	—	—	—	—
12-08-29	—	18.68	0.08	**5.45**	—	77.1	—	—	156	—	—	—	7.9	—	—	—	—	—
12-09-24	—	15.99	0.06	7.50	—	133.3	—	—	60	—	—	—	7.0	—	—	—	—	—
12-10-18	2.0	7.39	0.04	7.07	—	5.2	—	—	60	—	—	—	7.7	—	—	103	—	—

Table A 11: Site ScdD Nutrient Data

SITE ScdD: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
00-10-03	—	—	14.60	—	14.1	<0.1	0.41	2.12	10.80	0.012	—	<0.05	<0.05	<0.05	3.26	0.42	—	12.4	**0.014**
00-11-12	—	—	4.75	—	8.9	<0.1	0.52	0.98	5.04	0.014	—	<0.05	<0.05	<0.05	3.18	0.57	—	24.0	**0.017**
00-12-03	—	—	3.46	—	7.4	<0.1	0.27	0.73	4.42	<0.010	—	<0.05	<0.05	<0.05	2.66	0.46	—	18.4	**0.010**
01-06-03	—	—	8.93	—	8.5	<0.1	0.45	1.35	7.06	0.014	—	<0.05	<0.05	<0.05	2.46	—	0.34	14.7	**0.023**
01-06-03	—	—	9.51	—	8.7	<0.1	0.50	1.43	7.40	0.012	—	<0.05	<0.05	<0.05	2.31	—	0.38	15.4	**0.030**
01-07-03	—	—	13.10	—	11.2	<0.1	0.53	1.88	9.25	<0.010	—	<0.05	<0.05	<0.05	2.85	—	0.32	10.3	**0.016**
01-08-07	—	—	17.70	—	19.4	0.105	0.64	2.39	15.10	0.036	—	<0.05	<0.05	<0.05	3.56	—	0.53	6.9	**0.024**
01-09-05	—	—	18.60	—	16.8	<0.1	0.65	2.51	14.50	<0.010	—	<0.05	<0.05	<0.05	3.38	—	<0.3	6.1	**0.010**
01-10-09	—	—	22.10	—	85.6	0.105	2.27	5.82	44.00	<0.010	—	<0.05	<0.05	<0.05	11.40	—	<0.3	5.9	**0.011**
01-11-18	—	—	10.80	—	13.0	<0.1	0.55	2.04	9.37	0.020	—	<0.05	**0.114**	0.164	19	—	0.69	22.0	**0.017**

Table A 12: Site ScdD Heavy Metals Data

SITE ScdD: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Cd (mg/L)	Cd_STL (µg/L)	Co (mg/L)	Cr (mg/L)	Cu (mg/L)	Fe (mg/L)	Li (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Pb (mg/L)	Rb (mg/L)	Sb (mg/L)	Sr (mg/L)	U (mg/L)	V (mg/L)	Zn (mg/L)
00-10-03	0.058	<0.001	—	—	<0.00001	0.93674	—	0.001	0.0095	**0.327**	—	0.044	—	<0.005	<0.001	—	<0.001	—	—	—	0.020
00-11-12	**0.572**	<0.001	—	—	<0.00001	0.32406	—	0.001	0.0009	**0.734**	—	0.061	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
00-12-03	**0.262**	<0.001	—	—	<0.00001	0.23523	—	0.001	0.0005	**0.421**	—	0.036	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.155**	<0.001	—	—	<0.00001	0.57376	—	0.002	0.0007	**0.661**	—	0.041	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.155**	<0.001	—	—	<0.00001	0.6093	—	0.002	0.0009	**0.723**	—	0.050	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.072	<0.001	—	—	0.00049	0.83787	—	0.002	0.0033	**0.430**	—	0.071	—	<0.005	<0.001	—	<0.001	—	—	—	0.007
01-08-07	0.062	<0.001	—	—	<0.00001	1.12442	—	0.002	0.0005	0.187	—	0.083	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.097	<0.001	—	—	<0.00001	1.17934	—	0.003	0.0006	0.292	—	0.068	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.051	<0.001	—	—	<0.00001	1.65404	—	0.004	0.001	0.168	—	0.080	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.295**	<0.001	—	—	<0.00001	0.72868	—	0.001	0.0008	**0.392**	—	0.071	—	<0.005	<0.001	—	<0.001	—	—	—	0.006

Table A 13: Site ScdE Field and Lab Data

SITE ScdE: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
00-10-03	—	13.3	—	—	—	10	39.5	40	—	149	42.8	—	—	7.8	—	—	71.002	1.5
00-11-12	6.0	—	—	—	—	10	5.72	80	—	55.1	15.5	—	—	**6.2**	—	—	28.192	2
00-12-03	-3.0	—	—	—	—	40	5.27	100	—	48.2	11.6	—	—	**6.3**	—	—	23.523	1.2
01-05-16	13.0	9.20	—	9.00	75	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	20.6	18.00	—	8.80	94	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	50	26.4	100	—	86.3	29.9	—	—	7.5	—	—	47.205	3

01-06-12	22.6	17.40	—	9.20	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	21.3	20.20	—	8.10	88	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	60	36.3	100	—	124	38.8	—	—	7.9	—	—	61.24	2.1	
01-07-03	—	—	—	—	—	40	35.6	80	—	124	40.3	—	—	7.9	—	—	62.689	2.4	
01-07-12	21.8	20.20	—	8.20	89	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	23.4	**22.70**	—	7.70	89	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	60	50.4	20	—	187	51.4	—	—	8.1	—	—	93.228	2.1	
01-08-09	21.5	20.90	—	7.00	77	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	30	48.3	30	—	155	44.6	—	—	8.0	—	—	79.347	2.9	
01-10-09	—	—	—	—	—	10	61.2	30	—	211	58.4	—	—	8.0	—	—	107.627	2.1	
01-11-18	2.0	—	—	—	—	80	10.7	75	—	126	37.2	—	—	6.8	—	—	64.942	2	
02-05-09	22.7	13.1	—	9.70	94	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	20.6	16.1	—	9.20	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	14.8	14.4	—	9.50	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	10	17.4	200	—	80.2	22.1	—	—	7.2	—	—	39.387	2.42	
02-06-20	20.2	15.80	—	9.20	91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	26.0	**22.60**	—	8.50	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	30	28.8	200	—	110	34.3	—	—	7.4	—	—	58.753	3.02	
02-07-17	—	—	—	—	—	10	28.9	200	—	110	34.7	—	—	7.4	—	—	57.313	3.1	
02-07-18	20.6	20.30	—	8.30	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	19.5	18.70	—	9.10	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	23.0	21.50	—	7.70	85	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	30	33	120	—	133	38	—	—	7.7	—	—	—	2.09	
02-08-30	23.3	18.70	—	9.80	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	80	10.1	150	—	99.3	23.1	—	—	6.5	—	—	—	2.4	
02-09-19	22.1	14.30	—	8.30	80	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	12.9	10.90	—	11.40	102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	20.1	18.30	—	9.80	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	22.0	20.30	—	9.80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	21.8	20.80	—	9.40	105	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	24.8	**23.70**	—	10.30	122	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	20.8	20.10	—	9.50	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	21.1	20.60	—	11.60	130	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	17.9	16.70	—	11.30	115	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	26.6	**22.60**	—	9.80	112	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	14.3	13.40	—	11.70	111	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	14.2	11.00	—	11.00	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—

03-10-27	17.3	12.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	7.4	3.80	—	13.70	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	11.3	8.70	—	12.40	105	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table A 14: Site ScdE Nutrient Data

SITE ScdE: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
00-10-03	—	—	13.80	—	15.6	<0.1	0.33	2.02	11.30	<0.010	—	<0.05	<0.05	<0.05	3.67	0.37	—	11.3	**0.009**
00-11-12	—	—	4.67	—	8.6	<0.1	0.46	0.94	5.16	0.015	—	<0.05	<0.05	<0.05	3.51	0.58	—	24.3	**0.015**
00-12-03	—	—	3.48	—	7.4	<0.1	0.28	0.72	4.72	<0.010	—	<0.05	<0.05	<0.05	2.76	0.45	—	19.1	**0.010**
01-06-03	—	—	9.64	—	8.6	<0.1	0.49	1.42	7.26	0.011	—	<0.05	<0.05	<0.05	2.74	—	0.37	14.2	**0.022**
01-07-03	—	—	12.60	—	10.9	<0.1	0.35	1.78	10.10	0.015	—	<0.05	<0.05	<0.05	2.80	—	0.36	11.1	**0.018**
01-07-03	—	—	13.10	—	12.0	<0.1	0.36	1.84	10.30	<0.010	—	<0.05	<0.05	<0.05	2.80	—	0.33	10.6	**0.017**
01-08-07	—	—	16.80	—	22.0	0.109	0.56	2.27	17.00	0.018	—	<0.05	<0.05	<0.05	3.79	—	<0.3	5.5	**0.007**
01-09-05	—	—	14.60	—	15.9	<0.1	0.47	1.96	13.30	<0.010	—	<0.05	<0.05	<0.05	3.49	—	<0.3	5.7	**0.009**
01-10-09	—	—	19.30	—	25.2	0.111	1.01	2.51	18.70	<0.010	—	<0.05	<0.05	<0.05	3.54	—	<0.3	6.2	**0.012**
01-11-18	—	—	11.40	—	13.1	<0.1	0.54	2.11	10.10	0.017	—	<0.05	**0.112**	0.162	19.70	—	0.67	21.5	**0.017**
02-06-19	—	—	7.09	—	10.0	<0.1	0.29	1.06	8.02	<0.010	—	<0.05	<0.05	<0.05	1.18	—	0.57	23.5	**0.022**
02-07-17	—	—	11.10	—	13.9	<0.1	0.34	1.59	11.10	<0.010	—	<0.05	<0.05	<0.05	2.03	—	0.63	23.1	**0.030**
02-07-17	—	—	11.30	—	12.0	<0.1	0.36	1.60	11.20	<0.010	—	<0.05	<0.05	<0.05	2.08	—	0.71	23.5	**0.032**
02-08-21	—	—	12.50	—	16.1	<0.1	0.73	1.67	12.10	<0.010	—	<0.05	<0.05	<0.05	1.88	—	0.52	18.3	**0.014**
02-09-18	—	—	7.26	—	14.6	<0.1	0.63	1.21	9.33	0.014	—	<0.05	<0.05	<0.05	5.07	—	0.73	28.6	**0.024**

Table A 15: Site ScdE Heavy Metals Data

SITE ScdE: HEAVY METALS AND OTHER ELEMENTS

Date (yy-mm-dd)	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Cd (mg/L)	Cd_STL (µg/L)	Co (mg/L)	Cr (mg/L)	Cu (mg/L)	Fe (mg/L)	Li (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Pb (mg/L)	Rb (mg/L)	Sb (mg/L)	Sr (mg/L)	U (mg/L)	V (mg/L)	Zn (mg/L)
00-10-03	0.035	<0.001	—	—	<0.00001	0.88623	—	0.001	0.0012	0.199	—	0.023	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
00-11-12	**0.425**	<0.001	—	—	<0.00001	0.31577	—	0.001	0.0009	**0.610**	—	0.054	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
00-12-03	**0.257**	<0.001	—	—	<0.00001	0.23523	—	0.001	0.0006	**0.431**	—	0.042	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.162**	<0.001	—	—	<0.00001	0.61558	—	0.002	0.0006	**0.703**	—	0.042	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.074	<0.001	—	—	<0.00001	0.80215	—	0.002	0.001	**0.485**	—	0.041	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.072	<0.001	—	—	<0.00001	0.83366	—	0.002	0.0008	**0.485**	—	0.041	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.049	<0.001	—	—	<0.00001	1.06743	—	0.002	0.0005	0.144	—	0.037	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.070	<0.001	—	—	<0.00001	0.92411	—	0.002	0.0005	0.209	—	0.041	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.068	<0.001	—	—	<0.00001	1.21528	—	0.003	0.0007	0.165	—	0.075	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.295**	<0.001	—	—	<0.00001	0.76855	—	0.001	0.0007	**0.390**	—	0.067	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
02-06-19	**0.240**	<0.001	—	—	<0.00001	0.4528	—	0.001	0.0006	**0.694**	—	0.045	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.179**	0.0011	—	—	<0.00001	0.70772	—	0.002	0.0007	**0.818**	—	0.088	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.160**	0.0011	—	—	<0.00001	0.7161	—	0.002	0.0005	**0.858**	—	0.087	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.070	<0.001	—	—	<0.00001	0.78534	—	0.001	0.0006	**0.529**	—	0.062	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.314**	<0.001	—	—	<0.00001	0.47362	—	0.002	0.0007	**0.743**	—	0.084	—	<0.005	<0.001	—	<0.001	—	—	—	0.006

Table A 16: Site ScdE-2 Field and Lab Data

SITE ScdE-2: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																			
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
06-08-10	22.8	19.50	0.00	**5.30**	—	—	—	—	81	—	—	—	—	—	—	—	—	—
06-09-28	16.4	12.27	0.06	10.51	—	—	—	—	99	—	—	—	7.4	—	—	—	—	—
06-11-02	7.6	5.85	0.02	11.57	—	—	—	—	46	—	—	—	**5.9**	—	—	—	—	—
07-05-15	10.4	11.12	0.03	12.11	—	50.4	—	—	61	—	—	—	7.3	—	—	—	—	—

07-06-19	16.6	18.86	0.05	10.54	—	37.3	—	—	101	—	—	—	7.8	—	—	—	—	—
07-07-18	22.3	21.84	0.05	9.27	—	58.3	—	—	112	—	—	—	7.6	—	—	—	—	—
07-08-14	19.7	19.31	0.05	9.94	—	24.3	—	—	109	—	—	—	7.9	—	—	—	—	—
07-09-17	15.0	11.66	0.06	12.16	—	18.5	—	—	125	—	—	—	7.9	—	—	—	—	—
07-10-17	—	7.14	0.06	13.40	—	35.4	—	—	129	—	—	—	7.6	—	—	—	—	—
08-05-21	12.2	10.45	0.03	10.78	—	35.9	—	—	62	—	—	—	6.8	—	—	—	—	—
08-06-25	25.0	21.65	0.05	8.08	—	260.3	—	—	117	—	—	—	7.6	—	—	—	—	—
08-07-21	20.0	20.27	0.06	7.92	—	365.4	—	—	122	—	—	—	7.7	—	—	—	—	—
08-08-20	—	16.46	0.03	8.76	—	139.6	—	—	76	—	—	—	7.3	—	—	—	—	—
08-09-17	—	13.61	0.03	9.20	—	178.5	—	—	60	—	—	—	7.0	—	—	—	—	—
08-10-23	—	5.35	0.04	11.26	—	53.8	—	—	93	—	—	—	7.4	—	—	—	—	—
09-05-20	14.1	13.46	0.03	9.82	—	77.6	—	—	51	—	—	—	6.7	—	—	42	—	—
09-06-24	16.3	15.72	0.03	8.30	—	161.6	—	—	62	—	—	—	6.7	—	—	49	—	—
09-07-23	18.0	18.01	0.03	8.32	—	**770.1**	—	—	58	—	—	—	6.9	—	—	43	—	—
09-08-19	24.4	22.18	0.04	7.32	—	178.9	—	—	75	—	—	—	7.3	—	—	51	—	—
09-09-23	20.8	16.39	0.04	9.47	—	72.7	—	—	76	—	—	—	7.7	—	—	60	—	—
09-10-20	8.8	6.75	0.02	10.34	—	198.9	—	—	30	—	—	—	6.6	—	—	30	—	—
10-05-28	—	12.38	0.04	9.53	—	121.1	—	—	68	—	—	—	7.9	—	—	58	—	—
10-06-25	—	20.21	0.04	8.05	—	114.5	—	—	72	—	—	—	7.6	—	—	51	—	—
10-07-22	—	20.96	0.04	7.14	—	325.5	—	—	86	—	—	—	7.7	—	—	61	—	—
10-08-25	—	15.80	0.07	**6.34**	—	101.4	—	—	117	—	—	—	8.1	—	—	93	—	—
10-09-21	—	11.62	0.03	**6.00**	—	69.1	—	—	55	—	—	—	7.9	—	—	48	—	—
11-06-23	—	15.35	0.04	—	—	—	—	—	77	—	—	—	8.5	—	—	—	—	—
11-07-20	—	19.50	0.04	—	—	—	—	—	14	—	—	—	8.3	—	—	—	—	—
12-06-25	—	17.90	0.04	8.84	—	235.9	—	—	57	—	—	—	8.1	—	—	—	—	—
12-07-24	—	19.77	0.05	7.93	—	143.9	—	—	102	—	—	—	7.7	—	—	—	—	—
12-08-29	—	18.08	0.08	**5.49**	—	40.8	—	—	140	—	—	—	7.9	—	—	—	—	—
12-09-24	—	15.10	0.06	6.69	—	111.2	—	—	108	—	—	—	7.7	—	—	—	—	—
12-10-18	2.0	7.07	0.04	**6.27**	—	12.1	—	—	57	—	—	—	8.4	—	—	45	—	—
13-05-30	14.0	14.75	0.03	10.89	—	102.0	—	—	47	—	—	—	7.6	—	—	—	—	—
13-06-27	13.0	15.34	0.04	7.73	—	59.0	—	—	68	—	—	—	7.8	—	—	—	—	—
13-07-30	20.0	18.47	0.03	9.40	—	55.0	—	—	62	—	—	—	7.7	—	—	—	—	—
13-08-27	18.0	16.88	0.06	**6.19**	—	108.1	—	—	107	—	—	—	8.4	—	—	—	—	—
13-10-01	20.0	12.32	0.04	—	—	73.8	—	—	62	—	—	—	8.4	—	—	—	—	—
13-10-29	3.0	4.41	0.04	9.09	—	—	—	—	87	—	—	—	8.8	—	—	—	—	—
14-06-25	16.0	17.70	0.03	14.90	—	29.2	—	—	50	—	—	—	6.8	—	—	—	—	—
14-07-23	26.0	21.90	0.03	**0.10**	—	67.6	—	—	76	—	—	—	7.9	—	—	—	—	—

14-08-28	21.0	19.10	0.04	9.33	—	122.3	—	—	80	—	—	—	7.7	—	—	—	—	—
14-09-24	8.0	11.77	0.05	—	—	25.9	—	—	76	—	—	—	7.4	—	—	—	—	—
14-10-29	10.0	7.74	0.03	—	—	35.9	—	—	41	—	—	—	6.3	—	—	—	—	—
15-06-01	12.0	14.20	0.00	8.30	—	—	—	—	56	—	—	—	7.1	—	—	—	—	—
15-06-29	14.0	14.70	0.02	—	—	88.5	—	—	34	—	—	—	7.4	—	—	—	—	—
15-08-05	21.0	21.00	0.05	6.40	—	94.5	—	—	105	—	—	—	7.6	—	—	—	—	—
15-08-26	24.0	22.26	0.06	7.07	—	50.4	—	—	125	—	—	—	8.0	—	—	—	—	—
15-10-06	10.0	9.87	0.02	6.79	—	109.1	—	—	39	—	—	—	7.2	—	—	—	—	—
15-11-03	4.0	5.76	0.04	10.55	—	23.8	—	—	44	—	—	—	7.1	—	—	—	—	—
16-05-31	19.0	14.30	0.04	9.46	—	410.6	—	—	67	—	—	—	7.5	—	—	55	—	—
16-06-29	22.0	20.50	0.05	6.70	—	133.4	—	—	100	—	—	—	7.2	—	—	71	—	—
16-07-27	22.0	21.30	0.06	6.75	—	366.5	—	—	113	—	—	—	7.7	—	—	79	—	—
16-08-24	22.0	19.20	0.06	7.84	—	107.1	—	—	105	—	—	—	7.7	—	—	77	—	—
16-09-28	12.0	10.00	0.05	9.93	—	43.5	—	—	76	—	—	—	7.6	—	—	70	—	—
16-10-25	5.0	7.90	0.05	10.40	—	32.7	—	—	67	—	—	—	7.7	—	—	65	—	—
17-05-31	9.0	12.7	0.02	9.06	—	75.9	—	—	37	—	—	—	7.4	—	—	31.9	—	—
17-06-27	18.0	17.3	0.04	8.66	—	125.9	30	170	74	88	28.6	-1.67	7.5	7.2	8.9	56.6	51.0	2.50
17-07-26	17.0	16.7	0.06	8.3	—	52.9	37	68	108	130	37.0	-1.08	7.7	7.6	8.7	83.9	62.0	2.70
17-08-30	15.0	16.1	0.08	6.99	—	26.0	49	36	143	173	46.7	-0.97	7.8	7.5	8.5	111.8	88.0	9.70
17-09-27	14.0	16.7	0.07	8.5	—	22.8	41	79	124	148	42.0	-0.98	7.6	7.6	8.6	95.6	74.0	4.20
17-10-24	14.0	7.3	0.07	9.72	—	4.0	38	99	96	146	40.7	-1.34	8.0	7.3	8.6	94.9	72.0	3.20
18-05-30	12.0	13.90	0.04	8.86	—	4.1	20	130	64	82.7	23.7	-1.69	7.6	7.0	9.1	52.65	44	2.1
18-06-27	24.0	16.60	0.03	9.09	—	65.7	16	187	61	72	19	-2.62	6.8	6.7	9.3	46.80	42	2.9
18-07-31	26.0	21.40	0.05	6.90	—	73.3	30	150	94	97	29.5	-1.66	7.5	7.2	8.9	65.65	54	3.7
18-08-28	—	18.50	0.04	6.69	—	181.6	30	220	77	83	25.9	-1.51	8.0	7.4	8.9	57.20	52	2.8
18-09-26	17.0	10.60	0.06	10.45	—	134.0	32	92	90	115	30.1	-1.12	8.1	7.7	8.8	79.95	59	3.4
19-06-26	18.0	16.8	0.02	8.24	—	146.6	14	260	0.044	52	15.6	-2.45	7.3	7.0	9.5	33.80	57	2.6
19-07-24	21.0	19.0	0.04	8.34	—	173.0	30	180	0.084	95	31.5	-1.43	7.9	7.4	8.8	61.75	75	2.7
19-08-21	20.0	20.0	0.05	6.76	—	102.4	32	87	0.104	114	31.3	-1.31	7.6	7.5	7.5	74.75	68	2.3
19-09-26	—	13.2	0.03	7.69	—	122.0	10	200	0.043	57	13.9	-3.26	5.0	6.4	9.7	36.40	54	2.4
20-06-24	24	22.2	0.07	6.19	—	288	40	57	0.139	0.154	40.5	-1.11	7.3	7.5	8.6	94.25	78	3.2
20-07-28	21	23.0	0.08	6.30	—	620	52	32	0.122	0.177	49.9	-0.71	7.7	7.7	8.4	116.35	96	2.5
20-08-25	21	19.6	0.10	6.14	—	63	55	5	0.189	0.213	53.3	-0.66	7.4	7.7	8.4	137.15	117	3.0
20-09-29	23	13.8	0.07	7.88	—	20	37	64	0.117	0.145	36.9	-1.49	7.6	7.2	8.7	96.85	83	3.2
20-10-15	13	10.1	0.07	8.46	—	86	39	87	0.110	0.158	48.4	-0.96	7.1	7.6	8.6	100.10	96	2.8
21-05-27	21	17.1	0.03	8.22	—	52	13	227	0.052	0.061	15.5	-2.70	6.6	6.8	9.5	39.65	57	2.0
21-06-29	—	20.6	0.06	N/A	—	31	39	91	0.109	0.132	39.7	-1.03	6.9	7.6	8.6	76.70	81	1.8

21-07-27	22	19.2	0.03	6.35	—	52	20	315	0.072	0.074	23.0	-2.44	6.9	6.7	9.1	36.00	74	2.5
21-08-24	26	21.8	0.05	6.84	—	504	31	176	0.098	0.108	30.4	-1.54	7.4	7.3	8.8	68.25	54	3.2
21-09-29	15	15.2	0.05	7.23	—	31	30	199	0.085	0.110	32.5	-1.53	7.2	7.3	8.8	68.25	81	2.4
21-10-25	7	8.7	0.04	7.75	—	10	18	211	0.058	0.085	225.0	-2.41	7.2	6.8	9.2	10.00	46	2.5
22-06-30	24	21.0	0.05	6.18	—	85	30	191	0.091	0.096	29.3	-1.76	7.4	7.1	8.9	63.70	55	1.9
22-07-26	25	22.9	0.07	5.45	—	211	43	103	0.136	0.127	39.3	-1.09	7.5	7.5	8.6	92.30	75	2.8
22-08-29	22	17.5	0.04	7.40	—	20	25	287	0.072	0.080	27.0	-1.87	7.6	7.1	9	54.60	80	2.9
22-09-28	16	13.6	0.03	6.97	—	63	9	235	0.046	0.590	15.7	-3.45	6.1	6.2	9.7	38.35	58	1.5
23-06-26	12	17.6	0.03	7.39	—	30	18	207	0.560	0.065	18.7	-2.27	6.91	7	9.3	42.90	56	1.8
23-07-25	26	21.9	0.05	7.31	—	41	32	201	0.104	0.109	35.8	-1.35	7.36	7.4	8.8	71.50	92	1.8
23-08-29	20	17.1	0.04	6.70	—	20	20	219	0.072	0.086	23.5	-2.32	6.91	6.8	9.1	55.25	73	2.4
23-09-26	11	11.5	0.03	10.35	—	63	16	243	0.049	0.065	19.4	-2.61	6.93	6.7	9.3	42.25	66	2.5

Table A 17: Site ScdE-2 Nutrient Data

SITE ScdE-2: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
17-06-27	29.9	0.05	9.24	0.045	13.0	0.240	0.48	1.34	7.27	<0.250	<0.001	<0.250	<250	<250	<5	0.70	0.70	18.1	0.037
17-07-26	36.8	0.08	12.00	0.138	14.2	0.230	0.46	1.70	10.70	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.40	0.40	9.0	0.020
17-08-30	48.8	0.12	15.20	0.145	23.6	0.150	0.62	2.12	16.10	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.40	0.40	5.8	0.051
17-09-27	40.8	0.08	13.70	0.153	19.4	0.200	0.71	1.90	12.90	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.50	0.50	12.3	0.024
17-10-24	37.9	0.08	13.10	0.071	19.2	0.170	0.85	1.95	12.70	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.50	0.50	14.0	0.020
18-05-30	20.0	0.03	7.70	0.019	14.0	0.210	0.35	1.08	7.53	<0.250	<0.001	<0.25	<0.25	<0.25	<5	0.40	0.40	14.3	0.036
18-06-27	16.0	0.03	6.12	0.008	15.7	0.290	0.28	0.90	8.36	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.70	0.70	4.4	0.036
18-07-31	29.9	0.05	9.59	0.045	15.0	0.280	0.34	1.36	8.54	<0.250	<0.001	<0.25	<0.25	<0.25	<5	0.70	0.70	21.0	0.037
18-08-28	29.9	0.05	8.55	0.070	14.0	0.330	0.39	1.11	7.92	<0.250	<0.001	<0.25	<0.25	<0.25	<5	0.80	0.80	27.0	0.029
18-09-26	31.8	0.08	9.84	0.150	16.1	0.240	0.48	1.34	10.80	<0.050	<0.001	<0.05	<0.05	<0.05	<5	0.40	0.40	12.4	0.024
19-06-26	14.0	0.03	5.0	0.013	8.0	0.26	0.20	0.76	5.1	<0.25	<0.001	<0.25	<0.25	<0.25	1	—	0.7	27.0	0.034
19-07-24	29.9	0.05	10.3	0.071	12.0	0.26	0.33	1.40	7.5	<0.25	<0.001	<0.25	<0.25	<0.25	2	—	0.7	22.0	0.035

19-08-21	31.9	0.06	10.2	0.095	13.7	0.21	0.52	1.42	9.3	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	12.6	0.027
19-09-26	10.0	0.03	4.29	0.002	9.0	0.28	0.63	0.77	5.2	<0.25	<0.001	<0.25	<0.25	<0.25	2	—	0.6	25	0.031
20-06-24	39.9	0.09	13.2	0.119	17.7	0.25	0.64	1.84	11.8	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	7.8	0.025
20-07-28	51.7	0.11	16.5	0.244	23.9	0.13	0.69	2.12	15.5	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	5.1	0.014
20-08-25	54.7	0.17	17.7	0.258	36.4	0.13	0.76	2.22	20.9	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	<0.2	5.0	0.016
20-09-29	36.9	0.07	11.7	0.055	18.4	0.12	0.69	1.87	11.3	<0.05	<0.001	<0.05	0.06	0.06	6.0	—	9.9	9.9	0.030
20-10-15	38.8	0.06	15.4	0.145	20.9	0.16	1.04	2.41	12.6	<0.05	<0.001	<0.05	0.09	<0.05	8.0	—	0.4	11.8	0.020
21-05-27	13.0	0.03	4.9	0.008	9.6	0.27	0.32	0.81	6.5	<0.05	<0.001	<0.05	<0.05	<0.05	2.0	—	0.5	24.0	0.017
21-06-29	38.8	0.07	13.0	0.145	16.7	0.26	0.52	1.76	11.5	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.5	12.9	0.025
21-07-27	20.0	0.04	7.4	0.009	12.4	0.60	0.42	1.12	6.6	<0.05	<0.001	<0.05	<0.05	<0.05	1.0	—	0.9	31.0	0.049
21-08-24	30.9	0.07	9.7	0.058	12.8	0.38	0.50	1.50	8.9	<0.05	<0.001	<0.05	0.06	0.06	<5	—	0.6	21.0	0.041
21-09-29	29.9	0.05	10.4	0.056	16.6	0.55	0.74	1.59	9.1	<0.05	<0.001	<0.05	0.06	0.06	<6	—	0.8	22.0	0.034
21-10-25	18.0	0.04	7.0	0.011	16.7	0.55	0.75	1.20	8.0	<0.05	<0.001	<0.05	<0.05	<0.05	<7	—	0.9	27.0	0.027
22-06-30	30.0	0.05	9.5	0.036	15.5	0.30	0.32	1.33	8.6	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.8	22.0	0.038
22-07-26	42.9	0.07	12.9	0.128	20.0	0.25	0.46	1.72	12.3	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.5	14.0	0.026
22-08-29	25.0	0.05	8.9	0.030	10.5	0.48	0.49	1.18	7.0	<0.05	<0.001	<0.05	0.06	0.06	2.0	—	0.8	32.0	0.049
22-09-28	9.0	0.03	4.9	0.001	11.0	0.45	0.48	0.84	5.4	<0.05	<0.001	<0.05	<0.05	<0.05	2.0	—	0.7	27.0	0.025
23-06-26	18.0	0.03	5.97	0.017	9.2	0.31	0.22	0.91	6.39	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	1	—	0.3	19.9	0.035
23-07-25	31.9	0.06	11.7	0.075	15.5	0.27	0.47	1.59	9.5	< 0.05	< 0.001	< 0.05	0.09	0.09	2	—	0.7	30.0	0.045
23-08-29	20.0	0.04	7.7	0.012	15.1	0.58	0.57	1.06	8.48	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 5	—	0.7	26.0	0.040
23-09-26	16.0	0.04	6.2	0.008	12.8	0.56	0.55	0.96	6.2	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 5	—	0.6	28.0	0.033

Table A 18: Site ScdE-2 Heavy Metals Data

SITE ScdE-2: HEAVY METALS AND OTHER ELEMENTS

Date (yy-mm-dd)	Al (mg/L)	As (mg/L)	B (mg/L)	Ba (mg/L)	Cd (mg/L)	Cd_STL (µg/L)	Co (mg/L)	Cr (mg/L)	Cu (mg/L)	Fe (mg/L)	Li (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Pb (mg/L)	Rb (mg/L)	Sb (mg/L)	Sr (mg/L)	U (mg/L)	V (mg/L)	Zn (mg/L)
17-06-27	**0.153**	<0.001	0.005	0.028	<0.00001	0.58839	0.00002	<0.001	<0.001	**1.110**	0.00005	0.101	0.0001	<0.001	0.00004	0.0010	<0.0001	0.049	0.0001	<0.001	0.005
17-07-26	0.042	<0.001	0.007	0.032	<0.00001	0.76435	0.00002	<0.001	<0.001	**0.470**	0.00007	0.091	0.0001	<0.001	0.00002	0.0010	<0.0001	0.081	<0.00001	<0.001	0.004
17-08-30	0.096	<0.001	0.008	0.047	0.00001	0.96834	0.00003	<0.001	<0.001	**0.530**	0.00009	0.232	0.0002	<0.001	0.00003	0.0012	<0.0001	0.113	<0.00001	<0.001	0.018
17-09-27	0.058	<0.001	0.008	0.047	<0.00001	0.8694	0.00002	<0.001	<0.001	**0.480**	0.00008	0.118	0.0001	<0.001	0.00003	0.0014	<0.0001	0.095	<0.00001	<0.001	0.024
17-10-24	0.051	<0.001	0.009	0.040	<0.00001	0.84207	0.00001	<0.001	<0.001	**0.390**	0.00007	0.056	<0.0001	<0.001	0.00001	0.0014	<0.0001	0.085	<0.00001	<0.001	0.013
18-05-30	**0.146**	<0.001	0.007	0.024	<0.00001	0.48612	0.00002	<0.001	<0.001	**0.600**	0.00007	0.081	<0.0001	<0.001	0.00003	0.0006	<0.0001	0.040	<0.00001	<0.001	0.004
18-06-27	**0.273**	<0.001	0.006	0.025	0.00001	0.38834	0.00002	<0.001	<0.001	**0.790**	0.00005	0.108	<0.0001	<0.001	0.00003	0.0005	<0.0001	0.031	<0.00001	<0.001	0.007
18-07-31	0.099	<0.001	0.007	0.035	<0.00001	0.60721	0.00002	<0.001	<0.001	**0.900**	0.00006	0.117	0.0001	<0.001	0.00003	0.0009	<0.0001	0.059	<0.00001	<0.001	0.002
18-08-28	**0.167**	<0.001	0.006	0.032	0.00001	0.532	0.00002	<0.001	<0.001	**1.140**	0.00007	0.132	0.0001	<0.001	0.00003	0.0008	<0.0001	0.052	<0.00001	<0.001	0.002
18-09-26	0.056	<0.001	0.005	0.033	<0.00001	0.61976	0.00002	<0.001	<0.001	**0.540**	0.00007	0.085	<0.0001	<0.001	0.00003	0.0008	<0.0001	0.074	<0.00001	<0.001	<0.001
19-06-26	**0.282**	<0.001	0.005	0.024	0.00001	0.31784	0.00002	<0.001	<0.001	**0.870**	0.00005	0.088	<0.0001	<0.001	0.00003	0.0004	<0.0001	<0.001	<0.00001	<0.001	0.005
19-07-24	**0.112**	<0.001	0.002	0.028	<0.00001	0.64906	0.00002	<0.001	<0.001	**1.310**	0.00006	0.072	0.0001	<0.001	0.00004	0.0008	<0.0001	<0.001	<0.00001	<0.001	0.011
19-08-21	0.048	<0.001	0.010	0.032	<0.00001	0.64487	0.00002	<0.001	0.002	**0.460**	0.00007	0.112	0.0001	<0.001	0.00002	0.0011	<0.0001	<0.001	<0.00001	<0.001	0.002
19-09-26	**0.263**	<0.001	0.007	0.026	0.00002	0.28269	0.00002	<0.001	<0.001	**0.820**	0.00006	0.085	<0.0001	<0.001	0.00003	0.0010	<0.0001	<0.001	<0.00001	<0.001	0.003
20-06-24	0.052	<0.001	0.009	0.045	<0.00001	0.83787	0.00002	<0.001	<0.001	**0.490**	0.00008	0.185	0.0002	<0.001	0.00002	0.0015	<0.0001	0.083	<0.00001	<0.001	0.001
20-07-28	0.063	<0.001	0.010	0.048	<0.00001	1.03579	0.00002	<0.001	<0.001	**0.300**	0.00009	0.119	0.0002	<0.001	0.00001	0.0016	<0.0001	0.116	<0.00001	<0.001	0.002
20-08-25	0.099	<0.001	0.011	0.053	0.00001	1.10753	0.00003	<0.001	<0.001	**0.400**	0.00011	0.237	0.0003	<0.001	0.00003	0.0016	<0.0001	0.135	<0.00001	<0.001	0.001
20-09-29	0.067	<0.001	0.012	0.048	<0.00001	0.76225	0.00001	<0.001	<0.001	0.270	0.00008	0.060	0.0001	<0.001	0.00001	0.0014	<0.0001	0.094	<0.00001	<0.001	0.002
20-10-15	**0.115**	<0.001	0.013	0.048	<0.00001	1.00416	0.00001	<0.001	<0.001	0.290	0.00008	0.032	0.0001	<0.001	0.00001	0.0017	<0.0001	0.086	<0.00001	<0.001	0.006
21-05-27	**0.284**	**<0.0001**	0.011	0.023	0.00001	0.83787	0.00002	<0.001	<0.001	**0.63**	0.00005	0.045	**<0.0001**	<0.001	0.00003	0.0007	<0.0001	0.026	**<0.00001**	<0.001	0.004
21-06-29	0.053	**<0.0001**	0.011	0.031	<0.00001	—	0.00002	<0.001	<0.001	**0.57**	0.00007	0.076	0.0002	<0.001	0.00003	0.0013	<0.0001	0.077	**<0.00001**	<0.001	0.001
21-07-27	**0.333**	**<0.0001**	0.010	0.031	0.00002	1.03579	0.00003	<0.001	<0.001	**1.42**	0.00006	0.134	0.0001	0.001	0.00004	0.0011	<0.0001	0.042	**<0.00001**	<0.001	0.004

21-08-24	0.101	<0.001	0.008	0.028	<0.00001	1.10753	0.00002	<0.001	<0.001	1.14	0.0007	0.094	0.0001	0.001	0.003	0.0013	<0.0001	0.059	<0.0001	<0.001	0.001
21-09-29	0.143	<0.001	0.012	0.036	<0.00001	0.76225	0.00002	<0.001	<0.001	0.94	0.0007	0.050	0.0001	<0.001	0.002	0.0015	<0.0001	0.054	<0.0001	<0.001	0.002
21-10-25	0.227	<0.001	0.006	0.030	<0.00001	1.00416	0.00001	<0.001	<0.001	0.87	0.0006	0.039	<0.0001	<0.001	0.002	0.0012	<0.0001	0.038	<0.0001	<0.001	0.002
22-06-30	0.117	<0.001	0.028	0.028	<0.00001	—	0.00002	<0.001	<0.001	1.09	0.0006	0.118	0.0001	<0.001	0.003	0.0010	<0.0001	0.052	<0.0001	<0.001	0.003
22-07-26	0.060	<0.001	0.029	0.029	<0.00001	—	0.00002	<0.001	<0.001	0.69	0.0007	0.120	0.0002	<0.001	0.002	0.0013	<0.0001	0.071	<0.0001	<0.001	0.002
22-08-29	0.183	<0.001	0.031	0.031	0.00001	—	0.00004	<0.001	<0.001	1.67	0.0007	0.221	0.0002	<0.001	0.004	0.0014	<0.0001	0.047	<0.0001	<0.001	0.003
22-09-28	0.295	<0.001	0.027	0.027	0.00002	—	0.00002	<0.001	<0.001	0.78	0.0007	0.086	<0.0001	<0.001	0.003	0.0009	<0.0001	0.025	<0.0001	<0.001	0.004
23-06-26	0.215	<0.001	0.007	0.025	<0.00001	—	0.00002	<0.001	<0.001	0.76	0.0005	0.051	<0.0001	<0.001	0.003	0.0006	<0.0001	0.032	<0.0001	<0.001	0.002
23-07-25	0.096	<0.001	0.011	0.030	<0.00001	—	0.00002	<0.001	<0.001	1.22	0.0006	0.050	0.0002	<0.001	0.003	0.0011	<0.0001	0.059	<0.0001	<0.001	0.003
23-08-29	0.191	<0.001	0.008	0.029	<0.00001	—	0.00002	<0.001	<0.001	0.91	0.0005	0.063	<0.0001	<0.001	0.002	0.0010	<0.0001	0.037	<0.0001	<0.001	0.002
23-09-26	0.243	<0.001	0.007	0.026	<0.00001	—	0.00002	<0.001	<0.001	0.99	0.0006	0.067	<0.0001	<0.001	0.003	0.0010	<0.0001	0.032	<0.0001	<0.001	0.003

Table A 19: Site ScdF Field and Lab Data

SITE ScdF: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																			
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
00-10-03	—	13.3	—	—	—	30	40.5	4.82	—	105	42.5	—	—	7.5	—	—	53.632	4.6
00-11-12	6.0	—	—	—	—	20	5.12	8.43	—	49.3	13.9	—	—	5.8	—	—	26.186	10
00-12-03	-3.0	—	—	—	—	10	3.58	5.3	—	37.8	11.6	—	—	5.9	—	—	18.522	1.7
01-05-16	18.0	10.00	—	10.60	97	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	19.0	17.20	—	8.80	90	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	60	25.4	2.8	—	62.8	26.5	—	—	7.3	—	—	34.444	3.8
01-06-12	20.6	16.70	—	8.90	91	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	21.0	19.30	—	7.90	85	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	30	45.7	4.01	—	112	44.4	—	—	7.9	—	—	56.613	4.1
01-07-12	21.1	19.50	—	8.00	86	—	—	—	—	—	—	—	—	—	—	—	—	—

01-07-25	25.9	22.20	—	7.60	87	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	230	63.2	5.17	—	143	59.5	—	—	8.1	—	—	74.753	4	
01-08-09	24.5	19.60	—	7.00	75	—	—	—	—	—	—	—	—	—	—	—	—	—	
01-09-05	—	—	—	—	—	50	62.7	4.86	—	142	57.7	—	—	8.1	—	—	74.605	11.9	
01-10-09	—	—	—	—	—	20	75.2	5.93	—	162	70.6	—	—	8.0	—	—	88.448	4.3	
01-11-18	2.0	—	—	—	—	10	10.9	7.5	—	90	31	—	—	6.8	—	—	46.03	3.9	
01-11-18	2.0	—	—	—	—	10	2.94	6.96	—	74.3	20.7	—	—	5.2	—	—	34.396	0.4	
02-05-09	19.3	13.2	—	9.70	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-05-24	21.7	17.2	—	8.70	92	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-05	15.1	13.7	—	9.60	90	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-19	—	—	—	—	—	20	—	2.54	—	52.3	22.8	—	—	7.1	—	—	28.179	6.02	
02-06-19	—	—	—	—	—	10	—	2.66	—	53.3	22.2	—	—	7.1	—	—	28.033	5.23	
02-06-20	21.9	16.60	—	9.00	90	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-03	26.4	22.60	—	7.70	88	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-17	—	—	—	—	—	50	27	3.24	—	69.2	33	—	—	7.1	—	—	39.822	5.51	
02-07-18	20.0	19.30	—	7.80	82	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-02	20.4	17.80	—	8.70	90	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-13	23.7	21.40	—	7.40	82	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-21	—	—	—	—	—	60	42.1	4	—	104	43.5	—	—	7.6	—	—	—	4.63	
02-08-30	20.3	17.80	—	9.50	99	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-09-18	—	—	—	—	—	50	8.28	10.5	—	75.8	24.3	—	—	6.6	—	—	—	4.62	
02-09-19	20.4	14.70	—	9.10	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-05-22	12.5	10.50	—	11.20	98	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-10	19.8	17.10	—	9.20	93	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-23	20.8	17.90	—	9.20	96	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-04	23.8	20.00	—	7.90	87	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-21	26.0	21.80	—	7.70	88	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-05	21.3	18.80	—	7.90	83	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-18	21.2	19.30	—	8.50	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-01	24.2	18.70	—	8.30	89	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-15	25.4	19.20	—	8.00	86	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-03	13.3	12.50	—	9.80	90	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-15	13.2	10.50	—	11.00	97	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-27	17.1	12.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-11	5.7	2.70	—	13.80	101	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-24	10.6	8.50	—	12.00	101	—	—	—	—	—	—	—	—	—	—	—	—	—	
06-07-07	21.0	17.90	0.00	6.18	—	—	—	—	70	—	—	—	—	—	—	—	—	—	

06-08-10	19.3	16.60	0.00	6.34	—	—	—	—	48	—	—	—	—	—	—	—	—	—	—
06-09-28	—	9.45	0.05	11.09	—	—	—	—	81	—	—	—	7.5	—	—	—	—	—	—
06-11-02	6.8	6.13	0.02	12.52	—	—	—	—	38	—	—	—	5.7	—	—	—	—	—	—
07-05-15	12.5	8.90	0.02	12.62	—	167.0	—	—	40	—	—	—	7.0	—	—	—	—	—	—
07-06-19	17.2	15.82	0.04	11.42	—	201.2	—	—	83	—	—	—	7.6	—	—	—	—	—	—
07-07-18	21.6	18.53	0.04	10.36	—	1553.1	—	—	87	—	—	—	7.3	—	—	—	—	—	—
07-08-14	19.1	17.58	0.05	10.25	—	90.8	—	—	103	—	—	—	7.9	—	—	—	—	—	—
07-09-17	10.0	9.07	0.07	13.13	—	143.9	—	—	144	—	—	—	7.9	—	—	—	—	—	—
07-10-17	—	5.17	0.04	14.70	—	50.5	—	—	82	—	—	—	7.8	—	—	—	—	—	—
08-05-21	12.2	9.13	0.01	11.11	—	34.1	—	—	31	—	—	—	6.8	—	—	—	—	—	—
08-06-25	25.0	18.24	0.05	8.96	—	325.5	—	—	99	—	—	—	7.7	—	—	—	—	—	—
08-07-21	20.0	19.44	0.06	8.09	—	>2419.6	—	—	136	—	—	—	7.7	—	—	—	—	—	—
08-08-20	—	14.97	0.04	9.29	—	173.1	—	—	84	—	—	—	7.7	—	—	—	—	—	—
08-09-17	—	11.60	0.02	10.05	—	31.8	—	—	49	—	—	—	7.3	—	—	—	—	—	—
08-10-23	—	4.73	0.04	12.58	—	579.4	—	—	81	—	—	—	7.8	—	—	—	—	—	—
09-05-20	11.4	11.29	0.02	10.56	—	201.4	—	—	28	—	—	—	6.6	—	—	25	—	—	—
09-06-24	15.3	14.37	0.02	9.52	—	275.5	—	—	31	—	—	—	6.7	—	—	27	—	—	—
09-07-23	17.6	17.55	0.03	9.14	—	387.3	—	—	50	—	—	—	7.1	—	—	38	—	—	—
09-08-19	21.6	20.49	0.03	8.01	—	866.4	—	—	60	—	—	—	7.3	—	—	43	—	—	—
09-09-23	18.3	13.05	0.04	8.31	—	77.1	—	—	62	—	—	—	7.7	—	—	53	—	—	—
09-10-20	8.6	7.25	0.02	11.70	—	27.2	—	—	24	—	—	—	6.4	—	—	23	—	—	—
10-06-25	—	16.75	0.03	8.72	—	108.6	—	—	55	—	—	—	7.9	—	—	42	—	—	—
10-07-22	—	19.74	0.04	8.30	—	2419.6	—	—	83	—	—	—	7.7	—	—	60	—	—	—
10-08-25	—	16.54	0.07	5.61	—	114.5	—	—	125	—	—	—	8.1	—	—	97	—	—	—
10-09-21	—	11.11	0.03	5.64	—	52.9	—	—	47	—	—	—	7.8	—	—	42	—	—	—
11-06-23	—	12.94	0.03	—	—	—	—	—	66	—	—	—	8.8	—	—	—	—	—	—
11-07-20	—	16.15	0.04	—	—	—	—	—	70	—	—	—	8.5	—	—	—	—	—	—
11-08-24	—	15.06	0.02	—	—	—	—	—	45	—	—	—	8.4	—	—	—	—	—	—
12-06-25	—	18.91	0.13	3.92	—	365.4	—	—	51	—	—	—	7.8	—	—	—	—	—	—
12-07-24	—	18.79	0.07	8.57	—	325.5	—	—	116	—	—	—	7.7	—	—	—	—	—	—
12-08-29	—	16.02	0.08	6.07	—	152.9	—	—	132	—	—	—	7.9	—	—	—	—	—	—
12-09-24	—	14.71	0.05	7.87	—	686.7	—	—	820	—	—	—	7.3	—	—	—	—	—	—
12-10-18	2.0	5.89	0.04	7.90	—	20.3	—	—	480	—	—	—	7.7	—	—	93	—	—	—
13-05-30	14.0	14.33	0.02	11.14	—	248.0	—	—	30	—	—	—	7.1	—	—	—	—	—	—
13-06-27	13.0	14.53	0.03	8.10	—	411.0	—	—	45	—	—	—	7.9	—	—	—	—	—	—
13-07-30	20.0	18.40	0.02	8.50	—	86.0	—	—	33	—	—	—	6.9	—	—	—	—	—	—
13-08-27	20.0	16.18	0.05	5.92	—	206.4	—	—	84	—	—	—	8.4	—	—	—	—	—	—

13-10-01	20.0	12.54	0.03	8.33	—	70.3	—	—	45	—	—	—	7.7	—	—	—	—	—
13-10-29	5.0	5.05	0.03	8.18	—	—	—	—	63	—	—	—	8.3	—	—	—	—	—
14-06-25	16.0	17.08	0.02	**2.89**	—	88.2	—	—	42	—	—	—	7.1	—	—	—	—	—
14-07-23	25.0	19.70	0.04	6.88	—	167.0	—	—	71	—	—	—	8.0	—	—	—	—	—
14-08-28	18.0	18.23	0.04	9.66	—	95.8	—	—	67	—	—	—	8.0	—	—	—	—	—
14-09-24	6.0	10.81	0.03	—	—	140.1	—	—	42	—	—	—	7.5	—	—	—	—	—
14-10-29	9.0	7.61	0.02	—	—	41.4	—	—	31	—	—	—	7.4	—	—	—	—	—
15-06-01	12.0	12.80	0.00	8.82	—	—	—	—	44	—	—	—	7.3	—	—	—	—	—
15-08-05	21.0	19.10	0.04	7.30	—	40.6	—	—	89	—	—	—	6.8	—	—	58	—	—
15-08-26	23.0	20.45	0.06	**6.42**	—	101.3	—	—	117	—	—	—	8.5	—	—	—	—	—
15-10-06	8.0	9.81	0.02	7.38	—	50.4	—	—	39	—	—	—	8.2	—	—	—	—	—
15-11-03	3.0	6.26	0.02	10.38	—	16.4	—	—	33	—	—	—	7.2	—	—	—	—	—
16-06-29	22.0	19.30	0.03	7.44	—	125.9	—	—	66	—	—	—	7.6	—	—	48	—	—
16-07-27	20.0	19.00	0.04	7.11	—	130.6	—	—	75	—	—	—	7.8	—	—	55	—	—
16-08-24	21.0	17.50	0.04	8.07	—	204.6	—	—	80	—	—	—	7.9	—	—	61	—	—
16-09-28	12.0	9.60	0.04	10.02	—	118.7	—	—	63	—	—	—	8.0	—	—	59	—	—
16-10-25	5.0	7.30	0.03	10.70	—	46.4	—	—	44	—	—	—	8.5	—	—	43	—	—
17-06-27	11.0	15.8	0.03	8.72	—	135.4	23	290	52	62	26.5	-2.03	8.0	7.0	9.0	41.0	38.0	9.90
17-07-26	9.0	14.3	0.06	8.46	—	95.7	50	120	95	121	48.3	-0.75	8.1	7.7	8.5	79.0	61.0	7.80
17-08-30	9.0	13.3	0.07	9.03	—	51.0	72	40	121	158	64.7	-0.37	7.6	7.8	8.2	101.4	81.0	9.30
17-09-27	14.0	16.1	0.06	8.44	—	178.0	58	99	110	132	54.7	-0.73	7.9	7.6	8.3	85.8	69.0	8.20
17-10-24	12.0	6.8	0.06	10.08	—	24.0	53	120	80	124	50.4	-1.01	7.9	7.4	8.4	80.0	65.0	13.60
18-07-31	20.0	19.20	0.05	7.01	—	162.4	38	<5	98	106	45	-1.00	8.1	7.6	8.6	71.50	67	12.6
18-08-28	—	17.00	0.04	7.95	—	357.0	40	250	69	79	32.6	-1.11	**9.2**	7.6	8.7	53.95	49	6.8
18-09-26	15.0	10.80	0.06	8.00	—	202.4	44	87	92	111	47.4	-0.81	8.4	7.7	8.5	81.90	59	159
19-06-26	15.0	16.8	0.02	8.74	—	60.2	15	280	0.032	38	15.2	-2.25	8.7	7.2	9.4	24.70	52	4.6
19-07-24	17.0	18.3	0.03	7.44	—	30.0	20	270	0.059	61	26.8	-1.78	**9.2**	7.3	9.1	42.90	63	6.6
19-08-21	14.0	17.0	0.06	7.47	—	118.2	44	89	0.104	113	44.3	-1.23	8.7	7.3	7.3	79.30	68	11.9
19-09-26	—	13.3	0.02	9.87	—	110.0	10	210	0.036	50	13.5	-3.21	8.4	**6.5**	9.7	29.90	118	2.9
20-06-24	20	19.7	0.06	5.51	—	323	56	75	0.118	0.402	51.7	-0.57	7.7	7.8	8.4	85.80	75	<0.1
20-07-28	23	21.1	0.08	6.97	—	**1,274**	68	64	0.149	0.149	61.7	-0.71	7.8	7.5	8.2	109.85	84	46.1
20-08-25	20	17.4	0.08	8.18	—	134	75	42	0.152	0.158	66.2	-0.55	8.0	7.6	8.1	115.70	90	4.4
20-09-29	21	14.6	0.07	**3.85**	—	41	47	52	0.120	0.129	44.1	-1.32	7.6	7.2	8.5	97.50	74	16.1
20-10-15	9	9.3	0.07	8.02	—	122	61	81	0.101	0.980	59.1	-0.69	7.0	7.6	8.3	92.95	86	26.5
21-05-27	18	17.0	0.02	7.40	—	63	12	272	0.040	0.044	15.2	-2.36	7.56	7.2	9.6	30.55	73	10.8
21-06-29	—	21.2	0.11	—	—	**563**	50	112	0.220	0.121	50.7	-0.63	8.1	7.8	8.4	149.50	77	4.3
21-07-27	—	18.8	N/A	**5.80**	—	85	19	320	0.059	0.058	22.8	-2.28	6.8	6.9	9.2	29.00	66	9.3

21-08-24	24	21.2	0.04	5.57	—	160	38	266	0.087	0.096	39.9	-1.34	7.4	7.3	8.6	61.75	54	6.0
21-09-29	20	14.4	0.04	5.65	—	677	27	309	0.061	0.078	29.9	-1.81	7.2	7.1	8.9	49.40	70	15.8
21-10-25	—	9.6	0.03	9.57	—	265	14	319	0.042	0.059	20.2	-2.78	8.1	6.6	9.4	265.00	32	19.6
22-06-30	19	18.2	0.03	6.95	—	132	32	259	0.089	0.074	30.7	-1.63	8.9	7.2	8.8	48.70	44	4.3
22-07-26	21	—	—	—	—	173	53	119	DND	0.103	46.5	-0.94	—	7.5	8.4	DND	62	4.1
22-08-29	19	16.4	0.03	7.30	—	110	24	422	0.060	0.063	28.2	-1.88	8.1	7.1	9	46.80	75	6.0
22-09-28	15	13.4	0.03	10.10	—	1,529	5	226	0.054	0.068	18.5	-3.99	7.1	5.9	9.9	45.50	61	2.0
23-06-26	12	17.2	0.02	7.66	—	426	17	261	0.046	0.053	19.7	-2.29	7.26	7	9.3	35.10	55	10.3
23-07-25	23	20.7	0.04	7.17	—	41	35	252	0.085	0.930	38.0	-1.30	7.82	7.4	8.7	60.45	82	6.8
23-08-29	18	16.4	0.03	9.22	—	160	21	249	0.055	0.061	24.1	-1.91	7.80	7.2	9.1	42.25	61	8.4
23-09-26	6	11.2	0.03	8.90	—	31	18	316	0.043	0.058	21.6	-2.33	7.27	6.9	9.2	37.70	70	7.4

Table A 20: Site ScdF Nutrient Data

SITE ScdF: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
00-10-03	—	—	13.20	—	4.8	<0.1	0.49	2.29	5.22	0.019	—	<0.05	<0.05	<0.05	1.98	0.53	—	17.8	0.023
00-11-12	—	—	3.75	—	8.4	<0.1	0.58	1.10	4.45	0.015	—	<0.05	<0.05	<0.05	2.45	0.54	—	23.7	0.018
00-12-03	—	—	3.33	—	5.3	<0.1	0.24	0.79	3.54	<0.010	—	<0.05	<0.05	<0.05	1.97	0.40	—	19.6	0.010
01-06-03	—	—	8.32	—	2.8	<0.1	0.39	1.38	3.47	0.031	—	<0.05	<0.05	<0.05	1.44	—	0.41	16.0	0.026
01-07-03	—	—	14.00	—	4.0	<0.1	0.44	2.30	4.52	0.034	—	<0.05	<0.05	<0.05	2.34	—	0.41	11.3	0.021
01-08-07	—	—	18.90	—	5.2	<0.1	0.77	2.96	5.70	<0.010	—	<0.05	<0.05	<0.05	2.23	—	<0.3	6.5	0.014
01-09-05	—	—	18.20	—	4.9	<0.1	0.72	2.95	5.88	<0.010	—	<0.05	<0.05	<0.05	3.04	—	<0.3	8.1	0.015
01-10-09	—	—	22.20	—	5.9	<0.1	1.12	3.68	6.72	<0.010	—	<0.05	<0.05	<0.05	2.62	—	0.35	8.0	0.015
01-11-18	—	—	8.98	—	7.5	<0.1	0.60	2.08	5.13	0.029	—	<0.05	<0.05	0.068	13.60	—	0.60	24.2	0.015
01-11-18	—	—	5.87	—	7.0	<0.1	0.32	1.46	4.50	0.015	—	<0.05	<0.05	<0.05	12.20	—	0.57	27.9	0.014
02-06-19	—	—	7.05	—	2.5	<0.1	0.27	1.25	3.59	0.022	—	<0.05	<0.05	<0.05	1.01	—	0.49	25.2	0.019
02-06-19	—	—	6.83	—	2.7	<0.1	0.35	1.24	3.53	0.044	—	<0.05	<0.05	<0.05	0.98	—	0.57	25.1	0.023

02-07-17	—	—	10.30	—	3.2	<0.1	0.43	1.78	4.27	0.043	—	<0.05	<0.05	<0.05	1.31	—	0.76	27.7	0.029
02-08-21	—	—	13.50	—	4.0	<0.1	0.70	2.38	4.60	0.024	—	<0.05	<0.05	0.060	1.62	—	0.56	21.3	0.016
02-09-18	—	—	7.19	—	10.5	<0.1	0.38	1.53	5.39	0.011	—	<0.05	<0.05	<0.05	3.66	—	0.60	27.8	0.015
17-06-27	23.0	0.05	8.25	0.022	7.0	0.310	0.71	1.43	3.33	<0.250	<0.001	<0.25	<0.25	<0.25	1	0.80	0.80	28.0	0.052
17-07-26	49.7	0.03	15.20	0.234	4.0	0.290	0.74	2.52	4.86	<0.250	<0.001	<0.25	<0.25	<0.25	2	0.40	0.40	11.4	0.039
17-08-30	71.5	0.03	20.60	0.424	5.1	0.120	0.76	3.23	6.02	<0.050	<0.001	<0.05	0.070	0.070	<1	0.20	0.30	4.2	0.029
17-09-27	57.8	0.03	17.30	0.216	6.1	0.180	0.90	2.80	5.33	0.050	<0.001	<0.05	<0.05	<0.05	<1	0.60	0.60	12.2	0.031
17-10-24	52.9	0.03	15.90	0.125	6.4	0.140	0.87	2.59	5.21	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.40	0.40	13.0	0.040
18-07-31	37.8	0.04	14.30	0.141	5.1	0.220	0.68	2.26	4.61	0.090	0.001	<0.05	<0.05	<0.05	15	0.50	0.50	14.7	0.049
18-08-28	39.8	0.03	10.20	0.150	6.0	0.320	0.59	1.74	3.80	<0.25	<0.001	<0.25	<0.25	<0.25	<5	0.70	0.70	25.0	0.038
18-09-26	43.8	0.03	15.00	0.210	4.7	0.210	0.91	2.42	4.69	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.30	0.30	9.6	0.440
19-06-26	15.0	0.03	4.66	0.022	4.0	0.27	0.26	0.86	2.6	<0.25	<0.001	<0.25	<0.25	<0.25	<5	—	0.6	29	0.037
19-07-24	20.0	0.04	8.4	0.038	6.0	0.29	0.42	1.43	3.3	<0.25	<0.001	<0.25	<0.25	<0.25	<5	—	0.8	29.0	0.051
19-08-21	43.9	0.03	14	0.082	4.7	0.18	0.75	2.26	4.2	0.070	<0.001	<0.05	0.060	0.06	2	—	0.5	11	0.080
19-09-26	10.0	0.02	3.82	0.003	9.0	0.28	1.32	0.95	3.5	<0.25	<0.001	<0.25	<0.25	<0.25	1	—	0.4	26	0.046
20-06-24	55.6	0.03	16.3	0.330	5.6	0.23	0.85	2.68	5.3	0.080	0.002	<0.05	0.08	0.08	<1	—	0.5	8.6	0.038
20-07-28	67.8	0.03	19.7	0.202	5.2	0.13	0.97	3.04	5.7	<0.05	<0.001	<0.05	0.09	0.09	<1	—	0.4	6.4	0.139
20-08-25	74.7	0.03	21.1	0.280	5.4	0.07	0.96	3.27	6.2	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.2	6.6	0.045
20-09-29	46.9	0.03	13.7	0.070	7.9	0.08	1.13	2.41	189.0	<0.05	<0.001	<0.05	<0.05	<0.05	5	—	0.2	8.8	0.065
20-10-15	60.8	0.03	18.5	0.228	7.1	0.11	1.39	3.14	6.3	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	0.3	8.9	0.080
21-05-27	12.0	0.02	4.52	0.018	6.3	0.23	0.36	0.96	3.4	0.060	<0.001	<0.05	<0.05	<0.05	1	—	0.5	48	0.033
21-06-29	49.7	0.03	15.9	0.295	5.7	0.23	0.72	2.66	5.1	<0.05	<0.001	<0.05	0.09	0.09	2	—	0.6	12.7	0.030
21-07-27	19.0	0.03	7.02	0.014	7.1	0.55	0.39	1.27	3.6	<0.05	<0.001	<0.05	<0.05	<0.05	1	—	0.8	32	0.055
21-08-24	37.9	0.03	4.4	0.071	7.0	0.40	0.56	2.12	4.4	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	0.6	23	0.037

21-09-29	27.0	0.03	4.09	0.032	7.3	0.58	0.69	1.67	4.1	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	2.0	26	**0.068**
21-10-25	14.0	0.03	5.98	0.005	8.1	0.59	0.70	1.29	4.0	<0.05	<0.001	<0.05	<0.05	<0.05	1	—	1.0	32	**0.070**
22-06-30	31.9	0.03	9.53	0.048	5.1	0.30	0.47	1.68	4.2	<0.05	<0.001	<0.05	<0.05	<0.05	1.6	—	0.8	23	**0.039**
22-07-26	52.8	0.03	14.8	0.157	5.3	0.23	0.62	2.31	5.3	<0.05	<0.001	<0.05	**0.05**	0.05	<1	—	0.6	12	**0.031**
22-08-29	24.0	0.03	8.78	0.028	6.0	0.46	0.60	1.53	4.6	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	0.6	35	**0.043**
22-09-28	5.0	0.04	5.13	0.000	16.9	0.37	0.53	1.37	5.1	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	0.6	26	**0.022**
23-06-26	17	0.03	6.00	0.016	5.6	0.36	0.31	1.14	3.8	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	1	-	0.6	25	**0.064**
23-07-25	34.9	0.04	12.0	0.082	5.9	0.27	0.47	1.94	5.0	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	2.0	-	0.7	31.0	**0.047**
23-08-29	21.0	0.04	7.4	0.031	5.6	0.53	0.45	1.35	4.32	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	1	-	0.8	26.0	**0.050**
23-09-26	18.0	0.04	6.6	0.013	8.1	0.61	0.49	1.28	4.1	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	1	-	0.6	35.0	**0.048**

Table A 21: Site ScdF Heavy Metals Data

SITE ScdF: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
00-10-03	0.080	<0.001	—	—	<0.0001	0.87992	—	0.001	0.0014	**0.861**	—	0.064	—	<0.005	<0.001	—	<0.001	—	—	—	0.007
00-11-12	**0.824**	<0.001	—	—	<0.0001	0.28269	—	0.001	0.0006	**1.100**	—	0.098	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
00-12-03	**0.291**	<0.001	—	—	<0.0001	0.23523	—	0.001	<0.0005	**0.516**	—	0.064	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.216**	<0.001	—	—	<0.0001	0.54452	—	0.002	0.0006	**0.787**	—	0.077	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	**0.103**	<0.001	—	—	<0.0001	0.9199	—	0.003	0.0006	**1.050**	—	0.104	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.070	<0.001	—	—	<0.0001	1.23854	—	0.002	0.0005	**0.634**	—	0.071	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	**0.128**	<0.001	—	—	<0.0001	1.20048	—	0.003	<0.0005	**0.801**	—	0.080	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
o	0.078	<0.001	—	—	<0.0001	1.47362	—	0.003	<0.0005	**0.614**	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.426**	<0.001	—	—	<0.0001	0.63859	—	0.001	0.0029	**0.686**	—	0.078	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
01-11-18	**0.265**	<0.001	—	—	<0.0001	0.42367	—	0.002	0.0006	**0.615**	—	0.106	—	<0.005	<0.001	—	<0.001	—	—	—	0.010

02-06-19	**0.298**	<0.001	—	—	<0.0001	0.46737	—	0.001	0.0041	**1.100**	—	0.119	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	**0.284**	<0.001	—	—	<0.0001	0.45488	—	0.001	0.003	**1.100**	—	0.108	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.255**	0.0014	—	—	<0.0001	0.68047	—	0.002	0.0008	**1.580**	—	0.129	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	**0.146**	0.0013	—	—	<0.0001	0.90096	—	0.002	0.0007	**1.590**	—	0.099	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
02-09-18	**0.382**	<0.001	—	—	<0.0001	0.49863	—	0.001	0.0005	**0.803**	—	0.058	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	**0.332**	0.0010	0.002	0.038	0.00001	0.54452	0.0004	<0.001	<0.001	**1.450**	0.0006	0.143	0.0001	<0.001	0.0007	0.0013	<0.0001	0.053	0.0002	0.001	0.007
17-07-26	0.095	0.0010	0.005	0.047	<0.00001	1.00205	0.0002	<0.001	<0.001	**1.110**	0.0007	0.087	0.0002	<0.001	0.0005	0.0013	<0.0001	0.098	0.0002	<0.001	0.006
17-08-30	0.072	<0.001	0.004	0.050	<0.00001	1.34859	0.0002	<0.001	<0.001	**0.660**	0.0006	0.111	0.0002	<0.001	0.0003	0.0012	<0.0001	0.116	0.0002	<0.001	0.010
17-09-27	0.080	<0.001	0.005	0.055	<0.00001	1.13709	0.0002	<0.001	<0.001	**0.850**	0.0008	0.116	0.0002	<0.001	0.0004	0.0015	<0.0001	0.114	0.0002	<0.001	0.006
17-10-24	**0.155**	<0.001	0.005	0.051	<0.00001	1.04633	0.0003	<0.001	<0.001	**1.000**	0.0010	0.109	0.0001	<0.001	0.0007	0.0013	<0.0001	0.104	0.0002	<0.001	0.009
18-07-31	**0.150**	0.0010	0.005	0.050	0.00001	0.93253	0.0003	<0.001	<0.001	**1.300**	0.0007	0.184	0.0002	<0.001	0.0007	0.0013	<0.0001	0.234	0.0002	0.001	0.003
18-08-28	**0.204**	<0.001	0.005	0.049	<0.00001	0.67209	0.0002	<0.001	<0.001	**1.360**	0.0009	0.111	0.0002	<0.001	0.0005	0.0010	<0.0001	0.075	0.0003	0.001	0.002
18-09-26	**0.813**	<0.001	0.004	0.086	0.00002	0.98308	0.0011	<0.001	0.001	**1.680**	0.0012	0.195	<0.0001	0.001	0.0032	0.0015	<0.0001	0.089	0.0003	0.002	0.005
19-06-26	**0.368**	<0.001	0.005	0.030	0.00002	0.00011	0.0003	<0.001	<0.001	**1.010**	0.0006	0.077	<0.0001	<0.001	0.0006	0.0006	<0.0001	<0.001	0.0001	0.001	0.008
19-07-24	**0.360**	0.0010	0.004	0.041	0.00002	0.93253	0.0007	<0.001	<0.001	**1.900**	0.0007	0.209	<0.0001	<0.001	0.0010	0.0011	<0.0001	<0.001	0.0002	0.002	0.010
19-08-21	**0.295**	0.0010	0.005	0.052	0.00002	0.67209	0.0007	<0.001	0.002	**1.310**	0.0007	0.287	0.0001	<0.001	0.0015	0.0019	<0.0001	<0.001	0.0002	0.002	0.003
19-09-26	**0.387**	<0.001	0.004	0.038	0.00002	0.98308	0.0004	<0.001	<0.001	**0.920**	0.0009	0.089	<0.0001	<0.001	0.0006	0.0008	<0.0001	<0.001	<0.0001	<0.001	0.005
20-06-24	0.088	0.0010	0.005	0.094	0.00001	1.07376	0.0004	<0.001	<0.001	**0.900**	0.0005	0.347	0.0003	<0.001	0.0006	0.0020	<0.0001	0.095	0.0002	<0.001	<0.001
20-07-28	**0.404**	0.0010	0.005	0.064	0.00002	1.28508	0.0006	<0.001	<0.001	**1.140**	0.0007	0.245	0.0002	<0.001	0.0016	0.0022	<0.0001	0.113	0.0002	0.001	0.004
20-08-25	0.070	<0.001	0.007	0.043	<0.00001	1.38036	0.0002	<0.001	<0.001	**0.740**	0.0004	0.179	0.0013	<0.001	0.0003	0.0019	<0.0001	0.124	0.0001	<0.001	<0.001
20-09-29	**0.174**	<0.001	0.008	0.053	<0.00001	0.91359	0.0003	<0.001	<0.001	**0.690**	0.0005	0.180	0.0001	<0.001	0.0006	0.0019	<0.0001	0.094	<0.0001	<0.001	0.003
20-10-15	**0.252**	<0.001	0.489	0.058	0.00001	1.23008	0.0004	<0.001	<0.001	**0.880**	0.0007	0.291	0.0001	<0.001	0.0007	0.0020	<0.0001	0.103	0.0001	<0.001	0.005
21-05-27	**0.448**	<0.001	0.004	0.320	0.00002	1.07376	0.0003	<0.001	<0.001	**0.960**	0.0007	0.084	<0.0001	<0.001	0.0006	0.0009	<0.0001	0.032	0.0001	<0.001	0.003
21-06-29	**0.123**	0.0010	0.005	0.045	0.00001	—	0.0004	<0.001	<0.001	**1.150**	0.0006	0.191	0.0002	<0.001	0.0007	0.0018	<0.0001	0.087	0.0002	<0.001	0.002

21-07-27	**0.381**	0.0010	0.005	0.037	<0.00001	1.28508	0.0004	<0.001	<0.001	**1.530**	0.0010	0.143	<0.001	<0.001	0.007	0.0011	<0.001	0.047	0.0002	0.001	0.003
21-08-24	**0.180**	0.0010	0.004	0.044	0.00001	1.38036	0.0003	<0.001	<0.001	**1.730**	0.0008	0.166	0.0001	<0.001	0.006	0.0015	<0.001	0.072	0.0002	0.001	0.001
21-09-29	**0.334**	0.0010	0.006	0.047	0.00002	0.91359	0.0005	<0.001	<0.001	**1.530**	0.0009	0.184	0.0001	<0.001	0.008	0.0016	<0.001	0.057	0.0003	0.001	0.004
21-10-25	**0.490**	<0.001	0.005	0.043	0.00002	1.23008	0.0004	<0.001	<0.001	**1.420**	0.0010	0.112	<0.001	<0.001	0.007	0.0013	<0.001	0.044	0.0002	0.001	0.005
22-06-30	**0.203**	0.0010	0.004	0.037	**0.00001**	—	0.0003	<0.001	<0.001	**1.460**	0.0006	0.118	0.0002	<0.001	0.006	0.0013	0.0002	0.062	0.0002	0.001	0.002
22-07-26	0.096	0.0010	0.005	0.040	<0.00001	—	0.0003	<0.001	<0.001	**1.070**	0.0006	0.172	0.0002	<0.001	0.005	0.0013	<0.001	0.084	0.0002	<0.001	0.001
22-08-29	**0.352**	0.0010	0.004	0.051	**0.00002**	—	0.0006	<0.001	<0.001	**1.620**	0.0008	0.195	0.0001	<0.001	0.011	0.0012	<0.001	0.054	0.0003	0.001	0.004
22-09-28	**0.367**	<0.001	0.005	0.049	**0.00003**	—	0.0005	<0.001	<0.001	**0.880**	0.0012	0.158	<0.001	<0.001	0.005	0.0009	<0.001	0.036	<0.001	<0.001	0.006
23-06-26	**0.382**	<0.001	0.004	0.033	0.00002	—	0.0004	<0.001	<0.001	**1.17**	0.0007	0.102	<0.001	<0.001	0.007	0.0009	<0.001	0.04	0.0002	0.001	0.003
23-07-25	**0.142**	<0.001	0.005	0.037	0.00001	—	0.0003	<0.001	<0.001	**1.74**	0.0007	0.170	0.0002	<0.001	0.006	0.0013	<0.001	0.072	0.0002	0.001	0.002
23-08-29	**0.267**	<0.001	0.005	0.037	<0.00001	—	0.0003	<0.001	<0.001	**1.22**	0.0008	0.100	<0.001	<0.001	0.006	0.0009	<0.001	0.052	0.0002	<0.001	0.002
23-09-26	**0.342**	<0.001	0.004	0.040	0.00001	—	0.0003	<0.001	<0.001	**1.47**	0.0010	0.116	<0.001	<0.001	0.007	0.0010	<0.001	0.044	0.0002	< 0.001	0.003

Table A 22: Site ScdG Field and Lab Data

SITE ScdG: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
00-10-04	—	13.3	—	—	—	10	59.1	60	—	1060	214	—	—	7.3	—	—	293.34	13.1
00-11-12	6.0	—	—	—	—	10	3.7	120	—	67.2	14.8	—	—	**5.6**	—	—	32.167	1.6
00-12-03	-3.0	—	—	—	—	10	5.84	100	—	51.3	12.9	—	—	6.5	—	—	25.714	1.3
01-05-16	12.8	8.70	—	11.50	97	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	21.2	16.70	—	10.00	102	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	3.96	200	—	38	7.2	—	—	**5.9**	—	—	18.037	0.7
01-06-12	23.4	16.00	—	9.80	100	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	24.1	20.80	—	8.60	96	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	230	4.46	200	—	39.7	7.8	—	—	**6.3**	—	—	19.27	2.4
01-07-12	22.0	19.80	—	8.40	91	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	26.2	**22.50**	—	7.50	89	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	150	12.2	300	—	128	22.1	—	—	7.0	—	—	60.877	3

01-08-09	25.5	21.50	—	7.80	91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	60	12.3	60	—	2390	312	—	—	6.9	—	—	1189.5	5.3	
01-10-09	—	—	—	—	—	40	111	50	—	1930	352	—	—	7.8	—	—	975.184	14.5	
01-11-18	—	—	—	—	—	10	3.86	75	—	117	29.4	—	—	**5.6**	—	—	57.03	0.9	
02-05-09	18.8	12.7	—	11.70	109	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-05-24	19.8	16.0	—	10.30	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-05	16.6	13.8	—	9.90	93	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-20	25.9	17.50	—	9.40	97	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-03	28.1	**22.60**	—	7.90	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-18	22.6	19.40	—	8.50	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-02	23.6	18.60	—	9.10	97	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-13	28.8	**22.50**	—	7.80	91	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-30	20.7	17.80	—	10.40	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-09-19	20.0	14.20	—	9.70	94	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-05-22	13.6	11.70	—	11.30	102	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-10	23.0	21.80	—	9.30	105	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-23	20.4	20.00	—	9.90	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-04	28.8	**25.30**	—	9.00	110	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-21	29.6	**28.20**	—	9.20	119	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-05	19.9	20.60	—	9.80	109	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-18	19.9	21.70	—	9.80	110	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-01	21.4	19.40	—	11.00	119	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-15	26.7	**24.00**	—	10.20	124	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-03	13.5	15.00	—	11.50	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-15	14.3	12.50	—	10.90	101	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-27	19.2	13.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-11	5.5	2.20	—	14.40	103	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-24	10.6	8.60	—	12.50	106	—	—	—	—	—	—	—	—	—	—	—	—	—	

Table A 23: Site ScdG Nutrient Data

SITE ScdG: NUTRIENT DATA																			
Date (yy-mm-dd)	HCO_3 **(mg/L)**	Br (mg/L)	Ca (mg/L)	CO_3 **(mg/L)**	Cl (mg/L)	F (mg/L)	K (mg/L)	Mg (mg/L)	Na (mg/L)	NH_3**T (mg/L)**	NH_3**_Un(mg/L)**	NO_2 **(mg/L)**	NO_3 **(mg/L)**	NO_x **(mg/L)**	SO_4 **(mg/L)**	TKN (mg/L)	TN (mg/L)	TOC (mg/L)	TP-L (mg/L)
00-10-04	—	—	68.60	—	6.2	0.165	1.21	10.40	157.00	0.060	—	<0.05	<0.05	<0.05	7.85	0.37	—	9.3	**0.016**

00-11-12	—	—	4.34	—	11.9	<0.1	0.20	0.95	7.15	0.032	—	<0.05	<0.05	<0.05	4.12	0.54	—	24.5	**0.013**
00-12-03	—	—	3.86	—	7.8	<0.1	0.27	0.80	5.37	<0.010	—	<0.05	<0.05	<0.05	3.07	0.49	—	17.8	**0.010**
01-06-03	—	—	2.11	—	6.2	<0.1	0.14	0.47	4.78	0.016	—	<0.05	<0.05	<0.05	0.94	—	0.42	17.9	**0.020**
01-07-03	—	—	2.23	—	6.6	<0.1	0.16	0.53	4.95	0.016	—	<0.05	<0.05	<0.05	0.89	—	0.56	20.6	**0.032**
01-08-07	—	—	6.46	—	27.1	<0.1	0.22	1.46	14.40	0.106	—	<0.05	<0.05	<0.05	1.02	—	0.65	19.1	**0.039**
01-09-05	—	—	99.60	—	**700.0**	<0.1	1.37	15.40	316.00	0.076	—	<0.05	<0.05	<0.05	46	—	0.41	11.0	**0.016**
01-10-09	—	—	113.00	—	**531.0**	0.107	1.54	17.00	229.00	0.046	—	<0.05	<0.05	<0.05	12.30	—	0.36	7.0	**0.014**
01-11-18	—	—	8.59	—	14.3	<0.1	0.23	1.94	9.78	0.051	—	<0.05	<0.05	<0.05	18.50	—	0.60	22.5	**0.016**

Table A 24: Site ScdG Heavy Metals Data

SITE ScdG: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
00-10-04	0.031	<0.001	—	—	<0.00001	4.54674	—	0.002	0.0021	**4.240**	—	1.930	—	<0.005	<0.001	—	<0.001	—	—	—	**0.072**
00-11-12	**0.263**	<0.001	—	—	<0.00001	0.30129	—	0.001	0.0005	**0.521**	—	0.166	—	<0.005	<0.001	—	<0.001	—	—	—	0.007
00-12-03	**0.247**	<0.001	—	—	<0.00001	0.26203	—	0.001	0.0006	**0.434**	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.180**	<0.001	—	—	<0.00001	0.14489	—	0.001	<0.00005	**0.390**	—	0.101	—	<0.005	<0.001	—	<0.001	—	—	—	0.007
01-07-03	**0.164**	<0.001	—	—	<0.00001	0.15717	—	0.001	0.001	**0.606**	—	0.122	—	<0.005	<0.001	—	<0.001	—	—	—	0.011
01-08-07	0.098	<0.001	—	—	<0.00001	0.4528	—	0.001	0.0009	**1.700**	—	0.729	—	<0.005	<0.001	—	<0.001	—	—	—	**0.046**
01-09-05	0.033	<0.001	—	—	<0.00001	6.66901	—	0.001	0.006	**1.500**	—	1.770	—	<0.005	<0.001	—	<0.001	—	—	—	**0.075**
01-10-09	0.005	<0.001	—	—	<0.00001	7.53854	—	0.004	0.004	**2.190**	—	2.170	—	0.006	<0.001	—	<0.001	—	—	—	**0.046**
01-11-18	**0.176**	<0.001	—	—	<0.00001	0.60512	—	0.001	0.0006	**0.480**	—	0.387	—	<0.005	<0.001	—	<0.001	—	—	—	0.012

Table A 25: Site ScdH Field and Lab Data

SITE ScdH: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES

Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
06-07-07	24.0	16.60	0.20	8.67	—	—	—	—	347	—	—	—	—	—	—	—	—	—
06-08-10	21.3	16.00	0.20	7.50	—	—	—	—	348	—	—	—	—	—	—	—	—	—
06-09-28	17.1	12.62	0.21	15.09	—	—	—	—	336	—	—	—	8.5	—	—	—	—	—
06-11-02	7.8	6.20	0.10	11.45	—	—	—	—	206	—	—	—	7.2	—	—	—	—	—
07-05-15	11.7	9.48	0.16	13.56	—	6.3	—	—	134	—	—	—	7.7	—	—	—	—	—
07-06-19	17.4	15.94	0.24	14.97	—	**770.1**	—	—	500	—	—	—	8.7	—	—	—	—	—
07-07-18	22.6	17.75	0.27	13.19	—	**1046.2**	—	—	552	—	—	—	8.1	—	—	—	—	—
07-08-14	20.7	17.55	0.30	11.93	—	**648.8**	—	—	610	—	—	—	8.0	—	—	—	—	—
07-09-17	14.5	11.35	0.33	13.96	—	248.1	—	—	673	—	—	—	8.0	—	—	—	—	—
07-10-17	—	7.19	0.34	15.53	—	**>2419.6**	—	—	692	—	—	—	7.9	—	—	—	—	—
08-05-21	12.2	8.55	0.07	11.32	—	76.3	—	—	150	—	—	—	6.9	—	—	—	—	—
08-06-25	25.0	16.32	0.28	9.29	—	**1413.6**	—	—	583	—	—	—	7.7	—	—	—	—	—
08-07-21	20.0	17.94	0.28	9.68	—	**>2419.6**	—	—	569	—	—	—	7.7	—	—	—	—	—
08-08-20	—	14.32	0.21	10.07	—	**461.1**	—	—	441	—	—	—	7.5	—	—	—	—	—
08-09-17	—	12.16	0.15	10.12	—	275.5	—	—	315	—	—	—	7.2	—	—	—	—	—
08-10-23	—	5.00	0.28	12.27	—	172.1	—	—	585	—	—	—	7.3	—	—	—	—	—
09-05-20	13.6	12.94	0.09	11.08	—	8.5	—	—	151	—	—	—	6.8	—	—	128	—	—
09-06-24	15.9	13.71	0.12	9.61	—	172.5	—	—	196	—	—	—	7.0	—	—	162	—	—
09-07-23	19.5	16.89	0.16	8.75	—	**1046.2**	—	—	281	—	—	—	7.1	—	—	216	—	—
09-08-19	24.7	20.88	0.15	7.55	—	129.6	—	—	291	—	—	—	7.2	—	—	205	—	—
09-09-23	19.2	16.08	0.18	8.66	—	14.6	—	—	370	—	—	—	7.5	—	—	241	—	—
09-10-20	8.3	6.19	0.07	12.63	—	24.9	—	—	99	—	—	—	7.4	—	—	100	—	—
10-05-28	—	10.26	0.22	11.09	—	365.4	—	—	327	—	—	—	7.7	—	—	296	—	—
10-06-25	—	18.21	0.16	8.96	—	**980.4**	—	—	299	—	—	—	7.7	—	—	223	—	—
10-07-22	—	17.13	0.18	7.68	—	**2419.6**	—	—	322	—	—	—	7.7	—	—	246	—	—
10-08-25	—	14.96	0.16	**5.18**	—	155.3	—	—	277	—	—	—	8.1	—	—	223	—	—
10-09-21	—	10.60	0.16	**6.18**	—	69.7	—	—	233	—	—	—	7.7	—	—	209	—	—
11-06-23	—	15.70	0.14	—	—	—	—	—	238	—	—	—	8.6	—	—	—	—	—
11-07-20	—	18.43	0.19	—	—	—	—	—	340	—	—	—	8.5	—	—	—	—	—
11-08-24	—	15.12	0.12	—	—	—	—	—	200	—	—	—	7.9	—	—	—	—	—
12-06-25	—	16.60	0.09	12.02	—	387.3	—	—	159	—	—	—	8.0	—	—	—	—	—
12-07-26	—	15.34	0.22	7.96	—	**980.4**	—	—	376	—	—	—	7.6	—	—	—	—	—
12-08-27	25.0	17.67	0.24	7.78	—	75.9	—	—	416	—	—	—	8.0	—	—	—	—	—
12-09-24	—	12.67	0.32	7.52	—	307.6	—	—	499	—	—	—	8.3	—	—	—	—	—

12-10-18	2.0	5.57	0.26	8.35	—	16.6	—	—	340	—	—	—	8.3	—	—	287	—	—
13-05-30	14.0	12.73	0.12	12.11	—	108.0	—	—	199	—	—	—	7.5	—	—	—	—	—
13-06-27	13.0	12.72	0.10	9.87	—	135.0	—	—	150	—	—	—	7.7	—	—	—	—	—
13-07-30	20.0	16.57	0.11	8.40	—	205.0	—	—	226	—	—	—	8.1	—	—	—	—	—
13-08-27	18.0	14.70	0.15	6.81	—	142.1	—	—	246	—	—	—	9.0	—	—	—	—	—
13-10-01	20.0	11.47	0.26	—	—	**461.1**	—	—	527	—	—	—	8.4	—	—	—	—	—
13-10-29	2.0	3.20	0.25	8.62	—	—	—	—	527	—	—	—	8.6	—	—	—	—	—
14-06-25	16.0	14.28	0.10	**6.49**	—	**>2419.6**	—	—	164	—	—	—	6.7	—	—	—	—	—
14-07-23	26.0	17.90	0.20	10.06	—	206.4	—	—	303	—	—	—	8.8	—	—	—	—	—
14-08-28	19.0	16.61	0.17	9.79	—	**980.4**	—	—	288	—	—	—	7.3	—	—	—	—	—
14-09-24	6.0	9.50	0.28	—	—	**488.4**	—	—	579	—	—	—	7.2	—	—	—	—	—
14-10-29	9.0	7.56	0.12	—	—	35.5	—	—	163	—	—	—	6.9	—	—	—	—	—
15-06-01	12.0	11.40	0.10	9.20	—	—	—	—	156	—	—	—	7.3	—	—	—	—	—
15-06-29	14.0	12.10	0.08	—	—	200.5	—	—	135	—	—	—	7.6	—	—	—	—	—
15-08-05	21.0	17.70	0.18	7.70	—	>200.5*	—	—	368	—	—	—	7.4	—	—	—	—	—
15-08-26	23.0	19.63	0.26	**5.55**	—	>200.5*	—	—	480	—	—	—	7.6	—	—	—	—	—
15-10-06	9.0	8.78	0.11	8.48	—	>200.5*	—	—	160	—	—	—	7.6	—	—	—	—	—
15-11-03	3.0	5.97	0.13	8.55	—	9.9	—	—	168	—	—	—	7.2	—	—	—	—	—
16-05-31	18.0	12.50	0.19	10.32	—	**579.4**	—	—	299	—	—	—	7.8	—	—	255	—	—
16-06-29	22.0	17.40	0.19	7.45	—	**524.7**	—	—	334	—	—	—	7.6	—	—	254	—	—
16-07-27	21.0	18.40	0.24	**4.58**	—	98.4	—	—	437	—	—	—	7.6	—	—	325	—	—
16-08-24	21.0	17.20	0.27	**4.33**	—	**410.6**	—	—	468	—	—	—	7.4	—	—	356	—	—
16-09-28	12.0	9.80	0.24	6.79	—	325.5	—	—	349	—	—	—	7.5	—	—	319	—	—
16-10-25	5.0	7.30	0.24	8.12	—	17.3	—	—	331	—	—	—	7.7	—	—	325	—	—
17-05-31	9.0	9.8	0.08	10.32	—	108.1	—	—	126	—	—	—	7.7	—	—	115.1	—	—
17-06-27	16.0	14.5	0.15	8.62	—	99.0	76	43	255	322	68.7	-0.64	7.5	7.5	8.1	8.6	166.0	1.60
17-07-26	15.0	15.5	0.27	7.26	—	178.5	120	27	457	577	92.7	0.05	7.8	7.9	7.8	362.7	297.0	1.70
17-08-30	9.0	14.9	0.33	7.99	—	23.0	150	20	540	683	111	0.21	7.5	7.9	7.7	435.5	355.0	4.10
17-09-27	14.0	17.0	0.35	6.62	—	111.9	160	23	600	716	117	0.26	7.6	7.9	7.6	461.5	384.0	3.10
17-10-24	14.0	8.0	0.48	9.69	—	114.0	160	42	660	982	120	0.14	7.5	7.8	7.7	630.5	550.0	1.10
18-05-30	10.0	9.60	0.14	10.92	—	10.8	59	33	203	292	56.4	-0.92	7.9	7.4	8.3	186.55	140	3.1
18-06-27	21.0	12.50	0.14	11.05	—	73.8	2	76	218	286	42.4	-1.03	6.8	7.5	8.5	185.90	146	2.4
18-07-31	22.0	20.00	0.41	6.80	—	156.5	140	30	750	809	115	0.1	7.5	7.8	7.7	539.50	417	1.6
18-08-28	—	17.30	0.35	7.16	—	197.4	120	26	610	691	99.7	-0.22	8.0	7.6	7.8	461.50	356	1.8
18-09-26	15.0	11.30	0.56	8.18	—	207.8	140	29	820	1080	108	0.24	8.1	8.0	7.8	728.00	561	2.7
19-06-26	16.0	12.7	0.10	9.66	—	305.8	46	98	0.160	212	39.2	-1.37	7.2	7.2	8.6	135.85	123	2.7
19-07-24	19.0	16.7	0.19	7.71	—	134.0	95	27	0.326	399	75.9	-0.40	7.5	7.6	8	251.55	204	1.6

19-08-21	17.0	17.8	0.21	6.33	—	186.6	78	48	0.375	441	68.3	-0.54	7.4	7.6	7.6	282.10	229	1.5
19-09-26	—	12.6	0.09	11.86	—	132.0	40	100	0.147	198	27.8	-1.58	6.6	7.2	8.8	124.80	52	7.3
20-06-24	23	17.2	0.17	7.64	—	717	100	14	0.308	0.138	88.8	0.08	7.7	8.0	7.9	234.65	204	1.6
20-07-28	25	21.2	0.26	6.76	—	5,475	120	58	0.500	0.547	100.0	-0.11	7.8	7.7	7.8	351.00	292	16.0
20-08-25	21	18.9	0.13	6.53	—	435	110	15	0.243	0.279	91.5	-0.16	7.7	7.7	7.9	178.75	159	1.7
20-09-29	22	18.6	0.59	6.19	—	85	130	28	1.040	1.120	132.0	-0.12	7.7	7.6	7.7	767.00	660	1.6
20-10-15	11	9.5	0.47	9.44	—	41	110	68	0.670	0.147	132.0	-0.08	7.5	7.7	7.8	617.50	553	1.6
21-05-27	18	14.4	0.09	10.83	—	41	41	82	0.158	0.200	32.5	-1.40	7.1	7.3	8.7	129.35	113	1.2
21-06-29	—	20.6	0.19	—	—	146	100	20	0.358	0.440	90.9	-0.11	7.5	7.8	7.9	253.50	233	2.0
21-07-27	20	16.4	—	8.65	—	331	69	83	0.319	0.323	52.3	-0.79	7.5	7.5	8.3	155.00	178	1.7
21-08-24	24	20.2	0.14	12.01	—	1,223	90	18	0.275	0.317	75.4	0.37	8.6	8.4	8	195.00	168	1.2
21-09-29	15	13.2	0.20	9.74	—	426	78	57	0.315	0.431	61.2	-0.49	7.6	7.7	8.2	264.55	227	1.4
21-10-25	6	8.0	0.19	11.32	—	41	63	127	0.240	0.400	46.9	-1.00	7.6	7.4	8.4	41.00	198	2.6
22-06-30	23	16.7	0.16	9.85	—	336	90	25	0.276	0.326	72	-0.15	8.1	7.9	8	213.55	180	0.6
22-07-26	23	17.7	0.19	7.99	—	425	140	27	0.344	0.523	93.1	0.13	8.3	7.9	7.8	260.00	287	1.8
22-08-29	20	15.1	0.18	10.33	—	379	90	33	0.309	0.384	71.9	-0.25	7.7	7.8	8	248.30	210	1.2
22-09-28	15	13.0	0.10	10.60	—	41	35	114	0.157	0.203	30.9	-1.39	7.2	7.4	8.8	132.60	123	2.1
23-06-26	12	14.1	0.15	9.35	—	272	60	89	0.243	0.310	46.6	-0.7	7.56	7.7	8.4	199.55	174	2.1
23-07-25	25	17.9	0.14	10.17	—	275	78	45	0.259	0.305	69.8	-0.21	7.90	7.9	8.1	194.35	173	1.0
23-08-29	19	14.8	0.20	10.22	—	199	85	80	0.330	0.423	62.9	-0.33	7.72	7.8	8.1	265.50	232	1.8
23-09-26	6	10.0	0.13	11.60	—	41	54	76	0.191	0.270	53.4	-0.88	7.65	7.5	8.4	174.20	153	1.5

Table A 26: Site ScdH Nutrient Data

SITE ScdH: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
17-06-27	75.8	0.08	22.80	0.225	47.2	0.210	1.27	2.86	40.90	<0.050	<0.001	<0.05	0.060	0.060	4	0.40	0.50	8.3	0.035
17-07-26	119	0.15	30.70	0.889	90.6	0.190	1.83	3.89	80.20	<0.050	<0.001	<0.05	<0.05	<0.05	16	0.40	0.40	6.3	0.032
17-08-30	149	0.20	36.50	1.110	112.0	0.180	2.58	4.87	97.10	<0.050	<0.001	<0.05	<0.05	<0.05	8	0.40	0.40	<0.5	0.053
17-09-27	159	0.19	38.70	1.190	121.0	0.210	3.20	4.85	104.00	<0.050	<0.001	<0.05	<0.05	<0.05	14	0.40	0.40	5.9	0.032
17-10-24	159	0.26	39.50	0.943	222.0	0.240	4.38	5.24	154.00	<0.050	<0.001	<0.05	<0.05	<0.05	27	0.40	0.40	7.2	0.031
18-05-30	58.8	0.06	18.70	0.139	45.7	0.140	1.40	2.36	35.40	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.30	0.30	6.3	0.022

18-06-27	47.8	0.07	14.00	0.142	56.5	0.260	1.03	1.81	42.10	<0.050	<0.001	<0.05	0.070	0.070	<1	0.50	0.60	11.2	0.036
18-07-31	139.0	0.20	38.70	0.830	157.0	0.250	3.98	4.47	108.00	<0.050	<0.001	<0.05	0.200	0.200	18	0.40	0.60	7.9	0.034
18-08-28	120.0	0.14	33.00	0.450	131.0	0.240	3.24	4.20	92.40	<0.050	<0.001	<0.05	0.400	0.400	16	0.40	0.80	6.2	0.032
18-09-26	139.0	0.21	35.60	1.300	229.0	0.270	5.90	4.60	173.00	<0.050	<0.001	<0.05	0.230	0.230	26	0.50	0.70	8.0	0.055
19-06-26	45.9	0.06	12.9	0.068	35.7	0.21	0.94	1.70	26.0	<0.05	<0.001	<0.05	0.140	0.140	<1	—	0.6	16.0	0.043
19-07-24	94.6	0.10	25.2	0.354	61.0	0.19	1.60	3.15	46.9	<0.05	<0.001	<0.05	0.200	0.200	<1	—	0.5	6.9	0.030
19-08-21	77.7	0.12	22.7	0.291	76.7	0.24	2.06	2.83	57.7	<0.05	<0.001	<0.05	0.090	0.090	8	—	0.5	10	0.040
19-09-26	39.9	0.06	9.03	0.059	33.0	0.31	0.42	1.28	26.5	<0.25	<0.001	<0.25	<0.25	<0.25	6	—	0.4	15.4	0.046
20-06-24	99.0	0.10	29.5	0.931	54.6	0.23	1.80	3.67	41.4	<0.05	<0.001	<0.05	0.060	0.060	7	—	0.4	4.4	0.017
20-07-28	119.0	0.14	33.5	0.563	85.8	0.16	2.76	4.04	69.0	<0.05	<0.001	<0.05	0.150	0.150	17	—	0.5	5.5	0.081
20-08-25	109.0	0.04	29.9	0.516	21.8	0.08	2.06	4.08	21.4	0.050	<0.001	<0.05	0.510	0.510	6	—	0.7	3.7	0.022
20-09-29	129.0	0.24	43.6	0.485	243.0	0.25	6.22	5.53	5.9	<0.05	<0.001	<0.05	<0.05	<0.05	84	—	0.4	8.7	0.025
20-10-15	109.0	0.15	43.3	0.516	200.0	0.33	6.46	5.78	161.0	<0.05	<0.001	<0.05	<0.05	<0.05	69	—	0.8	24	0.042
21-05-27	40.9	0.05	10.6	0.077	36.3	0.21	1.04	1.47	25.0	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	12.6	0.014
21-06-29	99.4	0.12	30.6	0.590	71.5	0.21	1.89	3.53	55.9	<0.05	<0.001	<0.05	0.050	0.050	<1	—	0.5	7.5	0.018
21-07-27	68.8	0.09	17.4	0.205	57.5	0.38	1.36	2.16	43.0	<0.05	<0.001	<0.05	0.090	0.090	<1	—	0.7	12.5	0.040
21-08-24	87.8	0.07	32.7	2.070	45.1	0.18	1.50	3.15	32.7	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	<0.2	5.1	0.017
21-09-29	77.6	0.11	58.5	0.366	82.2	0.40	2.26	2.61	58.5	<0.05	<0.001	<0.05	0.110	0.110	<1	—	0.6	12.6	0.030
21-10-25	62.8	0.13	15.2	0.148	80.0	0.49	2.71	2.17	58.2	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.7	17.3	0.045
22-06-30	89.3	0.07	23.9	0.667	57.8	0.16	1.31	3.00	38.8	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	6.2	0.017
22-07-26	139.0	0.13	31.3	1.040	89.2	0.21	2.58	3.62	74.1	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	6.2	0.029
22-08-29	89.4	0.09	24.1	0.530	68.3	0.25	2.14	2.84	49.3	<0.05	<0.001	<0.05	0.080	0.080	<1	—	0.4	8	0.025
22-09-28	34.9	0.06	10.2	0.082	43.3	0.37	1.53	1.32	28.4	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.6	16.4	0.036
23-06-26	59.7	0.08	15.5	0.281	63	0.29	1.35	1.91	41.2	<0.05	< 0.001	<0.05	<0.05	<0.05	< 1	-	0.4	13.8	0.050

23-07-25	77.4	0.08	23.5	0.578	49.4	0.18	1.66	2.69	34.1	<0.05	< 0.001	<0.05	0.25	0.25	3	-	0.6	9.2	**0.028**
23-08-29	84.5	0.12	21.0	0.501	81.1	0.47	2.50	2.53	57.9	<0.05	< 0.001	<0.05	0.10	0.10	< 2	-	7.0	13.8	**0.044**
23-09-26	53.8	0.07	17.7	0.160	51.9	0.40	1.66	2.23	32.8	<0.05	< 0.001	<0.05	0.15	0.15	< 2	-	0.5	12.7	**0.028**

Table A 27: Site ScdH Heavy Metals Data

SITE ScdH: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
17-06-27	0.060	<0.001	0.185	0.070	0.00002	1.43334	0.0002	<0.001	<0.001	0.230	0.0011	0.016	0.0013	<0.001	0.0001	0.0009	<0.0001	0.115	0.0002	<0.001	0.005
17-07-26	**0.111**	<0.001	0.430	0.103	0.00002	1.94336	0.0003	<0.001	<0.001	0.270	0.0013	0.028	0.0024	0.001	0.0003	0.0013	<0.0001	0.183	0.0005	0.001	0.004
17-08-30	**0.288**	0.0010	0.407	0.152	0.00004	2.33372	0.0007	<0.001	<0.001	**0.870**	0.0014	1.040	0.0013	0.001	0.0010	0.0021	<0.0001	0.234	0.0008	0.002	0.012
17-09-27	0.081	<0.001	0.414	0.106	0.00001	2.46194	0.0003	<0.001	<0.001	**0.350**	0.0014	0.369	0.0019	0.001	0.0003	0.0023	<0.0001	0.252	0.0007	0.001	0.006
17-10-24	0.026	<0.001	0.508	0.110	0.00002	2.52609	0.0002	<0.001	<0.001	0.140	0.0015	0.095	0.0015	0.002	<0.0001	0.0025	<0.0001	0.262	0.0005	<0.001	0.007
18-05-30	0.059	<0.001	0.123	0.068	<0.00001	1.173	0.0001	<0.001	<0.001	0.170	0.0009	0.120	0.0009	<0.001	0.0001	0.0008	<0.0001	0.096	0.0001	<0.001	0.006
18-06-27	**0.138**	<0.001	0.135	0.056	0.00001	0.87782	0.0002	<0.001	<0.001	**0.330**	0.0008	0.070	0.0008	<0.001	0.0002	0.0007	<0.0001	0.071	<0.0001	<0.001	0.003
18-07-31	0.051	<0.001	0.634	0.127	0.00001	2.41918	0.0003	<0.001	<0.001	**0.300**	0.0017	0.250	0.0022	0.001	0.0001	0.0025	<0.0001	0.096	0.0005	0.001	0.001
18-08-28	0.051	<0.001	0.304	0.112	0.00001	2.09254	0.0002	<0.001	<0.001	0.260	0.0012	0.250	0.0014	<0.001	0.0001	0.0017	<0.0001	0.178	0.0005	0.002	0.001
18-09-26	0.071	<0.001	0.501	0.120	0.00002	2.26965	0.0003	<0.001	<0.001	**0.370**	0.0013	0.290	0.0014	0.001	0.0002	0.0032	<0.0001	0.208	0.0005	0.001	0.002
19-06-26	**0.157**	<0.001	0.090	0.055	0.00001	0.87782	0.0003	<0.001	<0.001	**0.600**	0.0007	0.181	0.0005	<0.001	0.0003	0.0007	<0.0001	<0.001	0.0001	<0.001	0.005
19-07-24	0.040	<0.001	0.208	0.079	0.00001	2.41918	0.0002	<0.001	<0.001	**0.340**	0.0011	0.270	0.001	<0.001	<0.0001	0.0013	<0.0001	<0.001	0.0002	<0.001	0.001
19-08-21	0.067	<0.001	0.285	0.087	0.00001	2.09254	0.0002	0.001	<0.001	**0.320**	0.0012	0.207	0.0014	<0.001	0.0002	0.0015	<0.0001	<0.001	0.0002	<0.001	0.002
19-09-26	**0.195**	<0.001	0.125	0.042	0.00001	2.26965	0.0002	<0.001	<0.001	**0.480**	0.0006	0.054	0.001	<0.001	0.0003	0.0008	<0.0001	<0.001	<0.0001	<0.001	0.002
20-06-24	0.039	<0.001	0.269	0.046	0.00001	1.86032	0.0001	<0.001	<0.001	0.110	0.0012	0.160	0.0018	<0.001	<0.0001	0.0015	<0.0001	0.157	0.0004	<0.001	<0.001
20-07-28	**0.186**	<0.001	0.396	0.117	0.00001	2.09894	0.0003	<0.001	<0.001	**0.320**	0.0014	0.255	0.0012	0.001	0.0004	0.0024	<0.0001	0.188	0.0005	<0.001	0.002

20-08-25	0.074	<0.001	0.126	0.091	<0.00001	1.9178	0.0001	<0.001	<0.001	0.250	0.00009	0.223	0.00003	<0.001	0.0001	0.00020	<0.001	0.147	0.0006	<0.001	0.001
20-09-29	0.046	<0.001	0.746	0.156	0.00002	2.78294	0.0003	<0.001	<0.001	0.150	0.00017	0.411	0.00041	0.002	0.0002	0.00034	0.0001	0.282	0.0004	<0.001	0.003
20-10-15	0.067	<0.001	0.007	0.128	0.00007	2.78294	0.0004	0.001	0.001	**0.300**	0.00002	0.191	0.00039	0.003	0.0002	0.00025	0.0002	0.230	0.0002	<0.001	0.007
21-05-27	**0.128**	<0.001	0.081	0.050	0.00001	1.86032	0.0002	<0.001	<0.001	**0.310**	0.00007	0.042	0.001	<0.001	0.0002	0.00008	<0.001	0.055	<0.001	<0.001	0.002
21-06-29	0.056	<0.001	0.356	0.093	0.00002	—	0.0003	<0.001	<0.001	0.150	0.00013	0.128	0.00019	0.001	0.0001	0.00015	<0.001	0.158	0.0004	<0.001	0.002
21-07-27	0.096	<0.001	0.160	0.054	<0.00001	2.09894	0.0002	<0.001	<0.001	**0.490**	0.00009	0.086	0.00013	0.001	0.0002	0.00010	<0.001	0.084	0.0001	<0.001	0.001
21-08-24	0.046	<0.001	0.147	0.080	<0.00001	1.9178	<0.00001	<0.001	<0.001	0.140	0.00010	0.026	0.00011	<0.001	<0.00001	0.00011	<0.001	0.124	0.0002	<0.001	<0.001
21-09-29	0.063	<0.001	0.257	0.070	0.00001	2.78294	0.0002	<0.001	<0.001	**0.300**	0.00011	0.050	0.00012	<0.001	0.0001	0.00013	<0.001	0.104	0.0001	<0.001	0.001
21-10-25	**0.206**	<0.001	0.215	0.057	0.00002	2.78294	0.0002	<0.001	<0.001	**0.510**	0.00009	0.039	0.00013	0.001	0.0003	0.00014	<0.001	0.079	<0.001	<0.001	0.003
22-06-30	0.034	<0.001	0.073	0.073	<0.00001	—	0.0001	<0.001	<0.001	0.140	0.00011	0.041	0.001	<0.001	<0.00001	0.00010	<0.001	0.117	0.0002	<0.001	0.002
22-07-26	0.061	<0.001	0.099	0.099	**0.00001**	—	0.0002	<0.001	<0.001	0.200	0.00015	0.222	0.00018	<0.001	<0.00001	0.00018	<0.001	0.167	0.0004	<0.001	0.002
22-08-29	0.057	<0.001	0.076	0.076	<0.00001	—	0.0001	<0.001	<0.001	0.170	0.00010	0.039	0.00008	<0.001	<0.00001	0.00013	<0.001	0.122	0.0002	<0.001	<0.001
22-09-28	**0.187**	<0.001	0.043	0.043	**0.00001**	—	0.0001	<0.001	<0.001	**0.420**	0.00007	0.028	0.00007	<0.001	0.0003	0.00008	<0.001	0.048	<0.001	<0.001	0.002
23-06-26	**0.105**	<0.001	0.119	0.055	0.00001	—	0.0002	<0.001	<0.001	**0.55**	0.00009	0.051	0.00010	<0.001	0.0002	0.00010	<0.001	0.077	0.0001	<0.001	0.001
23-07-25	0.035	<0.001	0.146	0.062	<0.00001	—	0.0001	<0.001	<0.001	0.22	0.00012	0.044	0.00012	<0.001	<0.00001	0.00012	<0.001	0.109	0.0002	<0.001	<0.001
23-08-29	0.063	<0.001	0.200	0.059	<0.00001	—	0.0002	<0.001	<0.001	**0.41**	0.00010	0.071	0.00024	0.001	0.0001	0.00015	<0.001	0.108	0.0001	< 0.001	0.002
23-09-26	0.076	<0.001	0.080	0.055	<0.00001	—	0.0001	<0.001	<0.001	**0.43**	0.00009	0.046	0.001	<0.001	<0.00001	0.00010	<0.001	0.084	<0.00001	<0.001	<0.001

Table A 28: Site ShdA Field and Lab Data

SITE ShdA: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
99-10-14	—	—	—	—	—	50	27.6	40	—	132	44.3	—	—	7.5	—	—	66.0	2.20
99-11-18	—	—	—	14.7	—	10	35.4	30	—	160	49.1	—	—	7.8	—	—	81.5	2.00
00-10-04	—	13.3	—	—	—	**500**	68.7	15	—	318	119	—	—	7.9	—	—	172.6	0.60
00-11-12	17.1	—	—	—	—	240	21.3	60	—	88.7	30.2	—	—	7.5	—	—	47.3	7.10

00-12-03	18.3	—	—	—	—	40	24.2	40	—	106	33.6	—	—	7.6	—	—	54.9	3.50
01-05-16	19.7	9.40	—	11.40	100	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	17.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	9.3	—	—	—	—	**610**	50.8	40	—	178	71	—	—	7.8	—	—	96.9	2.90
01-06-12	20.9	18.60	—	10.10	108	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	19.2	**26.80**	—	7.60	97	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	15.0	—	—	—	—	**580**	65.2	20	—	264	98.2	—	—	7.9	—	—	135.7	1.30
01-07-12	12.2	**23.10**	—	8.80	103	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	12.1	**25.80**	—	7.80	97	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	16.8	—	—	—	—	330	92.9	20	—	227	90.3	—	—	8.1	—	—	122.8	1.50
01-08-09	21.5	**26.60**	—	8.60	112	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	15.9	—	—	—	—	**1650**	87.2	15	—	389	156	—	—	8.0	—	—	217.9	1.00
01-10-09	15.2	—	—	—	—	20	101	5	—	498	203	—	—	8.0	—	—	293.5	0.30
01-11-18	—	1.50	—	13.80	—	110	26.6	40	—	220	69.6	—	—	7.5	—	—	116.2	4.30
02-05-09	15.8	13.2	—	10.80	104	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	17.0	18.3	—	12.10	129	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	19.0	12.1	—	11.50	105	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	**>2000**	45.8	60	—	170	58.4	—	—	7.7	—	—	89.1	4.44
02-06-19	—	—	—	—	—	**>2000**	45.7	60	—	170	55.2	—	—	7.7	—	—	87.6	4.51
02-06-20	—	21.50	—	8.70	97	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	10.0	**26.50**	—	7.20	90	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	21.2	—	—	—	—	**450**	52.6	50	—	181	60.7	—	—	7.7	—	—	93.4	2.31
02-07-18	18.1	22.00	—	8.70	102	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	20.7	**24.30**	—	9.60	116	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	16.3	**25.80**	—	8.80	110	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	9.0	—	—	—	—	**1440**	78	40	—	293	116	—	—	7.9	—	—	—	0.94
02-08-30	—	20.80	—	12.00	138	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	**450**	28.7	75	—	127	42.3	—	—	7.5	—	—	—	5.97
02-09-19	—	16.60	—	9.90	102	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	—	15.40	—	**5.90**	59	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	—	16.40	—	**4.50**	45	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	—	18.50	—	**3.80**	40	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	—	21.70	—	**1.30**	15	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	—	20.30	—	**0.40**	4	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	—	19.40	—	**0.30**	3	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	—	19.30	—	**0.10**	1	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	—	18.00	—	**1.80**	19	—	—	—	—	—	—	—	—	—	—	—	—	—

03-09-15	—	19.60	—	**0.80**	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	—	15.70	—	**1.60**	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	—	14.50	—	**2.40**	23	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	—	11.80	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	—	5.70	—	7.90	62	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	—	5.80	—	8.20	64	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	—	18.90	0.10	7.34	—	—	—	—	164	—	—	—	—	—	—	—	—	—	—
06-08-08	—	18.90	0.00	7.13	—	—	—	—	86	—	—	—	—	—	—	—	—	—	—
06-09-25	—	14.60	0.09	12.38	—	—	—	—	156	—	—	—	7.9	—	—	—	—	—	—
06-11-01	—	7.07	0.05	12.43	—	—	—	—	99	—	—	—	7.5	—	—	—	—	—	—
07-05-14	—	9.75	0.06	14.02	—	24.6	—	—	120	—	—	—	8.4	—	—	—	—	—	—
07-06-20	—	18.34	0.06	11.41	—	71.7	—	—	130	—	—	—	7.8	—	—	—	—	—	—
07-07-17	—	21.92	0.08	10.73	—	**410.6**	—	—	175	—	—	—	8.0	—	—	—	—	—	—
07-08-15	—	16.11	0.11	12.78	—	23.1	—	—	228	—	—	—	8.1	—	—	—	—	—	—
07-09-18	—	11.42	0.09	14.06	—	111.9	—	—	187	—	—	—	7.8	—	—	—	—	—	—
07-10-18	—	6.33	0.09	16.04	—	122.3	—	—	186	—	—	—	7.7	—	—	—	—	—	—
08-05-20	—	10.21	0.05	11.53	—	68.3	—	—	106	—	—	—	7.4	—	—	—	—	—	—
08-06-26	—	16.54	0.10	9.51	—	**2419.6**	—	—	211	—	—	—	7.7	—	—	—	—	—	—
08-07-23	—	18.90	0.11	10.20	—	**488.4**	—	—	235	—	—	—	7.8	—	—	—	—	—	—
08-08-21	—	14.23	0.07	11.20	—	77.1	—	—	150	—	—	—	7.9	—	—	—	—	—	—
08-09-18	—	12.01	0.08	10.51	—	22.6	—	—	176	—	—	—	7.6	—	—	—	—	—	—
08-10-22	—	5.48	0.10	12.44	—	**2419.5**	—	—	213	—	—	—	7.7	—	—	—	—	—	—
09-05-19	—	8.97	0.05	11.79	—	193.5	—	—	74	—	—	—	7.2	—	—	69.0	—	—	—
09-06-25	—	16.63	0.07	9.87	—	119.1	—	—	120	—	—	—	7.5	—	—	92.0	—	—	—
09-07-22	—	18.54	0.10	9.21	—	**866.4**	—	—	185	—	—	—	6.7	—	—	137.0	—	—	—
09-08-20	—	20.99	0.11	9.88	—	16.0	—	—	210	—	—	—	8.0	—	—	148.0	—	—	—
09-09-24	—	15.67	0.10	10.57	—	344.8	—	—	179	—	—	—	8.1	—	—	142.0	—	—	—
09-10-21	—	6.48	0.05	12.66	—	117.2	—	—	71	—	—	—	7.2	—	—	66.0	—	—	—
10-05-27	—	10.41	0.10	10.88	—	17.5	—	—	154	—	—	—	8.2	—	—	139.0	—	—	—
10-06-24	—	17.00	0.10	9.57	—	**1299.7**	—	—	175	—	—	—	8.1	—	—	134.0	—	—	—
10-07-21	—	20.30	0.11	10.15	—	104.6	—	—	209	—	—	—	8.6	—	—	149.0	—	—	—
10-08-24	—	18.14	0.12	7.57	—	**2419.6**	—	—	217	—	—	—	8.3	—	—	163.0	—	—	—
10-09-22	—	12.24	0.08	6.69	—	101.7	—	—	125	—	—	—	8.0	—	—	108.0	—	—	—
11-07-07	—	19.72	0.07	—	—	—	—	—	134	—	—	—	8.3	—	—	—	—	—	—
11-07-28	—	16.03	0.04	—	—	—	—	—	76	—	—	—	8.4	—	—	—	—	—	—
11-08-22	—	19.45	0.08	—	—	—	—	—	153	—	—	—	8.4	—	—	—	—	—	—
12-06-26	—	16.50	0.13	9.42	—	185.0	—	—	320	—	—	—	8.0	—	—	—	—	—	—

12-07-26	—	17.14	0.12	10.35	—	285.1	—	—	212	—	—	—	7.8	—	—	—	—	—
12-08-28	—	19.43	0.20	7.90	—	**866.4**	—	—	371	—	—	—	7.9	—	—	—	—	—
12-09-25	10.0	11.88	0.11	7.72	—	54.8	—	—	167	—	—	—	8.1	—	—	—	—	—
12-10-17	4.0	8.39	0.06	7.72	—	248.1	—	—	91	—	—	—	8.2	—	—	88.0	—	—
15-08-26	24.0	21.70	0.12	7.65	—	165.2	—	—	228	—	—	—	8.5	—	—	—	—	—
15-10-06	14.0	10.29	0.07	8.12	—	>200.5*	—	—	103	—	—	—	7.3	—	—	—	—	—
15-11-03	5.0	5.67	0.05	12.48	—	53.1	—	—	71	—	—	—	7.3	—	—	—	—	—
16-05-31	23.0	17.10	0.07	10.48	—	**410.6**	—	—	123	—	—	—	8.2	—	—	94.3	—	—
16-06-29	22.0	20.20	0.11	9.03	—	123.6	—	—	217	—	—	—	8.1	—	—	155.4	—	—
16-07-27	25.0	**23.10**	0.12	8.01	—	156.7	—	—	245	—	—	—	8.3	—	—	165.8	—	—
16-08-24	25.0	21.20	0.12	9.05	—	60.2	—	—	232	—	—	—	8.4	—	—	161.9	—	—
16-09-28	13.0	11.60	0.13	11.46	—	57.6	—	—	197	—	—	—	8.1	—	—	171.6	—	—
17-05-31	14.0	11.6	0.06	10.79	—	93.4	—	—	100	—	—	—	7.6	—	—	87.1	—	—
17-06-27	23.0	19.5	0.11	10.65	—	**980.4**	76	16	198	228	98.2	0.29	8.3	8.3	8.0	146.9	123.0	2.70
17-07-26	24.0	18.5	0.12	9.35	—	198.9	87	11	223	258	106	0.28	8.2	8.2	7.9	165.1	139.0	2.30
17-08-30	22.0	15.9	0.12	11.51	—	25.0	85	11	204	251	106	0.47	8.1	8.4	7.9	161.0	134.0	3.90
17-09-27	18.0	16.6	0.12	11.25	—	110.0	88	12	210	254	109	0.50	8.3	8.4	7.9	163.2	136.0	4.10
17-10-24	22.0	12.4	0.14	11.6	—	127.0	86	14	220	291	118	0.32	8.0	8.2	7.9	187.9	160.0	1.50
18-05-30	18.0	15.40	0.09	11.11	—	5.2	55	22	149	185	71.7	-0.27	7.7	8.0	8.3	118.30	98	2.8
18-06-27	—	16.80	0.08	9.95	—	63.7	56	57	145	172	67.6	-0.47	7.3	7.8	8.3	111.80	93	2.3
18-07-31	29.0	**23.20**	0.12	9.57	—	178.2	91	13	240	241	104	0.41	8.5	8.3	7.9	161.20	131	1.7
18-08-28	30.0	20.90	0.12	8.65	—	55.0	81	10	226	240	101	0.15	8.2	8.1	8	159.90	127	1
18-09-26	21.0	12.50	0.12	10.02	—	80.8	78	13	195	251	96.3	0.1	7.8	8.1	8	167.05	136	11.6
19-06-26	17.0	15.1	0.08	10.62	—	40.2	58	31	0.136	169	62.7	-0.60	7.28	7.7	8.3	109.20	97	2.4
19-07-24	27.0	21.4	0.11	9.45	—	118.0	85	19	0.220	241	95.2	0.14	7.96	8.1	8	154.05	133	1.5
19-08-21	26.0	20.2	0.11	6.78	—	39.0	76	16	0.217	240	95.4	-0.11	7.80	7.9	7.9	155.35	129	2.9
19-09-26	15.0	12.7	0.05	12.76	—	249.0	30	70	0.076	102	34	-1.54	7.13	7.3	8.8	64.35	63	8.1
20-06-24	32	**23.4**	0.12	7.90	—	110	79	6	0.237	0.252	103.0	0.14	8.26	8.1	8	158.20	133	1.5
20-07-28	26	21.9	0.12	8.06	—	63	83	11	0.248	0.267	102.0	0.16	8.42	8.1	7.9	171.60	146	3.9
20-08-25	20	19.0	0.11	9.33	—	279	77	8	0.205	0.228	94.4	0.00	8.11	8.0	8	150.15	127	1.7
20-09-29	23	18.2	0.13	8.42	—	336	76	18	0.233	0.233	97.7	0.01	8.12	8.0	8	173.55	135	17.6
20-10-15	17	10.4	0.11	11.23	—	75	70	23	0.171	0.244	101.0	-0.23	7.89	7.8	8	154.70	140	3.8
21-05-27	23	17.0	0.10	9.42	—	10	51	33	0.169	0.159	58.0	-0.58	7.73	7.8	8.4	133.35	91	2.9
21-06-29	—	**22.9**	0.10	—	—	**1,274**	79	11	0.212	0.246	107.0	0.15	7.63	8.1	7.9	143.65	136	1.3
21-07-27	26	19.6	0.08	8.66	—	75	57	37	0.168	0.174	66.7	-0.28	8.56	8.0	8.3	84.00	98	3.6
21-08-24	26	21.2	0.10	8.37	—	313	77	14	0.203	0.230	93.7	0.09	8.20	8.1	8	142.35	128	2.3
21-09-29	16	14.6	0.09	9.25	—	160	70	41	0.159	0.201	78.1	0.07	8.35	8.2	8.1	128.70	116	5.5

21-10-25	8	8.4	0.09	11.38	—	20	60	45	0.129	0.195	70.1	-0.35	8.02	7.9	8.3	20.00	103	3.7
22-07-26	27	22.9	0.12	7.69	—	41	91	18	0.235	0.231	106.0	0.31	8.36	8.2	7.9	159.25	141	1.8
22-08-29	26	19.0	0.11	9.75	—	41	79	21	0.209	0.225	96.3	0.21	8.50	8.2	8	154.05	135	1.6
22-09-28	19	14.2	0.06	10.55	—	63	44	53	0.107	0.133	47.4	-0.83	7.51	7.7	8.5	87.95	83	5.0
23-06-26	13	16.1	0.09	9.11	—	187	66	41	0.163	0.197	74.3	-0.19	8.14	8.0	8.2	127.40	115	4.0
23-07-25	31	23.5	0.12	8.45	—	31	86	22	0.241	0.249	104.0	0.17	8.53	8.1	7.9	161.20	145	1.7
23-08-29	25	17.9	0.07	9.43	—	63	55	46	0.132	0.155	58.6	-0.46	8.12	7.9	8.4	99.45	95	3.4
23-09-26	17	11.8	0.09	11.82	—	31	68	23	0.139	0.188	78.0	-0.34	8.21	7.8	8.1	120.90	117	2.6

Table A 29: Site ShdA Nutrient Data

SITE ShdA: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	12.80	—	10.4	<0.1	0.92	2.99	7.97	<0.010	—	<0.05	0.110	0.110	13.4	0.38	—	8.9	0.009
99-11-18	—	—	14.00	—	12.2	<0.1	0.82	3.46	8.12	<0.010	—	<0.05	0.070	0.070	21.0	0.32	—	6.9	0.008
00-10-04	—	—	35.60	—	17.9	<0.1	1.17	7.34	14.90	<0.010	—	<0.05	<0.05	<0.05	53.9	0.24	—	5.2	0.010
00-11-12	—	—	8.43	—	8.6	<0.1	1.04	2.22	5.73	<0.010	—	<0.05	0.170	0.170	6.8	0.56	—	11.4	0.018
00-12-03	—	—	9.46	—	9.5	<0.1	0.57	2.43	6.43	<0.010	—	<0.05	0.340	0.340	10.0	0.28	—	5.9	0.011
01-06-03	—	—	20.70	—	11.4	<0.1	0.97	4.70	9.11	0.010	—	<0.05	<0.05	0.060	18.7	—	0.37	7.2	0.018
01-07-03	—	—	29.40	—	11.8	<0.1	0.91	6.02	10.10	0.018	—	<0.05	<0.05	<0.05	37.7	—	<0.3	5.0	0.010
01-08-07	—	—	27.40	—	8.4	<0.1	1.13	5.31	13.00	0.032	—	<0.05	<0.05	0.075	10.6	—	<0.3	2.7	0.007
01-09-05	—	—	48.50	—	24.6	0.106	1.16	8.50	21.60	<0.010	—	<0.05	<0.05	<0.05	67.0	—	<0.3	4.9	0.012
01-10-09	—	—	63.30	—	26.0	<0.1	1.60	11.00	20.50	<0.010	—	<0.05	<0.05	<0.05	110.0	—	<0.3	3.5	0.008
01-10-09	—	—	63.10	—	26.1	<0.1	1.50	10.90	19.60	<0.010	—	<0.05	<0.05	<0.05	109.0	—	<0.3	3.3	0.010
01-11-18	—	—	19.80	—	17.4	<0.1	0.84	4.88	11.70	0.013	—	<0.05	0.979	1.030	40.4	—	1.36	7.8	0.011
02-06-19	—	—	17.00	—	11.6	<0.1	0.99	3.85	10.10	0.022	—	<0.05	0.100	0.150	16.9	—	0.67	10.3	0.030
02-06-19	—	—	16.10	—	11.7	<0.1	0.92	3.66	9.62	0.024	—	<0.05	0.100	0.150	17.0	—	0.69	9.9	0.029

02-07-17	—	—	17.90	—	11.1	<0.1	0.98	3.88	8.99	<0.010	—	<0.05	0.160	0.210	17.4	—	0.48	6.8	0.015
02-08-21	—	—	35.20	—	15.0	<0.1	1.86	6.70	12.20	<0.010	—	0.100	<0.05	<0.05	39.7	—	0.72	7.0	0.014
02-09-18	—	—	12.30	—	8.8	<0.1	0.98	2.82	7.55	0.010	—	<0.05	0.290	0.340	13.0	—	0.81	13.3	0.017
17-06-27	74.5	0.03	30.60	1.400	10.0	0.150	0.99	5.30	8.40	<0.050	<0.001	<0.05	0.390	0.390	19	0.30	0.70	3.8	0.025
17-07-26	85.6	0.02	33.40	1.280	10.6	0.160	0.69	5.42	6.64	<0.050	<0.001	<0.05	0.620	0.620	26	0.20	0.80	2.0	0.015
17-08-30	82.9	0.02	33.50	1.960	10.0	0.140	0.77	5.37	6.53	<0.050	<0.001	<0.05	0.560	0.560	23	0.20	0.80	1.7	0.031
17-09-27	85.8	0.02	34.70	2.030	10.0	0.150	0.87	5.32	6.59	<0.050	<0.001	<0.05	0.590	0.590	22	0.20	0.80	1.9	0.020
17-10-24	84.7	0.02	37.50	1.260	15.1	0.140	1.00	6.04	8.33	<0.050	<0.001	<0.05	0.440	0.440	37	0.20	0.60	2.4	0.012
18-05-30	54.4	0.02	22.40	0.511	10.7	0.140	0.71	3.84	7.00	<0.050	<0.001	<0.05	0.680	0.680	16	0.20	0.90	3.8	0.015
18-06-27	55.6	0.02	21.30	0.330	10.1	0.170	0.61	3.51	7.28	<0.050	<0.001	<0.05	0.550	0.550	13	0.30	0.90	6.0	0.014
18-07-31	89.2	0.02	33.70	1.670	9.1	0.190	0.79	4.83	6.07	<0.050	<0.001	<0.05	0.650	0.650	18	0.20	0.80	2.3	0.015
18-08-28	80.0	0.02	32.60	0.950	10.3	0.160	0.79	4.84	6.36	<0.050	<0.001	<0.05	0.720	0.720	19	0.20	0.90	2.4	0.005
18-09-26	77.0	0.02	30.70	0.910	15.7	0.190	0.88	4.78	8.43	<0.050	<0.001	<0.05	0.600	0.600	25	0.20	0.80	2.3	0.042
19-06-26	57.7	0.02	19.3	0.272	10.4	0.13	0.65	3.52	6.9	<0.05	<0.001	<0.05	0.570	0.570	12	—	0.8	6.2	0.016
19-07-24	83.9	0.05	30.1	0.993	11.9	0.13	0.75	4.86	7.4	<0.05	<0.001	<0.05	0.680	0.680	19	—	0.8	3.6	0.016
19-08-21	75.4	0.02	30.2	0.563	9.2	0.18	0.86	4.86	7.4	<0.05	<0.001	<0.05	0.760	0.760	23	—	0.8	3.6	0.014
19-09-26	29.9	0.02	10.1	0.056	8.0	0.19	0.80	2.13	5.8	0.300	0.002	<0.25	<0.25	<0.25	6	—	0.5	10.7	0.046
20-06-24	78.0	0.02	33.1	0.923	10.6	0.20	0.78	4.97	6.3	<0.05	<0.001	<0.05	1.470	1.470	20	—	1.3	1.8	0.009
20-07-28	82.0	0.02	33.1	0.970	19.0	0.09	0.78	4.67	11.3	<0.05	<0.001	<0.05	1.260	1.260	19	—	1.2	1.8	0.014
20-08-25	76.2	0.02	30.6	0.716	10.8	0.06	0.93	4.38	5.6	<0.05	<0.001	<0.05	1.380	1.380	19	—	1.2	2.2	0.015
20-09-29	75.2	0.02	31.5	0.707	13.2	0.10	0.96	4.63	6.7	<0.05	<0.001	<0.05	1.140	1.140	23	—	1.1	3	0.045
20-10-15	69.6	0.02	31.6	0.413	13.1	0.07	1.07	5.41	9.0	<0.05	<0.001	<0.05	1.250	1.250	28	—	1.2	3.4	0.012
21-05-27	50.7	0.02	17.9	0.301	9.1	0.13	0.67	3.22	6.5	<0.05	<0.001	<0.05	0.600	0.600	13	—	0.7	6.2	0.016
21-06-29	78.0	0.02	33.8	0.923	11.7	0.17	0.84	5.41	7.1	<0.05	<0.001	<0.05	1.090	1.090	21	—	1.1	3.2	0.015

21-07-27	56.4	0.02	20.9	0.530	9.1	0.15	0.65	3.53	6.4	<0.05	<0.001	<0.05	**0.710**	0.710	13	—	0.8	6.2	**0.017**
21-08-24	76.0	0.02	29.8	0.899	9.9	0.15	0.76	4.67	7.1	<0.05	<0.001	<0.005	**1.120**	1.120	20	—	1.0	3.4	**0.013**
21-09-29	68.9	0.02	24.3	1.030	12.2	0.27	0.84	4.24	7.1	<0.05	<0.001	<0.05	**1.010**	1.010	13	—	0.9	6.3	**0.019**
21-10-25	69.6	0.02	21.1	0.444	16.6	0.27	1.19	4.23	9.3	<0.05	<0.001	<0.05	**0.660**	0.600	10	—	1.0	8.2	**0.025**
22-07-26	89.6	0.02	33.9	1.330	14.0	0.15	0.79	5.23	7.6	<0.05	<0.001	<0.05	**1.020**	1.020	19	—	1.0	2.9	**0.012**
22-08-29	77.8	0.02	30.5	1.160	13.5	0.16	0.85	4.90	8.3	<0.05	<0.001	<0.05	**1.220**	1.220	18	—	1.2	4.7	**0.011**
22-09-28	43.8	0.02	14.4	0.206	10.7	0.20	0.82	2.79	6.9	<0.05	<0.001	<0.05	**0.560**	0.560	9	—	0.8	8.4	**0.026**
23-06-26	65.3	0.03	22.6	0.614	16	0.15	0.7	4.33	9.41	< 0.05	< 0.001	< 0.05	0.64	0.64	11	-	0.7	7.3	**0.025**
23-07-25	84.9	0.03	32.7	1.000	16.9	0.13	0.84	5.54	9.02	< 0.05	< 0.001	< 0.05	0.84	0.84	18	-	0.9	4.4	**0.017**
23-08-29	54.6	0.03	17.7	0.408	12.2	0.32	0.90	3.49	7.58	< 0.05	< 0.001	< 0.05	0.42	0.42	9	-	0.6	8.1	**0.028**
23-09-26	67.6	0.03	24.3	0.401	11.5	0.39	0.84	4.20	8.17	0.520	0.013	< 0.05	1.02	1.02	14	-	1.0	5.9	**0.027**

Table A 30: Site ShdA Heavy Metals Data

SITE ShdA: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	0.091	<0.001	—	—	<0.0001	0.9178	—	0.002	0.0008	0.280	—	0.010	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	0.089	<0.001	—	—	<0.0001	1.01892	—	0.003	0.0021	0.180	—	0.017	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.021	<0.001	—	—	<0.0001	2.5047	—	0.002	0.0008	0.088	—	0.093	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-11-12	**0.392**	<0.001	—	—	<0.0001	0.62185	—	0.001	0.0009	**0.436**	—	0.021	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.136**	<0.001	—	—	<0.0001	0.69304	—	0.001	0.0005	0.244	—	0.021	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.122**	<0.001	—	—	<0.0001	1.4821	—	0.003	0.0008	0.272	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.031	<0.001	—	—	<0.0001	2.06056	—	0.004	0.0009	0.103	—	0.150	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.011	0.00102	—	—	<0.0001	1.89225	—	0.002	<0.0005	**0.497**	—	0.311	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.022	<0.001	—	—	<0.0001	3.29773	—	0.004	0.0008	0.138	—	0.236	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

01-10-09	0.006	<0.001	—	—	<0.0001	4.30939	—	0.005	0.0006	0.065	—	0.106	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.006	<0.001	—	—	<0.0001	4.30939	—	0.006	0.001	0.066	—	0.108	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.211**	<0.001	—	—	<0.0001	1.45242	—	0.001	0.0022	0.273	—	0.030	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.098	<0.001	—	—	<0.0001	1.21528	—	0.001	0.001	**0.313**	—	0.032	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.094	<0.001	—	—	<0.0001	1.14765	—	0.001	0.0008	**0.309**	—	0.026	—	<0.005	<0.001	—	0.001	—	—	—	<0.005
02-07-17	**0.117**	<0.001	—	—	<0.0001	1.26392	—	0.003	0.0008	**0.356**	—	0.093	—	<0.005	<0.001	—	0.001	—	—	—	<0.005
02-08-21	0.015	<0.001	—	—	<0.0001	2.44056	—	0.004	0.0008	0.108	—	0.114	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.294**	<0.001	—	—	<0.0001	0.87571	—	0.003	0.0011	**0.468**	—	0.020	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	0.079	<0.001	0.029	0.053	0.00010	2.06056	0.0001	<0.001	<0.001	0.280	0.0021	0.060	0.0019	<0.001	0.0002	0.0010	<0.001	0.581	0.001	<0.001	0.009
17-07-26	0.050	<0.001	0.032	0.055	<0.0001	2.22695	<0.0001	<0.001	<0.001	0.190	0.0021	0.042	0.0025	<0.001	0.0001	0.0008	<0.001	0.572	0.0017	<0.001	0.001
17-08-30	0.040	<0.001	0.031	0.047	<0.0001	2.22695	<0.0001	<0.001	<0.001	0.190	0.0022	0.040	0.0028	<0.001	0.0001	0.0008	<0.001	0.505	0.0018	<0.001	0.004
17-09-27	0.049	<0.001	0.034	0.051	<0.0001	2.291	<0.0001	<0.001	<0.001	0.180	0.0024	0.038	0.0033	<0.001	<0.0001	0.0009	0.0001	0.516	0.0018	<0.001	<0.001
17-10-24	0.042	<0.001	0.039	0.058	<0.0001	2.48332	<0.0001	<0.001	<0.001	0.090	0.0028	0.042	0.002	<0.001	<0.0001	0.0010	<0.001	0.770	0.0016	<0.001	0.007
18-05-30	0.076	<0.001	0.023	0.040	<0.0001	1.49695	<0.0001	<0.001	<0.001	0.230	0.0017	0.020	0.0019	<0.001	0.0001	0.0007	<0.001	0.363	0.0009	<0.001	0.002
18-06-28	0.069	<0.001	0.021	0.038	<0.0001	1.41002	<0.0001	<0.001	<0.001	0.270	0.0015	0.020	0.0017	<0.001	0.0001	0.0007	<0.001	0.284	0.0008	<0.001	0.004
18-07-31	0.045	<0.001	0.032	0.051	0.00010	2.18427	0.0001	<0.001	<0.001	0.280	0.0022	0.050	0.0036	<0.001	0.0001	0.0010	0.0001	0.449	0.0016	<0.001	<0.001
18-08-28	0.029	<0.001	0.030	0.048	<0.0001	2.12027	<0.0001	<0.001	<0.001	0.180	0.0021	0.030	0.0031	<0.001	<0.0001	0.0008	0.0001	0.413	0.0019	<0.001	<0.001
18-09-26	**0.102**	<0.001	0.026	0.050	<0.0001	2.02006	<0.0001	<0.001	<0.001	**0.400**	0.0021	0.050	0.002	<0.001	0.0002	0.0009	<0.001	0.424	0.002	<0.001	<0.001
19-06-26	0.064	<0.001	0.020	0.042	<0.0001	1.41002	<0.0001	<0.001	<0.001	0.280	0.0014	0.022	0.0014	<0.001	0.0001	0.0007	<0.001	<0.001	0.0008	<0.001	0.002
19-07-24	0.060	<0.001	0.029	0.055	0.00001	2.18427	0.0001	<0.001	<0.001	**0.320**	0.0022	0.062	0.0025	<0.001	0.0002	0.0009	<0.001	<0.001	0.0016	<0.001	0.003
19-08-21	0.066	<0.001	0.032	0.050	<0.0001	2.12027	<0.0001	<0.001	<0.001	0.200	0.0022	0.032	0.0026	<0.001	0.0001	0.0011	<0.001	<0.001	0.0015	<0.001	<0.001
19-09-26	**0.177**	<0.001	0.013	0.031	<0.0001	2.02006	0.0001	<0.001	0.001	**0.370**	0.0008	0.019	0.0006	<0.001	0.0004	0.0007	<0.001	<0.001	0.0002	<0.001	0.001
20-06-24	0.046	<0.001	0.032	0.051	<0.0001	2.16293	<0.0001	<0.001	<0.001	0.150	0.0025	0.023	0.0033	<0.001	<0.0001	0.0010	0.0001	0.379	0.0026	<0.001	<0.001
20-07-28	**0.100**	<0.001	0.031	0.050	<0.0001	2.1416	<0.0001	<0.001	<0.001	0.240	0.0026	0.025	0.0029	<0.001	0.0002	0.0011	0.0001	0.347	0.0025	<0.001	<0.001

20-08-25	0.059	<0.001	0.030	0.045	<0.00001	1.97957	<0.00001	<0.001	<0.001	0.200	0.00025	0.045	0.00029	<0.001	0.0001	0.00111	0.0002	0.318	0.00031	<0.001	0.001
20-09-29	**0.233**	<0.001	0.033	0.055	<0.00001	2.0499	0.0002	<0.001	<0.001	**0.420**	0.00029	0.070	0.00022	<0.001	0.0004	0.00012	0.0001	0.435	0.00021	0.001	0.003
20-10-15	**0.155**	<0.001	0.031	0.047	<0.00001	2.12027	<0.00001	<0.001	<0.001	0.260	0.00026	0.020	0.00021	<0.001	0.0002	0.00011	0.0001	0.370	0.00021	<0.001	0.003
21-05-27	**0.116**	<0.001	0.019	0.035	<0.00001	2.16293	<0.00001	<0.001	<0.001	0.230	0.00015	0.016	0.00015	<0.001	0.0001	0.00008	<0.0001	0.256	0.00009	<0.001	<0.001
21-06-29	0.059	<0.001	0.032	0.053	<0.00001	—	<0.00001	<0.001	<0.001	0.220	0.00025	0.033	0.00028	<0.001	0.0001	0.00011	0.0001	0.396	0.00023	<0.001	<0.001
21-07-27	0.083	<0.001	0.020	0.032	<0.00001	2.1416	<0.00001	<0.001	<0.001	**0.380**	0.00015	0.024	0.00016	<0.001	0.0002	0.00008	<0.0001	0.227	0.00013	<0.001	<0.001
21-08-24	0.070	<0.001	0.027	0.045	<0.00001	1.97957	<0.00001	<0.001	<0.001	0.260	0.00023	0.029	0.00026	<0.001	0.0001	0.00011	0.0001	0.321	0.0002	<0.001	<0.001
21-09-29	0.098	<0.001	0.023	0.036	<0.00001	2.0499	0.0001	<0.001	<0.001	**0.410**	0.00019	0.032	0.00017	<0.001	0.0002	0.00010	0.0001	0.290	0.00015	<0.001	<0.001
21-10-25	**0.117**	<0.001	0.021	0.032	<0.00001	2.12027	<0.00001	<0.001	<0.001	**0.410**	0.00017	0.017	0.00013	<0.001	0.0001	0.00010	<0.0001	0.226	0.00013	<0.001	<0.001
22-07-26	0.067	<0.001	0.052	0.052	<0.00001	—	<0.00001	<0.001	<0.001	**0.420**	0.00025	0.003	0.00025	<0.001	0.0003	0.00012	0.0001	0.406	0.00021	<0.001	0.005
22-08-29	0.050	<0.001	0.045	0.045	<0.00001	—	<0.00001	<0.001	<0.001	0.290	0.00024	0.002	0.00024	<0.001	<0.0001	0.00010	0.0001	0.356	0.00021	<0.001	0.001
22-09-28	**0.141**	<0.001	0.034	0.034	<0.00001	—	0.0001	<0.001	0.001	**0.360**	0.00012	0.001	0.00012	<0.001	0.0003	0.00008	<0.0001	0.167	0.00005	<0.001	0.002
23-06-26	**0.101**	<0.001	0.020	0.041	<0.00001	—	0.0001	<0.001	<0.001	**0.42**	0.00018	0.042	0.00022	<0.001	0.0002	0.00009	<0.0001	0.268	0.00010	<0.001	<0.001
23-07-25	0.037	<0.001	0.030	0.048	<0.00001	—	<0.00001	<0.001	<0.001	0.30	0.00026	0.026	0.00027	<0.001	<0.0001	0.00011	<0.0001	0.419	0.00017	<0.001	0.002
23-08-29	0.081	<0.001	0.018	0.037	<0.00001	—	<0.00001	<0.001	<0.001	**0.43**	0.00013	0.026	0.00012	<0.001	0.0002	0.00009	<0.0001	0.242	0.00005	< 0.001	0.005
23-09-26	0.056	<0.001	0.022	0.042	<0.00001	—	<0.00001	<0.001	<0.001	0.29	0.00019	0.024	0.00015	<0.001	<0.0001	0.00008	<0.0001	0.290	0.00012	<0.001	<0.001

Table A 31: Site ShdB Field and Lab Data

SITE ShdB: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	40	25.8	60	—	99.8	32.9	—	—	7.3	—	—	51.1	7.80
99-11-18	—	—	—	13.8	—	50	30.1	30	—	116	37	—	—	7.5	—	—	57.5	2.10
00-10-04	—	12.8	—	—	—	20	70.4	10	—	215	72.6	—	—	7.9	—	—	113.4	0.60
00-11-12	6.0	—	—	—	—	40	14.6	80	—	68.5	22.4	—	—	7.3	—	—	34.8	4.00
00-12-03	-3.0	—	—	—	—	40	15.7	40	—	69.4	22.6	—	—	7.4	—	—	35.5	2.10
01-05-16	12.6	9.1	—	11.50	99	—	—	—	—	—	—	—	—	—	—	—	—	—

01-05-24	19.6	16.7	—	9.50	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	44.5	20	—	124	46.8	—	—	7.7	—	—	65.8	1.00	
01-06-12	22.1	16.0	—	9.80	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	28.9	**23.0**	—	8.30	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	50	67.1	20	—	180	61.9	—	—	7.9	—	—	89.4	0.80	
01-07-12	24.4	19.5	—	8.80	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	27.6	**28.0**	—	7.60	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-09	28.6	22.1	—	7.10	82	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	220	88.4	20	—	224	90	—	—	8.1	—	—	124.2	1.00	
01-10-09	—	—	—	—	—	30	96.3	10	—	235	85.8	—	—	8.0	—	—	125.4	0.80	
01-11-18	2.0	1.5	—	13.50	—	100	23.7	40	—	163	50.5	—	—	7.5	—	—	82.3	1.20	
02-05-09	18.6	12.6	—	10.60	98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	21.7	17.3	—	9.50	98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	13.3	11.6	—	10.70	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	< 10	42.6	40	—	144	43.9	—	—	7.7	—	—	72.0	0.60	
02-06-20	25.2	18.2	—	9.70	102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	28.6	**23.4**	—	8.40	98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	150	—	—	—	—	—	—	—	7.7	—	—	71.4	0.92	
02-07-17	—	—	—	—	—	120	—	—	—	—	—	—	—	7.7	—	—	71.3	0.96	
02-07-18	23.2	19.4	—	8.80	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	23.9	18.2	—	9.20	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	25.9	22.1	—	8.10	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	50	—	—	—	—	—	—	—	7.9	—	—	—	0.97	
02-08-30	22.0	17.5	—	9.30	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	100	—	—	—	—	—	—	—	7.4	—	—	—	2.70	
02-09-19	20.2	14.7	—	10.10	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	17.8	15.7	—	10.80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	22.0	19.7	—	9.20	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	25.9	21.7	—	8.70	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	25.7	**24.4**	—	9.40	112	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	22.2	21.4	—	8.50	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	20.3	20.5	—	7.50	82	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	22.7	21.5	—	9.10	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	16.7	16.3	—	9.30	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	26.4	21.4	—	8.30	97	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	8.0	10.4	—	10.40	92	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	18.1	15.6	—	10.20	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—

03-10-27	17.1	11.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	10.2	5.7	—	13.30	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	8.8	7.3	—	13.00	106	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	18.0	16.2	0.10	6.57	—	—	—	—	136	—	—	—	—	—	—	—	—	—	—
06-08-08	18.7	18.3	0.10	6.80	—	—	—	—	93	—	—	—	—	—	—	—	—	—	—
06-09-25	20.5	13.0	0.08	10.28	—	—	—	—	130	—	—	—	7.4	—	—	—	—	—	—
06-11-01	14.2	7.3	0.03	11.93	—	—	—	—	72	—	—	—	7.3	—	—	—	—	—	—
07-05-14	10.6	8.2	0.04	13.16	—	23.1	—	—	94	—	—	—	7.8	—	—	—	—	—	—
07-06-20	17.0	12.4	0.07	11.76	—	31.5	—	—	149	—	—	—	7.6	—	—	—	—	—	—
07-07-17	22.5	17.1	0.07	10.28	—	42.8	—	—	143	—	—	—	7.8	—	—	—	—	—	—
07-08-15	16.6	14.7	0.05	11.64	—	238.2	—	—	175	—	—	—	7.9	—	—	—	—	—	—
07-09-18	13.1	9.1	0.09	13.32	—	161.6	—	—	190	—	—	—	7.8	—	—	—	—	—	—
07-10-18	—	6.2	0.08	13.20	—	95.9	—	—	177	—	—	—	7.3	—	—	—	—	—	—
08-05-20	15.8	9.3	0.04	11.09	—	35.0	—	—	40	—	—	—	7.2	—	—	—	—	—	—
08-06-26	17.0	16.6	0.07	7.23	—	290.9	—	—	70	—	—	—	7.5	—	—	—	—	—	—
08-07-23	19.0	17.6	0.09	**5.59**	—	**686.7**	—	—	90	—	—	—	7.2	—	—	—	—	—	—
08-08-21	—	13.3	0.07	8.69	—	160.7	—	—	70	—	—	—	7.4	—	—	—	—	—	—
08-09-18	—	11.9	0.07	8.24	—	39.9	—	—	70	—	—	—	7.5	—	—	—	—	—	—
08-10-22	—	5.8	0.08	11.02	—	93.3	—	—	80	—	—	—	7.6	—	—	—	—	—	—
09-05-19	8.7	8.6	0.04	11.72	—	235.9	—	—	54	—	—	—	7.1	—	—	51.0	—	—	—
09-06-25	20.3	14.7	0.05	9.56	—	42.6	—	—	90	—	—	—	7.4	—	—	73.0	—	—	—
09-07-22	18.4	17.6	0.08	7.40	—	313.0	—	—	138	—	—	—	7.4	—	—	104.0	—	—	—
09-08-20	19.6	19.0	0.08	**5.95**	—	**1553.1**	—	—	159	—	—	—	7.5	—	—	117.0	—	—	—
09-09-24	15.8	14.2	0.09	8.06	—	**547.5**	—	—	143	—	—	—	7.7	—	—	118.0	—	—	—
09-10-21	7.9	6.3	0.03	12.46	—	16.1	—	—	53	—	—	—	7.3	—	—	42.0	—	—	—
10-05-27	—	10.7	0.07	9.54	—	36.9	—	—	112	—	—	—	8.1	—	—	100.0	—	—	—
10-06-24	—	16.2	0.06	8.32	—	275.5	—	—	104	—	—	—	8.0	—	—	81.0	—	—	—
10-07-21	—	19.8	0.08	6.96	—	248.1	—	—	161	—	—	—	8.1	—	—	116.0	—	—	—
10-08-24	—	16.3	0.10	**2.69**	—	**547.5**	—	—	172	—	—	—	8.6	—	—	133.0	—	—	—
10-09-22	—	11.5	0.06	**5.96**	—	65.0	—	—	90	—	—	—	7.9	—	—	79.0	—	—	—
11-07-08	—	18.8	0.07	—	—	—	—	—	129	—	—	—	8.3	—	—	—	—	—	—
11-07-28	—	16.0	0.04	—	—	—	—	—	71	—	—	—	8.3	—	—	—	—	—	—
11-08-22	—	18.8	0.03	—	—	—	—	—	61	—	—	—	8.5	—	—	—	—	—	—
12-06-26	—	16.7	0.09	7.88	—	201.4	—	—	153	—	—	—	7.9	—	—	—	—	—	—
12-07-26	—	17.8	0.09	**5.37**	—	196.8	—	—	168	—	—	—	7.8	—	—	—	—	—	—
12-08-28	—	18.7	0.11	**4.02**	—	228.2	—	—	200	—	—	—	7.6	—	—	—	—	—	—
12-09-25	10.0	12.4	0.09	**5.96**	—	**488.4**	—	—	144	—	—	—	7.9	—	—	—	—	—	—

12-10-17	4.0	8.3	0.05	6.81	—	113.7	—	—	760	—	—	—	8.3	—	—	74.0	—	—
13-05-30	14.0	12.0	0.03	12.40	—	120.0	—	—	54	—	—	—	8.1	—	—	—	—	—
13-06-27	13.0	15.0	0.07	6.30	—	111.0	—	—	122	—	—	—	8.0	—	—	—	—	—
13-07-30	20.0	17.8	0.04	9.31	—	138.0	—	—	78	—	—	—	7.4	—	—	—	—	—
13-08-27	24.0	18.3	0.09	5.65	—	727.0	—	—	163	—	—	—	8.4	—	—	—	—	—
13-10-01	20.0	13.1	0.07	7.20	—	73.3	—	—	121	—	—	—	7.8	—	—	—	—	—
13-10-29	5.0	3.7	0.06	8.90	—	—	—	—	131	—	—	—	8.2	—	—	—	—	—
14-06-25	16.0	15.2	0.05	17.50	—	88.0	—	—	90	—	—	—	7.2	—	—	—	—	—
14-07-23	28.0	23.3	0.10	6.80	—	45.0	—	—	184	—	—	—	8.4	—	—	—	—	—
14-08-28	21.0	18.8	0.09	10.86	—	198.9	—	—	162	—	—	—	7.9	—	—	—	—	—
14-09-24	9.0	9.9	0.07	—	—	387.3	—	—	110	—	—	—	7.6	—	—	—	—	—
14-10-29	11.0	8.0	0.04	—	—	41.1	—	—	18	—	—	—	6.6	—	—	—	—	—
15-06-01	14.0	13.3	0.10	9.40	—	—	—	—	98	—	—	—	7.5	—	—	—	—	—
15-06-29	16.0	13.2	0.04	—	—	118.4	—	—	71	—	—	—	8.1	—	—	—	—	—
15-08-05	23.0	19.0	0.09	7.30	—	200.5	—	—	195	—	—	—	7.7	—	—	—	—	—
15-08-26	24.0	20.8	0.09	7.11	—	200.5	—	—	184	—	—	—	8.2	—	—	—	—	—
15-10-06	14.0	10.4	0.04	8.84	—	144.5	—	—	62	—	—	—	7.3	—	—	—	—	—
15-11-03	6.0	5.9	0.04	10.32	—	16.4	—	—	49	—	—	—	7.2	—	—	—	—	—
16-05-31	22.0	17.2	0.05	9.69	—	55.6	—	—	98	—	—	—	7.6	—	—	74.8	—	—
16-06-29	22.0	19.0	0.08	0.55	—	131.7	—	—	155	—	—	—	7.7	—	—	113.8	—	—
16-07-27	25.0	21.2	0.09	8.15	—	78.8	—	—	180	—	—	—	7.6	—	—	126.1	—	—
16-08-24	25.0	18.9	0.09	7.65	—	193.5	—	—	161	—	—	—	7.7	—	—	118.3	—	—
16-09-28	13.0	9.6	0.10	9.27	—	145.0	—	—	150	—	—	—	8.0	—	—	138.5	—	—
16-10-25	5.0	7.0	0.08	11.15	—	9.8	—	—	107	—	—	—	7.8	—	—	106.0	—	—
17-05-31	13.0	10.6	0.04	10.61	—	9.8	—	—	59	—	—	—	7.6	—	—	52.7	—	—
17-06-27	23.0	16.3	0.08	9.52	—	195.6	63	18	139	169	63.0	-0.67	8.0	7.6	8.3	108.6	88.0	1.40
17-07-26	24.0	17.0	0.11	5.38	—	86.7	86	16	193	226	82.8	-0.23	7.7	7.8	8.0	148.9	118.0	14.50
17-08-30	22.0	15.0	0.11	5.71	—	73.0	100	18	188	241	89.1	-0.64	8.0	7.3	7.9	159.3	129.0	15.00
17-09-27	—	16.5	0.12	5.1	—	214.3	100	20	215	260	92.5	-0.52	7.5	7.4	7.9	167.1	142.0	5.60
17-10-24	—	9.1	0.12	9.95	—	42.0	96	20	179	259	88.9	-0.36	7.7	7.6	8.0	167.1	142.0	7.90
18-05-30	18.0	14.5	0.06	9.93	—	20.3	39	34	96	121	40.1	-1.25	7.4	7.4	8.7	78.0	59.0	1.10
18-06-28	18.0	17.2	0.06	7.77	—	104.6	41	68	108	126	44.1	-1.09	7.2	7.5	8.6	81.9	66.0	1.70
18-07-31	29.0	23.8	0.11	3.50	—	78.0	94	35	222	216	79.2	-0.30	8.0	7.7	8	148.2	113.0	3.90
18-08-28	—	21.2	0.11	5.54	—	497.8	80	22	217	218	77.6	-0.38	7.9	7.7	8.1	152.1	114.0	4.90
18-09-26	21.0	12.9	0.11	8.70	—	870.4	85	15	181	229	82.3	-0.34	7.7	7.7	8	153.4	120.0	1.80
19-06-26	18.0	14.0	0.05	13.97	—	52.4	39	51	0.086	111	39.7	-1.06	7.27	7.6	8.7	70.85	64	1.0
19-07-24	27.0	21.3	0.09	9.10	—	146.0	76	19	0.176	191	67.9	-0.36	7.84	7.8	8.2	122.85	104	0.8

19-08-21	26.0	17.5	0.11	5.94	—	689.6	80	17	0.190	223	79.4	-0.28	7.50	7.8	7.8	143.65	115	1.3
19-09-26	14.0	12.4	0.03	11.93	—	148.0	20	100	0.049	65	21.8	-2.00	6.86	7.2	9.2	41.60	49	4.6
20-06-24	33	25.8	0.10	7.09	—	420	77	23	0.211	0.215	74.9	-0.52	7.60	7.6	8.1	135.85	111	1.3
20-07-28	27	24.6	0.10	6.40	—	457	87	12	0.219	0.220	79.7	-0.24	7.69	7.8	8	143.65	121	2.2
20-08-25	23	21.1	0.10	6.52	—	> 24,196	87	22	0.195	0.209	75.8	-0.46	7.62	7.6	8.1	137.15	118	4.6
20-09-29	24	18.9	0.12	8.70	—	1,565	74	18	0.215	0.245	74.3	-1.64	7.96	6.5	8.1	157.95	137	1.9
20-10-15	18	10.4	0.12	11.15	—	74	64	61	0.183	0.262	79.8	-0.59	7.54	7.6	8.2	165.75	154	0.8
21-05-27	24	18.4	0.04	8.45	—	10	34	54	0.082	0.094	29.6	-1.35	7.28	7.5	8.8	60.45	54	1.3
21-06-29	—	26.2	0.08	—	—	121	70	17	0.171	0.183	67.0	-0.39	7.44	7.8	8.2	108.55	98	1.6
21-07-27	27	21.3	0.06	8.22	—	108	45	56	0.119	0.121	41.1	-0.89	8.27	7.7	8.6	60.00	68	1.8
21-08-24	27	23.4	0.10	8.89	—	238	85	14	0.198	0.211	76.7	-0.27	7.86	7.8	8.1	132.60	114	1.3
21-09-29	17	14.9	0.08	8.93	—	275	60	44	0.134	0.174	59.2	-0.52	7.93	7.8	8.3	107.90	92	4.7
21-10-25	8	8.2	0.07	11.65	—	31	49	98	0.099	0.150	49.4	-0.79	7.76	7.7	8.5	31.00	76	3.5
22-07-26	28	25.4	0.09	5.45	—	108	83	24	0.201	0.185	70.8	-0.31	7.96	7.8	8.1	129.35	111	1.4
22-08-29	26	18.4	0.08	9.37	—	173	65	70	0.151	0.169	63.2	-0.46	8.23	7.8	8.3	112.45	96	1.1
22-09-28	21	14.4	0.04	10.25	—	109	31	99	0.065	0.082	29.7	-1.48	7.33	7.4	8.9	52.65	56	3.1
23-06-26	13	15.2	0.07	9.00	119	52	48	0.120	0.146	47.6	-0.67	7.69	7.8	8.5	96.20	82	1.8	13
23-07-25	31	23.3	0.09	8.25	134	59	35	0.176	0.188	71.5	-0.45	7.69	7.8	8.2	118.30	99	0.8	31
23-08-29	25	17.7	0.07	10.05	30	58	63	0.122	0.143	53.2	-0.68	7.75	7.7	8.4	92.30	87	1.6	25
23-09-26	17	11.6	0.06	11.49	10	49	63	0.089	0.120	45.6	-1.01	7.58	7.5	8.5	78.00	72	1.8	17

Table A 32: Site ShdB Nutrient Data

SITE ShdB: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	9.42	—	8.6	<0.1	0.72	2.27	6.84	<0.010	—	<0.05	<0.05	<0.05	6.69	0.33	—	10.6	0.011
99-11-18	—	—	10.60	—	10.6	<0.1	0.71	2.55	7.31	<0.010	—	<0.05	<0.05	<0.05	6.96	0.28	—	7.7	0.010
00-10-04	—	—	21.70	—	16.3	<0.1	0.75	4.46	15.20	0.014	—	<0.05	<0.05	<0.05	11.90	0.20	—	3.7	0.006
00-11-12	—	—	6.27	—	7.4	<0.1	0.61	1.63	4.75	<0.010	—	<0.05	<0.05	<0.05	4.38	0.38	—	12.0	0.013
00-12-03	—	—	6.40	—	7.4	<0.1	0.47	1.59	4.99	<0.010	—	<0.05	0.050	0.050	4.47	0.31	—	8.5	0.010
01-06-03	—	—	13.80	—	8.5	<0.1	0.74	3.00	7.87	<0.010	—	<0.05	<0.05	<0.05	4.54	—	<0.3	5.5	0.009
01-07-03	—	—	18.40	—	9.0	0.107	0.74	3.88	9.66	0.021	—	<0.05	<0.05	<0.05	6.77	—	<0.3	3.6	0.008

01-09-05	—	—	27.20	—	13.4	0.103	0.74	5.37	14.40	0.016	—	<0.05	<0.05	0.064	9.02	—	<0.3	3.1	0.006
01-10-09	—	—	26.00	—	10.5	<0.1	0.89	5.08	12.90	0.019	—	<0.05	<0.05	<0.05	11.30	—	<0.3	2.9	0.009
01-11-18	—	—	14.30	—	17.1	<0.1	0.78	3.61	11.30	<0.010	—	<0.05	<0.05	<0.05	20.40	—	<0.3	8.4	0.010
02-06-19	—	—	12.80	—	13.1	<0.1	0.60	2.88	10.50	<0.010	—	<0.05	<0.05	<0.05	5.91	—	<0.3	8.4	0.010
02-07-17	—	—	13.90	—	9.4	<0.1	0.83	3.10	8.50	<0.010	—	<0.05	<0.05	0.070	5.32	—	0.32	7.7	0.011
02-07-17	—	—	13.80	—	9.4	<0.1	0.78	3.09	8.47	<0.010	—	<0.05	<0.05	0.080	5.28	—	<0.3	7.8	0.011
02-08-21	—	—	23.20	—	10.9	<0.1	1.01	4.68	12.50	<0.010	—	<0.05	<0.05	0.090	7.95	—	<0.3	3.5	0.007
02-09-18	—	—	10.00	—	9.6	<0.1	0.73	2.45	7.86	<0.010	—	<0.05	<0.05	<0.05	9.37	—	0.36	13.8	0.014
17-06-27	62.7	0.04	18.70	0.235	12.0	0.150	1.02	3.95	9.47	<0.050	<0.001	<0.05	0.120	0.120	3	0.20	0.30	4.0	0.011
17-07-26	85.5	0.06	24.80	0.507	12.9	0.170	1.15	5.06	11.70	0.070	0.002	<0.05	0.070	0.070	7	0.50	0.60	3.2	0.109
17-08-30	99.8	0.06	26.80	0.187	11.3	0.130	0.33	5.38	12.60	0.100	<0.001	<0.05	<0.05	<0.05	8	0.50	0.50	3.0	0.092
17-09-27	99.8	0.06	28.10	0.236	17.0	0.150	1.35	5.43	15.40	<0.050	<0.001	<0.05	<0.05	<0.05	12	0.30	0.30	3.5	0.039
17-10-24	95.6	0.05	26.70	0.358	17.9	0.100	1.08	5.39	15.50	<0.050	<0.001	<0.05	<0.05	<0.05	15	0.20	0.20	3.0	0.036
18-05-30	38.9	0.03	12.00	0.092	11.4	0.150	0.69	2.46	8.23	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.20	0.20	5.9	0.021
18-06-27	40.9	0.03	13.30	0.122	10.8	0.180	0.78	2.64	9.09	<0.050	<0.001	<0.05	<0.05	<0.05	4	0.30	0.30	10.0	0.019
18-07-31	93.5	0.06	24.20	0.440	10.3	0.200	1.32	4.56	11.50	0.100	0.002	<0.05	<0.05	<0.05	<1	0.40	0.40	4.9	0.041
18-08-28	79.6	0.04	23.60	0.380	12.5	0.190	1.18	4.53	12.30	0.060	<0.001	<0.05	<0.05	<0.05	9	0.40	0.40	4.2	0.054
18-09-26	84.6	0.06	24.90	0.400	13.1	0.180	1.07	4.88	12.40	<0.050	<0.001	<0.05	0.050	0.050	10	0.20	0.20	2.8	0.024
19-06-26	38.8	0.03	11.8	0.145	6.3	0.07	0.65	2.48	6.6	<0.05	<0.001	<0.05	<0.05	<0.05	3	—	0.4	8.8	0.009
19-07-24	75.5	0.05	20.5	0.448	11.4	0.13	0.90	4.07	10.7	<0.05	<0.001	<0.05	0.08	0.08	5	—	0.3	4.0	0.012
19-08-21	79.5	0.05	24	0.472	12.9	0.16	1.03	4.72	12.0	<0.05	<0.001	<0.05	0.06	0.06	7	—	0.2	3.5	0.015
19-09-26	20.0	0.02	6.31	0.030	6.0	0.25	0.51	1.47	4.3	<0.25	<0.001	<0.25	<0.25	<0.25	3	—	0.3	14.8	0.034
20-06-24	76.7	0.05	22.7	0.287	12.3	0.21	1.12	4.43	11.3	<0.05	<0.001	<0.05	0.090	0.090	8	—	0.3	2.9	0.005
20-07-28	86.5	0.05	24.3	0.513	13.4	0.11	1.10	4.63	12.0	<0.05	<0.001	<0.05	<0.05	<0.05	8	—	<0.2	3	0.016

20-08-25	86.7	0.04	23.2	0.324	12.5	0.07	1.14	4.34	11.2	<0.05	<0.001	<0.05	<0.05	<0.05	7	—	<0.2	3.3	0.048
20-09-29	74.0	0.04	22.5	0.022	21.8	0.15	1.08	4.41	17.0	<0.05	<0.001	<0.05	<0.05	<0.05	20	—	<0.2	4.4	0.011
20-10-15	63.7	0.03	23.7	0.238	30.6	0.18	1.29	5.01	21.3	<0.05	<0.001	<0.05	<0.05	<0.05	25	—	0.3	7.9	0.062
21-05-27	33.9	0.02	8.63	0.101	7.0	0.18	0.58	1.96	5.7	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.2	8.7	0.013
21-06-29	69.6	0.04	20.5	0.413	9.2	0.15	1.00	3.85	9.8	<0.05	<0.001	<0.05	<0.05	<0.05	6	—	0.3	4.4	0.010
21-07-27	44.8	0.03	12.3	0.211	8.6	0.27	0.60	2.53	7.3	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	8.9	0.014
21-08-24	84.5	0.05	22.9	0.501	11.6	0.16	0.94	4.73	11.6	<0.05	<0.001	<0.05	<0.045	<0.05	6	—	<0.2	4	0.013
21-09-29	59.6	0.04	17.6	0.353	13.6	0.33	0.82	3.71	10.6	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	7.8	0.028
21-10-25	48.7	0.03	14.4	0.229	15.9	0.37	0.98	3.27	10.4	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.5	12.9	0.026
22-07-26	82.5	0.05	21.5	0.489	14.8	0.18	0.98	0.98	12.6	<0.05	<0.001	<0.05	<0.05	<0.05	5	—	0.3	5	0.011
22-08-29	64.6	0.04	18.9	0.383	12.0	0.18	0.89	0.89	10.9	<0.05	<0.001	<0.05	<0.05	<0.05	1	—	0.3	7.8	0.009
22-09-28	30.9	0.02	8.76	0.073	6.8	0.32	0.56	0.56	5.4	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.4	13	0.024
23-06-26	51.7	0.04	14.1	0.307	13.4	0.21	0.66	3.01	10.4	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 1	-	< 0.2	8.3	0.016
23-07-25	58.6	0.05	21.6	0.348	14.7	0.13	0.90	4.26	10.7	< 0.05	< 0.001	< 0.05	0.06	0.06	4	-	0.2	6.1	0.009
23-08-29	57.7	0.04	15.7	0.272	11.8	0.38	0.73	3.40	8.54	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 1	-	0.5	10.3	0.016
23-09-26	48.8	0.04	13.4	0.145	7.2	0.34	0.64	2.95	6.5	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 1	-	0.3	10.6	0.018

Table A 33: Site ShdB Heavy Metals Data

SITE ShdB: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.158**	<0.001	—	—	<0.0001	0.67838	—	0.002	0.0007	**0.540**	—	0.052	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.141**	<0.001	—	—	<0.0001	0.76435	—	0.002	0.0006	0.200	—	0.054	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.009	<0.001	—	—	<0.0001	1.51604	—	0.001	0.0006	**0.347**	—	0.146	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-11-12	**0.347**	<0.001	—	—	<0.0001	0.45904	—	0.001	0.0008	**0.349**	—	0.017	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

00-12-03	**0.215**	<0.001	—	—	0.00012	0.46321	—	0.001	0.0027	0.256	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	0.019
01-06-03	0.064	<0.001	—	—	<0.0001	0.97044	—	0.002	0.0007	0.196	—	0.137	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.017	<0.001	—	—	<0.0001	1.28931	—	0.004	0.0006	0.189	—	0.154	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.008	<0.001	—	—	<0.0001	1.88586	—	0.004	<0.0005	**0.413**	—	0.166	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.006	0.00105	—	—	<0.0001	1.79648	—	0.006	0.0007	**0.430**	—	0.217	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	0.096	<0.001	—	—	<0.0001	1.04844	—	0.001	0.0008	0.164	—	0.049	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.052	<0.001	—	—	<0.0001	0.90938	—	0.001	0.0007	0.161	—	0.064	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	0.077	<0.001	—	—	<0.0001	0.98519	—	0.003	0.0008	0.199	—	0.076	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	0.076	<0.001	—	—	<0.0001	0.98098	—	0.003	0.0008	0.198	—	0.074	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.021	<0.001	—	—	<0.0001	1.61581	—	0.002	0.0005	0.275	—	0.134	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.221**	<0.001	—	—	<0.0001	0.72449	—	0.003	0.0009	**0.327**	—	0.030	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	0.037	<0.001	0.011	0.069	<0.00001	1.31259	0.0001	<0.001	<0.001	0.280	0.0010	0.180	0.007	<0.001	<0.00001	0.0010	<0.00001	0.109	0.0002	<0.001	0.003
17-07-26	**0.311**	0.0020	0.012	0.127	0.00004	1.73268	0.0009	<0.001	0.001	**0.860**	0.0009	1.230	0.007	<0.001	0.0017	0.0017	<0.00001	0.160	0.0004	0.001	0.010
17-08-30	**0.259**	0.0020	0.012	0.125	0.00003	1.86671	0.0008	<0.001	<0.001	**0.950**	0.0007	1.300	0.008	<0.001	0.0014	0.0018	<0.00001	0.171	0.0004	0.001	0.009
17-09-27	0.093	0.0020	0.014	0.119	0.00001	1.9391	0.0005	<0.001	<0.001	**0.740**	0.0008	1.220	0.001	<0.001	0.0005	0.0017	<0.00001	0.188	0.0004	<0.001	0.008
17-10-24	**0.108**	0.0010	0.013	0.100	0.00001	1.86245	0.0004	<0.001	<0.001	**0.650**	0.0009	0.618	0.0006	<0.001	0.0005	0.0011	<0.00001	0.185	0.0004	<0.001	0.009
18-05-30	0.065	<0.001	0.009	0.049	<0.00001	0.82946	0.0001	<0.001	<0.001	0.200	0.0010	0.120	0.0005	<0.001	0.0001	0.0007	<0.00001	0.068	0.0001	<0.001	0.010
18-06-28	0.092	<0.001	0.010	0.056	0.00001	0.91359	0.0002	<0.001	0.001	**0.370**	0.0007	0.210	0.0006	<0.001	0.0002	0.0009	<0.00001	0.073	0.0001	<0.001	0.022
18-07-31	0.061	0.0040	0.015	0.132	0.00001	1.65617	0.0007	<0.001	<0.001	**1.460**	0.0009	1.720	0.0012	<0.001	0.0004	0.0020	<0.00001	0.158	0.0002	<0.001	0.002
18-08-28	0.079	0.0020	0.015	0.105	0.00001	1.62218	0.0003	<0.001	<0.001	**0.760**	0.0010	0.660	0.0009	<0.001	0.0004	0.0015	<0.00001	0.153	0.0002	<0.001	0.001
18-09-26	0.050	0.0010	0.012	0.095	<0.00001	1.72205	0.0002	<0.001	<0.001	**0.620**	0.0008	0.410	0.0007	<0.001	0.0002	0.0011	<0.00001	0.166	0.0004	<0.001	0.001
19-06-26	0.081	<0.001	0.008	0.049	<0.00001	0.91359	0.0001	<0.001	<0.001	0.230	0.0007	0.084	0.0005	<0.001	<0.00001	0.0007	<0.00001	<0.001	0.0001	<0.001	0.005
19-07-24	0.044	<0.001	0.010	0.077	<0.00001	1.65617	0.0002	<0.001	<0.001	**0.350**	0.0009	0.234	0.0008	<0.001	0.0001	0.0011	<0.00001	<0.001	0.0002	<0.001	0.004
19-08-21	0.037	<0.001	0.014	0.092	<0.00001	1.62218	0.0002	<0.001	<0.001	**0.520**	0.0010	0.318	0.0009	<0.001	0.0001	0.0012	<0.00001	<0.001	0.0003	<0.001	<0.001

19-09-26	**0.251**	<0.001	0.006	0.033	0.00001	1.72205	0.0001	<0.01	<0.001	**0.330**	0.0005	0.024	0.0003	<0.001	0.0003	0.0006	<0.0001	<0.001	<0.001	<0.01	0.001
20-06-24	0.030	<0.001	0.013	0.089	<0.00001	1.56485	0.0001	<0.01	<0.001	**0.470**	0.0010	0.306	0.0008	<0.001	<0.0001	0.0014	<0.0001	0.133	0.0002	<0.01	<0.01
20-07-28	0.069	<0.001	0.013	0.103	0.00001	1.66679	0.0002	<0.01	<0.001	**0.790**	0.0010	0.528	0.0009	<0.001	0.0002	0.0014	<0.0001	0.152	0.0003	<0.01	0.001
20-08-25	**0.124**	0.0020	0.013	0.105	0.00001	1.58396	0.0003	<0.01	<0.001	**1.100**	0.0007	0.694	0.0009	<0.001	0.0003	0.0017	<0.0001	0.147	0.0003	<0.01	0.002
20-09-29	0.043	<0.001	0.018	0.092	<0.00001	1.55212	0.0001	<0.01	<0.001	**0.340**	0.0011	0.230	0.0007	<0.001	<0.0001	0.0013	<0.0001	1.550	0.0002	<0.01	0.006
20-10-15	0.041	<0.001	0.017	0.087	<0.00001	1.66892	<0.0001	<0.01	<0.001	0.200	0.0009	0.083	0.0006	<0.001	<0.0001	0.0011	<0.0001	0.136	0.0001	<0.01	0.003
21-05-27	0.037	<0.001	0.008	0.038	<0.00001	1.56485	<0.0001	<0.01	<0.001	0.200	0.0007	0.041	0.0004	<0.001	<0.0001	0.0007	<0.0001	0.050	<0.0001	<0.01	<0.01
21-06-29	0.054	0.0010	0.013	0.078	<0.00001	—	0.0001	<0.01	<0.001	**0.470**	0.0009	0.277	0.0007	<0.001	0.0001	0.0013	<0.0001	0.114	0.0002	<0.01	<0.01
21-07-27	**0.108**	<0.001	0.009	0.042	<0.00001	1.66679	<0.0001	<0.01	<0.001	0.280	0.0007	0.072	0.0006	<0.001	0.0001	0.0008	<0.0001	0.071	0.0001	<0.01	<0.01
21-08-24	0.033	<0.001	0.012	0.081	<0.00001	1.58396	<0.0001	<0.01	<0.001	0.260	0.0010	0.127	0.0009	<0.001	<0.0001	0.0011	<0.0001	0.130	0.0003	<0.01	<0.01
21-09-29	0.093	<0.001	0.012	0.066	<0.00001	1.55212	0.0001	<0.01	<0.001	**0.400**	0.0009	0.120	0.0008	<0.001	0.0002	0.0011	<0.0001	0.098	0.0002	<0.01	<0.01
21-10-25	**0.181**	<0.001	0.011	0.056	0.00001	1.66892	0.0001	<0.01	<0.001	**0.390**	0.0009	0.050	0.0005	<0.001	0.0002	0.0010	<0.0001	0.081	0.0001	<0.01	0.001
22-07-26	0.033	0.0010	0.014	0.085	<0.00001	—	0.0001	<0.01	<0.001	**0.560**	0.0010	0.294	0.001	<0.001	<0.0001	0.0013	<0.0001	0.123	0.0002	<0.01	<0.01
22-08-29	0.041	<0.001	0.012	0.070	<0.00001	—	0.0001	<0.01	<0.001	**0.380**	0.0009	0.132	0.0009	<0.001	0.0001	0.0011	<0.0001	0.109	0.0002	<0.01	0.002
22-09-28	**0.214**	<0.001	0.007	0.037	0.00001	—	0.0001	<0.01	<0.001	**0.350**	0.0006	0.047	0.0004	<0.001	0.0002	0.0006	<0.0001	0.046	<0.0001	<0.01	<0.01
23-06-26	0.084	<0.001	0.009	0.056	<0.00001	—	<0.0001	<0.01	<0.001	**0.35**	0.0008	0.072	0.0006	<0.001	0.0004	0.0008	<0.0001	0.079	0.0001	<0.01	**0.011**
23-07-25	0.030	0.001	0.012	0.079	<0.00001	—	0.0002	<0.01	<0.001	**0.50**	0.0011	0.257	0.001	<0.001	<0.0001	0.0012	<0.0001	0.117	0.0002	<0.01	<0.01
23-08-29	0.081	<0.001	0.009	0.060	<0.00001	—	0.0001	<0.01	<0.001	**0.45**	0.0008	0.106	0.0007	<0.001	0.0001	0.0009	<0.0001	0.088	0.0001	<0.01	0.002
23-09-26	**0.107**	<0.001	0.008	0.050	<0.00001	—	0.0001	<0.01	<0.001	**0.49**	0.0008	0.120	0.0005	<0.001	0.0001	0.0007	<0.0001	0.073	0.0001	<0.01	<0.01

Table A 34: Site ShdC Field and Lab Data

SITE ShdC: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	20.6	—	—	—	—	100	27	40	—	114	37.1	—	—	7.4	—	—	59.067	1.5

99-11-18	16.8	—	—	14.1	—	50	35.5	30	—	150	45.3	—	—	7.7	—	—	75.053	0.8
00-10-04	28.7	14.4	—	—	—	10	69.8	5	—	276	91.1	—	—	8.0	—	—	144.36	0.4
00-11-12	27.3	—	—	—	—	260	23.6	60	—	102	32.4	—	—	7.5	—	—	53.799	7.8
00-12-03	27.3	—	—	—	—	90	17.9	40	—	96.5	27.8	—	—	7.4	—	—	48.574	2.4
01-05-16	22.1	9.00	—	11.60	99	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	22.0	17.90	—	10.30	106	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	20.0	—	—	—	—	120	46	20	—	153	53.2	—	—	7.8	—	—	79.447	1.2
01-06-03	17.7	—	—	—	—	70	46.6	20	—	155	55	—	—	7.8	—	—	81.102	0.9
01-06-12	25.3	16.80	—	11.00	113	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	10.9	**25.50**	—	9.00	111	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	16.3	—	—	—	—	30	72.5	15	—	214	76.2	—	—	8.0	—	—	109.37	4.2
01-07-12	18.6	21.20	—	10.20	114	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	12.1	**25.10**	—	8.90	110	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	14.1	—	—	—	—	110	92.7	10	—	246	93.4	—	—	8.2	—	—	128.527	0.6
01-08-09	17.0	**25.30**	—	8.90	109	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	19.8	—	—	—	—	30	93.5	15	—	264	106	—	—	8.2	—	—	138.32	0.7
01-10-09	14.9	—	—	—	—	20	106	5	—	272	115	—	—	8.2	—	—	146.473	0.4
01-11-18	12.2	2.20	—	14.00	—	10	33	30	—	220	64.9	—	—	7.6	—	—	113.052	2
02-05-09	9.5	13.2	—	11.50	109	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	16.9	18.2	—	10.10	107	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	22.0	12.4	—	11.10	102	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	17.0	—	—	—	—	20	45.9	40	—	171	49.6	—	—	7.9	—	—	85.836	0.78
02-06-20	12.8	20.70	—	10.20	113	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	—	**25.50**	—	9.30	113	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	15.8	—	—	—	—	340	48.7	40	—	155	51.1	—	—	7.8	—	—	79.797	1.34
02-07-18	17.0	21.20	—	9.80	110	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	19.0	20.70	—	11.50	129	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	—	**22.70**	—	10.20	120	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	10	82.5	15	—	230	87.9	—	—	8.2	—	—	—	0.77
02-08-21	—	—	—	—	—	30	82.4	20	—	228	87.4	—	—	8.2	—	—	—	0.57
02-08-30	8.7	20.70	—	11.30	126	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	20.1	—	—	—	—	310	31.1	60	—	136	41.7	—	—	7.5	—	—	—	4.4
02-09-19	18.7	15.30	—	11.10	111	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	20.0	13.70	—	9.30	90	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	16.3	20.40	—	8.30	92	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	8.1	**22.70**	—	7.20	84	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	—	**23.60**	—	7.20	86	—	—	—	—	—	—	—	—	—	—	—	—	—

03-07-21	—	20.00	—	7.80	85	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	—	20.90	—	6.90	76	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	—	19.40	—	7.80	83	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	—	16.20	—	7.00	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	—	18.60	—	**3.20**	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	—	12.20	—	**0.70**	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	—	13.10	—	**4.90**	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	—	12.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	—	4.50	—	12.50	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	—	9.00	—	11.20	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	—	17.60	0.10	7.23	—	—	—	—	1721	—	—	—	—	—	—	—	—	—	—
06-08-08	—	19.10	0.10	6.98	—	—	—	—	96	—	—	—	—	—	—	—	—	—	—
06-09-25	—	13.14	0.09	10.98	—	—	—	—	154	—	—	—	7.8	—	—	—	—	—	—
06-11-01	—	6.77	0.04	12.53	—	—	—	—	93	—	—	—	7.3	—	—	—	—	—	—
07-05-14	—	9.25	0.06	15.44	—	18.1	—	—	122	—	—	—	7.7	—	—	—	—	—	—
07-06-20	—	15.17	0.07	12.32	—	45.7	—	—	150	—	—	—	8.0	—	—	—	—	—	—
07-07-17	—	19.44	0.07	11.32	—	26.6	—	—	135	—	—	—	8.0	—	—	—	—	—	—
07-08-15	—	16.02	0.10	12.39	—	**2419.6**	—	—	202	—	—	—	8.0	—	—	—	—	—	—
07-09-18	—	10.18	0.10	14.57	—	51.2	—	—	202	—	—	—	7.9	—	—	—	—	—	—
07-10-18	—	5.84	0.09	15.65	—	11.0	—	—	185	—	—	—	7.6	—	—	—	—	—	—
08-05-20	—	9.96	0.05	11.37	—	107.6	—	—	105	—	—	—	7.3	—	—	—	—	—	—
08-06-26	—	16.41	0.09	9.88	—	151.5	—	—	187	—	—	—	7.8	—	—	—	—	—	—
08-07-23	—	18.57	0.10	10.55	—	290.9	—	—	213	—	—	—	8.0	—	—	—	—	—	—
08-08-21	—	13.80	0.07	11.02	—	71.7	—	—	153	—	—	—	7.8	—	—	—	—	—	—
08-09-18	—	12.50	0.08	10.12	—	35.0	—	—	165	—	—	—	7.6	—	—	—	—	—	—
08-10-22	—	6.61	0.06	11.84	—	125.9	—	—	118	—	—	—	7.9	—	—	—	—	—	—
09-05-19	—	8.87	0.05	12.15	—	316.1	—	—	79	—	—	—	7.1	—	—	75	—	—	—
09-06-25	—	15.75	0.06	9.98	—	83.6	—	—	110	—	—	—	7.4	—	—	87	—	—	—
09-07-22	—	18.70	0.09	9.51	—	**980.4**	—	—	160	—	—	—	7.8	—	—	120	—	—	—
09-08-20	—	19.59	0.10	9.83	—	31.3	—	—	187	—	—	—	7.9	—	—	135	—	—	—
09-09-24	—	14.97	0.09	10.73	—	105.0	—	—	157	—	—	—	7.9	—	—	126	—	—	—
09-10-21	—	6.38	0.04	12.82	—	86.0	—	—	61	—	—	—	7.1	—	—	48	—	—	—
10-05-27	—	10.33	0.09	10.96	—	16.0	—	—	144	—	—	—	8.4	—	—	130	—	—	—
10-06-24	—	16.48	0.09	9.40	—	44.1	—	—	157	—	—	—	8.1	—	—	122	—	—	—
10-07-21	—	19.34	0.11	9.23	—	139.6	—	—	199	—	—	—	8.2	—	—	145	—	—	—
10-08-24	—	16.39	0.11	7.11	—	20.2	—	—	200	—	—	—	8.4	—	—	155	—	—	—
10-09-22	—	12.17	0.07	7.12	—	73.3	—	—	113	—	—	—	7.9	—	—	98	—	—	—

11-07-07	—	18.97	0.08	—	—	—	—	—	145	—	—	—	8.4	—	—	—	—	—
11-07-28	—	16.10	0.05	—	—	—	—	—	87	—	—	—	8.3	—	—	—	—	—
11-08-22	—	19.02	0.08	—	—	—	—	—	140	—	—	—	8.5	—	—	—	—	—
12-06-26	—	14.50	0.04	10.15	—	166.4	—	—	159	—	—	—	8.1	—	—	—	—	—
12-07-25	—	16.26	0.07	10.26	—	34.1	—	—	118	—	—	—	8.0	—	—	—	—	—
12-08-28	—	18.30	0.09	8.94	—	**816.4**	—	—	153	—	—	—	8.0	—	—	—	—	—
12-09-25	10.0	11.37	0.10	7.36	—	80.1	—	—	157	—	—	—	8.1	—	—	—	—	—
12-10-17	4.0	8.33	0.07	6.98	—	**410.6**	—	—	980	—	—	—	8.4	—	—	89	—	—
13-05-30	14.0	11.40	0.03	12.41	—	299.0	—	—	52	—	—	—	7.9	—	—	—	—	—
13-06-27	13.0	14.19	0.09	8.18	—	57.0	—	—	152	—	—	—	8.2	—	—	—	—	—
13-07-30	20.0	18.46	0.06	9.30	—	111.0	—	—	136	—	—	—	7.4	—	—	—	—	—
13-08-27	24.0	18.03	0.12	7.41	—	187.2	—	—	216	—	—	—	8.5	—	—	—	—	—
13-10-01	20.0	12.92	0.09	9.91	—	27.5	—	—	154	—	—	—	7.7	—	—	—	—	—
13-10-29	5.0	3.74	0.09	9.56	—	—	—	—	192	—	—	—	8.1	—	—	—	—	—
14-06-25	16.0	15.01	0.06	20.32	—	235.9	—	—	104	—	—	—	7.1	—	—	—	—	—
14-07-23	28.0	**23.50**	0.10	9.43	—	52.9	—	—	216	—	—	—	8.9	—	—	—	—	—
14-08-28	21.0	18.60	0.11	11.53	—	51.2	—	—	198	—	—	—	7.8	—	—	—	—	—
14-09-24	8.0	10.41	0.05	—	—	307.6	—	—	79	—	—	—	7.5	—	—	—	—	—
14-10-29	11.0	8.11	0.05	—	—	53.7	—	—	77	—	—	—	6.7	—	—	—	—	—
15-06-01	14.0	13.30	0.10	10.17	—	—	—	—	130	—	—	—	7.9	—	—	—	—	—
15-06-29	16.0	13.47	0.07	—	—	129.8	—	—	120	—	—	—	7.8	—	—	—	—	—
15-08-05	23.0	20.90	0.12	9.40	—	73.8	—	—	244	—	—	—	8.0	—	—	—	—	—
15-08-26	24.0	21.28	0.12	10.95	—	200.5	—	—	230	—	—	—	8.2	—	—	—	—	—
15-10-06	14.0	10.48	0.06	9.46	—	>200.5*	—	—	89	—	—	—	7.2	—	—	—	—	—
15-11-03	6.0	6.07	0.05	13.20	—	73.8	—	—	64	—	—	—	7.2	—	—	—	—	—
16-05-31	21.0	16.70	0.08	11.10	—	85.5	—	—	142	—	—	—	8.1	—	—	109	—	—
16-06-29	22.0	19.30	0.10	9.32	—	195.6	—	—	189	—	—	—	8.0	—	—	138	—	—
16-07-27	25.0	21.00	0.10	10.25	—	322.5	—	—	203	—	—	—	8.3	—	—	142	—	—
16-08-24	25.0	19.80	0.11	9.94	—	95.9	—	—	212	—	—	—	8.4	—	—	153	—	—
16-09-28	13.0	10.60	0.13	12.88	—	34.5	—	—	190	—	—	—	8.1	—	—	170	—	—
16-10-25	5.0	7.00	0.10	13.10	—	34.1	—	—	138	—	—	—	7.7	—	—	137	—	—
17-05-31	13.0	11.2	0.06	11.55	—	64.4	—	—	89	—	—	—	7.5	—	—	79.3	—	—
17-06-27	23.0	17.6	0.10	11.91	—	24.1	68	15	184	206	78.6	0.04	8.1	8.2	8.2	139.1	108.0	0.60
17-07-26	23.0	17.4	0.12	11.43	—	88.2	81	10	213	251	95.7	0.19	8.1	8.2	8.0	162.5	129.0	0.90
17-08-30	20.0	15.4	0.12	12.75	—	38.0	97	8	207	259	109	0.71	8.4	8.6	7.9	155.6	143.0	1.00
17-09-27	—	16.0	0.12	10.52	—	33.1	96	8	216	267	110	0.32	8.0	8.2	7.9	169.7	143.0	1.20
17-10-24	20.0	12.5	0.12	11.41	—	13.0	94	15	197	268	106	0.10	7.7	8.0	7.9	168.4	146.0	0.70

18-05-30	17.0	15.10	0.09	11.55	—	12.0	50	22	148	181	62.3	-0.57	7.4	7.8	8.4	119	92	1.1
18-06-28	—	16.80	0.08	10.23	—	96.0	54	47	134	173	61	-0.44	7.3	7.9	8.3	105	92	1.7
18-07-31	29.0	22.20	0.12	10.79	—	78.8	93	6	233	240	98.1	0.28	8.3	8.2	7.9	160	132	0.7
18-08-28	—	19.40	0.10	10.98	—	33.6	86	7	185	249	101	0.25	8.1	8.2	7.9	135	132	0.5
18-09-26	21.0	12.50	0.12	11.04	—	40.2	84	5	196	255	102	0.14	7.8	8.1	8	163	135	0.6
19-06-26	17.0	14.2	0.07	11.77	—	52.4	47	41	0.114	156	53.9	-0.86	7.13	7.6	8.5	92.30	86	1.2
19-07-24	26.0	20.4	0.11	10.14	—	399.0	80	14	0.212	230	86.2	0.06	7.87	8.1	8	150.80	127	0.8
19-08-21	25.0	18.6	0.12	7.80	—	323.2	81	10	0.221	255	96.2	-0.19	7.54	7.8	7.8	164.45	135	1.0
19-09-26	14.0	12.7	0.04	12.82	—	**538.0**	30	90	0.067	88	27.1	-1.82	6.87	7.1	8.9	55.90	62	7.8
20-06-24	30	**22.7**	0.11	8.85	—	241	83	11	0.230	0.264	103.0	0.05	8.18	8.0	8	156.00	137	0.9
20-07-28	26	21.8	0.12	9.59	—	309	85	6	0.235	0.253	104.0	0.26	8.35	8.2	7.9	163.15	138	0.7
20-08-25	23	18.9	0.11	11.03	—	**1,789**	89	5	0.212	0.245	104.0	0.38	8.41	8.3	7.9	156.00	139	0.8
20-09-29	23	18.2	0.12	11.18	—	**2,851**	85	12	0.223	0.261	99.6	-0.35	8.60	7.6	8	166.40	149	2.8
20-10-15	18	10.4	0.14	12.19	—	**471**	79	35	0.206	0.294	97.9	-0.20	7.88	7.8	8	185.90	171	5.6
21-05-27	24	18.3	0.05	9.35	—	10	49	45	0.092	0.143	49.7	-0.76	7.02	7.7	8.5	68.25	87	3.1
21-06-29	—	**23.3**	0.10	—	—	52	80	9	0.216	0.236	100.0	0.02	7.50	8.0	8	144.95	134	0.6
21-07-27	26	20.0	0.07	9.60	—	41	53	47	0.153	0.162	56.4	-0.38	8.57	8.0	8.4	76.00	92	2.4
21-08-24	26	21.7	0.11	10.25	—	131	89	8	0.224	0.250	96.0	0.34	8.53	8.3	8	155.35	141	1.2
21-09-29	16	14.8	0.09	11.10	—	85	70	31	0.153	0.202	73.9	0.14	8.66	8.3	8.2	124.15	115	2.3
21-10-25	8	8.7	0.09	10.65	—	52	63	52	0.137	0.203	68.7	-0.34	7.77	7.9	8.2	52.00	107	2.4
22-07-26	27	**24.1**	0.11	8.24	—	41	91	12	0.238	0.228	99.4	0.47	8.55	8.4	7.9	157.30	137	0.7
22-08-29	26	19.1	0.11	12.80	—	**437**	72	16	0.202	0.226	86.8	0.70	8.95	8.8	8.1	148.20	126	0.7
22-09-28	21	14.3	0.05	10.16	—	74	40	73	0.085	0.124	42.6	-1.01	7.22	7.6	8.6	68.25	80	4.5
23-06-26	14	15.6	0.09	9.65	—	63	63	36	0.164	0.201	69.7	-0.23	8.13	8.0	8.2	129.35	113	1.4
23-07-25	30	**23.9**	0.11	8.66	—	399	72	17	0.238	0.243	99.8	0.17	8.57	8.2	8	157.30	135	0.5
23-08-29	20	17.9	0.08	9.80	—	41	56	52	0.139	0.162	57.7	-0.46	8.27	7.9	8.4	104.65	98	1.6
23-09-26	17	11.9	0.09	12.06	—	10	61	30	0.134	0.182	68.5	-0.55	8.06	7.7	8.3	116.35	107	1.1

Table A 35: Site ShdC Nutrient Data

SITE ShdC: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	10.90	—	9.7	<0.1	1.11	2.38	7.88	<0.010	—	<0.05	**0.080**	0.800	10.1	0.35	—	9.0	**0.017**
99-11-18	—	—	13.20	—	14.0	<0.1	1.09	2.96	8.71	<0.010	—	<0.05	<0.05	<0.05	13.2	0.31	—	6.6	**0.010**

00-10-04	—	—	26.90	—	24.2	<0.1	1.37	5.83	17.30	<0.010	—	<0.05	<0.05	<0.05	26.4	0.30	—	3.8	0.007
00-11-12	—	—	9.43	—	11.0	<0.1	1.47	2.16	7.10	0.021	—	<0.05	0.200	0.200	6.6	0.61	—	12.1	0.035
00-12-03	—	—	8.08	—	11.3	<0.1	0.68	1.86	7.44	<0.010	—	<0.05	0.250	0.250	6.8	0.29	—	7.6	0.015
01-06-03	—	—	15.70	—	10.4	<0.1	1.00	3.39	8.19	<0.010	—	<0.05	<0.05	<0.05	12.6	—	<0.3	5.5	0.012
01-06-03	—	—	16.30	—	10.4	<0.1	1.05	3.48	8.54	<0.010	—	<0.05	<0.05	<0.05	12.8	—	<0.3	5.4	0.016
01-07-03	—	—	22.50	—	11.2	<0.1	1.12	4.86	9.51	<0.010	—	<0.05	<0.05	<0.05	16.2	—	<0.3	3.7	0.014
01-08-07	—	—	27.90	—	11.1	<0.1	1.66	5.75	10.30	<0.010	—	<0.05	<0.05	<0.05	15.7	—	<0.3	3.1	0.009
01-09-05	—	—	30.90	—	11.4	<0.1	1.27	6.97	10.40	<0.010	—	<0.05	<0.05	<0.05	20.8	—	<0.3	3.0	0.008
01-10-09	—	—	33.40	—	10.7	<0.1	1.35	7.67	9.59	<0.010	—	<0.05	<0.05	<0.05	19.7	—	<0.3	3.0	0.012
01-11-18	—	—	18.90	—	21.8	<0.1	1.22	4.28	13.90	<0.010	—	<0.05	0.560	0.610	30.0	—	0.81	6.8	0.013
02-06-19	—	—	14.70	—	15.5	<0.1	0.87	3.12	12.00	<0.010	—	<0.05	<0.05	0.070	11.4	—	<0.3	8.0	0.130
02-07-17	—	—	15.20	—	11.3	<0.1	1.16	3.17	9.45	<0.010	—	<0.05	<0.05	0.100	9.4	—	0.30	6.7	0.018
02-08-21	—	—	26.40	—	12.2	<0.1	1.51	5.35	11.90	<0.010	—	<0.05	<0.05	<0.05	12.0	—	<0.3	4.0	0.005
02-08-21	—	—	26.20	—	12.2	<0.1	1.54	5.34	12.00	<0.010	—	<0.05	<0.05	<0.05	12.0	—	<0.3	3.9	0.005
02-09-18	—	—	12.40	—	11.2	<0.1	1.33	2.63	9.54	<0.010	—	<0.05	0.140	0.190	12.0	—	0.60	12.8	0.026
17-06-27	66.9	0.03	23.80	0.997	12.9	0.140	1.21	4.65	10.00	<0.050	<0.001	<0.05	<0.05	<0.05	14	0.20	0.20	3.6	0.009
17-07-26	79.7	0.02	23.70	1.190	13.4	0.120	1.19	5.83	9.65	<0.050	<0.001	<0.05	0.130	0.130	20	0.20	0.30	1.9	0.009
17-08-30	93.3	0.02	32.90	3.490	11.1	0.140	1.22	6.52	8.34	<0.050	<0.001	<0.05	0.090	0.090	23	0.10	<0.2	1.4	0.006
17-09-27	94.5	0.02	33.50	1.410	12.0	0.150	1.31	6.39	9.08	<0.050	<0.001	<0.05	0.160	0.160	21	0.20	0.40	1.8	0.009
17-10-24	93.1	0.02	31.90	0.875	14.9	0.120	1.22	6.43	9.18	<0.050	<0.001	<0.05	<0.05	<0.05	25	0.10	<0.2	2.1	0.013
18-05-30	49.7	0.02	19.00	0.295	15.1	0.130	0.96	3.60	10.30	<0.050	<0.001	<0.05	0.270	0.270	11	0.20	0.50	4.3	0.018
18-06-27	53.6	0.02	18.80	0.400	14.1	0.170	0.95	3.42	10.60	<0.050	<0.001	<0.05	0.240	0.240	10	0.30	0.50	6.3	0.014
18-07-31	91.6	0.03	30.50	1.360	11.0	0.170	1.18	5.34	7.90	<0.050	<0.001	<0.05	0.180	0.180	18	0.10	0.30	2.0	0.011
18-08-28	84.7	0.02	31.40	1.260	12.5	0.160	1.31	5.56	9.14	<0.050	<0.001	<0.05	0.200	0.200	18	0.20	0.40	2.4	0.004

18-09-26	83.0	0.02	31.40	0.982	12.9	0.180	1.01	5.84	8.07	<0.050	<0.001	<0.05	0.280	0.280	23	0.10	0.40	1.7	0.007
19-06-26	46.8	0.02	16.3	0.175	11.6	0.12	0.90	3.21	8.4	<0.05	<0.001	<0.05	0.160	0.160	9	—	0.4	6.9	0.012
19-07-24	79.0	0.03	26.4	0.935	14.0	0.13	1.11	4.93	9.7	<0.05	<0.001	<0.05	0.210	0.210	17	—	0.4	3.6	0.015
19-08-21	80.5	0.02	29.6	0.477	14.1	0.15	1.26	5.42	10.5	<0.05	<0.001	<0.05	0.350	0.350	20	—	0.5	2.8	0.011
19-09-26	30.0	0.02	8.21	0.036	8.0	0.25	0.86	1.61	6.0	<0.25	<0.001	<0.25	<0.25	<0.25	5	—	0.4	13.5	0.054
20-06-24	82.2	0.02	31.8	0.773	13.1	0.21	1.32	5.81	8.8	<0.05	<0.001	<0.05	0.750	0.750	20	—	0.9	1.9	0.003
20-07-28	83.7	0.02	32.6	1.250	14.2	0.09	1.12	5.58	8.2	<0.05	<0.001	<0.05	0.710	0.710	19	—	0.7	1.8	0.008
20-08-25	87.3	0.02	32.7	1.640	12.8	0.06	1.02	5.52	7.0	<0.05	<0.001	<0.05	0.810	0.810	20	—	0.6	1.5	0.011
20-09-29	84.7	0.02	31.1	0.317	19.0	0.12	1.26	5.32	12.1	<0.05	<0.001	<0.05	0.380	0.380	23	—	0.4	3.1	0.018
20-10-15	78.5	0.02	30.2	0.466	32.7	0.09	1.76	5.46	20.8	<0.05	<0.001	<0.05	0.590	0.590	24	—	0.7	4.8	0.028
21-05-27	48.7	0.02	15.4	0.229	11.3	0.16	0.82	2.73	9.1	<0.05	<0.001	<0.05	0.170	0.170	9	—	0.4	9.5	0.020
21-06-29	79.2	0.02	31.1	0.744	12.8	0.18	1.21	5.53	9.2	<0.05	<0.001	<0.05	0.610	0.610	19	—	0.8	4.2	0.012
21-07-27	52.5	0.02	17.5	0.494	11.9	0.24	0.88	3.08	8.0	<0.05	<0.001	<0.05	0.270	0.270	8	—	0.5	9.1	0.016
21-08-24	87.3	0.03	29.8	1.640	16.2	0.16	1.15	5.24	10.3	<	<0.001	<0.05	0.510	0.510	18	—	0.5	3.7	0.011
21-09-29	68.6	0.03	22.8	1.290	14.6	0.26	1.05	4.13	9.1	<0.05	<0.001	<0.05	0.360	0.360	12	—	0.5	7.8	0.017
21-10-25	62.5	0.03	20.9	0.467	19.2	0.27	1.34	4.02	11.6	<0.05	<0.001	<0.05	0.260	0.260	10	—	0.7	9.6	0.016
22-07-26	88.8	0.03	31.1	2.100	15.4	0.16	1.21	5.28	9.9	<0.05	<0.001	<0.05	0.370	0.370	17	—	0.5	2.7	0.007
22-08-29	67.7	0.03	27	4.020	16.8	0.18	1.13	4.71	10.9	<0.05	<0.001	<0.05	0.490	0.490	15	—	0.6	4.4	0.009
22-09-28	39.8	0.02	13.1	0.149	11.8	0.26	0.97	2.40	7.9	0.060	<0.001	<0.05	0.240	0.240	7	—	0.6	10.8	0.030
23-06-26	62.4	0.03	21.2	0.587	18.4	0.2	0.89	4.07	11.7	< 0.05	< 0.001	< 0.05	0.33	0.33	10	-	0.4	6.8	0.016
23-07-25	70.9	0.03	30.8	1.060	18.3	0.13	1.15	5.56	10.9	< 0.05	< 0.001	< 0.05	0.43	0.43	17	-	0.6	5.0	0.007
23-08-29	55.5	0.04	17.5	0.414	14.8	0.34	1.03	3.41	9.35	< 0.05	< 0.001	< 0.05	0.16	0.16	8	-	0.6	8.6	0.023
23-09-26	60.7	0.03	20.7	0.286	14.1	0.25	0.98	4.08	8.8	< 0.05	< 0.001	< 0.05	0.44	0.44	12	-	0.6	6.5	0.013

Table A 36: Site ShdC Heavy Metals Data

SITE ShdC: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.113**	<0.001	—	—	<0.0001	0.76645	—	0.002	0.0009	0.230	—	0.023	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	0.066	<0.001	—	—	<0.0001	0.93885	—	0.003	0.0007	0.170	—	0.029	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.016	<0.001	—	—	<0.0001	1.90928	—	0.001	0.0014	0.090	—	0.045	—	<0.005	<0.001	—	<0.001	—	—	—	0.010
00-11-12	**0.396**	<0.001	—	—	<0.0001	0.6679	—	0.002	0.0013	**0.460**	—	0.030	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.187**	<0.001	—	—	<0.0001	0.57168	—	0.001	0.0007	0.271	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	0.054	<0.001	—	—	<0.0001	1.10542	—	0.002	0.0008	0.153	—	0.032	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	0.056	<0.001	—	—	<0.0001	1.14343	—	0.002	0.0008	0.154	—	0.034	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.021	<0.001	—	—	<0.0001	1.59245	—	0.004	0.0008	0.083	—	0.050	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.014	<0.001	—	—	<0.0001	1.95827	—	0.003	0.0006	0.098	—	0.057	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.014	<0.001	—	—	<0.0001	2.22695	—	0.004	0.0006	0.094	—	0.047	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.015	<0.001	—	—	<0.0001	2.41918	—	0.006	0.0006	0.069	—	0.051	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.120**	<0.001	—	—	<0.0001	1.35282	—	0.002	0.001	0.187	—	0.036	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.064	<0.001	—	—	<0.0001	1.02946	—	0.001	0.0009	0.200	—	0.025	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	0.075	<0.001	—	—	<0.0001	1.0611	—	0.003	0.0009	0.228	—	0.034	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.012	<0.001	—	—	<0.0001	1.84116	—	0.003	0.0005	0.092	—	0.042	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.011	<0.001	—	—	<0.0001	1.83052	—	0.004	0.0006	0.092	—	0.037	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.248**	<0.001	—	—	<0.0001	0.86309	—	0.004	0.0013	**0.394**	—	0.018	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

17-06-27	0.026	<0.001	0.015	0.064	<0.00001	1.64342	<0.00001	<0.01	<0.01	0.100	0.0011	0.031	0.0008	<0.01	<0.00001	0.0010	<0.00001	0.249	0.0005	<0.01	0.003
17-07-26	0.027	<0.001	0.020	0.078	<0.00001	2.00727	<0.00001	<0.01	<0.01	0.060	0.0010	0.041	0.0012	<0.01	0.0001	0.0010	<0.00001	0.642	0.0009	<0.01	0.001
17-08-30	0.024	<0.001	0.021	0.073	<0.00001	2.291	<0.00001	<0.01	<0.01	0.050	0.0011	0.047	0.0015	<0.01	<0.00001	0.0009	<0.00001	0.382	0.001	<0.01	0.004
17-09-27	0.030	<0.001	0.025	0.079	<0.00001	2.31236	<0.00001	<0.01	<0.01	0.060	0.0013	0.040	0.0015	<0.01	<0.00001	0.0011	<0.00001	0.403	0.001	<0.01	0.002
17-10-24	0.018	<0.001	0.017	0.083	<0.00001	2.22695	<0.00001	<0.01	<0.01	0.050	0.0012	0.047	0.0008	<0.01	<0.00001	0.0009	<0.00001	0.374	0.0009	<0.01	0.004
18-05-30	0.057	<0.001	0.015	0.054	<0.00001	1.29778	<0.00001	<0.01	<0.01	0.120	0.0010	0.033	0.0009	<0.01	<0.00001	0.0008	<0.00001	0.223	0.0004	<0.01	<0.01
18-06-28	0.068	<0.001	0.016	0.048	<0.00001	1.27027	<0.00001	<0.01	<0.01	0.180	0.0010	0.029	0.0009	<0.01	<0.00001	0.0008	<0.00001	0.205	0.0004	<0.01	0.001
18-07-31	0.025	<0.001	0.023	0.075	<0.00001	2.05843	<0.00001	<0.01	<0.01	0.050	0.0013	0.033	0.0017	<0.01	<0.00001	0.0011	<0.00001	0.341	0.0008	<0.01	0.002
18-08-28	0.018	<0.001	0.024	0.071	<0.00001	2.12027	<0.00001	<0.01	<0.01	0.060	0.0012	0.031	0.0018	<0.01	<0.00001	0.0010	<0.00001	0.365	0.0009	<0.01	<0.01
18-09-26	0.019	<0.001	0.019	0.065	<0.00001	2.1416	<0.00001	<0.01	<0.01	0.070	0.0011	0.033	0.0013	<0.01	<0.00001	0.0007	<0.00001	0.360	0.0013	<0.01	<0.01
19-06-26	0.071	<0.001	0.013	0.046	<0.00001	1.27027	<0.00001	<0.01	<0.01	0.190	0.0009	0.023	0.0007	<0.01	<0.00001	0.0008	<0.00001	<0.01	0.0003	<0.01	<0.01
19-07-24	0.031	<0.001	0.017	0.068	<0.00001	2.05843	<0.00001	<0.01	<0.01	0.100	0.0011	0.032	0.0012	<0.01	<0.00001	0.0010	<0.00001	<0.01	0.0008	<0.01	<0.01
19-08-21	0.038	<0.001	0.023	0.078	<0.00001	2.12027	<0.00001	<0.01	<0.01	0.060	0.0012	0.035	0.0013	<0.01	<0.00001	0.0011	<0.00001	<0.01	0.0007	<0.01	<0.01
19-09-26	**0.240**	<0.001	0.011	0.034	0.00001	2.1416	0.0002	<0.01	0.001	**0.390**	0.0006	0.021	0.0003	<0.01	0.0004	0.0008	<0.00001	<0.01	0.0002	<0.01	0.001
20-06-24	0.022	<0.001	0.027	0.077	<0.00001	2.16293	<0.00001	<0.01	<0.01	0.030	0.0013	0.022	0.0018	<0.01	<0.00001	0.0013	<0.00001	0.342	0.001	<0.01	<0.01
20-07-28	0.025	<0.001	0.026	0.072	<0.00001	2.18427	<0.00001	<0.01	<0.01	0.040	0.0013	0.028	0.0019	<0.01	<0.00001	0.0011	<0.00001	0.343	0.0011	<0.01	<0.01
20-08-25	0.034	<0.001	0.025	0.067	<0.00001	2.18427	<0.00001	<0.01	<0.01	0.040	0.0012	0.043	0.0019	<0.01	<0.00001	0.0010	<0.00001	0.337	0.0014	<0.01	<0.01
20-09-29	**0.104**	<0.001	0.025	0.078	<0.00001	2.09041	<0.00001	<0.01	<0.01	0.110	0.0013	0.064	0.0011	<0.01	0.0001	0.0013	<0.00001	0.325	0.0009	<0.01	<0.01
20-10-15	**0.180**	<0.001	0.027	0.071	<0.00001	2.05416	<0.00001	<0.01	0.001	0.230	0.0014	0.024	0.0012	<0.01	0.0002	0.0014	<0.00001	0.316	0.0011	<0.01	0.005
21-05-27	**0.142**	<0.001	0.013	0.039	<0.00001	2.16293	<0.00001	<0.01	<0.01	0.210	0.0009	0.017	0.0006	<0.01	0.0001	0.0009	<0.00001	0.146	0.0004	<0.01	<0.01
21-06-29	0.030	<0.001	0.025	0.069	<0.00001	—	<0.00001	<0.01	<0.01	0.040	0.0012	0.026	0.0014	<0.01	<0.00001	0.0011	<0.00001	0.302	0.001	<0.01	<0.01
21-07-27	**0.107**	<0.001	0.015	0.039	<0.00001	2.18427	<0.00001	<0.01	<0.01	0.280	0.0009	0.025	0.0008	<0.01	0.0001	0.0009	<0.00001	0.149	0.0005	<0.01	<0.01
21-08-24	0.038	<0.001	0.023	0.062	<0.00001	2.18427	<0.00001	<0.01	<0.01	0.100	0.0013	0.023	0.0017	<0.01	<0.00001	0.0011	<0.00001	0.285	0.0012	<0.01	<0.01
21-09-29	0.076	<0.001	0.019	0.049	<0.00001	2.09041	<0.00001	<0.01	<0.01	0.210	0.0012	0.025	0.0012	<0.01	0.0001	0.0010	<0.00001	0.220	0.0007	<0.01	<0.01

21-10-25	**0.102**	<0.001	0.018	0.045	<0.00001	2.05416	<0.00001	<0.001	<0.001	0.290	0.0012	0.020	0.001	<0.001	<0.00001	0.0010	<0.00001	0.210	0.0008	<0.001	<0.001
22-07-26	0.021	<0.001	0.068	0.068	<0.00001	—	<0.00001	<0.001	<0.001	0.050	0.0014	0.022	0.0016	<0.001	<0.00001	0.0012	<0.00001	0.302	0.001	<0.001	<0.001
22-08-29	0.031	<0.001	0.057	0.057	<0.00001	—	<0.00001	<0.001	<0.001	0.100	0.0013	0.020	0.0015	<0.001	<0.00001	0.0010	<0.00001	0.281	0.001	<0.001	<0.001
22-09-28	**0.178**	<0.001	0.038	0.038	<0.00001	—	0.0001	<0.001	0.001	**0.330**	0.0009	0.023	0.0006	<0.001	0.0002	0.0008	<0.00001	0.117	0.0003	<0.001	<0.001
23-06-26	0.066	<0.001	0.016	0.052	<0.00001	—	<0.00001	<0.001	<0.001	0.27	0.0013	0.019	0.0014	<0.001	<0.00001	0.0009	<0.00001	0.219	0.0007	<0.001	<0.001
23-07-25	0.023	<0.001	0.021	0.065	<0.00001	—	<0.00001	<0.001	<0.001	0.08	0.0015	0.023	0.0016	<0.001	<0.00001	0.0011	<0.00001	0.289	0.0011	<0.001	<0.001
23-08-29	0.078	<0.001	0.014	0.044	<0.00001	—	<0.00001	<0.001	<0.001	**0.34**	0.0010	0.024	0.0007	<0.001	0.0001	0.0009	<0.00001	0.172	0.0004	<0.001	0.001
23-09-26	0.057	<0.001	0.016	0.048	<0.00001	—	<0.00001	<0.001	<0.001	0.20	0.0012	0.025	0.0008	<0.001	<0.00001	0.0008	<0.00001	0.202	0.0006	<0.001	<0.001

Table A 37: Site ShdD Field and Lab Data

SITE ShdD: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		TURB (NTU)
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	60.0	28	50	—	103	35.9	—	—	7.4	—	—	53.9	9.00
99-11-18	—	—	—	14.5	—	10.0	33.7	30	—	122	40.4	—	—	7.7	—	—	60.2	2.60
00-10-04	—	—	—	—	—	10.0	65.2	5	—	194	72.3	—	—	8.2	—	—	101.9	0.90
00-11-12	—	—	—	—	—	200.0	18	60	—	82.9	27.5	—	—	7.3	—	—	43.5	8.80
00-12-03	-3.0	—	—	-	—	80.0	16	60	—	74.7	23.6	—	—	7.4	—	—	37.9	7.20
01-05-16	12.6	9.0	—	11.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	19.6	18.4	—	10.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	60.0	44.1	30	—	126	45.6	—	—	7.8	—	—	66.4	1.30
01-06-12	23.8	18.4	—	11.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	30.0	**27.3**	—	9.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	20.0	64	20	—	164	60.2	—	—	8.6	—	—	83.7	1.30
01-07-12	24.5	**22.7**	—	9.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	24.8	**29.8**	—	8.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	30.0	81.3	10	—	196	77.6	—	—	8.5	—	—	103.3	0.50
01-08-09	27.8	**26.3**	—	9.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	80.0	81.6	10	—	197	77.3	—	—	8.4	—	—	104.0	1.50
01-10-09	—	—	—	—	—	20.0	88.1	10	—	210	86.3	—	—	8.3	—	—	112.8	1.00
01-11-18	2.0	—	—	—	—	40.0	32.5	30	—	188	58.9	—	—	7.7	—	—	95.5	2.80

02-05-09	15.7	14.7	—	11.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	21.3	19.6	—	10.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	10.8	11.1	—	11.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	30.0	44.7	50	—	143	46.0	—	—	7.9	—	—	71.5	1.41	
02-06-20	26.5	**24.1**	—	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	29.2	**27.7**	—	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	60.0	48.1	50	—	135	47.8	—	—	8.5	—	—	70.1	2.18	
02-07-18	23.7	22.3	—	10.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	24.8	**24.1**	—	10.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	29.0	**25.3**	—	9.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	50.0	73.3	20	—	186	73.6	—	—	8.3	—	—	—	1.44	
02-08-30	20.5	21.4	—	11.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	210.0	26.7	80	—	111	35.9	—	—	7.5	—	—	—	4.40	
02-09-19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	17.8	16.10	—	9.50	95	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	28.9	21.80	—	8.00	92	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	27.2	**25.00**	—	8.60	105	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	20.7	20.60	—	8.90	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	21.6	21.00	—	**6.40**	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	20.6	20.30	—	9.00	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	17.4	16.80	—	8.90	91	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	24.2	20.00	—	7.20	79	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	13.0	12.00	—	9.20	86	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	18.1	15.20	—	8.40	84	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	19.8	11.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	10.8	5.20	—	13.60	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	19.5	20.50	0.10	7.99	—	—	—	—	137	—	—	—	—	—	—	—	—	—	—
06-08-08	20.9	19.50	0.10	**6.30**	—	—	—	—	135	—	—	—	—	—	—	—	—	—	—
06-09-25	17.2	15.52	0.08	12.24	—	—	—	—	131	—	—	—	8.0	—	—	—	—	—	—
06-11-01	11.6	6.53	0.04	12.36	—	—	—	—	79	—	—	—	7.5	—	—	—	—	—	—
07-05-14	10.5	9.17	0.05	13.24	—	30.5	—	—	98	—	—	—	7.8	—	—	—	—	—	—
07-06-20	16.2	15.25	0.07	12.67	—	66.3	—	—	148	—	—	—	8.0	—	—	—	—	—	—
07-07-17	20.3	20.37	0.06	11.59	—	88.0	—	—	137	—	—	—	8.0	—	—	—	—	—	—
07-08-15	17.0	16.56	0.05	16.78	—	135.4	—	—	102	—	—	—	7.9	—	—	—	—	—	—
07-09-18	12.2	8.58	0.08	14.65	—	209.8	—	—	175	—	—	—	7.9	—	—	—	—	—	—

07-10-18	—	4.86	0.08	15.61	—	38.4	—	—	159	—	—	—	7.7	—	—	—	—	—
08-05-20	15.8	9.87	0.04	11.35	—	93.3	—	—	88	—	—	—	7.4	—	—	—	—	—
08-06-26	17.0	17.81	0.07	9.60	—	133.3	—	—	147	—	—	—	7.7	—	—	—	—	—
08-07-23	19.0	19.15	0.08	9.32	—	90.8	—	—	166	—	—	—	7.8	—	—	—	—	—
08-08-21	—	13.81	0.07	10.20	—	77.1	—	—	142	—	—	—	7.7	—	—	—	—	—
08-09-18	—	12.58	0.06	9.80	—	73.3	—	—	137	—	—	—	7.6	—	—	—	—	—
08-10-22	—	5.94	0.08	12.06	—	117.8	—	—	165	—	—	—	7.9	—	—	—	—	—
09-05-19	—	8.98	0.04	11.94	—	95.9	—	—	58	—	—	—	7.1	—	—	55	—	—
09-06-25	19.2	15.91	0.05	9.81	—	121.0	—	—	87	—	—	—	7.5	—	—	68	—	—
09-07-22	19.3	19.31	0.07	8.75	—	248.1	—	—	138	—	—	—	7.7	—	—	100	—	—
09-08-20	19.6	20.31	0.08	8.78	—	93.3	—	—	157	—	—	—	7.8	—	—	112	—	—
09-09-24	17.0	15.82	0.08	10.76	—	141.4	—	—	132	—	—	—	7.9	—	—	104	—	—
09-10-21	9.9	6.45	0.03	12.33	—	71.7	—	—	47	—	—	—	7.2	—	—	52	—	—
10-05-27	—	10.37	0.07	10.72	—	54.6	—	—	109	—	—	—	8.6	—	—	98	—	—
10-06-24	—	17.28	0.07	9.52	—	95.9	—	—	120	—	—	—	8.1	—	—	91	—	—
10-07-21	—	19.54	0.09	9.38	—	44.1	—	—	166	—	—	—	8.2	—	—	120	—	—
10-08-24	—	16.68	0.09	8.05	—	26.6	—	—	163	—	—	—	8.4	—	—	126	—	—
10-09-22	—	12.23	0.06	6.95	—	63.1	—	—	90	—	—	—	7.8	—	—	77	—	—
11-07-07	—	19.77	0.07	—	—	—	—	—	134	—	—	—	8.5	—	—	—	—	—
11-07-28	—	16.45	0.01	—	—	—	—	—	3	—	—	—	8.4	—	—	—	—	—
11-08-22	—	19.86	0.03	—	—	—	—	—	64	—	—	—	8.4	—	—	—	—	—
12-06-26	—	17.60	0.06	10.05	—	111.9	—	—	152	—	—	—	8.2	—	—	—	—	—
12-07-26	—	16.01	0.03	9.86	—	67.6	—	—	600	—	—	—	8.0	—	—	—	—	—
12-08-28	23.0	19.68	0.10	6.63	—	113.7	—	—	182	—	—	—	8.1	—	—	—	—	—
12-09-25	10.0	10.89	0.10	7.27	—	167.0	—	—	146	—	—	—	7.9	—	—	—	—	—
12-10-17	4.0	8.63	0.07	6.94	—	387.3	—	—	98	—	—	—	8.6	—	—	74	—	—

Table A 38: Site ShdD Nutrient Data

SITE ShdD: NUTRIENT DATA																			
Date (yy-mm-dd)	HCO_3 **(mg/L)**	Br (mg/L)	Ca (mg/L)	CO_3 **(mg/L)**	Cl (mg/L)	F (mg/L)	K (mg/L)	Mg (mg/L)	Na (mg/L)	NH_3**T (mg/L)**	NH_3**_Un(mg/L)**	NO_2 **(mg/L)**	NO_3 **(mg/L)**	NO_X **(mg/L)**	SO_4 **(mg/L)**	TKN (mg/L)	TN (mg/L)	TOC (mg/L)	TP-L (mg/L)
99-10-14	—	—	10.80	—	8.2	<0.1	1.08	2.16	6.49	<0.010	—	<0.05	**0.050**	0.050	7.20	0.35	—	10.1	**0.015**
99-11-18	—	—	12.10	—	9.5	<0.1	0.94	2.46	6.93	<0.010	—	<0.05	**0.050**	0.050	7.34	0.31	—	7.4	**0.012**
00-10-04	—	—	22.30	—	12.0	<0.1	1.20	4.04	10.60	<0.010	—	<0.05	<0.05	<0.05	12.00	0.23	—	3.6	**0.006**

00-11-12	—	—	8.05	—	9.3	<0.1	1.16	1.80	5.55	0.089	—	<0.05	0.120	0.120	5.11	0.47	—	12.0	0.022
00-12-03	—	—	6.96	—	8.0	<0.1	0.59	1.52	5.02	<0.010	—	<0.05	0.180	0.180	4.53	0.30	—	8.5	0.016
01-06-03	—	—	14.00	—	8.0	<0.1	0.78	2.58	6.20	<0.010	—	<0.05	<0.05	<0.05	7.76	—	<0.3	5.8	0.013
01-07-03	—	—	18.70	—	7.8	<0.1	0.96	3.27	7.35	<0.010	—	<0.05	<0.05	<0.05	6.79	—	<0.3	4.1	0.011
01-08-07	—	—	24.40	—	8.3	<0.1	1.32	4.00	8.67	0.024	—	<0.05	<0.05	<0.05	7.25	—	<0.3	3.6	0.013
01-09-05	—	—	24.20	—	8.1	<0.1	1.01	4.13	8.98	<0.010	—	<0.05	<0.05	<0.05	8.13	—	<0.3	3.2	0.010
01-10-09	—	—	26.80	—	8.6	<0.1	1.22	4.68	8.97	<0.010	—	<0.05	<0.05	<0.05	9.25	—	<0.3	3.0	0.013
01-11-18	—	—	17.30	—	16.8	<0.1	1.04	3.69	11.10	<0.010	—	<0.05	0.360	0.410	23.40	—	0.60	7.9	0.014
01-11-18	—	—	17.40	—	17.1	<0.1	1.05	3.72	11.10	0.011	—	<0.05	0.357	0.407	23.40	—	0.61	6.8	0.012
02-06-19	—	—	14.10	—	10.9	<0.1	0.74	2.63	8.84	<0.010	—	<0.05	<0.05	<0.05	6.79	—	<0.3	7.9	0.015
02-07-17	—	—	14.80	—	8.2	<0.1	0.96	2.65	7.58	<0.010	—	<0.05	<0.05	<0.05	6.30	—	<0.3	6.8	0.015
02-08-21	—	—	23.10	—	8.6	<0.1	1.20	3.85	9.11	<0.010	—	<0.05	<0.05	<0.05	6.62	—	<0.3	4.0	0.010
02-09-18	—	—	10.70	—	8.2	<0.1	1.11	2.22	7.39	<0.010	—	<0.05	0.060	0.110	7.58	—	0.54	13.9	0.022
02-09-18	—	—	10.90	—	8.9	<0.1	1.01	2.23	7.38	<0.010	—	<0.05	0.060	0.110	8.13	—	0.51	14.1	0.020

Table A 39: Site ShdD Heavy Metals Data

SITE ShdD: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	0.172	<0.001	—	—	<0.00001	0.74127	—	0.002	0.0008	0.650	—	0.032	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	0.121	<0.001	—	—	<0.00001	0.83576	—	0.003	0.0006	0.240	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.039	<0.001	—	—	<0.00001	1.50968	—	0.002	0.0028	0.112	—	0.016	—	<0.005	<0.001	—	<0.001	—	—	—	0.016
00-11-12	0.503	<0.001	—	—	<0.00001	0.56541	—	0.002	0.0009	0.580	—	0.030	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	0.261	<0.001	—	—	0.00021	0.48404	—	0.001	0.0007	0.433	—	0.043	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
01-06-03	0.061	<0.001	—	—	<0.00001	0.94517	—	0.002	0.0005	0.217	—	0.039	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

01-07-03	0.041	<0.001	—	—	<0.001	1.25334	—	0.003	0.0006	0.110	—	0.034	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.049	<0.001	—	—	<0.001	1.62218	—	0.002	0.0005	0.089	—	0.053	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.042	<0.001	—	—	<0.001	1.61581	—	0.003	0.0007	0.094	—	0.026	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.036	<0.001	—	—	<0.001	1.80712	—	0.005	0.0005	0.075	—	0.025	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.112**	<0.001	—	—	<0.001	1.21739	—	0.002	0.0008	0.207	—	0.036	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.119**	<0.001	—	—	<0.001	1.22585	—	0.002	0.0007	0.209	—	0.037	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.080	<0.001	—	—	<0.001	0.95359	—	0.001	0.001	0.257	—	0.037	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.118**	<0.001	—	—	<0.001	0.99151	—	0.002	0.0009	0.277	—	0.033	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.043	<0.001	—	—	<0.001	1.53726	—	0.004	<0.0005	0.135	—	0.034	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.260**	<0.001	—	—	<0.001	0.74127	—	0.003	0.001	**0.426**	—	0.026	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.250**	<0.001	—	—	<0.001	0.75176	—	0.003	0.001	**0.430**	—	0.025	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

Table A 40: Site ShdE Field and Lab Data

SITE ShdE: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	40	27.6	60	—	101	33.7	—	—	7.4	—	—	51.567	7.8
99-11-18	—	—	—	14.5	—	10	33.5	30	—	117	39.8	—	—	7.6	—	—	60.738	1.8
00-10-04	—	—	—	—	—	30	69.6	10	—	203	80.6	—	—	8.4	—	—	111.02	1
00-11-12	6.0	—	—	—	—	210	16.7	60	—	79	26	—	—	7.3	—	—	41.08	7.6
00-12-03	-3.0	—	—	—	—	30	15.5	60	—	71.2	22.6	—	—	7.3	—	—	36.576	6.2
01-05-16	12.4	9.00	—	11.70	100	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	19.4	18.10	—	10.40	111	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	40	42.7	30	—	120	45.4	—	—	7.8	—	—	63.497	1.3
01-06-12	22.3	17.50	—	11.10	116	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	27.8	**26.50**	—	9.40	118	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	10	59.6	15	—	160	59.5	—	—	8.2	—	—	79.596	1
01-07-12	22.7	**24.20**	—	10.00	116	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	25.3	**26.30**	—	9.30	117	—	—	—	—	—	—	—	—	—	—	—	—	—

01-08-07	—	—	—	—	—	50	75.1	5	—	187	73.8	—	—	8.4	—	—	96.839	0.5
01-08-09	26.1	**25.50**	—	9.80	121	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	20	78.8	10	—	191	82.4	—	—	8.4	—	—	103.53	0.9
01-10-09	—	—	—	—	—	10	82.3	5	—	200	82	—	—	8.3	—	—	106.633	0.5
01-11-18	2.0	—	—	—	—	40	30.1	30	—	185	59.5	—	—	7.7	—	—	94.278	2.2
02-05-09	15.0	14.3	—	11.50	112	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	21.9	18.4	—	10.30	110	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	14.7	13.3	—	11.20	105	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-20	25.4	**23.00**	—	10.40	121	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	28.3	**27.10**	—	9.80	125	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-18	23.1	22.10	—	10.70	123	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	25.5	**23.30**	—	11.00	129	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	29.0	**25.70**	—	9.60	119	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-30	20.0	20.30	—	12.20	134	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-19	24.2	16.10	—	10.80	115	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	18.6	12.90	—	11.70	110	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	23.9	19.60	—	9.00	98	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	27.7	21.80	—	7.80	91	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	26.2	22.00	—	7.50	86	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	25.3	21.50	—	8.10	93	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	23.0	20.50	—	8.00	89	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	23.6	19.90	—	8.20	89	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	18.7	16.20	—	9.80	100	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	33.2	**25.00**	—	8.00	98	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	13.9	14.80	—	9.50	94	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-15	22.8	13.20	—	10.20	96	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	25.2	15.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	12.4	5.60	—	13.40	107	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	14.4	8.80	—	12.40	105	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	20.2	20.20	0.10	7.86	—	—	—	—	125	—	—	—	—	—	—	—	—	—
06-08-08	23.7	20.00	0.10	6.52	—	—	—	—	122	—	—	—	—	—	—	—	—	—
06-09-25	13.1	13.42	0.07	12.65	—	—	—	—	121	—	—	—	8.0	—	—	—	—	—
06-11-01	9.1	6.55	0.03	12.58	—	—	—	—	75	—	—	—	7.9	—	—	—	—	—
07-05-14	12.3	8.35	0.02	12.76	—	4.1	—	—	94	—	—	—	8.3	—	—	—	—	—
07-06-20	15.4	15.16	0.05	12.29	—	51.2	—	—	100	—	—	—	7.9	—	—	—	—	—
07-07-17	20.9	19.52	0.00	10.34	—	37.9	—	—	138	—	—	—	8.1	—	—	—	—	—
07-08-15	18.4	16.82	0.08	10.80	—	42.5	—	—	161	—	—	—	8.0	—	—	—	—	—

07-09-18	10.0	9.47	0.08	13.90	—	34.5	—	—	170	—	—	—	7.9	—	—	—	—	—
07-10-18	—	5.34	0.07	15.04	—	27.2	—	—	155	—	—	—	7.7	—	—	—	—	—
08-05-20	15.8	9.79	0.04	11.15	—	77.1	—	—	85	—	—	—	7.6	—	—	—	—	—
08-06-26	17.0	18.82	0.03	8.58	—	47.3	—	—	143	—	—	—	7.6	—	—	—	—	—
08-07-23	19.0	19.56	0.08	8.51	—	41.4	—	—	162	—	—	—	7.8	—	—	—	—	—
08-08-21	—	14.14	0.06	10.20	—	86.0	—	—	134	—	—	—	8.0	—	—	—	—	—
08-09-18	—	13.33	0.06	9.61	—	172.3	—	—	133	—	—	—	7.6	—	—	—	—	—
08-10-22	—	6.81	0.08	11.98	—	24.3	—	—	158	—	—	—	8.2	—	—	—	—	—
09-05-19	—	9.03	0.04	11.87	—	109.2	—	—	56	—	—	—	7.3	—	—	53	—	—
09-06-25	18.4	15.83	0.05	9.55	—	141.4	—	—	82	—	—	—	7.5	—	—	65	—	—
09-07-22	20.0	19.90	0.07	8.37	—	**648.8**	—	—	137	—	—	—	7.8	—	—	99	—	—
09-08-20	20.0	20.50	0.08	8.20	—	122.3	—	—	149	—	—	—	7.7	—	—	106	—	—
09-09-24	16.8	15.63	0.07	9.80	—	204.6	—	—	126	—	—	—	7.9	—	—	100	—	—
09-10-21	13.0	6.42	0.03	13.48	—	75.4	—	—	46	—	—	—	7.3	—	—	45	—	—
10-05-27	—	10.56	0.07	10.20	—	142.1	—	—	106	—	—	—	**9.1**	—	—	95	—	—
10-06-24	—	17.68	0.06	8.77	—	85.5	—	—	114	—	—	—	8.6	—	—	86	—	—
10-07-21	—	19.90	0.08	8.92	—	30.9	—	—	154	—	—	—	8.3	—	—	111	—	—
10-08-24	—	15.56	0.09	**5.79**	—	19.9	—	—	152	—	—	—	8.6	—	—	120	—	—
10-09-22	—	12.38	0.05	**5.11**	—	42.6	—	—	72	—	—	—	8.0	—	—	63	—	—
11-07-07	—	19.90	0.07	—	—	—	—	—	130	—	—	—	8.7	—	—	—	—	—
11-07-28	—	16.48	0.04	—	—	—	—	—	74	—	—	—	**9.3**	—	—	—	—	—
11-08-22	—	19.93	0.07	—	—	—	—	—	126	—	—	—	8.7	—	—	—	—	—
12-06-26	—	17.80	0.02	9.28	—	123.6	—	—	33	—	—	—	8.3	—	—	—	—	—
12-07-25	—	18.52	0.08	7.96	—	36.4	—	—	157	—	—	—	8.2	—	—	—	—	—
12-08-28	—	19.99	0.09	7.01	—	77.6	—	—	179	—	—	—	8.2	—	—	—	—	—
12-09-25	10.0	11.71	0.10	8.85	—	88.6	—	—	151	—	—	—	7.9	—	—	—	—	—
12-10-17	4.0	8.76	0.07	6.95	—	**410.6**	—	—	102	—	—	—	8.8	—	—	85	—	—
13-05-30	14.0	13.03	0.04	12.29	—	291.0	—	—	68	—	—	—	8.6	—	—	—	—	—
13-06-27	13.0	15.50	0.07	8.02	—	46.0	—	—	132	—	—	—	8.1	—	—	—	—	—
13-07-30	20.0	18.56	0.04	10.80	—	228.0	—	—	97	—	—	—	7.1	—	—	—	—	—
13-08-27	22.0	18.10	0.09	7.80	—	14.6	—	—	165	—	—	—	8.4	—	—	—	—	—
13-10-01	20.0	12.85	0.07	9.77	—	13.4	—	—	120	—	—	—	7.4	—	—	—	—	—
13-10-29	5.0	3.42	0.07	8.64	—	—	—	—	156	—	—	—	7.7	—	—	—	—	—
14-06-25	16.0	16.52	0.05	17.93	—	118.7	—	—	93	—	—	—	7.0	—	—	—	—	—
14-07-23	28.0	**25.30**	0.10	8.25	—	44.1	—	—	181	—	—	—	8.6	—	—	—	—	—
14-08-28	21.0	20.41	0.09	10.64	—	88.4	—	—	166	—	—	—	7.6	—	—	—	—	—
14-09-24	8.0	10.29	0.07	—	—	387.3	—	—	109	—	—	—	7.4	—	—	—	—	—

14-10-29	11.0	7.65	0.04	—	—	42.8	—	—	160	—	—	—	6.5	—	—	—	—	—
15-06-01	14.0	13.70	0.10	9.95	—	—	—	—	101	—	—	—	7.8	—	—	—	—	—
15-06-29	16.0	13.88	0.05	—	—	62.4	—	—	83	—	—	—	7.7	—	—	—	—	—
15-08-05	22.0	22.90	0.09	7.80	—	65.9	—	—	181	—	—	—	7.8	—	—	—	—	—
15-08-26	24.0	22.93	0.09	6.85	—	200.5	—	—	187	—	—	—	8.1	—	—	—	—	—
15-10-06	13.0	9.69	0.04	9.11	—	118.4	—	—	66	—	—	—	7.2	—	—	—	—	—
15-11-03	5.0	6.25	0.04	8.43	—	38.4	—	—	18	—	—	—	7.1	—	—	—	—	—
16-05-31	21.0	16.40	0.07	10.84	—	75.4	—	—	121	—	—	—	7.8	—	—	94	—	—
16-06-29	22.0	20.70	0.08	8.75	—	24.1	—	—	159	—	—	—	7.8	—	—	112	—	—
16-07-27	25.0	23.00	0.09	9.32	—	15.1	—	—	180	—	—	—	7.9	—	—	122	—	—
16-08-24	24.0	19.90	0.09	9.74	—	35.9	—	—	172	—	—	—	7.8	—	—	124	—	—
16-09-28	13.0	10.40	0.10	12.32	—	95.9	—	—	156	—	—	—	7.8	—	—	140	—	—
16-10-25	5.0	6.40	0.08	12.32	—	27.9	—	—	113	—	—	—	7.6	—	—	114	—	—
17-05-31	11.0	11.1	0.04	11.15	—	62.4	—	—	63	—	—	—	7.4	—	—	55.9	—	—
17-06-27	24.0	18.3	0.08	10.6	—	19.9	61	19	145	168	63.9	-0.37	7.8	7.9	8.3	107.9	87.0	0.80
17-07-26	22.0	18.3	0.10	9.41	—	13.2	77	12	186	215	79.0	-0.09	7.8	8.0	8.1	139.1	110.0	0.60
17-08-30	20.0	15.5	0.11	9.42	—	0.0	86	10	182	225	89.6	0.11	7.7	8.1	8.0	144.3	118.0	0.90
17-09-27	—	17.0	0.11	9.75	—	16.0	92	9	195	233	91.0	0.05	7.7	8.0	8.0	149.5	125.0	1.10
17-10-24	19.0	10.4	0.11	10.45	—	6.0	85	18	170	233	89.0	-0.10	7.7	7.9	8.0	153.4	124.0	0.90
18-05-30	16.0	15.40	0.07	11.23	—	4.1	42	29	113	139	48.4	-0.84	7.4	7.7	8.5	89	71	1.4
18-06-28	22.0	18.20	0.07	9.94	—	25.9	45	57	121	139	49	-0.80	7.0	7.7	8.5	90	75	2.0
18-07-31	27.0	23.20	0.10	8.94	—	16.0	81	9	212	213	84	-0.03	7.8	8.0	8	143	112	0.7
18-08-28	—	21.00	0.10	7.96	—	19.6	77	11	199	213	81.7	-0.46	7.9	7.6	8.1	140	111	0.7
18-09-26	21.0	13.00	0.10	11.04	—	8.2	71	5	161	202	75.4	-0.04	7.6	8.1	8.1	136	102	0.7
19-06-26	18.0	15.5	0.05	11.12	—	24.2	39	63	0.090	113	38.8	-1.26	6.97	7.4	8.7	71.05	63	1.4
19-07-24	26.0	20.8	0.05	9.87	—	41.0	65	23	0.161	178	65.6	-0.33	7.59	7.9	8.2	114.40	96	1.2
19-08-21	25.0	19.0	0.10	6.42	—	581.8	72	11	0.185	211	77.3	-0.42	7.34	7.7	7.7	135.85	110	0.9
19-09-26	13.0	12.8	0.03	12.42	—	530.0	20	110	0.051	68	21.9	-2.19	6.55	7.0	9.2	42.90	52	6.5
20-06-24	28	23.9	0.10	6.83	—	63	76	10	0.208	0.219	78.6	-0.19	8.03	7.9	8.1	138.46	113	0.9
20-07-28	26	23.5	0.11	9.04	—	84	85	6	0.220	0.228	91.9	0.02	8.21	8.0	8	146.90	92	0.9
20-08-25	20	20.3	0.10	8.68	—	1,178	76	8	0.184	0.200	81.5	-0.17	8.14	7.9	8.1	131.30	111	1.3
20-09-29	23	19.2	0.10	7.35	—	187	70	15	0.197	0.224	75.7	-1.24	7.85	6.9	8.1	143.65	123	1.4
20-10-15	16	9.0	0.12	10.87	—	96	79	32	0.169	0.252	89.8	-0.33	7.62	7.7	8	158.60	144	2.2
21-05-27	23	18.5	0.05	10.82	—	41	35	59	0.090	0.105	33.0	-1.28	7.58	7.5	8.8	66.30	63	2.0
21-06-29	—	25.9	0.06	—	—	52	68	12	0.128	0.203	81.5	-0.02	7.80	8.1	8.1	81.90	111	0.7
21-07-27	26	20.8	0.06	10.74	—	41	46	58	0.127	0.130	45.8	-0.52	8.66	8.0	8.5	63.00	72	2.0
21-08-24	26	23.3	0.09	10.05	—	201	77	11	0.190	0.204	79.2	0.21	8.55	8.3	8.1	127.46	113	1.1

21-09-29	15	14.0	0.08	9.45	—	75	57	41	0.127	0.168	58.5	-0.43	7.87	7.9	8.3	104.00	92	2.3
21-10-25	8	7.9	0.08	11.19	—	52	55	69	0.113	0.177	60.3	-0.65	7.83	7.7	8.3	52.00	92	2.5
22-06-30	22	21.3	0.08	8.23	—	31	64	24	0.157	0.167	64.1	-0.44	8.01	7.8	8.2	109.85	92	0.7
22-07-26	25	24.6	0.10	6.87	—	52	84	15	0.205	0.194	81.8	-0.03	7.87	8.0	8	134.55	115	0.7
22-08-29	22	18.0	0.09	9.28	—	20	70	22	0.172	0.194	73.0	-0.06	8.06	8.1	8.2	129.35	111	0.8
22-09-28	19	13.1	0.04	10.20	—	63	32	116	0.066	0.091	31.5	-1.43	7.03	7.4	8.8	55.25	66	3.6
23-06-26	14	16.0	0.07	9.50	—	75	51	50	0.126	0.153	52.7	-0.62	7.82	7.8	8.4	99.45	88	1.6
23-07-25	29	22.9	0.09	8.84	—	10	69	23	0.181	0.189	74.4	-0.15	8.05	8.0	8.2	122.85	108	0.7
23-08-29	21	16.4	0.06	10.27	—	41	51	58	0.115	0.141	51.5	-0.53	8.02	7.9	8.4	89.70	82	1.8
23-09-26	14	10.2	0.06	12.34	—	52	43	54	0.930	0.130	48.7	-0.92	7.77	7.6	8.5	83.85	73	1.6

Table A 41: Site ShdE Nutrient Data

SITE ShdE: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	10.10	—	7.8	<0.1	0.95	2.05	6.28	<0.010	—	<0.05	<0.05	<0.05	6.75	0.37	—	10.7	**0.014**
99-11-18	—	—	12.10	—	10.1	<0.1	1.00	2.35	6.81	<0.010	—	<0.05	<0.05	<0.05	7.57	0.31	—	7.0	**0.010**
00-10-04	—	—	24.80	—	12.9	<0.1	1.42	4.50	10.00	<0.010	—	<0.05	<0.05	<0.05	13.10	0.20	—	3.7	**0.008**
00-11-12	—	—	7.60	—	8.9	<0.1	1.03	1.70	5.28	<0.010	—	<0.05	**0.110**	0.110	4.90	0.38	—	12.3	**0.021**
00-12-03	—	—	6.66	—	7.8	<0.1	0.56	1.46	4.91	<0.010	—	<0.05	**0.160**	0.160	4.42	0.30	—	8.5	**0.016**
01-06-03	—	—	13.90	—	7.0	<0.1	0.80	2.60	6.21	<0.010	—	<0.05	<0.05	<0.05	6.72	—	<0.3	5.8	**0.011**
01-07-03	—	—	18.50	—	7.3	<0.1	0.81	3.24	7.16	<0.010	—	<0.05	<0.05	<0.05	6.34	—	<0.3	4.4	**0.010**
01-08-07	—	—	23.40	—	7.9	<0.1	1.26	3.76	8.16	0.021	—	<0.05	<0.05	<0.05	6.88	—	<0.3	3.3	**0.008**
01-09-05	—	—	25.90	—	7.7	<0.1	1.00	4.30	9.22	<0.010	—	<0.05	<0.05	<0.05	7.71	—	<0.3	3.2	**0.012**
01-10-09	—	—	25.60	—	8.2	<0.1	1.14	4.39	8.60	<0.010	—	<0.05	<0.05	<0.05	8.89	—	<0.3	2.8	**0.012**
01-11-18	—	—	17.60	—	17.1	<0.1	1.02	3.74	11.00	<0.010	—	<0.05	**0.379**	0.429	23.40	—	0.61	6.7	**0.012**
17-06-27	60.5	0.03	19.90	0.452	10.5	0.130	1.10	3.44	8.20	<0.050	<0.001	<0.05	<0.05	<0.05	6	0.20	0.20	4.3	**0.010**
17-07-26	76.2	0.03	24.40	0.716	12.2	0.160	1.14	4.40	9.34	<0.050	<0.001	<0.05	<0.05	<0.05	11	0.20	0.20	2.5	**0.008**

17-08-30	84.9	0.03	27.80	1.000	10.1	0.120	1.20	4.90	9.01	<0.050	<0.001	<0.05	<0.05	<0.05	12	0.10	<0.2	1.9	**0.007**
17-09-27	91.1	0.03	28.30	0.856	11.8	0.140	1.28	4.95	9.67	<0.050	<0.001	<0.05	<0.05	<0.05	13	0.20	0.20	2.3	**0.008**
17-10-24	91.1	0.02	27.50	0.629	12.1	0.100	1.26	4.94	9.81	<0.050	<0.001	<0.05	<0.05	<0.05	16	0.20	0.20	2.7	**0.010**
18-05-30	91.1	0.02	15.00	0.197	13.0	0.130	0.82	2.65	8.15	<0.050	<0.001	<0.05	**0.090**	0.090	5	0.20	0.30	4.9	**0.019**
18-06-27	91.1	0.03	15.30	0.211	12.6	0.170	0.86	2.62	9.36	<0.050	<0.001	<0.05	**0.080**	0.080	6	0.30	0.40	7.7	**0.014**
18-07-31	91.1	0.03	26.50	0.754	10.8	0.180	1.21	4.32	8.43	<0.050	<0.001	<0.05	<0.05	<0.05	11	0.20	0.20	2.8	**0.011**
18-08-28	91.1	0.03	25.70	0.290	12.1	0.150	1.29	4.26	9.21	<0.050	<0.001	<0.05	<0.05	<0.05	11	0.20	0.20	3.3	**0.009**
18-09-26	91.1	0.02	23.60	0.830	11.1	0.170	0.94	4.01	7.60	<0.050	<0.001	<0.05	<0.05	<0.05	11	0.10	<0.2	2.0	**0.006**
19-06-26	38.9	0.02	11.9	0.092	7.6	0.11	0.73	2.21	6.2	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	9.6	**0.012**
19-07-24	64.5	0.03	20.5	0.482	10.7	0.13	0.98	3.50	8.2	<0.05	<0.001	<0.05	**0.1**	0.1	7	—	0.4	5.0	**0.013**
19-08-21	71.6	0.03	24.2	0.337	12.7	0.15	1.22	4.09	9.8	<0.05	<0.001	<0.05	**0.07**	0.07	10	—	0.2	3.5	**0.012**
19-09-26	20.0	0.02	6.57	0.019	6.0	0.24	0.75	1.33	4.6	<0.25	<0.001	<0.25	<0.25	<0.25	4	—	0.4	15.4	**0.044**
20-06-24	75.4	0.03	24.7	0.563	12.5	0.20	1.17	4.12	8.3	<0.05	<0.001	<0.05	**0.140**	0.140	12	—	0.3	3	**0.008**
20-07-28	84.2	0.02	28.9	0.791	12.9	0.10	1.20	4.79	8.5	<0.05	<0.001	<0.05	**0.220**	0.220	13	—	0.3	2.2	**0.005**
20-08-25	75.4	0.02	25.7	0.563	12.6	0.05	1.04	4.20	7.2	<0.05	<0.001	<0.05	**0.070**	0.070	11	—	<0.2	1.9	**0.017**
20-09-29	69.9	0.02	23.8	0.052	17.5	0.10	1.18	3.96	11.5	<0.05	<0.001	<0.05	<0.05	<0.05	18	—	<0.2	4.2	**0.011**
20-10-15	78.6	0.02	27.7	0.370	23.5	0.11	1.54	5.00	15.1	<0.05	<0.001	<0.05	<0.05	<0.05	18	—	<0.2	4.7	**0.012**
21-05-27	34.9	0.02	10	0.104	8.4	0.21	0.71	1.94	6.2	<0.05	<0.001	<0.05	<0.05	<0.05	4	—	0.3	9.5	**0.020**
21-06-29	67.1	0.02	25.8	0.794	12.6	0.17	1.16	4.14	8.7	<0.05	<0.001	<0.05	**0.150**	0.150	12	—	0.4	4.2	**0.012**
21-07-27	45.5	0.02	14.3	0.428	9.5	0.23	0.78	2.46	6.9	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	9.1	**0.016**
21-08-24	75.5	0.02	24.8	1.420	10.7	0.15	1.08	4.20	8.5	<0.05	<0.001	<0.05	**0.080**	0.080	12	—	<0.2	3.7	**0.011**
21-09-29	56.6	0.03	18.1	0.422	13.2	0.24	1.04	3.24	8.4	<0.05	<0.001	<0.05	**0.080**	0.080	5	—	0.4	7.8	**0.017**
21-10-25	54.7	0.03	18.2	0.258	17.3	0.32	1.28	3.61	10.2	<0.05	<0.001	<0.05	**0.014**	0.014	7	—	0.6	9.6	**0.016**
22-06-30	63.6	0.03	20	0.377	13.3	0.13	0.91	3.43	8.0	<0.05	<0.001	<0.05	**0.050**	0.050	7	—	0.4	6	**0.010**

22-07-26	83.2	0.03	26	0.782	13.0	0.15	1.17	4.11	9.6	<0.05	<0.001	<0.05	0.110	0.110	9	—	0.3	4	0.009
22-08-29	69.1	0.03	22.8	0.818	15.1	0.20	1.06	3.90	10.3	<0.05	<0.001	<0.05	0.100	0.100	9	—	0.4	5.7	0.011
22-09-28	31.9	0.02	9.66	0.075	8.3	0.35	0.81	1.78	5.8	0.070	<0.001	<0.05	0.130	0.130	5	—	0.6	13.8	0.028
23-06-26	50.7	0.03	16.3	0.301	12.6	0.17	0.79	2.91	8.98	<0.05	< 0.001	<0.05	0.22	0.22	6.0	-	0.3	7.8	0.016
23-07-25	68.3	0.03	23.3	0.642	14.2	0.13	1.02	3.94	9.1	<0.05	< 0.001	<0.05	0.14	0.14	8.0	-	0.4	5.1	0.009
23-08-29	50.6	0.03	15.9	0.378	12.5	0.56	0.93	2.87	8.32	<0.05	< 0.001	<0.05	<0.05	<0.05	< 1	-	0.5	9.7	0.020
23-09-26	42.8	0.03	15.0	0.160	10.3	0.32	0.84	2.74	6.6	<0.05	< 0.001	<0.05	0.20	0.20	< 1	-	0.4	9.7	0.019

Table A 42: Site ShdE Heavy Metals Data

SITE ShdE: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.160**	<0.001	—	—	<0.0001	0.69514	—	0.002	0.0007	**0.590**	—	0.019	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.140**	<0.001	—	—	<0.0001	0.82315	—	0.003	0.0006	0.220	—	0.022	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.043	<0.001	—	—	<0.0001	1.68592	—	0.001	0.0023	0.140	—	0.022	—	<0.005	<0.001	—	<0.001	—	—	—	0.011
00-11-12	**0.444**	<0.001	—	—	<0.0001	0.53409	—	0.001	0.0008	**0.563**	—	0.029	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.242**	<0.001	—	—	<0.0001	0.46321	—	0.001	0.0005	**0.399**	—	0.035	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	0.062	<0.001	—	—	<0.0001	0.94095	—	0.002	0.0005	0.206	—	0.022	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.030	<0.001	—	—	<0.0001	1.23854	—	0.003	0.0007	0.094	—	0.020	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.025	<0.001	—	—	<0.0001	1.54151	—	0.002	<0.00005	0.043	—	0.033	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.025	<0.001	—	—	<0.0001	1.72418	—	0.003	<0.00005	0.070	—	0.015	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.025	<0.001	—	—	<0.0001	1.71567	—	0.004	0.0006	0.045	—	0.015	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.120**	<0.001	—	—	<0.0001	1.23854	—	0.002	0.0007	0.203	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	0.027	<0.001	0.009	0.070	<0.00001	1.33165	<0.0001	<0.001	<0.001	0.170	0.0010	0.036	0.0005	<0.001	0.0007	0.0010	<0.0001	0.155	0.0002	<0.001	0.003
17-07-26	0.014	<0.001	0.013	0.087	<0.00001	1.65192	<0.0001	<0.001	<0.001	0.090	0.0012	0.037	0.0007	<0.001	0.0001	0.0011	<0.0001	0.221	0.0004	<0.001	<0.001

17-08-30	0.019	<0.001	0.013	0.086	<0.00001	1.87735	<0.00001	<0.001	<0.001	0.100	0.0013	0.033	0.0008	<0.001	<0.0001	0.0010	<0.0001	0.251	0.0005	<0.001	0.020
17-09-27	0.028	<0.001	0.015	0.101	<0.00001	1.90716	<0.00001	<0.001	<0.001	0.100	0.0014	0.048	0.0007	<0.001	<0.0001	0.0012	<0.0001	0.267	0.0005	<0.001	<0.001
17-10-24	0.030	<0.001	0.012	0.097	<0.00001	1.86458	<0.00001	<0.001	0.002	0.110	0.0014	0.049	0.0005	<0.001	0.0001	0.0010	<0.0001	0.260	0.0005	<0.001	0.009
18-05-30	0.065	<0.001	0.010	0.057	<0.00001	1.00416	<0.00001	<0.001	<0.001	0.200	0.0009	0.040	0.0005	<0.001	0.0001	0.0007	<0.0001	0.125	0.0002	<0.001	0.002
18-06-27	0.083	<0.001	0.011	0.054	<0.00001	1.01681	<0.00001	<0.001	<0.001	**0.300**	0.0009	0.040	0.0005	<0.001	0.0002	0.0009	<0.0001	0.123	0.0002	<0.001	0.021
18-07-31	0.024	<0.001	0.017	0.086	<0.00001	1.7582	<0.00001	<0.001	<0.001	0.120	0.0012	0.050	0.0011	<0.001	<0.0001	0.0012	<0.0001	0.238	0.0004	<0.001	0.002
18-08-28	0.024	<0.001	0.016	0.090	<0.00001	1.7093	<0.00001	<0.001	<0.001	0.120	0.0012	0.050	0.001	<0.001	<0.0001	0.0011	<0.0001	0.236	0.0004	<0.001	<0.001
18-09-26	0.016	<0.001	0.013	0.075	<0.00001	1.57547	<0.00001	<0.001	<0.001	0.120	0.0011	0.040	0.0007	<0.001	<0.0001	0.0008	<0.0001	0.217	0.0005	<0.001	<0.001
19-06-26	0.083	<0.001	0.008	0.048	<0.00001	1.01681	<0.00001	<0.001	<0.001	**0.330**	0.0007	0.032	0.0004	<0.001	0.0001	0.0007	<0.0001	<0.001	0.0002	<0.001	0.002
19-07-24	0.040	<0.001	0.010	0.072	<0.00001	1.7582	<0.00001	<0.001	<0.001	0.250	0.0011	0.048	0.0006	<0.001	<0.0001	0.0010	<0.0001	<0.001	0.0003	<0.001	0.001
19-08-21	0.032	<0.001	0.014	0.090	<0.00001	1.7093	<0.00001	<0.001	<0.001	0.130	0.0012	0.049	0.0008	<0.001	<0.0001	0.0012	<0.0001	<0.001	0.0004	<0.001	0.001
19-09-26	**0.268**	<0.001	0.008	0.036	0.00001	1.57547	0.0002	<0.001	0.001	**0.460**	0.0006	0.028	0.0002	<0.001	0.0003	0.0007	<0.0001	<0.001	0.0001	<0.001	0.002
20-06-24	0.027	<0.001	0.015	0.085	<0.00001	1.64342	<0.00001	<0.001	<0.001	0.090	0.0013	0.052	0.001	<0.001	<0.0001	0.0013	<0.0001	0.202	0.0005	<0.001	<0.001
20-07-28	0.018	<0.001	0.018	0.093	<0.00001	1.92632	<0.00001	<0.001	<0.001	0.080	0.0014	0.043	0.0012	<0.001	<0.0001	0.0013	<0.0001	0.261	0.0006	<0.001	<0.001
20-08-25	0.042	<0.001	0.015	0.077	<0.00001	1.70505	<0.00001	<0.001	<0.001	0.120	0.0012	0.062	0.0009	<0.001	0.0001	0.0011	<0.0001	0.227	0.0006	<0.001	0.001
20-09-29	0.043	<0.001	0.017	0.089	<0.00001	1.58184	<0.00001	<0.001	<0.001	0.120	0.0013	0.044	0.0007	<0.001	<0.0001	0.0012	<0.0001	0.223	0.0004	<0.001	0.004
20-10-15	0.095	<0.001	0.017	0.088	<0.00001	1.88161	<0.00001	<0.001	<0.001	0.150	0.0012	0.026	0.0007	<0.001	<0.0001	0.0012	<0.0001	0.226	0.0006	<0.001	0.003
21-05-27	**0.141**	<0.001	0.008	0.042	<0.00001	1.64342	<0.00001	<0.001	<0.001	0.280	0.0008	0.027	0.0003	<0.001	0.0001	0.0008	<0.0001	0.078	0.0002	<0.001	<0.001
21-06-29	0.028	<0.001	0.015	0.080	<0.00001	—	<0.00001	<0.001	<0.001	0.120	0.0013	0.045	0.0008	<0.001	<0.0001	0.0013	<0.0001	0.200	0.0005	<0.001	<0.001
21-07-27	0.094	<0.001	0.010	0.041	<0.00001	1.92632	<0.00001	<0.001	<0.001	**0.360**	0.0008	0.032	0.0002	<0.001	0.0002	0.0009	<0.0001	0.095	0.0002	<0.001	<0.001
21-08-24	0.034	<0.001	0.013	0.075	<0.00001	1.70505	<0.00001	<0.001	<0.001	0.150	0.0012	0.026	0.0009	<0.001	<0.0001	0.0012	<0.0001	0.193	0.0005	<0.001	<0.001
21-09-29	0.073	<0.001	0.013	0.062	<0.00001	1.58184	<0.00001	<0.001	<0.001	**0.310**	0.0011	0.022	0.0007	<0.001	0.0001	0.0010	<0.0001	0.141	0.0003	<0.001	<0.001
21-10-25	**0.125**	<0.001	0.014	0.062	<0.00001	1.88161	<0.00001	<0.001	<0.001	**0.310**	0.0011	0.018	0.0007	<0.001	0.0001	0.0011	<0.0001	0.159	0.0005	<0.001	<0.001
22-06-30	0.037	<0.001	0.067	0.067	<0.00001	—	<0.00001	<0.001	<0.001	0.210	0.0011	0.039	0.0006	<0.001	<0.0001	0.0010	<0.0001	0.154	0.0003	<0.001	<0.001

22-07-26	0.025	<0.001	0.081	0.081	<0.00001	—	<0.00001	<0.01	<0.001	0.140	0.0014	0.065	0.001	<0.01	<0.0001	0.0013	<0.0001	0.199	0.0005	<0.01	<0.01
22-08-29	0.033	<0.001	0.074	0.074	<0.00001	—	<0.00001	<0.01	<0.001	0.180	0.0012	0.037	0.0008	<0.01	<0.0001	0.0010	<0.0001	0.190	0.0004	<0.01	0.001
22-09-28	**0.223**	<0.001	0.040	0.040	<0.00001	—	0.0001	<0.01	<0.001	**0.420**	0.0007	0.040	0.0003	<0.01	0.0003	0.0008	<0.0001	0.066	0.0001	<0.01	0.001
23-06-26	0.081	<0.001	0.011	0.058	<0.00001	—	<0.00001	<0.01	<0.001	**0.31**	0.001	0.031	0.0007	<0.01	0.0001	0.0009	<0.0001	0.13	0.0003	<0.01	<0.01
23-07-25	0.047	<0.001	0.013	0.077	<0.00001	—	0.0001	<0.01	<0.001	0.23	0.0013	0.064	0.0008	<0.01	0.0001	0.0011	<0.0001	0.169	0.0004	<0.01	**0.011**
23-08-29	0.066	<0.001	0.011	0.054	<0.00001	—	<0.00001	<0.01	<0.001	**0.38**	0.0009	0.022	0.0005	<0.01	0.0001	0.0009	<0.0001	0.118	0.0002	<0.01	0.001
23-09-26	0.080	<0.001	0.009	0.051	<0.00001	—	<0.00001	<0.01	<0.001	**0.38**	0.0009	0.033	0.0004	<0.01	0.0001	0.0008	<0.0001	0.108	0.0002	<0.01	<0.01

Table A 43: Site ShdF Field and Lab Data

SITE ShdF: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	40	21.4	200	—	65.1	26.4	—	—	7.2	—	—	33.793	77.6
99-11-18	—	—	—	13.5	—	20	28.3	30	—	78.1	29.5	—	—	7.5	—	—	38.1	0.9
00-10-04	—	11.1	—	—	—	20	51.8	20	—	116	51.3	—	—	8.0	—	—	60.347	2.3
00-11-12	6.0	—	—	—	—	30	11.1	80	—	55.2	19.6	—	—	7.0	—	—	27.414	3.9
00-12-03	-3.0	—	—	—	—	50	9.84	70	—	43	15.4	—	—	7.0	—	—	21.529	2.2
01-05-16	14.7	9.30	—	11.40	98	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	20.7	16.40	—	10.00	101	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	20	29.2	75	—	73.1	29	—	—	7.6	—	—	38.673	1.9
01-06-12	24.0	17.60	—	9.80	101	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	25.9	21.90	—	9.00	102	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	40	40.7	40	—	113	43.9	—	—	7.9	—	—	51.719	1.3
01-07-12	22.9	19.40	—	11.00	119	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	26.8	**22.60**	—	9.80	92	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	140	61.4	5	—	147	62.2	—	—	8.1	—	—	73.918	0.3
01-08-09	28.0	21.20	—	10.70	121	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	270	63.4	20	—	136	62	—	—	8.0	—	—	72.894	3.4
01-10-09	—	—	—	—	—	50	67.9	15	—	145	61.7	—	—	8.0	—	—	76.05	1
01-11-18	—	—	—	—	—	20	28.4	40	—	111	42.8	—	—	7.6	—	—	55.234	2.1
02-05-09	18.7	19.6	—	10.40	103	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	20.4	17.9	—	9.40	101	—	—	—	—	—	—	—	—	—	—	—	—	—

02-06-05	13.0	12.2	—	10.70	98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-19	—	—	—	—	—	10	34	50	—	81.3	32	—	—	7.6	—	—	36.088	0.98	
02-06-20	24.9	17.80	—	10.00	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	29.7	**22.60**	—	8.90	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	100	34	150	—	85.6	35.5	—	—	7.5	—	—	45.126	1.84	
02-07-18	23.9	19.40	—	9.10	98	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	21.6	17.40	—	12.00	125	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	25.0	21.40	—	10.20	115	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	80	56.6	50	—	133	57	—	—	8.0	—	—	—	0.98	
02-08-30	22.6	17.80	—	13.00	138	—	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	50	19.1	100	—	79.5	27.3	—	—	7.3	—	—	—	3.13	
02-09-19	23.6	15.80	—	10.00	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	16.5	14.90	—	10.30	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	26.9	20.70	—	8.70	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	30.4	22.00	—	8.10	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	29.2	**23.30**	—	8.50	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	28.6	**23.00**	—	9.60	114	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	22.7	20.50	—	9.30	105	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	26.7	**22.80**	—	8.70	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	18.1	15.50	—	11.30	112	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	27.7	20.50	—	9.50	106	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	12.3	13.30	—	11.20	104	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	14.7	10.50	—	9.30	99	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	25.4	11.90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	11.4	4.80	—	12.90	101	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	13.6	8.90	—	12.00	102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	17.0	16.40	0.00	7.50	—	—	—	—	—	73	—	—	—	—	—	—	—	—	—
06-08-08	19.3	18.70	0.00	6.93	—	—	—	—	—	68	—	—	—	—	—	—	—	—	—
06-09-25	19.7	13.33	0.04	10.48	—	—	—	—	—	72	—	—	—	7.6	—	—	—	—	—
06-11-01	12.0	6.88	0.02	12.16	—	—	—	—	—	49	—	—	—	6.9	—	—	—	—	—
07-05-14	9.9	10.02	0.02	12.79	—	8.6	—	—	—	53	—	—	—	7.4	—	—	—	—	—
07-06-20	18.5	12.15	0.04	12.85	—	12.1	—	—	—	86	—	—	—	7.8	—	—	—	—	—
07-07-17	22.2	18.16	0.02	11.03	—	77.1	—	—	—	50	—	—	—	8.1	—	—	—	—	—
07-08-15	16.4	14.58	0.03	12.27	—	119.8	—	—	—	56	—	—	—	8.1	—	—	—	—	—
07-09-18	16.0	10.36	0.03	14.15	—	7.3	—	—	—	70	—	—	—	7.9	—	—	—	—	—
07-10-18	—	6.22	0.04	15.28	—	3.1	—	—	—	91	—	—	—	7.6	—	—	—	—	—
08-05-20	15.8	11.03	0.02	10.80	—	74.9	—	—	—	48	—	—	—	7.1	—	—	—	—	—

08-06-26	17.0	15.49	0.02	9.68	—	17.1	—	—	96	—	—	—	7.8	—	—	—	—	—
08-07-23	19.0	17.04	0.05	9.87	—	59.4	—	—	112	—	—	—	7.9	—	—	—	—	—
08-08-21	—	14.38	0.04	10.59	—	7.4	—	—	94	—	—	—	7.9	—	—	—	—	—
08-09-18	—	11.87	0.04	10.23	—	88.4	—	—	89	—	—	—	7.7	—	—	—	—	—
08-10-22	—	5.86	0.04	12.09	—	15.6	—	—	77	—	—	—	7.8	—	—	—	—	—
09-05-19	12.8	10.54	0.02	11.13	—	82.0	—	—	32	—	—	—	7.3	—	—	29	—	—
09-06-25	22.9	16.91	0.03	9.43	—	45.0	—	—	49	—	—	—	7.4	—	—	37	—	—
09-07-22	18.6	17.48	0.04	9.23	—	275.5	—	—	83	—	—	—	7.7	—	—	63	—	—
09-08-20	22.0	19.05	0.05	9.79	—	16.1	—	—	98	—	—	—	8.0	—	—	72	—	—
09-09-24	17.2	14.25	0.04	9.91	—	63.8	—	—	69	—	—	—	8.0	—	—	56	—	—
09-10-20	12.8	6.18	0.02	14.90	—	137.6	—	—	28	—	—	—	8.4	—	—	28	—	—
10-05-27	—	10.07	0.04	10.71	—	27.5	—	—	66	—	—	—	8.2	—	—	60	—	—
10-06-24	—	16.11	0.04	9.48	—	53.8	—	—	79	—	—	—	8.1	—	—	62	—	—
10-07-21	—	18.64	0.05	9.11	—	101.4	—	—	101	—	—	—	8.3	—	—	74	—	—
10-08-24	—	14.83	0.06	**5.62**	—	10.0	—	—	102	—	—	—	8.5	—	—	82	—	—
10-09-22	—	12.49	0.03	6.67	—	18.3	—	—	55	—	—	—	8.0	—	—	47	—	—
11-07-12	—	19.84	0.04	—	—	—	—	—	85	—	—	—	8.4	—	—	—	—	—
11-07-28	—	16.18	0.00	—	—	—	—	—	1	—	—	—	8.2	—	—	—	—	—
11-08-22	—	19.50	0.04	—	—	—	—	—	76	—	—	—	8.5	—	—	—	—	—
12-06-26	—	16.10	0.02	9.54	—	**648.8**	—	—	69	—	—	—	8.1	—	—	—	—	—
12-07-25	—	16.71	0.05	9.16	—	65.0	—	—	930	—	—	—	7.9	—	—	—	—	—
12-08-27	25.0	18.22	0.06	9.04	—	37.9	—	—	144	—	—	—	8.1	—	—	—	—	—
12-09-25	10.0	12.53	0.06	9.16	—	35.9	—	—	90	—	—	—	8.2	—	—	—	—	—
12-10-17	4.0	8.76	0.04	7.03	—	17.3	—	—	660	—	—	—	8.2	—	—	66	—	—

Table A 44: Site ShdF Nutrient Data

SITE ShdF: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	6.96	—	3.1	<0.1	0.57	2.20	3.08	<0.010	—	<0.05	<0.05	<0.05	3.03	0.52	—	11.9	**0.041**
99-11-18	—	—	7.99	—	3.4	<0.1	0.61	2.31	3.15	0.010	—	<0.05	<0.05	<0.05	2.91	0.28	—	8.0	**0.010**
00-10-04	—	—	14.10	—	3.0	<0.1	0.70	3.92	4.55	0.013	—	<0.05	<0.05	<0.05	2.16	0.24	—	5.3	**0.014**
00-11-12	—	—	5.22	—	5.6	<0.1	0.56	1.60	3.28	0.014	—	<0.05	<0.05	<0.05	3.34	0.40	—	15.1	**0.014**

00-12-03	—	—	4.07	—	3.8	<0.1	0.30	1.28	2.53	<0.010	—	<0.05	<0.05	<0.05	2.75	0.32	—	12.0	**0.012**
01-06-03	—	—	7.39	—	3.5	<0.1	0.49	2.56	3.74	0.010	—	<0.05	<0.05	<0.05	2.51	—	0.35	10.3	**0.031**
01-07-03	—	—	11.10	—	3.7	<0.1	0.42	3.92	4.15	0.010	—	<0.05	<0.05	0.050	3.40	—	<0.3	6.2	**0.018**
01-08-07	—	—	16.10	—	4.4	<0.1	0.85	5.34	5.48	0.013	—	<0.05	<0.05	0.096	4.26	—	<0.3	2.8	**0.012**
01-09-05	—	—	17.50	—	3.3	<0.1	0.58	4.45	5.35	<0.010	—	<0.05	<0.05	<0.05	2.67	—	<0.3	5.3	**0.014**
01-10-09	—	—	17.30	—	4.0	<0.1	0.73	4.52	5.06	<0.010	—	<0.05	<0.05	<0.05	3.07	—	0.35	4.3	**0.013**
01-11-18	—	—	11.00	—	5.0	<0.1	0.66	3.72	3.95	0.017	—	<0.05	<0.05	<0.05	13.10	—	<0.3	9.6	**0.012**
02-06-19	—	—	8.74	—	0.1	<0.1	0.29	2.47	3.08	<0.010	—	<0.05	<0.05	<0.05	0.22	—	<0.3	9.4	**0.014**
02-07-17	—	—	9.30	—	3.8	<0.1	0.44	2.99	4.32	<0.010	—	<0.05	<0.05	0.080	2.39	—	0.53	17.3	**0.030**
02-08-21	—	—	14.80	—	4.2	<0.1	0.69	4.89	5.38	<0.010	—	<0.05	<0.05	0.080	3.13	—	0.31	6.9	**0.015**
02-09-18	—	—	7.31	—	6.2	<0.1	0.63	2.20	5.33	<0.010	—	<0.05	<0.05	<0.05	4.17	—	0.54	19.2	**0.022**

Table A 45: Site ShdF Heavy Metals Data

SITE ShdF: HEAVY METALS AND OTHER ELEMENTS																					
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.380**	<0.001	—	—	<0.00001	0.54244	—	0.002	<0.00005	**1.200**	—	0.124	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	0.080	<0.001	—	—	<0.00001	0.60721	—	0.003	<0.00005	0.240	—	0.077	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.054	<0.001	—	—	<0.00001	1.06532	—	0.001	0.0012	**0.324**	—	0.145	—	<0.005	<0.001	—	<0.001	—	—	—	0.006
00-11-12	**0.332**	<0.001	—	—	<0.00001	0.4008	—	0.001	0.0006	**0.477**	—	0.040	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.225**	<0.001	—	—	<0.00001	0.3137	—	0.001	0.0005	**0.358**	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	**0.132**	<0.001	—	—	<0.00001	0.59676	—	0.002	<0.00005	**0.433**	—	0.052	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.030	<0.001	—	—	<0.00001	0.90938	—	0.003	<0.00005	0.265	—	0.036	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.019	<0.001	—	—	<0.00001	1.29566	—	0.002	<0.00005	0.060	—	0.047	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.052	<0.001	—	—	<0.00001	1.29143	—	0.003	0.0011	**0.461**	—	0.172	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

01-10-09	0.031	<0.001	—	—	<0.0001	1.28508	—	0.004	0.0007	0.202	—	0.121	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	0.091	<0.001	—	—	<0.0001	0.88623	—	0.002	0.0008	0.285	—	0.063	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	0.047	<0.001	—	—	<0.0001	0.65953	—	0.001	<0.0005	**0.318**	—	0.089	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.130**	0.001	—	—	<0.0001	0.73288	—	0.002	<0.0005	**0.848**	—	0.057	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	0.029	<0.001	—	—	<0.0001	1.18568	—	0.003	<0.0005	0.264	—	0.045	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.190**	<0.001	—	—	<0.0001	0.56123	—	0.002	0.0007	**0.541**	—	0.036	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

Table A 46: Site ShdG Field and Lab Data

SITE ShdG: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	Temp (°C)		SAL (ppt)	Dissolved O2		E. coli (MPN /100mL)	ALK_T (mg/L)	CLRA (TCU)	COND (µS/cm)		HARD (mg/L)	Lang_Ind (20°C)	pH (pH)			TDS (mg/L)		TURB (NTU)
	Air	Water		(mg/L)	%				Field	Lab			Field	Lab	Sat (20°C)	Field	Lab	
99-10-14	—	—	—	—	—	10	21.2	100	—	68.1	26.3	—	—	7.2	—	—	35.6	21.40
99-11-18	—	—	—	13.7	—	100	28.4	70	—	80.2	30.1	—	—	7.5	—	—	40.5	1.40
00-10-04	—	11.1	—	—	—	100	47.7	30	—	124	46.3	—	—	8.0	—	—	60.6	0.80
00-11-12	6.0	—	—	—	—	50	9.94	120	—	54.7	17.8	—	—	6.9	—	—	27.7	2.50
00-12-03	-3.0	—	—	—	—	20	9.97	75	—	45	15.4	—	—	7.0	—	—	23.2	1.40
01-05-16	12.0	9.1	—	11.5	97	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	19.4	16.5	—	9.2	94	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	60	30.8	50	—	72.3	32.4	—	—	7.5	—	—	39.3	1.60
01-06-12	26.2	18.4	—	9.2	98	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	29.1	**24.4**	—	8.2	99	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	90	45.3	40	—	105	43.8	—	—	7.8	—	—	53.7	2.20
01-07-12	24.3	22.1	—	9.7	111	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-25	25.0	**24.60**	—	7.7	94	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	270	63.6	20	—	139	60.2	—	—	8.0	—	—	72.8	2.50
01-08-09	25.0	**23.9**	—	9.1	108	—	—	—	—	—	—	—	—	—	—	—	—	—
01-09-05	—	—	—	—	—	60	66.4	10	—	152	66	—	—	8.1	—	—	78.2	0.50
01-10-09	—	—	—	—	—	50	73.5	15	—	161	70.3	—	—	8.0	—	—	85.1	0.10
01-11-18	2.0	—	—	—	—	40	18.4	70	—	117	39.7	—	—	7.3	—	—	60.0	2.40
02-05-09	15.9	13.2	—	10.50	99	—	—	—	—	—	—	—	—	—	—	—	—	—
02-05-24	22.8	19.0	—	9.60	105	—	—	—	—	—	—	—	—	—	—	—	—	—
02-06-05	14.5	12.6	—	10.50	96	—	—	—	—	—	—	—	—	—	—	—	—	—

02-06-19	—	—	—	—	—	<10	29.6	120	—	79.6	29.5	—	—	7.5	—	—	39.7	1.52
02-06-20	26.2	19.00	—	10.50	110	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-03	29.7	**23.70**	—	10.00	117	—	—	—	—	—	—	—	—	—	—	—	—	—
02-07-17	—	—	—	—	—	90	36.1	100	—	82.6	35	—	—	7.4	—	—	43.3	2.94
02-07-18	23.9	19.70	—	9.00	97	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-02	20.9	18.90	—	9.80	105	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-13	24.4	21.60	—	9.20	104	—	—	—	—	—	—	—	—	—	—	—	—	—
02-08-21	—	—	—	—	—	30	55.3	40	—	125	54.6	—	—	7.9	—	—	—	2.66
02-08-30	19.6	17.90	—	10.90	114	—	—	—	—	—	—	—	—	—	—	—	—	—
02-09-18	—	—	—	—	—	100	27.7	50	—	79.1	32.1	—	—	7.5	—	—	—	3.40
02-09-19	23.6	14.80	—	10.40	101	—	—	—	—	—	—	—	—	—	—	—	—	—
03-05-22	16.0	15.60	—	10.10	93	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-10	26.1	19.50	—	8.50	94	—	—	—	—	—	—	—	—	—	—	—	—	—
03-06-23	27.8	**22.50**	—	7.80	89	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-04	25.9	21.40	—	7.30	84	—	—	—	—	—	—	—	—	—	—	—	—	—
03-07-21	23.8	20.90	—	7.80	87	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-05	22.2	19.80	—	6.60	72	—	—	—	—	—	—	—	—	—	—	—	—	—
03-08-18	23.7	21.00	—	**6.40**	73	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-01	18.8	16.20	—	8.10	81	—	—	—	—	—	—	—	—	—	—	—	—	—
03-09-15	27.2	18.60	—	**5.70**	62	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-03	12.0	12.40	—	7.70	70	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-14	19.4	13.80	—	9.20	88	—	—	—	—	—	—	—	—	—	—	—	—	—
03-10-27	23.9	12.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-11	6.8	2.80	—	13.20	98	—	—	—	—	—	—	—	—	—	—	—	—	—
03-11-24	14.4	9.30	—	12.10	107	—	—	—	—	—	—	—	—	—	—	—	—	—
06-07-06	16.0	16.10	0.10	**6.50**	—	—	—	—	84	—	—	—	—	—	—	—	—	—
06-08-08	21.6	19.50	0.00	6.54	—	—	—	—	79	—	—	—	—	—	—	—	—	—
06-09-25	14.5	12.70	0.05	10.74	—	—	—	—	82	—	—	—	7.4	—	—	—	—	—
06-11-01	11.8	7.10	0.02	12.14	—	—	—	—	46	—	—	—	6.8	—	—	—	—	—
07-05-14	12.3	12.74	0.03	12.68	—	26.5	—	—	60	—	—	—	7.6	—	—	—	—	—
07-06-20	16.4	13.12	0.05	12.88	—	22.6	—	—	100	—	—	—	7.8	—	—	—	—	—
07-07-17	20.0	18.46	0.04	10.92	—	142.1	—	—	94	—	—	—	7.8	—	—	—	—	—
07-08-15	15.5	13.75	0.04	12.02	—	83.3	—	—	85	—	—	—	7.8	—	—	—	—	—
07-09-18	16.0	9.12	0.06	14.63	—	33.1	—	—	120	—	—	—	7.8	—	—	—	—	—
07-10-18	—	5.95	0.04	14.13	—	23.3	—	—	90	—	—	—	7.4	—	—	—	—	—
08-05-20	15.8	11.16	0.02	10.90	—	90.8	—	—	44	—	—	—	7.5	—	—	—	—	—

08-06-26	17.0	15.13	0.05	8.94	—	23.8	—	—	105	—	—	—	7.4	—	—	—	—	—
08-07-23	19.0	16.51	0.06	9.30	—	260.3	—	—	119	—	—	—	7.7	—	—	—	—	—
08-08-21	—	13.24	0.04	9.86	—	52.9	—	—	85	—	—	—	7.5	—	—	—	—	—
08-09-18	—	12.20	0.04	9.66	—	69.1	—	—	81	—	—	—	7.5	—	—	—	—	—
08-10-22	—	6.04	0.05	11.53	—	39.5	—	—	99	—	—	—	7.6	—	—	—	—	—
09-05-19	11.5	10.44	0.03	11.03	—	209.8	—	—	44	—	—	—	6.9	—	—	39.0	—	—
09-06-25	22.3	17.17	0.03	9.30	—	90.9	—	—	49	—	—	—	6.9	—	—	31.0	—	—
09-07-22	18.8	16.99	0.04	8.98	—	147.0	—	—	82	—	—	—	7.5	—	—	63.0	—	—
09-08-20	22.3	18.60	0.05	8.69	—	98.5	—	—	92	—	—	—	7.8	—	—	68.0	—	—
09-09-24	16.8	14.56	0.05	10.29	—	79.8	—	—	80	—	—	—	7.8	—	—	65.0	—	—
09-10-20	9.0	6.13	0.02	13.02	—	118.7	—	—	27	—	—	—	7.8	—	—	28.0	—	—
10-05-27	—	9.55	0.05	10.50	—	77.6	—	—	72	—	—	—	8.0	—	—	66.0	—	—
10-06-24	—	15.72	0.04	9.41	—	98.4	—	—	74	—	—	—	7.9	—	—	59.0	—	—
10-07-21	—	18.43	0.05	8.66	—	145.0	—	—	98	—	—	—	8.1	—	—	73.0	—	—
10-08-24	—	16.11	0.06	6.83	—	121.0	—	—	108	—	—	—	8.4	—	—	84.0	—	—
10-09-22	—	12.56	0.03	**6.43**	—	38.9	—	—	50	—	—	—	8.0	—	—	41.0	—	—
11-07-13	—	18.21	0.01	—	—	—	—	—	3	—	—	—	8.2	—	—	—	—	—
11-07-28	—	16.51	0.02	—	—	—	—	—	37	—	—	—	8.1	—	—	—	—	—
11-08-22	—	18.82	0.04	—	—	—	—	—	71	—	—	—	8.4	—	—	—	—	—
12-06-26	—	15.50	0.05	9.41	—	**1046.2**	—	—	83	—	—	—	7.8	—	—	—	—	—
12-07-25	—	16.12	0.05	8.21	—	156.5	—	—	94	—	—	—	7.6	—	—	—	—	—
12-08-27	25.0	17.55	0.07	7.20	—	290.9	—	—	340	—	—	—	7.9	—	—	—	—	—
12-09-25	10.0	19.50	0.06	7.94	—	325.5	—	—	87	—	—	—	8.0	—	—	—	—	—
12-10-17	4.0	8.63	0.04	6.74	—	19.9	—	—	63	—	—	—	8.0	—	—	73.0	—	—
13-05-30	14.0	13.77	0.03	11.36	—	147.0	—	—	44	—	—	—	7.7	—	—	—	—	—
13-06-27	13.0	13.41	0.04	7.01	—	69.0	—	—	75	—	—	—	7.9	—	—	—	—	—
13-07-30	20.0	17.96	0.20	6.87	—	138.0	—	—	490	—	—	—	7.5	—	—	—	—	—
13-08-27	24.0	15.68	0.06	**6.18**	—	139.6	—	—	105	—	—	—	8.3	—	—	—	—	—
13-10-01	20.0	12.41	0.07	7.55	—	23.1	—	—	74	—	—	—	7.7	—	—	—	—	—
13-10-29	5.0	5.20	0.04	9.03	—	—	—	—	92	—	—	—	8.2	—	—	—	—	—
14-06-25	16.0	15.72	0.03	16.33	—	62.4	—	—	51	—	—	—	7.3	—	—	—	—	—
14-07-23	28.0	21.30	0.10	7.89	—	58.3	—	—	105	—	—	—	8.4	—	—	—	—	—
14-08-28	22.0	17.40	0.06	10.01	—	290.9	—	—	105	—	—	—	7.5	—	—	—	—	—
14-09-24	9.0	10.97	0.04	—	—	34.1	—	—	70	—	—	—	7.4	—	—	—	—	—
14-10-29	12.0	8.24	0.03	—	—	35.5	—	—	44	—	—	—	6.7	—	—	—	—	—
15-06-01	12.0	12.50	0.00	9.13	—	—	—	—	59	—	—	—	7.4	—	—	—	—	—
15-06-29	16.0	13.85	0.03	—	—	109.1	—	—	45	—	—	—	8.1	—	—	—	—	—

15-08-05	24.0	18.20	0.05	8.20	—	165.2	—	—	113	—	—	—	7.8	—	—	—	—	—
15-08-26	24.0	18.20	0.06	7.05	—	>200.5*	—	—	120	—	—	—	7.8	—	—	—	—	—
15-10-06	13.0	9.79	0.03	8.63	—	65.9	—	—	44	—	—	—	7.1	—	—	—	—	—
15-11-03	5.0	6.14	0.03	8.75	—	25.4	—	—	36	—	—	—	7.1	—	—	—	—	—
16-05-31	21.0	14.80	0.04	10.18	—	93.3	—	—	74	—	—	—	7.6	—	—	59.8	—	—
16-06-29	21.0	16.50	0.06	7.41	—	228.2	—	—	104	—	—	—	7.4	—	—	80.0	—	—
16-07-27	24.0	17.00	0.06	7.76	—	214.3	—	—	112	—	—	—	7.5	—	—	86.5	—	—
16-08-24	24.0	17.40	0.05	7.73	—	129.6	—	—	94	—	—	—	7.5	—	—	72.2	—	—
16-09-28	13.0	9.70	0.07	9.67	—	36.9	—	—	101	—	—	—	7.7	—	—	93.0	—	—
16-10-25	5.0	6.90	0.05	10.47	—	16.0	—	—	73	—	—	—	7.8	—	—	72.2	—	—
17-05-31	11.0	11.6	0.03	9.97	—	25.6	—	—	45	—	—	—	7.3	—	—	39.0	—	—
17-06-27	23.0	14.6	0.05	10.01	—	86.0	45	74	89	113	43.4	-1.11	7.7	7.5	8.6	72.2	56.0	1.50
17-07-26	20.0	14.6	0.07	8.49	—	151.5	58	18	118	150	57.8	-0.71	7.9	7.7	8.4	96.2	73.0	3.70
17-08-30	15.0	13.3	0.08	8.68	—	64.0	74	13	124	162	67.7	-0.64	7.8	7.6	8.2	105.3	86.0	4.80
17-09-27	15.0	14.9	0.07	7.95	—	98.8	69	19	128	160	65.0	-0.58	7.6	7.7	8.3	102.7	84.0	1.40
17-10-24	19.0	9.8	0.07	9.95	—	31.0	66	35	110	156	63.4	-0.71	7.7	7.6	8.3	100.8	79.0	2.70
18-05-30	15.0	13.00	0.04	11.88	—	5.2	32	75	69	90.6	33.8	-1.47	7.2	7.4	8.9	58.5	47.0	1.00
18-06-28	22.0	16.50	0.04	10.90	—	28.8	32	113	68	81	31.3	-1.59	6.7	7.3	8.9	52.7	44.0	1.10
18-07-31	27.0	18.40	0.08	9.81	—	40.8	65	15	146	163	65.6	-0.50	7.6	7.8	8.3	109.2	83.0	1.00
18-08-28	—	17.40	0.06	8.64	—	90.0	51	58	116	131	51.4	-1.2	7.9	7.3	8.5	87.8	62.0	1.00
18-09-26	20.0	11.10	0.08	9.20	—	230.6	64	12	125	162	61.9	-0.44	7.7	7.9	8.3	110.5	81.0	0.80
19-06-26	17.0	14.4	0.03	10.56	—	29.2	23	130	0.051	64	25	-1.82	7.00	7.3	9.1	41.60	49	1.2
19-07-24	25.0	16.9	0.06	10.41	—	41.0	48	63	0.102	121	47.1	-0.95	7.79	7.6	8.5	78.00	68	1.0
19-08-21	23.0	16.5	0.07	7.49	—	107.6	55	22	0.123	146	55.9	-0.73	7.27	7.7	7.7	94.90	76	1.6
19-09-26	13.0	13.0	0.03	10.66	—	63.0	20	160	0.049	55	19.1	-2.28	**6.12**	7.0	9.3	40.95	53	2.1
20-06-24	28	18.2	0.07	8.67	—	173	64	15	0.138	0.166	60.9	-0.74	7.61	7.6	8.3	102.70	83	1.1
20-07-28	27	19.1	0.08	8.83	—	189	76	10	0.149	0.170	68.9	-0.51	7.76	7.7	8.2	109.20	69	0.6
20-08-25	20	16.6	0.08	10.65	—	**631**	73	1	0.142	0.173	71.6	-0.42	7.76	7.8	8.2	109.85	90	0.8
20-09-29	24	17.4	0.08	7.55	—	256	62	25	0.142	0.167	60.0	-2.06	7.62	**6.3**	8.4	107.26	92	0.7
20-10-15	16	9.9	0.07	9.52	—	30	51	74	0.110	0.158	58.5	-0.86	7.27	7.6	8.5	100.10	94	0.8
21-05-27	23	16.8	0.03	10.00	—	31	22	150	0.056	0.067	22.8	-1.99	6.80	7.2	9.2	42.90	50	1.2
21-06-29	—	20.5	0.06	—	—	158	58	23	0.123	0.148	59.8	-0.77	7.40	7.6	8.4	87.75	81	0.6
21-07-27	25	18.3	0.03	9.00	—	52	28	212	0.074	0.078	30.6	-1.75	7.70	7.2	8.9	37.00	65	1.5
21-08-24	26	19.7	0.06	11.42	—	231	56	48	0.124	0.144	56.7	-0.32	8.30	8.1	8.4	89.70	79	0.9
21-09-29	16	13.5	0.04	9.96	—	108	36	142	0.075	0.100	37.8	-1.17	7.46	7.6	8.8	62.40	69	1.3
22-06-30	23	17.0	0.06	9.45	—	253	53	73	0.105	0.123	49.1	-0.9	7.65	7.6	8.5	80.60	64	0.9
22-07-26	25	19.5	0.07	9.23	—	272	62	61	0.126	0.131	57.9	-0.56	7.71	7.8	8.4	91.65	73	0.8

22-08-29	25	17.3	0.06	9.02	—	156	48	103	0.107	0.121	47.9	-0.84	8.09	7.7	8.5	81.90	78	0.9
22-09-28	20	13.5	0.02	10.72	—	96	15	210	0.040	0.050	18.5	-2.42	6.83	7.0	9.4	33.15	54	1.2
23-06-26	13	13.6	0.04	9.20	—	148	33	132	0.650	0.081	30.6	-1.38	7.43	7.5	8.9	52.65	59	1.2
23-07-25	29	19.0	0.06	10.00	—	86	39	68	0.111	0.128	52.3	-0.89	7.70	7.7	8.6	81.25	68	0.9
23-08-29	20	15.4	0.04	10.28	—	10	33	154	0.067	0.084	33.4	-1.44	7.57	7.4	8.8	53.30	62	1.3
23-09-26	14	10.0	0.03	12.22	—	10	28	140	0.053	0.074	29.2	-1.78	7.46	7.2	9	48.75	56	1.2

Table A 47: Site ShdG Nutrient Data

SITE ShdG: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	6.74	—	4.4	<0.1	0.59	2.31	4.39	0.016	—	<0.05	<0.05	<0.05	2.68	0.56	—	18.0	**0.020**
99-11-18	—	—	7.87	—	4.8	<0.1	0.69	2.55	4.28	<0.010	—	<0.05	<0.05	<0.05	2.54	0.41	—	12.5	**0.041**
00-10-04	—	—	12.00	—	5.3	<0.1	0.68	3.99	6.01	<0.010	—	<0.05	<0.05	<0.05	3.44	0.29	—	8.0	**0.009**
00-11-12	—	—	4.73	—	6.8	<0.1	0.74	1.45	4.13	0.013	—	<0.05	<0.05	<0.05	2.74	0.50	—	18.2	**0.019**
00-12-03	—	—	3.99	—	4.8	<0.1	0.36	1.33	3.36	<0.010	—	<0.05	<0.05	<0.05	2.48	0.42	—	12.8	**0.015**
01-06-03	—	—	8.95	—	2.5	<0.1	0.52	2.43	3.20	0.012	—	<0.05	<0.05	<0.05	2.19	—	<0.3	8.9	**0.016**
01-07-03	—	—	12.30	—	2.9	<0.1	0.49	3.19	3.65	0.014	—	<0.05	<0.05	<0.05	3.01	—	<0.3	6.7	**0.015**
01-08-07	—	—	17.30	—	3.6	<0.1	0.72	4.11	4.98	0.070	—	<0.05	<0.05	<0.05	2.83	—	<0.3	4.3	**0.016**
01-09-05	—	—	16.80	—	4.3	<0.1	0.63	5.81	6.13	<0.010	—	<0.05	<0.05	0.054	4.27	—	<0.3	3.0	**0.012**
01-10-09	—	—	17.80	—	4.8	<0.1	0.94	6.26	5.87	<0.010	—	<0.05	<0.05	<0.05	4.89	—	<0.3	3.3	**0.014**
01-11-18	—	—	10.30	—	8.0	<0.1	0.88	3.37	6.67	0.012	—	<0.05	**0.123**	0.173	18.30	—	0.59	17.6	**0.017**
02-06-19	—	—	7.76	—	4.1	<0.1	0.35	2.46	4.29	<0.010	—	<0.05	<0.05	<0.05	2.03	—	0.43	15.2	**0.027**
02-07-17	—	—	9.71	—	2.4	<0.1	0.42	2.62	2.95	0.019	—	<0.05	<0.05	<0.05	2.24	—	0.40	13.2	**0.023**
02-08-21	—	—	15.50	—	3.4	<0.1	0.65	3.84	4.33	<0.010	—	<0.05	<0.05	<0.05	2.36	—	<0.3	5.4	**0.014**
02-09-18	—	—	8.49	—	3.5	<0.1	0.49	2.64	3.41	0.012	—	<0.05	<0.05	<0.05	3.06	—	0.34	11.6	**0.013**
17-06-27	44.9	0.03	11.50	0.133	6.5	0.200	0.66	3.56	5.36	<0.050	<0.001	<0.05	**0.080**	0.080	<1	0.40	0.50	9.2	**0.030**

17-07-26	57.7	0.02	14.70	0.272	6.1	0.180	0.73	5.13	6.15	<0.050	<0.001	<0.05	<0.05	<0.05	4	0.20	0.20	2.6	0.034
17-08-30	73.7	0.02	17.40	0.276	5.2	0.130	0.85	5.88	6.17	<0.050	<0.001	<0.05	0.060	0.060	4	0.20	0.30	1.5	0.053
17-09-27	68.7	0.02	16.80	0.324	6.3	0.150	0.90	5.60	6.37	<0.050	<0.001	<0.05	<0.05	<0.05	5	0.20	0.20	3.8	0.014
17-10-24	65.7	0.02	16.30	0.246	6.7	0.120	0.90	5.50	6.47	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.30	0.30	4.9	0.027
18-05-30	31.9	0.02	8.87	0.075	6.5	0.160	0.48	2.83	4.96	<0.050	<0.001	<0.05	<0.05	<0.05	3	0.40	0.40	8.3	0.027
18-06-27	31.9	0.02	8.37	0.060	5.8	0.200	0.37	2.52	5.08	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.30	0.30	12.5	0.026
18-07-31	64.6	0.03	17.30	0.383	6.4	0.190	0.78	5.45	6.36	<0.050	<0.001	<0.05	<0.05	<0.05	7	0.20	0.20	3.4	0.014
18-08-28	50.9	0.02	13.30	0.100	6.1	0.190	0.63	4.42	5.62	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.30	0.30	9.5	0.018
18-09-26	63.5	0.02	16.00	0.470	6.4	0.190	0.85	5.34	6.37	<0.050	<0.001	<0.05	<0.05	<0.05	7	0.20	0.20	3.0	0.011
19-06-26	22.9	0.02	6.7	0.043	4.2	4.20	0.34	2.03	3.8	<0.05	<0.001	<0.05	0.07	0.07	2	—	0.5	15.0	0.028
19-07-24	47.8	0.03	12.5	0.179	5.8	0.15	0.56	3.86	5.3	<0.05	<0.001	<0.05	0.19	0.19	<1	—	0.5	8.6	0.026
19-08-21	54.7	0.02	14.7	0.258	7.0	0.17	0.79	4.67	6.6	<0.05	<0.001	<0.05	0.12	0.12	3	—	0.3	4.8	0.026
19-09-26	20.0	0.02	5.2	0.019	5.0	0.31	0.76	1.48	3.7	<0.25	<0.001	<0.25	<0.25	<0.25	2	—	0.5	22	0.036
20-06-24	63.7	0.02	15.7	0.238	6.8	0.19	0.83	5.27	6.1	<0.05	<0.001	<0.05	0.26	0.26	5	—	0.4	2.6	0.021
20-07-28	75.6	0.02	18.1	0.356	6.3	0.11	0.86	5.76	6.5	<0.05	<0.001	<0.05	0.15	0.15	5	—	0.2	2.2	0.017
20-08-25	72.5	0.02	18.7	0.430	6.2	0.05	0.84	6.05	6.2	<0.05	<0.001	<0.05	0.21	0.21	5	—	<0.2	1.2	0.024
20-09-29	62.0	0.02	15.5	0.012	7.9	0.12	1.10	5.16	7.4	<0.05	<0.001	<0.05	0.08	0.08	11	—	6.0	6	0.015
20-10-15	50.8	0.02	15.1	0.190	11.2	0.17	1.32	5.05	8.9	<0.05	<0.001	<0.05	<0.05	<0.05	12	—	0.3	9.2	0.021
21-05-27	22.0	0.02	5.98	0.033	5.6	0.26	0.45	1.90	4.1	<0.05	<0.001	<0.05	0.06	0.06	3	—	0.4	14.5	0.032
21-06-29	57.8	0.02	16	0.216	6.7	0.18	0.81	4.81	6.0	<0.05	<0.001	<0.05	0.4	0.4	3	—	0.6	5.7	0.018
21-07-27	28.0	0.02	8.2	0.042	6.5	0.47	0.40	2.45	5.0	<0.05	<0.001	<0.05	0.07	0.07	3	—	0.6	21	0.040
21-08-24	55.3	0.03	14.9	0.654	7.7	0.22	0.72	4.73	6.6	<0.05	<0.001	<0.05	0.14	0.14	2	—	0.3	7.3	0.015
21-09-29	35.8	0.03	10	0.134	7.4	0.44	0.70	3.11	5.5	<0.05	<0.001	<0.05	0.17	0.17	3	—	0.6	15.5	0.032
21-10-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

22-06-30	52.8	0.02	12.9	0.198	7.0	0.19	0.56	4.09	5.8	<0.05	<0.001	<0.05	0.21	0.21	<1	—	0.6	9.8	0.027
22-07-26	61.6	0.02	15.4	0.365	6.8	0.18	0.69	4.73	6.1	<0.05	<0.001	<0.05	0.22	0.22	<1	—	0.4	5.5	0.021
22-08-29	47.8	0.03	12.9	0.225	8.7	0.27	0.78	3.80	6.8	<0.05	<0.001	<0.05	0.23	0.23	<1	—	0.6	13.7	0.043
22-09-28	15.0	0.02	5.03	0.014	6.0	0.46	0.52	1.45	3.5	<0.05	<0.001	<0.05	<0.05	<0.05	3	—	0.7	24	0.036
23-06-26	32.9	0.02	8.2	0.098	6	0.3	0.4	2.47	4.85	<0.05	< 0.001	<0.05	0.09	0.09	2	-	0.4	14.2	0.037
23-07-25	38.8	0.03	14.0	0.183	6.2	0.18	0.63	4.22	5.6	<0.05	< 0.001	<0.05	0.39	0.39	3.0	-	0.7	8.5	0.023
23-08-29	32.9	0.03	9.1	0.078	6.1	0.45	0.53	2.62	4.82	<0.05	< 0.001	<0.05	0.10	0.10	< 5	-	0.5	17.3	0.029
23-09-26	28.0	0.02	7.7	0.042	5.9	0.38	0.55	2.45	4.3	<0.05	< 0.001	<0.05	0.11	0.11	< 2	-	0.5	17.1	0.025

Table A 48: Site ShdG Heavy Metals Data

SITE ShdG: HEAVY METALS AND OTHER ELEMENTS																				
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.274**	<0.001	—	—	<0.0001	0.54035	—	0.001	<0.0005	**1.150**	—	0.029	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.144**	<0.001	—	—	<0.0001	0.61976	—	0.002	<0.0005	0.280	—	0.028	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.024	<0.001	—	—	<0.0001	0.95991	—	0.001	0.0026	0.174	—	0.017	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-11-12	**0.336**	<0.001	—	—	<0.0001	0.36343	—	0.001	0.0005	**0.452**	—	0.040	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.202**	<0.001	—	—	<0.0001	0.3137	—	0.001	<0.0005	**0.317**	—	0.038	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-06-03	0.095	<0.001	—	—	<0.0001	0.6679	—	0.002	0.0005	**0.468**	—	0.171	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.059	<0.001	—	—	<0.0001	0.90727	—	0.002	<0.0005	**0.389**	—	0.232	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.076	<0.001	—	—	<0.0001	1.25334	—	0.002	0.0006	**0.410**	—	0.248	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.012	<0.001	—	—	<0.0001	1.37612	—	0.003	<0.0005	0.082	—	0.019	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.011	<0.001	—	—	<0.0001	1.46726	—	0.004	<0.0005	0.057	—	0.061	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.241**	<0.001	—	—	<0.0001	0.82105	—	0.001	0.0006	**0.342**	—	0.032	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	**0.101**	<0.001	—	—	<0.0001	0.60721	—	0.001	0.0005	**0.509**	—	0.043	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005

02-07-17	**0.114**	<0.001	—	—	<0.00001	0.72239	—	0.002	<0.00005	**0.678**	—	0.140	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-08-21	**0.100**	<0.001	—	—	<0.00001	1.13498	—	0.003	<0.00005	**0.406**	—	0.122	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.118**	<0.001	—	—	<0.00001	0.66162	—	0.003	<0.00005	**0.487**	—	0.059	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	0.053	<0.001	0.015	0.053	<0.000001	0.89885	0.0002	<0.001	<0.001	**0.530**	0.0012	0.102	<0.0001	<0.001	0.0002	0.0008	<0.0001	0.071	<0.0001	<0.001	0.002
17-07-26	0.082	<0.001	0.015	0.077	0.000001	1.20259	0.0003	<0.001	<0.001	**0.360**	0.0016	0.271	0.0001	<0.001	0.0003	0.0009	<0.0001	0.098	0.0001	<0.001	0.001
17-08-30	**0.176**	<0.001	0.008	0.094	0.000002	1.41214	0.0005	<0.001	<0.001	**0.570**	0.0020	0.495	<0.0001	<0.001	0.0008	0.0009	<0.0001	0.111	0.0002	<0.001	0.010
17-09-27	0.026	<0.001	0.018	0.084	<0.000001	1.35494	0.0001	<0.001	<0.001	0.200	0.0020	0.171	0.0001	<0.001	<0.0001	0.0010	<0.0001	0.116	0.0001	<0.001	0.008
17-10-24	0.088	<0.001	0.009	0.089	0.000001	1.32106	0.0003	<0.001	<0.001	**0.350**	0.0021	0.326	<0.0001	<0.001	0.0004	0.0009	<0.0001	0.118	0.0002	<0.001	0.024
18-05-30	0.070	<0.001	0.019	0.043	<0.000001	0.69724	0.0001	<0.001	<0.001	**0.330**	0.0011	0.090	<0.0001	<0.001	0.0002	0.0005	<0.0001	0.055	<0.0001	<0.001	0.003
18-06-28	0.083	<0.001	0.014	0.043	<0.000001	0.64487	0.0001	<0.001	<0.001	**0.430**	0.0010	0.080	<0.0001	<0.001	0.0001	0.0005	<0.0001	0.050	<0.0001	<0.001	0.003
18-07-31	0.029	<0.001	0.065	0.073	<0.000001	1.36765	0.0001	<0.001	<0.001	0.180	0.0019	0.100	0.0001	<0.001	<0.0001	0.0008	<0.0001	0.109	0.0001	<0.001	<0.001
18-08-28	0.033	<0.001	0.044	0.064	<0.000001	1.06743	0.0001	<0.001	<0.001	0.290	0.0016	0.090	0.001	<0.001	<0.0001	0.0007	<0.0001	0.000	<0.0001	<0.001	0.002
18-09-26	0.027	<0.001	0.066	0.074	<0.000001	1.28931	0.0001	<0.001	<0.001	0.160	0.0018	0.080	<0.0001	<0.001	0.0001	0.0008	<0.0001	0.108	0.0001	<0.001	<0.001
19-06-26	**0.122**	<0.001	0.009	0.038	<0.000001	0.64487	0.0001	<0.001	<0.001	**0.510**	0.0008	0.049	<0.0001	<0.001	0.0002	0.0004	<0.0001	<0.001	<0.0001	<0.001	0.003
19-07-24	0.050	<0.001	0.012	0.055	<0.000001	1.36765	0.0002	<0.001	<0.001	**0.510**	0.0014	0.092	<0.0001	<0.001	0.0002	0.0007	<0.0001	<0.001	<0.0001	<0.001	0.002
19-08-21	0.046	<0.001	0.019	0.069	<0.000001	1.06743	0.0002	<0.001	<0.001	0.220	0.0017	0.106	0.0001	<0.001	0.0002	0.0008	<0.0001	<0.001	<0.0001	<0.001	<0.001
19-09-26	**0.201**	<0.001	0.013	0.037	0.000001	1.28931	0.0002	<0.001	<0.001	**0.560**	0.0007	0.097	<0.0001	<0.001	0.0002	0.0008	<0.0001	<0.001	<0.0001	<0.001	0.002
20-06-24	0.021	<0.001	0.024	0.071	<0.000001	1.26815	0.0001	<0.001	<0.001	0.120	0.0018	0.118	0.0001	<0.001	<0.0001	0.0009	<0.0001	0.093	0.0001	<0.001	<0.001
20-07-28	0.016	<0.001	0.019	0.078	<0.000001	1.43758	<0.00001	<0.001	<0.001	0.120	0.0020	0.081	0.0002	<0.001	<0.0001	0.0009	<0.0001	0.111	0.0001	<0.001	<0.001
20-08-25	0.022	<0.001	0.018	0.081	<0.000001	1.49483	<0.00001	<0.001	<0.001	0.100	0.0020	0.082	0.0001	<0.001	<0.0001	0.0008	<0.0001	0.114	0.0002	<0.001	0.002
20-09-29	0.026	<0.001	0.016	0.087	<0.000001	1.24911	<0.00001	<0.001	<0.001	0.080	0.0020	0.069	0.0001	<0.001	<0.0001	0.0013	<0.0001	0.118	<0.0001	<0.001	0.005
20-10-15	0.035	<0.001	0.016	0.069	<0.000001	1.21739	0.0001	<0.001	<0.001	0.150	0.0017	0.055	<0.0001	<0.001	<0.0001	0.0012	<0.0001	0.099	<0.0001	<0.001	0.001
21-05-27	**0.160**	<0.001	0.019	0.037	<0.000001	1.26815	0.0001	<0.001	<0.001	**0.390**	0.0008	0.036	<0.0001	<0.001	0.0001	0.0005	<0.0001	0.034	<0.0001	<0.001	0.001
21-06-29	0.026	<0.001	0.024	0.066	<0.000001	—	0.0001	<0.001	<0.001	0.170	0.0017	0.096	0.0001	<0.001	<0.0001	0.0009	<0.0001	0.088	<0.0001	<0.001	<0.001

21-07-27	**0.172**	<0.001	0.020	0.041	<0.00001	1.43758	0.0002	<0.001	<0.001	**0.730**	0.0010	0.060	<0.00101	<0.001	0.0002	0.0006	<0.00101	0.047	0.0001	<0.001	0.002
21-08-24	0.040	<0.001	0.051	0.054	<0.00001	1.49483	<0.00001	<0.001	<0.001	0.280	0.0016	0.046	0.0001	<0.001	<0.00001	0.0008	<0.00101	0.076	0.0001	<0.001	<0.001
21-09-29	0.093	<0.001	0.023	0.049	<0.00001	1.24911	0.0001	<0.001	<0.001	**0.500**	0.0012	0.045	<0.00101	<0.001	0.0001	0.0009	<0.00101	0.055	<0.00101	<0.001	<0.001
22-06-30	0.045	<0.001	0.054	0.054	<0.00001	—	0.0001	<0.001	<0.001	**0.510**	0.0013	0.066	0.0001	<0.001	0.0001	0.0007	<0.00101	0.071	<0.00101	<0.001	0.001
22-07-26	0.021	<0.001	0.063	0.063	<0.00001	—	<0.00001	<0.001	<0.001	0.220	0.0017	0.063	0.0001	<0.001	<0.00001	0.0008	<0.00101	0.085	<0.00101	<0.001	0.003
22-08-29	0.052	<0.001	0.054	0.054	<0.00001	—	0.0001	<0.001	<0.001	**0.500**	0.0014	0.053	0.0001	<0.001	0.0001	0.0009	<0.00101	0.076	<0.00101	<0.001	0.002
22-09-28	**0.259**	<0.001	0.037	0.037	<0.00001	—	0.0001	<0.001	<0.001	**0.550**	0.0008	0.043	<0.00101	<0.001	0.0002	0.0006	<0.00101	0.027	<0.00101	<0.001	0.002
23-06-26	**0.110**	<0.001	0.013	0.043	<0.00001	—	0.0001	<0.001	<0.001	**0.48**	0.0009	0.037	<0.00101	<0.001	0.0002	0.0005	<0.00101	0.045	<0.00101	<0.001	<0.001
23-07-25	0.032	<0.001	0.016	0.054	<0.00001	—	<0.00001	<0.001	<0.001	**0.34**	0.0014	0.045	0.0001	<0.001	<0.00001	0.0008	<0.00101	0.072	<0.00101	<0.001	<0.001
23-08-29	0.097	<0.001	0.016	0.047	<0.00001	—	0.0001	< 0.001	< 0.001	**0.46**	0.0010	0.040	<0.00101	<0.001	0.0001	0.0006	<0.00101	0.049	<0.00101	<0.001	0.001
23-09-26	**0.116**	<0.001	0.011	0.040	<0.00001	—	0.0001	<0.001	<0.001	**0.49**	0.0010	0.043	<0.00101	<0.001	0.0001	0.0006	<0.00101	0.041	<0.00101	< 0.001	0.001

Table A 49: Site ShdH Field and Lab Data

SITE ShdH: FIELD DATA COLLECTED BY YSI AND LAB SAMPLES																		
Date (yy-mm-dd)	**Temp (°C)**		**SAL (ppt)**	**Dissolved O2**		**E. coli (MPN /100mL)**	**ALK_T (mg/L)**	**CLRA (TCU)**	**COND (µS/cm)**		**HARD (mg/L)**	**Lang_Ind (20°C)**	**pH (pH)**			**TDS (mg/L)**		**TURB (NTU)**
	Air	**Water**		**(mg/L)**	**%**				**Field**	**Lab**			**Field**	**Lab**	**Sat (20°C)**	**Field**	**Lab**	
99-10-14	—	—	—	—	—	60	31	250	—	111	37.1	—	—	7.2	—	—	59.246	41.6
99-11-18	—	—	—	13.1	—	20	37.6	60	—	128	41	—	—	7.5	—	—	64.978	3.8
00-10-04	—	14.4	—	—	—	50	68.8	15	—	198	73.9	—	—	7.9	—	—	102.9	1.1
00-11-12	6.0	—	—	—	—	310	14.9	80	—	81.9	22.7	—	—	7.0	—	—	42.344	5.3
00-12-03	-3.0	—	—	—	—	10	13.1	70	—	69.7	19	—	—	7.2	—	—	35.007	2
00-12-03	-3.0	—	—	—	—	20	12.8	70	—	69.7	19.5	—	—	7.1	—	—	35.426	2
01-05-16	17.5	10.00	—	11.00	99	—	—	—	—	—	—	—	—	—	—	—	—	—
01-05-24	26.6	19.00	—	9.90	107	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-03	—	—	—	—	—	10	36.1	100	—	102	37.6	—	—	7.5	—	—	53.592	2.8
01-06-12	23.5	18.00	—	10.30	109	—	—	—	—	—	—	—	—	—	—	—	—	—
01-06-24	27.9	**23.70**	—	10.10	120	—	—	—	—	—	—	—	—	—	—	—	—	—
01-07-03	—	—	—	—	—	10	57.2	50	—	149	60.9	—	—	8.2	—	—	77.871	2
01-07-12	23.8	21.00	—	9.40	106	—	—	—	—	—	—	—	—	—	—	—	—	—

01-07-25	26.5	23.70	—	8.70	103	—	—	—	—	—	—	—	—	—	—	—	—	—	—
01-08-07	—	—	—	—	—	230	78.8	20	—	188	74.2	—	—	8.1	—	—	96.595	1.8	
01-08-09	31.2	25.10	—	7.50	95	—	—	—	—	—	—	—	—	—	—	—	—	—	
01-09-05	—	—	—	—	—	40	80.1	10	—	198	77	—	—	8.2	—	—	99.49	1.4	
01-09-05	—	—	—	—	—	310	83.4	10	—	199	82.6	—	—	8.2	—	—	103.759	1.6	
01-10-09	—	—	—	—	—	10	89.1	15	—	199	82.9	—	—	8.2	—	—	106.04	1.1	
01-11-18	2.0	—	—	—	—	50	32.3	40	—	162	48	—	—	7.5	—	—	81.983	2.8	
02-05-09	19.7	14.0	—	10.80	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-05-24	22.0	18.5	—	10.60	115	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-05	15.1	12.9	—	10.60	98	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-06-19	—	—	—	—	—	20	38.6	80	—	132	41.5	—	—	7.7	—	—	66.396	2.57	
02-06-20	26.9	22.00	—	11.30	122	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-03	31.0	25.80	—	11.20	137	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-07-17	—	—	—	—	—	90	49.8	100	—	136	52	—	—	7.8	—	—	72.873	2.8	
02-07-18	25.6	21.60	—	9.50	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-02	24.8	20.00	—	10.20	113	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-13	26.3	22.80	—	7.60	87	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-08-21	—	—	—	—	—	60	61.1	80	—	163	60.8	—	—	7.9	—	—	—	2.37	
02-08-30	20.8	19.10	—	11.30	122	—	—	—	—	—	—	—	—	—	—	—	—	—	
02-09-18	—	—	—	—	—	110	25.1	80	—	130	32.5	—	—	7.3	—	—	—	3.41	
02-09-19	25.6	16.90	—	10.00	105	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-05-22	13.8	11.50	—	10.90	98	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-10	21.8	19.70	—	9.90	108	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-06-23	23.5	21.00	—	10.30	116	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-04	27.0	20.90	—	8.30	94	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-07-21	25.7	22.70	—	9.50	111	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-05	21.3	19.40	—	9.10	99	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-08-18	21.0	21.20	—	9.30	105	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-01	20.3	17.00	—	10.50	107	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-09-15	28.1	22.40	—	9.80	114	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-03	16.8	14.60	—	10.60	103	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-15	14.7	10.50	—	10.00	89	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-10-27	19.4	13.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-11	7.3	4.70	—	13.50	104	—	—	—	—	—	—	—	—	—	—	—	—	—	
03-11-24	10.2	9.60	—	12.10	103	—	—	—	—	—	—	—	—	—	—	—	—	—	
06-07-06	16.0	16.60	0.10	5.81	—	—	—	—	139	—	—	—	—	—	—	—	—	—	
06-09-25	17.9	12.27	0.08	9.09	—	—	—	—	120	—	—	—	7.1	—	—	—	—	—	

06-11-01	11.8	8.00	0.03	11.97	—	—	—	—	69	—	—	—	6.9	—	—	—	—	—
07-05-14	12.0	11.63	0.05	13.95	—	16.0	—	—	102	—	—	—	7.5	—	—	—	—	—
07-06-20	17.8	16.23	0.06	13.68	—	80.9	—	—	125	—	—	—	7.9	—	—	—	—	—
07-07-17	21.4	20.58	0.06	12.22	—	117.8	—	—	121	—	—	—	7.8	—	—	—	—	—
07-08-15	16.2	15.31	0.06	12.01	—	71.7	—	—	134	—	—	—	7.6	—	—	—	—	—
07-09-18	16.0	13.18	0.08	11.20	—	201.4	—	—	163	—	—	—	7.6	—	—	—	—	—
07-10-18	—	7.62	0.08	11.01	—	23.3	—	—	161	—	—	—	7.1	—	—	—	—	—
08-05-20	15.8	11.20	0.04	10.89	—	36.9	—	—	79	—	—	—	7.1	—	—	—	—	—
08-06-26	17.0	15.95	0.06	8.69	—	162.4	—	—	134	—	—	—	7.4	—	—	—	—	—
08-07-23	19.0	18.59	0.07	10.24	—	116.9	—	—	77	—	—	—	7.7	—	—	—	—	—
08-08-21	—	14.60	0.06	10.62	—	198.9	—	—	137	—	—	—	7.6	—	—	—	—	—
08-09-18	—	12.48	0.06	9.15	—	37.3	—	—	127	—	—	—	7.4	—	—	—	—	—
08-10-22	—	6.28	0.07	11.58	—	**816.4**	—	—	149	—	—	—	7.5	—	—	—	—	—
09-05-19	12.3	11.31	0.04	11.07	—	64.4	—	—	67	—	—	—	6.9	—	—	59	—	—
09-06-25	22.1	17.29	0.04	**0.51**	—	216.4	—	—	80	—	—	—	7.1	—	—	61	—	—
09-07-22	19.4	17.27	0.06	9.33	—	**816.4**	—	—	109	—	—	—	7.5	—	—	83	—	—
09-08-20	21.9	19.69	0.07	9.90	—	124.6	—	—	132	—	—	—	7.8	—	—	95	—	—
09-09-24	16.8	15.56	0.06	10.90	—	57.6	—	—	102	—	—	—	7.6	—	—	81	—	—
09-10-20	7.7	6.50	0.03	12.62	—	67.7	—	—	37	—	—	—	7.5	—	—	39	—	—
10-05-27	—	11.14	0.07	10.55	—	129.6	—	—	116	—	—	—	7.9	—	—	103	—	—
10-06-24	—	17.52	0.06	9.40	—	90.9	—	—	116	—	—	—	7.9	—	—	88	—	—
10-07-21	—	21.70	0.08	7.93	—	150.0	—	—	158	—	—	—	7.8	—	—	110	—	—
10-08-24	—	18.55	0.09	7.86	—	88.2	—	—	163	—	—	—	8.0	—	—	121	—	—
10-09-22	—	12.70	0.05	**6.01**	—	75.9	—	—	82	—	—	—	7.7	—	—	70	—	—
11-07-14	—	21.30	0.02	—	—	—	—	—	147	—	—	—	8.1	—	—	—	—	—
11-07-28	—	16.76	0.04	—	—	—	—	—	75	—	—	—	7.9	—	—	—	—	—
11-08-22	—	19.80	0.04	—	—	—	—	—	61	—	—	—	8.1	—	—	—	—	—
12-06-26	—	16.90	0.02	8.58	—	365.4	—	—	141	—	—	—	7.7	—	—	—	—	—
12-07-24	—	18.05	0.05	7.73	—	88.6	—	—	900	—	—	—	7.5	—	—	—	—	—
12-08-27	25.0	19.52	0.10	**6.02**	—	71.2	—	—	186	—	—	—	7.9	—	—	—	—	—
12-09-25	10.0	14.40	0.11	**4.47**	—	39.9	—	—	189	—	—	—	7.6	—	—	—	—	—
12-10-17	4.0	9.15	0.08	**4.60**	—	21.6	—	—	115	—	—	—	7.8	—	—	89	—	—
13-05-30	14.0	13.86	0.05	10.99	—	387.0	—	—	80	—	—	—	7.6	—	—	—	—	—
13-06-27	13.0	15.55	0.07	6.84	—	64.0	—	—	123	—	—	—	7.6	—	—	—	—	—
13-07-30	20.0	18.28	0.40	8.68	—	120.0	—	—	850	—	—	—	7.3	—	—	—	—	—
13-08-27	24.0	17.74	0.09	**5.58**	—	125.9	—	—	155	—	—	—	8.2	—	—	—	—	—
13-10-01	20.0	14.05	0.07	6.60	—	18.1	—	—	110	—	—	—	7.5	—	—	—	—	—

13-10-29	5.0	5.96	0.08	8.81	—	—	—	—	172	—	—	—	8.0	—	—	—	—	—
14-06-25	16.0	16.37	0.05	16.91	—	**488.4**	—	—	95	—	—	—	7.0	—	—	—	—	—
14-07-23	28.0	**24.80**	0.10	8.24	—	142.1	—	—	156	—	—	—	8.1	—	—	—	—	—
14-08-28	22.0	19.90	0.09	9.39	—	152.9	—	—	168	—	—	—	7.8	—	—	—	—	—
14-09-24	9.0	12.63	0.07	—	—	191.8	—	—	115	—	—	—	7.2	—	—	—	—	—
14-10-29	12.0	8.33	0.04	—	—	31.3	—	—	61	—	—	—	6.6	—	—	—	—	—
15-06-01	12.0	13.60	0.10	9.05	—	—	—	—	112	—	—	—	7.4	—	—	—	—	—
15-06-29	16.0	14.05	0.06	—	—	200.5	—	—	94	—	—	—	7.9	—	—	—	—	—
15-08-05	24.0	21.00	0.09	8.00	—	>200.5*	—	—	183	—	—	—	7.6	—	—	—	—	—
15-08-26	24.0	20.62	0.09	8.35	—	94.5	—	—	184	—	—	—	7.8	—	—	—	—	—
15-10-06	12.0	10.52	0.05	8.39	—	78.2	—	—	75	—	—	—	7.1	—	—	—	—	—
15-11-03	5.0	6.28	0.04	10.79	—	13.7	—	—	60	—	—	—	7.0	—	—	—	—	—
16-05-31	20.0	14.50	0.08	10.21	—	105.0	—	—	139	—	—	—	7.5	—	—	113	—	—
16-06-29	21.0	19.40	0.09	7.45	—	224.7	—	—	163	—	—	—	7.4	—	—	19	—	—
16-07-27	24.0	20.40	0.09	7.34	—	114.5	—	—	177	—	—	—	7.5	—	—	126	—	—
16-08-24	24.0	20.00	0.09	6.75	—	96.0	—	—	177	—	—	—	7.4	—	—	127	—	—
16-09-28	12.0	10.30	0.10	10.70	—	42.0	—	—	147	—	—	—	7.5	—	—	133	—	—
16-10-25	5.0	7.80	0.10	10.06	—	8.5	—	—	135	—	—	—	7.6	—	—	131	—	—
17-05-31	10.0	11.7	0.04	10.3	—	62.4	—	—	67	—	—	—	7.3	—	—	57.9	—	—
17-06-27	21.0	16.8	0.07	8.8	—	48.0	48	59	133	159	52.0	-1.04	7.5	7.4	8.4	102.7	78.0	2.70
17-07-26	20.0	16.3	0.09	8.54	—	248.1	70	19	162	198	70.5	-0.46	7.5	7.7	8.2	26.1	95.0	2.60
17-08-30	18.0	14.9	0.11	7.63	—	51.0	91	15	182	229	87.3	-0.27	7.7	7.7	8.0	146.3	118.0	1.90
17-09-27	15.0	16.3	0.11	8.43	—	52.9	89	12	195	238	83.4	-0.10	7.4	7.9	8.0	152.1	123.0	1.40
17-10-24	18.0	9.6	0.11	11.24	—	17.0	77	18	166	229	79.2	-0.68	7.8	7.4	8.1	152.8	117.0	1.50
18-05-30	14.0	14.20	0.07	9.25	—	48.0	38	56	116	146	45.3	-1.30	7.5	7.3	8.6	94.90	73	2.3
18-06-27	25.0	17.40	0.07	**6.17**	—	51.2	38	78	123	142	40.7	-1.55	7.6	7.1	8.6	93.60	75	1.8
18-07-31	26.0	21.00	0.10	**3.37**	—	131.4	80	29	200	209	75.2	-0.88	7.6	7.2	8.1	141.05	109	3.6
18-08-28	—	18.20	0.11	**5.68**	—	**449.4**	68	24	193	214	69.3	-0.68	7.9	7.5	8.2	143.65	107	2.5
18-09-26	19.0	10.80	0.12	7.95	—	262.8	76	12	176	232	80.7	-0.28	7.6	7.8	8.1	156.65	120	2.8
19-06-26	16.0	15.0	0.06	8.11	—	82.0	37	97	0.096	121	36.2	-1.51	6.53	7.2	8.7	78.00	73	2.2
19-07-24	24.0	18.5	0.08	7.99	—	228.0	61	48	0.152	172	59.3	-0.89	7.63	7.4	8.3	113.10	93	2.9
19-08-21	23.0	19.0	0.10	**5.87**	—	107.8	63	31	0.178	201	64	-0.55	7.35	7.7	7.7	130.75	100	2.1
19-09-26	—	13.0	0.04	11.20	—	187.0	20	130	0.062	83	22.4	-2.17	**6.48**	7.0	9.2	52.00	59	4.6
20-06-24	26	**22.8**	0.10	6.91	—	20	73	24	0.198	0.125	69.9	-0.55	7.45	7.6	8.1	134.55	104	1.8
20-07-28	26	21.3	0.10	6.78	—	109	85	16	0.192	0.209	79.3	-0.63	7.41	7.4	8	134.55	79	2.6
20-08-25	20	18.8	0.10	7.53	—	**1,664**	85	2	0.180	0.207	80.0	-0.43	7.48	7.6	8	132.60	112	2.4
20-09-29	23	18.3	0.12	6.97	—	175	76	20	0.223	0.259	79.7	-0.68	7.45	7.4	8.1	166.40	140	1.5

20-10-15	14	10.2	0.12	10.45	—	20	78	26	0.181	0.259	85.5	-0.46	7.16	7.6	8.1	163.80	144	2.2
21-05-27	21	17.1	0.05	**5.44**	—	62	32	94	0.102	0.116	30.5	-1.45	6.68	7.4	8.8	74.75	70	1.7
21-06-29	—	**23.1**	0.09	—	—	173	69	26	0.177	0.200	71.6	-0.56	6.87	7.6	8.2	120.90	109	1.2
21-07-27	24	19.4	0.06	8.11	—	158	40	106	0.132	0.136	39.4	-1.44	7.54	7.2	8.6	66.00	82	2.7
21-08-24	26	20.6	0.09	9.53	—	98	68	29	0.167	0.192	65.7	-0.61	7.72	7.6	8.2	118.95	100	2.0
21-09-29	14	14.3	0.08	8.15	—	195	47	79	0.133	0.175	50.7	-1.07	7.39	7.4	8.5	108.55	98	3.0
21-10-25	8	8.6	0.08	11.04	—	199	40	155	0.115	0.171	45.8	-1.29	7.31	7.3	8.6	199.00	89	4.0
22-06-30	24	20.2	0.06	7.10	—	63	63	41	0.161	0.175	60.1	-0.67	7.47	7.6	8.3	115.70	95	1.2
22-07-26	25	21.7	0.10	7.24	—	158	82	22	0.206	0.207	75.7	-0.27	7.67	7.8	8.1	143.00	119	2.0
22-08-29	22	17.2	0.09	9.70	—	205	62	44	0.163	0.187	63.5	-0.46	7.57	7.8	8.3	124.15	104	2.2
22-09-28	19	13.6	0.04	10.67	—	52	24	147	0.068	0.084	24.9	-1.84	6.79	7.2	9	55.25	65	2.7
23-06-26	13	15.8	0.08	9.13	—	109	38	87	0.131	0.159	43	-1.03	7.42	7.6	8.6	103.35	89	2.2
23-07-25	28	20.9	0.09	8.33	—	243	62	40	0.178	0.194	66.4	-0.44	7.70	7.8	8.2	125.45	105	1.9
23-08-29	20	16.1	0.09	9.73	—	278	59	62	0.151	0.190	53.0	-0.85	7.50	7.5	8.4	118.30	106	2.7
23-09-26	14	9.6	0.07	12.26	—	243	45	79	0.103	0.146	45.3	-1.13	7.56	7.4	8.5	94.90	87	1.9

Table A 50: Site ShdH Nutrient Data

SITE ShdH: NUTRIENT DATA																			
Date (yy-mm-dd)	**HCO_3 (mg/L)**	**Br (mg/L)**	**Ca (mg/L)**	**CO_3 (mg/L)**	**Cl (mg/L)**	**F (mg/L)**	**K (mg/L)**	**Mg (mg/L)**	**Na (mg/L)**	**NH_3T (mg/L)**	**NH_3_Un(mg/L)**	**NO_2 (mg/L)**	**NO_3 (mg/L)**	**NO_X (mg/L)**	**SO_4 (mg/L)**	**TKN (mg/L)**	**TN (mg/L)**	**TOC (mg/L)**	**TP-L (mg/L)**
99-10-14	—	—	11.20	—	11.5	<0.1	1.02	2.21	8.60	0.022	—	<0.05	**0.170**	0.170	3.62	0.57	—	14.3	**0.027**
99-11-18	—	—	12.60	—	12.6	<0.1	1.61	2.32	8.39	0.430	—	<0.05	**0.250**	0.260	2.84	0.98	—	9.6	**0.033**
00-10-04	—	—	23.10	—	16.2	<0.1	1.41	3.95	12.40	0.021	—	<0.05	**0.110**	0.110	3.42	0.24	—	4.8	**0.010**
00-11-12	—	—	6.85	—	11.3	<0.1	1.58	1.37	6.67	0.380	—	0.130	**0.200**	0.330	2.94	0.94	—	15.5	**0.058**
00-12-03	—	—	5.65	—	9.8	<0.1	0.52	1.19	6.08	0.027	—	0.050	**0.140**	0.140	2.58	0.37	—	10.7	**0.019**
00-12-03	—	—	5.79	—	10.0	<0.1	0.56	1.22	6.24	0.025	—	<0.05	**0.140**	0.140	2.57	0.40	—	10.5	**0.019**
01-06-03	—	—	11.60	—	8.0	<0.1	0.61	2.09	6.32	0.020	—	<0.05	<0.05	0.070	1.93	—	0.40	11.0	**0.027**
01-07-03	—	—	18.90	—	9.0	<0.1	0.77	3.34	7.65	0.014	—	<0.05	<0.05	<0.05	2.83	—	<0.3	5.9	**0.019**
01-08-07	—	—	23.20	—	9.0	<0.1	0.84	3.95	7.92	0.020	—	<0.05	<0.05	<0.05	3.52	—	<0.3	3.5	**0.016**
01-09-05	—	—	24.10	—	9.5	<0.1	0.87	4.11	8.60	<0.010	—	<0.05	<0.05	<0.05	3.53	—	<0.3	3.1	**0.014**

01-09-05	—	—	25.80	—	9.4	<0.1	0.90	4.44	8.90	<0.010	—	<0.05	<0.05	<0.05	3.53	—	<0.3	3.1	**0.013**
01-10-09	—	—	25.80	—	8.7	<0.1	1.03	4.51	7.99	<0.010	—	<0.05	<0.05	<0.05	3.86	—	<0.3	2.9	**0.016**
01-11-18	—	—	14.50	—	17.5	<0.1	1.13	2.84	11.40	0.025	—	<0.05	**0.335**	0.385	12.80	—	0.72	10.4	**0.017**
02-06-19	—	—	12.80	—	13.8	<0.1	0.66	2.29	10.10	<0.010	—	<0.05	<0.05	0.070	2.20	—	0.39	11.7	**0.027**
02-07-17	—	—	16.10	—	10.6	<0.1	0.74	2.87	8.60	<0.010	—	<0.05	<0.05	<0.05	2.49	—	0.41	11.9	**0.029**
02-08-21	—	—	18.90	—	10.4	<0.1	1.72	3.31	8.57	0.184	—	<0.05	**0.200**	0.250	2.35	—	0.78	10.4	**0.034**
02-09-18	—	—	10.00	—	16.7	<0.1	1.14	1.82	11.40	0.024	—	<0.05	**0.120**	0.170	6.61	—	0.67	15.0	**0.033**
17-06-27	47.9	0.04	16.30	0.113	15.1	0.150	0.84	2.74	10.80	<0.050	<0.001	<0.05	**0.090**	0.090	2	0.40	0.50	8.1	**0.030**
17-07-26	69.6	0.03	21.90	0.328	14.5	0.100	0.86	3.84	9.87	<0.050	<0.001	<0.05	**0.060**	0.060	<1	0.20	0.30	2.8	**0.019**
17-08-30	90.5	0.03	27.30	0.426	17.2	0.110	1.05	4.64	11.80	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.10	<0.2	2.2	**0.014**
17-09-27	88.3	0.03	26.20	0.659	22.3	0.130	1.05	4.36	13.40	<0.050	<0.001	<0.05	<0.05	<0.05	1	0.20	0.20	2.6	**0.012**
17-10-24	76.8	0.03	24.70	0.181	23.8	0.080	1.03	4.26	13.10	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.20	0.20	2.6	**0.014**
18-05-30	37.9	0.03	14.20	0.710	17.8	0.130	0.71	2.39	10.90	<0.050	<0.001	<0.05	<0.05	<0.05	3	0.30	0.30	7.3	**0.029**
18-06-27	37.9	0.03	12.80	0.045	20.3	0.210	0.55	2.13	12.80	<0.050	<0.001	<0.05	<0.05	<0.05	2	0.40	0.40	10.0	**0.023**
18-07-31	79.9	0.04	23.70	0.119	18.1	0.140	0.80	3.88	11.10	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.20	0.20	3.7	**0.029**
18-08-28	67.8	0.03	21.70	0.200	23.6	0.150	0.80	3.67	13.70	<0.050	<0.001	<0.05	<0.05	<0.05	<1	0.20	0.20	4.6	**0.022**
18-09-26	75.5	0.03	25.40	0.450	25.2	0.140	1.57	4.20	13.00	<0.050	<0.001	<0.05	<0.05	<0.05	3	0.10	<0.2	2.4	**0.021**
19-06-26	36.9	0.03	11.2	0.055	14.2	14.20	0.55	1.99	8.9	<0.05	<0.001	<0.05	**0.05**	0.05	<1	—	0.6	12.5	**0.027**
19-07-24	60.8	0.03	18.6	0.144	15.6	0.14	0.70	3.11	10.0	<0.05	<0.001	<0.05	**0.05**	0.05	<1	—	0.4	6.6	**0.022**
19-08-21	62.7	0.03	20.1	0.295	18.9	0.16	0.86	3.35	12.1	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	5.1	**0.022**
19-09-26	20.0	0.03	6.81	0.019	11.0	0.22	0.82	1.31	6.9	<0.25	<0.001	<0.25	<0.25	<0.25	2	—	0.4	17.1	**0.038**
20-06-24	72.7	0.03	21.9	0.272	17.4	0.19	0.92	3.69	10.9	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.2	3.3	**0.020**
20-07-28	84.8	0.03	25.1	0.200	14.2	0.09	1.00	4.04	9.6	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.2	2.8	**0.015**
20-08-25	84.7	0.03	25.3	0.317	15.6	<0.05	1.20	4.09	9.3	<0.05	<0.001	<0.05	<0.05	<0.05	2	—	<0.2	2.4	**0.021**

20-09-29	75.8	0.03	25.3	0.179	34.4	0.08	1.31	4.02	17.8	<0.05	<0.001	<0.05	<0.05	<0.05	6	—	4.5	4.5	0.022
20-10-15	77.7	0.03	26.4	0.291	34.4	0.09	1.45	4.75	19.1	<0.05	<0.001	<0.05	<0.05	<0.05	5	—	<0.2	4.2	0.036
21-05-27	31.9	0.02	9.36	0.075	16.3	0.20	0.63	1.73	9.5	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.4	12.2	0.015
21-06-29	68.7	0.03	22.4	0.257	20.3	0.16	0.93	3.80	12.8	<0.05	<0.001	<0.05	0.08	0.08	<1	—	0.4	5.5	0.018
21-07-27	39.9	0.03	12.3	0.059	17.1	0.29	0.64	2.10	10.3	<0.05	<0.001	<0.05	0.08	0.08	<5	—	0.5	13.2	0.055
21-08-24	67.7	0.03	20.5	0.253	16.4	0.14	0.90	3.56	11.0	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.2	5.7	0.016
21-09-29	46.9	0.04	15.9	0.111	25.0	0.28	1.03	2.68	12.8	<0.05	<0.001	<0.05	0.08	0.08	<1	—	0.5	10.6	0.033
21-10-25	39.9	0.04	14.2	0.075	31.2	0.42	1.21	2.52	14.5	<0.05	<0.001	<0.05	<0.05	<0.05	<5	—	0.6	14.8	0.035
22-06-30	62.7	0.03	18.9	0.235	21.4	0.15	0.72	3.14	11.2	<0.05	<0.001	<0.05	0.1	0.1	<1	—	0.4	6.7	0.022
22-07-26	81.5	0.03	24	0.483	24.5	0.06	0.92	3.83	14.7	<0.05	<0.001	<0.05	<0.05	<0.05	<1	—	0.3	3.7	0.015
22-08-29	61.6	0.03	20	0.365	21.1	0.17	0.85	3.30	12.7	<0.05	<0.001	<0.05	0.07	0.07	<1	—	0.4	7.4	0.017
22-09-28	24.0	0.02	7.71	0.036	13.2	0.36	0.70	1.36	7.7	0.060	<0.001	<0.05	0.06	0.06	<5	—	0.6	18	0.032
23-06-26	37.8	0.03	13.4	0.141	21.2	0.21	0.65	2.31	14.5	< 0.05	< 0.001	< 0.05	0.05	< 0.05	2	-	< 0.2	10.5	0.035
23-07-25	61.6	0.03	21.0	0.365	19.8	0.11	0.77	3.38	13.4	< 0.05	< 0.001	< 0.05	0.05	< 0.05	2.0	-	< 0.2	5.8	0.016
23-08-29	58.8	0.03	16.7	0.175	24.9	0.31	0.83	2.74	15.3	< 0.05	< 0.001	< 0.05	< 0.05	< 0.05	< 1	-	0.4	8.7	0.025
23-09-26	44.9	0.03	14.1	0.106	17.7	0.32	0.77	2.46	11.2	< 0.05	< 0.001	< 0.05	0.09	0.09	< 2	-	0.4	11.7	0.024

Table A 51: Site ShdH Heavy Metals Data

SITE ShdH: HEAVY METALS AND OTHER ELEMENTS																						
Date (yy-mm-dd)	**Al (mg/L)**	**As (mg/L)**	**B (mg/L)**	**Ba (mg/L)**	**Cd (mg/L)**	**Cd_STL (µg/L)**	**Co (mg/L)**	**Cr (mg/L)**	**Cu (mg/L)**	**Fe (mg/L)**	**Li (mg/L)**	**Mn (mg/L)**	**Mo (mg/L)**	**Ni (mg/L)**	**Pb (mg/L)**	**Rb (mg/L)**	**Sb (mg/L)**	**Sr (mg/L)**	**U (mg/L)**	**V (mg/L)**	**Zn (mg/L)**
99-10-14	**0.270**	<0.001	—	—	<0.0001	0.76645	—	0.001	0.00107	**1.270**	—	0.096	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
99-11-18	**0.186**	<0.001	—	—	<0.0001	0.84838	—	0.003	0.001	**0.520**	—	0.093	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-10-04	0.052	<0.001	—	—	<0.0001	1.54363	—	0.001	0.00108	**0.389**	—	0.101	—	<0.005	<0.001	—	<0.001	—	—	—	0.008
00-11-12	**0.510**	<0.001	—	—	<0.0001	0.46529	—	0.001	0.00111	**0.584**	—	0.031	—	<0.005	<0.001	—	<0.001	—	—	—	0.005

00-12-03	**0.207**	<0.001	—	—	<0.0001	0.38834	—	0.001	0.0006	**0.391**	—	0.055	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
00-12-03	**0.205**	<0.001	—	—	<0.0001	0.39873	—	0.001	<0.5	**0.395**	—	0.057	—	<0.005	<0.001	—	<0.001	—	—	—	0.005
01-06-03	**0.147**	<0.001	—	—	<0.0001	0.77695	—	0.002	<0.5	**0.664**	—	0.112	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-07-03	0.081	<0.001	—	—	<0.0001	1.26815	—	0.003	0.0005	**0.561**	—	0.096	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-08-07	0.068	<0.001	—	—	<0.0001	1.55	—	0.002	0.0007	**0.348**	—	0.116	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.036	<0.001	—	—	<0.0001	1.60944	—	0.003	0.0006	0.292	—	0.084	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-09-05	0.040	<0.001	—	—	<0.0001	1.72843	—	0.003	<0.5	**0.326**	—	0.090	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-10-09	0.043	<0.001	—	—	<0.0001	1.73481	—	0.005	0.0006	0.203	—	0.076	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
01-11-18	**0.155**	<0.001	—	—	<0.0001	0.99573	—	0.002	0.0006	**0.382**	—	0.084	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-06-19	**0.139**	<0.001	—	—	<0.0001	0.85889	—	0.001	0.0007	**0.730**	—	0.100	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-07-17	**0.142**	<0.001	—	—	<0.0001	1.08009	—	0.002	0.0005	**1.000**	—	0.119	—	<0.005	<0.001	—	<0.001	—	—	—	0.009
02-08-21	0.074	<0.001	—	—	<0.0001	1.26604	—	0.003	0.0006	**0.742**	—	0.065	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
02-09-18	**0.209**	<0.001	—	—	<0.0001	0.67	—	0.003	0.0012	**0.641**	—	0.048	—	<0.005	<0.001	—	<0.001	—	—	—	<0.005
17-06-27	0.070	<0.001	0.004	0.091	<0.00001	1.08009	0.0002	<0.001	<0.001	**0.690**	0.0010	0.151	<0.0001	<0.001	0.0002	0.0011	<0.0001	0.096	0.0001	<0.001	**0.030**
17-07-26	0.024	<0.001	0.006	0.122	<0.00001	1.47155	0.0001	<0.001	<0.001	**0.470**	0.0015	0.136	0.0001	<0.001	<0.0001	0.0010	<0.0001	0.141	0.0003	<0.001	0.002
17-08-30	0.028	<0.001	0.006	0.139	<0.00001	1.82844	<0.0001	<0.001	<0.001	**0.360**	0.0016	0.128	0.0001	<0.001	0.0001	0.0011	<0.0001	0.174	0.0004	<0.001	0.012
17-09-27	0.019	<0.001	0.006	0.146	<0.00001	1.74544	<0.0001	<0.001	<0.001	0.280	0.0018	0.152	0.0001	<0.001	<0.0001	0.0011	<0.0001	0.170	0.0003	<0.001	0.012
17-10-24	0.022	<0.001	0.005	0.135	<0.00001	1.65617	0.0001	<0.001	<0.001	**0.400**	0.0016	0.176	<0.0001	<0.001	<0.0001	0.0011	<0.0001	0.164	0.0003	<0.001	0.011
18-05-30	0.070	<0.001	0.005	0.078	<0.00001	0.93885	0.0002	<0.001	<0.001	**0.460**	0.0010	0.130	<0.0001	<0.001	0.0002	0.0007	<0.0001	0.084	0.0001	<0.001	0.008
18-06-28	0.090	<0.001	0.005	0.077	<0.00001	0.84207	0.0003	<0.001	<0.001	**0.740**	0.0009	0.270	<0.0001	<0.001	0.0002	0.0007	<0.0001	0.075	0.0001	<0.001	0.007
18-07-31	0.015	<0.001	0.005	0.141	<0.00001	1.57122	0.0005	<0.001	<0.001	**1.250**	0.0016	0.760	0.0001	<0.001	0.0001	0.0011	<0.0001	0.152	0.0002	<0.001	0.002
18-08-28	0.033	<0.001	0.005	0.133	<0.00001	1.44606	0.0003	<0.001	<0.001	**0.850**	0.0015	0.600	0.001	<0.001	0.0001	0.0010	<0.0001	0.000	0.0002	<0.001	0.001
18-09-26	0.034	<0.001	0.005	0.139	<0.00001	1.68804	0.0002	<0.001	<0.001	**0.590**	0.0016	0.240	<0.0001	<0.001	0.0003	0.0018	<0.0001	0.166	0.0003	<0.001	0.001
19-06-26	**0.117**	<0.001	0.004	0.071	<0.00001	0.84207	0.0002	<0.001	<0.001	**0.770**	0.0009	0.208	<0.0001	<0.001	0.0002	0.0006	<0.0001	<0.001	0.0001	<0.001	0.002

19-07-24	0.040	<0.001	0.002	0.103	<0.00001	1.57122	0.0002	<0.001	<0.001	**0.880**	0.0013	0.217	<0.0001	<0.001	0.0001	0.0009	<0.0001	<0.001	0.0002	<0.001	0.009
19-08-21	0.030	<0.001	0.007	0.127	<0.00001	1.44606	0.0002	<0.001	<0.001	**0.620**	0.0016	0.241	0.0001	<0.001	<0.0001	0.0011	<0.0001	<0.001	0.0002	<0.001	0.001
19-09-26	**0.211**	<0.001	0.005	0.050	<0.00001	1.68804	0.0002	<0.001	<0.001	**0.610**	0.0006	0.049	<0.0001	<0.001	0.0003	0.0008	<0.0001	<0.001	<0.0001	<0.001	0.002
20-06-24	0.032	<0.001	0.006	0.125	<0.00001	1.45878	0.0002	<0.001	<0.001	**0.540**	0.0015	0.349	0.0001	<0.001	0.0001	0.0012	<0.0001	0.130	0.0003	<0.001	<0.001
20-07-28	0.025	<0.001	0.006	0.134	<0.00001	1.65829	0.0001	<0.001	<0.001	**0.480**	0.0017	0.223	0.0001	<0.001	<0.0001	0.0014	<0.0001	0.152	0.0003	<0.001	<0.001
20-08-25	0.034	<0.001	0.006	0.130	<0.00001	1.67317	0.0001	<0.001	<0.001	**0.430**	0.0016	0.153	0.0001	<0.001	0.0001	0.0015	<0.0001	0.151	0.0003	<0.001	0.002
20-09-29	0.023	<0.001	0.008	0.143	<0.00001	1.66679	0.0001	<0.001	<0.001	**0.450**	0.0016	0.213	<0.0001	<0.001	<0.0001	0.0016	<0.0001	0.162	0.0002	<0.001	0.007
20-10-15	0.032	<0.001	0.008	0.138	<0.00001	1.7901	0.0002	<0.001	<0.001	**0.450**	0.0015	0.211	<0.0001	<0.001	<0.0001	0.0014	<0.0001	0.165	0.0002	<0.001	0.006
21-05-27	**0.133**	<0.001	0.005	0.062	0.00001	1.45878	0.0001	<0.001	<0.001	**0.470**	0.0008	0.074	<0.0001	<0.001	0.0002	0.0007	<0.0001	0.054	0.0001	<0.001	0.001
21-06-29	0.037	<0.001	0.006	0.113	<0.00001	—	0.0002	<0.001	<0.001	**0.510**	0.0014	0.199	0.0001	<0.001	0.0001	0.0012	<0.0001	0.125	0.0002	<0.001	<0.001
21-07-27	**0.116**	<0.001	0.005	0.063	<0.00001	1.65829	0.0002	<0.001	<0.001	**0.720**	0.0010	0.125	<0.0001	<0.001	0.0003	0.0009	<0.0001	0.071	0.0002	<0.001	0.001
21-08-24	0.042	<0.001	0.005	0.102	<0.00001	1.67317	<0.0001	<0.001	<0.001	**0.440**	0.0013	0.087	0.0001	<0.001	<0.0001	0.0011	<0.0001	0.110	0.0002	<0.001	<0.001
21-09-29	0.094	<0.001	0.007	0.092	<0.00001	1.66679	0.0002	<0.001	<0.001	**0.660**	0.0012	0.115	<0.0001	<0.001	0.0002	0.0014	<0.0001	0.091	0.0001	<0.001	0.001
21-10-25	**0.173**	<0.001	0.005	0.083	<0.00001	1.7901	0.0002	<0.001	<0.001	**0.670**	0.0010	0.062	<0.0001	<0.001	0.0002	0.0014	<0.0001	0.088	0.0001	<0.001	0.001
22-06-30	0.046	<0.001	0.103	0.103	<0.00001	—	0.0001	<0.001	<0.001	**0.500**	0.0014	0.144	0.0001	<0.001	0.0001	0.0011	<0.0001	0.109	0.0002	<0.001	0.001
22-07-26	0.032	<0.001	0.124	0.124	<0.00001	—	0.0001	<0.001	<0.001	**0.460**	0.0018	0.123	0.0001	<0.001	<0.0001	0.0012	<0.0001	0.138	0.0003	<0.001	0.002
22-08-29	0.039	<0.001	0.106	0.106	<0.00001	—	0.0001	<0.001	<0.001	**0.460**	0.0014	0.079	0.0001	<0.001	<0.0001	0.0011	<0.0001	0.118	0.0002	<0.001	0.001
22-09-28	**0.245**	<0.001	0.050	0.050	**0.00001**	—	0.0002	<0.001	<0.001	**0.530**	0.0007	0.054	<0.0001	<0.001	0.0003	0.0008	<0.0001	0.041	<0.0001	<0.001	0.001
23-06-26	**0.112**	<0.001	0.006	0.082	0.00001	—	0.0002	<0.001	<0.001	**0.60**	0.0013	0.091	<0.0001	<0.001	0.0002	0.0008	<0.0001	0.119	0.0001	<0.001	<0.001
23-07-25	0.037	<0.001	0.007	0.108	<0.00001	—	0.0001	<0.001	<0.001	**0.47**	0.0019	0.069	0.0001	<0.001	<0.0001	0.0010	<0.0001	0.164	0.0002	<0.001	0.001
23-08-29	0.057	<0.001	0.007	0.102	<0.00001	—	0.0001	<0.001	<0.001	**0.50**	0.0015	0.081	<0.0001	<0.001	0.0002	0.0009	<0.0001	0.152	0.0001	<0.001	0.001
23-09-26	0.081	<0.001	0.006	0.075	<0.00001	—	0.0001	<0.001	<0.001	**0.48**	0.0013	0.052	<0.0001	<0.001	0.0001	0.0008	<0.0001	0.107	0.0001	<0.001	<0.001

10. *Appendix B – Water Temperature Monitoring Data*

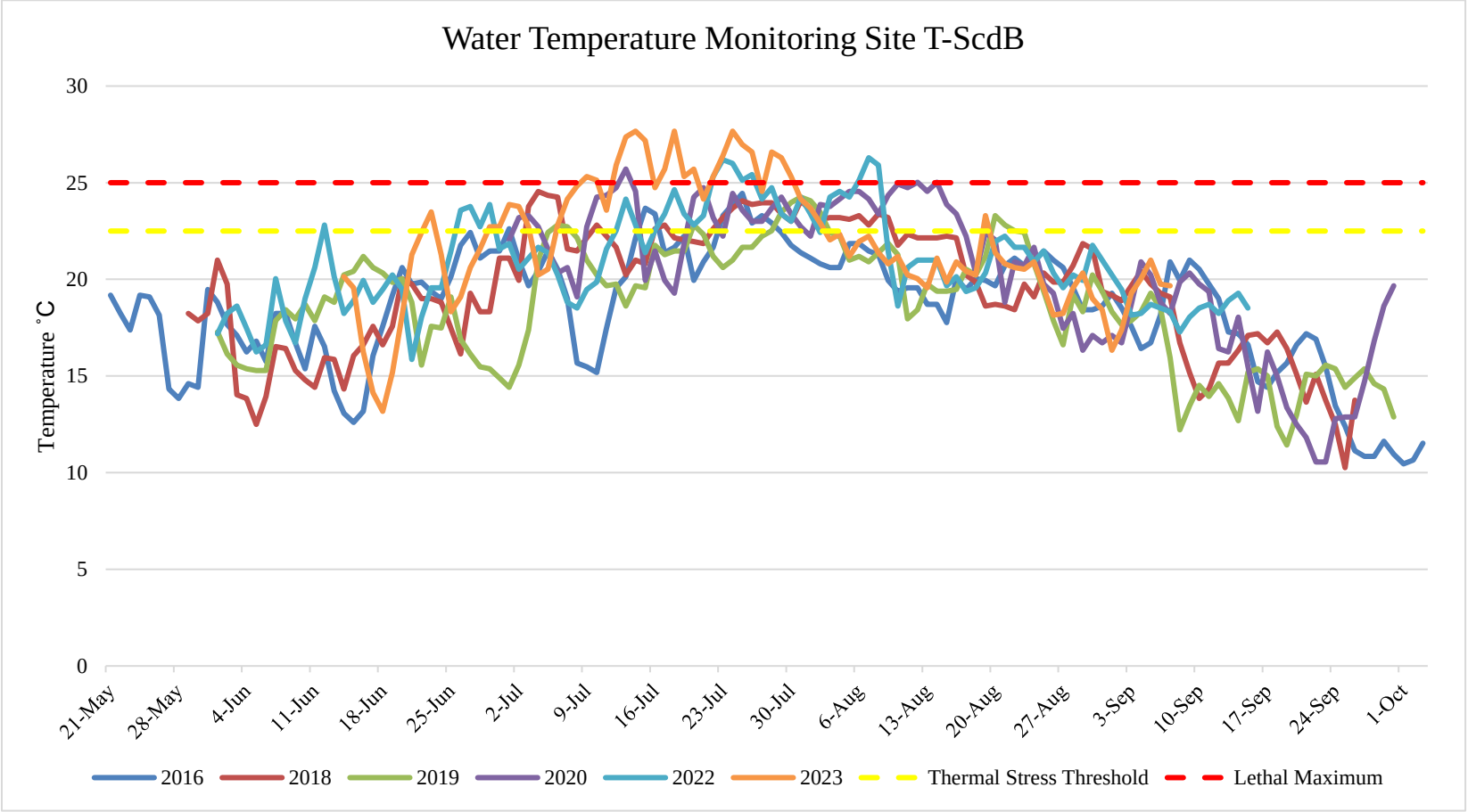

Figure B 1: Thermograph chart for monitoring station T-ScdB, Scoudouc River 2016-2023.

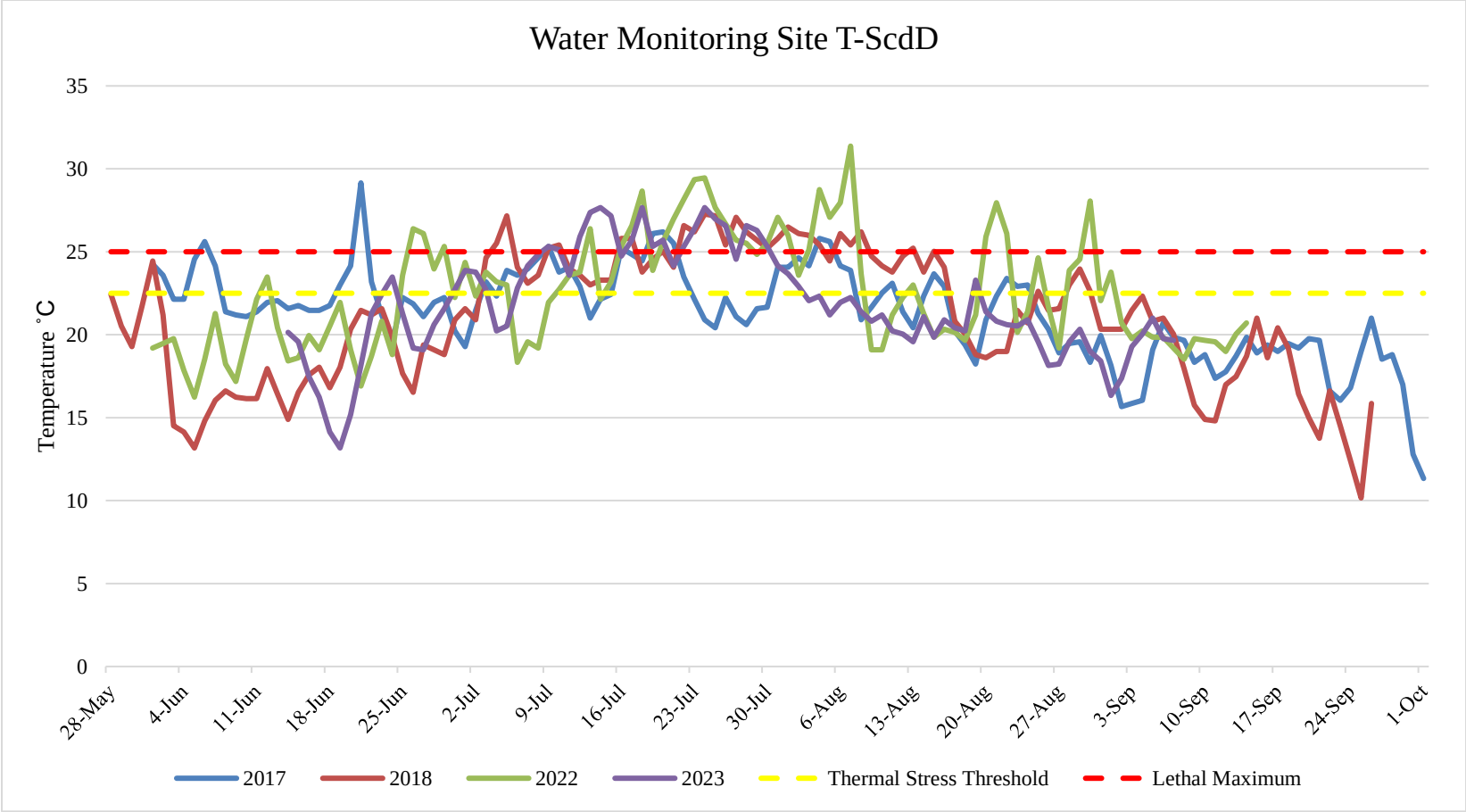

Figure B 2: Thermograph chart for monitoring station T-ScdD, Scoudouc River 2017-2023.

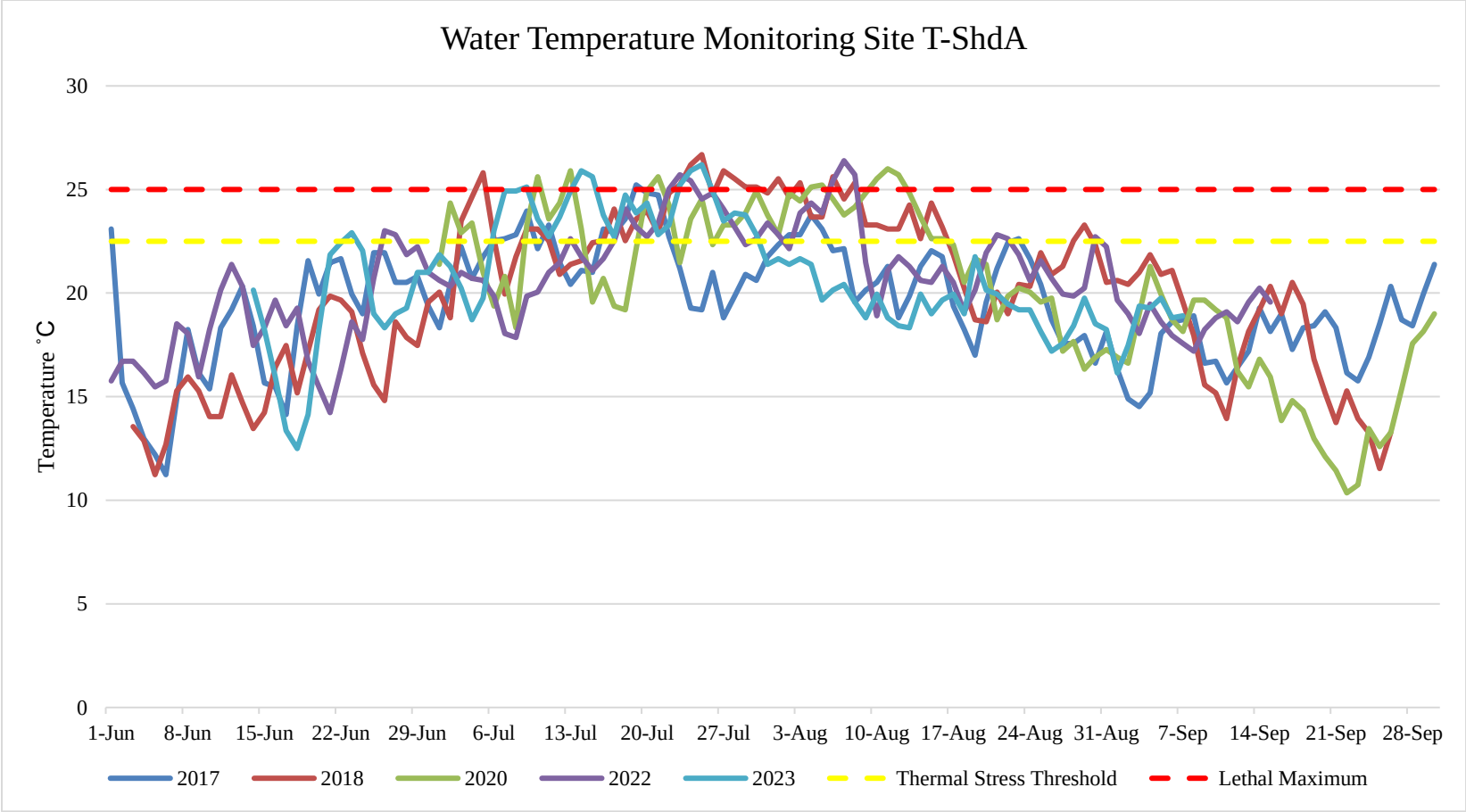

Figure B 3: Thermograph chart for monitoring station T-ShdA, Shediac River 2017-2023.

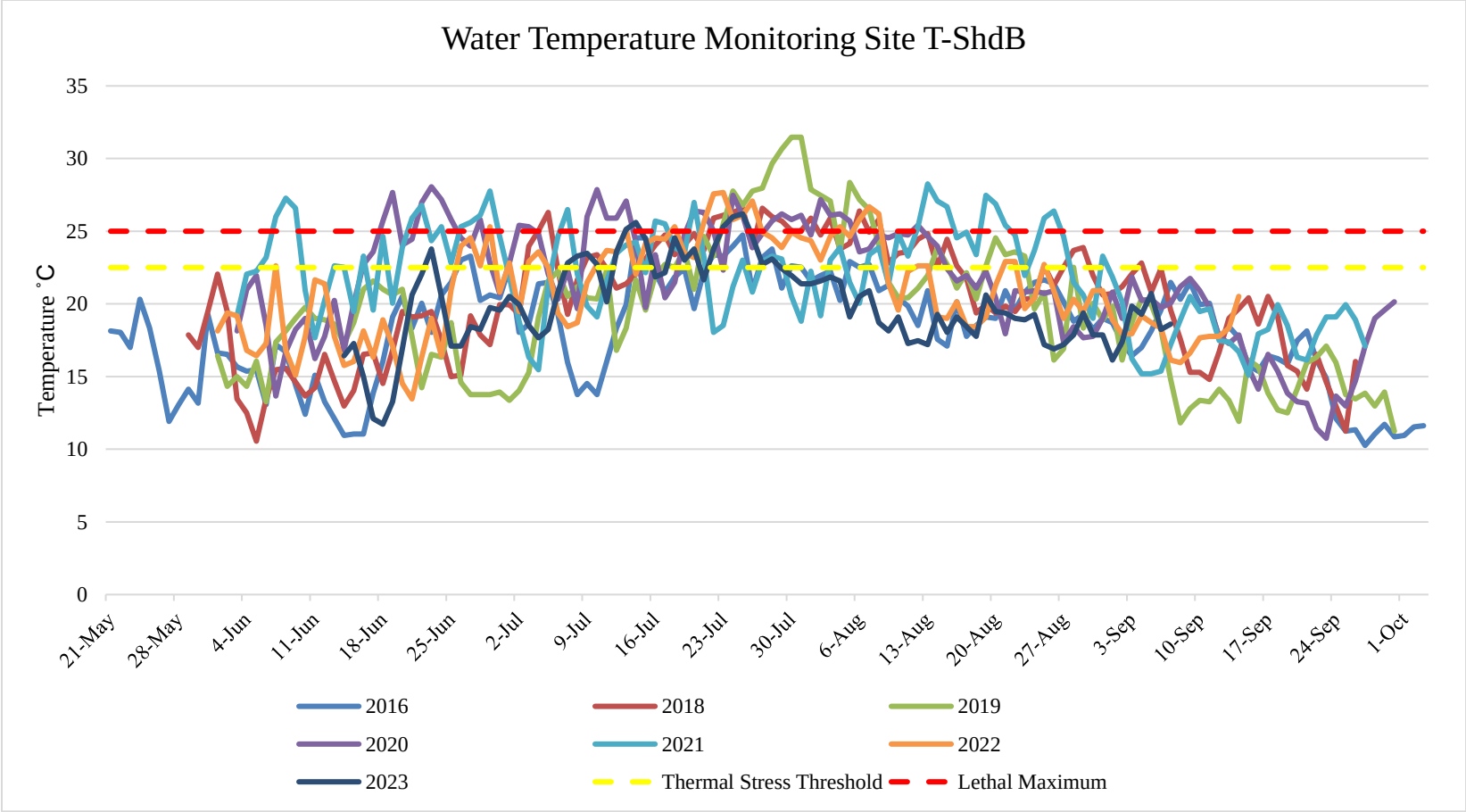

Figure B 4: Thermograph chart for monitoring station T-ShdB, Shediac River 2016-2023.

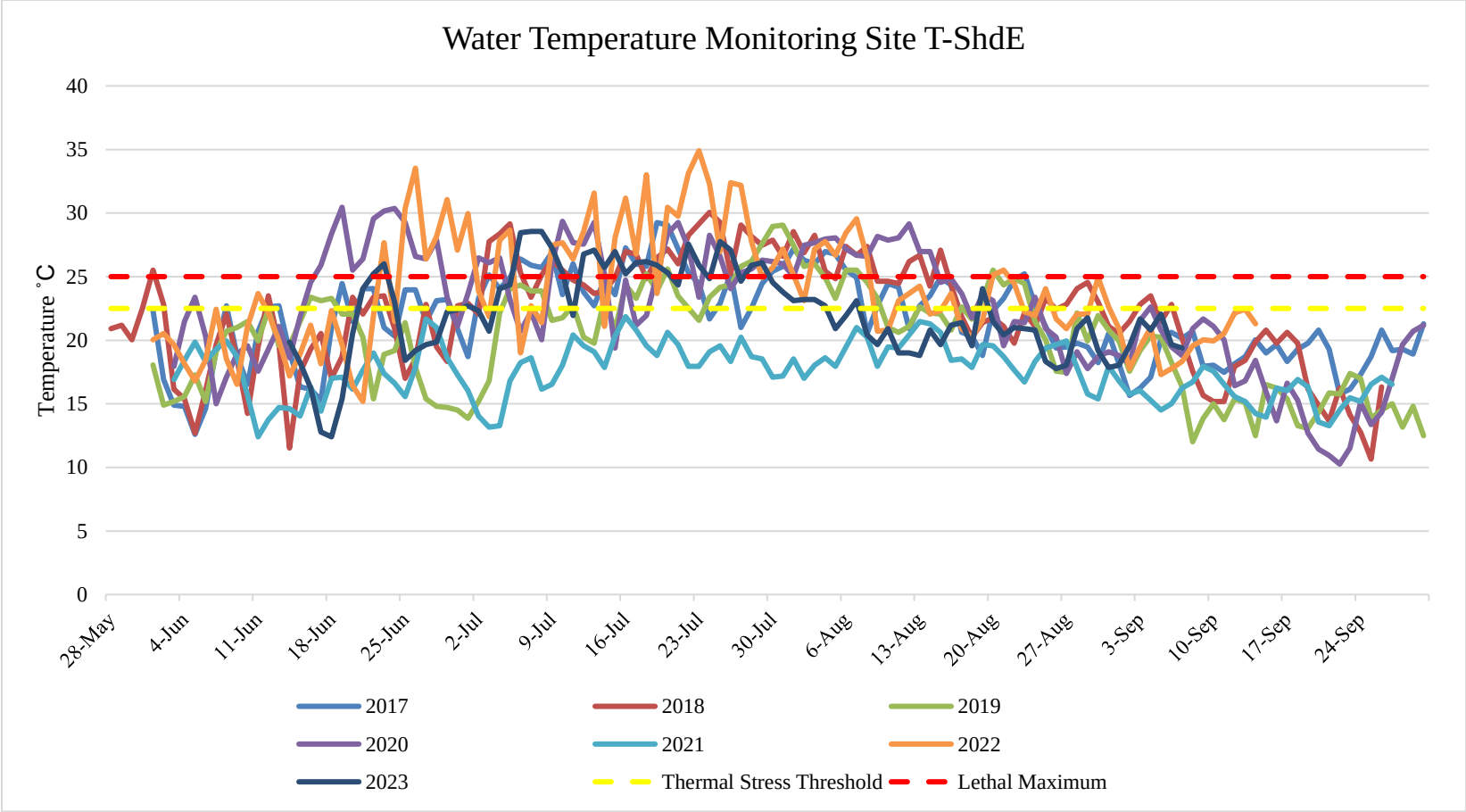

Figure B 5: Thermograph chart for monitoring station T-ShdE, Shediac River 2017-2023.

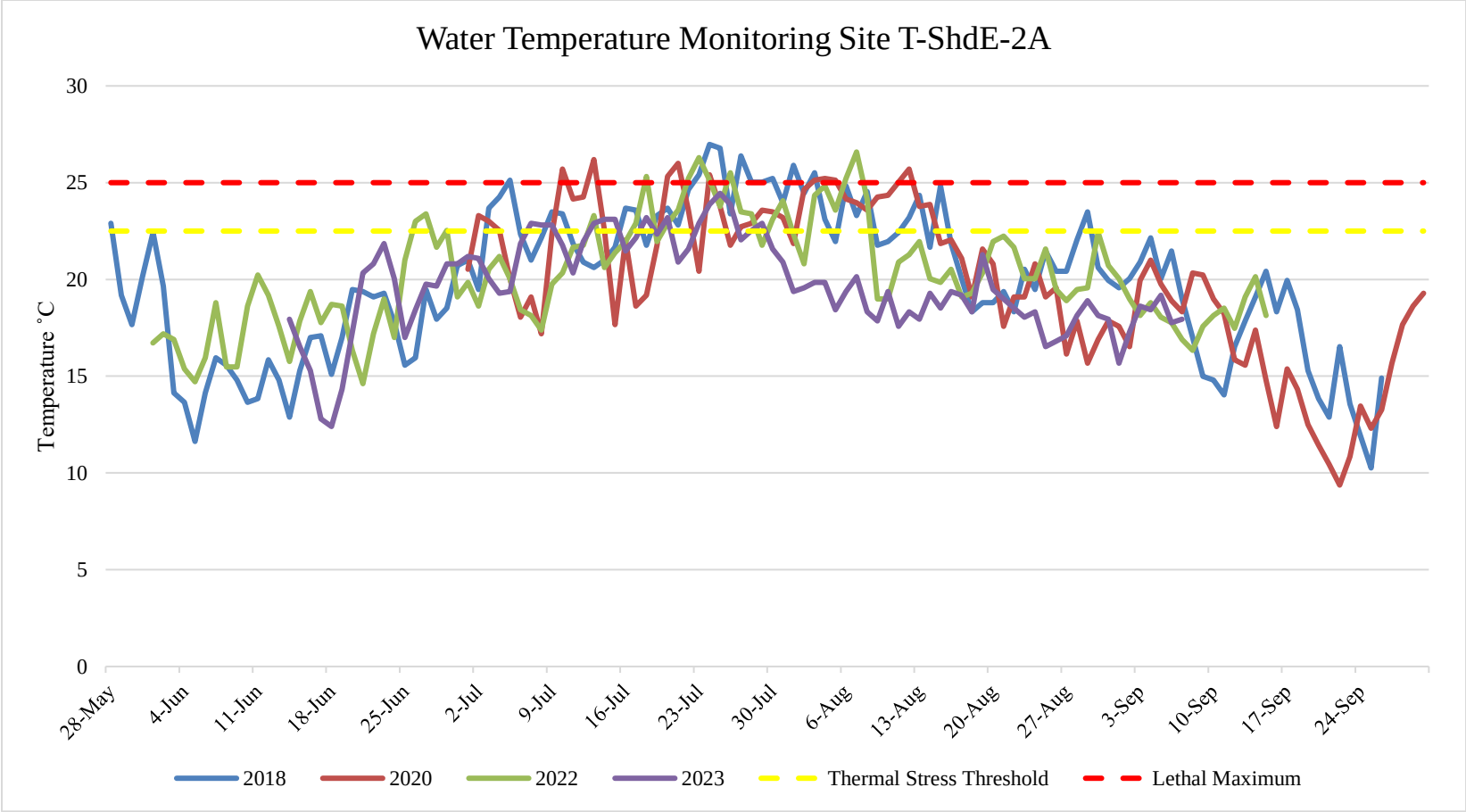

Figure B 6: Thermograph chart for monitoring station T-ShdE-2A, Shediac River 2018-2023.

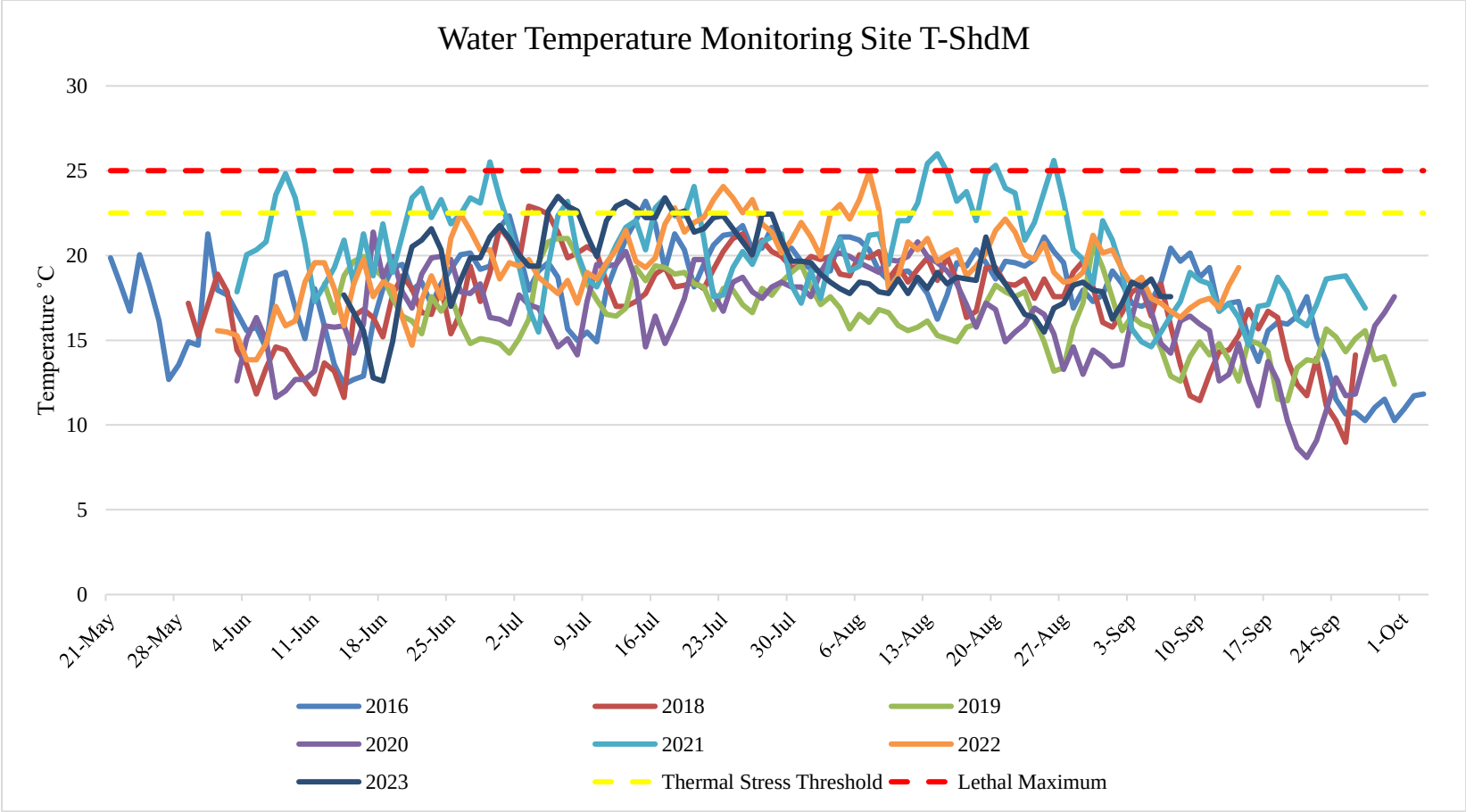

Figure B 7: Thermograph chart for monitoring station T-ShdM, Shediac River 2016-2023.