



Parksville-Qualicum Beach

WILDLIFE MANAGEMENT AREA



**Management
Plan 2003**



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Lanarc Consultants Ltd.



Parksville-Qualicum Beach Wildlife Management Area Management Plan 2003

Executive Summary

Designated under the provincial *Wildlife Act* in 1993 and expanded in 2001, the Parksville-Qualicum Beach Wildlife Management Area (P-QBWMA) encompasses 1024 ha (2,529 acres) of coastal foreshore, estuary and river habitat between Craig Bay and the Little Qualicum River on southeast Vancouver Island. Its rich diversity of ecosystems support a myriad of animals and plant communities – from black bear, cougar and elk in the Englishman River watershed, to many species of gulls, waterfowl and shorebirds along with marine mammals in its foreshore and estuarine areas. Of particular note are the large flocks of Pacific Black Brant geese – 3000 or more at a time – that stop to rest and feed in the P-QBWMA each spring.

The Management Plan: The purpose of the P-QBWMA, which is managed by the Ministry of Water, Land and Air Protection (MWLAP), is to protect and manage the marine, estuarine and river habitat critical to fish and wildlife populations in the area. A Management Plan was first developed in 1996 to recognize the area's unique natural assets, to establish goals for the P-QBWMA, and to provide guidance regarding habitat protection and restoration. A secondary purpose was to allow for wildlife viewing and other compatible activities within the WMA.

Need for Review and Update: Increasing demand for public use by a growing local population and tourism industry, along with the expansion of the P-QBWMA along the Englishman River/Morison Creek corridor, prompted this update of the Management Plan. MWLAP's mandate is to protect wildlife and habitat in the P-QBWMA, it has no mandate to support or manage recreational, cultural and other community uses. The Ministry's strategic goals include shared stewardship of the province's natural diversity and habitats with the communities in which these resources occur.

Therefore, prioritizing the P-QBWMA's management goals with respect to undertaking appropriate habitat enhancement, educational and recreational activities means relying on a broader range of stakeholders working in a coordinated fashion. These stakeholders include: the Canadian Wildlife Service, Fisheries and Oceans Canada, Nature Trust of B.C., Nanoose and Qualicum First Nations, Regional District of Nanaimo, City of Parksville, Town of Qualicum Beach, the Pacific Salmon Foundation, several local environmental organizations, and the local resort and tourism sector. It also mean considering a wider variety of funding sources and revenue generating options to support managed activities. The participation of all these groups has been incorporated into this revised Management Plan.

Review Process: Updating the Plan involved a review of recent reports related to the P-QBWMA, and two Focus Group sessions with stakeholders – one on potential sources of revenue to support the management of the Area, and the second to review a draft of this Plan. The revision process was overseen by representatives of MWLAP, The Nature Trust, Canadian Wildlife Service, Mount Arrowsmith Biosphere Foundation, and the P-QBWMA Advisory Committee.

The Revised Management Plan: Section 1 lays out a vision and goals for the P-QBWMA that address inventory, research, restoration, education, enforcement, recreation, and cooperation. Section 2 recognizes seven management units within the P-QBWMA which will allow biophysical and jurisdictional differences to be taken into account in determining management activities. Section 3 provides an update on the status and issues regarding marine and aquatic resources, terrestrial resources, human values and uses, accesses and facilities, and the management of adjacent lands in the three local jurisdictions in which the P-QBWMA lies.

In Section 4, the Plan sets out a series of Management Principles, and reviews sources of funding and resources for implementing the Plan, as well as the potential future relationship with a proposed Environmental Interpretive Centre in the Parksville-Qualicum area. Its main focus, however, is the presentation of twelve management strategies particularly relevant at this time:

Management Strategies:

- ❑ *Recreating the Advisory Committee as a Partnership Committee* – to enhance cooperation and resource sharing. The revamped Committee would have representatives from all stakeholders in the area and a mandate to review and implement management activities in the P-QBWMA.
- ❑ *Hiring a Coordinator* - to provide a coordinative function for finding funds and implementing projects under the Plan.
- ❑ *Generating Support and Revenue for the P-QBWMA* – through public information and education programs as well as fund-raising programs, developed by the Coordinator.
- ❑ *Improving P-QBWMA Signs and Accesses* - to identify the P-QBWMA in a consistent and appealing manner, thereby generating greater public appreciation for its existence and values.
- ❑ *Protecting Waterbird Populations and Habitat* – continuing the research, monitoring and reporting work done over the last decade, along with public education about the need to avoid disturbance of migratory birds and their habitat.
- ❑ *Estuary Habitat Restoration and Flood Protection* – with special attention on reviewing options for improving the Mine Road Dyke for both flood protection and habitat.
- ❑ *Trails in the P-QBWMA* – clarifying policies and objectives for trail development within the P-QBWMA, and their role with respect to surrounding municipal and regional trail systems.
- ❑ *Enforcement and Guardianship* - to address issues of wildlife disturbance, habitat damage and vandalism through a renewed Volunteer Guardian program and coordination with provincial Conservation Officers, local bylaw officers and the RCMP.
- ❑ *Protecting First Nation Cultural Sites* – to work with the Nanoose and Qualicum First Nations in identifying ways of preserving and appreciating culturally significant sites and resources.
- ❑ *Enhancing Stewardship of Adjacent Lands* - to support and encourage programs that educate local residents about ways of using and maintaining their properties adjacent to the P-QBWMA in ways that help protect environmental values.
- ❑ *Ecological Connectivity of the P-QBWMA* - to act on opportunities to link the P-QBWMA to surrounding natural areas and ecosystems.
- ❑ *Inventory and Monitoring* – to identify inventory and monitoring priorities within the P-QBWMA and find the means to implement these activities.

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1. Introduction

The Parksville-Qualicum Beach Wildlife Management Area (P-QBWMA) was designated under the provincial *Wildlife Act* on April 2, 1993 by the B.C. Minister of Environment, Lands and Parks. The original designation encompassed 873-ha (2,156 acre) over 17 kilometres of coastal foreshore and estuarine habitat, from Craig Bay to just west of the Little Qualicum River estuary (Figure 1-1). In 2001, the WMA was expanded by adding Crown lands along the Englishman River and Morison Creek, effectively adding 151 ha (373 acres) to the P-QBWMA and creating a corridor connection from the Englishman River watershed to the foreshore.

The P-QBWMA contains a diversity of ecosystems, from rich estuaries, intertidal mudflats and salt marshes, to stream, river and riparian habitats. These systems shelter a myriad of animals and plant communities. Over 250 species of birds have been recorded, and mammals from black bear and elk to river otter and water shrews inhabit the WMA, as well as many species of amphibians and reptiles. A large variety of plant communities species can be found. All species of Pacific salmon as well as trout are represented in the estuaries and river systems. The rich inter- and sub-tidal life attract an array of marine birds and mammals, particularly in spring when thousands of gulls, waterfowl and shorebirds as well as seals and sea lions come to the P-QBWMA to feast on spawning herring and their roe.

As with much of the east coast of Vancouver Island, the Parksville-Qualicum area continues to experience great development pressure. The ecosystems of the P-QBWMA face an uncertain future in the face of a encroaching land uses and growing demand for public access and enjoyment the Area. The challenge is to retain the area's natural habitats and processes while managing public use. The goal of this Management Plan is to present strategies for meeting this challenge.

1.1 Background on the P-QBWMA

1.1.1 Location and Structure

The P-QBWMA is located adjacent to the communities of Parksville and Qualicum Beach on the east coast of Vancouver Island (Figure 1-1 and Map 1-1), and lies within the Mount Arrowsmith Biosphere Reserve.¹

The P-QBWMA has three major biophysical components:

- *Coastal foreshore* - 17 km of intertidal foreshore, bounded by high and low water marks, from the northwest corner of DL 73 (5 km northwest of Qualicum Beach) to Madrona Point (5 km SE of Parksville).
- *Estuary* – The Englishman River and Little Qualicum River estuaries, including 43 ha of upland habitat around the Englishman estuary.

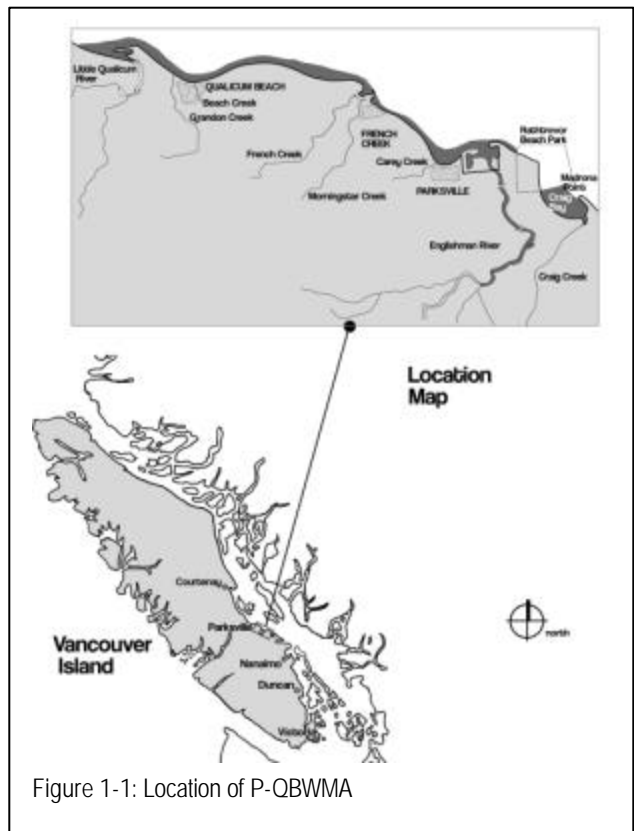


Figure 1-1: Location of P-QBWMA

¹ The Mount Arrowsmith Biosphere Reserve, designated in 2000, encompasses about 800 sq km of land and an additional marine area of about 400 sq km. The Reserve extends from the top of Mount Arrowsmith to the bottom of the Strait of Georgia, and includes five watersheds that drain from Mount Arrowsmith and Mount Moriarty into the Strait of Georgia, the Nanoose Peninsula and the Ballenas/Winchelsea Islands Archipelago.

- *Englishman River* - 14.5 km of streambed and riparian area along the Englishman River, from the north boundary of the Englishman River Falls Provincial Park downstream to the estuary, and approximately 5 km of the lower end of Morison Creek, which flows into the west side of the Englishman.²

1.1.2 History

Establishment of the P-QBWMA was the result of many years of grass-roots conservation efforts. Influenced by the "Friends of the Flats", the Pacific Estuary Conservation Program acquired a significant portion of the west side of the Englishman River estuary, known as the Parksville Flats, in 1992. The Nature Trust of B.C. also acquired property on the east side of the estuary. This sparked the first proposal to designate a wildlife management area from the mouth of the Englishman River to Parksville Bay.

At the same time, the Mid Island Wildlife Watch Society was promoting a "Brant reserve" along the 17 km of coastline from the Little Qualicum River to Craig Bay, and had received written support from the adjacent local governments - Parksville, Qualicum Beach and the Regional District of Nanaimo. With this support already in place, the original proposal was expanded to include this extensive foreshore habitat. The WMA designation over the entire area was subsequently adopted in 1994.

Soon after its establishment, a local public advisory committee was formed that reviewed and provided input to the first Management Plan, released in 1996 (Clermont, 1996).

1.1.3 Jurisdictions and Ownership

About 40% of the P-QBWMA lies within the municipal boundaries of the City of Parksville and the Town of Qualicum Beach, with the remaining land falling within 3 electoral areas in the Regional District of Nanaimo (Map 1-1).

The Provincial Crown owns the marine foreshore. The majority of the adjacent upland is privately owned and not within the P-QBWMA, with the exception of parcels owned by The Nature Trust of BC and the Province in the Englishman River estuary, and the Marshall Stevenson Unit of the Qualicum National Wildlife Area owned by the federal government in the Little Qualicum River estuary.

Along the Englishman River corridor, most of the river bed is owned by the Crown except for a few parcels where private ownership is still retained under old E&N land grants. There are also riparian parcels held by the Province (the result of "returns to Crown" from subdivisions) or by the Nature Trust that are included in the P-QBWMA.

1.1.4 Management Responsibilities

Wildlife Management Areas are designated under section 4 of the provincial *Wildlife Act* as areas where conservation and management of wildlife, fish and their habitats are the priority land uses, but where other uses may be permitted depending on their compatibility of the goals of the WMA. The area must be under the administration of MWLAP and not in a park or recreation area. WMAs may be used to conserve and manage habitat for endangered, threatened or sensitive species; habitat required for a critical life cycle phase such as spawning rearing, calving, denning, etc.; migration or movement corridors; or areas of especially productive habitat or high biodiversity.³

The Environmental Stewardship Program of the Vancouver Island Region of the Ministry of Water, Land and Air Protection (MWLAP) administers the P-QBWMA. However, several other agencies and organizations have an interest in the P-QBWMA:

- Nature Trust of B.C. – holds title to parcels in the Englishman River estuary and along the Englishman River and administers the Vancouver Island Wildlife Management program.

² The WMA contains those portions of the river bed and riparian lands that are publicly owned ("unalienated and unencumbered"); a few sections are privately owned.

³ <http://wlapwww.gov.bc.ca/wld/wmafaq.htm>

- Canadian Wildlife Service (CWS) – holds title to the Qualicum National Wildlife Area adjacent to the P-QBWMA, and is responsible for the management of and protection of migratory birds and their habitat.
- Fisheries and Oceans Canada (DFO) – responsible for managing anadromous fish and their habitat, as well as shellfish (except oysters) and marine mammals.
- Pacific Salmon Foundation – initiated and funds the Englishman River Recovery Program (see section 3.1.3).
- Nanoose and Qualicum First Nations – claim aboriginal rights to much of the P-QBWMA under comprehensive treaty negotiations.
- Regional District of Nanaimo – controls land use and servicing in unincorporated parts of the P-QBWMA and surrounding region, and manages regional parks. The RDN, Parksville and Qualicum Beach operate the Arrowsmith Water Service which draws water from the Englishman River.
- City of Parksville and Town of Qualicum Beach – control land use and services within their respective municipalities within and adjacent to the P-QBWMA, and share responsibility for the Arrowsmith Water Service with the RDN.
- Pacific Estuary Conservation Program⁴ - assists in property acquisitions.
- Community organizations – several are involved in stream stewardship, habitat enhancement and nature interpretation in or adjacent to the P-QBWMA; for example, the Mid Island Wildlife Watch Society, the Mount Arrowsmith Biosphere Reserve Foundation, Mount Arrowsmith Naturalists, the Englishman River Recovery Plan Roundtable, and the Nanoose, Parksville and Qualicum Beach Streamkeepers.
- Local resorts and tourism businesses – rely on the P-QBWMA for its natural values and attractions.

1.2 Need to Update the Management Plan

The purpose of the P-QBWMA is to protect and manage the marine, estuarine and river habitat critical to fish and wildlife populations in the area. The 1996 Management Plan was developed to recognize the area's unique natural assets, to establish goals for the P-QBWMA, and to provide guidance as to habitat protection and restoration. A secondary purpose was to allow for wildlife viewing and other compatible activities within the P-QBWMA.

This same purpose still stands, but many changes have occurred since 1996 that result in the need to update the Plan:

- The P-QBWMA is under ever-increasing pressure for public use and access from a steadily growing local population and an emerging eco-tourism industry. A key management element of this Plan is to identify those opportunities for viewing, recreation and tourism that are consistent with protecting the area's ecological values.
- The P-QBWMA has been significantly expanded to include the Englishman River/Morison Creek corridor. The conservation of this area was proposed to ensure the long-term viability of fish and wildlife that use the river systems and to provide a link between the Provincial Park and the P-QBWMA. The Plan must now recognize these additional natural assets, as well as the many enhancement projects occurring along the River.
- The agencies and nongovernmental organizations involved in the P-QBWMA have changed. It is important that the managers of the WMA work cooperatively with these stakeholders to better manage the ecological assets of the Area. An important aspect of the success of the Management Plan is to

⁴ The Pacific Estuary Conservation Program is a cooperative project funded by The Nature Trust of B.C., Ducks Unlimited Canada, Wildlife Habitat Canada, the Ministry of Water, Land and Air Protection, the federal Department of Fisheries and Oceans and the Canadian Wildlife Service of Environment Canada.

ensure that it is supported by the community, and that the activities of all those with an interest in the P-QBWMA are coordinated and complementary.

Finally, while MWLAP is mandated to manage and protect wildlife and habitat in the P-QBWMA, it does not have the resources to support recreational, cultural and other community uses in the Area. In addition, recent cuts in staffing and budgets under the Province's deficit cutting programs have further limited MWLAP's ability to enforce applicable regulations and undertake habitat enhancement.

Nonetheless, pressure from public use, impacts to wildlife populations and habitats, and expectations of what the P-QWMA should provide for the surrounding communities continue to mount. Meeting the P-QBWMA's management goals now means relying on a broader range of *stakeholders* working in a *coordinated* fashion. It also mean considering a wider variety of funding sources and revenue generating options. All these need to be incorporated in a revised Management Plan.

"The fiscal challenge faced by the panel was to find new ways to involve all users in paying appropriately for the provision of recreational services and to secure the involvement of all communities and interests in the service delivery. This challenge brings with it a special opportunity to significantly increase both the level of conservation and protection of the province's fish, wildlife and parks, and the support of all those that use and cherish these assets." (Recreation Stewardship Panel, 2002: 10)

1.2.1 Development of the Revised Management Plan

This review and revision of the Management Plan was funded by MWLAP, Nature Trust, CWS, DFO and the PSF (under its Englishman River Watershed Recovery Plan). It was conducted under the supervision of the P-QBWMA Advisory Committee. Its development entailed:

- Review of the 1996 Management Plan and subsequent reports related to the P-QBWMA.
- A Focus Group session on revenue generation options with representatives from local and provincial government agencies, local business, stewardship groups and First Nations.
- Review of a preliminary draft with the Advisory Committee.
- A second Focus Group session, with similar representatives, to review a second draft of the Plan.
- Overall review and finalization of the Plan under the direction of staff from MWLAP, Nature Trust, CWS and the Mt. Arrowsmith Biosphere Foundation.

The Plan is organized as follows:

- The remainder of this Section presents a vision and management goals for the P-QBWMA.
- Section 2 presents the Management Units in the P-QBWMA.
- Section 3 summarizes the current status and issues associated with major resources and facilities in the P-QBWMA as well as the status of lands adjacent it.
- Section 4 lays out the revised Management Plan in terms of:
 - **Management Principles** that guide activities in the P-QBWMA;
 - A proposed **Management Structure** for the P-QBWMA;
 - **Resourcing and revenue generation** to support the Plan;
 - An **Action Plan** of strategies and projects for the next 5 years.

1.3 Vision and Goals

The vision of the P-QBWMA is described in the following statement:

The marine, intertidal, freshwater and riparian ecosystems of the Parksville-Qualicum Beach Wildlife Management Area are sustained through sensitive use and cooperative management activities, so that its human and wildlife inhabitants can continue to use and enjoy these ecosystems in perpetuity.

The goals for the P-QBWMA are:

- ❑ **Management:** To manage human impacts on the extensive ecological assets of the P-QBWMA, to maintain and improve its ecological integrity and biodiversity.
- ❑ **Inventory and research:** To identify and advance scientific inventory and research that aims to reduce human impacts or furthers our understanding of the features, functions and conditions that determine overall ecological productivity and diversity of the P-QBWMA.
- ❑ **Restoration:** To restore damaged areas so as to reinstate the features, functions and conditions of marine, aquatic, riparian and terrestrial ecosystems.
- ❑ **Ecosystem linkage:** To link the P-QBWMA to neighbouring marine and upland conservation areas such as regional and provincial parks, other Nature Trust lands and National Wildlife Areas to better protect whole ecosystems and habitat corridors within the Mount Arrowsmith Biosphere Reserve.
- ❑ **Education:** To recognize the vital role that a well-informed public plays in meeting the goals of the P-QBWMA by promoting educational and interpretative opportunities, including wildlife viewing, that enhance appreciation of the natural values of the area.
- ❑ **Recreation:** To support recreational and tourism uses within the P-QBWMA in so far as they do not negatively impact on its ecological integrity and that enrich public knowledge and appreciation of the area.
- ❑ **Enforcement:** To provide and improve means of ensuring compliance with Section 7 of the *Wildlife Act*.
- ❑ **Monitoring:** To develop means of ensuring the goals of the P-QBWMA are being met.
- ❑ **Cooperation:** MWLAP and Nature Trust, as lead managing agencies, will work cooperatively with other federal and provincial agencies, local governments, First Nations, environmental organizations and other community interests to meet the vision and goals of the P-QBWMA.
- ❑ **Self-sustaining:** To develop and maintain revenue streams that will support and sustain management initiatives and programs.

2. Management Units

For the purpose of this management plan, the P-QBWMA is divided into 7 “management units” (MUs) that are defined on the basis of biophysical differences and jurisdictional boundaries (Map 1-1). The P-QBWMA spans 2 municipalities and 3 electoral areas, each with individual official community plans (the “blueprint” that defines long term land use), zoning and other bylaws that affect land use within and surrounding the P-QBWMA.

This Management Plan cannot attempt to compile and summarize all the relevant land use policies from all of these jurisdictions. However, dividing the P-QBWMA into these 7 MUs allows area-specific biophysical features and jurisdictional responsibilities to be taken into account in determining and assigning management actions. Note, however, that many management issues and actions are common to several MUs or across the entire WMA.

2.1.1 Craig Bay

This management unit runs from Madrona Point in the east to the east boundary of Rathrevor Provincial Park (Map 2-1). It includes the mouth and estuary of Craig Creek.

2.1.2 Englishman River Estuary

The Estuary and adjoining uplands consist of approximately 130 ha, 114 of which are owned by the Nature Trust or the Province and are included in the P-QBWMA (Map 2-2). About 23 ha on the northwestern side is privately owned by Surfside RV Resort.

2.1.3 Englishman River Corridor

(Map 2-3) This unit extends 14 km upstream from the Englishman River Estuary to the north boundary of Englishman River Falls Provincial Park, as well as 5 km of the lower end of Morison Creek. It includes the river bed and riparian areas that are publicly owned or owned by the Nature Trust.

2.1.4 City of Parksville

(Map 2-4) This unit encompasses the intertidal area that falls within the municipal boundaries of the City of Parksville, and includes Parksville Bay.

2.1.5 Area G

(Map 2-5) This unit includes the intertidal area from the west boundary of Parksville to the east boundary of Qualicum Beach. It does not include the commercial harbour of French Creek but does encompass the estuary behind the harbour.

2.1.6 Town of Qualicum Beach

(Map 2-6) This unit encompasses the intertidal area within the municipal boundaries of the Town of Qualicum Beach, and includes the estuaries of Grandon and Beach Creeks.

2.1.7 Little Qualicum Estuary

(Map 2-7) This unit contains the intertidal area west of the boundary of Qualicum Beach to a point west of the mouth of the Little Qualicum River.

2.2 Project Summary by Management Unit

Table 2.1 summarizes which projects from the Action Plan, detailed in section 4, apply in each Management Unit. See Section 4.4 for descriptions of the projects.

Table 2-1: Summary of Action Plan Strategies by Management Unit (see section 4.4 for details of Strategies)

Project	Craig Bay	Englishman River estuary	Englishman River corridor	Parksville	Area G	Qualicum Beach	Little Qualicum estuary
• Re-establishing a Partnership Committee	Applicable across all management units						
• Hiring a Coordinator	Applicable across all management units						
• Generating Support & Revenue	Applicable across all management units						
• Improving Signs and Accesses	Applicable across all management units						
• Protecting Waterbird Populations and Habitat	●	●		●	●	●	●
• Estuary Habitat Restoration & Flood Protection		●					
• Trails in the P-QBWMA		●	●	●	●	●	●
• Enforcement and Guardianship	Applicable across all management units						
• Protecting First Nation Cultural Sites	●	●	●		●		●
• Stewardship of Adjacent Lands	Applicable across all management units						
#12: Ecological Connectivity of the P-QBWMA	Applicable across all management units						
#13: Inventory and Monitoring	Applicable across all management units						

3. The Wildlife Management Area - Status and Issues

The following summarizes and updates the information on natural and human resources in the P-QBWMA provided in sections 3 to 6 of the 1996 Management Plan (Clermont, 1996).

3.1 Marine and Aquatic Resources

3.1.1 Vegetative Communities and Habitats

Habitat Types

The 1996 Management Plan identified 7 habitat types in the Englishman River Estuary and Little Qualicum Estuary (Maps 3-1 and 3-2). The Englishman Riparian Corridor added a significant area of riparian habitat, for a total of 8 aquatic and terrestrial vegetation types in the P-QBWMA (Table 3-1).

Table 3-1: Vegetative/habitat types in the P-QBWMA (adapted from Clermont, 1996)

MU	Aquatic				Terrestrial			
	Intertidal foreshore	Estuarine Intertidal	Alienated intertidal	Riverine*	Spit	Alienated backshore	Forested upland	Riparian**
Craig Bay	✓	✓ Craig Creek						
Englishman R Estuary	✓	✓ 80 ha	✓ 8.3 ha	✓	✓ 0.5 ha	✓ 3.9 ha	✓ 43.7 ha	✓
Parksville	✓							
Area G	✓	✓ French Creek						
Qualicum Beach	✓	✓ Beach, Grandon Creeks						
L. Qualicum estuary	✓	✓	✓	✓	✓	✓	✓	✓
Englishman River				✓ 33 ha			✓	✓ 118 ha

*Stream channel, gravel bar and floodplain.

**Starting at the topographic break (top of the bank) where the land declines in elevation to the water's edge (BC Environment, 1996)

Alienated wetlands

The Englishman River estuary historically lost 36 hectares (from a total of 54 ha) of estuarine habitat due to the construction of two dykes.

The west dyke was constructed in 1969 to prevent tidal inundation of the western estuarine slough. It was initially breached in 1979 under a salmonid enhancement project implemented by DFO. Ducks Unlimited and the Habitat Conservation Fund expanded the original 10-meter breach in 1994. Shortly after the initial return of tidal circulation, chum, coho, and Chinook salmon fry were found to be rearing in the slough (Clermont, 1996). Waterfowl use, especially Green-winged Teal, increased for the first few years, after which numbers returned to normal as marsh vegetation re-established (N. Dawe, pers.comm.). The change in vegetation reflected a classic example of restoration of estuarine conditions after a dyke breaching; from

high marsh conditions described as grass-forbs meadows (Tera, 1975) to a low marsh community inhabited by saline-tolerant species (*Salicornia europaea*, *Spergularia canadensis*, *Plantago maritima*, and *Puccinellia nutkaensis*; Clermont, 1996 quoting Dawe and McIntosh, 1993). According to the 1996 Plan, there is still a net loss of 7 ha of estuarine habitat from historical levels.

The east (Mine Road) dyke consists of Plummer Road and what is known as "Mine Road". The Plummer Road embankment runs from the Highway 19A bridge downstream along the east bank of the Englishman River for about 1000 m. The Mine Road dyke, an old industrial road built in 1940-60's to facilitate log booming, traverses the estuary between Plummer Road and the southern boundary of 875 Seashell Place. Though not intended as a flood protection structure, the dyke currently prevents smaller events from flooding properties in the Shorewood/San Pareil subdivision. Its construction, however, is inadequate to continue in this capacity if water flows along side it increase substantially (G. Jamieson, pers.comm.).

This dyke effectively cuts off tidal circulation to 8.3 ha of former salt marsh between Mine Road and the properties along Shorewood Drive (Map 3-1). Reconnecting the alienated intertidal area by breaching the Mine Road dyke was proposed in 1990 under a study commissioned by the BC Conservation Foundation (Summers and McKenzie, 1990). However, it was decided at that time to leave the dyke intact, partly to maintain greater habitat diversity within the Englishman property, and partly because of the expensive mitigation (estimated cost over \$300,000 - Summers and McKenzie, 1990) required by the BC Dyking Authority to protect adjacent landowners from possible flooding.

More recently, MWLAP commissioned UMA Engineering to conduct an assessment of flood protection works in the estuary and to make recommendations of flood protection needed to meet a 200-year river flood. The study (UMA, 2002) presented 7 options for improvements to three parts of the flood protection system - Plummer Road, the lower (Mine Road) dyke, and Mariner Way. Figure 5 in that report provides a summary of the options considered.

The study made the following recommendations (see UMA, 2002: 23-24):

- Raise Plummer Road to meet design specifications described in the study that would provide flood protection for the 200 year flood.
- Construct a dyke across the Nature Trust property and remove the Mine Road dyke. The best route should be determined according to a topographic survey "to maximize the area available to restore tidal circulation while minimizing the amount of fill required to construct the dyke" (UMA, 2002: 24).
- Upgrade San Malo Crescent and Mariner Way to improve flood protection for the remaining lower end of the study area. This would be accompanied by a swale to direct water that overtops the dyke through an existing public beach access.
- Install rock armour on 100 m of the river bank approximately 300 m downstream of the Highway 19A bridge and for about 150 m along the upgraded Mine Road dyke.
- Seek input from the Nature Trust, RDN and local residents, through meetings and public open house, on the options presented in the study.
- Following public consultation, seek funding and proceed to final design and construction.

The report has not been acted upon to date.

3.1.2 Marine Birds

Pacific Black Brant

The estuaries, beaches, and foreshore in the P-QBWMA provide critical staging grounds for the internationally important Pacific Black Brant (*Branta bernicla nigricans*) (Map 3-3). The Black Brant is a small sea goose that breeds in the arctic (predominately Alaska), and winters in Baja, California and the west coast of Mexico. Along the British Columbia coast, Black Brant occur chiefly as spring migrants. In the P-QBWMA, they arrive early in March, with numbers peaking during the first two weeks in April, and depart as late as early May. Martin et al. (2002) observed a peak daily total in the P-QBWMA of 4,666 birds on March 30, 2001.

Historically, the Strait of Georgia and Fraser Delta supported large numbers of spring migrating and wintering Brant. "The Strait contains the last areas of suitable habitat (broad intertidal areas that support preferred food plants) before the birds embark on a non-stop flight across the North Pacific to Izembek Lagoon, Alaska" (Martin et al., 2002: 2).

However, since the 1960's, Brant numbers along the Pacific Coast have declined more than 30%, and Brant migrating along Vancouver Island's east coast show similar declines. Wintering populations have largely been extirpated from all but Boundary Bay and Roberts Bank, where about 1000 birds winter (Martin et al., 2002 – quoting Reed 1997 and Hagmeier, in progress). The main cause is attributed to habitat loss and disturbance, and ultimately displacement by human activity (see below).

Other Waterbirds

The P-QBWMA is equally significant to over sixty other waterbird species (1996 Management Plan). Greatest diversity occurs during the fall and spring migrations. However, the largest numbers of birds occur from October through April. The month of March typically records the greatest numbers of birds, corresponding with the annual herring spawn along the foreshore.

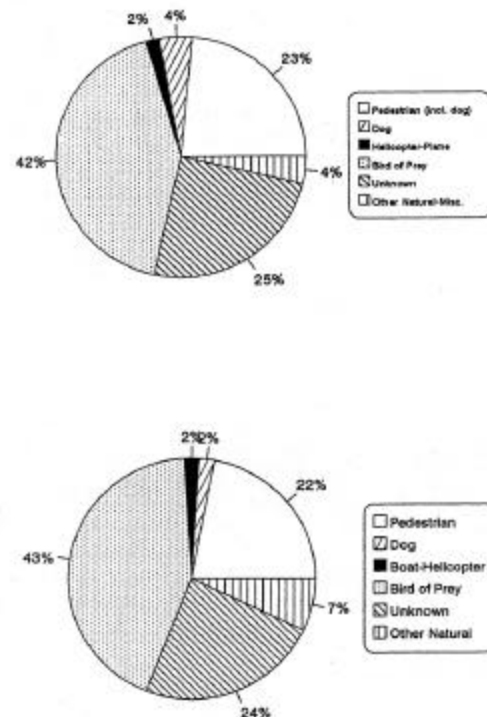
A complete list of bird species, both aquatic and terrestrial, that occur in the P-QBWMA is found in Appendix 1 of the 1996 Management Plan (Clermont, 1996).

Bird disturbance

A major management issue for migratory waterfowl, and particularly Brant, is the loss of habitat due to encroaching human development and displacement of wildlife from remaining habitats by human activity. Brant are particularly sensitive to disturbance, and human-related disturbance of migrating flocks has received increasing attention over the last decade. The impacts of excessive disturbance include (from Martin et al., 2002):

- Interrupted foraging and displacement from feeding areas, resulting in reduced food intake and ultimately, insufficient accumulation of nutrient storage to complete their migration or for egg production and incubation.

Figure 3-1: Causes of disturbance to Brant that resulted in flight in P-QBWMA, 1996 and 2001 (Martin et al., 2002:11)



- Increased energy expenditure in additional flight time.
- Disruption of pair and family bonds.
- Decreased ability to cope with naturally caused disturbances.
- Permanent abandonment of traditional staging areas.
- Disruption of population structure.

Studies of Brant populations and sources of disturbance were conducted in the P-QBWMA in 1996, 2001 and 2002. Martin *et al.* (2002) came to the following conclusions about sources of disturbance of Brant flocks (Figure 3-1):

- Raptors, primarily Bald eagles, were the most common cause of flock disturbances (42% in 1996 and 43% in 2001).
- Pedestrians and/or dogs were the second most frequent cause of Brant disturbance (29% and 27%).
- In 2001, the highest rate of people/dog-based disturbances occurred in Parksville Bay followed by Craig Bay. Lower rates were observed along Columbia Beach and Qualicum Beach (Table 3-2).

Table 3-2: Rates of disturbance to spring-staging Brant caused by people and/or dogs in 2001 (Martin *et al.*, 2002)

	<i>Disturbance events/hour</i>	<i>% of all disturbances</i>
Parksville Bay	1.34	40%
Craig Bay	0.95	34%
Columbia Beach	0.75	19%
Qualicum Beach	0.33	12%
Over total area	0.85	27%

This frequency of disturbance to spring staging Brant is among the highest rates recorded anywhere for the species (Martin *et al.*, 2002).

Continued increase in these disturbance rates may force the migrating flocks out of the area and/or diminish their ability to migrate and reproduce successfully, causing further declines in worldwide Brant populations.

Martin *et al.* (2002: 34) conclude that "if the increasing level of human traffic on the beach is not addressed, disturbances may limit the area's usefulness to Brant, and in a worst case scenario, may cause site abandonment. ... Given the (overall) frequency of disturbance to spring staging Brant in the PQBWMA is already among the highest rates recorded anywhere for the species, the high (human) population growth rates for eastern Vancouver Island, and the increasing pressure on intertidal habitats elsewhere in the (Strait of Georgia), time is of the essence".

Enforcement action

Both Parksville and Town of Qualicum Beach have bylaws that regulate dogs on beaches to some extent (see section 3.3.4); there are no similar regulations in the outlying areas under the RDN's administration.

In early 2003, MWLAP proclaimed an order under section 7(4)(a) of the *Wildlife Act*⁵ that closed a portion of the P-QBWMA, from the mainstem of the Englishman River to the east boundary of the Parksville's Community Park, to public access from March 1 to April 30 (Figure 3-2).



Figure 3-2: Area subject to public access closure order

⁵ Section 7(4) states: "A regional manager may make orders prohibiting a person from (a) entering, (b) cutting, picking, removing, altering, destroying or damaging vegetation in, (c) disturbing or harassing wildlife in, (d) releasing or abandoning an animal in, and (e) allowing an animal to enter a wildlife management area, a critical wildlife area or a wildlife sanctuary."

The rationale for the order is that based on the studies conducted between 1996 and 2001, "the area continued to record the highest levels of disturbance in the world." (MWLAP, 2002)

3.1.3 Salmon

Sensitive Stream designation

Of the 8 stream systems that flow into the P-QBWMA, three - the Englishman River, Little Qualicum River and French Creek - are designated "sensitive streams" under the provincial *Fish Protection Act* and the *Water Act*. This designation reflects the following criteria:⁶

- The stream is located in a watershed containing a significant population of salmon (coho used as an indicator species);
- The stream is a high priority for designation at present because of the precarious nature and value of fish stocks at risk, and the potential for high productivity given the nature of existing fish habitats;
- The stream is located in an area of the province with sensitive yearly flows and significant human populations or industrial water users;
- The stream flow limits fish production from achieving historic levels;
- Water abstraction and associated weirs, intakes, etc. are adversely affecting stream flows and fish migration;
- The stream offers good potential for recovery of fish populations, either with or without a recovery plan; and
- The stream is not otherwise being addressed under the BC Hydro Water Use Planning licence review process.

Englishman River

The Englishman River has the largest drainage area within the P-QBWMA at 324 km². The Englishman River originates in the vicinity of Mt. Arrowsmith and Mt. Moriarty, flows in a northeast direction for 28 km, shifts to the northwest for 3 km, then empties into the Strait of Georgia. Water discharges have been gauged by the Water Survey of Canada for over 23 years at a flow station (08HB002) near Parksville (Gaboury, 2003). Flows range from a mean low in August of 0.95 m³/sec to a mean high of 29.8 m³/sec in December; the mean annual discharge is 13 m³/sec (Clermont, 1996; Gaboury, 2003).

All species of Pacific salmon have been observed in the River over the past 40 years, with coho and chum having greatest and sockeye having lowest abundance. The historical maximum for coho was 3500 spawners in 1957, but since then, escapements have not exceeded 1500 with a mean of 960. However, about 5200 and 8000 coho returned in 2000 and 2001, probably due to increased freshwater survival in two artificial spawning and rearing channels (see below), and to recently improved marine survival (Gaboury, 2003).

Historically, the Englishman supported chum salmon runs of over 35,000, but now, average 10-year returns are down to 2,000. Enhancement efforts initiated through DFO's Salmonid Enhancement Program have been successful in restoring pink salmon stocks.

The Englishman also supports winter steelhead, and was once considered one of the top steelhead rivers on Vancouver Island. However, steelhead stocks are considered at high risk due to low numbers since the mid 1990's (Lill, 2002; Gaboury, 2003) and sport fishing is strictly regulated.

Resident cutthroat and rainbow trout utilize headwater reaches and the 6 freshwater lakes that drain into the Englishman.

The Englishman River Falls, located 14 km upstream of the estuary, creates a natural barrier to anadromous (sea going) salmon and steelhead. Morison Creek's Triple Falls is also a barrier to fish and is located 1.5 km upstream from the creek's confluence with the Englishman River.

⁶ From "Designation of Sensitive Streams Under the FPA" http://wlapwww.gov.bc.ca/habitat/fish_protection_act/sensitive_streams/sensitive.html. To date, 15 streams have received this designation.

The Englishman River watershed has seen dramatic changes over the past century. Land development, agriculture, logging, and oversubscribed water licenses have severely affected water flows and habitat. The floodplain section of the river has suffered considerable lateral erosion and bedload movement in recent years. These changes have negatively impacted fish survival in the river system and is likely an indication of reduced watershed capacity to buffer high rain fall events due to developmental land clearing and logging (Clermont, 1996).

Changes in the climate regime of the North Pacific have also played a major role in declines in salmon populations (G. Jamieson, pers.comm.). The effectiveness of stock or habitat enhancement efforts needs to be considered in the context of these over-riding factors.

Management and restoration

DFO and MWLAP have monitored fish stocks in the Englishman River watershed since 1968. Inventories on the upper lakes and stocking programs of both lakes and streams began in the 1980's. Snorkel surveys to estimate steelhead populations began in 1982, along with voluntary questionnaires.

Coho, pink and chinook salmon from the Qualicum fish hatchery have been outplanted to artificially enhance their stocks within the Englishman/Morison Creek systems. To maintain a recreational harvest while rebuilding wild stocks, MWLAP has released 20,000 steelhead smolts (Big Qualicum stock) into the Englishman River each year. In addition, 20,000-60,000 fry are released annually into the headwaters of the Englishman River.

In the 1990s, two artificial side-channels were constructed by DFO with support from MacMillan Bloedel (now Weyerhaeuser) and Timberwest, to increase the amount of off-channel rearing habitat for juvenile coho salmon. The Timberwest channel, in Block 602 on the north side of the river 7 km upstream from the mouth, is 1300 m long with 17,700 sq m of rearing and spawning habitat. The Weyerhaeuser channel, located in Block 564 on the south side, one km downstream from the Timberwest channel, is 950 m long with 6,000 sq. m. of habitat. A proposal exists to lengthen the Timberwest channel by 2000 m, bringing the total length of constructed off-channel habitat to 4300 m or 15% of the total length of accessible habitat. Construction of this extension awaits sale of Block 602 by Timberwest (LGL, 2001) to a conservation organization like the Nature Trust.

Englishman River Watershed Recovery Plan (ERWRP)

In 2000, the Pacific Salmon Foundation, through the Pacific Salmon Endowment Fund (PSEF)⁷, selected the Englishman River and its tributaries as one of two river systems in BC to focus its initial habitat restoration efforts. The PSEF hired LGL Limited to prepare a Recovery Plan for the Englishman River, in consultation with local stewardship groups.

The Plan sets out recovery objectives and targets (in terms of smolt output) for coho and steelhead, its primary targets, as well as chum and pink salmon. It presents a recovery strategy focused on 5 components (LGL, 2001):

- Public information and coordination;
- Stock assessment – enumeration of smolts, adult coho, and adult steelhead including assessing the feasibility of installing a counting weir in the lower River;
- Habitat protection – stewardship education;
- Habitat rehabilitation – flow monitoring, riparian assessments, channel condition, habitat assessment and sediment source survey as data for developing restoration prescriptions;
- Monitoring – activity effectiveness and recovery evaluation.

⁷ The PSEF is a permanent long-term source of funding that was established with the federal government's contribution of \$30 million – part of the Pacific Fisheries Adjustment and Restructuring Program announced in 1998. The fund's investment interest is used to support salmon recovery in priority areas of BC and the Yukon.

By the fall of 2002, a number of activities were underway under each of these components (Table 3-3). In addition, an ERWRP Roundtable was formed with a mandate to “promote, develop and implement long-term community stewardship and conservation of the Englishman River Watershed’s natural resources, especially its salmonid resources”. Among its activities, the Roundtable issues calls for proposals, reviews project proposals and acts as the PSEF’s advisory body in recommending project to be undertaken under the ERWRP. Membership on the Roundtable represents First Nations, stewardship groups, local business, farming, fishing, forest and tourism, residents, local governments and provincial and federal agencies. The PSEF designated \$200,000 for the 2003 season, which was allocated to projects representing: stewardship and coordination (15-20%); monitoring, planning and assessment (40-45%); and habitat restoration (40-45%).

A report was also recently released proposing instream habitat restoration projects at 16 sites on the mainstem of the River (Gaboury, 2003).

Englishman River Estuary

All seven species of salmon are reported to use the estuary, the primary species being chum and coho (Blood, 1976; Tutty *et al.*, 1983). Highest abundance occurs in May and June in the Dogleg Slough area (Annand, 1993). There are concerns that reduced river flows in late summer and storm sewer discharges into the west side of the estuary may be impacting the estuary’s water quality and biological potential (LGL, 2001).

Another issue is whether there is sufficient available habitat in the estuary to support the output from enhancement efforts occurring upstream (G. Jamieson, pers.comm.). No studies under the ERWRP or other Englishman River-related initiatives have as yet addressed the productivity of the estuary.

Little Qualicum River

The drainage area of the Little Qualicum River is 249 km² and its mean annual discharge is 11.8 m³/sec (Environment Canada, 1984).

All seven species of Pacific salmon have been recorded in the Little Qualicum River; currently, chum and

Table 3-3: ERWRP-funded activities in 2002

<i>Activity</i>	<i>By:</i>
Two newsletters; media event with interviews on radio, TV and in papers; river celebration on Rivers Day.	Mid Vancouver Island Habitat Enhancement Society (MVIHES)
Riparian work in the estuary included planting and decommissioning eroded trails.	Streamkeepers
Stream flow and water quality monitoring; included flow discharge measurements above and in Morison Creek and at the Orange Bridge (Parksville). The data will be used to develop a Rule Curve for discharges from the Arrowsmith Dam.	MWLAP and BC Conservation Foundation (BCCF)
Smolt enumeration	BCCF and MWLAP
Juvenile steelhead enumeration	BCCF and MWLAP
Winter steelhead assessment	BCCF
Salmon escapement survey - all species	English River Enhancement Group, DFO
Juvenile coho assessment on Centre Creek, Aug-Sept	DFO
Restoration prescriptions design and stockpiling materials for installation of large woody debris in 2003	BCCF
Swane/Morison Creek water stewardship on private farm land: irrigation pond, channel work, water storage (reduce sediment)	Property owners
Bank stabilization near the Block 602 side channel with LWD deflectors	DFO
Landowner contact and information	Arrowsmith Watershed Stewardship Team

chinook occur in significant numbers. Chum salmon spawn from October to December, and primarily use the lower stream reaches within the management area. Pink salmon runs are a remnant of former years, and sockeye salmon occur only as stragglers.

The Little Qualicum River Hatchery and spawning channel was initially constructed by DFO in 1978. Currently, chum chinook and steelhead are raised for release in the Little Qualicum as well as the Englishman and other Island systems. This has helped improve fish productivity in the Little Qualicum system; e.g., chum returns averaged over 100,000 fish in the 1980-90s (Clermont, 1996).

Chum salmon spawn during the October through December period, and primarily use the lower stream reaches within the P-QBWMA. Some coho and chinook spawning may also occur within the WMA, but most is thought to occur further upstream (Clermont, 1996).

Enhancement activities in the Little Qualicum River estuary were undertaken in the mid 1990s to improve estuary habitat for migrating salmon by building and deepening channels and pools. Unfortunately, lack of communication with MWLAP during the planning phases meant that the impacts on waterfowl habitat were not adequately taken into account. Measures are needed to improve coordination and collaboration among all the interests involved in the P-QBWMA, to ensure all of its objectives are recognized (see Sec.4.4.1).

Other stream systems

Six creeks (Craig, Shelley, Grandon, Beach, Morningstar, and Carey) also drain into the P-QBWMA. These creeks are important for some species of salmon, notably coho, as well as resident trout populations. Craig Creek, for example, has been identified as a "critical stream" in the BC Salmon Habitat Conservation Plan released in 1995 by the Province.⁸ A small coho rearing facility has been operated by volunteers in the estuary since 1998 to help restore stocks in Craig Creek.

The Qualicum Beach Streamkeepers have conducted inventory and enhancement projects on Grandon and Beach Creeks over the last 10 years, notably removing fish passage barriers (substantial culverts) near the mouths of each creek and thereby re-introducing coho populations to these systems. The group also conducted water quality studies on these creeks in the mid 1990s, and have been very active recently in the removal of a man-made dam on Whiskey Creek, a tributary to the Little Qualicum River (F. Smith, pers.comm.).

Steelhead

The Englishman and Little Qualicum Rivers and French Creek support steelhead trout, but these stocks are rated as being of "extreme conservation concern" by the Greater Georgia Basin Steelhead Recovery Plan (Lill, 2002). This Plan, a partnership of the BC Conservation Foundation, MWLAP and the PSF, attributes declines in steelhead abundance to sharply reduced ocean survivals combined with impaired freshwater habitat capability. The primary objective of the Plan is:

"to stabilize and restore wild steelhead stocks and habitats to healthy self-sustaining levels. A secondary objective is to maintain and restore angling opportunities, which benefit both local communities and the provincial economy. While the focus is on steelhead, this initiative will have significant benefits for other species of salmon and trout." (Lill, 2002: 3).

The Plan summarizes the status of steelhead populations, habitat restoration activities, steelhead objectives and recovery options for these watersheds. This information can be viewed or downloaded from the Recovery Plan's website <http://www.steelheadrecoveryplan.ca/about-steelhead.htm>.

Cutthroat trout

Most river and creek systems in the WMA support coastal cutthroat trout. Like steelhead, this species tends to spawn upstream of the management area, utilizing upper stream reaches. After 1-2 years of freshwater rearing, some of the smolts migrate to the brackish marshes, sloughs, and foreshore coastline of the P-

⁸ From Mt. Arrowsmith Biosphere Reserve website -<http://www.mountarrowsmithbiosphere.ca/characteristics.htm>

QBWMA, utilizing those habitats more extensively than any of the other salmonid species (Clermont, 1996). Both the Englishman and Little Qualicum Rivers were stocked with coastal cutthroat smolts in 2001 and 2002 (BC Fisheries - http://www.bcfisheries.gov.bc.ca/rec/hatch-stock/recent/vancouver_island_stocking.pdf).

3.1.4 Herring

Most of the shoreline off the P-QBWMA provides excellent spawning grounds for Pacific herring (*Clupea pallasii*). The WMA falls within DFO's Pacific Region Management Area 14, which runs from Nanaimo to north of Comox.

Ecologically, the annual herring spawn is a major food source for gulls, waterfowl and marine mammals. Vast quantities of eggs and dislodged vegetation are deposited in the intertidal zones in the P-QBWMA, and is likely the major factor in why the area is frequented by migrating Brant and other water and shorebirds. This biological spectacle is also enjoyed by humans, who are awed by the huge concentrations of wildlife and the turquoise surf which turns foamy white as the milt laden water breaks onto the beaches of the P-QBWMA (Clermont, 1996).

Commercial herring fishing is significant in the areas off the P-QBWMA, particularly the roe gillnet fishery. All herring spawning in the Strait of Georgia are assumed to belong to a single stock that migrates into the Strait in late fall and leaves, after spawning, in March. The fishery is managed by setting a fixed quota based on a harvest rate of 20% of the forecast mature stock biomass when the stock size is sufficiently above the fishing cut-off threshold, or minimum spawning stock biomass, of 21,200 t (Fisheries and Oceans Canada, 2002).

In response to reduced stock levels, the Strait fishery was closed in 1986. The stock subsequently rebuilt, and has sustained an average catch of 14,600 over the last decade (Fisheries and Oceans Canada, 2002).

Roe gillnet catches over the last five years (1998 to 2002) ranged from 7343 to 8640 tons (short), of which 15-20% may have been caught off the WMA. Fishery statistics are collected on a Management Area basis, so it is difficult to pinpoint what proportion of the commercial catch is taken from the P-QBWMA area (R. Webb, DFO: pers.comm.).

3.1.5 Shellfish

The foreshore beaches in the P-QBWMA are rich in shellfish populations, but are contaminated by fecal coliform bacteria. Contamination levels have spread over the last 5 to 6 years, such that by 2002, much of the P-QBWMA foreshore was closed to recreational shellfish harvesting (Map 3-4).

Faecal coliform bacteria in the water indicate the presence of human or animal wastes and the possible presence of disease-causing organisms. Shellfish growing waters are considered polluted when the faecal coliform densities exceed a median of 14/100 mL (based on 15 data points). By comparison the standard for drinking water is 0 FC/100 mL while the swimming water standard is 200 FC/100mL. The stringent standard for shellfish growing water is necessary due to the filter feeding mechanism of bivalve shellfish which can concentrate bacteria.⁹

Other closures may occur periodically throughout the area due to paralytic shellfish poisoning (PSP) and amnesic shellfish poisoning (ASP - domoic acid).

A commercial depuration clam fishery has occurred occasionally from Dorcas Point to Craig Bay and from the Englishman River estuary to Parksville Bay. The following explanation of a depuration fishery is excerpted from Fisheries and Oceans Canada (DFO) Pacific Region's 2003 Commercial Harvest Plan: Intertidal Clams:¹⁰

⁹ (Fisheries and Oceans Canada - Pacific Region website: <http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/closures/default.htm>)

¹⁰ Available at http://www.pac.dfo-mpo.gc.ca/ops/fm/mplans/plans02/clam_2001f_app.PDF

"Depuration is a controlled operation where bivalves from water classified as moderately contaminated can be cleansed in a strictly controlled environment in a registered depuration plant. Harvesting in contaminated areas is supervised by the depuration plant under the authority of a special licence issued by Fisheries and Oceans Canada. Individual harvesters are designated on the licence. Prior to harvesting clams, the licence holder is required to erect a prominent sign on the harvest beach stating the nature of the operation and the depuration licence number. Other conditions of the licence include a notification procedure to advise of harvesting activities, and a catch-reporting program in addition to fish slips.

In order to obtain a depuration harvest licence, the approved depuration facility must identify the beaches they wish to harvest. Environment Canada must approve the area as meeting the guidelines for depuration. If Fisheries and Oceans Canada approves the area, a survey undertaken by the depuration facility is required in order to determine the biomass of clams present in the harvest area. On the basis of this survey, the department will establish a conservative total allowable catch of the biomass of legal-sized manila and littleneck clams on the assigned beach.

Fisheries and Oceans Canada has developed a policy on access and management of contaminated beaches. This policy sets guidelines for the access to clams on contaminated beaches by approved depuration plants. The Department is currently working with the Depurator's Association of British Columbia to facilitate a co-managed approach to managing the depuration fishery. For more information on the policy please contact Kerry Marcus at (250) 954-2676."

The last depuration fishery in the P-QBWMA occurred in 2000. Productivity around the Englishman river estuary and Parksville Bay, historically the most productive areas, appears to be down. This is potentially due to changes in currents and hydrology, possibly linked to extensive rip-rapping along the west side of the estuary at Surfside RV Park (R. Webb, DFO; pers. comm.)

There has been little public opposition to the depuration fishery, probably because the areas being harvested cannot be used anyway for recreational digging. The P-QBWMA advisory committee, however, has opposed allowing the fishery within the WMA on grounds that intertidal clams are needed by the other species that inhabit the Area.

There has been some discussion in the past between DFO managers and MWLAP about levying a charge on depuration licences to assist in managing the P-QBWMA. While willing to facilitate a dialogue between the P-QBWMA and the depuration industry (represented by the Depuration Association of B.C.), DFO has expressed no interest in levying a charge on behalf of the P-QBWMA. It notes that the depuration fishery is not a high profit operation due to the added costs of depuration. However, the industry should be approached to consider some form of support if future harvests are to be undertaken (R. Webb, DFO; pers comm.).

3.1.6 Marine Mammals

Marine mammals observed moving along the P-QBWMA foreshore include Harbour seals (year round), Northern and California Sea lions (December to May), Orca (March to October), and Harbour porpoise. In recent years, grey whales have been sighted very occasionally feeding in the shallow coastal waters of the Qualicum Beach area (e.g., Dawe, 1980).

3.2 Terrestrial Resources

3.2.1 Vegetative Communities and Habitats

Terrestrial vegetation types have been documented for the Englishman and Little Qualicum River estuaries (Table 3-1; Maps 3-1 and 3-2). Adjacent to the marine foreshore, with no effective regulatory setbacks, most trees and native vegetation have been cleared on privately owned lands as well as in public parks in urbanized areas.

The 2001 addition of the Englishman River unit added approximately 118 ha of riparian vegetation (Table 3-1). Vegetation within this riparian corridor is largely second growth, as most of the corridor has been left intact by recent logging activities (in the case of forest company ownership) or dedicated to Crown as part of subdivision (on developed parcels). The riparian lands are characterized by mixed forest dominated by red alder, bigleaf maple within floodplain and stream edges, Douglas fir and western red cedar on slopes.

Sensitive Ecosystem Inventory

The Sensitive Ecosystem Inventory for Southeast Vancouver Island and the Gulf Islands (the SEI) identifies 7 types of "sensitive" (increasingly rare) ecosystems and 2 "important" (not necessarily rare but making important contributions to biological diversity) ecosystems (Ward *et al.*, 1998 and McPhee *et al.*, 2000). Five of the 7 sensitive ecosystem types are represented in or immediately adjacent to the P-QBWMA, with SEI sites concentrated in the Little Qualicum Estuary, Englishman River estuary and Englishman River corridor MUs (Map 3-5).

3.2.2 Terrestrial Birds, Mammals and Herptiles

Bald Eagles

Each winter, large numbers of Bald eagles come to the P-QBWMA to feed on spawning salmon. For example, in 1995, the Little Qualicum River run attracted up to 217 Bald eagles to the estuary and 95 to the Little Qualicum Spawning Channel and Waring farm upstream (Clermont, 1996). Salmon enhancement activities may attract even higher concentrations.

Most eagle nest and perch trees are located on private land adjacent to the P-QBWMA and with no setbacks or other protective measures, are threatened by accelerated land development and logging. As of 2002, 12 nests had been documented in or within 1 km of the WMA (Map 3-3). Eagle nest trees, but not perch trees, are protected by the *Wildlife Act*.

Other Birds and Mammals

Based on past inventories in the Qualicum National Wildlife Area, 23 mammalian species are expected to occur in the foreshore and estuarine components of the P-QBWMA (see Clermont, 1996: Appendix 2).

The Englishman River corridor added a diversity of habitats and species to the P-QBWMA. In contrast to the estuary and intertidal foreshore where waterbirds dominate, the riparian and woodland habitats are home to over 60 species of passerines (songbirds, sparrows, etc.) as well as Pileated and Downy Woodpeckers, Great Horned Owl, Turkey Vulture, Wood Duck, Cooper's and Northern Goshawk, and Ruffed and Blue Grouse (BC Environment, 1996).

Several large mammals can be added to the list of 23 species in the foreshore/estuary portions. These include cougar, black bear, timber wolf, martin, wolverine, and Roosevelt elk. The rare and endangered Vancouver Island water shrew is known to occur in this area. Only two nursery colonies of the provincially threatened Townsend's big-eared bat are known in B.C., one is found within the Little Mountain forestlands. Occasionally a solitary Vancouver Island marmot is sighted within the Englishmen watershed but no colonies have been found.

Most of the wildlife information for this region has been gained through a cougar radio-collaring and monitoring program coordinated by Knut Atkinson of MWLAP, from 1992 to 1997. This program indicated

that some 10 to 15 cougar use the Englishman watershed. Deer and elk, as primary prey species, were also inventoried. Black-tailed deer had declined in recent years, and up to 15 elk were believed to reside in this area (BC Environment, 1996: 6).

Herptiles

An inventory of herptiles was undertaken on the Marshall-Stevenson Unit of the Qualicum National Wildlife Area from 1976 to 1979 (Dawe, 1976, 1979). The most common herptiles included three species of garter snakes, Northwestern salamander, and Pacific tree frog. Appendix 3 of the 1996 Management Plan (Clermont, 1996) provides a partial list of amphibians and reptiles likely to be found in the P-QBWMA, based on the inventory in the Qualicum National Wildlife Area.

3.3 Human Values and Uses

3.3.1 First Nation Cultural Values

First Nation archaeological sites (middens) are known to exist at the mouth of the Little Qualicum River estuary, the Englishman River estuary and IN Craig Bay, reflecting the importance of estuaries for First Nation settlements (Dawe, 1977). There are petroglyphs in Top Bridge Park and other archaeological sites along the Englishman River (H. Edwards, pers.comm.). Further definition of the historic and present-day cultural values of the P-QBWMA should be undertaken in collaboration with the Nanoose and Qualicum First Nations. The P-QBWMA logo was designed by the Nanoose First Nation, and depicts the relationship between the rich fish and wildlife of the region and humans.

3.3.2 Wildlife Viewing and Nature Appreciation

Wildlife viewing and nature enjoyment are widespread throughout P-QBWMA wherever access is available to the beach and estuaries. The Englishman River corridor also provides excellent nature viewing and provides a sense of remote wilderness. Targeted wildlife viewing is most intense during spring and fall bird migrations along the foreshore and in the estuaries, and during fall salmon migrations along the river. Peak enjoyment of the foreshore environment and natural setting occurs during the late spring, summer and fall. Several special events capitalize on the natural assets associated with the P-QBWMA:

- The Brant Festival, which occurs in April, honours the spring arrival of the Black Brant and includes activities such as wildlife viewing, competitive birding, wildlife art and photography exhibitions, decoy carving competitions, and natural history talks. The Festival has drawn several thousand visitors annually since its inception in 1991.
- The BC Open Sandcastle Competition in July celebrates the beauty of the expansive, safe, beaches of the area. Sand and sea festivities abound with the feature event being a competitive sandcastle building contest. Up to 30,000 visitors annually attend the activities associated with this event.
- Rivers Day, the last weekend in September, celebrates waterways across Canada, and provides a focus for local streamkeepers to share their enthusiasm for local streams and rivers.

3.3.3 Walking, Hiking and Cycling

Virtually the entire P-QBWMA is used for walking to greater and lesser degrees, depending on public accessibility. The most intensive use, both on and off trails, occurs along the trail network in the Englishman River estuary (ERE), in Parksville and in Qualicum Beach.

In the Englishman River Corridor, informal trails in Block 602 (west side) are used by hikers, fishers, mountain bikers and people who wish to view the salmon runs. On the east side, Top Bridge Park is a popular local destination for walking, mountain biking and swimming.

The Regional District of Nanaimo (RDN) has developed a trail network plan connecting regional parks and other destinations throughout the region, using existing and proposed trail routes. It is raising funds for a pedestrian bridge over the Englishman River at Top Bridge Park, and wishes to formalise a trail route through Block 602 on existing roadways and trails to the Morison and Little Mountain Regional Parks.

Public use of the P-QBWMA is increasing as the surrounding population grows and outdoor activities become more popular. However, uncontrolled access is damaging the physical environment and disrupting habitat use. Walking, hiking and cycling tramples sensitive vegetation, particularly in wet areas, along stream banks (which are susceptible to erosion if bared of vegetation), and where fragile coastal plant communities exist. Human presence in the wrong places can scare birds and other wildlife away from nesting, feeding or resting areas that are critical to their survival.

3.3.4 Dog Walking

Dog walking is a very popular use of the foreshore and the trails in the Englishman River estuary and along the River. Despite numerous signs along the foreshore portion of the P-QBWMA showing that dogs should/must be on leash, unleashed pets are common. Uncontrolled dogs can cause great disturbance to wildlife, particularly for resting, feeding and ground nesting birds (see section 3.1.2 for a discussion of disturbance of Brant populations in the WMA).

Both Parksville and Qualicum Beach have bylaws that restrict dogs on beaches. the City of Parksville Dog Control Bylaw no. 1284 (sec.21) states that "No person who is the owner of a dog shall permit, suffer or allow such dog to be at large within the Municipality". Parksville has obtained a legal opinion that since the City's corporate boundaries extend out into the water of the Strait of Georgia, this bylaw applies to all lands along the foreshore (R. Roycroft, pers.comm.).

In 2002, the Town of Qualicum Beach passed a bylaw addressing the presence of dogs on the public beach within its boundaries. Among other restrictions, part 4 of Bylaw no.406.06 disallows dogs on the public beach from March 1 to April 30 for the protection of water birds (Box 3.1). This is the first bylaw in the region to contain regulations specifically for this purpose.

Box 3.1: Qualicum Beach's Bylaw no. 407.06 - dogs on beaches

"Part 4 – Animals and Dogs on Public Beaches

32. (a) Between June 15 and September 15, no person who is the owner of a dog shall permit, suffer or allow such dog to be on that portion of the public beach within the Municipality between Grandon Creek and Beach Creek unless said dog is on leash. Between June 15 and September 15 of each year, dogs are permitted off-leash on that portion of the public beach west of Grandon Creek and east of Beach Creek. Between September 16 and June 14 of each year, dogs are permitted off-leash on the public beach within the Municipality. At all times, dogs on the public beach must be under the supervision and discipline of their Owner.

Notwithstanding the aforementioned, and in cooperation with the Parksville-Qualicum Beach Wildlife Management Area Management Plan, and for the protection of wildlife (mostly waterbirds), no dogs shall be permitted on the public beach from March 1 to April 30 in each year to coincide with the annual Brant migration."

3.3.5 Commercial Eco-tourism Operations

There appears to be only one eco-tour operator currently in the area, who provides transportation (12-person bus) and interpretative services to local natural attractions for small groups (e.g., Cathedral Grove, Horne Lake). Representatives of the local tourism industry feel that there is considerable potential for more use of the P-QBWMA and Parksville-Qualicum area for eco-tourism (see Appendix A – notes from Revenue Generation Focus Group).

3.3.6 Camping

Organized camping is concentrated in Rath Trevor and Englishman River Provincial Parks and private campgrounds in the surrounding area. Attendance and revenue statistics for the two provincial parks are averaged for 1999-2001 are summarized in Table 3.4.

Table 3.4: Rath Trevor and Englishman River Provincial Parks - average annual visitation and revenues for 1999-2001 (from http://wlapwww.gov.bc.ca/bcparks/operations/op_info/vancouver_island_mid_op_info.htm)

	Campground use – # parties (party = 3.2 persons)	Day use - # parties (party = 3.5 persons)	Revenue (park user fees)
Rath Trevor	27,000 (approx)	127,500 (approx)	\$428,240
Englishman River Falls	7167	45,599	\$89,874

Within the P-QBWMA, informal camping may occur along the Englishman River corridor, though the presence of the hatchery and limited accessibility other than on foot likely discourage widespread use.

Signage prohibiting overnight camping along with the closeness of private residences deters camping in the foreshore portion of the WMA.

3.3.7 Hunting and Fishing

No hunting is permitted in the foreshore and estuary components of the P-QBWMA. Deer and grouse hunting likely occurs along the Englishman River.

Virtually the entire 14.5 km of stream below the Englishman River Falls is accessible for angling via public road ends, or on gated roads on private timber and residential lands (Block 564 and 602) that are accessible to non-vehicular traffic.

However, angling is highly regulated on the River. In the 2002 season, all steelhead supporting waters (the river below the lower falls in Englishman River Provincial Park) were closed to fishing until May 31, and were again closed as of December 1 until May 31, 2003. Headwater sections remained open for trout fishing. Between May 31 and Dec 1, no fishing was allowed from the lower falls in the Park to signs about 100 m downstream, and only fly fishing was allowed from that point to Morison Creek. Catch and release is required for all wild Cut throat and steelhead angling; a daily quota of two fish was permitted for hatchery cut throat. Steelhead anglers must purchase a special license and are asked to report data such as number of days fished, and catch results (hatchery vs. wild fish).

3.3.8 Boating

Kayak and canoeing are increasing in popularity. While quieter and less disruptive, they can still unnecessarily disturb feeding and resting marine birds and mammals. Kayak/canoe launching can also destroy riparian or foreshore vegetation at popular, unmanaged "put in" sites.

Recreational boating is popular along the entire coast. It is concentrated in the summer season when bird and marine mammal populations in the nearshore are low relative to the rest of the year. However, unmanaged boat launching from level access points within the P-QBWMA causes disruption of foreshore vegetation and intertidal habitat. For example, vehicles and boat trailers were reported driving onto the foreshore from Surfside Drive near the Little Qualicum estuary (M. Henigman, pers.comm.). Large boulders have since been placed to prevent vehicle access to the beach (N. Dawe, pers.comm.).

3.3.9 Motorized Vehicles

A regulation under section 18 of the *Wildlife Act* prohibits motorized vehicles from entering between the high and low water marks within the P-QBWMA. Nonetheless, some use of off-road vehicles occurred in the past on both sides of the Englishman River near the estuary, and was particularly detrimental to the west spit habitat (Clermont, 1996). However, increasing presence of walkers and nearby residential development has likely discouraged this use. Off road vehicles may be used in parts of ER corridor where access is not gated or where these vehicles can move around gates.

3.3.10 Education and Interpretation

Several information and education-related initiatives have been taken in recent years:

- Interpretive signs have been erected next to viewing platforms, on the west side of the Englishman River estuary and on the backshore off Highway 19A at the north end of Qualicum Beach (Photo 3.1a/b).
- A major objective of the annual Brant Festival is to inform the public of the significance of the foreshore as staging habitat for Pacific Black Brant and other water birds, and enhance public appreciation of the ecological features and functions of the area in general.
- The 2001 Brant study (Martin *et al.*, 2002) included several outreach efforts to inform the public of the study, the status of Brant populations, and to emphasize the issue of disturbance of birds by people and dogs. These efforts included: interaction with over 200 people during field sessions and 8 presentations

before and during the Brant Festival; three articles in the local newspaper; and a newsletter distributed through Festival programs as well as direct mailed to 1200 residences in and around Parksville Bay

- The Englishman River Enhancement Group operates a salmon hatchery and spawning channel in Block 602, on the west side of the Englishman River. It provides an opportunity to learn about salmon, their life history, their habitat requirements and the significance of riparian zones and the diversity of life that can be found here.
- During Rivers Day in September 2002, the Parksville and Qualicum Streamkeepers and Mid Vancouver Island Habitat Enhancement Society ran a variety of tours and activities focusing on the salmon runs in the Englishman River and its tributaries (C. Cornish, pers.comm.).
- As noted in section 3.1.3, public outreach and information is a significant component of the Englishman River Recovery Plan. Under the Plan, the Mid Vancouver Island Habitat Enhancement Society received funding to publish newsletters, conduct media events, develop school outreach projects and organize Rivers Day events. The Arrowsmith Watershed Stewardship Team, started in January 2000, has also been conducting public information and landowner contact programs about water quality and water flow stewardship in the Englishman River watershed.

Photo 3.1 Interpretive signs

a) west Englishman River estuary



b) north Qualicum Beach foreshore



3.4 Accesses and Facilities

The status of accesses and facilities is summarized in Table 3-5. Accesses to the foreshore portion consist primarily of road ends and pull outs from Highway 19A. Waterfront community parks in Parksville and Qualicum Beach also provide parking, stairs and/or walkways to or along the beach. Access to the Englishman River corridor is by road ends and trails.

A photo survey of all accesses to the P-QBWMA was conducted in late 2002. It shows that an assortment of signs are used in varying numbers and arrangements. In many cases, signs identifying the P-QBWMA are absent or accompanied by an array of signs regulating camping, parking, dogs on leash, sunscreen, etc. The effect can be unattractive and confusing, and the presence of the WMA can be diminished (Photo 3.2).



Photo 3.2: Array of signs at WMA access point.

Table 3-5: Accesses and facilities in the P-QBWMA

Management Unit	# Access points	Interpretive signs, viewing platforms	Trails	Other
Craig Bay	5 (outside Rathrevor Park)	(Several signs in Rathrevor Park.)		
Englishman River	10 (approx)	At hatchery.	Block 602 – from Allsbrook Rd to hatchery to Middlegate Rd. Block 564 – access trails from Kaye Rd to river. Top Bridge Park trails Trails along hydro right-of-way.	Gate at Allsbrook Road prevents vehicular access. Gate at Kaye Road controls vehicle access to recently developed residential lands along Englishman River.
Englishman River estuary	11	West side: interpretive sign/ kiosk and viewing platform. East side: viewing platform.	West side: perimeter and cross trail loop accessed from Shelley Road. East side: San Pareil trail and boardwalk accessed from Plummer Rd and San Malo Cres.	Gate at Shelley Road. Cairn** at west side viewing platform.
Parksville	7 + waterfront community park		Waterfront walkway in community park; further walkway access acquired or planned along the foreshore.	Cairn** in community park.
Area G	8 (approx)			
Qualicum Beach	17 + waterfront walkway	Viewing platform and interpretive sign at north end, off Highway 19A	Waterfront walkway	Cairn**
Little Qualicum estuary	4		In Qualicum National Wildlife Area (NWA), Marshall Stephenson Unit	Gate at NWA.

**Three cairns were erected in 1994 to recognize local community support and generosity of the partners of the Pacific Estuary Conservation Program in funding land acquisitions to create the P-QBWMA.

3.5 Adjacent Lands

Continued urban development along the waterfront and in the upland, and clearing by forestry and agriculture in upper watersheds, have downstream and downhill effects on the P-QBWMA.

3.5.1 Community Planning

The P-QBWMA encompasses 2 municipalities and 3 Electoral Areas (E, F and G) of the Regional District of Nanaimo. It falls within 6 different Official Community Plans (there are two separate OCPs in Area G—one for the Englishman River area and one for the French Creek area). There is also a variety of zoning and other bylaws that affect land use in each of the five jurisdictions.

The RDN and MWLAP have signed a memorandum of understanding (MOU) that forms the basis for “a new collaborative process for the efficient delivery of services in the areas of environmental permitting and protection”. Among other measures, it sets out how OCPs and development applications will be reviewed in the context of environmental protection. The MOU can be viewed on the Ministry’s website - <http://wlapwww.gov.bc.ca/vir/pa/index.htm>.

Similar agreements have not been developed with Parksville and Qualicum Beach. While MWLAP staff no longer review specific development proposals (other than through *Water Act* notifications), they are mandated to provide input to higher level plans like OCPs.

3.5.2 Foreshore and Riparian Development

There are a variety of human activities that impact the foreshore and intertidal habitats within the P-QBWMA:

- Removal of vegetation along the foreshore and adjacent upland. Vegetation is part of the shore’s natural erosion protection. Roots and stems trap sand and soil particles, forming an erosion resistant buffer once the plants are well established. However, native trees, shrubs, and grasses are frequently removed to make way for foundations, lawns and views.
- Continued “hardening” of land adjacent to foreshore. Structures like retaining walls and groynes, which attempt to protect waterfront property from beach erosion, alter natural sedimentation patterns in the local foreshore area. Usually, they simply move the “problem” next door, causing accelerated erosion on adjacent properties and the foreshore. Neighbouring properties then feel compelled to “armour” their shoreline, and the effect is accelerated.
- Removal of living intertidal organisms (e.g., clams, sand dollars, crab), seaweed and eelgrass (typically for garden compost or mulch), rocks and drift logs (often for garden and lawn structures).
- Removal of beach drift logs for firewood, gardens or as perceived hazards to adjacent properties. Beached logs are instrumental in stabilizing backshore sediments and vegetation.
- Dumping of yard and garden waste for the sea to wash away.
- Construction of campfires or fire pits. While relatively innocuous on an individual basis, the sum total of many fires can be to sterilize sections of beach and foreshore of surface and subsurface organisms.

Qualicum Beach and parts of the RDN have instituted regulatory setbacks and/or development permit areas along creeks, rivers and foreshore areas. These provide a level of protection to these habitats in development and re-development activities. Parksville has as yet not adopted similar regulations. Other activities mentioned above are typically dealt with in other jurisdictions through public information and education.

3.5.3 Parks Planning

Parksville and Qualicum Beach manage parks within their respective municipalities. The RDN is responsible for community and regional parks throughout the unincorporated (electoral) areas. As part of a regional trail/greenway system, the RDN has actively pursued the acquisition of land for parks and trails on or near

the Englishman River. It has been in negotiation with the Province since 1996 to acquire Crown parcels at Little Mountain and along Morison Creek for regional parks. It appears that these parks will soon be dedicated.

In 1978, The Nature Trust acquired riparian lands adjacent to the Englishman River to protect native petroglyphs. These lands are now part of Top Bridge Park, with the portion on the north side of the River under the management responsibility of the City of Parksville via a 30 year lease with the Nature Trust, and the south portion managed by the RDN. The RDN is currently raising funds to build a bridge across the River to connect the two parts and ultimately connect to a trail along the north shore of the River (across Block 602) to its proposed Little Mountain and Morison Creek regional parks.

3.5.4 Stormwater Management

Increased land development has also required greater stormwater management. This can cause significant changes in water quantity, flow rates and timing and in the quality of water that is directed to ditches, streams and the ocean.

In the natural environment, native vegetation uptakes and absorbs rain, slowing the generation of surface flows. When vegetation is removed and replaced with hard, impervious surfaces like roads, concrete and rooftops, the quantity and rate of surface water flows are increased. These heightened flows can also carry many pollutants, including oil, grit and heavy metals from roads and sediment from land clearing. Other contaminants may be washed down storm drains from residential and commercial properties. These changes in water quantity and quality can have profound effects on the receiving waters.

In Parksville alone, there are some 13 stormwater outfalls to the foreshore, 2 to the Englishman River and 3 to its estuary (R. Roycroft, pers.comm.). The number of outfalls in Qualicum Beach and the RDN are not known.

Alternate, "low impact" stormwater designs that emphasize infiltration and zero-runoff-discharge measures are not in general use in any of the watersheds affecting the P-QBWMA.

3.5.5 Sanitary Sewer Service

The RDN's main sewer trunk runs under the foreshore portion of the P-QBWMA to the French Creek pollution control centre. The municipalities of Parksville and Qualicum Beach have a total of seven existing sewer lines within the WMA. To minimize impacts to the foreshore environment, upgrades and maintenance to the trunk and these connections have in the past been referred to MWLAP for review and approval.

The most recent line was installed through the southern P-QBWMA boundary in the Englishman estuary in 1993 to service Craig Bay. The municipal boundary of Parksville overlaps the P-QBWMA in Parksville Bay west to the Englishman River. A portion of the WMA off Qualicum Beach is within the Qualicum Beach municipality.

Prior to the WMA designation, both municipal communities indicated the need to expand and upgrade sewer line outfalls within their jurisdictions. The Ministry has reviewed such developments in the past, to ensure that they proceed with minimal environmental damage. The ability to continue this role is uncertain. In any case, expansion of new lines or sewer lines outside municipalities should be conducted in upland areas beyond the P-QBWMA.

3.5.6 Septic Use

Rural and residential areas outside the boundaries of Parksville and Qualicum Beach typically uses on-site septic disposal. Many older systems do not meet today's standards and may not have been well maintained, leading to leaching of faecal coliforms into ditches, streams and the foreshore.

Septic failure in upland properties, even those that are some distance from the shore, can affect the marine environment. Septic failure is believed to be a significant factor in increasing closure of the foreshore due to coliform contamination over the last decade (Map 3-4).

3.5.7 Water Use

As of October 1994, there were 37 water licenses within the Englishman River Water Allocation Plan area (Clermont, 1996). These licenses are concentrated in the lower part of the Englishman River and Morison Creek and its tributaries and are held for rural domestic use, irrigation, storage purposes, industrial use and land improvement purposes. Four licences are held by the City of Parksville for municipal waterworks, allowing the City to pump up to 1.2 million gallons per day from the River, in addition to water drawn from a well field on Despard Avenue. One licence is held by DFO for conservation purposes to support the hatchery on Block 602. The City of Parksville's water system consists of 16 deep wells drawing from an aquifer on the south edge of the City boundary, and the Englishman River. The average daily consumption within the City varies from 500,000 gallons per day to over 2 million gallons per day during peak summer season. Qualicum Beach draws water from the aquifer of the Little Qualicum River, partially from the river itself and also from several wells.

Arrowsmith Dam¹¹

In 1997 construction began on a dam at Arrowsmith Lake at the headwaters of the Englishman River to provide a long term, reliable source of water to Nanoose Bay, Parksville, French Creek, and Qualicum Beach. Costing \$4.7 million, the physical structure was essentially complete by November 1998.

The Arrowsmith Water Service, a partnership between the RDN, the City of Parksville and the Town of Qualicum Beach, operates the dam. Each partner paid a share of the cost of the dam's construction based on its water allocation, with the RDN paying 22%, Qualicum Beach 14%, and Parksville paying 64%.

The dam is 14.5 m high with a live storage volume of 9,000,000 m³. Using Arrowsmith Lake as a reservoir, the dam stores heavy winter rain and melting snow. During the dry summer and fall months, approximately 50% of the live storage volume is available for release of water into the River for both human consumption and to improve fisheries flows in the downstream reach of the River.

With its intake on the Englishman River, Parksville is the first partner to benefit from the project by being able to draw additional water from the Englishman River during dry summer months. A portion of Nanoose was connected to Parksville's distribution system in 2002. When necessary, the RDN's French Creek Water Utility and the Town of Qualicum Beach would connect to the system, though the latter does not anticipate having to connect its water supply lines for 8 to 10 years.

With respect to fish habitat, 50% of the dam's storage volume is required to be dedicated to fisheries improvement (R. Roycroft, pers.comm.). under the Englishman River Recovery Plan (see section 3.1.3), the BC Conservation Foundation is conducting a study of water flow and temperature in the River. An objective of the study is to develop and refine a "rule curve" for water releases from the dam to improve downstream fish habitat.

¹¹ The following is taken from the websites for the Regional District of Nanaimo http://www.rdn.bc.ca/water_sewer/water_sewer.asp and City of Parksville http://city.parksville.bc.ca/departments/op_public_works.asp#Sewer/Storm%20Drainage

3.6 The 1996 Management Plan –Implementation Status

Section 7.9 of the 1996 Management Plan summarized the projects completed in Phase 1 (1993-1995) and identified projects to be implemented in Phase 2 (1995-2000). The status of the Phase 2 projects as of 2003 are summarized in Table 3.6.

Table 3.6: P-QBWMA Management Plan Phase 2 Projects (adapted from Clermont, 1996: 46-47)

Project	Tasks	Status (2003)
Wildlife viewing areas	<ul style="list-style-type: none"> a) Identify key viewing areas/sites. b) Promote through signage and brochure/map. c) Viewing platforms at low-lying areas: BCE will work with municipalities and community groups to fund (e.g., pay spotting scopes) @ \$10,000 each d) Develop 4 high point viewpoints at \$2000 each 	<p>3 viewing platforms constructed: 1 each on west side and east side of ERE and 1 off Highway 19A north of Qualicum Beach. Interpretive signs/kiosks also installed at west ERE and Highway 19A site. No other viewpoints developed, nor spotting scopes installed.</p>
Trail link through P-QBWMA	<ul style="list-style-type: none"> a) BCE will not initiate new trail development. New trails may be considered but must be funded by 3rd party with commitment to maintain. b) Incorporate P-QBWMA trails into regional trail system. 	<p>San Pareil trail built with funding acquired by San Pareil Residents Association, managed by RDN. RDN is lead agency regarding regional trail system, and is relied on to initiate planning and implementation of trail links.</p>
Signage and plantings	To be used next to trails and residential areas to contain and direct public use	<p>Directive signs have been erected at most access points to P-QBWMA. A portion of the trail along Englishman River was decommissioned and the bank replanted by the Parksville Streamkeepers.</p>
Broom removal and control	To be initiated subject to commitment of 5-year work crew and volunteer labour.	Conducted along trails in the ERE when E-Teams were hired for 3 of the 5 years.
Revenue opportunities	<ul style="list-style-type: none"> a) SPERE: Casino night b) WMA brochure with map, key features, bird list, etc. c) Revenue through fee and corporate sponsorship. d) Canada Trust FEF funds - pursue e) Annual membership fees, user fee for ER estuary property. 	<ul style="list-style-type: none"> a) Done once; raised \$5000 used to fund interpretive signage and support contractor to develop P-QBWMA expansion proposal. b) Brochure completed in 2003; requests donations. c) e) not completed.

4. P-QBWMA Management Plan 2003

The issues identified in Section 3, along with the projects from Phase 2, provide the direction for management activities in the P-QBWMA over the next 5 years. This Section presents the updated P-QBWMA Management Plan under the following headings:

1. Management Principles that underlie all activities in the P-QBWMA.
2. Revenue sources and other resources to support implementation of the Plan.
3. An Action Plan that identifies strategies to be continued or initiated to address management issues and meets the P-QBWMA's goals and objectives.

4.1 Management Principles

The following principles should guide activities within the P-QBWMA and the implementation of this Plan. These principles should be confirmed by the agencies and organizations involved (see section 4.4.1 regarding establishing a Partnership Committee):

- ❑ **Priority on protection:** The P-QBWMA's central purpose is to preserve ecological values, wildlife populations and habitats. In this respect, protection takes precedence over recreation in determining management activities in the WMA. This is a fundamental difference between a WMA and a park, and must always be kept in mind when considering projects in the P-QBWMA in comparison to its neighbouring provincial, regional and community parks.
- ❑ **Manage human use:** At the same time, management must recognize the increasingly urban setting of the P-QBWMA. Human use of the WMA is, and will continue to be, inevitable. The objective, therefore, is to manage people's use in the interest of protecting the WMA's habitat values. This means allowing recreational activities that are not in conflict with these values, and encouraging programs that inform and promote those values and that involve people in their appreciation and conservation.
- ❑ **MWLAP's basic responsibility:** Given that it is established under the *Wildlife Act*, the ultimate authority over the P-QBWMA lies with the Ministry of Water, Land and Air Protection (MWLAP). With this authority comes the responsibility to uphold the purpose of the P-QBWMA - protection of its ecological and habitat values - and to provide the basic resources for carrying out this mandate. This is in keeping with the recommendation of the Recreation Stewardship Panel (2002:48) that the provincial government adopt a model for funding fish, wildlife and park management responsibilities in which "a base level of funding for conservation, protection, restoration and enforcement is provided by general taxation and allocated to the Ministry through voted appropriation". The Panel states that the Ministry must define this "base level" of service and the appropriate level of funding and effort to provide it.
- ❑ **Role of the Nature Trust and Canadian Wildlife Service:** As major landowners in and adjacent to the P-QBWMA, the Nature Trust of B.C. and the Canadian Wildlife Service (CWS) have a direct mandate in protecting the P-QBWMA's ecological values. CWS also has a management function under its role in national migratory bird conservation.
- ❑ **Role of other federal and provincial agencies:** Senior agencies responsible for natural resources in the region (e.g., Fisheries and Oceans Canada, Ministry of Agriculture, Fish and Food, Ministry of Sustainable Resource Management, Land and Water BC) respect the P-QBWMA and its management goals in making decisions about the resources that they administer.
- ❑ **Local governments' role:** Local governments recognize the environmental values of the P-QBWMA and their role in preserving them. They also recognize that by doing so, they are protecting an

important economic and social asset, as the P-QBWMA represents the natural setting that residents cherish and visitors come to enjoy.

- ❑ **First Nations support and involvement:** The Nanoose and Qualicum First Nations have traditional associations with the P-QBWMA and surrounding area, as well as resource-use and economic interests. Their support is crucial to the WMA's ongoing protection, and can also offer a cultural interpretation that is of great interest to all users.
- ❑ **Community support:** Community support is vital to the long-term viability of the P-QBWMA. Community organizations, tourism businesses and stewardship groups are potentially the most important "on the ground" resources for protecting and enhancing the P-QBWMA, making it an environmental and community asset. Some of the community organizations active in the P-QBWMA are listed in Table 4-1.
- ❑ **Volunteerism needs maintenance:** Much can be done with the volunteer assistance of individuals and community groups. Any volunteer program needs to be carefully structured to maximize this valuable resource. It must also recognize that "volunteers require guidance, constant communication, moral support and tangible benefits – including recognition and gratitude. This aspect of operation must be well handled, otherwise the volunteer efforts will be wasted and the resulting 'burn out' will be difficult to overcome." (Hall *et al.*, 2003: 34)

4.2 Re-thinking the Management Structure

Who is involved in planning for and managing the P-QBWMA is changing out of necessity. As Chapter 1 points out, provincial resources for managing the P-QBWMA are shrinking despite growing pressure from surrounding development and public use. Meeting the P-QBWMA's management goals means relying on a broader range of community-based stakeholders.

In addition, issues have arisen over poor coordination among projects in the P-QBWMA. For example, fish habitat enhancement projects in the Little Qualicum River estuary did not adequately consider the effects on bird populations and habitats in the estuary. There are also concerns that current salmon enhancement projects in the upstream reaches of the Englishman River are not assessing whether the River's estuary has the capacity to support these enhanced populations of salmon. Better communication and collaboration are needed among all the organizations and agencies that are conducting activities in the P-QBWMA.

The existing Advisory Committee can have a key role to play in this regard, but its structure and mandate needs to be reviewed to respond to this changing environment. Membership should be expanded to include representation from the private sector and other government agencies, as well as stewardship and community groups. Its mandate should be linked directly to the implementation of this Plan, with representatives taking on responsibilities that apply to them.

In addition, the Focus Group on revenue generation (see Appendix A) recognized that managing the P-QBWMA requires the dedicated resources of one person, and recommended that a coordinator be hired to address project management and fund raising efforts. The Focus Group suggested ways of collaboratively funding this position.

Given these considerations, a revised management structure for the P-QBWMA would have three key elements:

- MWLAP as the lead agency with legislated responsibility for protection of the P-QBWMA. While MWLAP may not formulate or conduct all activities in the Area, it is responsible for approving them.
- A renewed *Partnership Committee* led by MWLAP and made up of representatives from:
 - The Nature Trust of B.C.
 - Canadian Wildlife Service.
 - Fisheries and Oceans Canada.

- City of Parksville.
 - Town of Qualicum Beach.
 - Regional District of Nanaimo.
 - Nanoose and Qualicum First Nations.
 - Parksville and Qualicum Beach Chambers of Commerce.
 - Oceanside Tourism Association.
 - Mid-Island Wildlife Watch Society.
 - Pacific Salmon Foundation.
 - Other stewardship and community organizations active in the P-QBWMA (see Table 4-1).
- A *Coordinator* hired under the auspices of the Partnership Committee through funds from various sources that members of the Committee can access.

Developing this revised Management Structure is the subject of the first two strategies in the Action Plan in section 4.4.

4.3 Resourcing and Revenue Generation

4.3.1 Sources of Funds and Resources

Sources of funds and resources to support management of the P-QBWMA fall into the following general categories:

- **Government agencies' budgets:**
 - To support "basic", ongoing protection and management – primarily from MWLAP.
 - To support specific programs or projects related to their mandates – MWLAP, CWS, local governments.

There are potentially "new" sources in this category; for example, allocating part of the revenue from Rath Trevor Provincial Park (camping and parking fees) towards managing the WMA in exchange for providing improved education and management of waterbird disturbance and removal of foreshore resources (shellfish, driftwood, etc.).

Another opportunity lies with opening the Qualicum National Wildlife Area for public use. Tours conducted on the property in partnership with local stewardship groups during one summer in the mid 1990s experienced a relatively high visitation rate. The CWS would be receptive to a similar program, provided that some other organizations looked after the administration and maintenance of trails and facilities (N.Dawe, pers.comm.). Notably, the PECP and the RDN partnered recently to purchase the property at the end of the NWA's Marshall-Stevenson Unit; public access for viewing is a condition of the RDN's funding.

- **Funding entities, both public and private:**
 - For job creation or economic advancement – primarily government based (e.g., HRDC programs, Western Diversification).
 - For particular projects or goals such as habitat enhancement, trail development, etc. – government (e.g., HCTF, Georgia Basin Ecosystem Initiative, federal Eco-Action program) and private sector sources (e.g., the Nature Trust, PSEF, Friends of the Environment Foundation, Vancouver Foundation, BC Real Estate Foundation). In many cases, it is up to nongovernment organizations or local governments to seek funding from these sources, as provincial and federal agencies may not be eligible to apply.

- **In-kind resources:**
 - Volunteer time, expertise and materials (building materials, machine use, venues, food, etc.). Several non-profit organizations have provided significant volunteer resources in the P-QBWMA (see Table 4-1), such as the Mid-Island Wildlife Watch Society and Mount Arrowsmith Biosphere Foundation.
- **Targeted revenue generators:**
 - Fees from programs and events, sale of retail items, donations, etc. This requires a person or organization to take on the responsibility of developing, producing or operating, and selling these types of products, and to administer the bookkeeping.

The Action Plan in section 4.4 applies sources from all of these categories.

Table 4-1: Nongovernmental Organizations active in the P-QBWMA area (alphabetically listed)

Organization	Mandate/Activities related to P-QBWMA
Arrowsmith Watersheds Coalition Society	Under the ERWRP: installed signs and location markers in the ER watershed; delivered neighbourhood information packages; held a watershed get-together; runs bus tours for local government representatives and residents; gathered data on water quality, mapping needs, land uses and impacts. Also involved in rehabilitation planning in the French Creek estuary and sewage disposal issues.
BC Conservation Foundation (BCCF)	Has been developing and implementing a steelhead recovery plan in the Englishman River and Little Qualicum River.
Englishman River Enhancement Group (EREG)	Has built and operates a small hatchery and spawning channel on the River on Block 602 (Timberwest property) with donated materials, volunteer help, and federal labour funding; conducts juvenile and adult salmon surveys; and has been developing rearing areas in the channel.
Englishman River Recovery Plan Community Round Table	Comprised of representatives from DFO, MVIHES, Parksville and Qualicum Beach Streamkeepers, BCCF, LGL Ltd., CFDC, Weyerhaeuser, the City of Parksville and the RDN, this committee advises the PSF on implementation of the ERWRP.
Mid Island Wildlife Watch Society	Organizes and runs the annual Brant Festival, as well as sponsors several other funding programs.
Mid-Vancouver Island Habitat Enhancement Society (MVIHES)	Co-ordinates streamkeeper enhancement projects in the Parksville to Bowser area, providing educational programs for local communities, helps raise funds for projects, promotes stewardship, involves schools, and generally raises awareness about the significance of the region's rivers.
Mount Arrowsmith Biosphere Reserve Foundation	Establishes and implements programs to increase knowledge and understanding of the MABR; was instrumental in obtaining Biosphere Reserve status for this area.
Mount Arrowsmith Naturalists	Botany, birding, assistance with the Brant Festival.
Nature Trust of B.C.	Dedicated to the conservation of habitats and areas of ecological significance and scenic beauty in B.C. Purchases and protects ecologically significant properties; oversees the sustainable management of other properties through long-term leases of Crown land.
Oceanside Tourism Association	Promotes, fosters and develops tourism in Parksville, Qualicum Beach, Nanoose Bay, French Creek, Arrowsmith Coombs Country, Lighthouse Country and all other areas within School District #69.
Pacific Salmon Foundation/ Pacific Salmon Endowment Fund	Funds, develops and oversees the implementation of the Englishman River Watershed Recovery Plan (ERWRP).
Parksville Chamber of Commerce	Establishes and promotes community activities for economic and social prosperity for the benefit of Parksville and the surrounding areas; assists in promoting the Brant Festival.
Parksville Streamkeepers	Conducts assessments and restoration projects on stream in the Parksville area.

Parksville-Qualicum Fish & Game Association	Runs a small coho hatchery, fry feeding, and colonization operation on French Creek
Qualicum Beach Chamber of Commerce	Establishes and promotes community activities for economic and social prosperity for the benefit of Qualicum Beach and the surrounding areas; assists in promoting the Brant Festival.
Qualicum Streamkeepers	Conducts assessments and restoration projects on stream in the Qualicum Beach area.

4.3.2 A Proposed Environmental Interpretive Centre

An Environmental Interpretive Centre, to be based in the Parksville-Qualicum Beach area, is being proposed by a committee of community interests and government agencies. Presented as a potential generator of revenues and support for the P-QBWMA, the concept has also caught the interest of local governments and businesses as a possible economic stimulator.

The proposed centre is envisioned as a world-class discovery and education centre that presents the natural and cultural history of the local area as well as represent the broader biophysical and cultural role that Vancouver Island plays in the Pacific Northwest. The Mission Statement for this Centre, as developed to date, is:

"To interpret, exhibit, explore, educate and celebrate Vancouver Island and the Mount Arrowsmith Biosphere Reserve, and develop a better appreciation and understanding about the relationship between people and Vancouver Island ecosystems."

A pre-feasibility study for the interpretive centre was commissioned at the time of this Management Plan update (Hall *et al.*, 2003). The mandate of the study was to analyze and determine the viability (i.e., its ability to be self supporting) of such a centre. It addressed the following elements:

- Ability to attract the tourist population that already visits the area as well as to bring in new market segments; e.g., travelers from Europe and Asia.
- An assessment of the level of support in the community for such a centre.
- Overview of current tourism and eco-tourism trends, including existing data on tourist and visitation use of the area.
- Market projections for the Centre.
- A review of comparable projects elsewhere.
- Site options and criteria for site selection, and the merits of a single site versus a primary site with satellites.
- An overview of the Centre itself, including a suggested size, scale of capital required and governance considerations.
- Potential sources of funding for both capital and operations.
- Criteria for a feasibility study and business planning phase.

The pre-feasibility study found that there was a reasonable chance of success based on the product-to-market match review that was conducted. It identified several "critical success factors", and recommended preliminary terms of reference for follow-up business and concept plans.

The authors of the pre-feasibility study cautioned that given the projected costs and (albeit conservative) estimates of visitation, the Centre could perhaps achieve operational self-sufficiency down the road, but likely not be self-supporting for ongoing capital costs. Most centers of this type can not operate only on revenues from admissions, fees, concessions, programs and other services. They are also subsidized by

grants from governments, private and corporate sponsors, and/or private donations. Many also rely heavily on volunteer resources to run services and programs.

It is unlikely that an interpretive centre, on its own, will be capable of generating revenues that would support management activities in the P-QBWMA. However, it can offer a variety of services that could benefit the P-QBWMA directly and indirectly. These include:

- A place to focus and disseminate information about the P-QBWMA, its issues and opportunities.
- A rallying point and centralized facility for volunteers and stewardship groups active in the P-QBWMA.
- A staging area for tours, research and educational programs about the P-QBWMA.
- A tangible “home” for soliciting and receiving sponsorships and donations.
- A place to market P-QBWMA-related merchandise.
- A future governance structure based on a membership-driven, non-profit society.¹² The coordinator/committee structure proposed in this Plan could evolve in partnership with an interpretive centre and associated community interests into this type of structure.

Obviously, the P-QBWMA and a future Interpretive Centre would be mutually beneficial. The P-QBWMA can provide the natural environment that provides the backdrop and reason for the Centre; and the Centre can provide the focal point for educating and nurturing awareness about the P-QBWMA, its ecological values and its assets for the communities.

4.4 Action Plan

The Action Plan is comprised of the following strategies, which are detailed in the following sections:

- Re-creating the Advisory Committee as a Partnership Committee.
- Hiring a Coordinator.
- Generating Support and Revenue for the P-QBWMA
- Improving Signs and Accesses
- Protecting Waterbird Populations and Habitat
- Estuary Habitat Restoration and Flood Protection - the Mine Road Dyke
- Trails in the P-QBWMA
- Enforcement and Guardianship
- Protecting First Nation Cultural Sites
- Enhancing Stewardship of Adjacent Lands
- Ecological Connectivity of the P-QBWMA
- Inventory and Monitoring

Table 4-2 (at the end) summarizes the proposed budget for these strategies.

¹² See Hall *et al.*, 2003 for a discussion of governance options and advantages of a membership-based organization.

4.4.1 Re-creating the Advisory Committee as a Partnership Committee

Purpose:

- To improve collaboration and coordination among the players and projects in the P-QBWMA; and
- To achieve support for implementation of this Management Plan.

Rationale: There are already many projects and programs underway in the P-QBWMA and its surrounding area. It is important to develop good communication and coordination among these programs, to ensure compatibility with the goals and objectives of the P-QBWMA.

Also, as pointed out earlier, with greater pressure on the P-QBWMA but diminishing provincial resources for its management, meeting the P-QBWMA's management goals means relying on a broader range of community-based stakeholders.

The P-QBWMA advisory committee should be reconstituted as a *Partnership Committee* led by MWLAP. Its mandate would be to: a) review, endorse and participate in implementation of this Management Plan; and b) report on and coordinate their individual programs as they relate to activities within the P-QBWMA.

The Committee would be made up of representatives from:

- | | |
|--|---|
| <ul style="list-style-type: none"> • The Nature Trust of B.C. • Canadian Wildlife Service • Fisheries and Oceans Canada • City of Parksville • Town of Qualicum Beach • Regional District of Nanaimo | <ul style="list-style-type: none"> • Nanoose and Qualicum First Nations • Parksville and Qualicum Beach Chambers of Commerce • Oceanside Tourism Association • Mid-Island Wildlife Watch Society • Pacific Salmon Foundation • Other stewardship and community organizations active in the P-QBWMA. |
|--|---|

Priority: High

Timeframe: immediate (2003-2004)

Actions:	Lead Agency
1. Send Management Plan to agencies and organizations to be represented on the Partnership Committee, with an invitation to a meeting.	MWLAP
2. Convene initial meeting to: <ul style="list-style-type: none"> a. Review the Management Plan. b. Discuss the best ways to obtain endorsement and commitment to the Plan. This may be in the form of Memoranda of Understanding or simply letters acknowledging agreement with the Plan and with the roles and activities proposed for each party. c. Establish representation and logistics for the Committee (i.e., who will be on the committee as representative; how often the committee will meet; where; responsibility for agendas, minutes, etc.) d. Establish a process for funding and hiring a Coordinator (see sec. 4.4.2); may require a sub-committee. 	MWLAP
3. Convene meetings as determined and/or as required. The Committee would report and collaborate on individual projects, and review this Management Plan and its implementation.	MWLAP

Budget and resourcing: No budget required other than MWLAP staff time to set up and support the Committee, and the time of representatives to participate.

4.4.2 Hiring a Coordinator

Purpose: To provide a coordinative function to implement projects under this Plan.

Priority: High

Timeframe: Immediate: Coordinator hired by late 2003, to be evaluated yearly and continued for up to 5 years, depending on ability to continue to find funding.

Rationale: The Focus Group on revenue generation (see Appendix A) recognized that managing the P-QBWMA for both ecological and public values requires the dedicated resources of one person, and recommended that a coordinator be hired to address project management and fund raising efforts. The primary functions of the Coordinator would be to:

- develop and supervise projects defined in the Action Plan.
- liaise with other stakeholder groups and agencies active in the P-QBWMA and surrounding environment.
- seek funding from foundations, granting agencies and the private sector to assist in maintaining the coordinator position and in resourcing projects under this Plan.

To do this, qualifications for a coordinator should include:

- An understanding of the ecological significance of the P-QBWMA.
- Experience with community groups and businesses.
- Fundraising experience.
- Public communication expertise.
- Program management and coordination experience.

The coordinator would be accountable to the Partnership Committee for overall direction; the organization or agency responsible for administering and supporting this position would supervise day-to-day activities.

This position can be combined with the part-time coordinator currently employed by the MIWWS to run the Brant Festival. This arrangement would strengthen the existing partnership with the MIWWS, who could act as administrator of the position. A balance between Brant Festival and other responsibilities would need to be determined.

Actions:

Task	Lead Agency
1. Convene a meeting of Partnership Committee representatives to discuss funding sources, define fund-raising responsibilities, and determine administrative responsibilities.	MWLAP
2. Seek funding from within respective agencies.	MWLAP, CWS, local governments
3. Apply for funding from HRDC or other external funding sources.	Business and/or non-profit partner.
4. Provide ongoing over-sight of Coordinator activities at regular meetings of the Partnership Committee.	Committee partner organization responsible for administering the Coordinator position (as mutually agreed)

Budget and resourcing: \$50-70,000.00/year for up to three years.

	2004	2005	2006	ongoing
Government budgets	\$25-35,000 combined MWLAP, federal and local governments	Same	Same	?
Grants	\$25-35,000 HRDC, GBEI*, other sources	Same	same	?

*Georgia Basin Ecosystem Initiative

Initial funding for the first year, and potentially up to three years, would be a combination of funding by a partnership of government agencies and grants from other funding agencies such as Human Resources Development Canada employment program and the Georgia Basin Ecosystem Initiative. Application for the latter funding might be made by the tourism sector (e.g., Oceanside Tourism Association or one of the Chambers of Commerce), a non-profit organization (e.g., Mt. Arrowsmith Biosphere Reserve Foundation or Mid-Island Wildlife Watch Society), or a combination of the above. Office support would be provided by one of the sponsoring agencies or organizations.

4.4.3 Generating Support and Revenue for the P-QBWMA

Purpose:

- To improve local awareness and build community support by disseminating information about the values and management issues in the P-QBWMA; and
- To develop revenue sources to support projects in the P-QBWMA.

Rationale: Information, interpretation and experiencing are central aspects of building awareness. People who understand and appreciate their natural environment are more likely to take personal responsibility for its care, and support activities that enhance its sustainability. For these reasons, the Recreation Stewardship Panel (2002: 37) recommended that public education programs in parks and wildlife areas be re-established and enhanced, and be funded by the Province and users of the services.

Priority: High – this will occupy a substantial portion of the Coordinator’s time.

Timeframe: ongoing

Actions:

Task	Lead
<p>1) <u>Brochure:</u></p> <ul style="list-style-type: none"> • Print and distribute the P-QBWMA brochure through tourism outlets, community facilities (e.g., city halls, recreational facilities), public events (e.g., Brant Festival, Fire and Ice Festival, Sandcastle Festival) and to visitors and campers at provincial parks. • Periodically review and update the brochure. 	Coordinator and MWLAP
<p>2) <u>Collaboration with local governments and organizations:</u> Provide web-usable information to Parksville, Qualicum Beach, the Chambers of Commerce, and other local organizations that they can post on their websites. The City of Parksville has offered to develop a section on their website devoted to environmental awareness and education. The P-QBWMA brochure could be linked to this and other sites.</p>	Coordinator, MWLAP, Nature Trust
<p>3) <u>Tours and talks:</u></p> <p>Develop interpretive tours and presentations for several venues, including:</p> <ul style="list-style-type: none"> • Special events – on-site tours and speakers at the Brant Festival and Rivers Day/Week. • Schools – e.g., junior streamkeepers (currently run by the Qualicum Streamkeepers on pro-d days), Brant programs. • Parks, resorts and eco-tourism businesses – tours developed in collaboration with these operators specifically for their clients. • Community recreation programs – coordinated with the RDN Recreation Program. • Clubs, business (e.g., realtors) and resident organizations – on request or as promoted. <p>These can be offered on a fee-per-person or per-group basis. Fees would depend on the extensiveness of the tour or program, source of speakers and, in some cases, nature of the audience.</p>	Coordinator with MIWWS, other stewardship groups and tourism operations.
<p>3) <u>Revenue sharing opportunities:</u></p> <ul style="list-style-type: none"> • With the CWS by opening the Qualicum National Wildlife Area to visitors and tours, with proceeds to support the P-QBWMA, provided administration and maintenance of trails and facilities are handled by another 	MWLAP - Ecosystem Management and Parks Divisions, CWS, assisted by Coordinator

<p>maintenance of trails and facilities are handled by another</p> <ul style="list-style-type: none"> • With Rathrevor and Englishman River Falls Provincial Parks: some percentage of the revenues accrued through campsite and parking fees to be earmarked for management of the P-QBWMA, in exchange for improved education and management of waterbird disturbance and shellfish removal on the foreshore. Talks, tours and other information programs could also be developed specifically for and in collaboration with the Parks. 	and non-profit organizations
<p>4) <u>WMA-related merchandise</u>:</p> <p>This could include nature related items such as guides, recordings, posters, etc. but also popular items like caps, t-shirts, sweaters, golf equipment, stickers, etc. All should reflect the P-QBWMA logo and identity in a consistent manner. Items can be retailed through the Brant Festival, resorts, special events and P-QBWMA tours and programs.</p>	Coordinator - research and prepare cost estimates

Additional actions for consideration:

Some participants in the review of this Plan suggested that a name change to "wildlife sanctuary" or "protection area" would improve the stature and appreciation of the P-QBWMA in the local community. Others suggested a small resource centre or storefront be located in the Parksville-Qualicum area, that could act as the Coordinator's office as well as a central source and repository of information about the P-QBWMA and surrounding environment. This could be an interim measure until the proposed environmental interpretive centre is constructed. Both of these ideas are worth considering in the interest of increasing awareness and support for the P-QBWMA.

It has also been suggested that the coordinator be tasked with gathering data on the economic benefits that the P-QBWMA provides to the community. This could assist in securing additional support and funding.

Budget and resourcing:

	2003	2004	2005	ongoing
Government budgets	Task 1 - \$2000 for printing	Task 2 - \$4000 for tour and program start up expenses; speakers fees/honoraria and expenses; travel Task 3 - \$2000 for trails, viewpoints, tour materials	Task 3 - \$2000 for upgrades to trails, viewpoints, etc. Task 4 - \$10,000 start up costs	
Grants and/or sponsorship	Task 1 alternate or equivalent funding - \$2000 for printing	Task 2 - \$2500 for tour and program materials Task 3 - \$2000 matching funds for trails, viewpoints, tour materials	Task 2 - funding assistance for tour and program materials, if still needed Task 3 - \$2000 matching funds for trails, viewpoints, tour materials	
In-kind		Task 2 and 3 - Stewardship groups assist with developing and conducting tours and talks; grant application.	Task 2 and 3- Stewardship groups assist with developing and conducting tours and talks; grant application.	
Fees, charges, etc.		Task 2 and 3 – tour fees are preliminary fund source	Task 2 and 3– tour fees are significant funding source Task 4 – sales are preliminary funding source	Task 2 and 3 – tour fees could be funding source Task 4 – sales could be funding source.

4.4.4 Improving P-QBWMA Signs and Accesses

Purpose: To identify the P-QBWMA in a consistent and appealing manner.

Rationale: Section 3.4 notes that many P-QBWMA accesses are cluttered with a variety of signs serving a range of purposes. This “hit-and-miss” approach does little to improve public appreciation of the P-QBWMA’s existence and purpose. Addressing this aspect of the P-QBWMA’s identity will require coordination with the respective local governments responsible for these access points.

It is important to note that given its focus on habitat protection and enhancement, it is not the role of the P-QBWMA to provide ramps, docks or other forms of access to the water. This would only detract from the appropriate use of nearby public and commercial accesses. However, signs should inform boaters of restrictions and appropriate behaviour around wildlife and habitats in the P-QBWMA. This message can also be covered in the brochure, and distributed through marinas and public recreational facilities.

Priority: High – medium.

Timeframe: 2004-2006.

Actions:

Task	Lead
1. Convene a meeting with local governments to review the range of signs used at P-QBWMA accesses and to determine the signage needs of both the P-QBWMA and local governments. Decide on a consistent combination or common theme for signs that could be applied at all P-QBWMA.	Partnership Committee
2. Develop a plan and budget for upgrading signs.	Local government representatives
3. Apply for funds for new P-QBWMA signs, as required, from agency capital budgets or granting agencies that support capital projects.	Agency and local government representatives, assisted by Coordinator on external funding sources
4. Re-organize existing signs and re-install.	Local governments

Budget and resourcing:

Improving signage at P-QBWMA accesses is initially a planning exercise involving P-QBWMA and local government staff. Community group partners could apply for funding for creating any P-QBWMA-related signs. The local governments should undertake re-installing signs within each of their respective jurisdictions.

	2003	2004	2005	ongoing
Government budgets	Planning	Installation	Installation	Maintenance
Grants and/or sponsorship		\$5000 for new signs	\$5000 for new signs	?
In-kind	Stewardship groups – input	Stewardship groups – grant application	Stewardship groups – grant application	
Fees, charges				?
Donations				

4.4.5 Protecting Water Bird Populations and Habitats

Purpose: To continue efforts to reduce the disturbance of spring staging Brant and other water bird populations in the P-QBWMA.

Rationale: As discussed in section 3.1, humans and dogs account for 12-40% of disturbances of Brant and other waterbirds in the P-QBWMA. This disturbance rate is among the highest recorded anywhere for Brant (Martin *et al.*, 2002). If these disturbance rates continue to increase, it can diminish their ability to reproduce successfully and/or force the migrating flocks out of the Area altogether - causing further declines in their populations.

Priority: High

Timeframe: ongoing

Budget and resourcing: see "Actions" table below for individual amounts required.

	Initial year (2003 or 2004)	ongoing
Government budgets	\$3000 (MWLAP, CWS)	\$1500-3000 depending on continuation of research and monitoring programs 2006 funding for repeat of disturbance study.
Grants and/or sponsorship	\$4000-5000	\$2000 (approx.)
In-kind	Volunteers Business service donations	Volunteers Business service donations
Fees, charges		Through nature programs
Donations		Through nature programs

Actions: The following actions are adapted from recommendations made in Martin *et al.*, 2002: 32-33.

Task	Lead	Budget/Resourcing
Research and monitoring:		
1. Continue monitoring Brant populations during spring migration. This is needed to justify educational and management actions.	MWLAP, CWS, Nature Trust, MABR Foundation.	\$2500.00?*"defer to T. Martin for estimate
2. Repeat the disturbance study in 5 years – next survey in 2006.		
Education:		
3. <u>Brochure, tours and programs:</u> See section 4.4.1 and 4.4.2, with a focus on the spring migration period and the Brant Festival.		
4. <u>Media:</u> create opportunities to discuss this issue with the local media - newspaper, radio, cable TV.	Coordinator	
5. <u>Signs:</u> See section 4.4.3; integrate educational signs about Brant disturbance into the signage program for WMA accesses.		
6. <u>Other information and education materials:</u> e.g.:	Coordinator working with schools and	Grant or sponsorship for specific projects

Task	Lead	Budget/Resourcing
<p>A secondary school visual art classes could be challenged with developing a video or a depicting the spring Brant populations, disturbance events and appropriate "beach" behavior. Could be shown at Festival events, presentations.</p> <p>A mascot - "SuperBrant" – could be created that would champion the cause of bird harassment, and would be present at public events, for school visits, and on the beach during spring migrations.</p>	stewardship groups	specific projects
Management:		
<p>7. <u>Local government bylaws:</u> Similar to Qualicum Beach's bylaw 407.06, designate "no dogs" periods and/or areas on the beach and require dogs to be on leash the rest of the time throughout the P-QBWMA. While such regulations may be difficult to enforce at all times, they do help to create greater awareness of the problem, and provide the basis for people to complain and for local officers to enforce.</p>	Parksville, Qualicum Beach, RDN	Local government staff and resources
<p>8. <u>Alternative facilities:</u> Provide dog off-leash areas elsewhere, away from areas of significant wildlife habitat, if only during the spring migration period.</p>	Parksville, Qualicum Beach, RDN	Local government staff and resources
<p>9. <u>Enforcement:</u> Increase presence of enforcement and guardian personnel at critical times of year during Brant staging season (see sec. 4.4.8). During the spring migration period, guardian patrollers, working in pairs or groups, could walk the beaches talking to people about the birds and ways of minimizing their disturbance. Get schools, kennel clubs and other organizations involved.</p>	MWLAP, RCMP, local government bylaw officers	Government staff and resources + volunteers (see guardian program, sec.4.4.8)
<p>10. <u>Viewing facilities:</u> Consider providing viewing platforms and spotting scopes, even if only on a seasonal basis, so that people can view migrating flocks from a safe distance.</p>	MWLAP, Nature Trust, CWS, local governments with assistance from stewardship groups	Government budgets + grant applications
<p>11. Continue to approach Fisheries and Oceans Canada to protect shellfish populations as food sources for water bird populations in the WMA.</p>	MWLAP	-

4.4.6 Estuary Habitat Restoration and Flood Protection - the Mine Road Dyke

Purpose: To determine the best action to take with respect to the Mine Road dyke in the interest of both habitat enhancement and flood protection in the east Englishman River estuary.

Rationale: Reconnecting the alienated intertidal area on the east side of the Englishman River estuary by breaching the Mine Road dyke was rejected in the 1996 Management Plan, primarily due to the high costs projected to restore flood protection to adjacent landowners. However, the recent study by UMA (UMA, 2002) provides options for considering improvements to flood protection along with habitat enhancement. Another proposal is to simply install valved inlets and outlets through the dyke to allow regulated water exchange, with considerably less impact on flood hazard than the options presented in the UMA study (G. Jamieson, pers.comm.). Local residents are concerned that any change provide adequate protection to houses behind the dyke, and not disturb the continuity of the trail along the dyke (H. Boerger, Shorewood Residents Assoc., pers.comm.).

There has as yet been no discussion of the UMA study's recommendations or of other options. If restoring estuarine habitat in the ERE to its former extent is a priority, then these options should be thoroughly reviewed by senior agencies with local residents.

Priority: Medium

Timeframe: 2005-2007.

Budget and resourcing:

This is a planning exercise coordinated through MWLAP. No budget estimated for capital projects if they are a result of the planning process.

Actions:

Task	Lead
1) Meet with flood management staff to review the UMA study and discuss options.	MWLAP, MSRM, Partnership Committee
2) Determine a preferred option, whether it is one or a combination of options presented in the UMA study.	
3) Seek input from local residents through meetings and/or a public open house, on the options presented in the study and the committee's preferred option.	
4) Determine the best option or course of action, and seek funding to proceed to final design and construction.	
5) Commission design and implementation	MWLAP, MSRM

4.4.7 Trails in the P-QBWMA

Purpose: To clarify policies and objectives for trail development within the P-QBWMA and integration with surrounding municipal and regional trail systems.

Rationale: Section 3.4 indicates the presence of a variety of informal and formal trails within the WMA, particularly in the Englishman River estuary and corridor. To date, MWLAP's policy has been that it will not initiate any new trail development within the P-QBWMA; new trails may be considered but must be funded by a 3rd party with a commitment to maintain the trail. An example was the construction of the San Pareil trail and boardwalk, which was initiated and built with funding acquired by the San Pareil Residents Association under a management agreement with the RDN.

As Parksville, Qualicum Beach and the RDN continue to develop trail systems, it will become increasingly necessary to clarify the role of the P-QBWMA in these trail systems. For example, the City of Parksville wishes to connect its trail through the Community Park to the trails in the Englishman River estuary, and publicize this connection in the City's trail network information. Similarly, the RDN also plans to extend its regional trail system along the Englishman River from Top Bridge Park to Little Mountain Park and beyond. These initiatives can lead to more pedestrian traffic within the P-QBWMA, challenging the balance between protection and recreation.

One option would be to discourage further development of and connection to trails in the P-QBWMA; for example, Parksville could end its trail short of the P-QBWMA boundary and indicate no connections to the Estuary trails. However, this is an unrealistic approach, as people will invariably find their way to the P-QBWMA by their own means. Any such unmanaged use can be more harmful to the ecological integrity of the P-QBWMA than managed use.

The preferred alternative is to allow trail connections and management of trails within the P-QBWMA under carefully considered criteria and requirements, such:

- Provision of signs at all entrances to the P-QBWMA introducing the user to the WMA and its restrictions.
- Input on trail routing to and within the P-QBWMA, to ensure that sensitive habitats (such as nest sites) or terrain (such as erodable riverbanks) are protected.
- Appropriate standards for trail type and design; trail width and surface, no motorized vehicles, restrictions on bicycles if needed in some areas, etc.
- Provision of interpretive signs, viewing platforms, garbage receptacles, toilets and other facilities at appropriate trail sites within the P-QBWMA.
- Trail maintenance agreements.

Developing a policy for trails in the P-QBWMA would clarify the ground rules, allowing local governments to fulfil their recreational mandates and MWLAP to meet the protection and enhancement objectives of the WMA.

Priority: High

Timeframe: 2003-2005

Actions:

Task	Lead
1) Develop a trail management policy with the Englishman River estuary and corridor as priority areas. The trail plan should identify such things as: <ul style="list-style-type: none">• Location of trails, connections to community/regional trail systems, along-trail facilities, sensitive areas to be avoided, etc.• Maintenance agreements in each Management Unit.• Public involvement in planning and implementation (e.g., volunteers could assist with upkeep, interpretation, etc.)	MWLAP with RDN, Parksville, Qualicum Beach; coordinating committee assisting

Budget and resourcing: This is primarily a planning and policy exercise involving staff from MWLAP and the local governments, and assisted by the coordinating committee. These agencies may wish to contract out the development of a plan if staff resources to do so are limited.

4.4.8 Enforcement and Guardianship

Purpose: To address issues of vandalism and habitat damage with the limited resources that are available.

Rationale: The disturbance of Brant and other waterbirds is a major issue in the P-QBWMA; measures to address it are given in section 4.4.4. Other enforcement issues range from inadvertent damage to habitat by unaware users, to overt damage to the environment and facilities in the P-QBWMA; e.g., past destruction of the viewing platform and the recent "torching" of the kiosk in the west Englishman River estuary.

Information and education play a valuable role in addressing inadvertent damage, but observation, prevention and active enforcement are needed to deal with overt disturbance and vandalism. In this context, three types of actions can be taken:

- Restrict public access: A no-public-access zone on intertidal areas off the Englishman River estuary was established from March 1 to April 30, 2003, under Sections 7 and 8 of the *Wildlife Act*. (This section gives the Minister of WLAP powers to prevent harassment of wildlife and damage to habitat in a wildlife management area.) The effectiveness of this measure needs to be assessed.
- Enforcement of regulations: Regulations can create greater awareness and attention, but they are only as effective as their enforcement. This requires coordination among local conservation officers, bylaw officers and the RCMP.
- Volunteer guardians: While not equipped to take active enforcement action, volunteers can still play an important role in improving compliance in the P-QBWMA. A volunteer "guardian" program for the WMA was established in 1994 to involve volunteers (preferably living near the WMA) to monitor activities in designated portions of the P-QBWMA; essentially acting as the "eyes and ears" for BC Environment (Clermont, 1996). Over 20 people attended a workshop in July 1994 to learn about the proposed program, and 7 people officially signed up as guardians, covering the P-QBWMA from Parksville Bay to Craig Bay. Funding was also obtained to employ a Nanoose First Nations Guardian, who monitored the entire WMA and helped coordinate the volunteer guardians in 1995-96.

It is intended to renew the Volunteer Guardian Program under revised Terms of Reference, contained in Appendix B. There is also an opportunity to collaborate with Malaspina University College in providing students of the Conservation Officer Program with training opportunities in the P-QBWMA (T. Clermont, pers.comm.).

Priority: High

Timeframe: ongoing

Actions:

Task	Lead
1) <u>Wildlife Act sec.7(4) "no public access" zone:</u>	MWLAP , Nature Trust with volunteer guardians
a) Monitor the effectiveness of the no-public access zone for the intertidal area off the Englishman River estuary during its initial seasons (2003-2004). This involves "sampling" the area before and after the no-public-access window to gauge the level of use under normal circumstances, as well as during the no-access window.	
b) Based on the monitoring results, consider expanding the no-public-access zone to other areas of the WMA on a trial basis. Start with sections that are less utilized by people but important to Brant concentrations. This will require consultation and liaison with local governments and businesses, to ensure that they are	MWLAP, local governments

<p>informed of the benefits and support this action.</p> <p>Associated with this action, consider providing viewing platforms with spotting scopes so that people can view bird populations from a safe distance - see section 4.4.5.</p>	
<p>2) <u>Other Wildlife Act actions:</u> Establish a "closed to public access" time (e.g., from 11:00 PM to 5:00 AM) for the west side of the Englishman River estuary, posted at the gate at Shelley Road. While not an absolute deterrent, it would provide the basis for local guardians/residents to report suspicious activities, and for enforcement officers to take action if needed to prevent damage to habitat and facilities. This is a common action in municipal parks for the same purpose.</p>	MWLAP
<p>3) <u>Local government bylaws:</u> see sec.4.4.5 regarding potential local government restrictions for dogs on beaches.</p>	Parksville; Qualicum Beach; RDN
<p>4) <u>Coordination of enforcement officers:</u> Organize a "briefing" session with local government bylaw officers, conservation officers, RCMP and SPCA staff to review the regulatory authority under the <i>Wildlife Act</i> and local government bylaws. Also, solicit their ideas on how to best respond to wildlife harassment, habitat damage and vandalism, and how to best utilize a Guardian program (see next task). Follow-up sessions could be scheduled to continue the dialogue.</p>	MWLAP, Nature Trust and local governments
<p>5) <u>Guardian program:</u> Revive the volunteer guardian program. Start at a modest scale by focusing on one area/neighbourhood; e.g., the Englishman River estuary and residents in the Shelley Road/San Pareil area. Coordinate initial training sessions and subsequent review and social events to maintain enthusiasm. Involve local conservation, bylaw and RCMP officers so that effective relationships can develop to support reporting activities by guardians.</p>	MWLAP; local residents who have volunteered time; local resident associations; local government bylaw officers, MWLAP conservation officers, RCMP, SPCA
<p>6) <u>Enforcement:</u> Increase presence of guardians and enforcement personnel in the P-QBWMA at critical times of year, particularly during the Brant staging period.</p>	MWLAP, RCMP, local government bylaw officers, SPCA

Budget and resourcing: \$1000/year to support meetings with enforcement officers and volunteer activities and appreciation. Some capital budget may be required if physical structures are needed; e.g., signs at access points.

	2003	2004	2005	ongoing
Government budgets	MWLAP \$1000	MWLAP \$1000	MWLAP \$1000	MWLAP \$1000
In-kind	Volunteer guardians	Volunteer guardians	Volunteer guardians	Volunteer guardians

4.4.9 Protecting First Nation Cultural Sites

Purpose: To protect cultural sites of the Nanoose and Qualicum First Nations in all P-QBWMA projects and management activities.

Rationale: Section 3.3.1 notes the presence of archaeological and cultural sites of the Nanoose and Qualicum First Nations within the P-QBWMA. It is important to recognize these sites, as well as to understand the cultural values that the First Nations place on the WMA and its resources.

Priority: Medium

Timeframe: 2005-2007

Actions:

Task	Lead
1) Initiate discussions with the Nanoose and Qualicum First Nations on the value and terms of a study to inventory cultural sites, their protection and interpretation.	Coordinator
2) Depending on the results of these discussions, develop terms of reference and hire a summer or part-time researcher to: compile existing archaeological studies; gather and catalogue existing and new information provided by First Nations; develop preservation and interpretive measures.	Researcher, supervised by First Nations and Coordinator

Budget and resourcing: Potentially \$3-5000/year for a summer or part-time researcher; funding to be acquired in collaboration with the First Nations.

4.4.10 Enhancing Stewardship of Adjacent Lands

Purpose: To support education of landowners and the public about developing and maintaining properties adjacent to the foreshore in environmentally sensitive ways.

Rationale: Section 3.5 discusses some of the human activities that impact the foreshore and intertidal habitats within the P-QBWMA. There are ways of reducing these impacts; e.g., avoid the clearing of foreshore trees and vegetation and restore natural vegetation where possible; and retain existing and potential (future) eagle nest and perch trees. Information on the nature of these impacts and ways of avoiding them should be provided to adjacent landowners.

The main responsibility for promoting stewardship of foreshore and upland properties lies with the local jurisdictions, with assistance from MWLAP, DFO and non-government organizations. These agencies could make use of the resources of the Living by Water Project by using their background material and contracting their assistance in running information sessions and workshops.

Priority: Medium

Timeframe: 2004-2006

Actions:

Task	Lead
1. a) Develop an information brochure about impacts of shoreline land use on foreshore and intertidal habitats and more environmentally friendly measures for working on foreshore properties. An example is the brochure developed for Lantzville by the Lantzville Parks and Open Space Committee and the RDN. b) Distribute to waterfront property owners and realtors. c) Organize neighborhood information sessions in collaboration with community groups.	RDN, Parksville and Qualicum Beach with assistance from MWLAP Assistance from the Living by Water Project.
2. Examine local government bylaws regarding tree cutting and protection to ensure they protect foreshore vegetation in each of the local government jurisdictions.	RDN, Parksville and Qualicum Beach

Budget and resourcing:

	2004-2005
Government budgets	Local governments - \$5000-10,000 depending on the amount of brochure development can be done in-house versus contracted.
Grants or sponsorship	May be available to assist with capital costs (printing) and sponsoring information sessions (e.g., food, venues).
In-kind	Stewardship and community groups in providing input on the brochure and assisting with neighbourhood information sessions

4.4.11 Ecological Connectivity of the P-QBWMA

Purpose: To act on opportunities to improve the ecological integrity and connectivity of the P-QBWMA to surrounding natural areas and ecosystems.

Rationale: There are several properties adjacent or in proximity to the WMA that, with the appropriate planning or acquisition measures, could be connected via habitat corridors. Creating these connections over time will greatly enhance the ability of the region to preserve its underlying ecological values.

Table 4.2 lists properties that present such opportunities. Some may be sought as extensions to the P-QBWMA itself, while others may be acquired for other purposes (e.g., regional park) but be managed in association with the WMA. Map 1-1 also locates some of these properties as “significant park/green space”.

Priority: High

Timeframe: ongoing

Table 4.2: Priority lands for P-QBWMA connection

<i>Property</i>	<i>Measure</i>	<i>Lead agencies</i>
Block 602, Timberwest property on north side of Englishman River	Possible acquisition being negotiated	Nature Trust and partners
Block 564, Texada property on south side of Englishman River	Rezoning and subdivision application in progress; could result in riparian area being returned to Crown or dedicated to the RDN as parkland.	Nature Trust and RDN
Crown lands on Little Mountain and Morison Creek -	The RDN has been negotiating a transfer of title to dedicate these properties as regional parks; awaiting final agreement.	RDN, Land and Water BC
Private properties along the lower Englishman River	a) Acquire conservation covenants or dedication (ecological gifting) on riparian areas and/or streambed (on properties where title includes the streambed) with current owners. b) Acquire covenants or land dedication as a condition of rezoning or subdivision in the future.	RDN, Nature Trust, property owners
Property next to Little Qualicum Estuary	Acquisition as regional park	RDN
Little Qualicum River corridor from estuary to Little Qualicum Falls Park	a) Apply to have Crown parcels along the River added to the P-QBWMA. b) Approach Town of Qualicum Beach to have municipal property on the River added to the P-QBWMA. c) Approach landowners to negotiate conservation covenants or dedicated ecological gifting on private lands.	MWLAP - local governments, property owners
Craig Creek floodplain	Secure private lands within the floodplain of the Creek (12 properties, most now covered by covenants)	Nature Trust
French Creek corridor	Seek agreements or acquisitions	

Budget and resourcing: To be determined as opportunities arise.

4.4.12 Inventory and Monitoring

Purpose: To identify inventory and monitoring priorities within the P-QBWMA and source means of implementing these activities.

Rationale: Ongoing inventory and monitoring programs for Brant and salmon are addressed under projects #2 and 6. The 1996 Management Plan identified several other inventory studies that were conducted in the past; e.g., fish and benthic invertebrate sampling to assess the effects dyke removal in the Englishman estuary (Tutty *et al.*, 1979); monitoring of vegetative changes after the dyke removal (Dawe and McIntosh 1993); and a bio-inventory of habitats in the Englishman River estuary (Pacific Biological Station unpublished report 1993). MWLAP, with support from the Nature Trust and the MIWWS, also conducted an aerial video inventory of the P-QBWMA shoreline in 1995, to document existing foreshore improvements, eagle trees, and bordering developments. These inventories, however, have not been repeated or continued to determine changes or trends in the WMA.

The 1996 Plan (Clermont, 1996: 34) also identified some additional information needs:

"More data is required for mammalian species to determine diversity, habitat preferences and population estimates. Very little is known about the presence of bats, rodents and larger predators in the WMA. Fish inventories and habitat assessments should be conducted throughout the Englishman estuary, lower river channels and ponds, to identify fish use, habitat quality, and potential enhancement opportunities. These studies must be conducted before any habitat manipulation is undertaken."

At this point, priorities for additional research, inventory and monitoring are not clear. Clarifying data needs and their priorities is the first essential task.

Priority: Medium

Timeframe: ongoing

Actions:

Task	Lead
Convene a special meeting or workshop of the Partnership Committee to focus on information needs in the P-QBWMA. Follow up with discussions at subsequent meetings to finalize the priority list and identify funding and other resources to complete these inventories. These can include collaboration with research facilities (e.g., PBS) and programs (e.g., Malaspina University College, North Island College, and local high schools).	MWLAP, Partnership Committee

Budget and resourcing: This is primarily a planning exercise involving managing agencies.

Table 4-2: P-QBWMA MANAGEMENT PLAN 2003 PROPOSED BUDGET - SUMMARY

Project	Priority	2004	2005	2006	Comments
Re-establishing Partnership Committee	High	-	-	-	MWLAP staff time to support Committee.
Hiring a Coordinator	High	\$50-70,000	\$50-70,000	\$50-70,000	Split between government budgets and grant. Assumes office space and support provided. Potentially combine with Brant Festival coordinator.
Generating Support and Revenue	High	\$5000	\$5000	\$5000	Government (MWLAP): \$2500/yr; Grants, sponsorships: \$2500/year In-kind: volunteers; Revenues from fees - year 2 onward
Improving Signs and Accesses	Medium-high	- planning only	\$5000	\$5000	Governments (local, MWLAP): \$2500/year Grants/sponsorship: \$2500/year
Protecting Waterbird Populations and Habitat	High	\$5000	\$5000	\$5000	Government budgets (MWLAP/TNT, CWS): up to \$5000/year Grants, sponsorship: remainder In-kind: volunteers
Estuary habitat restoration/flood protection - Mine Rd dyke	Medium	- review only	*	*	* Depends on outcome of review. Apply to Provincial Emergency Program, Flood Protection Assistance Fund?
Trails in the P-QBWMA	High	Planning, policy development	? \$10,000 for trail plan	? implementation of plan	Governments (local, MWLAP): fund for plan Grants, sponsorship and in-kind: structures, maintenance
Enforcement & guardianship	High	\$1000	\$1000	\$1000	MWLAP: \$1000 to support volunteers Inkind: volunteers
Protecting First Nations cultural sites	Medium	Collaboration	\$5000	\$5000	First Nations/governments: \$5000
Enhancing Stewardship of Adjacent lands	Low-medium	-	\$10,000 brochure	\$5000 outreach	Local Governments \$10,000 for brochure Grants, sponsorship: \$5000
Ecological Connectivity	Medium-high	-	-	-	No specified budget; funds raised as opportunities arise.
Inventory and Monitoring	Medium	- Planning	*	*	* Depend on outcome of planning
Total (approximate):		\$71,000	\$90-100,000	\$86,000	Assumes \$60,000 for Coordinator

Parksville Qualicum Beach Wildlife Management Area Plan - Annotated Bibliography

Author(s)	Date	Title	# Pg	Source	Annotation
Annand, C., A. Hillaby and J. Naylor	1993	Englishman River Estuary	195 p	For Pacific Estuary Conservation Program (?)	Baseline data pertaining to species abundance and habitat were collected for fish, benthic, epibenthic and avian species in the Estuary over a 3-month period (May - July) in 1993. Measurements also included water temperature and salinity and vegetation distributions.
Barnard, T.	1990	Management Plan: Englishman River Estuary	41 p + apps	Prepared for the Ministry of Environment	The Plan presents a strategy to conserve and manage the estuary based on four objectives: acquisition of privately held lands not presently owned by conservation organizations; maintenance, enhancement, and where necessary, rehabilitation of the area's natural resources; provision of recreational and educational opportunities for the public; and operation of compatible commercial activities in support of on-going maintenance costs on the management area.
Blood, D.A.	1976	Lower Englishman River Environmental – Social Assessment: Environmental Impact Study.	64 p + apps	Prepared for Environmental Services Section Land Management Branch, BC Department of Environment.	This report is an overview of environmental implications of two proposed subdivisions (the Allton and the Aldergrove properties) on the Englishman River near Parksville.
Bocking, R. and M. Gaboury, LGL Limited	2001	Englishman River Watershed Recovery Plan.	46p + apps	Prepared for Pacific Salmon Endowment Fund Society (PSEF)	The Englishman River was selected by the PSEF as the first watershed to receive attention in the Georgia Basin salmon recovery planning process for coho and steelhead. The plan identifies and sets priorities for activities required to achieve the recovery goals. Section 2 summarizes available information on the watershed and stocks. Sections 3 and 4 identifies information gaps and the potential for recovery. Section 5 identifies realistic recovery goals and priority activities. Section 6 provides the framework for monitoring and assessing the effectiveness of the plan. Section 7 defines the priorities and implementation schedule.

Author(s)	Date	Title	# Pg	Source	Annotation
BC Environment Vancouver Island Region	1996	Proposal for a Section 13 (Land Act) Designated Use Area of Riparian and Forested lands along portions of the Englishman River and Morison Creek, Vancouver Island, BC.	12 p.	BC Environment Vancouver Island Region	The report presents the Ministry of Environment, Lands and Parks' proposal to expand the P-QB WMA by adding Crown lands within a 22+ km Englishman River-Morison Creek riparian corridor. With approval from the Regional District of Nanaimo, the Morison Creek riparian lands could be expanded to include two additional parcels of forested parkland.
BC Lands (Ministry of Crown Lands) Land Policy Branch	1990	Riparian Rights and Public Foreshore Use in the Administration of Aquatic Crown Land	23 p	Occasional Paper No. 5.	This paper reviews the definition of riparian rights of property owners in British Columbia. It provides guidelines to Ministry staff on how to protect these rights and the privilege of public access, while making these lands available for other uses.
BC Ministry of Water, Land and Air Protection – Vancouver Island Region	2002	Regional Manager Regulations/Order Proposal for Parksville Qualicum Beach Wildlife Management Area	5 p.		Presents proposal and rationale for passing an order under section 7(4)(a) of the <i>Wildlife Act</i> to close a portion of the PQB-WMA to public access from March 1, 2003 to April 30, 2003.
Brown, A.A.	1986	Preliminary Report on Englishman River Flooding Revised 1986.	12 p. + apps.	B.C. Ministry of Environment, Water Management Branch (Rivers Section). File P-74-7	The preliminary report examines potential flooding of the Englishman River over Plummer Road and within the estuary and outlines remedial works to prevent flooding of the road and Shorewood Subdivision. The proposed work totalled \$798,000, and could be carried out in 3 phases: a) Plummer Road dyke (\$500,000); b) Shorewood dyke (\$150,000); and c) San Malo Crescent dyke (\$148,000).
Burns, T.	1977	Coastal system of southeast Vancouver Island from Departure Bay to Englishman River: An ecological description with management suggestions.		Unpubl. Report, Ministry of Environment Library, Nanaimo, BC.	
Clermont, T.	1996	Parksville-Qualicum Beach Wildlife Management Area Management Plan	71 p	Prepared for Ministry of Environment, Lands and Parks – Nanaimo, B.C.	Prepared on behalf of the Habitat Conservation Fund, Ducks Unlimited Canada, Nature Trust of BC, Wildlife habitat Canada and Canadian Wildlife Service, this was the first management plan prepared for the WMA.

Author(s)	Date	Title	# Pg	Source	Annotation
Dawe, N.K.	1976	Biological inventories of National Wildlife Areas in British Columbia: Flora and fauna of the Marshall–Stevenson Unit, Qualicum National Wildlife Area August 1976.	201 p.	Canadian Wildlife Service, Pacific & Yukon Region, Delta, BC.	A survey was conducted from January 17 to December 31, 1975 to determine species of plants and animals occurring in this Unit of the National Wildlife Area. Over 320 species of plants and 280 species of animals are reported. Included are notes on distribution, relative abundance, flowering times and wildlife use (for plants), nesting, food and seasonal occurrence (for animals).
Dawe, N.K.	1980 (1979?)	Ecological inventories of National Wildlife Areas in British Columbia: Flora and fauna of the Marshall–Stevenson Unit, Qualicum National Wildlife Area (update to June, 1979), April, 1980.	149 p.	Canadian Wildlife Service, Pacific & Yukon Region, Delta, BC.	This report updates the previous report with data gathered from January 1, 1976 to June 30, 1979. 147 new species of plants and animals were found, including 62 species of vascular plants and 24 species of birds. Species identified now total 428 for plants and 326 for animals, indicating the diversity of this relatively small (54 ha) of this Unit.
Dawe, N.K., J.D. McIntosh	1993	Vegetation change following dyke breaching on the Englishman River estuary, Vancouver Island, British Columbia. A multivariate analysis.	35 p + attachments	Canadian Wildlife Service Tech. Rep Ser. No. 175, Pacific and Yukon Region, BC.	A dyke was constructed in 1969 that isolated the <u>western</u> portion of the Estuary from tidal influence; the former marsh changed to upland vegetation. A 10-m breach was made in the dyke in 1979, and a study designed to monitor the changes in vegetation, with the purpose of determining how long it took to approach a natural marsh in community structure. Over 8 years (to 1987), 57 vascular plant species and changes in their distribution were recorded. 18 species were eliminated, 7 species colonized, and 29 residual species remained. Community structure showed signs of stability by the eighth year.
Dawe, N.K., T. Martin, and D.E.C. Trethewey.	1994	Bird use of the Englishman River estuary, Vancouver Island, BC, 1979-1980 and 1988-1989.		Canadian Wildlife Service Tech. Rep No. 208, Pacific and Yukon Region, BC.	
Day, J.H., L. Farstad and D.G. Laird	1959	Soil Survey of Southeast Vancouver Island and Gulf Islands.		Report No. 6 Research Branch, Canada Department of Agriculture.	
Environment Canada	1986	Management Plan: Qualicum National Wildlife Area.	28 pp.	Canadian Wildlife Service, Pacific and Yukon Region, Delta, BC. 28 pp.	

Author(s)	Date	Title	# Pg	Source	Annotation
Ward, P.	1997	Sensitive Ecosystem Inventory for East Vancouver Islands and Gulf Islands	-	Environment Canada (Canadian Wildlife Service), Habitat Conservation Trust Fund and Ministry of Environment, Lands and Parks	The purpose of the SEI project was to identify, map and evaluate remnants of rare and fragile ecosystems, and to encourage land use decisions that would ensure the continued integrity of these ecosystem types. Over 7000 sites were mapped, based on identification and interpretation of aerial photographs, in an area of roughly 4000 sq km. Over 30% of the sites were field checked to verify classifications, boundaries and present conditions. Themaps are accompanied by a technical report and conservation manual.
Fisheries and Oceans Canada	2002	Strait of Georgia Herring	4 p	Pacific Region Stock Status Report B6-05(2002)	Provides background and summary on the status of Pacific herring stocks in the Strait of Georgia.
Gaboury, M. (LGL Limited)	2003	Fish Habitat Restoration Designs for Englishman River.	61 p	Submitted to the BC Conservation Foundation for the Pacific Salmon Foundation	This project establishes biological rationale and feasibility, and provides site-specific fish habitat restoration designs and construction procedures for the main stem of the Englishman River. About 5.7 km of stream was assessed and 16 sites were prescribed for instream restoration. The restoration designs target all life stages of salmonids found within the proposed restoration section, but in particular the holding and rearing habitats for those species that spend an extended period of time as juveniles in fresh water; i.e., coho salmon, steelhead (rainbow), cutthroat and Dolly Varden. Included are maps, construction drawings, materials summary, work plan, schedule and estimated costs of construction.
Hall, David, H. Rueggeberg and I. MacLennan	2003	{DRAFT – to be finalized} Vancouver Island Interpretive Centre Pre-feasibility Study		For the IAS Committee	The purpose of this study was to analyze and determine the viability (i.e., its ability to be self supporting) of an interpretive centre about Vancouver Island.
Hanelt, Rob	1996	Englishman River Mine Road Dike Repair Post Construction Monitoring Report.	9 p.	Aquaterra Environmental Services; submitted to MELP.	This post-construction monitoring report briefly summarizes dike repairs and environmental supervision, mitigation and monitoring activities from August 30 to October 5, 1999.

Author(s)	Date	Title	# Pg	Source	Annotation
Holden, B.J.	1989	Parksville Bay: an investigation of erosion.	22 p. + attac hmen ts	Prepared for the City of Parksville by Ministry of Environment, Special Projects Section, Water Management Branch.	The study was requested by the City Parksville in response to concerns over erosion on the sandy beach area of Parksville Bay and the formation of offshore bars. The study addresses geomorphology, ocean water levels, wind and wave climate, and coastal processes. It concluded that recent changes on the beach are probably due to natural processes, and recommends that a detailed survey of the beach and foreshore be carried out, and that City bylaws be amended to include appropriate coastal setbacks.
Jungen, J.R.	1985	Soils of Southern Vancouver Island.		Report No. 44. British Columbia Soil Survey. Surveys and Resource Mapping Branch, Ministry of Environment Tech. Rept. 17. Victoria, BC, 198 pp.	
Kennedy, K. and B.R. Walters	1974.	Englishman River Estuary.	29 p.	Fish and Wildlife Branch, B.C., Environment, Nanaimo, B.C.	The report provides a checklist of plant species found in the Estuary; birds, mammals (tracks) and invertebrates observed; and compiled information on geology, soils and climate. Impacts of logging, residential and recreational use are outlined and recommendations for their avoidance made.
Le Baron, Bentley	1976	Social Report: Lower Englishman River Environmental-Social Assessment	37 p.	Prepared for J.P. Sector Environmental Services, Land Management Branch, B.C.	[Copy missing pages 1-13; difficult to determine purpose of report.] The report is part of an assessment of development of the "Aldergrove property" in the Parksville Flats (now Surfside RV Resort).
Lill, A.F.	2002	Greater Georgia Basin Steelhead Recovery Action Plan	107 p.	Prepared for the Pacific Salmon Foundation with funding from the Province of B.C.	The primary objective of the Recovery Plan is "to stabilize and restore wild steelhead stocks and habitats to healthy self-sustaining levels". The document sets out watershed summaries (Appendix I) and a proposed recovery plan and budgets (Appendix II) to provide the basis for a successful steelhead recovery initiative.

Author(s)	Date	Title	# Pg	Source	Annotation
Martin, T., G. Monty and T. Clermont	2002	Strait of Georgia Black Brant (<i>Branta bernicla nigricans</i>) Monitoring and Conservation Project: Curtailing Dog and Human Disturbances, Spring 2001.	54 p. + apps.	Prepared for Environment Canada, The Nature Trust of British Columbia, Ministry of Water, Land and Air Protection, Georgia Basin Ecosystem Initiative, Regional District of Comox-Strathcona, and the Mt. Arrowsmith Biosphere Foundation.	Spring 2001 marked the thirteenth consecutive year that Black Brant were monitored during their annual spring migration in the Parksville-Qualicum Beach area. In 2001, the focus of the study was to repeat the 1996 disturbance study of Brant in the Parksville Qualicum Beach Wildlife Management Area (PQBWMA); estimate daily Brant abundance; conduct leg band surveys; increase public awareness regarding the disturbance issue. The rate of pedestrian traffic (including dogs) causing a flight response this spring was 0.85 times per hour; the rate was 0.82 events per hour in 1996. Recommendations focus on education, management, and field studies and developing a "conservation ethic".
McPhee, M., P. Ward, J. Kirkby, L. Wolfe, N. Page, K. Dunster, N. K. Dawe and I. Nykwist.	2000	Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands, 1993 - 1997. Volume 2: Conservation Manual.	264p	Technical Report Series No. 345, Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.	This manual describes the importance of the SEI ecosystems and the impacts affecting them, presents management guidelines for each of the 9 SEI ecosystems, and describes conservation tools available to local and regional governments, landowners and other citizens, and senior governments. Policies and guidelines are also offered as models for use in Official Community Plans and Development Permits, although legal advice should be sought when preparing new legal documents or bylaws, or interpreting existing ones.
Parksville, City of	2001	Zoning and Development Bylaw, 1994, No. 2000; A Bylaw to Regulate the Zoning and Development of Real Property Within the City.	138 p.	City of Parksville	The purpose of the Zoning Bylaw is to regulate development for the benefit of the community. All lands within the City adjacent to the WMA are zoned for residential (RS-1), tourism commercial (CS-2), or comprehensive development (CD zones), park (P-1), or "campground and conservation" (E-1).

Author(s)	Date	Title	# Pg	Source	Annotation
Parksville, City of	2001	Official Community Plan Bylaw, 1994, No. 1050, Consolidated for Convenience only.	59 p. +	City of Parksville	The Official Community Plan (OCP) is a "general statement of the broad objectives and policies, respecting the form and character of existing and proposed land use and servicing requirements" of the community. Of particular note are: Development Permit Area #2 – Waterfront/Downtown (Bylaw 1050.12 adopted in December 2001 as amending the OCP); Section C(I)(b) Greenbelts; Section C(II) Natural Environment; Section C(V) Parks, Recreation, Culture, and Heritage.
(B.C.) Recreation Stewardship Panel	2002	A New Management and Funding Model for Fish, Wildlife and Park Recreation – Final Report and Recommendations	68 p	Report to Honorable Joyce Murray, Minister of Water, Land and Air Protection	In May, 2002, the Minister of WLAP appointed an expert panel to review the Ministry's fish, wildlife and park recreation services and recommend opportunities to improve the existing management model and funding. This paper provides: the background and reasons for the Recreation Stewardship Panel's assignment; some of the existing policy and direction that guide that assignment; the panel's principles and their implications; and the recommendations for a new management and funding model.
Ryan, K., F. Smith and R. Buechert	1994	Grandon Creek rehabilitation project bacterial water-sampling survey 1993-94.		Prepared for Beach Watch and Mid-Island Wildlife Watch Society.	
Summers, K.R. and A.K. McKenzie	1990	Englishman River Estuary Fish and Wildlife Habitat Enhancement Proposal.	9 p + apps.	Prepared for B.C. Conservation Foundation on behalf of Habitat Conservation Fund, BC Environment, Nanaimo, BC.	Waterfowl and fisheries habitat enhancement options for 8 ha of former inter-tidal area on the Estuary are considered in the context of works proposed in 1986 for potential floodplain dyking. A proposed system of "dyke" breaching and pond and channel excavation would create 1-1.4 ha of intertidal habitat and contribute to a potential cost saving of \$55,000-\$68,000 of the 1986 proposal cost of \$300,000 for a dyke.

Author(s)	Date	Title	# Pg	Source	Annotation
TERA Environmental Resource Analyst Ltd.	1975	Parksville – Englishman River: Resource inventory and development options for District Lot 2 and Lot 50.	37 pp + apps.	Prepared for Schulze and Spearing Associated Architects.	The study delineates existing physical and natural conditions of Lot 50 and Lot 2 of Nanaimo Regional District, owned by Aldergrove Enterprises Ltd. The analysis was conducted to establish environmental impacts of tentative development options. The study rates the property as to high, moderate and low suitability for residential development.
Tera Planning Ltd.	1990	An Environmental Assessment of Development Implications at Parksville Flats, BC.	85 p. + apps.	Prepared for City of Parksville	This working draft assesses the environmental implications of the existing trailer and campground, the proposed adult community, and the road alignment at the base of the Parksville uplands. The mitigation and compensation options are only generic for the proposed developments.
Tutty, B.D., B.A. Raymond and K. Conlin	1979	Tidal reactivation and subsequent salmonid utilization of a slough in the Englishman River Estuary, Vancouver Island, British Columbia.		Canadian MS Rep. Fish. Aquat. Sci. 1689:vii, 52 pp.	
UMA Engineering Ltd.	2002	Assessment of Flood Protection Works in the Englishman River Estuary.	26 p + apps	Prepared for: British Columbia Ministry of Water, Land and Air Protection.	The prime objective of this study was to recommend the best strategy to address the long-term role for the Mine Road dyke. It evaluates alternative courses of action including the four listed in the RFP (upgrade, remove, relocate or do nothing) by estimating the level of flood protection, environmental effect and cost of each alternative. 6 options for 3 parts of the dyke are presented.
UrbanSystems	Feb. 2000	Downtown Waterfront Policy Update	45 p.	City of Parksville	See UrbanSystems June 2000.
UrbanSystems	June 2000	Downtown Waterfront Policy Recommendations	11 p.	City of Parksville	The report proposes a vision, goals and policies for inclusion in Parksville's Official Community Plan. The proposed policies are based on principles of: protection of natural features; public accountability; preserving views from Highway 19 and downtown; maintaining small town atmosphere and high quality, pedestrian-oriented design; and strong tourism-oriented economic generator.

Author(s)	Date	Title	# Pg	Source	Annotation
Ward, P., G. Radcliffe, J. Kirkby, J. Illingworth and C. Cadrin	1998	Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993–1997. Volume 1: Methodology, Ecological Descriptions and Results		Technical Report Series Number 320, Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.	The Sensitive Ecosystems Inventory (SEI) of East Vancouver Island and Gulf Islands was initiated in 1993 in response to an urgent need for inventory information on rare and fragile ecosystems, to support sound land use planning decisions. This technical report documents and discusses the methodology and results of the inventory.

APPENDIX A: Revenue Generation Focus Group, December 9/02

A focus group was used to determine which revenue generation strategies might be appropriate and acceptable in the P-QBWMA. A focus group is a "brain-storming" method in which a small number of participants (5 to 20 people) are selected to represent a cross section of informed opinions. For the purpose of this plan, participants were invited from the business community, tourism and resort industry, stewardship groups, First Nations, local government, BC Parks, MWLAP, TNT and the Canadian Wildlife Service.

The Revenue Generation Focus Group was presented with a preliminary list of methods for revenue generation. The Group discussed the list, adding to it and discarding some methods, based on their sense of their applicability in the P-QBWMA and the Parksville-Qualicum community.

The session resulted in principles and preferred methods for revenue generation in the P-QBWMA. The principles are incorporated in section 4.1 of this Plan. The methods are highlighted in section 4.3 and discussion and rating by the Focus Group are summarized below in Table A-1.

TABLE A-1: Revenue Generation options considered and rated by the Revenue Generation Focus Group

Options are listed in order of priority as designated by the Focus Group.

***0-NA 1-HIGH 2- MED 3- LOW**

OPTION	Priority*	COMMENTS –could it work in the P-QBWMA?
Interpretive program/tour fee	1	<p>Volunteers offer interpretive programs/shows in Rath Trevor but setting (open amphitheatre) is not set up to collect fee</p> <p>Run winter/spring bird tours:</p> <ul style="list-style-type: none"> - volunteer guides. - Charge \$5 per 1-1.5 hour tour; proceeds to go to the P-QBWMA). - Would attract "snowbirds" that are here in February who want to do something interesting rather than just walk a trail - Hotels and resorts could offer as added attraction, get more clientele. <p>Mid Vancouver Island Enhancement Society ran an outreach program (lectures/walks) last fall/winter on the Englishman River with funding from Fisheries Renewal BC (now defunct) and some support from Pacific Salmon Foundation. Tours were free and very popular; e.g., up to 75 people for tour in the estuary.</p> <p>Set up seasonal series of talks and tours:</p> <ul style="list-style-type: none"> - do one or do all at discount. <p>WHO to offer these programs?</p> <ul style="list-style-type: none"> - partnerships: groups that already do this well. - E.g., Brant – 19 activities in a weekend because no. of groups involved. - Each group does own thing but within a venue that provides a theme and a larger audience. <p>Volunteer partnerships/programs more doable than government-run (have to pay union rates which would eat up any revenue for P-QBWMA).</p> <p>How much revenue can they generate?</p> <ul style="list-style-type: none"> - Meadowlark Festival in Okanagan: too many people wanted to go on tour; raised rate for all day tour from \$5 - \$50 - \$75 and still filled up.

OPTION	Priority*	COMMENTS –could it work in the P-QBWMA?
		<ul style="list-style-type: none"> - Rule of thumb: once demand starts to rise, raise fee to a threshold where can get \$ return and maintain a do-able demand level (not get decrease in demand). - Offer series with well-known or highly qualified “specialists”, will attract clientele from wider range. <p>What about Volunteer burnout?</p> <ul style="list-style-type: none"> - Should pay for “expertise” - Some % should go to volunteer group, too
Festivals: Brant Festival (April); Salmon fest/ Rivers Day (Sept.)	1	<p>Brant Fest:</p> <ul style="list-style-type: none"> - charged \$5 for pass; raised to \$10 with very few (3) complaints, made \$10,000 <p>Rivers Day:</p> <ul style="list-style-type: none"> - Need more than 1 day to do all the tours <p>4 big natural events to capitalize on:</p> <ul style="list-style-type: none"> - Herring spawn - Bald Eagle concentrations (and Sea lions) - Brant migration/staging - Salmon runs (Englishman, Little Qualicum) <p><i>(Ed. Note: 3 of these 4 occur in spring; are there other events or phenomena that could act to spread the interest/awareness out over the full year?)</i></p>
Fund-raising: “visible merchandise incentive” donation	1	<p>Give something that displays that donors are supporters, or gives “value” for donation:</p> <ul style="list-style-type: none"> - Bumper sticker - Jacket, hat, sweatshirt - Cards - Logos - Bird checklists, guides
Self-interpretive tour	1	<p>Pay for “guide” to posted stations. Specific project – apply for grant to set up stations and produce guide <i>(Make guide available where?)</i></p>
Filming on the beach or other parts of P- QBWMA	1	<p>How much would (should?) it cost? Who do they pay? Who regulates? What are the regulations? Is sponsoring/paying for a specific project or facility a viable alternative? Filming in Fraser Valley WMA netted \$400,000 fee – contact Tony Bernard Also contact Dave Smith at Delta Need also to know that film companies are good (clean) operators Under WMA regulation, money would go to HCTF to allocate for WMA management</p>
Grants, foundations	1 for specific projects	<p>Available for wildlife mgmt, education support projects. NOT available typically for general operations and maintenance. Streamkeepers outreach program – can get any amount of \$ for equipment (microscopes, posters), but no \$ for labour Probably spending \$250,000 now in volunteer labour and grants for materials, etc.</p>

OPTION	Priority*	COMMENTS –could it work in the P-QBWMA?
		Not applicable to ongoing operations, maintenance Many have dried up: e.g., Fisheries Renewal BC is entirely gone; Pacific Salmon Enhancement Foundation is funding Englishman River Watershed Recovery Program, but goes down each year because more watersheds added to PSEF's priorities.
Partnerships with eco-tour companies	1-2	Only 1 commercial operation now, using a 12-passenger bus taking visitors to a variety of natural sites around Parksville, Qualicum, Port Alberni. Market as yet undeveloped? Offer to work with companies to promote ecotourism, rather than approach them to charge a fee.
Fund-raising: corporate sponsorships	1-2	Businesses willing to sponsor IF: - identifiable project or tangible item (e.g., building or maintain a trail) - identify these in management plan, then approach businesses. Rubber duck/goose race down the River
In-kind resources	1-2	Businesses – e.g., gravel, trail building, etc. garbage cans, stationery Approach when plan is done and project needs identified
Beach festival	2	All who viewed paid a donation; donation suggested; people with a donation bucket on site Fenced off beach area, so restricted access Built in 2 days; viewed for 2-3 weeks Fundraising for nonprofits: could be for P-QBWMA? Letter of interest required
Revenue sharing with Qualicum National Wildlife Area	2	Canadian Wildlife Service (CWS) provided tour of property in one summer in partnership with stewardship group; high visitation rate. CWS open to concept of allowing visitors on site if some other group did administration and maintenance of trails, facilities, etc. – similar to Reifel Refuge run by BC Wildlife Society (The QNWA was open for two summers with a CWS interpretive naturalist on site and for a few years during wildlife week with volunteers from the Arrowsmith Naturalists (N.Dawe, pers.comm.)
Parking fee	2-3	City beach park: - need to administer/enforce/collect which eats up revenue - need to regulate parking elsewhere; businesses may complain if people use streets instead. <u>Special event-based:</u> - Volunteers in the past made \$4000 by supervising parking (on Canada Day?) - Acceptable if used for special occasions and targeted for a specific purpose (like P-QBWMA). National parks – yearly pass \$45 - Link parking at all WMAs in a yearly pass? Rath Trevor: parking fees probably will be instituted soon. Shelley Rd entrance to Englishman River estuary a possibility: - but is not only entrance; must regulate parking on nearby streets; applicable to tourists mainly
Entry fee	3	Collectability – need “closed” system, not the case with majority of P-QBWMA: - Long narrow foreshore with many accesses not doable - Needs “gateway” to enclosed area. Voluntary – envelope in a box: - May work with 1-timers but won't work with daily dog walkers

OPTION	Priority*	COMMENTS –could it work in the P-QBWMA?
		<ul style="list-style-type: none"> – annual fee/donation for daily users – Would like dogs out of there – provide alternative areas for dog walking (\$1/person, \$10,000/dog?) Rathrevor will be getting a day use fee – will push more people into ‘free’ areas like P-QBWMA: <ul style="list-style-type: none"> – Link P-QBWMA to Rathrevor – use their fee structure/entries? Ramsay Canyon – works there because of restricted accesses, fee charged at each site. Englishman River Estuary (ERE) and Little Qualicum Estuary (LQE): <ul style="list-style-type: none"> – possible specific sites – If fenced ERE, maybe City beach entry fee? <ul style="list-style-type: none"> – fee linked to crossing city land to access (public) beach Only place it might work now is Rathrevor due to limited access. Acceptable if good facilities provided. Fairness: tourists won't want to pay if fee not also applicable to local residents.
Donations	3	Experience elsewhere: <ul style="list-style-type: none"> – Rathrevor visitor centre made only \$500 last year even though a huge no. of people went through, suggested a donation amounts, and “led” people to donation box (i.e., special attraction) – Brant Fest – by donation generated \$1500; \$10 fee for Passport generated \$10,000 – Cathedral Grove: \$13,000 in 1st year (2000), though ½ to ¾ million people go thru; less in subsequent years.
Estuary count event	3	Entry fee for “Parkville Flats Cup” or equivalent Provide decent/attractive Award Somewhat elite clientele? <ul style="list-style-type: none"> – Bird watching is no.1 growth activity in US
Land lease	0-3	Unlikely that landowner (Province) would go for it
Facility rental	0-3	Rathrevor only place with facilities
Municipal tax	0	Capital Regional District used property tax for 5 year period to raise \$ for park acquisition; accepted by residents in referendum. Would Parkville support tax for foreshore management? not likely Community will support fundraising activities If a tax is imposed for waterfront management, then people think they “own” the waterfront. Parkville 83% of taxes from residential, mostly retirees. 1% tax increase = \$40,000 total revenue = \$8/house; perhaps more effective to get \$100/yr donation willingly.
Right-of-way charge	0	Like another tax – no support.
Business licence charge	0	Too much like another tax.
Revenue sharing with Rathrevor	?	Possibility – must ask

Other Comments – Revenue Generation Focus Group

What budget are we dealing with?

- “Cart before horse”: need a plan (what and how much) before identify how to raise revenue.
- Past – never assigned budget; came out of program funds for Fish and Wildlife Branch (Province) and Nature Trust’s funds; Habitat Conservation Trust Fund (HCTF) paid for some specific projects
- Present – need regular budget for operations; some indicator of what need to cover now
- Future – what do we want to do in addition to the minimum?
- Partnership with jurisdictions within and next to P-QBWMA such as Canadian Wildlife Service and City of Parksville, - co-management arrangements? Partnerships with resorts? How participate/market?
- What have \$ been spent on?
 - o only apparent items are boardwalk, tower, etc.
 - o need to know what you are planning in future to conjecture how much and what kind of revenue generation is appropriate.
- Do you know people use of the P-QBWMA?
 - o cursory survey done by a First Nations guardian
 - o over 8 days in Nov-Dec. approximate 30/day, mostly dog walkers.
- Conflicts with wildlife – no budget to address.
- No funds to actually do anything – hard to retain commitment of Advisory Committee members. Need “Champion”.
- E.g., need a budget to hire a coordinator “implementer” of ideas/ways of addressing issues.
- Can Ministry of Water, Land and Air Protection (WLAP) and The Nature Trust of B.C. (TNT) raise \$ on WMA properties?
 - o Yes, is within mandate
 - o HCTF can be used to raise and collect funds.
- Do specific projects need to be approved by senior agencies; e.g., charges, fees, etc.?
 - o Fairly flexibility if supported by community.
- Estimate \$35,000/year? \$50,000 may be more realistic.
- Tourism, business will support if know WHAT their funds being used for:
 - o E.g., “This trail sponsored by ___ Foods”. But need to know value, who’s benefiting – who should be asked to support.
- What is P-QBWMA being managed for? I.e., wildlife vs. people
- Some people may view P-QBWMA as liability – vandalism, garbage, etc.
- Raise profile of P-QBWMA so that people know what is important. Education focus of revenue needs. Eco-centre – long term education facility.
- Enforcement required: budget to hire “officers” (no Conservation Officers anymore)
- **For revenue generation strategies to be successful need to be acceptable to people paying and collecting:** must be collected for a good reason that is clearly understood by both the P-QBWMA managers and payers and targeted for those reasons.

Appendix B - Guardian Program Terms of Reference

**VANCOUVER ISLAND WETLANDS MANAGEMENT PROGRAM
VOLUNTEER GUARDIAN PROGRAM**

TERMS OF REFERENCE

FOR:

**THE NATURE TRUST OF BRITISH COLUMBIA
&
THE MINISTRY OF WATER, LAND, AND AIR PROTECTION**

April 2003

INTRODUCTION:

Land management for fish and wildlife protection is a key component of the operational responsibilities of the Ministry of Water, Land, and Air Protection (MWLAP). Examples of land management include securing tenure, influencing land use practices, restoring or enhancing habitats, and a broad range of property maintenance activities. On Vancouver Island (Region 1), the Environmental Stewardship section of MWLAP is responsible for the management of 23 Nature Trust properties (through 99 year lease agreements) + over 40 Wildlife Reserves at more than 35 different sites. MWLAP currently has no dedicated FTE to fulfil their land management duties. This responsibility is spread out within a few dedicated staff and would equate to less than 0.2 staff/FTE. This FTE: land management portfolio ratio is undoubtedly the most disproportionate of all regions in BC

To assist the province with habitat securement and management, The Nature Trust of BC (TNT), Habitat Conservation Trust Fund, Canadian Wildlife Service and Ducks Unlimited Canada, supports the Conservation Land Manager position which co-ordinates the Vancouver Island Wetlands Management Program (WMP). Since 1991, this program has been co-ordinated by Tim Clermont (employed by TNT) who is responsible for conducting regular land management activities and developing management plans for properties owned by TNT and managed by MWLAP.

In 1985, a Volunteer Property Warden Program was started through initiatives led by TNT and MWLAP. Today, this program has grown and through the support of the WMP, 8 volunteers now actively steward 12 Conservation Areas on Vancouver Island. Wardens regularly monitor activities within a property and when necessary report back to MWLAP or the WMP's Conservation Land Manager.

OBJECTIVES OF THE VOLUNTEER WARDEN PROGRAM:

- 1.) Assist in the stewardship of fish and wildlife habitat within the WMA by:
 - a. Conducting regular site inspections and submitting quarterly inspection reports;
 - b. Co-ordinating local public participation events.
- 2.) Improve public awareness and education towards protecting wildlife habitats and sustaining the resources within.
- 3.) Act as a liaison between the general public and the WMP/MWLAP land management programs and when appropriate other regulatory agencies.

WARDEN RECRUITMENT:

Volunteers interested in participating in the Warden Program should live near a Wildlife Management Area or Conservation Area.

WARDEN QUALIFICATIONS:

Wardens should be knowledgeable of the local natural history as it pertains to the area being monitored. As wardens will be the local catalysts for public involvement in a given area, applicable skills may include enjoy working with people, enthusiastic, innovative, good leadership qualities and organizational abilities. Although this is a volunteer program, each warden should be prepared to commit the time necessary to achieve program objectives.

FUNCTIONS OF WARDENS:

- 1.) Contribute to the stewardship of a Conservation Area by monitoring activities that occur within. Harmful activities should be reported to MWLAP/WMP staff in Nanaimo when observed. These could include habitat destruction, acts of vandalism to signs or other structures, vegetation removal, dumping of garbage, motorized vehicle trespass, people or their pets harassing wildlife, etc. The extent of monitoring in each section will vary depending on the degree of public use and the amount of capital improvements to inspect (signs, fences, gates etc.). Most areas should be inspected at least once a month and inspection forms should be submitted to MWLAP/WMP in Nanaimo every 4 months.
- 2.) Co-ordinate local public involvement and awareness activities. Suggestions for various projects could originate from a variety of sources including the warden, local media, WMA advisory committees, a local group or society, general public, or the Conservation Area Management Plan. Projects may include: awareness and education programs (e.g. distribution of information bulletins describing problems associated with unleashed dogs within conservation lands), conducting censuses (e.g. degree of public use) or wildlife inventories (e.g. bird counts), organizing clean-up events, exploring the need for wildlife enhancement (e.g. building and installing bird nest boxes), fundraising for habitat enhancement projects or to improve wildlife viewing opportunities through the construction of a lookout or viewing platform. These types of projects can benefit the local environment and greatly assist MWLAP in achieving management goals. In all cases, wardens must consult with MWLAP or WMP prior to the implementation of a public involvement project. This will ensure that MWLAP retains the authority required to fulfil their management responsibilities.
- 3.) Provide a liaison between the local community and MWLAP staff by relaying feedback in both directions concerning management activities. An important role of wardens will be to pass on issues and concerns to MWLAP for management consideration. Once affirmative action is determined, the warden can assist MWLAP in terms of informing the public of the action taken. In a sense wardens are the local "eyes and ears" for MWLAP. This information exchange will likely require that each guardian will maintain regular contact with MWLAP/WMP staff.

FUNCTIONS OF MWLAP/WMP STAFF CONCERNING THE WARDEN PROGRAM

The Warden Program will be co-ordinated from the regional MWLAP office in Nanaimo by the staff and/or representatives of MWLAP or the WMP. Volunteer Warden Program contacts will be:

Tom Reid (MWLAP/TNT Land Manager) (250) 751-3147
Tim Clermont (Nature Trust Conservation Lands Manager) (250-751-3218)
Dan Bernard (WMP Operations & Maintenance Contractor) (250) 338-3084
Doug Janz (MWLAP, Fish and Wildlife Section Head) (250) 751-3217

These co-ordinators will be responsible for providing the support services necessary for the Warden Program to contribute effectively to the overall management of a particular Conservation Area or Wildlife Management Area. Those responsibilities will include:

- a) Assisting in the recruitment of volunteer wardens;
- b) Conducting planning meetings, which may involve other regulatory agency representatives (DFO, CWS, RCMP, By-Law Officers etc.) to provide the mechanisms and information necessary for wardens to begin;

- c) Maintain communication and contact with wardens via telephone, correspondence and field visits;
- d) Discuss and approve all public involvement projects proposed by wardens prior to implementation;
- e) Generally facilitate the activities of wardens through administrative and other support services.

Each volunteer will be provided with a warden binder. This binder should include the guardian program terms of reference which includes a summary report and map of the Conservation Area, site inspection forms, list of restricted activities, phone list of all regulatory agencies involved and a management plan (if available).