



February 1, 2023

Parlee Beach Provincial Park Tidal Inlet Dredging
Environmental Impact Assessment

Subject: **Public Consultation**

Englobe, on behalf of the Department of Tourism, Heritage and Culture, is pleased to provide the following responses to your comments and concerns regarding the proposed Tidal Inlet Dredging at Parlee Beach Provincial Park.

1 Why was this EIA titled ‘Tidal Inlet Dredging and Environmental Impact Assessment. Parlee Beach Provincial Park, Pointe-du-Chêne, New Brunswick’, and why was the report presented the way it was?

- The main focus of this project, along with the hydrodynamic assessment of the area was the inlet. It was clearer to define the project phases when discussing each section of the ‘Tidal Creek’ separately. It is proposed that the inlet be added to the current nourishment program - not the entire site. That is why we have described the EIA as Tidal Inlet Dredging.
- The format of this report follows the New Brunswick Provincial Impact Assessment Guidance document.

2 Why is the aesthetic quality of the beach not considered and instead flooding of the parking lot seems to be the primary reason that dredging is required and why did the report not mention community concerns that have been brought in the past?

- While one of the benefits of the proposed dredging is an increased evacuation rate of water within the creek, the increased tidal flushing will also improve the overall habitat to be enjoyed by the community as well as the species that use this area for foraging.
- The public consultation is the opportunity to gather information from the community, and to present these questions and answers along side the EIA Registration.

3 The community is concerned about liability issues regarding the outcome of this project.

- The current dredge plan will increase the evacuation rate of water that enters the creek during storm surges, allowing for water to recede faster than if the inlet was to remain at its current elevation. Furthermore, there are no anticipated adverse affects to the PSW itself.
- Potable water sampling was conducted at select adjacent residences in the fall of 2022 in order to demonstrate that the proposed project will not impact nearby drinking water sources.
- The surrounding wetland will be monitored, baseline data has been collected (prior to the commencement of the project), and the wetland will be continued to be monitored following project activities. The proposed Phase 3 for this project has been modified, and now only involves dredging a narrow 2 meter wide channel within the inner lagoon in order to provide flow between the north and south portions of this lagoon.

4 Dredge details. Why was it not proposed to include dredging of the channel and lagoons as part of the existing beach nourishment program?

- The proposed approach was assessed extensively, and it was determined that there would be no need to regularly dredge these locations. The majority of the channel east of the outer lagoon to the inner lagoon is currently at the proposed dredged depth, as is the northern portion of the inner lagoon. The proposed channel configuration and calculated flow rates through the creek will limit deposition of sediment and help maintain channel depth, reducing the need for regular dredging beyond the inlet. However, the westward migration of sand from the beach will continue to close the inlet and regular dredging maintenance dredging events will be required to maintain the inlet elevation.
- Bathymetric surveys of the creek will be conducted post-dredging on a regular basis to monitor channel depths and accumulation of sediment to determine when maintenance dredging events are required. The surveys may indicate that spot dredging is required through the channel, however, such events are anticipated to be rarely required.
- It should be noted that this system is dynamic in nature, and modifications to the proposed future work may change and be updated with time based on the bathymetric assessments.
- Dredging of the inlet will extend approximately 35 meters into the Shediac Bay, the total area for Phase 1 (the inlet) is approximately 1,140 m² with a volume of 520 m³. The portion of the inlet that extends into the Bay is already approved under the current Nourishment Program through DFO.
- Dredging farther into the Bay due to the sand flats was considered, however doing this would be ineffective. After the first storm event the Bay would fill back up with sediments resulting in constant dredging efforts (several times a year) to maintain a deeper bottom elevation in the Bay.

5 Repositioning of the outer lagoon section of the inlet

- The proposed option presents several drawbacks.
- The first impact is on the channel mid to long-term stability. The channel follow-up gives a clear indication of a migration of this channel southward, this tendency being stronger the further north the channel is repositioned (increasingly harsher hydrodynamic conditions). A worst-case scenario would be a storm

occurring during a neap-tide period some months or years after the channel dredging. The newly dredged channel could simply be blocked and could reopen in a totally different place (most probably at its present location). A more probable scenario will be the rapid migration of this new channel southward, due to the infill of sediments in the northern part of the channel. If the purpose of the channel dredging is securing a stable position of the channel and aiming at a minimal intervention scenario during the years following the dredging, repositioning the channel northward does not fit the purpose.

- The second impact is on dredging quantities which will explode. If requested, an evaluation of the dredging quantities implied by this “North channel option” could be done in order to compare this option with the proposed channel location option.
- The recommendation would be to keep the proposed channel location and improve the stability of some of the stone protections presently in place along the outer channel South bank. The improvement would concentrate on securing the existing stone protection from scouring by embedding the scour protection deep enough to avoid undermining. Furthermore, 4:1 slopes are proposed in the area of existing the coastal protection features limits potential for undermining.

6 Birds

- EIA Registration Documents are often submitted prior to the completion of all field studies to get the process started. Bird Surveys are to be completed closer to the beginning of project activities and during bird season in order to properly assess the site. A bird survey was completed at the end of July 2022 and identified the area as an important foraging site for various migratory and shorebirds (See attached). As a result, Phase 3 of the proposed dredging plan has been modified to reduce impact to important feeding areas within the inner lagoon. All dredging activities are scheduled to take place outside of nest and migratory birds seasons.
- The 2022 Bird Survey revealed that 26 species of birds were observed at the time of the assessment, the survey concluded that birds use the site as a feeding area and that these birds would be done with the site by the end of August 2022. A Critical Habitat Assessment for Bank Swallows was completed for the site in September 2022, this assessment revealed that Bank Swallows were foraging at the site and concluded that the proposed project will increase invertebrate productivity at the site by the increased flushing of seawater into the lagoon which will improve water quality and habitat for aquatic life and any change that might result from the dredging is unlikely to have a significant impact on foraging opportunities for the local Bank Swallow colony, based on the availability of quality foraging habitat in the area and the nature of the anticipated effects on the dredging. These studies are attached.
- Nesting bird season will be avoided (Mid-April to Late August). A bird survey was completed in July 2022 which revealed that this habitat is used for foraging by migratory and shore birds, and does present potential nesting sites for Savannah and Nelson’s Sparrows but is less ideal for other migratory and shorebirds. It was determined that these foraging activities would not be a concern by the end of August. Regardless, the proposed project activities (all Phases) are proposed to occur outside of migratory and nesting bird seasons.

7 What equipment will be used to dredge the tidal inlet?

- The amphibious boat will be used at the inlet, if there is sufficient water to use the pump and floating pipes. If conditions are dry this method will not work and an excavator or similar equipment will be required.

8 How was the dredge depth of 0.3 meters determined to be the best option for the site? Was cost a concern?

- The proposed dredge depth of 0.3 meters was determined through the hydrodynamic assessment and through the review of bathymetric and lidar data of the site, for ideal flow speeds in order to maintain this depth throughout the system. Various depths and sediment dredge volumes were considered in the planning phase, and 0.3m was determined to be optimal for the stability of the channel - deeper dredge cuts would see the channel quickly infill and/or potential collapse upon itself.
- Cost was not a primary concern when determining dredge depths. The phased approach for this work was determined based on the amount of sediment that will be dredged from the site, and how that sediment will be handled once on land. The material cannot be transported offsite until it has sufficiently dried (moisture content would be assessed by Eco360 prior to allowing it to be transported), therefore temporary containment of the sediments on site over the winter is required.

9 Why were historical dredging attempts of the site not mentioned in the Registration Document?

- For the execution of this Project, historical water level data and historical aerial photographs and Google Earth imagery, historical LiDAR surveys were used to evaluate the sites geomorphology and hydrodynamics. There is no record with the Park that historical dredge attempts occurred at the site, other than the existing nourishment program, where the permitted boundary extends into the mouth of the inlet.

10 Do nothing approach

- If no dredging occurs, the tidal inlet will continue to fill with sand and the water within the channel and lagoons will not sufficiently flush with the tides.
- Dissolved oxygen data was collected from the inlet, channel and lagoons by the SBWA in August 2022. The results indicate low levels of dissolved oxygen (ranging from 0.7 to 3.24 mg/L), and warm water temperatures (18.4 to 19.8 °C). This is due to the lack of water movement in and out of the channel and if not dredged may significantly hamper the productivity of the lagoon.
- Furthermore, there is always a risk of sea water flooding during a combined storm waves and storm surge event. In the event of an overwash with partial destruction of dunes, the reduced capacity of water evacuation (should the channel not be dredged) will increase the impact of the flood on various infrastructures.

11 Wetland Comments and Concerns:

- Will Wetland Monitoring Reports be available to the public?
 - How are Functional Assessment reports completed?
 - How were the sources of water into the wetland determined / is time of year important when collecting this information?
 - Will the wetland be restored or remediated as part of this project?
- Englobe/THC can arrange to send the wetland monitoring reports that will be submitted to the SSWM Branch to Red Dot.

- The wetland monitoring reports will be submitted to the NB Source and Surface Water Management (SSWM) Branch to be reviewed following initial dredge activities (i.e. years 1, 3 and 5 from the date of onset of initial project activities, for each Phase), the Wetland Monitoring Reports will also provide a recommendation for next steps in the monitoring program. It should be noted that the wetland monitoring program is intended to be an adaptive management approach; therefore, monitoring plans, restoration, mitigation, compensation, etc. may be required to be adjusted, pending the results of the monitoring reports.
- The functional assessment was done using Wetland Ecosystem Services Protocol for Atlantic Canada (WESP-AC) which is a standardized method for rapidly assessing wetland functions in Atlantic Canada and it is the only accepted method to evaluate wetland functions in the province of New Brunswick. WESP-AC is a regionalized adaption of WESP and is consistent with other methodologies across various jurisdictions. WESP-AC consists of a manual and its appendices, data forms and an excel spreadsheet calculator. The data forms consist of standardized desktop and field evaluation questions which are input into the WESP-AC calculator. The calculator contains formulas that use the answers of the data forms with science-based models to automatically generate scores which are intended to quantify wetland functions. Please refer to Appendix H for the field and office form questions. Essentially the WESP-AC results can help consultants and regulators to determine how important a wetland is, when to avoid a wetland, and compensation required (if altering) and aid in determining a monitoring plan. The monitoring plan will be completed at 1,3,5 year intervals and compared with previous years data to document any change. For more information on WESP-AC, go to <https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Wetlands-TerreHumides/WetlandEcosystemServicesProtocol.pdf>
- The recognized period, or “season”, for conducting wetland assessments in New Brunswick is June 1st through September 30th, of every year when vegetation can be easily observed and identified as this is considered the “growing season” in New Brunswick. Wetland delineations must be conducted during the growing season in order to obtain accurate identification of plant species. For an area to be considered a wetland it must meet have all three wetland parameters (hydrophytic vegetation, hydric soils and wetland hydrology). “Dry” season may impact hydrology observations and that is taken into consideration, if wetland hydrology is not present but hydric soils and hydrophytic vegetation is, consultants will usually monitor for hydrology. However that was not required as wetland hydrology was evident during the delineation on July 17-18, 2021. There were at least three primary wetland hydrology indicators present such as: saturated soils, sparsely vegetated concave surface, and aquatic fauna. Only one primary hydrology indicator is required to meet the wetland hydrology parameter. It is not necessary to collect every primary or secondary hydrology indicator for a wetland hydrology that may be present at a different time of the year, if the wetland hydrology parameter has already been met.
- The source of water in the wetland is based on the site topography, surrounding features, historical data, and knowledge of tidal systems. Furthermore, flora within the wetland are primarily saltwater tolerant plants, suggesting the primary source of water is from the marine environment. Runoff and precipitation contribute to the hydrology, but are less significant than the tidal sources. When the tidal inlet is blocked with sand accumulation as it currently is, the system is not receiving as much input/output from the Bay, and runoff/precipitation would be a more significant source of water within the system, however still considerably less than the tidal influence. The wetland will not be altered as part of this proposed project.
- The PSW will not be impacted by the proposed project activities. The scope for Phase 3 has been updated to only dredge a 2m wide channel within the inner lagoon to allow flow between the north and south sides of this lagoon. Regardless, the wetland will be monitored which includes the baseline data collected from the proposed monitoring locations, and monitoring following the project activities and

monitoring reports will be submitted to SSWM Branch at each monitoring year (years 1, 3 and 5 from the date of initial project activities, for each Phase).

12 Archaeological Assessment Comments and Concerns

- The statements within the Registration document regarding archaeology are based on and summarize the findings and recommendations of the Archaeological Assessment presented in Appendix F of the EIA.
- An information request to Tourism, Heritage and Culture was made as part of the archaeological Documentary Research (see pages 9-10 and Appendix A within Appendix F of the EIA). Information received about CbDd-24 consisted of a Maritime Archaeological Resource Inventory (MARI) form, which is summarized in the Archaeological Assessment presented in Appendix F of the EIA. The MARI form indicated that the site consisted of 19th - 20th century refuse (MARI form section B2), found by an archaeologist doing a field survey and historical research (see checked boxes of Section D9 of the MARI form). The MARI form indicated that the site was 0 m to 2 m from the bank and that the nature of the site was coastal, not benthic, and that the archaeological objects were found in sand with dune vegetation on top (see section B2 of the MARI form). Further, the MARI form (section C4) stated that the area of concern was the shoreline not the benthic area. The MARI form did not quantify the observed or collected archaeological objects.
- The visual survey was carefully executed to coincide with low tide. At that time, the sediments along the inlet/outer channel were visible and no archaeological objects were observed. This includes the sediments that remained under very shallow water at low tide at the time of the survey.
- The archaeological investigation followed provincial Guidelines. Under those Guidelines (page 22), archaeological monitoring is not permitted unless manual testing is first completed. This is stated on pages 2, 73, 76, and 79 of Appendix F of the EIA. Since the top of bank at CbDd-24 is being avoided, and archaeological objects were previously collected by GNB at this location, archaeological testing was not recommended. Archaeological testing would unnecessarily damage the archaeological site and the shoreline, particularly since that area will be avoided by the project. The five recommendations were developed to mitigate potential impacts to known and unknown, including Indigenous, archaeological resources. Under the recommendations, and under the Heritage Conservation Act, there is a duty to report archaeological discoveries to the Minister that will be followed during the project.
- Rest assured that the registered location of CbDd-24 was visited by a Registered Professional Archaeologist during the Preliminary Investigation. The location in which the artifacts were found in 2017 is based on the MARI form, which showed the location as a red line along the shoreline and made no reference to archaeological objects being found in the water. The location is also based on the archaeological map purchased from Tourism, Heritage and Culture (Figure 2 in Appendix F of the EIA). Photographs 21, 22, 31, 43, 44, 48, 49, 50, 52 show the registered location of CbDd-24 as well as the area closer to what was termed Area B in Appendix F of the EIA. The arrows within the photographs are merely approximate locations. CbDd-24 was registered as about 25 m long.
- The submerged bottom of the inlet / outer channel was visible at the time of the archaeological survey, which coincided with low tide. The bottom of most of the channel around Areas B, C, and D (as indicated in Figure 1, Appendix F) was not visible, but these locations were more than 100 m from CbDd-24. A visual examination of all banks and the shoreline in the Project Area (page 47, Appendix F) was undertaken. The walkover and flyover inspections were undertaken at low tide to maximize visibility of dry land and in the western end of the channel around Area A and around CbDd-24 (see pages 1, 47, 63 of Appendix F). Although it is not clear from the aerial and at-grade photographs in Appendix F, at

the time of the field survey, the surface of the sediments under very shallow water was visible in the area near CbDd-24. The entirety of the sediment surface under the shallow low tide water was visible from around the western end of the Project Area to the area north of 2nd Avenue. No archaeological objects were observed or collected in this or any other area during the Preliminary Field Examination. This included the underwater sediment surface in throughout the Inlet/Outer Channel area.

- Recommendations 1, 2, 3, and 4 relate to unplanned archaeological discoveries during project-related activities.
- The Minister of Tourism, Heritage and Culture issued an archaeological Site Alteration Permit to carry out the Project. Following review of Appendix F of the EIA and its recommendations, the Minister of Tourism, Heritage and Culture issued a permit to carry out the project with no further archaeological investigation required. If archaeological objects are found during dredging, the Minister must be notified.
- Regarding points A, B, and C, thank you for the additional information.
 - A) It was noted on page 6 of Appendix F, that the tidal inlet may have been previously dredged. Previous dredging would lower the archaeological potential of the tidal inlet.
 - B) The analysis of the historical aerial photographs showed that the dunes north of CbDd-24 had formed sometime after 1983 so they were known to be relatively recent.
 - C) Skull Island is an important location. It is outside the area of project-related activities. The author of Appendix F previously worked on analysis of Indigenous ceramics from Skull Island. The reference to “archaeology of the region” on page 10 of Appendix F relates to Skull Island and other locations outside the Project Area. As such, readers of Appendix F were directed to the 2019 Stantec report for an overview of the general area around the Project. The 2019 report mentions Skull Island. The 2019 archaeological monitoring recovered no archaeological objects.
- Regarding the local findings by Laura Berry:
 - The dating of archaeological objects found by others relied on statements in the CbDd-24 MARI form. The MARI form variously stated the archaeological objects were “late 19th - early 20th century” (page 1) and “mid-late 19th century” and “some early 20th century”. (Page 3), and “late 19th - early 20th century” (page 4). Section C2 of the MARI form identifies the archaeological materials as “19th - 20th Century Euro-Canadian”. As such, as part of the Documentary Research, Appendix F attributed the objects found at CbDd-24 to the 19th and 20th centuries. The only reference to earlier, possibly 18th century material, is a speculative statement on page 3 of the MARI form about stone ballast.
 - Thank you for the aerial image and the clarification on this location. In reference to the aerial image with the dropped pin, you will see that the pinned location is near the eastern end of the registered CbDd-24 location. The dropped pin appears to be in the eastern part of Area A, not in Area B (please refer to Figure 1. Rest assured that the entire length of area shown in the aerial photograph with the dropped pin was visually surveyed. In Appendix F, Areas A, B, C, and D, were preliminary and approximate, merely to give the archaeologist a rough idea of where activities may be carried out. Regarding photographs 48, 49, and 52, the arrows are labelled merely as approximate locations. Photograph 49 (page 67) does not show Area B, but it shows the eastern portion of Area A. Along with the entirety of the shoreline and the inlet channel, the CbDd-24 location, as shown in the MARI form as a red line in an aerial image, was visually surveyed.
- Has the entire site been assessed for artifacts?
 - The MARI form for CbDd-24 should clear up any confusion about the registered location and the estimated size of the refuse deposit. Rest assured that although the arrows in the Appendix F photographs indicate only approximate areas, the CbDd-24 location was visually surveyed as part of the archaeological investigation. The MARI form (Section C4) states that the site is “fairly typical”. In

general, refuse middens of this nature are found along water courses and water bodies throughout New Brunswick.

- According to official information from the MARI form, there is no inconsistency in the dating of the archaeological objects. All dated from the 19th to 20th centuries, as was reported in Appendix F.
- No professional archaeological excavation of CbDd-24 is known to have taken place, with only surface collection and documentation having been completed (see Section A7 of the MARI form).
- Avoidance of ground-disturbing activities along the shoreline near CbDd-24 was recommended mitigation for the known 19th and 20th century archaeological site. Avoidance of ground disturbance along what the MARI form stated was “high potential”, was recommended not just for the Euro-Canadian archaeological objects, but because of the potential to encounter unknown Indigenous archaeological resources. That is because this location was described in section C4 of the MARI form as a “high potential terrace”, likely in reference to potential Indigenous archaeological resources. The best form of mitigation for any archaeological resources is to avoid disturbance rather than excavating archaeological locations that would not otherwise be disturbed by a project.
- How does the site alteration permit work?
 - Archaeological Site Alteration Permits are valid for a calendar year and expire on December 31. Site Alteration Permit 2022 SAP-08 was issued by Tourism, Heritage and Culture, and was included at the front of Appendix F.
 - The photographs in Appendix F indicate the general location only. The registered location of CbDd-24, as shown in the MARI form, was covered by the archaeological assessment.
 - Policies regarding when Site Alteration Permits are required are set by Tourism, Heritage and Culture. If Tourism, Heritage and Culture requires a site alteration permit for future work, an application for such a permit will be submitted. Since the current permit expires on December 31, 2022, any work carried out within 100 m of CbDd-24 in future years may require a new Site Alteration Permit. This would be determined by the responsible Minister.

13 Duty to Consult

- The Duty to Consult procedure through NB Department of Aboriginal Affairs (DAA) was followed, MTI has completed their own review of the EIA.

14 Significant Natural Areas and Managed Areas - ACCDC Report

- There are two managed areas identified by ACCDC as within 5 km of the site, Parlee Beach Provincial Park and Ducks Unlimited Conservation Lands.
 - The Ducks Unlimited Conservation Lands are located approximately 3.8 km from the site, please see Map 3 within the ACCDC report.

15 Fish Habitat and Sediment

- The assessment for fish habitat was completed through underwater video at select locations. This proposed project will improve the overall habitat for fish species, and is not anticipated to harm fish. DFO has reviewed the project and is in general agreement with it proceeding as proposed, however official approval cannot be provided until the EIA determination has been made.

- The observations made by the community regarding the dead minnows and dissolved oxygen data collected by the Shediac Bay Watershed Association were provided to the EIA Branch, this information was also included in the critical habitat assessment. The low levels of dissolved oxygen (ranging from 0.7 to 3.24 mg/L), and warm water temperatures (18.4 to 19.8 °C) are all indicators that the system is not currently functioning properly and are due to the lack of water movement in and out of the channel. The proposed dredging will increase tidal exchanges and reduce stagnant water, resulting in increased dissolved oxygen and lower water temperatures within the channel and lagoons.
- The underwater video footage was poor which limited observation to areas immediately around camera locations, however the video assessment was supplemented by the collection of buckets of representative sediment samples, as well as visual observations from the shore while the water was shallow. Low oxygen levels and higher temperatures do not provide good conditions for the benthic habitat within this system, all of which will be improved following the proposed project activities.
- Agricultural guidelines are not applicable to the site, however sediment sampling results have been compared to all land use types as a means to evaluate potential disposal site options for dredged material. Ultimately, the majority of the dredged material will likely be used as cover material at Eco360 landfill, with the exception of the sand at the inlet which will be used to replenish the volleyball court.

16 Groundwater

- The assessment of storm water pipes and the installation of UV treatment into the inner lagoon is outside the scope of the current project. The maximum dredge depth will be 1-2 feet of sediment, dredging to such a shallow depth would not impact groundwater. The UV treatment of surface water runoff is being evaluated by the Park but is not part of this current proposed project.

17 Surface Water Quality

- Dissolved oxygen data has since been added to the EIA, dissolved oxygen concentrations collected by the Shediac Bay Watershed Association following the reports of dead minnows in the creek are all indicators that the system is not currently functioning, following these dredge activities there will be increased oxygen within the habitat, with the reduction of stagnant water within the channel and lagoons.

18 Lifestyle and Quality of Life

- As per the NB Provincial Environmental Impact Assessment Guidance Document, this section is where Quality of Life as it relates to the project activities potential impacts are addressed. The potential affects to Quality of Life are positive, and therefore no mitigative measures were required. The site was once a great recreational area, and allowing the system to operate as it formerly did could return the creek to the aesthetic and recreational environment that it was known to be in the past by the community.

19 Will surrounding property ownership impact the proposed project?

- Since the original EIA Registration, one adjacent parcel (PID No. 1053404) has been acquired by Ducks Unlimited Canada. The updated property ownership information has been submitted to supplement the registered EIA.

- Surrounding land ownership does not currently pose any restrictions to this proposed project. If land ownership changes while the project is ongoing, new land ownership information will be submitted to supplement/update the EIA Registration Document.

20 Culvert and Storm Water Quality

- Based on the 2019 assessment (Crandall, 2019), the culvert should be replaced by 2029, based on the age of the infrastructure. The existing culvert will not need replacement as a result of the proposed dredging. If Phase 3 were to proceed as initially proposed, the culvert would have to have been re-evaluated, and likely replaced. However, Phase 3 has been modified to include very little dredging in the inner lagoon. The existing culvert is sufficient to handle the resulting flow velocities.
- The culvert will need to be replaced in the next 5-7 years due to age, and a wider span through that section of the channel/lagoon will likely further improve water quality in the inner lagoon, but its replacement was not included in the scope of the current assessment.
- THC engaged a consulting firm to examine the best way of dealing with the drainage water issues at Parlee Beach. It was recommended that THC install a surface water collection and UV purification system on all drainage water flowing into the lagoon at Parlee Beach. This project is being evaluated for future implementation, and will need to be phased due to the high cost.

21 Climate Change

- The projected dredging program is a short-term action (years at most), especially in the context of Climate Change (action over decades or centuries). A “100-year event” or the “year 2100 flood scenario” is outside the scope of this proposed project. The monitoring of the channel will be a regular occurrence and several re-evaluations of this study may be required until 2050.

22 Additional Sampling

- Additional work completed at the site includes:
 - The collection of surface water samples from the mouth of the inlet to be analyzed for fecal indicator bacteria prior to the commencement of dredging, and following the dredge activities.
 - The collection of potable water samples from select residential properties that are located adjacent to the site. Sample collection will depend on well type and access.
 - Individual homeowners may contact Englobe directly for the potable water sample results, these results will not be made public.

We thank you for providing your questions and comments regarding the proposed project, if a specific question was not answered it is due to that comment being outside of the scope of the current project. Suggested long term solutions are being evaluated but are outside the scope of the current project. Please note that the schedule and timing of this project depends on the EIA determination, this is updated publicly online on the Environment and Local Government EIA Projects Under Review database: https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment/registrations/2022.html

If you require additional information, please do not hesitate to contact Englobe.

Yours very truly,

Englobe Corp.



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APPENDICES

Appendix A	Bird Survey and Bank Swallow Critical Habitat
Appendix B	Public Comments

Appendix A

Bird Survey and Bank Swallow Critical Habitat



eNGLOBE

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Date: Sept 5, 2022

Correspondance via email

Re: Bank Swallow Critical Habitat - Parlee Beach Provincial Park

This memo is to provide an assessment of the anticipated effects on bank swallow habitat of dredging the outer lagoon at Parlee Beach Provincial Park. The Project area consists of the tidal inlet, lagoons and channel located within a Provincially Significant Wetland (PSW) near the southern boundary of Parlee Beach Provincial Park. Sand migration has caused the outlet of the lagoon to become blocked to tidal action and drainage causing flooding and water quality problems in the lagoon. Attachment 1 shows the Project Area where dredging is proposed and the bank swallow nesting colony and surrounding habitat types. The currently proposed undertaking involves opening up the inlet (Shown on Figure 1) and dredging portions of the outer tidal lagoon. For a full description of the dredging plan, refer to the EIA (Englobe 2022).

Because the project is within an area identified as critical habitat (CH) for Bank Swallow in the proposed *Recovery Strategy for the Bank Swallow (Riparia riparia) in Canada* (the Recovery Strategy), the Canadian Wildlife Service (CWS) requested an assessment of how improving tidal connectivity to the lagoon might affect the abundance and quality of foraging habitat within 500m of the bank swallow colony location. This memo will provide an assessment of the local foraging habitat quality and abundance and a review of relevant scientific literature in order to predict the nature of the effect on increasing flushing within the lagoon on bank swallow foraging habitat.



Figure 1 Project Area showing currently proposed dredging locations on blue.

Foraging Habitat Availability

Bank swallows tend to forage in an area centered on the nesting colony location, hunting for aerial insect prey in open terrestrial and aquatic habitats such as wetland, open water, grasslands, hayfields, pastures, and scrubland – usually foraging within 500m of their nest but occasionally further away (Garrison 1999, Moffat et al. 2005). Saldanha (2016) found that bank swallows tended to forage most often in suitable habitats closest to the colony with proximity preferred over habitat type, although there was a general affinity detected for salt marsh and grassland habitat types. The proposed Recovery Strategy includes several habitat types within the definition of critical habitat for bank swallow: grassland, shrubland, pasture, hayfield, dunes, rivers and creeks, lakes, wetland, and salt marshes.

To assess the potential effects of the proposed hydraulic mitigation at the lagoon the availability of these critical habitat features within 500m of the colony location were identified so that any change in the quality of that habitat can be put into the context of the available foraging habitat for the colony. According to the proposed Recovery Strategy (ECCC 2021), the lagoon feature would be broadly considered high quality foraging habitat under the current hydrological regime, or under the proposed regime where the tidal flow would be increased. But it is likely the most important source of aerial insect prey within the typical foraging range of swallows in the colony.

The map in Attachment 1 shows the Habitat types present within 500m of the swallow colony location, which represents the typical scale of foraging habitat most used by bank swallows (Turner 1980), although individuals have been observed foraging much further away (Saldanha 2016). The habitat types on Attachment 1 are categorized by the ground cover type and given a relative rating of quality of low, medium or high. Generally,

habitats identified as critical in the recovery strategy are given a 'high' rating but some judgement has been applied to specific features (ie, open water is identified as high, but the ocean, beyond the intertidal zone, is not likely as important to swallows as other open water features, such as the lagoon or the intertidal zone which are rated as 'high'). Also, the recovery strategy identified forest and urban development as low quality, but the suburban and well-vegetated nature of the residential developments in the Parlee Beach area are likely to be of higher quality than lesser vegetated urban areas and so was given a moderate rating. There were no forested areas within 500m, but all parking lots and other paved expanses were given a 'low' quality rating.

The foraging range of this colony contains only 7% of the total area within 'low' quality habitat types with 58% of the area in the 'high' quality habitat types. Habitat types identified as critical make up 77% of the foraging area for the colony. The lagoon system occupies approximately 2.6 ha or only 3.6 % of the foraging area and 6% of the high-quality habitat within the foraging area. While it is likely that the lagoon is one of the higher productivity features within the foraging area, a change to that feature (positive or negative) is unlikely to have a significant effect on the bank swallow colony given the nearby availability of other high-quality habitats. While the scientific evidence in the next section indicates that a positive effect on macroinvertebrate abundance and general productivity can be expected from the increase in tidal flow, a temporary negative effect cannot be completely ruled out but it is reasonable to predict that it would be minor and would not have an appreciable effect on the availability of quality foraging habitat in the area.

Potential Changes in Prey Availability

Increasingly, coastal lagoons are seriously threatened by eutrophication, pollution, urbanization, and modification to their watersheds, caused by human activity in coastal zones around the world (Esteves et al., 2008). Artificial openings or dredgings are commonly performed on coastal lagoons that are subject to negative human influence for a variety of reasons, such as improving fisheries, lowering water level to avoid floods in urban or private lands, raising oxygen concentration, removing algal blooms, or reducing nutrient level (Conde et. al. 2015). Dredging coastal lagoons typically has the effect of reducing the salinity and softens the temperature range, increasing dissolved oxygen (DO) levels in the warmer months (Garcia-Oliva et. al. 2019).

The EIA Registration Document (Englobe 2022), includes measurements of water and sediment quality parameters such as conductivity, salinity, DO, and a variety of other chemistry metrics. The water quality assessments near the lagoon revealed a number of problematic factors indicating high levels of eutrophication, salinity and low levels of dissolved oxygen. The source of eutrophication is attributed to the surrounding land uses,

including houses, septic systems, and large parking lots and roads. As the sand migrates at the outflow of the lagoon on the western end, the flushing action of the lagoon decreases, leading to a gradual accumulation of organic matter and minerals and increasing salinity. The lagoon does not have significant freshwater inputs, primarily comprised of localized runoff (snowmelt/rainfall), and seepage from a small catchment. The introduction of seawater during high, high tides and storm surges flushes only minimally and combined with evaporation, leads to very high salinity and high water temperatures during warmer months. While no fish were observed by Englobe during initial field assessments of the lagoon, large numbers of dead fish were observed in later summer washed up around the lagoon. This mass mortality event suggests low dissolved oxygen which may be significantly hampering productivity of the lagoon. The conductivity in the lagoon are likely higher than that of seawater, with sediment readings in the western portion of the lagoon at 165,000 $\mu\text{S}/\text{cm}$, or more than triple that of typical seawater. The aquatic habitat descriptions report only sparse vegetation cover within the standing water, and nearly 100% cover of fibrous algal mats further suggesting stagnancy and eutrophication.



Figure 2 The western end of the lagoon where salinity is highest. Most of the lagoon dredging will occur in the sparsely vegetated, open water area at centre and at the outlet to the ocean at bottom.

Productivity is typically lower in permanently inundated, stagnant wetlands than in slow-flowing or periodically flooded wetlands (Conner & Day 1982). The anaerobic conditions created under permanently inundated or flooded conditions often limit decomposition rates, thereby promoting organic matter accumulation in soils, and can alter reduction-

oxidation reactions controlling nutrient transformations in wetland soils. The dredging of stagnant coastal lagoons generally improves flushing and productivity of the wetland.

Hydrological connectivity between coastal lagoons and marine water has been shown to play a major role in ecosystem health. Obolewski et. al (2018) assessed changes in benthic fauna species richness, community composition, density and biomass under free water exchange conditions vs. separation from the sea conditions at a coastal lagoon. They found that disruption in the sea water inflow induced profound changes in the macrozoobenthic structure, decreasing its biomass by 60% and its density by 50%. Sanchez et. al. also found that aquatic invertebrate taxa richness in coastal salt pans and diversity decreased significantly with increasing pond salinity. High salinity (> 35 ppt) was also proposed as a key factor limiting aquatic insects in salt marshes by Robert and Matta (1984). Moderate salinity levels of between 7 and 17 ppt were found to correlate with high invertebrate productivity by Rochlin et. al (2011).

To limit the direct impacts of the dredging on disruption to bank swallow foraging habitat, the work will be conducted in the fall of 2022 to avoid the active breeding season of bank swallows. The footprint of the disturbance will be primarily located with the westernmost portion of the lagoon, which showed evidence of the highest salinity and may benefit most from increased flushing. It is expected that this sparsely vegetated marsh will increase in vegetation cover following the treatment, which would increase insect prey availability. While the dredged channels will remain unvegetated as they are now, transitional area can be expected to revegetate quickly as the most abundant genera of saltmarsh plants in the region (*Sporobola* spp. “cordgrass”) are known to rapidly recolonize coastal marsh areas following disturbance. Any disturbed areas resulting from the dredging work can be expected to be largely revegetated by the end of the next growing season.

Conclusion

The scientific evidence suggests that increased flushing of seawater into the lagoon will increase invertebrate productivity and improve water quality and habitat for aquatic life. This should result in a net increase in the quality of local foraging habitat for bank swallows. Any change that might result from the dredging is unlikely to have a significant impact on foraging opportunities for the local bank swallow colony, based on the availability of quality foraging habitat in the area and the nature of the anticipated effects on the dredging. Englobe has proposed a wetland monitoring program that will track the recovery of the wetland following the dredging work. This program can identify any problems seen in the growing season of 2023 so that adaptive mitigation can be implemented if areas of slow recovery are identified.



Kind Regards,

A handwritten signature in blue ink that reads "Derrick Mitchell". The signature is written in a cursive style.

Derrick Mitchell

Attachment 1 Site map

References

Bertness, Mark & Crain, Caitlin & Angelini, Christine & Sala, Nicholas. (2008). Eutrophication and Consumer Control of New England Salt Marsh Primary Productivity. *Conservation biology: the journal of the Society for Conservation Biology*. 22. 131-9. 10.1111/j.1523-1739.2007.00801.x.

Conner, W. H. & Day, J. W. "The ecology of forested wetlands in the southeastern United States." In *Wetlands: Ecology and Management*, eds. B. Gopal, et al. (Jaipur, India: National Institute of Ecology and International Scientific Publications, 1982): 69–87.

D. Conde, J. Vitancurt, L. Rodríguez-Gallego, D. de Álava, N. Verrastro, C. Chreties, S. Solari, L. Teixeira, X. Lagos, G. Piñeiro, L. Seijo, H. Caymaris, D. Panario, Chapter 13 - Solutions for Sustainable Coastal Lagoon Management: From Conflict to the Implementation of a Consensual Decision Tree for Artificial Opening, Editor(s): Juan Baztan, Omer Chouinard, Bethany Jorgensen, Paul Tett, Jean-Paul Vanderlinden, Liette Vasseur, *Coastal Zones*, Elsevier, 2015, Pages 217-250, ISBN 9780128027486.

Englobe 2022. Parlee Beach Tidal Inlet Dredging EIA Registration Document. NB Department of Tourism, Heritage and Culture.

Garrison, B.A. 1999. Bank Swallow (*Riparia riparia*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu.cat1.lib.trentu.ca:8080/bna/species/414doi:10.2173/bna.414>.

Miriam García-Oliva, Concepción Marcos, Georg Umgieser, William McKiver, Michol Ghezzeo, Francesca De Pascalis, Angel Pérez-Ruzafa, 2019. Modelling the impact of dredging inlets on the salinity and temperature regimes in coastal lagoons, *Ocean & Coastal Management*, Volume 180, 2019, 104913, ISSN 0964-5691.

Moffatt, K.C., E.E. Crone, K.D. Holl, R.W. Schlorff, and B.A. Garrison. 2005. Importance of hydrologic and landscape heterogeneity for restoring Bank Swallow (*Riparia riparia*) colonies along the Sacramento River, California. *Restoration Ecology* 13(2):391-402.

Obolewski, K., et al., 2018. Lost connectivity between a coastal lagoon and the sea e implications of floodgate closure for benthic macroinvertebrates, *Estuarine, Coastal and Shelf Science* (2018), <https://doi.org/10.1016/j.ecss.2018.02.012>

Robert LLJ, Matta JF. 1984. Aquatic macroinvertebrates in an irregularly flooded salt marsh: diversity and seasonal variation. *Environmental Entomology*. 1984;13:1097–1104.

Rochlin I, Dempsey ME, Iwanejko T, Ninivaggi DV. 2011. Aquatic insects of New York salt marsh associated with mosquito larval habitat and their potential utility as bioindicators. *J*

Insect Sci. 2011;11:172. doi: 10.1673/031.011.17201. PMID: 22957707; PMCID: PMC3463129.

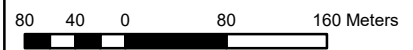
Saldanha S. 2016. Foraging and roosting habitat use of nesting Bank Swallows in Sackville, NB. M.Sc. dissertation, Dalhousie University, Halifax, NS. 99 p.

Sánchez, M.I., Green, A.J. y Castellanos, E.M. 2006. Temporal and spatial variation of an aquatic invertebrate community subjected to avian predation at the Odiel salt pans (SW Spain). *Archiv für Hydrobiologie*, 166 (2): 199-223 (2006).

Habitat	Code	Area (ha)	Percent
Intertidal	IN	12.2	15.5
Beach	BE	4.4	5.6
Dunes	DU	7.6	9.7
Lawn	LN	5.1	6.5
Ocean	OC	27.1	34.5
Open water	OW	2.3	2.9
Road/parking lot	RP	5.6	7.1
Suburban	SU	12.4	15.8
Marsh	MA	1.9	2.4
		78.6	100.0



**Parlee Beach
Bank Swallow Habitat**
Pointe du Chene, NB
September 3 2022



Imagery source: Esri



- Primary foraging area
- Habitat boundaries
- Project area (Lagoon)
- Colony location

- Habitat Ranking**
- Low
 - Moderate
 - High

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Parlee Beach Provincial Park Project

July 30th 2022

GOALS

1. Establishing a full list of species present on the site
2. Establish if there is presence of endangered Bank Swallow establish the use of the surveyed area by this species.

OVERVIEW AND CONCLUSION

Upon arrival at the site in the morning, the weather was covered sky with a temperature of 16° and with very light wind from the West. It was a perfect day for such a survey as I could hear clearly every bird that were vocalizing in the area.

A Common Yellowthroat was singing around the major the parking lot pond where I parked my vehicle. Some Great Blue Herons were using the pond for feeding; along with lots of shorebirds and some seagulls. Also present were a couple or family units of waterfowls.



That pond at the parking lot seems to be an important source of food for a lot of the birds around the area. I spotted two family units of Killdeer on the flats created by low tide in that pond. There are also some other sandpipers there including Least and Semipalmated Sandpipers.

My main target was to find some activity of swallows in the area and determine if the area is important feeding grounds for Bank Swallows. I proceeded going down south to do a full circle around the main pond and was surprised to flush a Blue-winged Teal from the shoreline. Also present in the area are some Savannah Sparrows singing on territory. As I completed the loop around the biggest pond to the Southeast of the plot, I realized how important that flat in the middle of the body of water is for shorebirds and seagulls that feed all over it. I'm sure that as the migration of shorebirds intensifies in the next weeks; that this is going to be an important feeding area for many other species of shorebirds.

I moved North along the creek and the habitat changed and there was no exposed shoreline for shorebirds, but some Common Terns were coming along the creek in search of food; at that point, I still had no sighting of any Swallows. As I surveyed along the creek, I was kind of puzzled by the non-presence of Nelson Sparrows since the habitat there is perfect for them; except for maybe the lack of untouched salt marsh vegetation and the presence of residence that are encroaching on the salt marsh. I was planning to be able to thoroughly search both sides of the creek, but I concluded that this was going to be impossible because of the presence of cottages and residences right up to the water line.



Once I passed the little bridge over the creek and arrived in the back of the volleyball courts, I finally spot my first Bank Swallows. Five birds that were coming over the salt marsh to feed. There are also some exposed flats there that are very appealing to shorebirds, and I spotted several individuals of a couple of species feeding together. The species included Least Sandpipers, Greater Yellowlegs and Lesser Yellowlegs. There were also some more Common Terns arriving and their presence was more notable at that end of the saltmarsh. I spent more time to observe and notice that the group of swallows are using this area for feeding and I suspect that those are the swallows nesting on the other side of the dune towards the beach, which have been protected by the Park's authorities. These Banks Swallows were coming from that area and going back towards that area; probably to feed young at the little colony.

It is also obvious that the sources of food that are provided by the salt marshes are of importance for several clutches of Black Ducks and Mallards that were also feeding heavily amongst the shorebirds. I finally heard some Nelson's Sparrows singing and counter-singing on both sides of the marsh. A couple of butterflies were also present in the area, including two Monarchs that were feeding heavily on the little bit of wildflowers left around the marsh. Also present were Black Swallowtail butterflies.

When I arrived at the bigger water opening just before the end of the plot on the western side, the variety of shorebirds increased including Semipalmated Plovers, Ruddy Turnstones and Short-billed Dowitcher and White-rumped Sandpiper. There were also some Common Terns catching what looked like Sticklebacks or Mummichogs and some of the Swallows from the colony on the beach were also coming over that area of the marsh to feed.

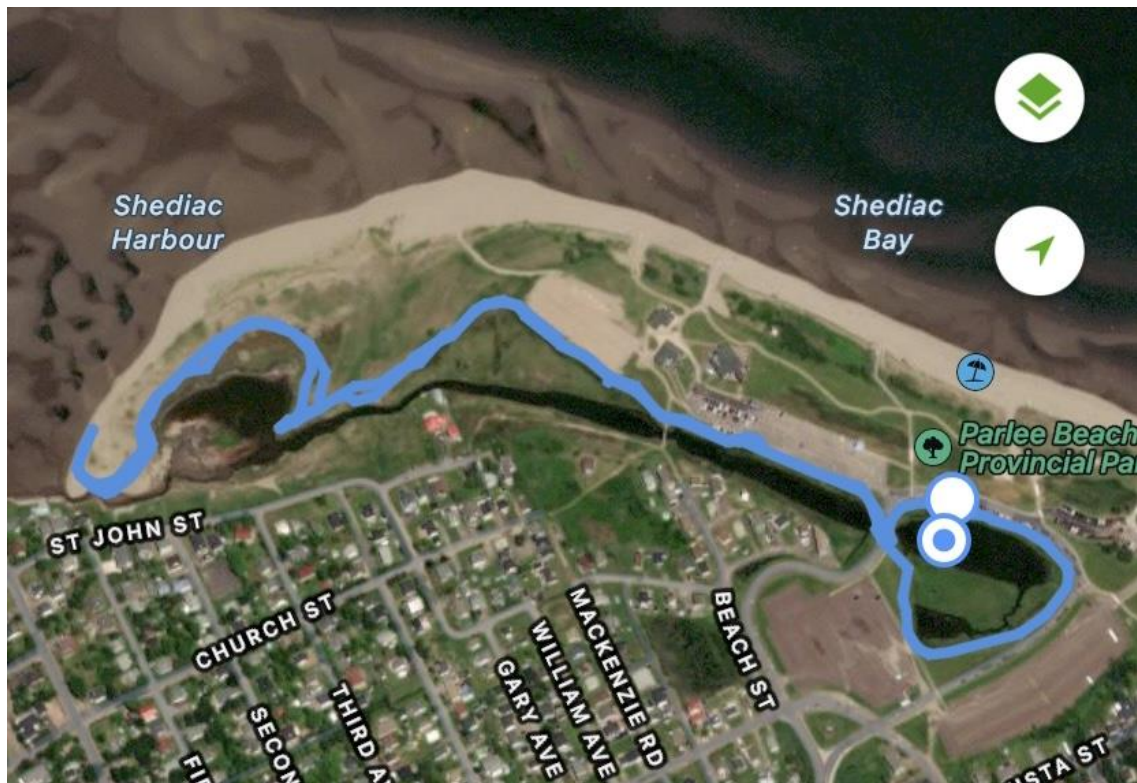
Amongst the rich group of shorebirds, I spotted a juvenile Baird Sandpiper which frankly made my day as a birder! I will have to go back and check the spot more often during shorebird migration as it is obviously productive. As I was observing the shorebirds and was trying to find other species, a beautiful Bonaparte's Gull, an adult in full breeding plumage, came and landed on the flats in front of me. I had to walk around the East side of the big pond to be able to reach the tip of the dune that is included in the survey area. When I am was getting closer to the tip, I noticed that the Common Terns were getting agitated which made me wonder if there could be a few nests at the tip of that little sand dune so I went to look closer.

Upon investigation of the tip of the dune it became obvious that this is not a good place for Terns to nest as it would be easily accessible to predators at low tide. I wanted to make sure that the Northwest side of the little dune was not high enough to host potential nests of Bank Swallows. I saw on the other side that it was not high enough. I concluded that all the Bank Swallows seen, were coming from the small colony protected inside the Park of Parlee Beach.

I surveyed the area where the water exits the salt marsh from the tip of the sand bar, and I established that it was of no use to try to walk on the South side of the marsh because properties would be blocking the view of the area to survey so I decided to backtrack on the same side of the plot. I could hear every bird that was vocalizing on the other side of the marsh, and I had a clear view of the whole area. During my return I witnessed an attack on the shorebirds by a Merlin falcon which was not successful. As I was finishing my survey, more and more people were arriving for a day at the beach, but the birds were still present in the parking lot marshy pond.

Conclusion:

I was not informed of the type of development or work that will be done here but I can conclude that this is an important feeding area for a lot of migratory birds. It is also a nesting habitat for species like Nelson's and Savannah Sparrows. As for the Bank Swallows, there is a colony close by, inside the limit of Parlee Beach Provincial Park and they are using the area surveyed today for feeding purposes. That said, those swallows should be done at that location in another 15-20 days. As an avid birder, I will go back to visit this little habitat as it may produce some good birding during migration.



BIRD LIST - AVIAN SURVEY

Parlee Beach Project, Shediac,

CA-NB 46.23867, -64.50992

Jul 30, 2022 - 5:57 AM

Traveling-- 2.71 km

142 Minutes

All birds reported:

13 Mallard

9 American Black Duck

9 Rock Pigeon (Feral Pigeon)

28 Semipalmated Plover

7 Killdeer

5 Ruddy Turnstone

1 Baird's Sandpiper

21 Least Sandpiper

4 White-rumped Sandpiper

42 Semipalmated Sandpiper

1 Short-billed Dowitcher

6 Greater Yellowlegs

9 Lesser Yellowlegs
1 Bonaparte's Gull
118 Ring-billed Gull
9 Herring Gull
13 Common Tern
2 Great Blue Heron
1 Merlin
3 American Crow
9 Bank Swallow
2 American Robin
6 Nelson's Sparrow
3 Savannah Sparrow
2 Song Sparrow
2 Common Yellowthroat

Number of Taxa: 26

Appendix B

Public Comments

Response to the Environmental Impact Assessment Regulation 87-83 of the Clean Environment Act called Tidal Inlet Dredging, Parlee Beach Provincial Park, Pointe-du- Chêne, New Brunswick.

Before we begin, we would like to express our appreciation for the work that has gone into the preparation of this EIA document and the opportunity to respond to it. The opportunity to be part of the public process alongside Englobe staff under the co-ordination of Michel Mallet, Manager of Parlee Beach is also much appreciated.

Name of Document

This Tidal Inlet is known locally by the generations of people who have grown up alongside the 'Tidal Creek'. (Figures 6,7, and 8 1931 Pg.22, Stratis Consulting Inc. Historical documents). It was always referred to in this way. We feel the name change alienates this project from the community that they have known so well.

Q1 - What is the reason for describing it by another name?

One of the difficulties in presenting this report in this manner (long, redundant, not organized in any apparent order) is that it also denies the aesthetic quality that this 'creek' has had on the many hundreds of people that have used it for decades. When it was still flowing, it was beautiful to walk beside, people watched the sunset from its bank. There was a safe and clean small beach where the creek ran into the bay for young children, hand made boats had races down the creek annually in a boat race which began in 1977, it provided easy access for families to the main beach, it was a place where young people first learned to row and kayak and it was a paradise for the elderly who could not make the long trip to the main beach. All this is gone. Instead, this report describes the flooding of the parking lot as its principal reason for dredging rather than its aesthetic quality or the destruction to the environment which has occurred because of decisions made about its future. There is no mention here about how many times residents of this community have raised the issues of its sea level rise, its contamination, its smell, its diminishing, the ineffectiveness of wastewater drainage or how many times it has been passed over in Dept. of the Environment documents.

Q2 – Will the scope of this project address these issues?

I am also writing this on behalf of the Red Dot Association of Shediac Bay. The Red Dot Association of Shediac Bay consists of seasonal and full-time residents from Southeastern New Brunswick who treasure the shoreline and its beautiful waterscapes. We value the well-being of our families and the tourists who enjoy visiting this area every summer.

Red Dot was founded in 2014. It grew from a specific concern regarding the disappearance of the wetlands around Shediac and Pointe-du-Chêne to coastal development into a movement to protect the wetlands along the Northumberland Strait from Shediac to Murray Corner. Several factors, from human activity to changes in our global climate have placed stresses on our coastal area, creating greater risk to public safety and structural damage, and threatening the biodiversity of plant and wildlife which has sustained our coastal regions.

Red Dot also grew from specific concerns about Parlee Beach regarding over two decades of water quality and fecal contamination issues. Our Red Dot mission is to ensure the future viability of our coastal areas in terms of economic and community growth through advances in environmental protection.

The vast number of Red Dots are in favour of dredging the first section of the creek. They most assuredly are! It appears to be the most logical approach that brings with it a series of phases whereby each phase should interact with the next phase to increase its impact. There are other reasons as well as an effort to regain what the environment once offered. For others it is the fear of flooding of their homes and properties. Storm surges are not mentioned in this document. This is strangely absent for an area that appears to be one of the most significant Canada-wide for susceptibility to rising seas and storms impacts.

To accomplish its mission Red Dots have focused on increasing public awareness of the importance of watershed lands adjacent to the Northumberland Strait (like the Tidal Creek) and the role of wetlands in absorbing storm surges and delivering filtration services that help protect the quality of recreational waters and drinking water, wildlife habitat and a tourism industry that contributes to the regional economy and is important to people who live in Pointe-du-Chêne.

There are currently 2321 people who have signed petitions or who identified themselves as supporting wetlands in our area.

It is worth noting that in this document there is no mention of the homeowners who reside on the south side of the Tidal Creek. Their properties are adversely affected by whatever the Department of Tourism does or doesn't do. The PSW extends to that side of the Tidal Creek as well and some of those residences are within the 30 meter buffer.

Q3 - Could there be liability issues here?

With all these people in mind, I would like to go through the document and highlight where Red Dot members have thought of other approaches or discrepancies to what has been presented. The EIA Registration Document's words are in italics. Questions are asked of Englobe throughout the document. It is with great enthusiasm that this project is going to be completed in the near future.

2.2 Project Overview

par.03- The following paragraph appears as a cost saving device and not necessarily as the best environmental option to support a healthy ecosystem. *“As part of the current undertaking, the existing nourishment program would be modified to keep the mouth of the tidal creek open . The remaining project (channel and lagoons) would be dredged initially but would not become part of a regular part of the existing nourishment program”.*

Q4 – If the tidal creek and lagoon dredging will not be part of the existing nourishment program, how will it be managed?

Pg.4

2.5 Siting Considerations. *“are to occur outside of the tourism season and outside the migratory bird season”.*

Q5 - Why are there no restrictions on the nesting season? Is this because Englobe did not have any observations at nesting times?

“An amphibious boat and floating pipes are to be used to avoid impacting the PSW”.

Q6 - Why are these not used at the mouth of the creek?

Q7 - Is the decision for dredging at .3 m a cost measure?

It doesn't seem it is the most desirable height to have a long-term impact. There are several people that feel that this will be a one time only event and the stagnant flow will happen again. This is evidenced by the August 2022 minnow death and the level of bacteria found in the inner lagoon that was documented in the 2018 report on Parlee Beach Water Quality.

Q8 - Why is there no mention of former dredging attempts and the dates when dredging last occurred? What worked and what didn't?

Pg. 8

“Annual wetland monitoring will be required for at least five years following dredging activities”. This is a positive measure. It will be valuable to know how the dredging is working.

Q9 - Will these reports be made available to the public in a timely manner?

The present Wetland Functional Assessment does not provide much detail.

Q10 - If wetland function in the future is to be assessed, will performance measures be defined beforehand so the public can understand what Englobe is looking for and why?

Pg.9

Description of the Environment

3.1

Q11 – Can you provide what support you have for the following statement?

“The wetland receives water primarily from the tidal inlet and lagoon as well as from precipitation and surface drainage. The source of water to this wetland is mainly brackish tidal water from the Shediac Bay. Precipitation and runoff from the surrounding terrain also contribute but are not considered significant sources. The wetland and the tidal inlet and lagoon discharge into the Shediac Bay”.

Other studies we have read indicate that precipitation and run off from the surrounding terrain are considered significant sources of the water and water quality in the Tidal Creek. In addition, wetlands are valuable carbon sinks, and they filter the drinking water that we get from our wells.

Q12 - Is this stated because on the 2 days of July 17 and 18 when it was measured, it was sunny and there was no precipitation?

Pg.11

Par.8- Substantial number of archaeological remains – *“The southern bank of the tidal creek near CbDd-24 may contain additional 19th and 20th century refuse and it’s recommended that the top of the bank within 100m of CbDd-24 be avoided”*. I was the person who contacted the NB Archaeology Division and led the archaeologists to the site. Few of the over 100 artifacts were found on the bank. They were mostly found in the water.

Q13 – Can you please provide the information used to support this statement?

Appendix F

There appeared to be many unearthed artifacts at this site and several have been found in the water in the creek since NB Archaeology determined it was a site. The document reads *“The channel itself cannot be avoided. Archaeological monitoring during dredging cannot be recommended”*.

Q14 - Why is it not possible to monitor?

Pg.13

Par.01- This following statement is highly unlikely to happen with the use of this equipment, an amphibian boat and a series of pipes. *“However, if during dredging activities any artifacts are uncovered, project activities will be halted and an archaeologist will be brought on site”*.

Q15 - Why is there no archaeologist assigned to this project as in other EIAs?

Pg.14

Q16 – What information supported the statement that Ducks Unlimited Canada conservation lands were 3.8 kms away? The lands that are to be passed over by the Anglican Parish to Ducks Unlimited include a large portion of the PSW in this first phase of the dredging. Englobe may be unaware of the Anglican Parish’s intention. The lands have not yet been transferred and are still owned by the Anglican Parish.

4 Summary of Environmental Impacts and Mitigation

This is a good summary

Pg.17

“Spawning, feeding and breeding sites”. There is no mention of how minnows are an important food source for blue herons, cormorants, terns, and ducks especially in the outer lagoon. No mention of migratory birds arriving about the first of August like the semi-palliated sand plovers which arrive to feed along the edges of the tidal creek and in the lagoons nor that Shediac Bay is one of the primary stopping areas for migratory birds in New Brunswick.

There is no mention of fish species in the tidal creek. Two weeks ago there were hundreds perhaps thousands of minnows that washed up dead near the pedestrian bridge. Perhaps observation of any fish life within the tidal creek with the naked eye is impossible due to the heavy murkiness of the water. This murkiness has been consistent during the months of May through September for several years.

Q17 – What means are available to reassess the presence of fish in the tidal creek and lagoons?

4.7 Physical (Groundwater) Quality

The 2018 Parlee Beach Water Quality Report needs to be referred to as it has some valuable commentary on stormwater run-off into the tidal creek and also high bacteria counts. The number of groundwater pipes pouring into the tidal creek and lagoons is excessive. There are storm water pipes running from the edges of the parking lot into the inner lagoon. The number of pipes needs to be addressed.

Q18- Is that the opinion of Englobe?

“The project will not negatively impact groundwater conditions and quality”.

Q19 - Was it not considered to direct all the stormwater to the Inner Lagoon for UV treatment before it flowed out of the Inner Lagoon?

4.1 Air Quality

Q20 - In the section of surface water, why is there no mention of lack of oxygen in warm temperatures and how detrimental it is to the life of fish?

4.10 Public Health Good news that there will be a decrease in odours from the outer lagoon particularly when the wind is from the north west . The document reads: *“A reduction of nuisance odours caused by decaying vegetation caught within the channel and lagoons”.*

4.12 Lifestyle and Quality of Life

Q21 – Although this section is addressed in my opening remarks, can it be better emphasized in this report?

APPENDIX A Land Use and Site Photographs

First Map should include the proposed Ducks Unlimited property

APPENDIX C MARINE SEDIMENT SAMPLING PROGRAM

4 underwater Beothic Habitat

p.10

In several points in the document it is mentioned *“poor visibility was encountered at most sediment sample locations”* and subsequent to that statement *“the habitat within the site is limited with decaying organic debris in the sediments and an algae mat observed over most of the site”.* Q22 - How do these two factors occur at the same time?

In the conclusions in Table 6 Sediment Conclusions p.12 it consistently refers to “*agriculture only*”.

Q23 - Given that this is a tidal creek from Shediac Bay, how does agriculture factor into the water here? Will the algae be tested?

APPENDIX D

There are two Appendices called D – **Laboratory Certificates of Analysis and Species at Risk, Wetland Delineation and Wetland Functional Assessment**

This makes the document more difficult to follow. The discussion here deals with the second Appendix called D concerning Wetland Delineation.

Q24 - As this is a Provincially Significant Wetland will it be restored and remediated so that it is a healthy ecosystem that will continue to sustain flora and fauna?

p.2 1.2 Site Description “describes the boundaries of the wetland (as ground truthed by Englobe) differ slightly from the mapped PSW details of the survey can be found in Section 3 , and the boundaries are presented on Figure 2 (Appendix B)”.

Q25 - Where does that put the site with respect to Ducks Unlimited and the Anglican Parish of Shediac lands? Were property owners notified of the EIA?

Expertise and Resources 2.1.4

Q26 - Although flora and fauna are addressed, why is there is no mention of birds or fish within the wetland?

p.4 Public Use and Recognition. Although this may not be an attribute of a functional wetland, this location with large numbers of people who will cross the Tidal Creek to get to the Main Beach requires it.

Q27 – Can this discussion be articulated in this document?

p.6 Wetland Delineation

Field Investigation Results. The dates of July 17-18 for a wetland delineation seem like an unusual time to delineate wetland when the area is probably at its most dry. Why is it “*Precipitation and runoff from the surrounding terrain also contribute but are not considered a significant source*”. We would argue that a 2-day delineation in mid July would not be able to adequately predict precipitation and runoff for a whole season. Moreover, with the weather being sunny with clouds it doesn’t appear that there was any precipitation or runoff.

It mentions that the temperature was only 17 degrees “*typical for that time of year*”. This would be a cool day for mid-summer. Moreover, there was only 1 sample “*taken because of their representability of the main ecotypes*”.

Q28 - Was there any bacteria testing done at this time? Is there any further testing planned at a more typical time for temperature, precipitation, and runoff from the surrounding terrain?

p.8. It was also too early a time to identify any migrating bird populations. No wonder there weren't any visible.

p.9 3.2.1.4 Significant Natural Areas. Although the document identifies that the great blue heron nests in a significant natural area in Shediac Island, there is no further mention of them as daily fishers in the tidal creek (egrets and cormorants as well). Egrets are not mentioned anywhere. Also, is not Skull Island and its adjacency to Shediac Island a significant natural area as well? At low tide the two islands have a natural causeway where fish and birds feed.

p.10 3.2.1.5 Managed areas.

The Anglican Parish /Ducks Unlimited land transfer hasn't been finalized. The planned land transfer needs to be at least acknowledged.

Q29 - Will the proposed Ducks Unlimited conservation lands be listed here?

3.2.1.6 SAR Fish Habitat Given the recent death of hundreds of minnows in the Tidal Creek, this should be acknowledged (August 8, 2002). A very limited analysis was conducted by Jolyne Hebert of the Shediac Bay Watershed Association indicating it may be warm temperatures and the lack of oxygen that caused it.

3.2.1.7 Barn swallows have returned to the dunes near the inlet

3.3 Management Considerations for SAR and Migratory Birds

In Appendix F, these regulations will help preserve existing bird species and help encourage new arrivals which have been more prominent this spring and summer,

p.15 – The installation of the piezometers to record water level along with the vegetation plots will help to determine how this is working by careful monitoring for a five year period. The salinity of the water is a great way to project new pitfalls or environmental changes.

APPENDIX B FIGURES

Map 2 Wetland Delineation Plan is not accurate. There is no PSW at PID 7046488. There is a newly constructed residence there instead which has been built on infilled land.

APPENDIX F Habitat Descriptions

This section would be a lot more helpful if it were in colour (birds, flora, and fauna) At several points there are gaps which lead us to the conclusion that some of this material was not observed but rather taken from written resources. We would suggest that the tables go under the description of each bird along with a coloured photo.

Some observations:

1.1 Black Ash are along the main trail between PDC Road and Parlee Beach Road

- 2.1 Piping plover** are prevalent in August in the Tidal Creek and the lagoon
- 1.2 2.5 Lesser yellowlegs** are prevalent in August in the Tidal Creek and the lagoon
- 2.6 Barn Swallow** have re-appeared in newly created north dunes
- 2.28 Great cormorant** are temporary visitors in the Tidal Creek

The following species are not highlighted here and are often seen in the tidal creek **Willetts, Terns, Ducks, Sandpipers, Muskrats**

APPENDIX E Parlee Beach Lagoon Hydrodynamics

5.4.4 Culvert

There is little information given about the flow of the creek through the corrugated steel culvert (under the beach exit roadway) other than attention is not required. Judging from how high the water in the lagoons have filled the culvert (to the top) for much of the 2022 season this seems like a statement with little proof. The culvert appears to be too small to allow for water flow abutting the lagoons. We would strongly recommend numeric modeling of different scenarios. A detailed inspection of the culvert to check for obstructions in and next to the culvert needs to be done.

Q30 - Was the culvert checked for obstruction?

The Conclusions and Recommendations of the Crandall Report on the Tidal Creek of 2019 draws attention to at least two factors that are not present in this document.

5. Dredging the outlet of the channel to allow for a free flow from the lagoon to the Strait would require the outlet bottom elevation to be -0.4 m geodetic. This would require dredging in the Northumberland Strait approximately 600 m.

9. The existing culvert is 40% full of sediment (in 2019) and limits the natural flushing from the lagoon to the channel. A new structure with a larger opening would improve complete flushing.

Different options are proposed with no clear choice made for establishing flow in the inner lagoon. We believe that the strategy is to perform incremental work to determine the impact before moving on to the next step. These include: the outer lagoon and channel dredging vs dredging the whole outer lagoon. Spot dredging the channel or postponing it if flow restrictions are minimal. Postpone the inner lagoon until results of the outer lagoon and channel.

Q31 - Could these options be presented in graph form with the pros and cons of each option more clearly presented?

APPENDIX F- ARCHAEOLOGICAL SERVICES SECTION

This appendix has been very carefully completed and is comprehensive (Grant Aylesworth, Stratis Consulting). Unfortunately, the information on the archaeological site is disputed.

Members of the Red Dots were the people who first discovered the artifacts in the Tidal Creek and not on its southern bank as indicated in the report. They were in the creek further upstream (east) at the juncture of the two branches of the creek, one in the outer lagoon and the other being in the creek (closer to dredging area B). Photographs were taken of over 100 artifacts which did resemble a refuse heap and are available (Laura Berry, Jane Irving, Tim Borlase). The Archaeological Division was contacted by Tim Borlase and an archaeologist (Brent Suttee) came to visit the site August 24, 2017 and formalized his assessment for the Archaeology Division later. Kevin Leonard, archaeologist, was also present.

What is particularly unfortunate is, that due to regulations, no underwater survey was undertaken and the submerged bottom could not be viewed during the Preliminary Field Examination. Before the dredging has begun we would recommend a Permit related to CbDd-24 that an additional investigation be undertaken.

There are a couple of points that need clarification. A) The creek was dredged before. B) The dunes north of dredging area A and B site CbDd-24 have been created since 2000. C) There is no mention of the archaeological site and Mi'kmaq burial mound at Skull Island. Many of the burials have been repatriated and are now buried at Beaumont.

p.46 First Nations Communities The guidelines state that *“the nearest First Nations Communities must be approached to seek advice regarding the heritage of the project area”*. In a discussion I had with Elder Gilbert Sewell from Pabineau First Nation , he told me that he travelled a trail which connected Shediac Island -Pointe-du-Chêne- to the Pictou area of Nova Scotia.

Q32 - Was this type of consultation completed?

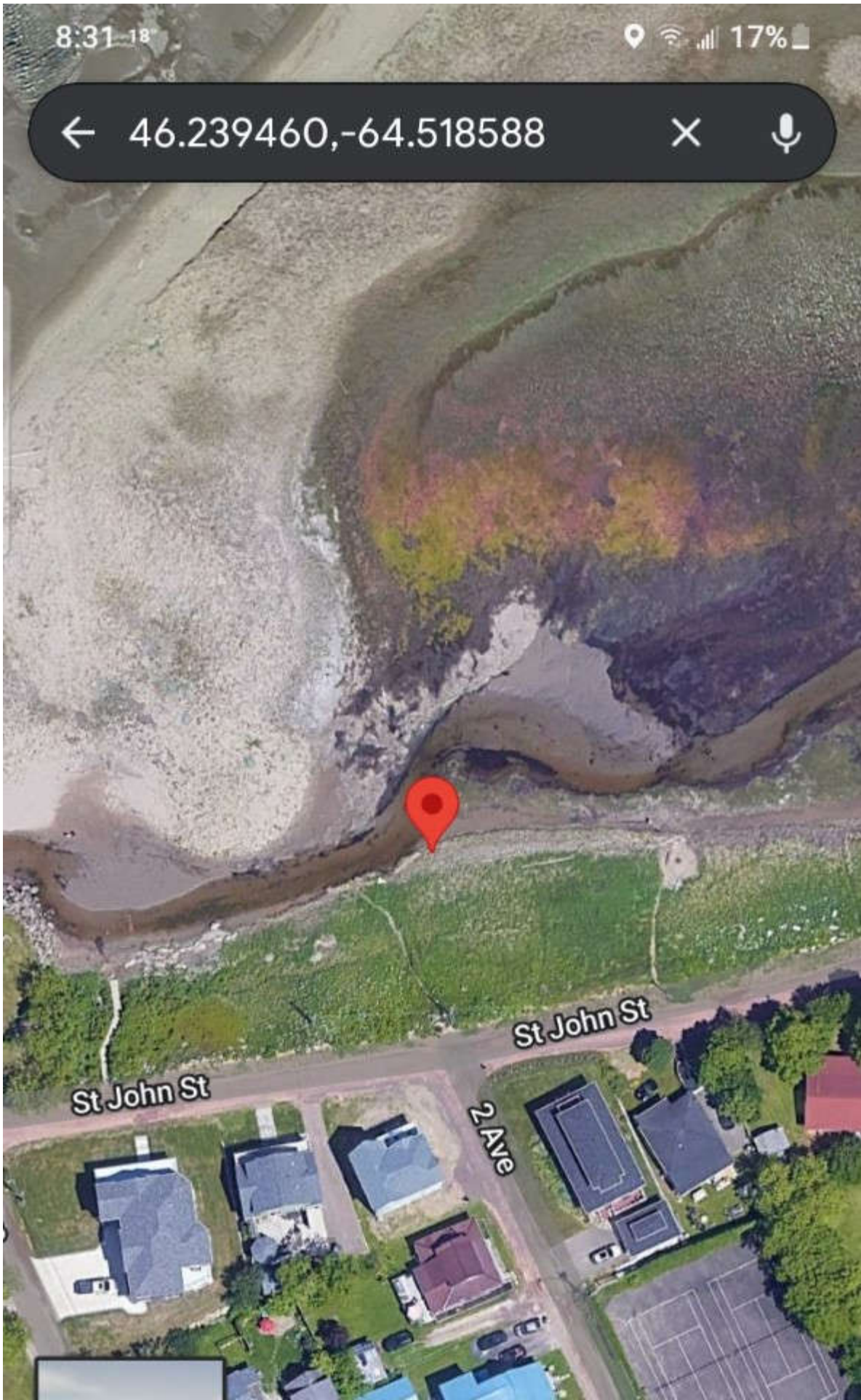
p.63 par. 2- Although the archaeologist Brent Suttee indicated that he did not see in our findings anything indigenous, he did talk to us about 18th century trade items. In this report it mentions the artifacts being 19th and early 20th century. Laura Berry remembers the clay pipes and pottery were verbally dated earlier to both of us. I feel it is important that this investigation be completed to clear this confusion.

The many artifacts that Laura Berry found were in the water at Dredging Area B as it is described below. She says : 'I found them there in the creek, and falling out of the edge of the creek'. *“The northern side is lower and partly inundated with water. Along the north side, there is a grass covered point of land that extends in between the clearly demarcated channel to the east and the inundated flat area to the north”*. (see photograph 49 p. 67) You can see the grass covered point of land at the bottom). Photograph 52 is far too west for CbDd-24

8:31 18°

📍 📶 17% 🔋

← 46.239460,-64.518588



I do not want in anyway to delay the dredging of the Tidal Creek. As far as I know neither do the majority of Red Dots. It is something we have worked long and hard for. But in this instance, it leaves the several people who were involved in this archaeological discovery with a sense of uncertainty about where and how large this midden was and whether it would have added something significant to the culture and aesthetic of this area.

Q33- Given that there are inconsistencies about the location of the artifacts, their age and their location what assurances can Englobe give the community that this archaeological site has been fully excavated?

Final Questions

Some final questions remain unanswered:

Q34 - Isn't there still an issue with dredging at the mouth of the Tidal Creek? How far will this dredging extend?

Q35 - Is Englobe and the Department of Tourism considering a groyne to prevent more sand from being deposited there?

Q36 - Has the PDC marina been consulted about their dredging activities? Wouldn't a groyne be saving money for both the marina and the beach if created at a 45 degree angle to the beach?

On behalf of the Red Dots I would like to thank you for allowing us to contribute to the EIA through meaningful consultation and discussion. I thank you for making this report thorough and comprehensive. We also look forward to seeing the Tidal Creek dredged this fall. Let's hope this will restore the creek that has so much meaning to generations in Pointe-du-Chêne.

Tim Borlase, Chair, Red Association of Shediac Bay
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with contributions from:

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Tidal Inlet Dredging, Parlee Beach Provincial Park EIA Record - Questions / Concerns
Suggestion of adding pedestrian bridge at lagoon inlet following dredging.
What is the timeline for construction/dredging?
Should stormwater runoff from Pointe-du-Chene also be improved to alleviate the lagoon?
Concerns voiced regarding development occurring within wetland limits (off of St John Street).
Was the option of adding a lever door at the lagoon inlet explored?
Were the impacts of the climate change (sea level rise and storm surge) considered as part of this study?
Concern regarding the difference in elevation of the sea and lagoon bottom not allowing for full flushing of the lagoon/channel area.
How soon will dredging be required (excluding the annual dredging program at the inlet)?
Concern about the tidal inlet – this project will not solve the problem of the sand migrating westward it will continue to migrate northwest of the inlet. Parks fault that this channel is having problems (beach nourishment). The creek is way too far west.
Move the inlet north with a gate.
People need to cross the creek at the inlet – residents are filling in with rocks to cross.
Beach nourishment program is the problem - look at aerial photos from 20 years ago outer lagoon was not present. If the inlet was moved north it would fix the problem. Look into moving inlet and channel to come out farther north.
Dredge method suggestions: Mine reclamation dredging – suction dredge, a bag used to drain the water from the sed, a large tea bag, dewaterers.
Do not dredge, let it close off. Better protection. There will be more flooding opening it up.
The Park should be looking into installing a Groyne in the Bay to prevent sand from migrating westward.
Can the nourishment program be changed as to where they get the sand from, take it from just west of the outer lagoon instead of in the water (current area). Concerns that they are dredging eelgrass and important sea grasses, removing habitat for aquatic species.
During storm surge events, won't there be more water in the system? What if we constructed a dyke/gate at the inlet, closed it before a major storm event to prevent the flooding that occurs even now with large storm surge events.