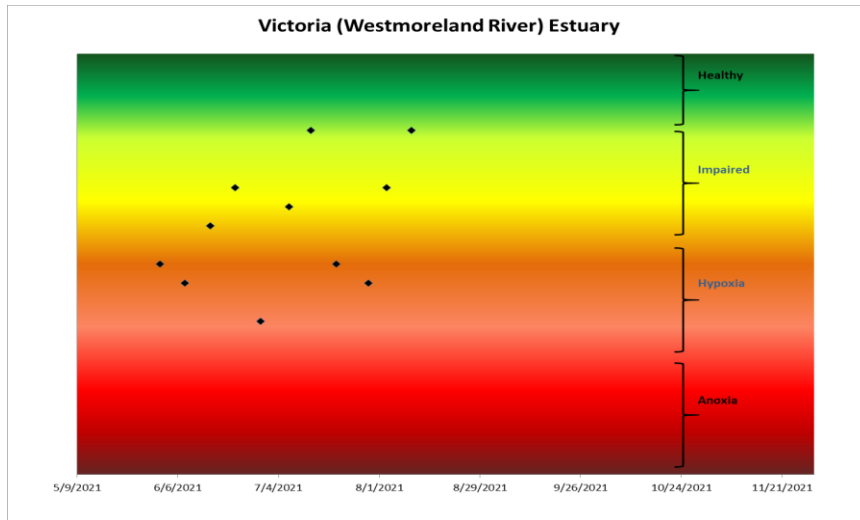


## Victoria (Westmoreland River) - 2021.



This chart shows estuary conditions in the Victoria (Westmoreland River) estuary in 2021. This was the first time an Estuary Watch record was submitted for the Victoria estuary.

Records were kept on a weekly basis between June 1st and August 10th, 2021. During this time, the estuary was mostly in either in an impaired or hypoxic state. Two observations of healthy conditions were also recorded.

The Victoria estuary is not known to experience anoxia. There have however been numerous odor issues reported in the past. These were related to dead and dying aquatic vegetation. The issue is due to eutrophication and is closely related to the occurrence of hypoxia and anoxia; so, it would not be unexpected to find those conditions present in the estuary. No anoxic conditions were reported to the PEI Department of Environment, Energy and Climate Action in the Victoria River estuary area in 2021.

The following table is a summary of these Estuary Watch results for 2021:

| Period                 | # Days Recorded | Days Healthy | Days Impaired | Days Hypoxic | Days Anoxic |
|------------------------|-----------------|--------------|---------------|--------------|-------------|
| June 1 - Aug. 10, 2021 | 11 of 70 days   | 2            | 4             | 5            | 0           |
| July 1 - Aug. 31, 2021 | 6 of 62 days    | 2            | 2             | 2            | 0           |

Sea lettuce coverage in the Victoria estuary was variable in 2021 but was generally less than 25%. There were two dates when coverage of 25% to 75% were recorded. This sea lettuce was suffering at least some die-off in all but two of the observations. Generally, the risk to water quality represented by sea lettuce growth and die-off was low to moderate however there was one observation that indicated a high risk was present. Abundant algal growth and die-off can contribute to variable dissolved oxygen levels in water, including periods of hypoxia and anoxia. The reported growth and die-off in the Victoria estuary were likely enough to result in some dissolved oxygen issues. Phytoplankton blooms can also contribute to variable dissolved oxygen. Conditions observed in the Victoria estuary in August were consistent (clear, green water) with the presence of a phytoplankton bloom.

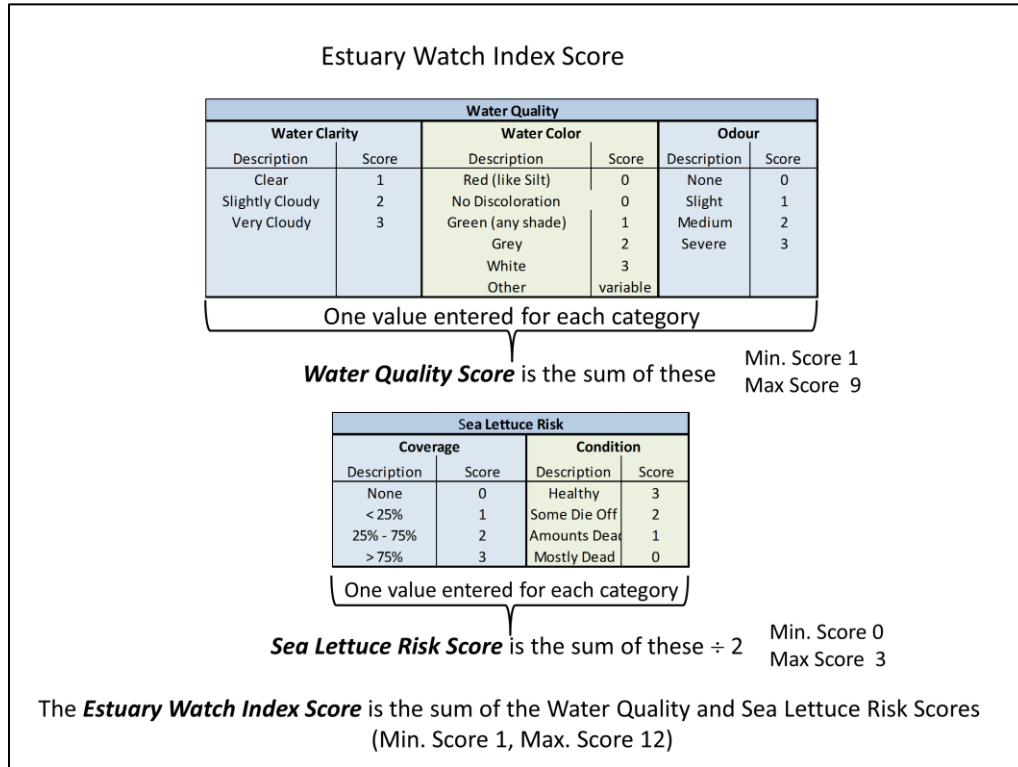
These observations were made by Estuary Watchers with the South Shore Watershed Association. The data was categorized following the Estuary Watch Index developed by the PEI Dept. Environment, Energy and Climate Action. Please see the following pages for the site location, a description of the index calculation, the water quality categories represented by the index and the data collected by the Estuary Watcher. Please contact Cindy Crane at [cscrane@gov.pe.ca](mailto:cscrane@gov.pe.ca) if you would like more information about Estuary Watch or if you are interested in becoming an Estuary Watch volunteer.

Location of the Victoria (Westmoreland River) Estuary Watch Record



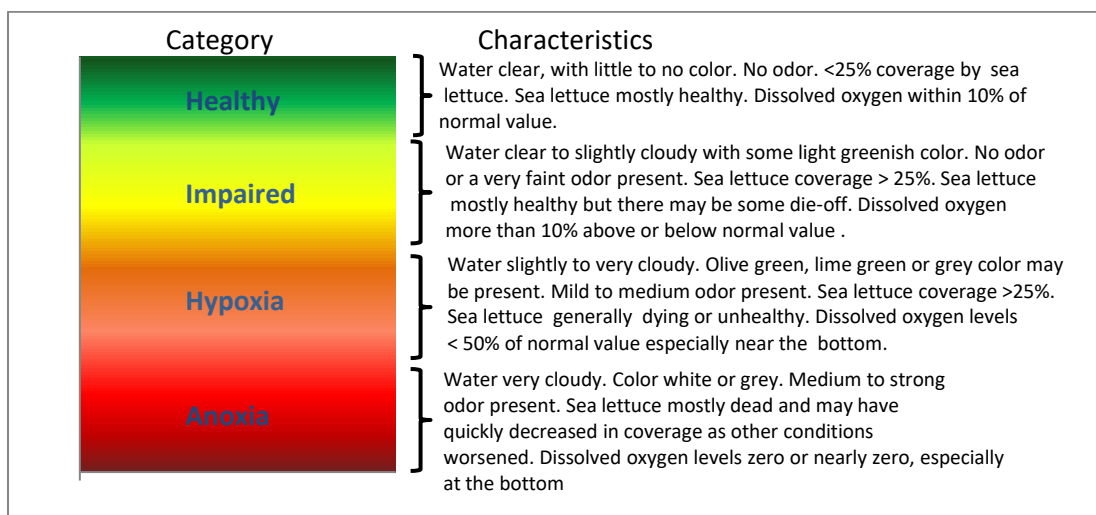
## Estuary Watch Index

Estuary Watchers record their daily observations in a log by making a check mark in the most appropriate box for each of 5 types or categories of observations. The check marks for each observation are converted to scores and the **Estuary Watch Index Score** is calculated as shown in the diagram below.



## Estuary Condition Categories

The Estuary Watch Index Score corresponds to four Estuary Condition Categories; **Healthy** (score 1-2.5), **Impaired** (score 2.6 – 5.5), **Hypoxia** (score 5.6 -8.5) and **Anoxia** (score 8.6 -12). The diagram below, describes the conditions that are typically observed in each of these four water quality categories.



Data from the 2021 Estuary Watch Record for Victoria (Westmoreland River) Estuary

| Date<br>mm/dd/yyyy | Time  | Weather<br>Optional | Water Clarity |                 |             | Color of Water  |                  |       |      |               |       | Sea Lettuce Coverage |                    |                    |                     | Sea Lettuce Condition |              |                           |             | H2S Odor |                    |              |             | Estuary Watch Score |              |                   |       |
|--------------------|-------|---------------------|---------------|-----------------|-------------|-----------------|------------------|-------|------|---------------|-------|----------------------|--------------------|--------------------|---------------------|-----------------------|--------------|---------------------------|-------------|----------|--------------------|--------------|-------------|---------------------|--------------|-------------------|-------|
|                    |       |                     | Clear         | Slightly Cloudy | Very Cloudy | Red (Like Silt) | No Discoloration | Green | Grey | White (Milky) | Other | < 5% Coverage        | 5% - <25% Coverage | 25% - 75% Coverage | 75% - 100% Coverage | Healthy               | Some die off | Equal Amt. Healthy & Dead | Mostly dead | No odor  | Mild or Faint odor | Medium Odour | Strong odor | Notes               | Anoxia Score | Sea Lettuce Score | Score |
| 6/1/2021           | 8:37  | cloudy              |               | x               |             |                 |                  | x     | x    |               |       |                      | x                  |                    |                     |                       |              |                           |             | x        |                    |              |             |                     | 5            | 1                 | 6     |
| 6/8/2021           | 9:16  | sunny               |               |                 | x           |                 |                  | x     |      |               |       |                      |                    | x                  |                     |                       |              |                           |             | x        |                    |              |             |                     | 5            | 1.5               | 6.5   |
| 6/15/2021          | 9:01  | rainy               |               | x               |             |                 |                  |       | x    |               |       |                      |                    | x                  |                     |                       |              |                           | x           |          |                    |              |             |                     | 4            | 1                 | 5     |
| 6/22/2021          | 8:37  | CLOUDY              |               | x               |             |                 |                  |       | x    |               |       |                      |                    |                    |                     |                       | x            |                           | x           |          |                    |              |             |                     | 4            | 0                 | 4     |
| 6/29/2021          | 10:10 | CLOUDY              |               | x               |             | x               |                  |       |      | x             |       |                      |                    | x                  |                     |                       |              |                           |             | x        |                    |              |             |                     | 5            | 2.5               | 7.5   |
| 7/7/2021           | 9:16  | overcast            | x             |                 |             |                 |                  |       | x    |               |       |                      |                    | x                  |                     |                       |              |                           | x           |          |                    |              |             |                     | 3            | 1.5               | 4.5   |
| 7/13/2021          | 12:45 | sunny               | x             |                 |             |                 | x                |       |      |               |       |                      | x                  |                    |                     |                       |              |                           | x           |          |                    |              |             |                     | 1            | 1.5               | 2.5   |
| 7/20/2021          | 15:01 | cloudy              |               |                 | x           |                 |                  |       |      | x             |       |                      |                    |                    |                     |                       |              |                           |             |          |                    |              |             |                     | 5            | 1                 | 6     |
| 7/29/2021          | 9:55  | cloudy              |               | x               |             |                 |                  |       |      | x             |       |                      |                    |                    | x                   |                       |              |                           |             | x        |                    |              |             |                     | 5            | 1.5               | 6.5   |
| 8/3/2021           | 11:50 | sunny               | x             |                 |             |                 |                  | x     |      |               |       |                      |                    | x                  |                     |                       |              |                           |             | x        |                    |              |             |                     | 3            | 1                 | 4     |
| 8/10/2021          | 13:25 | sunny               | x             |                 |             |                 |                  | x     |      |               |       |                      |                    | x                  |                     | x                     |              |                           | x           |          |                    |              |             |                     | 2            | 0.5               | 2.5   |