REGIONAL DISTRICT OF NANAIMO
RECREATION AND PARKS

Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY

Little Qualicum River Estuary Regional Conservation Area

2010-2019 Management Plan

June 2010

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Executive Summary

The Little Qualicum River Estuary Regional Conservation Area (LQRERCA) is a small 4.6 ha sparsely vegetated sand and gravel spit that guards the mouth of the Little Qualicum River where it enters the Strait of Georgia on the east side of Vancouver Island. The LQRERCA is situated within the UNESCO designated Mount Arrowsmith Biosphere Reserve, west of the Town of Qualicum Beach in Electoral Area G of the Regional District of Nanaimo (RDN). The LQRERCA is surrounded by the Province's extensive Parksville-Qualicum Beach Wildlife Management Area, and abuts the Marshall Stevenson Unit of the Qualicum National Wildlife Area.

The LQRERCA is the only estuarine spit in the RDN that has escaped significant development. Ducks Unlimited Canada (DUC) and the RDN acquired the LQRERCA in 2003, with DUC representing its Pacific Estuary Conservation Program partners Environment Canada, Fisheries and Oceans Canada, BC Ministry of Environment, BC Habitat Conservation Trust Fund, Nature Conservancy of Canada, the Land Conservancy of Canada, and The Nature Trust of BC. Spits like the LQRERCA represent high value coastal habitat: they play a key role in protecting estuaries from strong ocean forces and in sustaining the proper functioning and rich biodiversity of these nutrient-loaded areas where river meets the sea.

DUC and the RDN own the LQRERCA on a 79:21 per cent basis, respectively. They are in the process of concluding a 99-year lease by which the RDN will formally adopt the role as long-term property manager at the LQRERCA. The spit is one of 11 regional park properties managed by the RDN. The broad directions for RDN park management are set out in the *2005-2015 Regional Parks and Trails Plan*. These include: to secure, protect and steward land and water features of environmental significance and wildlife habitat value.

This 2010-2019 LQRERCA management plan was prepared by DUC and the RDN. A range of stakeholders, the public and in particular the neighbours of the LQRERCA were consulted over the course of plan preparation. An open house was held in the fall of 2009 and an on-line survey was used to solicit views on the use of the LQRERCA and estuary in general. A draft version of this management plan was made available for comment. Overall, reaction to the draft plan and directions contained therein was favourable and this final version is substantially the same.

The 2010-2019 LQRERCA management plan describes the spit, its uses, values and issues; confirms a long-term vision and set of management goals for the conservation area; and identifies the actions to be carried out by the RDN and DUC at the LQRERCA over the next decade. The paramount goal for the LQRERCA is to see the natural state of the spit preserved, conserved, maintained and enhanced as wildlife habitat within the context of the Little Qualicum estuary as a whole. To this end, the plan recognizes the importance of coordinating actions with the managers of adjacent federal and provincial conservation areas. All three conservation areas share a sensitive environment -- under great stress from Canada Geese -- and all managers wrestle with the impacts of human and canine visitors. Through education, interpretation and restricted public access, the goal at the LQRERCA is to provide residents and visitors with wildlife viewing and nature appreciation experiences without compromising natural values at the spit.

Executive Summary (continued)

The management plan establishes a course of action for the 2010-2019 period that is focused on addressing conservation issues, primarily the Canada Goose problem but also, for example, the removal of invasive species; on continuing to properly secure the spit property; and on communicating along with federal and provincial partners to the public about the natural values to be found at the Little Qualicum estuary and the need to limit and control the human footprint made there. As conservation and education advances are made, the development of public access facilities on the LQRERCA spit will be studied carefully and a sound plan prepared with actual development to take place in 2020 and beyond.

The following table summarizes the actions and forecasted RDN expenditures at the LQRERCA for the first five years of this plan.

Summary of Management Actions and RDN Expenditures 2010-2015

	2010	2011	2012	2013	2014	2015
Conservation						
Invasive Plant Removal		$2,500				
Canada Geese	$2,000	$7,500	$7,500	$7,500	$7,500	
Inventory & Monitoring						
Fish Channel Restoration						
Property Management						
Boundary Adjustment		$6,000				
Old Metal Removal						
Boundary Demarcation						
Public Use & Education						
Print & Web Update						
Water Access Signage			$1,000			
Fence Line Signage			$1,000			
WMA Beach Support						
Public Access Review						

Higher priority actions are shown in red, medium priority actions in yellow, and lower priority actions in green. Where a dollar figure has not been specified, the RDN will be undertaking work under regular regional park operating budgets through use of park staff. Opportunities to partner with other agencies and to apply for external grants will be pursued as possible.

This management plan along with actual work accomplished at the LQRERCA will be reviewed on an annual basis by DUC and the RDN. The management plan will be formally updated every ten years.

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1.0 Introduction

1.1 Guardian of the Estuary

The Little Qualicum River Estuary Regional Conservation Area (LQRERCA or Little Querca) is a small 4.6 ha sparsely vegetated sand and gravel spit that protects the mouth of the Little Qualicum River where it enters the Strait of Georgia – see Map1. LQRERCA is situated within the UNESCO designated Mount Arrowsmith Biosphere Reserve, west of the Town of Qualicum Beach in Electoral Area G of the Regional District of Nanaimo (RDN).

The LQRERCA is surrounded by the Province's extensive Parksville-Qualicum Beach Wildlife Management Area, and abuts the Marshall Stevenson Unit of the Qualicum National Wildlife Area along with a small oceanfront residential neighbourhood served by Kincade Road and McFeeley and Surfside Drives – see Map 2.

The LQRERCA is the only estuarine spit in the RDN that has escaped significant development. Spits play an important role in protecting estuaries from strong ocean forces and sustaining the proper functioning and rich biodiversity of these nutrient-loaded areas where river meets the sea. LQRERCA is the guardian of the Little Qualicum estuary: it supports and protects rare ecosystems and critical habitat within and beyond its borders.

1.2 Acquisition

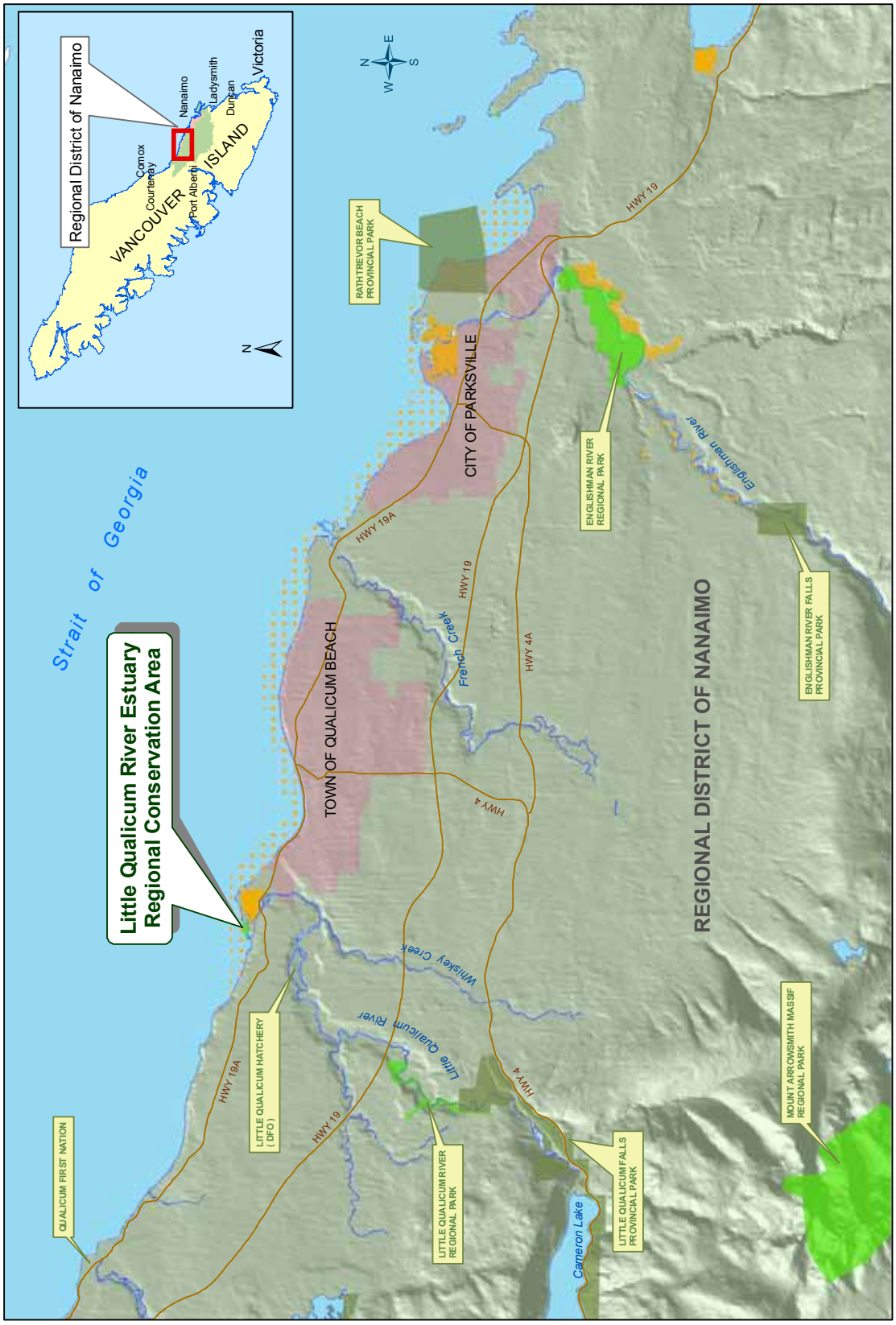
In 2003, Ducks Unlimited Canada (DUC) and the RDN purchased the spit at the Little Qualicum River estuary.

DUC's vision is to work to achieve a mosaic of natural, restored and managed landscapes capable of perpetually sustaining populations of waterfowl and other wildlife. In the acquisition of LQRERCA, DUC represented the Pacific Estuary Conservation Program.

The RDN acquires and manages park and conservation lands of regional significance on behalf of all residents of the Regional District, typically in partnership with other conservation agencies, land trusts and governments. LQRERCA is one of 11 such regional properties held by the RDN. The *2005-2015 Regional Parks and Trails Plan* sets out the RDN's vision: to secure, protect and steward land and water features of environmental significance and wildlife habitat value.

Pacific Estuary Conservation Program

The Pacific Estuary Conservation Program (PECP) was formed in 1987 by government agencies and non-government organizations in British Columbia to coordinate their efforts in protecting the environmentally valuable estuaries along the rugged BC coast. The PECP is one of the most successful coastal habitat conservation programs in Canada and has secured thousands of hectares of shoreline and intertidal habitats in many of BC's major estuaries. Program partners include: Environment Canada (Canadian Wildlife Service), Fisheries and Oceans Canada, BC Ministry of Environment, BC Habitat Conservation Trust Fund, Ducks Unlimited Canada, Nature Conservancy of Canada, The Land Conservancy of Canada, and The Nature Trust of British Columbia.



MAP 1. Little Qualicum River Estuary Regional Conservation Area Location

Map produced by Regional District of Nanaimo, October 2009

MAP 2. Little Qualicum River Estuary Federal, Provincial and Regional Conservation Areas

Date of Photography: Summer 2009

Map produced by Regional District of Nanaimo, June 2009

1.3 Management Planning

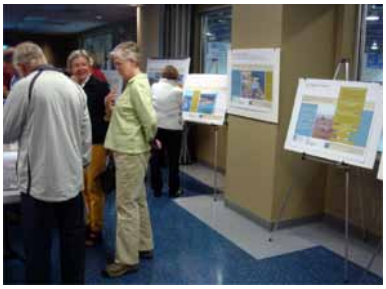
The purpose of this first management plan for the LQRERCA is to describe the property, its uses, values and issues, confirm a vision and conservation goals, and set out management actions for the next decade that will advance DUC and the RDN's conservation aims at the LQRERCA spit. This management plan will be updated every ten years.

DUC and the RDN initiated the LQRERCA management planning process in September 2008 and engaged consultant Clermont Environmental Research and Planning to undertake research, stakeholder consultation and plan preparation. Background research was undertaken over the winter 2008-09, and stakeholder consultation began in spring 2009. Figure 1 below shows the stakeholders consulted and their current or potential interest in the LQRERCA.

Figure 1: LQRERCA Stakeholders

Stakeholder	Acronym	Current or Potential Interest
Ducks Unlimited Canada Regional District of Nanaimo	DUC RDN	Owner Owner and manager
Ministry of Environment	MoE	Estuary conservation neighbour and regulatory agency
Canadian Wildlife Service	CWS	Estuary conservation neighbour
Vancouver Island Conservation Land Management Program	VICLMP	Manager of conservation lands on Vancouver Island on behalf of DUC, MoE, The Nature Trust of BC (TNT), CWS, and Habitat Conservation Trust Foundation
Fisheries and Oceans Canada	DFO	Salmonid enhancement partner and regulatory agency
Qualicum First Nation	QFN	Aboriginal heritage
Vancouver Island University	VIU	Research and monitoring support
Conservation Groups		Stewardship support
Neighbours		Stewardship support
RDN residents		Support

In early September 2009, the RDN launched a project web page for the LQRERCA management plan on the RDN's web site www.rdn.bc.ca. This project page chronicled the planning process and included an on-line survey. Through the public survey, DUC and the RDN sought to hear from regional residents, neighbours and other interested parties on how they use the LQRERCA and surrounding Parksville-Qualicum Beach Wildlife Management Area, and what concerns them at the estuary. The survey remained live through to the end of the draft management plan review period, at which point 75 respondents had completed the survey. All survey responses and other feedback received are discussed in Section 4.2 of this plan and provided in whole in Appendix A.



On September 15, 2009 DUC and the RDN hosted a project open house at the RDN's Oceanside Place facility in Parksville. Approximately 35 people attended the afternoon and evening event which featured a series of story boards on the LQRERCA and presentation by the project consultant.

In January 2010, a draft management plan was issued for public and

stakeholder review. The draft plan and a comment form were posted on the LQRERCA project web page. Those who attended the open house, over 100 Electoral Area G residential neighbours in the vicinity of the estuary, and other key stakeholders were notified directly about the availability of the draft plan and encouraged to provide their feedback. Feedback received is documented in Appendix A.

At the end of February 2010, the draft management plan review period concluded, and a final plan was prepared that reflects the feedback received. The final plan was submitted to the RDN's Regional Parks and Trails Advisory Committee and the Regional Board for final RDN approval. DUC and the RDN will initiate the LQRERCA management plan in spring 2010.

1.4 Plan Organization

Section 1 introduced the LQRERCA, its acquisition by primary stakeholders DUC and the RDN, and the management planning process. **Section 2** describes the LQRERCA property and ownership set-up, how the land has been used and the regulatory framework that applies to the LQRERCA. **Section 3** explores the primary values of the LQRERCA, that is, as a conservation property with some recreation and cultural aspects. **Section 4** outlines the interests of those who have a stake in the property and includes the results of the user survey. **Section 5** explores the concerns and issues that require addressing at the LQRERCA. **Section 6** proposes a vision for the LQRERCA, and outlines primary management goals and the principles governing management. **Section 7** presents the plan for managing the LQRERCA from 2010 to 2019, including who would be involved in a particular action, when the work is to be undertaken and completed, and an estimate of short-term expenditure requirements. **Section 8** summarizes 2010-2019 management plan actions and associated expenditures in tabular form. **Appendices A through D** include all public feedback, further information about LQRERCA's natural and cultural values, and an annotated list of references used in the preparation of this plan.

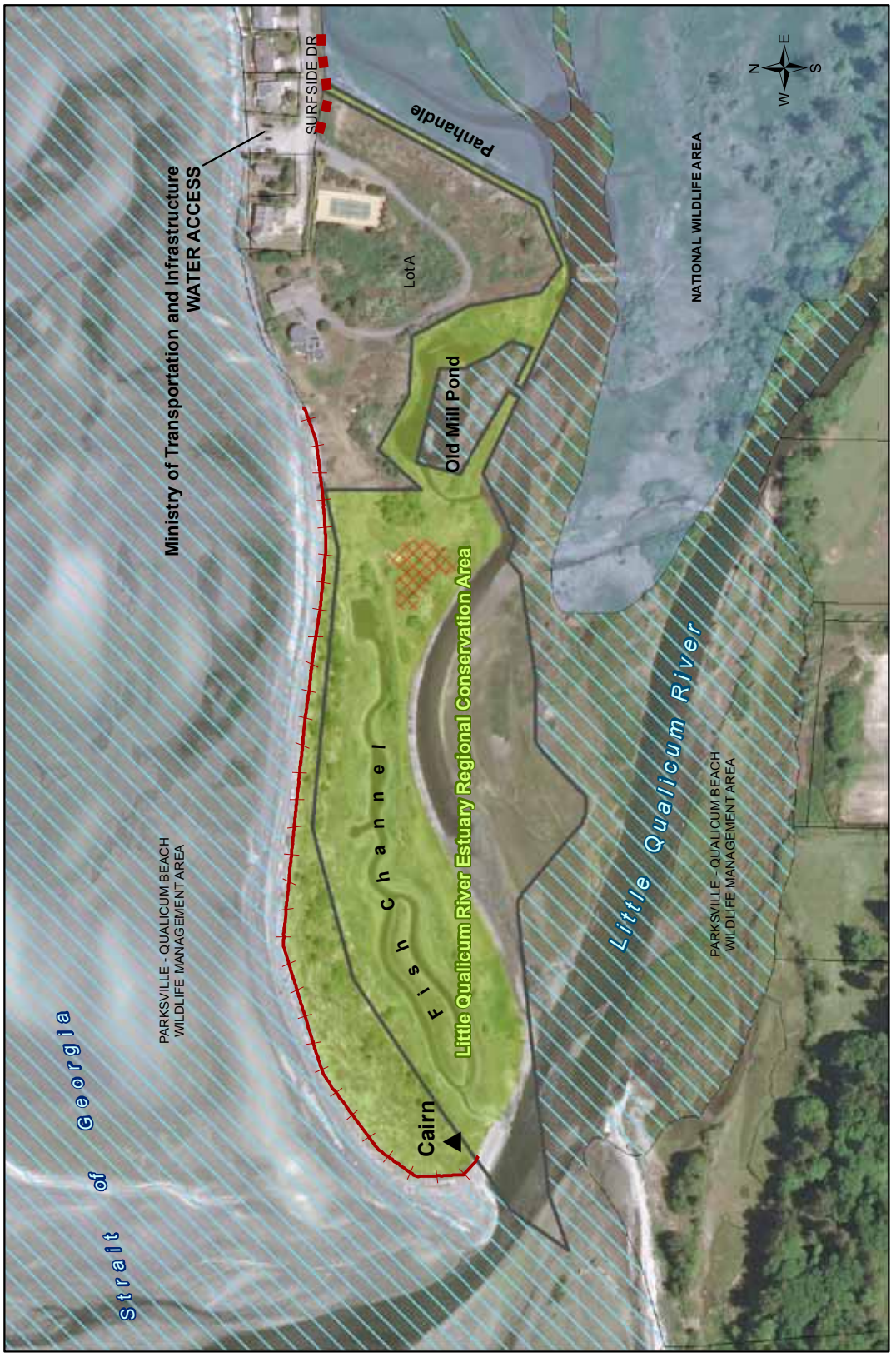
2.0 Property Overview

Map 3 provides a detailed overview of the LQRERCA site and adjacent lands and waters.

2.1 Legal Description and Situation

The LQRERCA is legally described as Lot 1, District Lots 11 and 110 and part of the bed of the Strait of Georgia and parts of the bed of the Little Qualicum River, Newcastle District, Plan VIP75238, PID 025651561. Lot 1, 4.6 ha in size, was created to enable the purchase of the spit by DUC and the RDN in 2003; it was severed from the residential estuary property owned by the Marshall family (Lot A). The LQRERCA is situated in floodplain. As can be seen from Map 3, erosion and accretion have over time created a mismatch between the spit's land base, highlighted in bright green, and legal boundaries set out in 1974.

To the north, west and south of the LQRERCA are the intertidal lands and waters of the Province's Parksville-



MAP 3. Little Qualicum River Estuary Regional Conservation Area Site

Date of Photography: Summer 2009 Map produced by Regional District of Nanaimo, October 2009

Qualicum Beach Wildlife Management Area (WMA). To the east of LQRERCA are residential properties along Surfside Drive and the estuarine marsh of the Marshall Stevenson Unit of the Qualicum National Wildlife Area (NWA). The LQRERCA property fronts onto Surfside Drive by virtue of a narrow panhandle of land sitting between Lot A and the NWA. The panhandle, currently fenced off at Surfside Drive, does not provide useful access to the spit proper for either maintenance or public access purposes because of the limited land base around the old mill pond sitting between panhandle and spit proper. The NWA lands that front the panhandle are closed to the public and, in this area, present an impassable deep muddy marsh and tidal flat.

At this time, the only ready land connection to the LQRERCA is from the WMA beach, by way of the Ministry of Transportation and Infrastructure water access at the western end of Surfside Drive. Map 3 shows the fence line that separates the WMA beach and the LQRERCA on the outside of the spit. On the un-fenced inside of the spit, access to the LQRERCA from WMA waters is uncontrolled.

The LQRERCA land title references one easement and one restrictive covenant. The easement concerns a water line for LQRERCA's parent property (Lot A). The restrictive covenant, established under s. 219 of the *Land Title Act*, was placed on the LQRERCA by the RDN when DUC and the RDN acquired the property. The covenant runs with the land and requires LQRERCA owners to preserve, conserve and maintain the natural state of the parcel and its amenities in perpetuity as a habitat for waterfowl, fish and wildlife. The covenant recognizes the right of the public to restricted access to the property for wildlife viewing and educational purposes, prohibits dogs, requires maintenance of fencing intended to restrict access, and speaks to a management plan that, amongst other things, addresses neighbouring federal and provincial interests in wildlife habitat protection.

The Province's Archaeology Branch (Ministry of Tourism, Culture and the Arts) shows no registered archaeological sites at the LQRERCA. The LQRERCA is located within the Dashwood Fire Service Area.

Parksville-Qualicum Beach Wildlife Management Area

Designated in 1993 and expanded in 2001, this conservation area encompasses 1,024 hectares of coastal foreshore, estuary and river habitat between Craig Bay south of Parksville and the Little Qualicum River north of Qualicum Beach. Conservation and management of wildlife, fish and their habitats are the priority land use here, but other uses may be permitted depending on their compatibility with the goals of the WMA. The WMA is popular for low-impact recreation such as boating, fishing, picnicking, wildlife viewing, and dog walking. Since 2005, dogs have not been allowed on WMA beaches during March and April in order to protect staging Brant and other migratory waterfowl.

Qualicum National Wildlife Area

The Marshall Stevenson Unit of the Qualicum National Wildlife Area, established in 1974, is a 29 hectare sanctuary for wildlife with no public access. The Canadian Wildlife Service grants access for research, monitoring and management activities on a case-by-case basis. On rare occasions, guided public access to the edge of the marsh is permitted for wildlife viewing.

2.2 Ownership and Management

DUC and the RDN co-own the LQRERCA on a 79:21 per cent share basis, respectively. At time of acquisition in 2003, DUC and the RDN concluded a five-year management agreement for the property. The agreement addressed the completion of financing, recognized the LQRERCA as an RDN regional conservation area, and assigned the RDN responsibility for maintaining property security.

In 2008, DUC determined to lease its management interest in the LQRERCA to the RDN for the long-term. DUC and the RDN are in the process of concluding a 99-year lease to govern the arrangement. The lease is modeled after that put in place at Englishman River Regional Park for lands owned by The Nature Trust of BC, DUC and the Nature Conservancy of Canada and managed by the RDN.

The 99-year lease to govern the LQRERCA will establish a management steering committee comprised of DUC and the RDN. This committee is to convene at least once a year in order to review the status of management plan actions, and reconfirm general management and conservation directions for the LQRERCA. The lease will provide for the creation of a formal habitat or conservation advisory committee including representatives from agencies such as MoE, CWS, TNT and DFO. As managing partner in the LQRERCA, the RDN will take the lead in executing the management plan and covering regular operational expenses. DUC and the RDN shared the cost of this management plan.

DUC and the RDN are in the process of reviewing the wording of the s. 219 covenant on the LQRERCA, and adding DUC as a charge holder. As written, the covenant requires development of boardwalk trail and a viewing platform at a specific location towards the western end of the spit in order to meet public access rights. The covenant also prohibits any alteration, e.g., improvement, of the existing fencing. DUC and the RDN will refresh the covenant language around property improvements so that the location and nature of any work undertaken to address limited and controlled public access to LQRERCA for wildlife viewing and education purposes are determined based on environmental suitability.

2.3 Land Use

Traditionally, the Coast Salish People camped at the Little Qualicum River estuary, where they harvested and preserved salmon and shellfish. In the 19th Century, settlers raised cattle and ran a fish oil business there, with a commercial fish saltery following in the early 1900s. From the 1930s to early 1950s, the estuary marsh was used as a log storage area. Circa 1947-1950, a sawmill operated near the mill pond in what is now the LQRERCA.

With the establishment of the NWA in 1974, roads serving the old estuary businesses were legally closed and work began on freeing the large tidal marsh southeast of the LQRERCA for habitat conservation. For more historical information on the estuary, see Appendix B. All that remains to be seen today of the spit's industrial heritage is some scattered pieces of rusting metal debris. A Level 1 Environmental Audit conducted in early 2003 on un-submerged portions of the property found that there was minimal potential for adverse environmental impact to subsurface soil and groundwater quality conditions from previous industrial use. The LQRERCA no longer presents any resource values.

For some time prior to acquisition by DUC and the RDN,

the spit at the Little Qualicum estuary was part of a residential property. The edge of the spit facing the Georgia Strait was fenced with barbed wire strands and 'wildlife area, keep out' signs were posted. The frontage onto Surfside Drive by the property entrance was fenced with chain link. In 2000, the landowner worked with DFO and the Qualicum Beach Streamkeepers on a project to deepen and extend an existing intertidal channel on the spit in order to provide rearing habitat for chinook, chum and coho salmon along with cutthroat trout. As well, the old mill pond was deepened, a new entrance constructed and the former one filled in. Some overburden was deposited in the process of these works. Over time, wood chips and garden waste were deposited onto the spit. Fences, fish channel and wood chip area are shown on Map 3. No services (water, power, septic) were ever extended to the spit.

Since the spit was acquired by DUC and the RDN in 2003, little has changed on the land now known as the LQRERCA. DUC/ RDN signage was posted along the fence lines to identify the new conservation area and its owners and to state a prohibition against dogs and people. In 2005, DUC used a helicopter to carefully install a cairn within the fence line at the far west end of the spit – see Map 3. This cairn recognizes the contributions of the Pacific Estuary Conservation Program, the North American Waterfowl Management Plan, and Bill and Valerie Shuttleworth, long-time supporters of DUC and wetland conservation. In 2008, the RDN replaced the old barbed wire strands of the main fence with galvanized plastic-coated panel wire especially suited for marine environments.

2.4 Regulation

The *2005-2015 Regional Parks and Trails Plan* defines the directions, policies, priorities and action for Regional Parks and Trails in the RDN over the next number of years. In respect of environmental land management, the RDN applies a 'best practices' approach as set out in MoE's *Develop With Care: Environmental Guidelines for Urban and Rural Development in British Columbia.* The RDN also works closely with its environmental and conservation partners in order to complement local government's operational and management functions with the science and conservation expertise of these other agencies and organizations. For environmentally sensitive properties such as the LQRERCA, it is recognized that public access must be carefully controlled and restricted to a greater extent than would be the case in a typical regional park.

As is the case anywhere in BC, works around water require involvement and approval by MoE and DFO. The foreshore surrounding the LQRERCA is Crown, and the fish channel is a DFO installation. Any improvements or activities affecting the WMA or the bed of the estuary require permission from MoE.

The Electoral Area G Official Community Plan Bylaw 1540, 2008 zones the LQRERCA as Parkland/Green Space/Natural Area and designates it as an Environmental Sensitive Area. Many development permit areas

apply to the sensitive LQRERCA, although no permits are required to carry out typical conservation activities such as fencing, removal of invasive plants, and fish and wildlife habitat restoration. The OCP supports the Regional Parks and Trails Plan, the coordination and harmonization of efforts among the public, stakeholders and all levels of government in the protection of the natural environment. The OCP recognizes the foreshore and waterfront as a finite resource, an integral part of the community's character and a major destination for leisure and recreational pursuits.

RDN Park Use Regulation Bylaw 1399 (2004) and amendment Bylaw 1399.01 (2009) regulate use of regional park properties. The Bylaw provides for the reasonable control of human use of parks, including for the protection of the natural environment. All RDN-posted signage at LQRERCA is enforceable under Enforcement Ticket Information Bylaw 1418. Bylaw 1399 also controls special uses such as research, for which park use permits may be issued.

Although there are no registered or recorded archaeological sites within the LQRERCA, the area has significant potential to contain sites. Any development requiring excavation or similar alteration of the landscape would need careful examination and may trigger an archeological site assessment.

3.0 Property Values

3.1 Conservation

Conservation values are the paramount values at the LQRERCA. The following section introduces estuaries and spits, and describes the broad nature of the Little Qualicum estuary and estuarine spit that make up the LQRERCA. Several specific conservation conditions at the LQRERCA are then examined. Detailed conservation values, e.g., estuary species lists, are found in Appendix C.

3.1.1 The Importance of Estuaries and Spits

BC's estuaries are important stepping stones for millions of migratory birds along the Pacific flyway, providing staging areas where the birds can rest and feed. For the Brant, a provincially blue-listed species, intertidal foreshore and estuaries in the Parksville-Qualicum Beach area are critical habitat. Estuaries are also important to wintering waterfowl, particularly when freshwater feeding areas are frozen. Birdlife International has recognized the Little Qualicum River estuary as an Important Bird Area.

Estuaries are essential to the survival of Pacific salmon. The Little Qualicum River supports populations of chum, chinook and coho salmon, small numbers of sockeye and pink salmon, and steelhead and coastal cutthroat trout. Juvenile salmon use the estuary to forage, hide from predators and acclimate to salt water. Returning adults congregate in the outer estuary until river flows are suitable for upstream migration and spawning. Anadromous cutthroat trout may spend much of their life cycle in the estuary.

Estuaries are significant habitats for people too. In addition to the biological services they provide to fish and wildlife, estuaries provide many ecosystem services, such as buffering against storm wave damage, shoreline stabilization, hydrologic processing, flood water storage, water quality, sediment trapping, nutrient cycling, chemical and metal retention, pathogen removal, carbon storage, and food production.

Estuarine spits develop where long shore currents carrying sediments encounter a headland and must turn or change direction – see below. As the current turns towards the river and slows, the sediment load falls and builds the spit until a point where the water velocity from the river is too great to allow the sediment to deposit. As the spit grows, a marsh develops behind it. Spits support distinct, specialized plant communities that evolve and eventually stabilize over thousands of years.

The spit creates a narrow entrance to the estuary, functioning as the "guardian of the estuary." The spit protects the estuary from sea winds and currents, and is particularly important to waterfowl seeking refuge from winter storms. As sea levels rise and storms increase in intensity with climate change, the spit will play an increasingly important role by protecting the marsh from high energy waves. By influencing estuarine circulation, the spit affects the range and distribution of salinity, temperatures, nutrients, sediments, and other attributes.

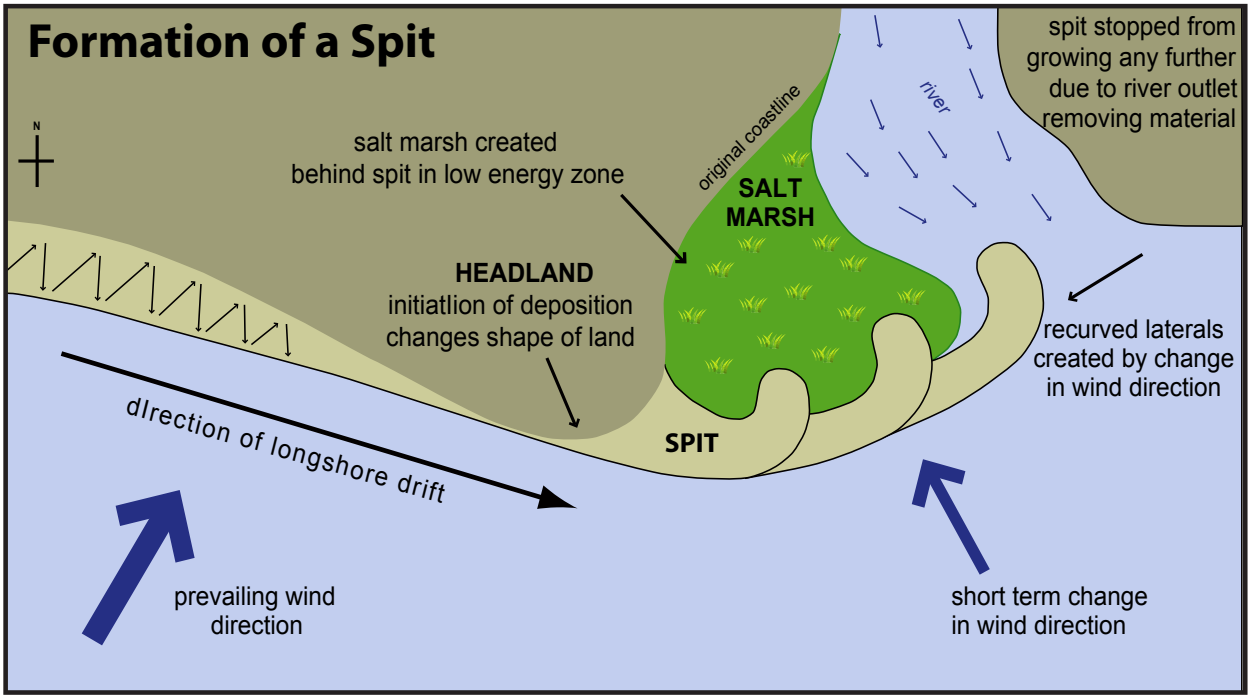
Figure 2: Formation of a Spit
Based on Chambers, 2007 as retrieved 28/09/09 from www.geobytesgcsc.blogspot.com, with permission from St. Ivo School Geography Dept., Cambridgeshire, UK.

What is an Estuary?

An estuary is formed where a river meets the sea. The term 'estuary' is used to describe many interconnected habitat types:

- subtidal marine
- intertidal sand and gravel
- intertidal mudflat
- cobble, gravel and sand beach
- river
- riparian
- brackish or saline marsh
- dendritic channel
- grass, forb and shrub upland
- coastal forest.

The productivity of a healthy estuary is akin to that of a tropical rainforest. Estuaries accumulate nutrients and sediments from the sea, stream and uplands, which combine to form rich substrates. MoE estimates that these highly productive habitats are used by 80 per cent of all coastal wildlife.



The LQRERCA spit is maintained and grows by receiving sediment from streams and eroding shorelines to the east-southeast along Vancouver Island. Weathered driftwood pieces on the uplands of the property are remnants of the former beach along the Strait of Georgia and testimony to the dynamic nature of the spit. Erosion along the inner channel appears to have slowed in recent years with the buildup of gravel and debris in the river side channel.

Sea level rise, increased river discharges, flooding and intense storms associated with climate change may also affect the structure and function of the spit. Sea level is expected to rise 11 cm at Nanaimo by 2100 based on an expected total increase in the level of the world's oceans of 30 cm. Extreme global rise forecasts reach 80 cm. Since biodiversity confers resilience, climate change will likely have its greatest impact in areas where biodiversity has already been affected by other stresses. Consequently, to effectively adapt to climate change, the structural complexity, productivity, biodiversity and resiliency of the estuary must be maintained and increased.

3.1.2 The Nature of the Little Qualicum Estuary and Spit

The Little Qualicum estuary is situated in the small Coastal Douglas-fir biogeoclimatic zone, moist maritime subzone (CDF mm). Wetlands, including estuary ecosystems, make up only two percent of the CDF mm; natural non-forested ecosystems make up only four percent. Of nine rare ecological communities described by the BC Conservation Data Centre (CDC) that may be found in the Little Qualicum River estuary, eight are estuarine wetland communities.

What is the CDF?

The Coastal Douglas-fir Zone (CDF) is one of 14 zones in BC's Biogeoclimatic Ecosystem Classification system, which groups similar landscapes into zones and subzones, and similar sites into site associations and series, based on vegetation, soil, topography and climate.

The CDF includes a band of lower elevation along southeastern Vancouver Island, the Gulf Islands, and a fringe of mainland along the Georgia Strait.

Although one of the smallest of BC's 14 ecological zones, the CDF is home to some of the province's most interesting and diverse ecosystems. A mild climate has given the CDF some of the province's rarest vegetation, which is seriously threatened by growing human settlement.

The Sensitive Ecosystem Inventory (SEI) of eastern Vancouver Island and the Gulf Islands has classified the lower Little Qualicum estuary as wetland marsh, and sparsely vegetated, i.e., characterized by patches of vegetation interspersed with bare sand and gravel. The SEI notes that wetland marsh ecosystems are among the most threatened habitats in the world. Less than 0.01 percent of the entire SEI study area is represented by sparsely vegetated ecosystems. Thirty-one of 38 red and blue-listed bird species in BC have been recorded on the estuary.

There are no species lists specific to the LQRERCA. Several inventories of the NWA lands in the 1970s and 1980s did however include the spit. Records show 220 species of birds, 20 mammals, 4 amphibians, 4 reptiles, 17 fishes, 29 molluscs, 234 vascular plants, 55 fungi, 22 bryophytes, 14 algae and 62 families of arthropods at the Little Qualicum estuary. The CDC has recorded a sensitive rare mammal species occurrence overlapping the LQRERCA.

Over many years, expanses and pockets of mosses, lichens and wildflowers have established on the LQRERCA. Shrubs such as rose, Pacific crab apple, black hawthorn and Sitka mountain ash are scattered throughout and there are occasional small trees such as big leaf maple and arbutus. Stunted Douglas-fir trees form a ragged line along the beach. A small cluster of trees grows between the eastern end of the fish channel and the tidal mill pond once used for log storage.

3.1.3 Condition of the LQRERCA

The natural communities at the estuary and LQRERCA have declined in recent decades and are in poor condition, much exacerbated by the overgrazing of an exotic subspecies of the Canada Goose introduced to Vancouver Island in the 1970s and to a lessor extent before. Lyngbye's sedge and other vascular plants that should abound at the LQRERCA have been decimated by the geese, and substrates laden with microscopic organisms have been eroding and washing away with the tides. In this deteriorating condition, the estuary is vulnerable to large-scale estuarine invaders such as cordgrass (Spartina spp.) and purple loosestrife (Lythrum salicaria).

Great Blue Heron

There is a Great Blue Heron nest in a big leaf maple tree on the LQRERCA spit that was active in 2008 and 2009; in the recent past, there have been up to three nests in the immediate area. There is little to conceal the heron nests which is unusual and may influence their success. Great Blue Herons are blue-listed and their nests are protected year-round. MoE recommends a 300 m buffer around the nest from January 15 to September 15 to minimize disturbance to these highly sensitive birds.

The photos below by Neil K. Dawe of the CWS show the significant impact to marsh vegetation on the NWA between 1978 and 2005 caused by the introduced subspecies of Canada Geese. Note the log in the channel mud in both images; the end of Surfside Drive is on the horizon. Most geese found at the Little Qualicum

1975 **2005**

estuary nest on the south facing half of the LQRERCA spit. An egg addling program of limited success has been underway there since 2003. Hunting is not allowed in the estuary though it may occur on nearby fields.

As one moves away from the inner spit and fish channel and into the lichen and moss communities that characterize the north or outside face of the LQRERCA, the impact of geese declines -- lichen and moss being less palatable to geese than vascular plants. Lichen and moss communities surviving on a thin or absent organic layer are highly susceptible to other kinds of disturbance including colonization by invasive plants. Himalayan blackberry, butterfly bush, scotch broom, spurge-laurel, dandelion and thistle are evident at the LQRERCA, and reflect old garden waste dumps and human intrusion. Although still intact, the sensitive lichen and moss

Hummocks of mosses, lichens and wildflowers in early spring.

The boundary between the moss-lichen community (right) and pioneer species at the new channel (left) is clearly demarcated.

communities show stress and stunted development and, without help, may not be able to out-compete invasive species.

The fish channel developed at the LQRERCA in 2000 to enhance existing habitat and create new habitat for juvenile salmon and trout is not performing well. A few fry and smolts have been observed, but the predominant inhabitants at lower tides appear to be shore crabs and sculpins. Due to a general lack of vegetative productivity and natural shelter around the fish channel, there is little food, thermal cover or protection from predators for young salmonids. May 2009 water temperatures were estimated to be 16 to 21° C. When juvenile salmon are exposed to temperatures above 20° C, they are susceptible to disease and higher rates of mortality.

3.2 Recreation

The serenity, breathtaking coastal scenery and opportunities for wildlife viewing attract visitors to the Little Qualicum estuary. Boaters, kayakers and fishers enjoy the marine life, while walkers, birders and other nature enthusiast enjoy the expansive WMA beach and the surrounding wildlife. Other activities associated with the WMA include swimming, picnicking, socializing around a fire, shell collecting, and shellfish harvesting.

As a small fenced spit of land with no beach of its own and, at least for the present, a low vegetation fish channel, the LQRERCA does not itself present much of a recreation destination within the context of the greater estuary and beautiful large beach. Further, there is no direct access to the spit unless one is in a boat. The LQRERCA panhandle fronting on Surfside is well fenced off, as is the NWA beyond. To get to the LQRERCA by land, one must first head into the WMA and then turn away from the attractive beach and cross the wire strand fence with its no walkers-no dogs signs.

The most direct and commonly used public access to the Little Qualicum estuary, the WMA, and hence the LQRERCA, is the Ministry of Transportation

Wonder of Nature

Great natural events bring people to the WMA. When the Pacific herring spawn in the spring, there is a spectacular display of turquoise water, birds and marine mammals in the WMA. The outer estuary is popular for Brant viewing during the Brant Wildlife Festival in March-April, as large numbers of Brant descend upon the herring eggs and eelgrass. Before the autumn rains raise water levels and the salmon migrate upstream, hundreds of fishermen typically gather to catch salmon at the mouth of the estuary.

and Infrastructure water access at the west end of Surfside Drive – see Map 3. The parking area there easily accommodates four to five vehicles, and a concrete and wood memorial bench is available for resting and contemplation of the Georgia Strait. Ministry of the Environment signage welcomes visitors to the WMA, warns them of the sanitary shellfish closure and states a prohibition of beach fires below tide line. During March and April, signs that declare the WMA beach closed to dogs are erected by the Ministry at the water access.

3.3 Culture

As previously noted, there are no registered archeological sites on the LQRERCA. The only obvious cultural heritage values at the Little Qualicum estuary are remnants of First Nation fish fences in the outer estuary and along the Strait of Georgia, still visible at very low tide. Archaeological interpretations describing Aboriginal use of the estuary and detailed written accounts by early settlers are available for use in developing interpretive materials. The Qualicum Beach Historical Museum is also a useful source of local information and historical material. Any interpretation of Aboriginal use of the LQRERCA would require the participation of the Qualicum First Nation. For more background on the heritage of the Little Qualicum estuary in general, see Appendix B.

4.0 A Stake in the Property

It takes a community to protect a conservation area. There are many active and potential agencies, groups and individuals who have a stake and interest in the management of the LQRERCA. The interests of major stakeholders are discussed below, followed by a summary of what the public had to say when surveyed about the LQRERCA, its use and management.

4.1 Stakeholder Interests

DUC and the RDN -- The LQRERCA was acquired by DUC and the RDN as a conservation property, and as a means to help protect the Little Qualicum River estuary. The intention from the outset was to permit only restricted public access to the spit property for the purposes of wildlife viewing, education and interpretation. No other recreational uses of the LQRERCA, e.g., as a boat launch site or trail network with boardwalks, were ever considered. Managing for conservation is the priority at the LQRERCA, with restricted public access to be introduced where and when it is feasible to do so without jeopardizing the conservation values of the small estuarine spit.

As property manager, the RDN will coordinate and permit the conservation effort at the LQRERCA, as well as maintain and develop all works required to secure the spit and provide for restricted public access. DUC and the Vancouver Island Conservation Land Management Program (VICLMP) representing DUC, MoE, TNT, CWS, and the Habitat Conservation Trust Foundation will oversee development and the undertaking of a conservation program for the LQRERCA. The VICLMP already supports management of the WMA and NWA and will thus be able to integrate the interests of the LQRERCA with those of adjacent protected

areas. The VICLMP Manager notes that while some vandalism to WMA signs at the Surfside Drive water access has been seen, for the most part the problems associated with this part of the WMA are ecological and unrelated to public access.

MoE – This Ministry is responsible for the WMA that stretches across the greater Parksville-Qualicum Beach oceanfront and includes a succession of large public beaches. Limited Ministry resources preclude regular monitoring of the entire area. Concentrated efforts during the Brant migration, including the prohibition of dogs on the beach and increased enforcement, have helped secure greater public cooperation in achieving conservation aims. MoE supports regular communication and collaborative management between agencies involved in or near the WMA. MoE has expressed concern about promotion of the LQRERCA insofar as promotion of the spit means promotion of the WMA at the Little Qualicum estuary. Agency collaboration on how the LQRERCA and WMA at the estuary are presented for public use and access will be required. MoE also performs a regulatory role concerning works around water.

CWS -- The CWS is responsible for the NWA, one of five national wildlife areas in BC and the only one on Vancouver Island. Note that this NWA includes land at both Little Qualicum and Nanoose estuaries. Public access to the NWA at the Little Qualicum estuary has been barred since 1984, when interpretive programs there were cancelled. The last management plan for the NWA dates from 1986. Limited CWS organizational resources and staff will restrict the direct participation of CWS in any estuary wide conservation planning efforts in the near-term. TNT is the caretaker of the NWA.

DFO -- The fish channel developed at the LQRERCA prior to acquisition as a conservation property is not an operational DFO site. DFO staff are however available to assist DUC and the RDN in the formation of restoration plans for this old salmonid enhancement project. DFO is also the primary regulatory agency for development affecting fish habitat.

QFN -- Interpretation of Aboriginal history requires the participation of First Nations, the Qualicum First Nation in the case of the LQRERCA. Over time, it is hoped that the QFN will join DUC and the RDN in the creation of interpretive material that tells the cultural story of the spit.

Vancouver Island University -- The University offers a range of science-based degree programs, e.g., Natural Resource Protection and Resource Management Officer Technology programs, which are teaching students valuable conservation-related skills. As well, VIU supports an Institute for Coastal Research, the Community Based Research Institute, and the Applied Environmental Research Lab. The professors, associates and students involved in all of these educational endeavours present a valuable work force and partner to help monitor and assess conditions at the LQRERCA on a regular basis over many years. DFO and the RDN have had good results partnering with VIU on stream invertebrate monitoring projects at Englishman River Regional Park over the last two years. The Milner Gardens and Woodlands is another good example of VIU on-site and curricular collaboration in the study and care of lands of conservation interest.

Other Conservation-related Groups -- There are a number of conservation groups operating in the greater Parksville-Qualicum Beach area capable of and interested in furthering conservation at the LQRERCA. The BC Conservation Foundation (BCCF) is a well-known partner in agency restoration works within the Englishman River watershed as part of the Englishman River Watershed Recovery Plan. BCCF has expressed interest in working with DUC, the RDN and DFO on restoration of the fish channel at the LQRERCA and containment of the goose problem at the estuary. The Qualicum Beach Streamkeepers, who worked with DFO on initial fish channel development at the LQRERCA, are also a good local resource. Various watershed-wide planning and conservation efforts along with activities flowing from the Mount Arrowsmith Biosphere Reserve can all

bring something to bear regarding the long-term conservation of the LQRERCA and the Little Qualicum River watershed in general.

Neighbours -- Residential neighbours of the LQRERCA represent an important group of stakeholders at the LQRERCA. These neighbours are typically regular visitors to the estuary, express deep feelings about the value of the estuary, and have first hand opportunity to witness the condition of the area and how it is being used by humans and their pets, and to report concerns. As the RDN develops its park warden program, participation by LQRERCA neighbours will be invaluable. A number of neighbours came out to the September 2009 Open House and showed keen interest in the LQRERCA management plan.

RDN Residents -- In developing the *2005-2015 Regional Parks and Trails Plan*, the RDN surveyed regional residents on a wide range of subjects from acquisition to use and management. Protecting environmentally sensitive areas was rated the most important role of the regional parks and trails system, and attracting tourists was considered the least important. As the regional planning process revealed however, many if not most RDN residents are unaware of their regional parks and trails. One of the primary aims of the RDN's *Regional Parks and Trails Guide*, first issued in 2008, is to raise awareness of the regional properties so that the residents who are paying for them can better understand them and participate more meaningfully in decisions about their care and use.

4.2 User Views

As part of the LQRERCA management planning process, a survey was mounted on the RDN web site in order to obtain feedback from regional residents on use of the spit and adjacent WMA beach along with conservation concerns. By the end of the draft management plan review period, 75 respondents had completed the survey. Indications are that at least 10 per cent of those are neighbours. Full survey questions and results are shown in Appendix A.

The LQRERCA survey showed that about 90 per cent of respondents go to the WMA and over one third of those cross the fence into the LQRERCA spit. Almost 95 per cent of those going to the WMA do so via the Surfside Drive water access, half of them usually with a vehicle and the other half just by non-motorized means, i.e., foot, bicycle or boat. The majority of survey respondents visit the WMA at least once a month, with many more making it out several times a year. The frequency of visits drops off somewhat during the winter; late summer-fall spawning time appears to be the most popular time to go.

Wildlife viewing, exploring the beach and relaxing are the dominant activities noted by survey respondents. Few survey respondents reported being dog walkers and even fewer are fishers. Bird watching and photography were often specifically cited activities. For those who cross the fence into the LQRERCA, seasonal preference is the same as for the WMA. Wildlife viewing is by far the primary reason given for going onto the spit; fishing and the cairn do not appear to be important draws. Again, notable specific activities mentioned are photography and bird watching. About 15 per cent of survey respondents expressed a clear interest in becoming a park warden at the LQRERCA. One respondent

Survey Says...

- About 90 per cent of respondents go to the WMA and over a third of those cross the fence into the LQRERCA spit.
- The majority of survey respondents visit the WMA at least once a month.
- Wildlife viewing, exploring the beach and relaxing are the dominant activities noted by survey respondents. Wildlife viewing is by far the primary reason given for going onto the LQRERCA spit; fishing and the cairn do not appear to be important draws.
- Notable specific activities mentioned in regard to the LQRERCA are photography and bird watching.

Survey Comments

Don't want the WMA at the Little Qualicum estuary to become just another beach for fun seekers.

Land managers should create a level of respect for the area such that most people will have a willing reluctance to venture in the area.

advised that the Citizens on Patrol (COPs) regularly visit the area.

The two highest ranked values of the Little Qualicum estuary were peacefulness and tranquility, and wildlife viewing opportunities. In comments, people praise the protected status of the area. The vast majority of survey respondents want to learn more about the cultural and natural environments at and around the LQRERCA, and there is a strong interest in free guided tours. Again, a bird watching interest featured in comments.

Survey respondents showed a strong preference for information signage along the LQRERCA fence line as a means of communicating about the conservation area; otherwise, information signage about the LQRERCA, WMA and NWA at the Surfside Drive water access or in a brochure was preferred. Some people expressed concern about over-promotion ("don't want it to become just another beach for fun seekers") while others feel active promotion including movies and media events will help in communicating the values of the area. Some felt worn and relatively uninformative signage currently at the Surfside Drive water access may not be conveying the best conservation messages. One respondent concluded there is a need to "create a level of respect for the area such that most people will have a willing reluctance to venture in the area."

The survey concluded with two open ended questions on people's concerns about the LQRERCA, its management and the estuary in general. Over three quarters of the respondents expressed concerns about the estuary in general with a great many people taking the time to describe those concerns in detail. Common concerns included: (1) dogs and the need to stop them from running loose if not ban them entirely; (2) the importance of addressing conservation within the Little Qualicum River watershed as a whole and not just focusing on the estuary; (3) the importance of managing protected areas, providing some access (e.g., viewing platform) while minimizing development, (4) maintaining the 'wild' flavour and ensuring recreation is kept in check; and (5) the need to do something about the geese.

Some survey respondents call for better information on how to get to the LQRERCA and what to see and do there, i.e., improved accessibility, while others worry about the estuary if it is advertised as a recreation destination. The middle ground of respondents appear to recognize a need for restricted public access, want more information on natural values and protection needs, and support work to ensure the area is functioning well as habitat. There is a general call for more protection within the watershed, as well as dog (and boater)

control on the WMA beach and in the estuary. In summary: view, experience, learn and appreciate – but don't disturb sensitive areas.

The public's views on the care and use of the LQRERCA were also received by way of comments on the draft management plan. Five people completed an on-line comment form on the draft, two submitted emailed comments, and one community environmental group sent in a formal letter. These are all reproduced in Appendix A. The comments exhibit broad support for the management plan and its emphasis on the comservation imperative. The comments also reveal the range of opinion that exists about public access to and use of the LQRERCA and WMA beach, and the growing call for action on watershed planning focused on the Little Qualicum River.

5.0 Exploring Concerns

Previous sections of this Plan have described and explored the values of the LQRERCA with a view to establishing a management plan for 2010-2019. A number of concerns and issues have been identified. This section explores the concerns that require addressing at the LQRERCA as DUC and the RDN move forward with the management of this small but important conservation property.

5.1 Conservation

5.1.1 Invasive Plants

Identification and mapping of several patches of invasive plants have been initiated at the LQRERCA. An area of garden waste and invasive plants advancing on moss-lichen communities requires attention as soon as possible, and could be undertaken concurrent with the removal of old metal pieces scattered about the property. Because of the large size of the garden waste area, a strategy for replanting the disturbed area with appropriate native species as well for conducting recurrent control is warranted. The Coastal Invasive Plant Committee now offers invasive plant management services to local government; consulting vegetation ecologists or specialists in invasive plant species management are also available to carry out the development of a strategy for the LQRERCA.

It is important to note that the restoration of natural ecosystems to a former state is often unattainable, and increasingly more so as time passes. Ecosystem processes, such as inputs and cycling of sediments and detritus, are dynamic and may not be able to support restoration goals based on a historic ideal. Therefore, "time is of the essence," and history should be viewed as a guide rather than a target for restoration.

5.1.2 Canada Geese

Baseline and follow-up vegetation studies of the Little Qualicum River estuary by Neil K. Dawe of the CWS make it an excellent candidate site for a pilot project focused on estuary-wide rehabilitation through the

management of Canada Geese. The Guardians of Mid-Island Estuaries, a volunteer group of community and professional conservationists, have been addling Canada Goose eggs at the Little Qualicum and Englishman river estuaries for a number of years. An RDN park use permit for the 2010 addling program at the LQRERCA was issued to the Guardians in the spring. The Guardians are now working with the CWS, MoE, DUC, RDN, DFO, BCCF, and VICLMP to develop a multi-year project at the two estuaries that is focused on the protection and enhancement of high quality habitats. First, efforts would be made to protect existing habitat from geese through the use of exclosures; ideally, exclosure-protection and restoration of degraded habitat would then follow.

5.1.3 Inventorying and Monitoring

A baseline inventory of flora and fauna would set a benchmark for conservation management at the LQRERCA and prepare for the identification and management of common species as well as species at risk. During several visits over a single spring and summer season, a vegetation ecologist could inventory plants, and map plant communities and introduced species. The mapping of invasive species could be refined as a component of this plant inventory. Multi-year upland inventories are probably unnecessary and would increase the likelihood of trampling and exposing the roots of sensitive species. Ideally, the inventory of estuarine communities would be conducted to Resource Information Standards Committee (RISC) standards.

The rare mammal species known to occur in the area of the LQRERCA could be inventoried relatively easily. Birds have been extensively inventoried at the estuary, and naturalists regularly record sightings along the beach; another inventory would not be a priority. A comprehensive inventory of other fauna is best accumulated over time.

For long-term monitoring of spatial and temporal trends in habitat and wildlife at the LQRERCA, consideration could be given to an 'augmented, serially alternating panel' sampling design. This design is conducive to sensitive sites. It entails monitoring a set of sites every year, as well as monitoring a different set of sites for each of five years; the cycle is then repeated. In this way, a high number of total of sites are monitored, and a large number of diverse species and habitats are sampled. One advantage of the process is that by monitoring most sites in different years, individual sites are allowed to recover from disturbance by monitors. This monitoring regime could be extended to the whole estuary.

Monitoring Protocols

There are many protocols used to study flora and fauna, with each generally specific to the target habitat or species. The vegetation surveys undertaken by CWS and TNT have used the Braun-Blanquet methodology to gather information on species diversity and abundance. The Canada Goose restoration project proposed for the Little Qualicum estuary will also use Braun-Blanquet in order to enable ongoing comparisons. The Province employs RISC standards for the collection, storage, analysis, interpretation and reporting of inventory data for a host of habitats, species groups and species (e.g., estuary mapping, vegetation change monitoring, and snakes). The federal Ecological Monitoring and Assessment Network (EMAN) hosts both EMAN-recommended monitoring protocols and community-based monitoring protocols.

Baseline inventories and other information can be used to establish and follow indicators that permit the quantifiable measurement of actions taken. Photo monitoring sites are valuable for monitoring changes over time. Indicators can detect trends and issues, or may signal an approach to a threshold that, once passed, moves the system into an alternative state which is difficult or impossible to reverse. For example, height of extreme high water events could be used to monitor the effects of climate change on the LQRERCA, while the presence of Spartina spp could be used as a measure of the effectiveness of invasive species control programs. An indicator of the success of the proposed estuary goose project might be area of Lyngbye's sedge - herbaceous vegetation ecological community >50 cm high.

Research to assess disturbance of rare and target plant communities that result from invasive plants or controlled human access to the LQRERCA would be useful to develop indicators and set "limits of acceptable change". If a threshold is reached for the amount of change the ecosystem or habitat can absorb, then appropriate management actions can be triggered.

5.1.4 Fish Channel

DFO has recently visited the fish channel at the LQRERCA and witnessed its poor state. A closer examination of conditions, actual and potential performance and works required to improve and maintain the channel are required. Given the small size of the fish channel, this may prove a suitable project for a habitat team from Vancouver Island University, working in collaboration with DFO. While further enhancement of the salmonid project area may be beneficial, experience has shown that it can be difficult to emulate natural functions and 'created' habitats like the fish channel rarely lead to self-sustaining ecosystems. Restoration and enhancement efforts at the LQRERCA should focus first on natural estuary habitats, and then on man-made and modified habitats.

5.2 Legal

The legal boundaries of the LQRERCA require adjustment to reflect natural spit boundaries, that is, where beach and tidal waters meet the uplands. The natural boundaries of the spit are highlighted in green on Map 3 which shows how the small spit's land base is legally divided at this time. The required fence line referenced in the property covenant is not on the property nor is the cairn. Almost a third of the legal property consists of the bed of the Little Qualicum River at the estuary mouth and a section of the tidal flats bed in the inner estuary. This mismatch of legal title and land base presents an unnecessary and confusing division of ownership and management at and around the small spit. To rectify the situation, DUC and the RDN would need to commission a new survey and apply to BC's Integrated Land Management Bureau for inclusion of the accreted lands within Lot 1 (LQRERCA). In so doing, DUC and the RDN would see the eroded portions of existing Lot 1, i.e., river mouth and inner tidal flats, severed from the LQRERCA and available for addition to the WMA.

5.3 Access

The clearest access to the spit constituting the main LQRERCA property is from the surrounding WMA beach and waters. Aside from public access, this has implications for how property maintenance, development, as well as research and conservation can be undertaken at the LQRERCA. At the least, limited property access highlights the need to carefully consider the imperative for any works on the property, to provide adequate planning for an environmentally sound approach to and passage

over the spit in the event of works, and to consider high tide water approaches. For the one-time removal of rusty metal debris, garden waste and large invasive plants, it may be possible to negotiate access to the spit by way of Lot A residential neighbours. In the longer term, an access agreement with the Province could be concluded to manage operational and research access to the LQRERCA via the WMA.

5.3.1 Restricted Public Access

The LQRERCA was acquired for conservation purposes with the understanding that only restricted public access to the property for wildlife viewing and education purposes is to be permitted. Otherwise, access to the LQRERCA spit is to be limited to basic property management, e.g., security and maintenance, and conservation activities and research carried out by DUC, the RDN and its conservation partners. For the most part, the LQRERCA was conceived as a small fenced-off protected area for habitat, with people enjoying the estuary by making use of the expansive WMA beach and estuary waters that surround the LQRERCA. Signage along the LQRERCA fence and possibly at the Surfside Drive water access would describe LQRERCA values without necessitating access to the spit.

Achieving the original concept of LQRERCA will require resolution of two main issues: (i) how to provide and manage some restricted public access to the LQRERCA without compromising its environment and the conservation efforts undertaken there, and (ii) how to coordinate this public access management to LQRERCA with public access management of the adjacent WMA. As previously observed, one cannot discuss public access to the LQRERCA in practical terms without also discussing public access to the WMA.

At time of acquisition, it was thought that development of a wildlife viewing platform towards the western end of the LQRERCA spit, with about 30 m of associated trail or boardwalk from the WMA beach to the platform, would satisfy the requirement for restricted public access to the LQRERCA. The existing fence line would be maintained with the exception of an opening provided for route to the platform. Examination of the proposed viewing platform idea and consultation with conservation agencies have so far revealed a range of opinion about the efficacy of the initial viewing platform propoal. The proposed viewing platform and trail or boardwalk would constitute relatively major works for the sensitive LQRERCA spit and could trigger an archaeological site assessment. As well, it is not clear what views people are seeking or to be had from the spit. A formal agreement with MoE for use of the WMA to provide public access to a viewing platform on the spit will likely be required.

A program of annual guided tours into the LQRERCA offers another means of educating the public about the natural values to be found there. Parameters for moving people through the property without damaging the sensitive landscape would need to be established. Note that a similar need exists in relation to managing the

Potential Works to Control and Provide for Public Viewing Access

The four-strand wire **fence** around the north and west ends of the LQRERCA spit (in the accreted lands) provides an easily penetrated though visually low-key demarcation of restricted habitat lands. A more formidable and comprehensive fence, e.g., 1.5 m high chain link all around the spit, could be considered in order to raise the bar on protecting the LQRERCA from human incursion. Installation however would be unsightly, costly, invasive, potentially trigger an archaeological site assessment, and interfere with the movement of wildlife, e.g., bears who do still wander down to the spit.

The **cairn**, located about 15 m inside the fence line at the western end of the LQRERCA spit, presents something of a draw to public users and a potential site for occasional official visits. Access to the cairn necessitates penetration of the property fence. Moving the cairn would be an expensive and disruptive proposition; obscuring the cairn with native vegetative plantings or affixing a small sign about the cairn to the nearby fence can be examined. Alternatively, the western tip of the spit around and including the cairn could be freed of fencing and developed for human use including, for example, a viewing platform or benches. All concerns noted with regard to the originally planned viewing platform as relate to habitat degradation, the potential triggering of an archaeological site assessment, security and the need for an access agreement with MoE would however apply here as well.

The **panhandle** offers good potential for viewing wildlife within the inner estuary and NWA, though not the LQRERCA itself. How much of a raised viewing platform, if any, would be required at the panhandle would need to be determined; some benches and interpretive signage may suffice. The deep muddy marsh and inner tidal flats that flank the panhandle on the NWA side make for an effective barrier to human penetration into the NWA. A vegetative barrier of, say, native rose could be installed to mark the panhandle boundary with the adjacent residential Lot A. The fence line at Surfside Drive would require altering to provide access to the panhandle; parking is already available at the water access across the street. A barrier would be required at the southern end of the panhandle to prevent further public incursion. Development of public viewing works in the panhandle could erase the need to interfere with the integrity of the spit itself and allow for it to be set out as a clear public no-go zone devoted to habitat preservation and conservation.

conduct of research and conservation projects at the LQRERCA. Ultimately, virtual tours and information displays could be developed for the web that might deter actual visits to the LQRERCA, however careful presentation would be required to avoid counter-productive promotion and increased interest in real visits .

Before determining any wildlife viewing and educational development at the LQRERCA, a more comprehensive examination and inventory of the site's natural values is required in order to clarify where, when and how the

human footprint could be accommodated on a restricted basis. As well, more information is needed on wildlife viewing: what wildlife is being viewed at the LQRERCA and where is it best to view? What additional wildlife viewing opportunities does the LQRERCA present that are not already available and managed through the WMA? And finally, how can limited formal public access to the LQRERCA be kept restricted and contained such that a large influx of people are not drawn to the protected areas at the Little Qualicum estuary?

5.3.2 Communicating about Public Access

Managing restricted public access to the LQRERCA is inexorably intertwined with managing public access to the NWA and WMA. The NWA has been fenced off and closed to public access for years; print and web information on the lands is minimal. Conversely, the huge beaches of the WMA stretching from the Little Qualicum estuary to Craig Bay on the south side of Parksville are iconic Vancouver Island landscapes. The WMA is recognized as a low-impact recreation destination by the Province through its BC Parks promotion, and is a major attraction for Oceanside residents and tourists alike. WMA managers work hard to constrain the negative impacts of human activity in the wildlife management area by erecting wildlife viewing platforms and educational signage along the beachfront, prohibiting dogs on the beach during the annual Brant migration and undertaking on-the-beach enforcement. The north end of the WMA at the Little Qualicum estuary remains one of the quieter and less known big beaches in the WMA, with no development except aging WMA signage at the Surfside Drive water access. Minimizing the promotion of and public access to the LQRERCA would help NWA and WMA managers keep the lid on public interest in using the wildlife areas at the Little Qualicum estuary.

Beginning in the late 1990s, RDN residents saw a rapid acceleration in their acquisition of large parks and trails. Ten years later, few residents understood what they owned or managed. In 2008, the RDN used Community Tourism Grant dollars from the Province to initiate an awareness program about regional parks and trails. The program focused on signage and kiosk development at major public parks like Englishman River Regional Park and Nanaimo River Regional Park, and the production of a guide to showcase the 11 regional parks and seven regional trails in the RDN. First issued in late 2008, the *Regional Parks and Trails Guide* describes how to get to the lands (map included) and what to do there. The entry for the LQRERCA, updated for the 2009 guide issue, states that public access to the spit is restricted for conservation reasons and refers people to the WMA beach for wildlife viewing and enjoyment purposes.

5.4 Cooperation

5.4.1 Conservation at the LQRERCA, the Estuary and in the Watershed

Ideally, the Little Qualicum River estuary would be seamlessly managed by federal, provincial and local governments and a comprehensive watershed management plan would be in operation for the Little Qualicum River. DUC and the RDN see the LQRERCA management plan as a first step towards at least estuary-wide conservation management. The RDN's 99-year property management lease for the LQRERCA outlines required consultation with other estuary conservation managers and provides a framework for engaging them in conservation planning at the spit. While the VICLMP supports the concept of estuary-wide management at the Little Qualicum, circumscribed federal, provincial and VICLMP staff and financial resources will limit how far and how fast this can be achieved. If funded, the goose project will stand as the first collaborative conservation project at the Little Qualicum estuary. It should help build working relationships among the participating agencies and foster more conservation collaboration down the road.

5.4.2 Managing Appropriate Public Use at the Estuary

Managing appropriate public use involves good communication, monitoring and enforcement. Because the western end of the WMA and the LQRERCA are intertwined from a public use perspective, cooperation between WMA and LQRERCA managers on communication, monitoring and enforcement fronts will benefit all.

The Province's Surfside Drive water access is the primary public access point to the Little Qualicum estuary. As a site for communication to users, it cannot be bettered. The LQRERCA fence line offers additional space for interpretive signage and communications to estuary users about the fragility of the spit landscape and the need to obey user restrictions. Through web sites and brochures, the RDN and MoE have powerful tools by which to communicate about the LQRERCA, surrounding WMA and estuary as a whole. Virtual tours of the LQRERCA can also be mounted on the RDN web site as a means of educating and informing, and potentially minimizing interest in actually visiting the spit or estuary lands and waters. Messaging that emphasizes the fragile nature of the estuary in general and distinguishes the area from more typical WMA beach playgrounds and public park space may help limit public use and benefit conservation goals at the Little Qualicum estuary.

Appropriate use of the estuary clearly involves containment of dogs, i.e., their required leashing if not elimination altogether. (Note that dogs are already prohibited from the LQRERCA under Bylaw 1399.) The efficacy of signage and MoE's dog-on-the-beach closure periods during Brant migration is much helped by monitoring for compliance and talking to dog owners about conservation values and the disturbance that can be caused by unleashed dogs chasing wildlife and uprooting nests. The RDN can work with WMA managers on the dog effort at the Little Qualicum estuary, in general information campaigns and specifically during the spring prohibition of dogs at the WMA. the RDn's new volunteer park warden program will provide a neans to engage assistants in the monitoring of public use of the WMA and LQRERCA and spreading the word about the need for dog control.

6.0 Fundamental Aims

6.1 Vision

The LQRERCA and Little Qualicum River estuary are diverse, robust and resilient ecosystems that inspire and enrich us all.

6.2 Management Goals

Conservation
Preserve, conserve, maintain and enhance the natural state of the LQRERCA as wildlife habitat within the context of the Little Qualicum estuary. This is the paramount goal for the LQRERCA.

Cooperative Management
Pursue management of the LQRERCA in regular consultation and cooperation with MoE, CWS and VICLMP managers, and with the help of other conservation agencies and

organizations, educational institutions, the Qualicum First Nation, stewardship groups, neighbours and the public.

Education and Interpretation
Provide on- and off-site interpretation and education about the sensitive natural values of the LQRERCA and Little Qualicum estuary and the need for public access restrictions.

Recreation
Offer limited restricted public access to the LQRERCA for wildlife viewing, nature appreciation and education purposes in a way that does not compromise natural values.

Property Management
Control access to the LQRERCA through fencing and other works and maintain a litter and hazard free natural area.

6.3 Operating Principles

Management takes place within operational frameworks that establish principles or rules for action. In the case of the LQRERCA, the key operating frameworks are the s. 219 covenant, the coming 99-year DUC-RDN lease, this management plan, and the RDN's *2005-2015 Regional Parks and Trails Plan*. Should DUC and the RDN enter into any formal agreements with MoE concerning public use management at the WMA beach, or with MoE and CWS concerning joint conservation planning at the estuary, these would provide additional specific operating principles for the management of the LQRERCA.

7.0 Management Actions and Expenditures 2010-2019

The vision of a robust, diverse and resilient LQRERCA and estuary will take time to achieve, and much work lies ahead to begin realizing management goals for the LQRERCA. To begin, the following course of action is proposed for the 2010-2019 period. As managing owner at the LQRERCA, the RDN will organize and oversee all work at the spit, consult regularly with DUC and its representative the VICLMP manager, and ensure regulations are met. Primary financial resources (in-kind or development capital) will be provided by the RDN and supplemented by grants and project partnerships as possible. Many actions are premised upon the RDN successfully enjoining the participation of educational, conservation and stewardship groups. Note that all identified actions are considered important, however some require attention earlier than others within the ten-year planning horizon and are thus ranked of higher priority.

7.1 Conservation

A general caution about herons applies to the undertaking of any conservation activities at the LQRERCA: only pressing, high priority activities should be carried out if herons are nesting on the spit. All efforts should be made not to disturb nesting herons.

7.1.1 Invasive Plants

Action	Engage a consultant to prepare a plan for early removal of large or easily addressed invasive plants and suitable revegetation of disturbed areas, along with a longer-term plan for annual cycles of invasive removal and revegetation over the 10 year plan period. Seek VIU and conservation or stewardship group assistance with the undertaking of invasive removal, replanting and monitoring.
Rationale	Protection of existing native habitat is a conservation priority and the elimination of invasive plants will remove a significant threat at the LQRERCA spit.
Timing	2011 for a plan and initial removal of easy to address plants and revegetation; 2012-2019 for continuing annual effort.
Resources	RDN $2,500 in 2011; in-kind for 2012-2019
Participants	RDN, consultant, VIU, stewardship group
Priority	high; medium

7.1.2 Canada Geese

Action	Continue to support the addling of Canada Geese eggs at the LQRERCA by the Guardians of Mid-Island Estuaries. Work with the Guardians and other conservation agencies in undertaking pilot native plant restoration work at the spit and developing a multi-year multi-agency project that addresses damage by Canada Geese at the Little Qualicum and Englishman estuaries.
Rationale	Without effective management of Canada Geese at the Little Qualicum estuary, it will not be possible to reclaim its productivity, species diversity and buffering capacity. The goose problem can only be approached at an estuary level.
Timing	2010-2019 for egg addling. 2010 for continuing pilot exclosure work and development and funding of a multi-year multi-agency supported program. 2011-2014 for program undertaking.
Resources	RDN $2,000 in 2010 for the pilot exclosure work; RDN $7,500 per year 2011-2014 should a program be confirmed.
Participants	Guardians, MoE, CWS, DFO, BCCF, DUC/RDN
Priority	high

7.1.3 Inventory and Monitoring

Action	Initiate a baseline inventory of flora and fauna at the LQRERCA and prepare for long-term monitoring of spatial and temporal trends at the spit with established indicators of success in place.

Rationale	Undertake in order to monitor and evaluate the success of invasive plant removal and control efforts; clarify the current state of the spit and establish benchmanrs for change assessment; determine and manage the nature, scope and timing of controlled public access to the LQRERCA; and contribute to climate change monitoring at the Little Qualicum estuary.
Timing	2011-2019
Resources	in-kind
Participants	RDN, VIU, stewardship groups
Priority	medium

7.1.4 Fish Channel

Action	Study and assess the restoration of the man-made channel.
Rationale	The man-made fish channel is in poor shape and unlikely fulfilling any salmonid enhancement goals. A study of the site including actual and potential salmonid use is required, along with recommendations regarding restoration and continuance of enhancement goals.
Timing	2015-2017
Resources	in-kind
Participants	RDN, DFO, VIU, Streamkeepers
Priority	low

7.2 Property Management

The caution about nesting herons raised above also applies to property management activities at the LQRERCA: only pressing activities should be carried out if herons are nesting on the spit.

7.2.1 Boundary Adjustment

Action	Have the LQRERCA spit re-surveyed and apply to the Province's Integrated Land Management Bureau for inclusion of accreted lands in the LQRERCA and transfer of eroded lands to the Province for the WMA.
Rationale	Current legal boundaries at the Little Qualicum estuary spit are outdated and present a confusing property base for land and human management.
Timing	2011
Resources	RDN $6,000 in 2011
Participants	DUC/RDN
Priority	high

7.2.2 Old Metal

Action	Using GPS mapping information and invasive species removal plan, remove all old metal pieces from the spit and revegetate as appropriate. Seek operational access for metal removal via adjacent residential property.
Rationale	Metal pieces constitute hazards for humans and wildlife and are unnatural additions to the estuary landscape.
Timing	2011-12
Resources	in-kind
Participants	RDN
Priority	medium

7.2.3 Boundary Demarcation

Action	Review demarcation of the LQRERCA property including boundary with residential property and unfenced side of spit.
Rationale	To secure the LQRERCA and control human access, there is a need for clear property boundaries and effective fencing.
Timing	2012-2014
Resources	in-kind
Participants	RDN
Priority	low

7.3 Public Use and Education

LQRERCA management activities for 2010 to 2019 are focused on initiating conservation works, educating the public about the sensitive lands, and securing the spit. During this time, the RDN will also study how to provide appropriate restricted public access to the LQRERCA. Proposed development to enable restricted access will not however be addressed until 2020 when the next ten-year update of the LQRERCA management plan is prepared. Until then, the LQRERCA spit will remain off-limits to the public.

7.3.1 Print and Web Material

Action	Change the presentation of the LQRERCA in the next edition of the RDN's Regional Parks and Trails Guide, remove the LQRERCA from the RDN's ParksGo web pages, and promote the 2010-2019 LQRERCA management plan.

Rationale	There is a need to distinguish the LQRERCA from other regional park properties which are all publicly accessible recreation destinations, and to explain why access to the LQRERCA is restricted and, for the time being, prohibited. While it is important to inform RDN residents about their regional conservation area at the Little Qualicum estuary, the spit and estuary should be promoted as sensitive conservation areas and not as recreation destinations.
Timing	2010 for the web page updates; 2011 for the Guide
Resources	in-kind
Participants	RDN
Priority	high

7.3.2 Water Access Signage

Action	Work with MoE and VICLMP managers on the development of information and education signage at the Surfside Drive water access about the WMA and LQRERCA, if not also the NWA, and appropriate public behaviour in these conservation areas.
Rationale	The Surfside Drive water access is the gateway to the estuary for most and the best point to communicate important conservation messages to users. Existing signage is old and makes no reference to the LQRERCA.
Timing	2011-2012
Resources	RDN $1,000 in 2012
Participants	RDN, MoE, VICLMP, CWS
Priority	medium

7.3.3 Fence Line Signage

Action	Review the need for additional or more detailed signage along the LQRERCA fence line and boundaries in order to reinforce the prohibition against access and obtain cooperation, and upgrade as required.
Rationale	While most estuary visitors use the WMA beach and waters, a good number of people still cross the LQRERCA fence line to explore the sensitive spit. Education about sensitive spit plant communities and conservation works now being undertaken should help increase public understanding and acceptance of the need to leave the spit alone.
Timing	2011-12
Resources	RDN $1,000 in 2012
Participants	RDN
Priority	medium

7.3.4 WMA Beach

Action	Work with MoE and VICLMP managers on partnering opportunities at the WMA estuary to educate about and enforce usage regulations, e.g., with respect to dogs. Explore the possibility of seeing dogs permanently prohibited from the WMA's Little Qualicum estuary beach, as they already are from the NWA and LQRERCA.
Rationale	That conservation should trump recreation at the Little Qualicum estuary requires emphasis. In particular, continuing dialogue with RDN residents about the negative impacts of loose dogs in conservation areas is needed. The RDN has the ability to assist in this messaging and, at least in respect of the LQRERCA, the undertaking of visible enforcement activities.
Timing	March-April 2011-2019
Resources	in-kind
Participants	RDN, VICLMP, MoE
Priority	low

7.3.5 Public Access Review

Action	Given progress on inventorying and clearing the LQRERCA of invasive plants, communicating about the sensitive natural values of the spit, and regular consultation with other estuary conservation managers, explore how to provide for restricted public access at the LQRERCA. Consult with users and user groups, e.g., neighbours, professional birders, on options. Conclude examination as part of next management planning cycle.
Rationale	Restricted public access is to be provided at the LQRERCA, however time will be needed to study and understand how this can be accomplished with minimal negative impact on the environment. First address the conservation imperative and then accommodate recreation.
Timing	2011-2019
Resources	in-kind
Participants	RDN
Priority	low

8.0 Summary
Management Actions and Expenditures 2010-2015

The table below summarizes this plan's 12 management actions and the associated costs for the 2010 - 2015 period, all as discussed in Section 7. Higher priority actions are shown in red, medium priority actions in yellow, and lower priority actions in green. Where a specific cost has been forecast for an action, the dollar amount by year is indicated; in-kind expenditures are assumed for the balance.

	2010	2011	2012	2013	2014	2015
Conservation						
Invasive Plant Removal		$2,500				
Canada Geese	$2,000	$7,500	$7,500	$7,500	$7,500	
Inventory & Monitoring						
Fish Channel Restoration						
Property Management						
Boundary Adjustment		$6,000				
Old Metal Removal						
Boundary Demarcation						
Public Use & Education						
Print & Web Update						
Water Access Signage			$1,000			
Fence Line Signage			$1,000			
WMA Beach Support						
Public Access Review						