

**Appendix A
Preliminary Issues Scoping Summary**

Potential Cumulative Effects on Water Quality (Primarily Faecal Coliform Bacteria)

Activity	Potential Effects	Description	Initial Severity Factor	Mitigation	Implementation / Partner
Sewage Collection System	Infiltration	Gravity flow collection pipes are old and crumbling. Property connection pipes contain asbestos and are in poor condition. Problem is acute in PDC and Shediac west. Intense precipitation events cause water to enter pipes.	High	<ul style="list-style-type: none"> • Replace defective pipes 	GSSC.
	Lift station overflow	When pump capacity exceeded or during power loss, waste water flows into overflow pipe. 16 lift stations have overflow which eventually drains into Shediac Bay via surface runoff (roads, ditches and storm drains).	High	<ul style="list-style-type: none"> • Develop storm water management program • Install standby generators • Resolve infiltration issues • Develop containment / holding ponds 	GSSC (lead), DTI (Parlee Beach).
	Illegal sewage connections	Some trailers / RVs parked in driveways have waste water disposal systems emptying to the ground or connected directly to the pipe between dwelling and GSSC collector lines. With these do-it-yourself connections, waste water may leak into ground water aquifer. Anecdotal accounts suggest that a few property owners pay the sewage invoice but are not physically connected.	Low	<ul style="list-style-type: none"> • Education campaign • Develop viable / convenient alternatives to disposal. • Conduct physical inspection, particularly in PDC and coastal areas. 	GSSC (lead), DELG, PDC-LSD Advisory Committee, Ville de Shediac Council.
	UV disinfection seasonal only	The UV system only operated in summer. The system is not designed to operate year-round. There is no standby generator. Note that end-of-pipe discharge quality post-treatment meets Conditions to Operate.	Negligible	<ul style="list-style-type: none"> • Upgrade system. • Install standby generator. 	GSSC (lead).
	Treatment sys. capacity outpaced by development	GSSC treatment capacity is currently sufficient for the immediate term, but should be reviewed in context of large pending development applications.	N/A (at present time)	<ul style="list-style-type: none"> • Increase treatment capacity in step with future development 	GSSC (lead), DELG, PDC-LSD Advisory Committee, Ville de Shediac Council
	Hydraulic capacity exceeded at times	Hydraulic capacity exceeded in spring and during intense precipitation events, causing overflow or by pass of sewage direct to Shediac Bay.	Moderate to High	<ul style="list-style-type: none"> • Increase hydraulic capacity 	GSSC (lead), DELG, PDC-LSD Advisory Committee, Ville de Shediac Council

Activity	Potential Effects	Description	Initial Severity Factor	Mitigation	Implementation / Partner
Individual Septic Systems	Illegal sewage connections	Several properties in the Kent region have ineffective septic tanks and weeping fields and/or very small property areas rendering septic system operation questionable.	Low to moderate	<ul style="list-style-type: none"> • Inspection and enforcement. • Replace defective systems with pre-engineered systems. 	GSSC (lead), DH, DELG.
	Inadequate Maintenance	Septic system maintenance (pump out) is inconsistent and problematic (cost, frequency, disposal, etc.). Each property owner hires their own contractor. Waste must be disposed at Moncton treatment facility, but illegal dumping may occur.	Low to moderate	<ul style="list-style-type: none"> • Make disposal more convenient. • Consider one contractor with umbrella maintenance contract for the southeast region. 	SERSC (lead).
Storm Water Runoff	Unmanaged storm water runoff contains multiple contaminants incl. lawn fertilizer, driveway residue, pet feces, automotive products, etc.	<p>A significant amount of untreated storm water runoff drains directly into SB. This holds for areas north of Route 133 (east of Route 11 to Boudreau Ouest), and east of Route 134 (between Shediac and Shediac Bridge).</p> <p>Several large impervious surfaces in Shediac / PDC have no storm water sys. and drain directly into Shediac Bay and Scoudouc River.</p>	High	<ul style="list-style-type: none"> • Education to property owners to maintain clean premises. • Put screens in storm outfalls. • Improve condition / vegetation of roadside ditches. • Develop storm water management program. • Develop retention ponds where space permits. 	GSSC, PDC-LSD, Ville de Shediac (public works), Red Dot, SBWA, HOMARUS.
Recreational and Commercial Watercraft	Disposal at sea, inadequate holding tanks	<p>Vessels with “buckets” and holding tanks might dispose of sewage in Shediac Bay.</p> <p>Water column immediately offshore of Parlee Beach is relatively stagnant and does not flush with each tidal cycle.</p>	Low to Moderate	<ul style="list-style-type: none"> • Inspection and enforcement. • Education campaign. • Require vessels to install holding tanks and check valves. Require use of pump out stations. 	DFO, HOMARUS, Shediac Bay Yacht Club, PDC Yacht Club
	Inadequate wharf pump out facilities	Pump out facilities are not adequate and difficult to use. Hence there is suspected non-compliance. Anecdotal accounts suggest very few boaters use existing pump out facilities.	Low	<ul style="list-style-type: none"> • Inspect pump out facilities. • Upgrade facility • Develop a tracking system / log to monitor use. • Monthly reporting 	Shediac Yacht Club, PDC Hbr Authority.
	Rafting related dumping very close to the beach.	<p>Vessels congregate (“raft up”) near the beach which may affect water quality and swimmer safety (sewage, oil and gas spills).</p> <p>Water column immediately offshore of Parlee Beach is relatively stagnant and does not flush completely with each tidal cycle.</p>	Low to Moderate	<ul style="list-style-type: none"> • Establish an exclusion zone, delineated by appropriate markers, where boats are prohibited. 	NBTHC to lead. DFO to enforce.

Activity	Potential Effects	Description	Initial Severity Factor	Mitigation	Implementation / Partner
Parlee Beach Operation and Maintenance	Sand refurbishment stirs up noxious substances	Beach is rebuilt annually and as required during the season. This may stir up noxious substances resident in sand. Heavy equipment may leak diesel fuel and transmission / hydraulic fluids.	Low to Moderate	<ul style="list-style-type: none"> Review and adopt, as applicable, best management practices in other jurisdictions. Establish and use clean sand source. 	NBELG (lead).
	Seaweed/ eel grass removal and disposal could reduce water quality	Seaweed/ eel grass is collected intermittently and piled at western extremity of the beach. Seaweed provides shelter and nourishment for marine life. Rotting seaweed can be a source of hydrogen sulfide.	Low	<ul style="list-style-type: none"> Review and adopt, as applicable, best management practices in other jurisdictions. 	NBTHC (lead).
	Garbage and litter may contribute to reduced water quality	Fugitive litter in the Park blows onto beach.	Low	<ul style="list-style-type: none"> Develop solid waste management protocol. Provide adequate waste receptacles. Empty receptacles promptly. 	NBTHC (lead).
	Parking lots and site storm water runoff to Parlee Beach "Creek"	<p>Surface water runoff flows into creek and eventually into Shediac Bay. Runoff water can contain pet feces, automotive products, spilled beverages, etc.</p> <p>Overflow from the DTI lift station drains into creek immediately south of the beach. This creek is somewhat stagnant but eventually drains westerly into Shediac Bay and likely affects beach water quality. Historically this creek was a continuous swamp creating an island of the beach.</p>	Low to high	<ul style="list-style-type: none"> Develop storm water management plan. Collect storm water from parking lots and transport to GSSC. Consider hydraulic modification to PB Creek. 	NBTHC, NBELG.
	Off-site parking contributes to unmanaged storm water runoff	Parlee Beach visitors park along PDC and Shediac streets, either to avoid parking fees or when lots are full. This increases residue on streets, which is drained into Shediac Bay by storm water. It is impossible to control non-official entrance to the beach given the many public access points.	Unknown	<ul style="list-style-type: none"> Education campaign. Alternative parking areas. 	PDC LSD Town of Shediac
	Swimmer numbers above threshold may cause water quality issues	Anecdotal comments suggest there are some days when the beach has > 40,000 visitors. Potential contribution to WQ not fully understood (sun lotions, beverages, sea-toilet, etc.). Initial planned capacity of the beach was 16,500 persons. This activity does not create enterococci concerns.	Unknown	<ul style="list-style-type: none"> Undertake research. Correlate water quality monitoring with beach visitation. Develop phone app to allow users to make choices regarding days / times to visit. 	NBTHC (lead).

Activity	Potential Effects	Description	Initial Severity Factor	Mitigation	Implementation / Partner
Dogs	Dog feces may contain E. coli, and faecal coliform bacteria, salmonella and giardia. Dog waste is high in nitrogen.	<p>Dogs are prohibited in the Park. However, dogs are walked on beach during the off season and after hours during operating season. The stretch between PDC Wharf and Parlee Beach is known as “doggy beach”. Dog waste is generally not collected by owners - common perception is that dog waste is “fertilizer”.</p> <p>Dog droppings are known to collect on PDC / Shediac west streets and enter Shediac Bay via storm water runoff.</p> <p>US studies put dogs third or fourth on the list of contributors to bacteria in contaminated waters.</p>	Moderate to High	<ul style="list-style-type: none"> • NBTHC to patrol beach after hours. • Education campaign • Signage. • Waste bag dispensers. • Covered waste cans. • “Poop and scoop” bylaw. • Enforcement – Some jurisdictions fine dog owners without bags \$100. 	Red Dot Association PDC LSD Town of Shediac
Impacts on Wetlands	Infilling, structures, shoreline facilities reduce wetland functions.	Infilling of wetlands, particularly near shore to support a range of physical development. This reduces wetland natural filtration function. Placing of buildings, dwellings, docks, boat launch pads, lookouts etc., in wetlands and shorelines.	Moderate	<ul style="list-style-type: none"> • Review Wetlands Strategy • Improve wetland mapping. 	NBELG (lead).
Birds and Waterfowl	Bird waste has been linked to gastrointestinal illness or diarrhea.	<p>Sea gulls and geese have been suggested as a primary source of faecal contamination at many beaches.</p> <p>Fish processing plants and restaurants that are not managing solid waste properly will attract gulls to the area, as will litter on the beach.</p>	Unknown	<ul style="list-style-type: none"> • Develop better understanding of this issue and investigate mitigation options • Consider DNA testing 	SBWA
Agriculture	Runoff of agricultural products may affect Parlee Beach water quality.	<p>Farm runoff may include faecal coliform bacteria, fertilizer, herbicide/pesticide, and other contaminants.</p> <p>Several major farms border and drain into the Scoudouc River south of Route 11; and SB from Gilbert Corner to Grande Digue along Route 134, and along Shediac River.</p>	Unknown	<ul style="list-style-type: none"> • Develop better understanding of this issue (map agricultural footprint in watersheds) and investigate mitigation options. • Consider DNA testing. • Discuss nutrient management with farmers. • Adopt best management practices. 	DAAF, DELG