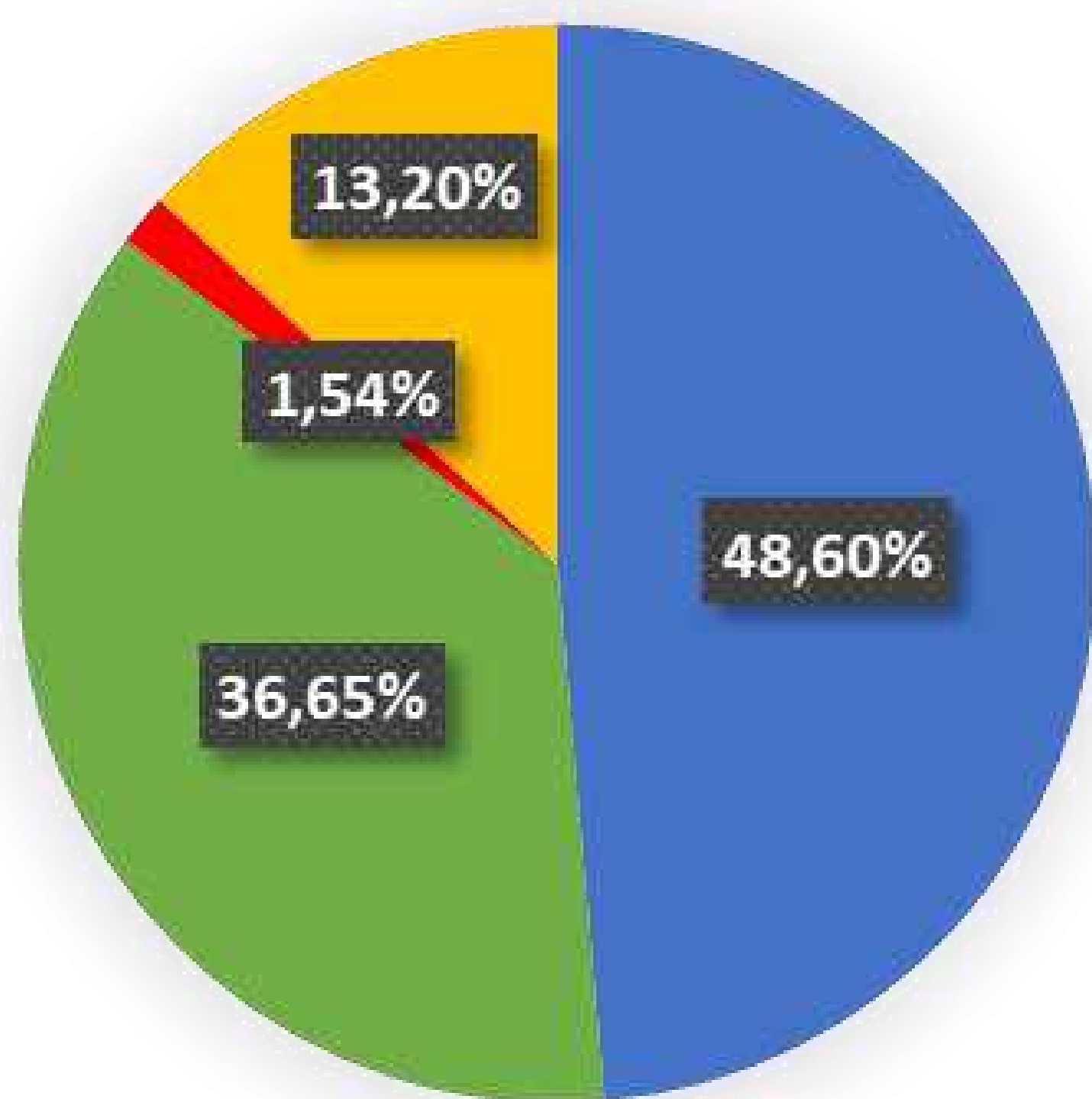


# Environmental Observatory for the bay of Sept-Îles

## WATER QUALITY

### DATA SUMMARY

#### Monitoring stations Summary of data collected in the bay of Sept-Îles 2013, 2016 and 2017



- Samples without criteria or recommendation
- Samples in compliance with criteria or recommendations
- Samples non-compliant with criteria or recommendations
- Inconclusive samples

### WATER QUALITY INDEX

Water quality classes of the study area	
Bay of Sept-Îles	
PBQI	B
WQI	84
Modified WQI	89,7

Class B PBQI: Satisfactory water quality, allowing for most uses; the downgrading parameter is the BOD5.  
Class A PBQI: Good water quality, allowing for most uses, including swimming

WQI and modified WQI	Description
Excellent (95-100)	Concentrations comply with safety criteria at practically any given time
Good (80-94)	Concentrations rarely deviate from natural or recommended levels
Satisfactory (65-79)	Concentrations occasionally deviate from natural recommended levels
Questionable (45-64)	Concentrations often deviate from natural or recommended levels
Bad (0-44)	Concentrations generally deviate from natural or recommended levels

### FINDINGS

Temperature	Surface water temperature tracked air temperature at all sampling stations, regardless of season. Thermal stratification, i.e., separate water layers at different temperatures and therefore different water densities, was observed in the summer.
Dissolved oxygen	Dissolved oxygen content measured during water quality sampling met the minimum recommended concentration of 8 mg/L. However, spot sampling conducted during characterization of sediments in the bay in 2014 (Phase II) revealed that certain values (22 out of the 187 data points collected) did not meet the recommended concentration; 88.2% of the values fell within the recommended norm. It should be noted that the lowest value measured was 7.32 mg/L, which is 8.5% less than the Canadian guideline.
Salinity	Overall, the salinity of the water in Sept-Îles Bay is around 28‰, with the exception of a few very low values recorded in the spring, possibly due to a large influx of fresh water from the ice melt usually observed during this season.
Conductivity	Conductivity generally tracks water temperature. However, there is no criterion or guideline for this parameter.
pH	The average pH of the water samples was 7.85, with a maximum of 8.06 measured in May 2016 at PT5-1 (7.5 m) and a minimum of 7.41 in July 2017 at PT3 (7.5 m). All the pH values (100%) complied with MDDELCC surface water quality criteria and Canadian guidelines.
Turbidity and dissolved and suspended solids	Turbidity and concentrations of dissolved and suspended solids in the bay were relatively low, except for a few values measured in the spring and summer, particularly at the PT4 sampling station. The high values measured in the area around PT4 appear to be of industrial origin.
Chemical oxygen demand (COD), biochemical oxygen demand (BOD5) and carbonaceous biochemical oxygen demand (BOD5C)	There is no criterion or guideline for COD or BOD5C. Daily COD values in the literature are between 100 mg/L and 500 mg/L for aquatic environments (MDDELCC, 2008), which was generally the case for the values recorded during the three sampling phases. All the BOD5C values obtained were below 1 mg/L. In the case of BOD5, only one result (i.e., 0.49% of the data) did not meet the water quality criterion of 3 mg/L. This value (16 mg/L), recorded at the water's surface at PT3 on July 27, 2016, was five times higher than the water quality criterion.
Chlorides and sulfates	Chloride and sulfate concentrations in the bay were similar to those normally found in salt water.
Fluorides	Fluoride concentrations were quite low and met surface water quality criteria.
Total oils and fats and petroleum hydrocarbons	Most total oils and fats concentrations were below the detection limit and no oil was found at the surface during sampling. As there are no criteria for petroleum hydrocarbons, it is impossible to qualify the measured concentrations as high or low. It should be noted that oil spills have occurred in the Bay of Sept-Îles.

### PHOTO CREDIT

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### FINANCIAL PARTNERS

