REGIONAL DISTRICT of CENTRAL OKANAGAN

MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY

BLUEPRINT

EXECUTIVE SUMMARY

INTRODUCTION

In response to rapid population growth and increasing recreation and tourism demands, the Regional District of Central Okanagan identified the need for a comprehensive plan for the development of future of recreational marine facilities on the major lakes. A Study was initiated to meet the following three objectives:

1. Complete an inventory of current and future demands for marine recreational facilities on the major lakes;
2. Create a twenty (20) year plan and implementation strategy;
3. Identify and evaluate organizational structures for future marine recreational facilities service delivery

The study has resulted in a "Blueprint for the Future" with recommendations for governance, service delivery, economic impact and sustainable facility development.

The Blueprint was developed through the completion of extensive consultation and public participation, research, on site inventory and data collection, and analysis phases; the results of which are well documented in four separate reports:

- Inventory (Part A) Understanding the Area and Issues
- Analysis and Synthesis (Part B)
- Environmental Issues/Impacts (Part C)
- Recommendations and Conclusions (Part D)

Extensive environmental mapping was also undertaken to support the analysis and recommendations.

KEY ISSUES

During the research and consultation for this study, several key issues became evident.

Vision for Boating in the Okanagan. The lack of a common vision for the future of boating in the Okanagan has resulted in an uncoordinated, inefficient, and underfunded system for the provision of recreational marine facilities in the Central Okanagan. The continuing rate of population growth and boating interests in the region combined with the current lack of support for the boating community will result in a "crisis for boating" in the Central Okanagan.

Status of Recreational Marine Facilities. The current number and quality of recreational marine facilities is inadequate to meet the demands of residents and tourists. Local governments have made little investment in facilities. They primarily provide boat launches (all with parking problems) some docks for day use, and lease some lands for yacht clubs. All the marinas are owned and operated by the private sector, with no common "standards". The greatest need is safe, accessible boat launches with associated parking areas.

Authority and Management. The present method of providing public recreational marine facilities by the five districts and WFN is not meeting the needs of the local residents or tourists. There is no specific funding mechanism or source of revenue for new or improved marine facilities. The region lacks a coordinating body to facilitate the development of a marine recreation facility system.

Private Sector Investment. The private sector has invested in marinas, boat launches, and moorage on the lakes. The private sector has the potential for increasing current service levels of marine recreational facilities provided that local government plays a supporting role in the creation of these services.

Economic Impact. The current and potential economic impact of boating in the central Okanagan has not been considered as an important factor relating to the provision of marine recreational facilities. The current economic impact is approximately $39 million, which is in jeopardy due to the deteriorating quality of the boating experience.

Environmental Impact. Concern for the environment has been an important component of this study. Comprehensive mapping of sensitive habitats was undertaken on the Central Okanagan lakes to identify potential new or expanded facility areas. Further detailed environmental investigations would be required prior to the acquisition or development of any new or expanded recreational marine facility to ensure that sensitive habitats would not be affected.

RECOMMENDATIONS

The major recommendations have been presented below. A complete list of recommendations can be found in Part D of the report.

IT IS RECOMMENDED THAT:

1. The RDCO take the lead role in establishing a coordinating body to collaboratively work with all local governments in the delivery of recreational marine facilities on the lakes.

2. The "Blueprint for the Future" be adopted by RDCO and the municipalities of Kelowna, Lake Country, Westside and Peachland as a guide for the development of recreational marine facilities on the major lakes.

3. All proposed marine facilities, be assessed for potential involvement by the private sector through joint ventures, contracting out, or private sector models.

4. Environmental considerations be taken into account for all developments as the environmental review identified that there are many sensitive foreshore areas as well as areas that are more suitable for marine facility development.,

5. The development and improvement of boat launches and marinas with supporting infrastructure, and boat channels be given high priority by local government organizations.

6. The issue of provision and maintenance of mooring buoys be considered on a Region wide basis. A mooring buoy policy for the entire region should be developed, and then enforced in coordination with all local governments, the Regional District, BC Parks and Transport Canada. Long term moorage buoy use also needs to be considered.

7. New developments (residential and commercial) with waterfront access be reviewed for opportunities to provide additional facilities for public use, including transient and seasonal moorage, boat launches, gas pumps, pump-outs, public washrooms, and beach access. Official community plans should include provision of sites for marine recreational facilities.

8. The economic impact of boating be considered when reviewing waterfront plans and developments that include marinas and boat launches as well as those that provide destinations for local boaters and tourists.

9. Revenue generation be explored such as: launch and mooring buoy permits; revenue from other levels of government including marine fuel taxes and boat registration fees; using special area charges for marine facilities; tourism grants; and federal/provincial infrastructure funding programs.

GOVERNANCE AND SERVICE DELIVERY RECOMMENDATIONS

An important aspect of the study was to recommend a governance model. The governance model should respond to the needs that have emerged from the research and consultation phases of the study which include:

- coordination of marine services;
- a mechanism to maintain an accurate marine facilities inventory;
- standardization of "like" services – e.g. signage at launches;
- systematic approaches to implement additions and/or improvements to infrastructure;
- means to ensure that environmental standards are maintained and improved;
- methods and tools to effectively communicate with users;
- mechanisms to remain current with the needs and desires of boaters;
- opportunities to increase the public's access to the lake system;
- approaches to optimize the use of public sector resources; and opportunities to gain greater access to new sources of capital.

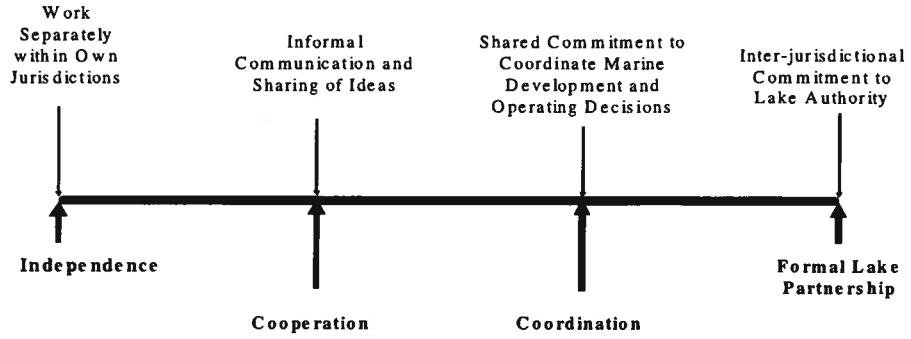
Governance Approach

The consultants met with the Committee to discuss governance options that would respond to the needs of the RDCO Lake system while remaining sensitive to the nuances of the current situation. Various governance alternatives employed in other jurisdictions were examined for their applicability to the local circumstance.

One of the organizations which were reviewed was the Okanagan Basin Water Board (OBWB). The OBWB has been empowered to act as a coordinating body for basin-wide water resource management on behalf of the three Regional Districts. For many years the OBWB has been directing its efforts toward the most urgent recommendations of the 1974 *Okanagan Basin Study* – reducing phosphorus and nitrogen inputs to the lakes and controlling the Eurasian milfoil. Although the Study, known as the "Comprehensive Framework Plan" also considered water based recreation, including boating, provided some recommendations for shoreline recreational facilities up to the year 2020, the OBWB does not appear to have embraced marine recreation as part of their mandate.

The consultants developed a continuum of options that could be considered by the Regional District, as depicted in the following figure:

CONTINUUM OF GOVERNANCE OPTIONS



The consultants suggested - and the Study's Steering Committee agreed – that the circumstances of the RDCO Lake system call for a coordination model. It was also agreed that a coordinating body would require resources, including a contract staff person, in order to be effective. It is therefore recommended that:

- The Regional District of Central Okanagan take the lead role in establishing a *coordinating body* to collaboratively work with all local governments in the delivery of recreational marine facilities on the lakes.
- The Regional District of Central Okanagan provide dedicated resources to support the coordinating committee
- RDCO initiate discussions with the OBWB to determine opportunities to work collaboratively on the implementation of recreational marine facilities.

The recommended body would not have legislative or authoritative powers but would represent the interests of all individuals and organizations involved in the provision, management and operation of marine facilities and infrastructure. However, the coordinating body would be responsible for leadership, coordination and direction for the provision, management and operations of marine facilities and infrastructure on the major lakes in the regional district.

Service Delivery

It is recommended that:

- Municipal governments would take advantage of the resources provided by the *coordinating body* to create joint venture agreements with private sector or not-for-profit partners for development and/or expansion of recreational marine facilities
- Municipal governments remain primarily responsible for the development and maintenance of boat launches within their jurisdictions, but that all options be considered within the context of a coordinated plan

ECONOMIC IMPACT RECOMMENDATIONS

The annual economic impact of boating has the potential of growing from the current level of$39.2M to a forecasted $68.7 by implementing the Blueprint and adapting a business plan for marine facilities. It is therefore recommended that a Recreational Marine Facilities Economic Impact Business Plan be developed.

It is further recommended that a '*boater friendly*' Marketing Plan be developed, which includes an extended boater 'shoulder' season with an economic impact of $11M.

FACILITY RECOMMENDATIONS

Recommendations were developed for each type of recreational marine facility and are outlined in the report Part D. Although this is a twenty (20) year plan, the majority of the facilities are urgently required and should be provided within the next five years, with the remainder within(10) years. Due to the constantly changing environment, including the economy, and the pace of implementation, the facility needs should be reviewed in 2018.

A summary of the recommended recreational marine facilities is:

- Five(5) new boat launches, plus upgrades to most existing launches
- Four (4) new marinas
- Four(4) new grey water pump-outs
- Six (6) new "destination" docks
- Fifty (50) new mooring buoys
- Four (4) dry dock storage locations

- Small boat storage (various locations)
- Boat channels for small craft safety

Specific recommendations with respect to potential locations and timing for facilities are included in the Appendices.

BACKGROUND INFORMATION

Demographics

RDCO's total population will climb by almost 40% over the next 20 years and 50% by 2031. This growth will add 85,000 more residents to the region than live in Central Okanagan today. The region's population will age over time, with the most significant growth in the over 65 age group. This trend will significantly influence the preferences of the region's consumer base to the extent that they will expect the provision of "age sensitive" infrastructure and the delivery of services in a manner consistent with individual needs, including adjustments to facilities and service approaches available at marinas and boat launches.

Ipsos Reid Survey

Ipsos Reid conducted 1,000 telephone interviews which resulted in valuable information. They found that four-in-ten households own a boat and that one-in-ten will likely purchase a boat in the next five years. There was dissatisfaction on the part of the majority of boaters with the marine recreational facilities, and eighty percent agree that there are not enough facilities to meet the future demand. They also found that more than three-quarters agree local governments should invest more in these facilities, and that the priorities are boat launches (with parking), followed by public boat slips and marinas.

When it comes to managing marine recreation facilities, a slight majority of respondents would prefer to see individual local governments continue managing the facilities in their own community rather than create a single coordinated regional entity for this responsibility. Nearly nine-in-ten respondents think local governments in the Central Okanagan should play a role in providing marine recreation facilities. Eighty percent support public private partnerships in the provision of facilities and they support using public funds in these partnerships.

Overall, the Ipsos Reid findings suggest that residents want to see local governments involved in the provision and management of marine recreation facilities.

Inventory

Recreational marine facilities on the major lakes were inventoried including: boat launches and associated parking, moorage slips, docks, boating clubs, public washrooms, gas pumps, grey water pump outs mooring buoys and waterfront parks. Forty-seven (47) points of interest were identified for further study. The complete inventory can be found in the Inventory Report Part A.

Boating Activity

Boat launch counts were taken at 27 sites during May-July with the busiest locations at Peachland, Westbank, Cook Street (Lakeshore), Water St, Sutherland Bay, Okanagan centre, Coral Beach and Oyama. The estimated number of boats launched from mid May to mid September was 53,000. The origins of boaters, based on trailer licence plates are: 72% within the Region, 15% from the rest of BC, 11% from Alberta, 2% elsewhere. According to Transport Canada there are 69,000 registered boats in the region,

Development Activity

Over the next five years approximately 2100 slips will be added by the private sector. Only 400 of those will be available for purchase or lease by the general public.

Public Consultation

Public input has been sought and received in a variety of methods throughout the study. This included three public meetings, two think tanks, numerous interviews and presentations, and feedback received on the website that was set up for this project By far the majority of participants in the consultations were very supportive of the study and the need for additional facilities immediately. The most frequently expressed concern was the need for moorage slips, boat launches and mooring buoys. Participants in the process represented the boating public, private operators and developers, the marine industry, yacht clubs, the tourism industry, boat owners, municipal, provincial and federal government, environmental agencies and local residents.

ENVIRONMENTAL ISSUES/IMPACTS

The potential environmental issues and impacts associated with current and future marine facilities is addressed in a comprehensive report, complete with mapping, prepared by Summit Environmental as Part C.

Environmental Rating System

To compare the potential effects that existing and future marine facilities have on the environment, a hazard system was developed. Potential marine facility sites were assessed for the following criteria: proximity to water intake(s); proximity to shore spawning habitat; existing level of shoreline disturbance; noise hazard - proximity to residences; proximity to fish bearing stream(s); ecological communities; wildlife habitat; and riparian area values.

Environmental issues and Potential Impacts

The potential impacts of new or upgraded facilities have been summarized in table format in the report Part C for each of the 47 points of interest. Major facilities, boat launches and docks should be avoided in areas with red or yellow zone (shown on maps) spawning habitat unless a qualified professional completes an EIA that determines that proposed upgrades will not cause a harmful alteration, disruption, or destruction (HADD) of fish habitat.

CONCLUSION

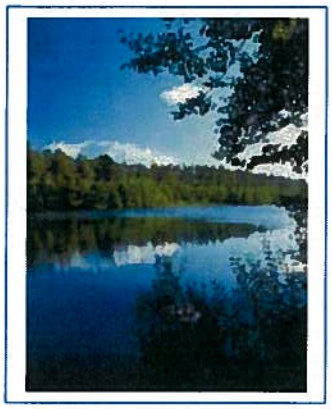
The Study results have shown the tremendous need for the provision of additional marine recreational facilities in the Central Okanagan. The study has provided a "Blueprint for Action" and will help set the direction for the future. The extensive interest and participation in the Study by a large number of stakeholders will provide support for implementation; however it has also created expectations for action to be taken.

There is an opportunity for the RDCO to take a leadership role by creating and supporting a coordinating body to collaboratively work with all local governments and the private sector in the delivery of marine recreational facilities on the lakes.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

UNDERSTANDING THE AREA AND ISSUES REPORT

PART A



MAJOR LAKES
RECREATIONAL
MARINE
FACILITIES STUDY

Submitted by:

GDH Solutions

In association with
The JF Group and
Summit Environmental Consultants

August 10, 2008

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CENTRAL OKANAGAN MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY

Overview

The Regional District of Central Okanagan recognized the need to plan for the ever increasing demand for access to marine recreational facilities. The continued popularity of water based activities and in particular those related to the various types of boating has put tremendous pressure on the existing facilities. The development boom and the influx of thousands of new residents every year adds to the demand. Many residents moving to the Okanagan come for the lifestyle, which for many of them includes boating. Likewise, the large numbers of tourists who flock to the region in the summer months enjoy the amenities of the lakes.

In response to these demands the RDCO initiated this study in order to: obtain a comprehensive inventory of current and future projected demands for marine recreational facilities on the lakes; have in place a comprehensive twenty year plan and implementation strategy for marine recreational facilities; and to explore different structures and types of organizations for future marine recreational facilities service delivery within the Regional District.

The study was governed by the following Guiding Principles:

- Protect and expand water based and marine recreation opportunities
- Increase water based recreational lake and marine accessibility in the Central Okanagan
- Maintain opportunities for economic development
- Consider service delivery options and legislative impacts
- Ensure any options identified to increase water based marine recreational opportunities respect current local government legislation
- Protect fish and other environmentally sensitive habitats and achieve no net loss to the environment

The final report will have four distinct sections: Part A. Inventory; Part B. Analysis and Synthesis; Part C. Environmental Issues/Impacts; and Part D. Recommendations and Conclusions.

PART A. INVENTORY

Introduction

Part A. Inventory forms the basis for the analysis, and subsequent recommendations and conclusions of the study.

The methodology for Part A included: meetings with municipal and First Nations officials, discussions with provincial government and agency officials, on lake boat counts, recording of boat types and numbers at launch sites, site visits by land and water to document and photograph facilities, compilation of lists from Yacht Clubs, Marinas and Boat Clubs, presentations to committees (LMAC, Lake Country PARC), review of existing maps and studies, research on the internet, stakeholder consultations, and collection of input on the "boatingintheokanagan" website.

In addition a public opinion survey was conducted by Ipsos Reid to better understand residents' usage of and satisfaction with current marine recreation facilities. In total 1,000 telephone interviews were conducted with a randomly selected sample of adult Regional District of Central Okanagan residents. This was done between June 3rd and June 15th, 2008.

This report is organized into the following sections:

1. Inventory -Current recreational marine facilities
2. Boating Activity
3. Development activity
4. Consultation
5. Demographic Trends
6. Governing Authorities Review
7. Ipsos Reid Survey: Objectives, Methodology and Executive Summary

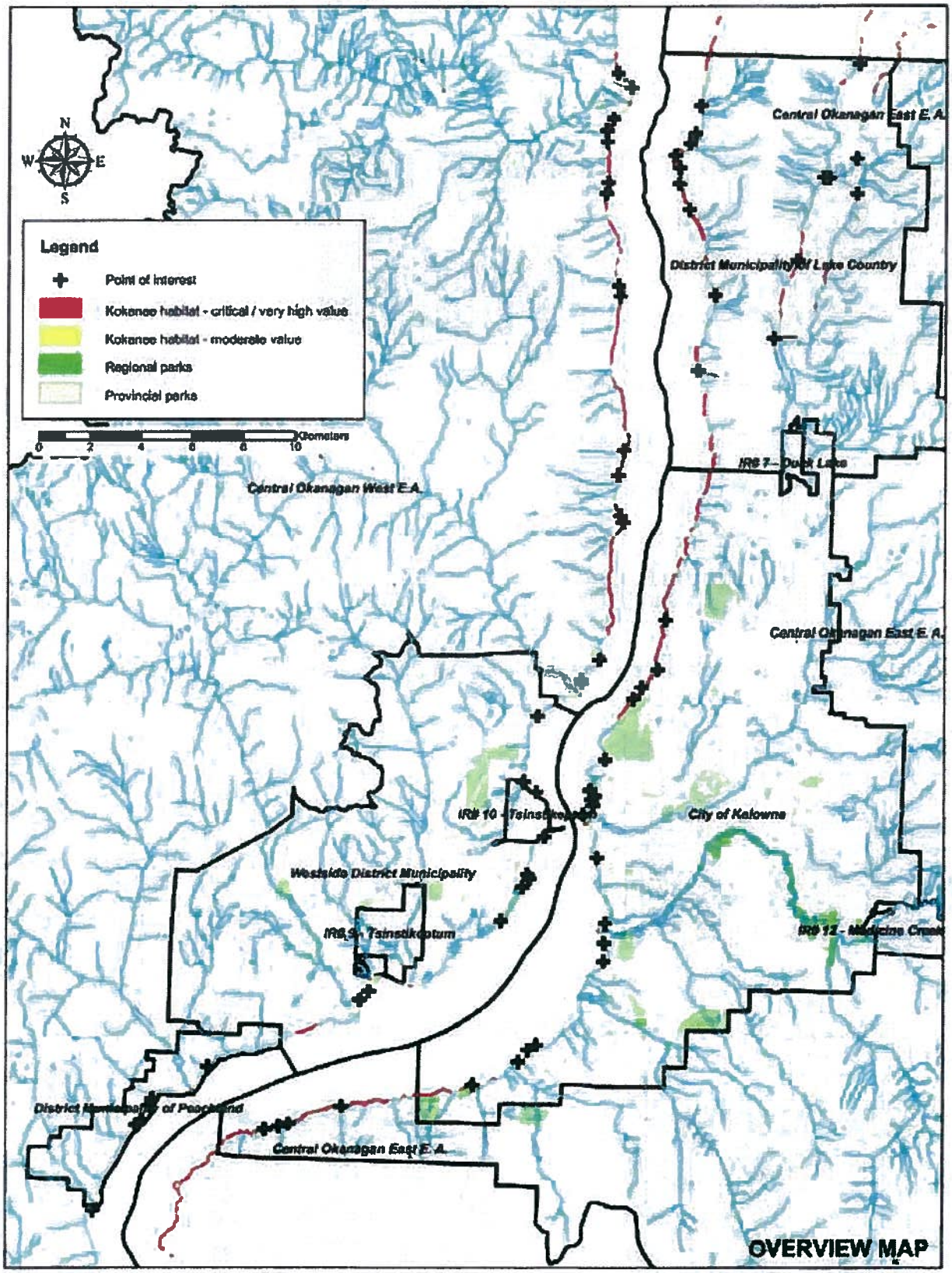
1. Inventory

Current Recreational Marine Facilities

Site visits were conducted during May, June and July, by road and by water on the three major lakes. A total of seventy-seven (77) sites were initially designated as points of interest and were documented and photographed. Of those sites forty-seven (47) were identified of interest for potential future upgrades or changes in use.

The following pages depict each of the 47 sites, by municipality, each with a photo, brief description, and the Preliminary Suggestion Direction (PSD). An additional 17 sites are also shown on the inventory pages, although they have not been designated for further consideration at this time.

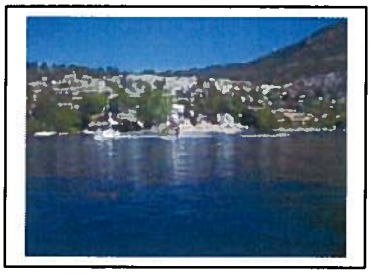
POINTS OF INTEREST OVERVIEW MAP



POINTS OF INTEREST: Existing Facilities and Preliminary Suggested Directions (PSD)

PEACHLAND

P1 Davis Cove Existing: Beach, mooring buoy
PSD: Additional mooring buoys for day and overnight use

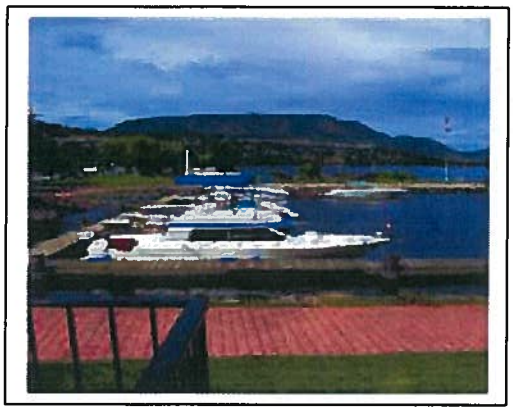


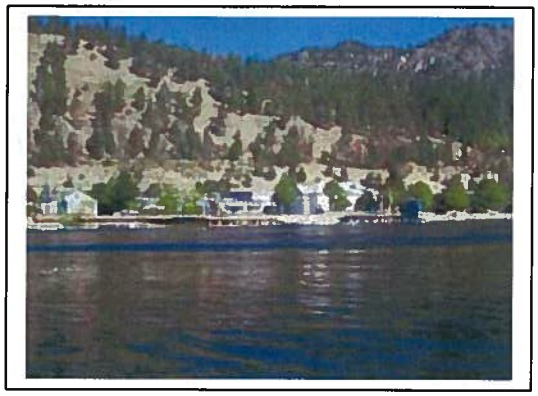
Todd's Boat Launch Existing: Beach, single boat launch, dock
PSD: None

P2 Pincushion Bay Existing: Double bay cement boat launch, washroom nearby, beach, with on street parking
PSD: Upgrade launch area, add parking

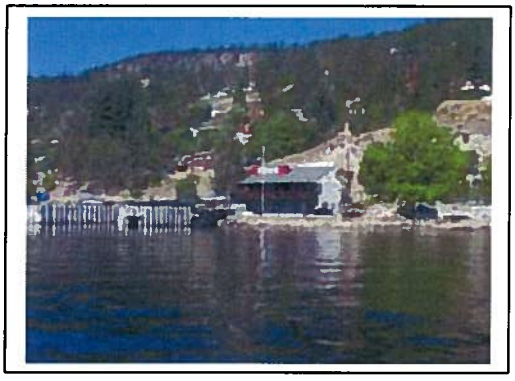
P3 Peachland Yacht Club: Existing: 55 slips, 2 visitors' bays, adjacent washrooms, snack bar
PSD: Upgrade boat slips

P4 Heritage Park Existing: Day mooring (28), park area; adjacent to restaurants, boutiques and amenities.
PSD: Upgrade day moorage; consider overnight moorage

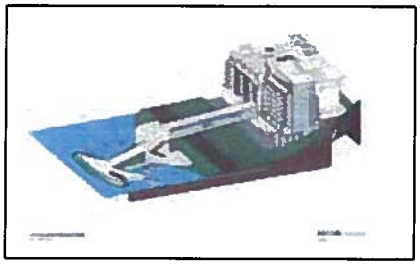




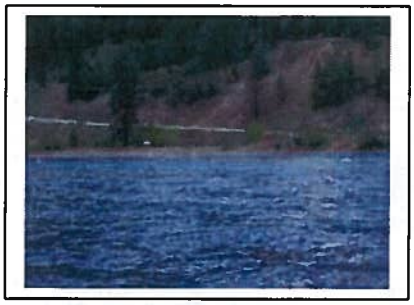
P5 Pentowna Marina Existing: 82 Slips, rentals, gas pump, washroom
PSD: Upgrade docks and slips; potential expansion to marina



P6 Doggie Beach Existing: Double bay launch, parking area for 20 (unmarked spots) 20 Car Parking
PSD: Concierge Boat Storage Proposed (Private sector)

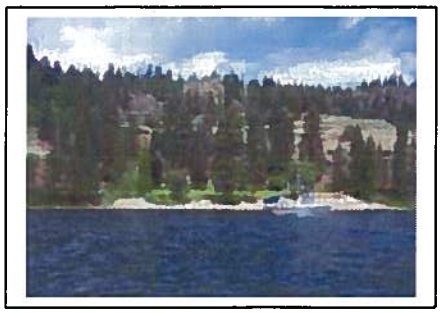


Antler Beach Existing: Beach, picnic area, parking lot
PSD: None

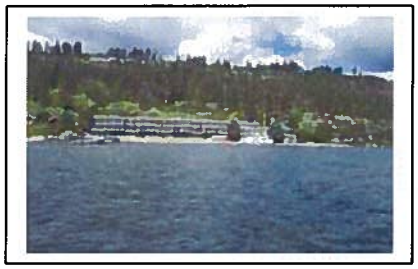


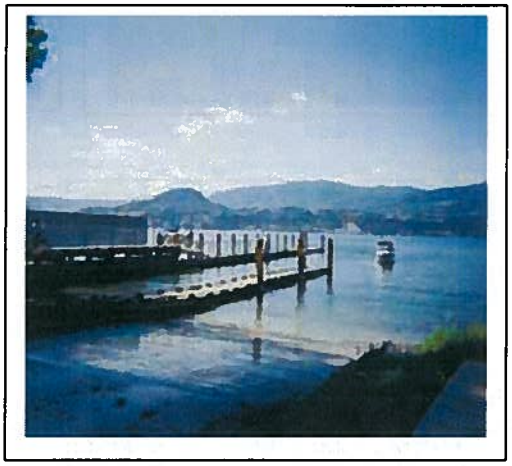
WESTSIDE

W1 Raymer Bay Regional Park: Existing: Beach: Small parking area, washrooms& picnic shelter, mooring buoys
PSD: Additional mooring buoys (day and overnight use)

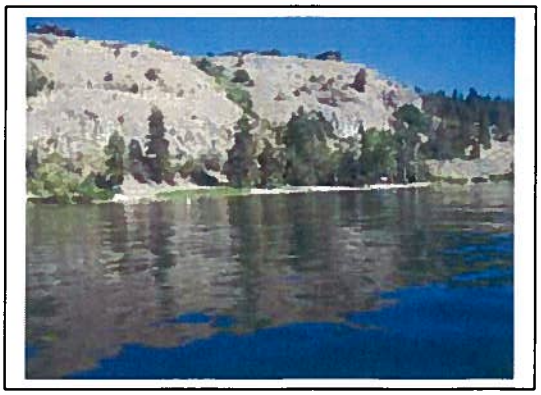


W2 Casa Loma Existing: Lakeshore Resort-Private/Commercial, Safe Harbor/ Public Rental and Visitors Slips
PSD: Additional visitor slips and mooring buoys

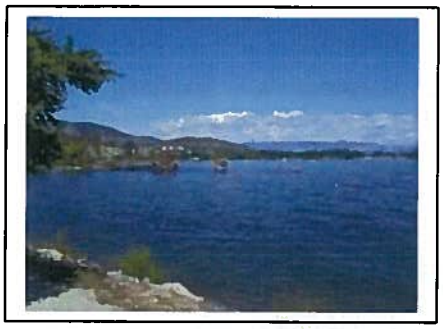




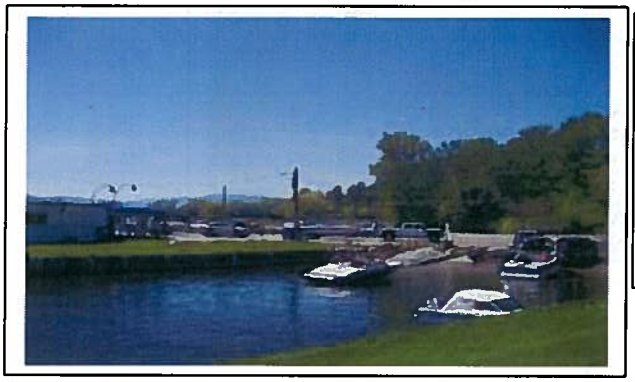
W3 Kalamoir Park Existing: Park, beach, washroom, parking, mooring buoys
PSD: Additional mooring buoys



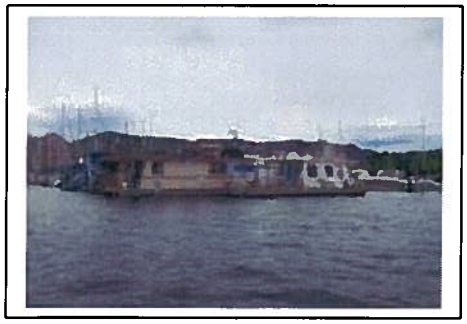
W4 Gellatly Bay Existing: Beach, swim platform, washrooms, parking, mooring buoys
PSD: Additional mooring buoys



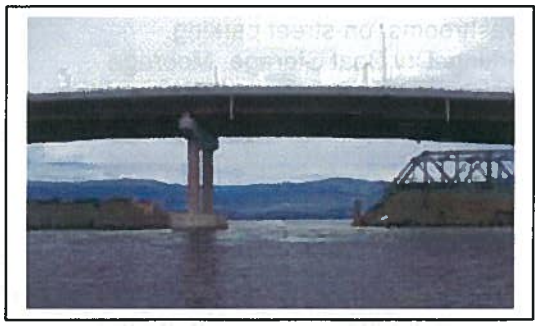
W5 Westbank Yacht Club Existing: Double Bay Cement Launch, vehicle & trailer parking (12), plus car parking (40), Yacht Club facility, public washrooms
PSD: Additional parking and boat storage (private sector interest)



WFN Shelter Bay Marina Existing: Slips, gas pump, private launch
PSD: Expanded marina operations



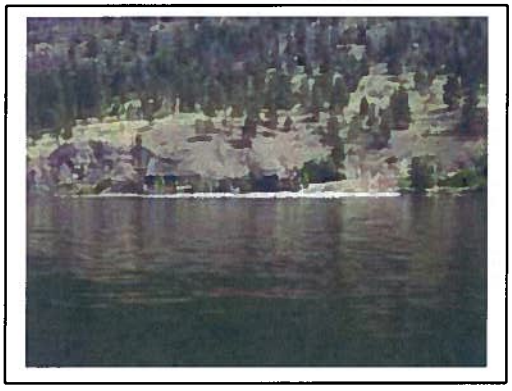
KELOWNA



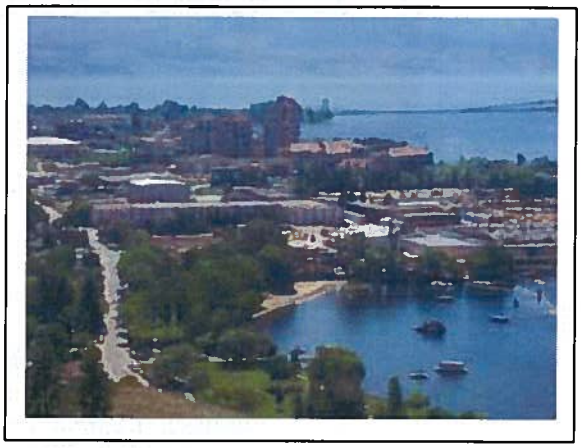
Mooring Buoy and Beach Existing: Area for mooring and beaching boats.
PSD: None

K1 Paul's Tomb Existing: Mooring Buoys
PSD: Additional buoys

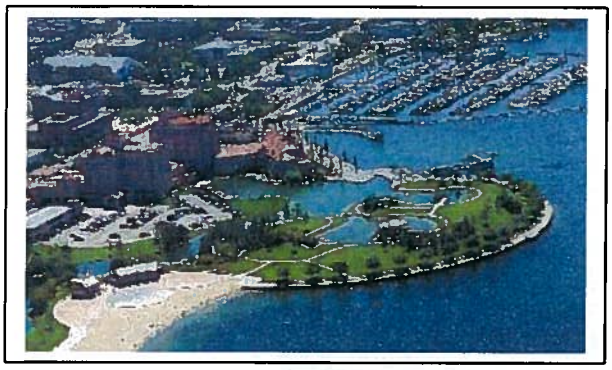
Kelowna Water Intake
PSD: None



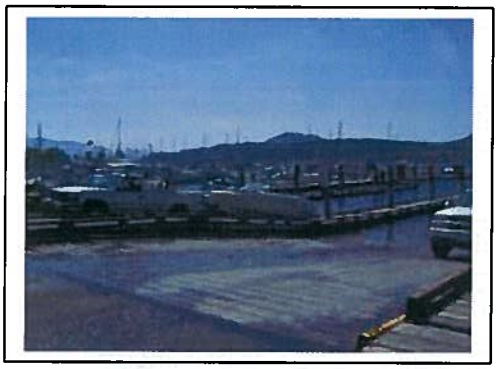
K2 Sutherland Bay Existing: Double launch, beach & washrooms, on-street parking.
PSD: Enhanced boat launch. Future considerations: Parking, Dry Boat Storage, Moorage



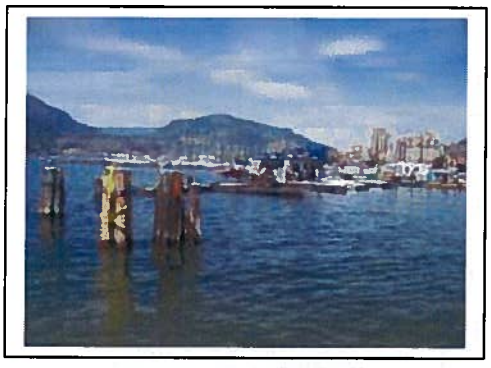
K3 Waterfront Park Existing: docks, boat rental, float plane,
PSD: hotel / strata/public expansion



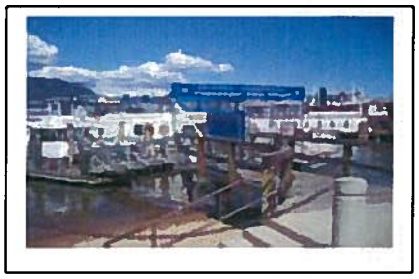
Water Street launch Double bay cement,
Short term parking only at launch

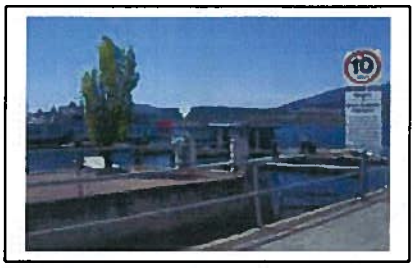


K4 Kelowna Yacht Club Existing: Moorage 620 slips, Yacht club facility, Grey water pump out, parking lot
PSD: Expand moorage; clubhouse re-location



K5 Kelowna Marina and Kerry Park; Existing: Marina, rentals, gas pump, beach, park, parking
PSD: Expansion and restructuring under City consideration; should include improved marina facility, new gas pump/storage, public moorage slips.

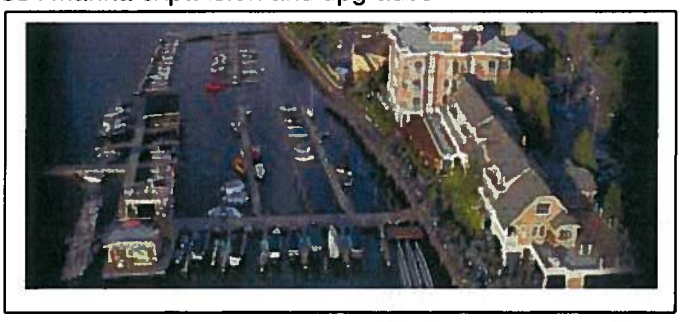




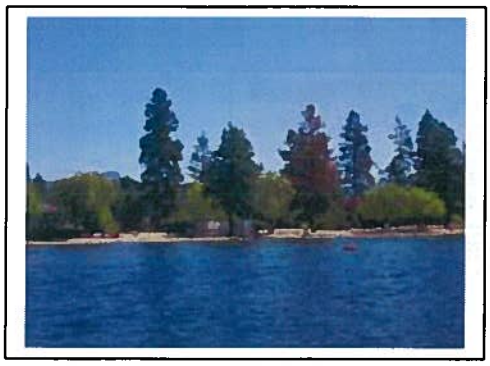
K6 City Park Existing: beach, parking, washrooms, concessions
PSD: Capacity for Small Boat Club- hand launch, mooring buoys

K7 Kinsmen Park- Existing Park, beach, washrooms, concession, parking lot, mooring buoys
PSD: Additional mooring buoys

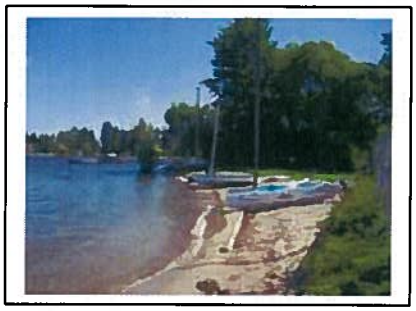
K8 Lakeshore Boat Launch, Eldorado/Manteo Existing: Quad Launch, Marina (66) slips, gas, grey water pump out, trailer parking (40) & car parking (30) Valet boat storage (200)
PSD: Marina expansion and upgrades



K9 Bluebird Beach: Existing: Beach, playground, parking lot, mooring buoys
PSD: Additional mooring buoys



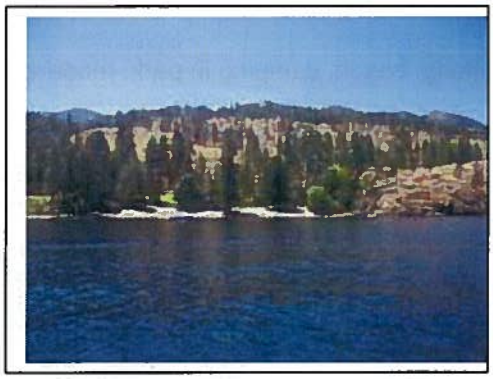

K10 Central Okanagan Sailing Association Existing: Club house and washrooms, boat launch, major docks, beach, parking, boat storage
PSD: Upgrade launch and docks

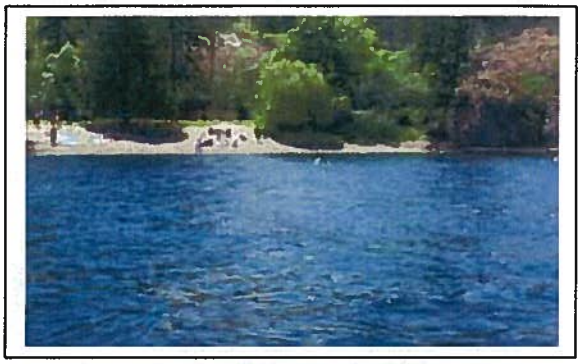



Braeloch Road Beach Access Existing: Beach access
PSD: None

K11 Cedar Creek Existing: Beach and Launch, second beach & picnic area; limited parking capacity at launch
PSD: Upgrade launch


K12 Bertram Creek Park Existing: Beach, picnic areas, parking, washrooms, playground
PSD: None





REGIONAL DISTRICT OF CENTRAL OKANAGAN West Electoral Area

R1 Fintry Park Existing: Boat launch with dock, washrooms, parking, beach, camping in park, mooring buoys.
PSD: Additional mooring buoys in bay to north of launch



Fintry Delta- Existing boat launch
PSD: None


La Casa Existing commercial boat launch

R2 Agate Bay S Existing: Mooring buoys, beaching area
PSD: Additional mooring buoys for day and night use.

R3 Agate Bay North- Mooring buoys, beaching area,
PSD: Additional buoys for day and overnight use.

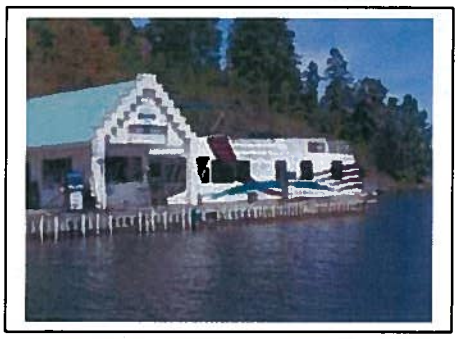

.

Caesar's Landing Existing: Dive Site, mooring buoy
PSD: None

Mooring Buoys Existing: Mooring buoys in quiet bay
PSD: Additional Buoys

.

Lake Okanagan Resort Existing: Marina, private moorage, convenience store, resort restaurant on beach, boat launch
PSD: None



R4 Wilson Landing Launch/Wilson North Existing: Small local boat launch and mooring buoys
PSD: Additional mooring buoys

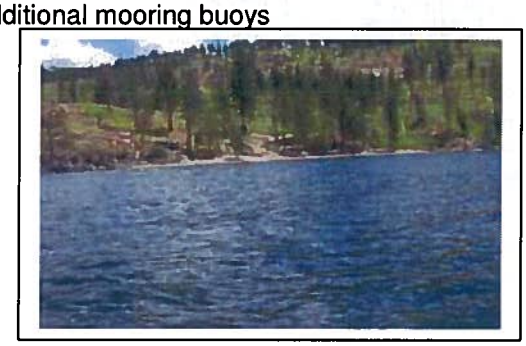
R5 Traders Cove Regional Park Existing: unpaved parking area, large open space park areas, beach, picnic shelter, toilets, boat moorage bay, navigational light.
PSD: Additional mooring buoys for day and overnight use

R6 Tolko Lands Existing: Graving docks for bridge construction/dismantling, entrance road, construction trailer
PSD: Potential for full scale marina, boat launch, parking areas, dry boat storage

R7 Bear Creek Existing: Single launch- Parking (40) cars (15) trailers (temporary use of park's day use lot), beach, washrooms, picnic areas, camping, all in Bear Creek Park
PSD: Re-instate double boat launch as soon as possible

REGIONAL DISTRICT OF CENTRAL OKANAGAN East Electoral Area

R8 OK Mountain Park Existing: Mooring buoys, small dock, beach area
PSD: Additional mooring buoys



R9 Scruggins Reef Existing: Mooring buoy, dive area
PSD: Additional mooring buoys

LAKE COUNTRY

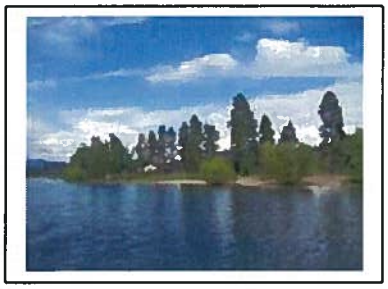
L1 Coral Beach Existing: Boat launch with doc, 2 parking spots, washrooms, and park
PSD: Additional parking

L2 Lake Country Sailing & Boating Association- Marshal Park Existing: Small Boat storage, launch, washrooms, beach (10) car parking
PSD: Install dock and improve parking.

Carr's Landing: Existing: Mooring buoys
PSD: More buoys

L3 Whiskey Cove Existing: Beach, parking lot, "unofficial" boat launch
PSD: Install boat launch

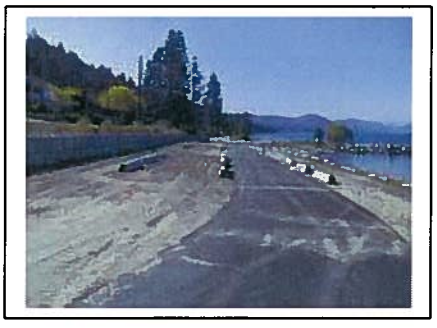
L4: Kopje Regional Park Existing: Beach, washrooms, Historical House, Parking (25)
PSD: Boat launch, additional parking for trailers, mooring buoys

L5 Pixie Beach: Existing: Public beach, mooring buoys
PSD: Additional mooring buoys

L6 Okanagan Centre Safe Harbour Existing: double launch/parking for 10 car/trailers
PSD: Capacity for Marina Development and additional parking



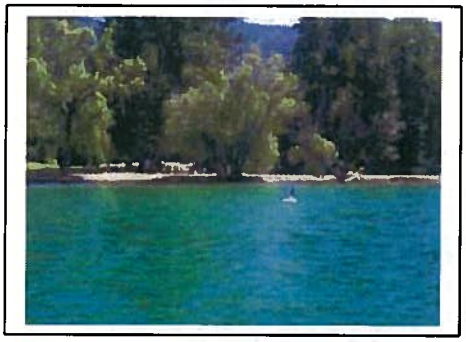


LAKE COUNTRY – KALAMALKA LAKE

L7 Sheltered Area Existing: None
PSD: Additional buoys

L8: Sheltered Bay Existing: beach, mooring buoys
PSD: Additional buoys

L9: Kaloya Regional Park Existing: Parking (70 cars), beaches, washrooms, picnic areas, buoys
PSD: Capacity for new boat launch and car/trailer parking, additional buoys



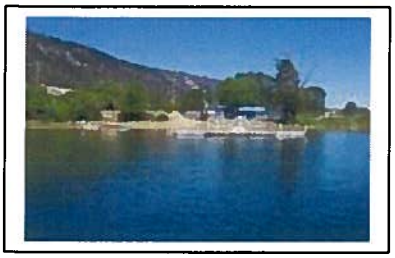
Trailer Park Existing: Tween Lakes trailer park, beach, docks, gas pump
PSD: None

Owls Nest Existing: Resort with private docks, boat launch, gas pump
PSD: None

Rattlesnake Point Existing: Buoys, swim area
PSD: None

WOOD LAKE

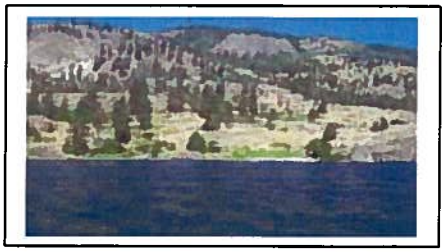
L10: Lake Country Board & Sail Club Existing: Beach, docks, mooring buoys,
PSD: Upgrade docks



L11: Twin Lakes Channel Crossing-maintenance required

L12: Oyama Launch Existing: Launch, roadside parking
PSD: Upgrade launch, provide parking area

L13 Picnic Area Existing: Picnic Area, Mooring buoys



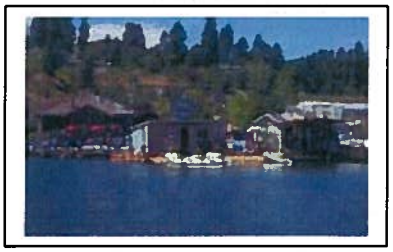
L14: Sheltered Bay Existing: Mooring Buoys
PSD: Additional buoys. PSD: Additional mooring buoys

Reiswig Park Existing: Beach, park, parking lot site. Limited parking.
PSD: None.

Small Launch; Existing: Road end Hand Launch

PSD: None

Turtle Bay Existing: Marina slips (74) gas pump, grey water pump out, washrooms, private boat launch, parking, and restaurant
PSD: None



L15: Winfield- Existing: 2 Roadside Launch & Road-side parking
PSD: Upgrade when HWY 97 re-located

2. Boating Activity

Boating Activity was measured in May, June and July, with a focus on the holiday long week-ends, and on week-ends in particular.

In order to determine the number and type of boats using the lakes, several methods of data collection were used. Boat and trailer counts were taken at 27 boat launch sites, and size and type of boat was also recorded, in accordance with the data required for the Economic Impact Model. Boat counts on the lakes were taken at different locations on the lakes, on a number of days, in June and July. Marinas and Yacht clubs assisted the process by providing numbers. Using information form the Ipsos Reid Survey, it has been determined that 4 percent of boats come out of private slips on the lakes.

Appendix A is a summary of the counts, both boats launched and "boats on the lake" counts. These numbers provide a "snapshot" of boating activity. The number of boats launched on 43 days on Okanagan Lake was about 16,000; the number on Wood and Kalamalka was about 1600. It is estimated that an additional 700 boats were launched at private docks/sites. The number of launched on Lake Okanagan on a "peak day" was 1429; the number for Wood Lake was 149. The "on the lakes" count for the 43 days was 23,220. This number would include boats launched outside the RDCO boundaries on Lake Okanagan.

An additional source of information is the number of boat registrations and pleasure craft licenses. This information was obtained from Transport Canada Operator Competency Program of Marine Safety. They have 69,400 boats registered in the Central Okanagan region...

Trailer license plates at boat launches indicate that 72% of the boaters are regional residents; 15% come from other parts of BC; 11% from Alberta; and 2% from the rest of Canada and the USA.

3. Development Activity

Development activity was examined in order to get a feel for the current applications for residential and resort development that included waterfront amenities. Not all of the developments listed have made formal applications to ILAM for approvals, but all are in some stage of the application process with the municipalities.

Research was conducted by meeting with staff in the municipalities, private sector individuals, reviewing applications on Front Counter BC as well as follow up on the internet to gain a better understanding of the proposed developments.

The following is a list, by municipality of the proposed marine recreational facilities:

Peachland

Peachland Boat Storage is a large facility proposed by the private sector on the west side Highway 97, just south of downtown Peachland. The building will include berths for 255, 35 foot power boats, with some parking indoors, plus 125 spots on the roof. The building will also include condominium residences. A concierge service will transport the boats across the highway by means of an overpass to the Doggie Beach boat launch. The boat launch would be re-designed to better accommodate this project, and access will be provided to the waterfront via a walkway through the project lands. The development is at the stage of participating in an Area Structure Plan. Staff is supportive of this plan.

Peachland is currently upgrading their waterfront amenities, including a walkway, sitting areas, platforms overlooking the lake, and an improved swim bay with Tarzan ropes and zip line.

Peachland has a foreshore lease that they've had since the 1950's, through various renewals. They have a "head lease" which extends 600 feet into the water.

There are no plans to improve or add boat launches on the part of municipality. No additional parking is planned anywhere. Council decided to remove most of the buoys along their shoreline, to allow for swimming areas. Some buoys have been grandfathered, and no new ones are allowed in designated areas. On the north end of the foreshore each waterfront parcel may apply for one dock and one mooring buoy. One small Strata (Stonewater) is under development (8 lots) with waterfront docks.

District of Westside

Westside has a number of Resorts and Stratas which have applied for expansion to their docks. These include La Casa, Happy Valley, the Cove, Green Bay Landing (6),Strata KAS468 (17), and SRVP Development Inc.(20). Barona Beach is a new development which includes moorage slips (30). There are additional development proposals at various stages, but most of the land is in the ALR, so at this time it's not known how much will proceed to actual developments on the waterfront.

The new staff in Westside, Parks and Recreation as well as Planning will be reviewing opportunities for increased access to the waterfront for residents. There are "road ends" which could possibly be considered for boat launches as well as beach access and parkland.

Westbank First Nations

WFN is poised for some very significant residential developments on their foreshores. The two major developments which are currently advertising their projects are: Interface Development Group, which is Pacific Capital, is promoting "Orchard Beach", a community of 175 condos; Troika Developments has "West Harbour" which is 1500 homes. Both of these projects are located near the old Ferry Dock, and want private access to the lakefront for their residents.

WFN is also contemplating their own marina facility on band owned lands. They have been in conversations with private marina operators and will likely enter into a joint venture for a 400 slip marina.

The current Shelter Bay marina operator has been told that the marina will have to close soon; originally the timeline was next year. It has been extended for another year. Concord Pacific has shown interest in a major development on that site, but no application has been made at this time.

RDCO West Electoral Area

There are a number of developments ongoing and proposed in this region, on the foreshore of the lake. These include: South Okanagan land Development, near Fintry, which is 54 lots with 26 docks; Montebello Marina is an application for an 88 slip marina; Lake Okanagan Resort has applied for an major expansion to their marina (300); Caesar's Landing, a large dock with some moorage (20) and swimming areas.

Tolko Industries, whose lands are currently being used as the bridge building/dismantling yard, apparently have an interest in a large public marina. There is no application for such a project at this time.

District of Lake Country

Lake Country has undertaken a large initiative to control the placement of non-licensed private moorage buoys and floating wharf structures. They have applied for "License of Occupation on Unsurveyed Foreshore" that the District is upland owner to. These areas are parkland and road ends. The District does not plan on constructing docks, wharves or other structures, but will be installing floating swim rafts, to be maintained by the District.

There is a large development in Lake Country known as Lakestone (formerly Solera) which will consist of about 400 residential units. They have applied under the Commercial Wharf category for moorage for more than 100 boats, plus on land boat storage for about 60.

On Wood Lake there is the Renascence Development located next to Turtle bay marina. This development will have moorage for the residents. There are also some smaller Stratas on Wood Lake, such as Emerald Beach and Wood Lake Villas (20).

There is an individual who is pursuing the development of a marina on Wood Lake, at Ponderosa Road and Highway 97.

City of Kelowna

The City has commenced the process for a major re-development of their waterfront. Public consultation has taken place on the Parks Master Plan. The waterfront plan was developed with involvement from Westcorp, the owner of the Willow Inn, a centrally located piece of real estate on Water Street. The developer wants some private waterfront use for future Strata moorage. The current concept includes a large public dock, a new marina, a restaurant on the water, a new swim area, and the removal of the Yacht Club building, removal of the Kelowna marina, the single boat launch, and removal of the small boat building.

With respect to major developments and improvements on Lake Okanagan, there are many:

- Manteo Resort plans a major expansion, including two condo towers, a parking structure and additional moorage.
- Eldorado Hotel has made application under the name R93 Enterprises for an expansion to their marina of about 30 slips.
- The Mission Group with their Aqua Resort development will be applying for private moorage for their 400 unit Strata. It will likely be for about 100 slips. As part of their development they will be re-configuring the parking lot at the Cook Street Boat Launch to provide 63 car/trailer spots and 61 car spots. This is similar to the current capacity. The dry boat storage, Eldorado Boat Storage (200 boats) will be eliminated.
- Sheerwater Estates, another Mission Group project is underway and they have just recently installed private docks for 40 boats.
- Vintage Landing, now known as Kinnikinnik is a massive 870 acre development in the north end of Kelowna, by McKinley's Landing. They are planning on extensive waterfront amenities including a marina with gas pump, a restaurant, a swim area and moorage for about 150 boats.

In addition to these major developments there are many new individual residential applications for docks that are on file with Integrated Land Management.

In all approximately 1800 new boat slips will be added over the next two to five years, with 1400 of those for private use.

4. Consultation

A Think Tank was held June 18th hosted by the Westbank Yacht Club. The Think Tank was attended by representatives from all the Yacht clubs on Lake Okanagan including Summerland, Penticton and Vernon as well as Kelowna, Westbank and Peachland. In addition, there were private sector representatives from Dockside Marine, Peachland Boat Concierge, the Peachland Economic Development Commission and a Kelowna Boat Industry entrepreneur.

This consultation resulted in good discussion on the main issues facing boating in the Okanagan. They include: water quality, places to see and stay on the water, weather, gas prices, enforcement of noise by-laws and reckless drivers, a shortage of moorage and buoys, placement and maintenance of buoys, buoy management liability, boat wakes, and camping management.

The trends identified by the group were: shrinking numbers of boat sales, but increase in sales of higher priced boats, reduction in public slips and an increase in commercial and private sector moorage, shorter periods of power boat use, increasing boat sizes, violations on the lake with regards to noise, increasing numbers of youth boating programs.

Discussion regarding a coordinating "lake authority" took place in the identification of a few options: Lead role by CORD, establish a Major Lakes Task Force, changed role of LMAC.

The recommendations and comments coming out of this Think Tank included: Deploy resources for enforcement; Act on noise; Stealth technology is available; Pump outs need to be addressed; Speed is dangerous; Organize "speed events"; Developments are too land based; Keep lake access affordable; Act on more public moorage.

A second consultation was conducted as a Round Table on July 23rd. This round table was designed to receive input from Federal and Provincial government officials and agency staff, who have a role in recreational marine facilities. This group provided insight and recommendations on a number of topics. Recommendations included: develop a comprehensive private-public initiative for dry-storage with easy water access, (not on foreshore) for residents and seasonal-regular visitors; developer approvals for foreshore development be conditional on a portion of the amenities include public access, to slips, launches, parking and moorage; upgrade all designated boat launches and re-construct to include accessible parking, and conduct an existing marina/slip review for a consistency usage upgrade; the RDCO develop a strong boating friendly awareness campaign to both local and tourist markets which includes highly visible directional signage, tourist moorage/storage sites and on lake travel routes with designated mooring buoys; a major public-boater awareness campaign be positioned for short term impact with enforcement for respectful recreational use of the lakes; a Greater Okanagan Lake Alliance be implemented with a strategy to developing a self - funding jurisdictional authority.

Three public meetings are scheduled; August 13th at the Jammery in Kelowna (border of Lake Country); August 19th at Bliss in Peachland; September 10th TBA.

Consultation meetings were held with Planning Staff in the local municipalities, the Regional District, and Westbank First Nations. The purpose of these meetings was to inform them of the study and to obtain information of development applications current and proposed. This information was used in part to develop the list of "Development Activity". Meetings were also held with Parks and Recreation staff in the municipalities to discuss issues regarding marine recreational facilities.

The research for the Governing Authorities reviewed included interviews with marina owners and operators, yacht clubs, small boating associations, the Victoria Harbour Authority and others.

Informal meetings, interviews and discussions are ongoing with the boating community and a wide range of stakeholders. Input from the general public is being sought and received on a website set up for this study: www.boatingintheokanagan.com. The site is being promoted in a weekly article "Ripple Effects" in the Saturday Okanagan newspaper.

A complete report on the consultations and findings will be provided in the final phase of the report.

5. Demographic Trends

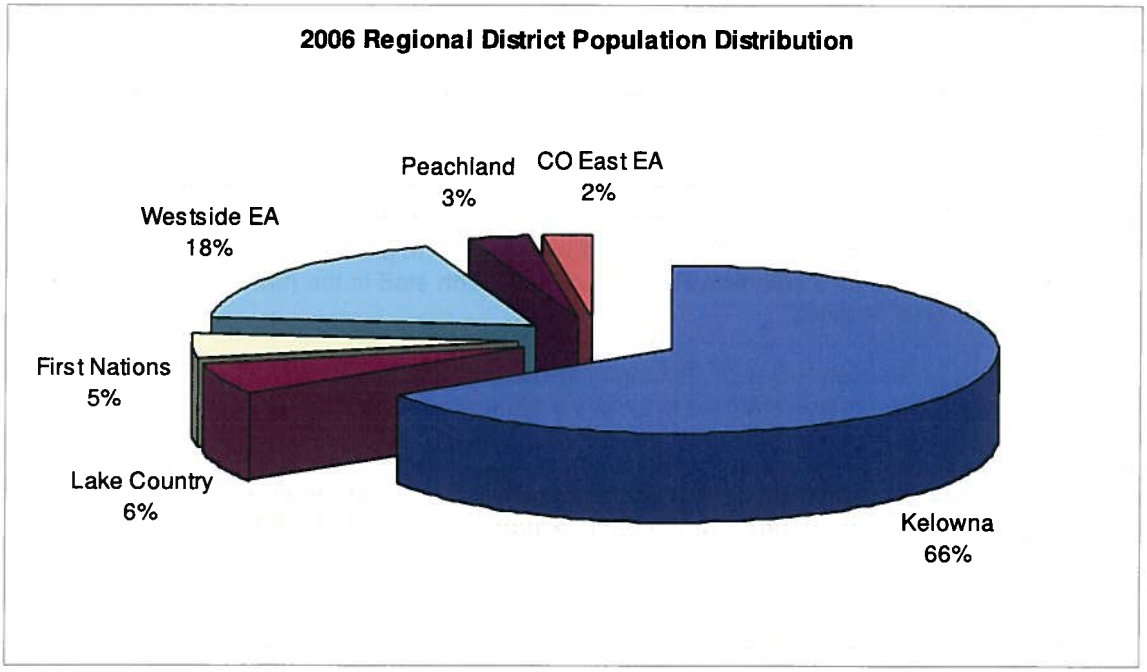
Overview

The Regional District of the Central Okanagan (RDCO) consists of over 2,900 square kilometres of diverse landscape and topography including nearly 7,300 acres of clean, sandy beaches, rich agricultural land and forested hills. The area is an attractive tourist destination as well as a popular location for wide range of businesses.[1]

RDCO is made up of five separate electoral areas: City of Kelowna, District of Peachland, District of Lake Country, Central Okanagan East Electoral Area, and the Westside Electoral Area. The RDCO also includes Indian Reserves on First Nations lands that are located in several of the five electoral areas. Although each area boasts unique characteristics, they are closely aligned in the provision of many services. Similar use profiles of the three lakes by residents from each RDCO jurisdiction as well as consistencies in the management approaches of marine facilities demonstrate the existing and potential interrelationships between the communities.

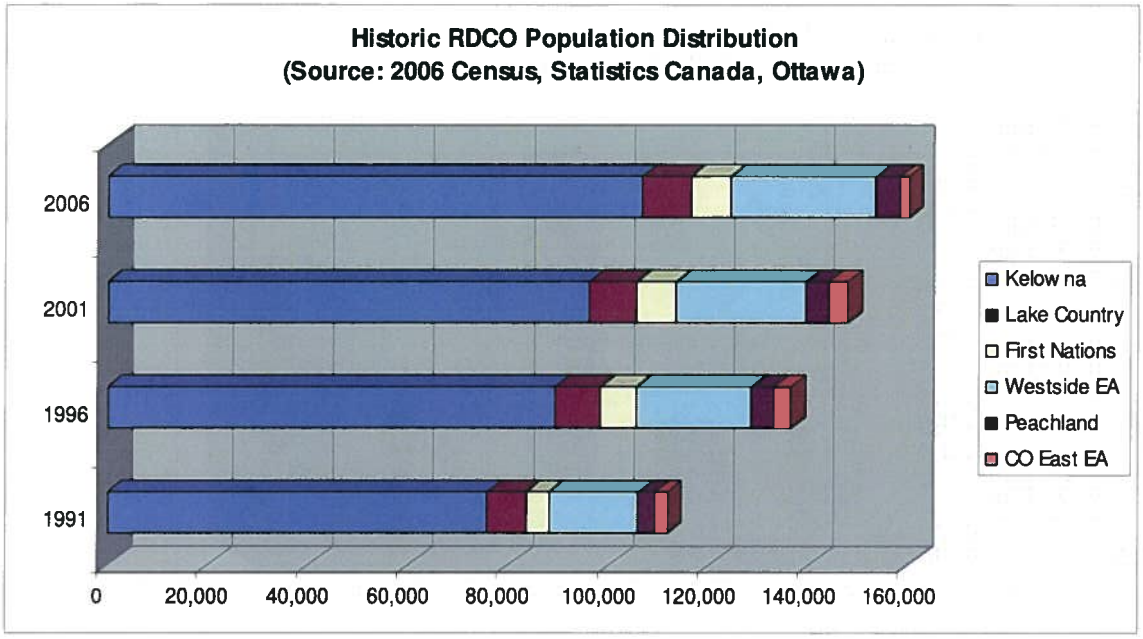
Population Growth

The estimated population for the RDCO in 2006 was 162,276 with approximately two-thirds (66%) of this total residing in Kelowna.



Beginning in the early nineties the five electoral districts in the Central Okanagan experienced dramatic population growth (18% from 1991 to 1996) as many Canadians and individuals from abroad discovered the area's appealing climate, scenery and lifestyle.

[1] 2007 Economic Profile, Regional District of Central Okanogan, Economic Development Commission, August 2007.



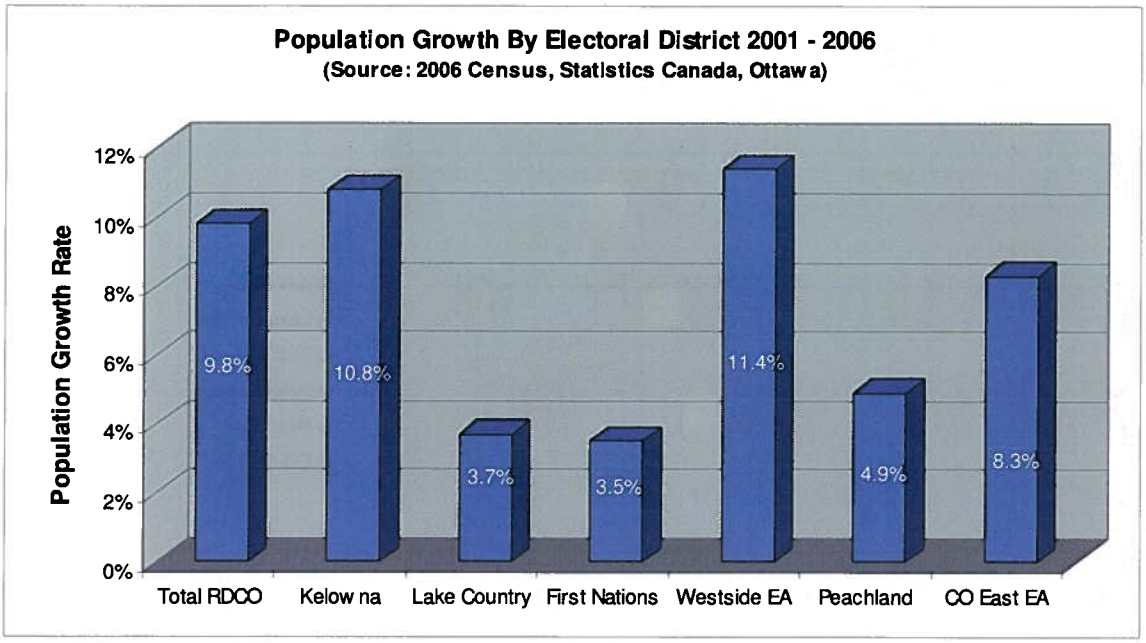
While population increases were most significant between 1991 and 1996, steady growth has occurred over the past 15 years in all jurisdictions – 8.2% between 1996 and 2001, and 9.8% between 2001 and 2006.

Over the past five years, the number of residents in the Regional District has grown by a total of approximately 14,500 individuals. Over this period, growth in Westbank (11.4%) and Kelowna (10.8%) represented approximately 92% of the total rise in Regional population.

Expectedly, population increases have intensified pressure on all jurisdictions to provide enhanced or additional levels of infrastructure.[2] It is likely that population increases in the future will have a similar influence on the need for new and/or larger facilities, enhanced services and augmented support systems.

The relative 5-year growth rates of the Regional District and its various jurisdictions are presented in the following table.

[2] ibid



Sources of New Residents

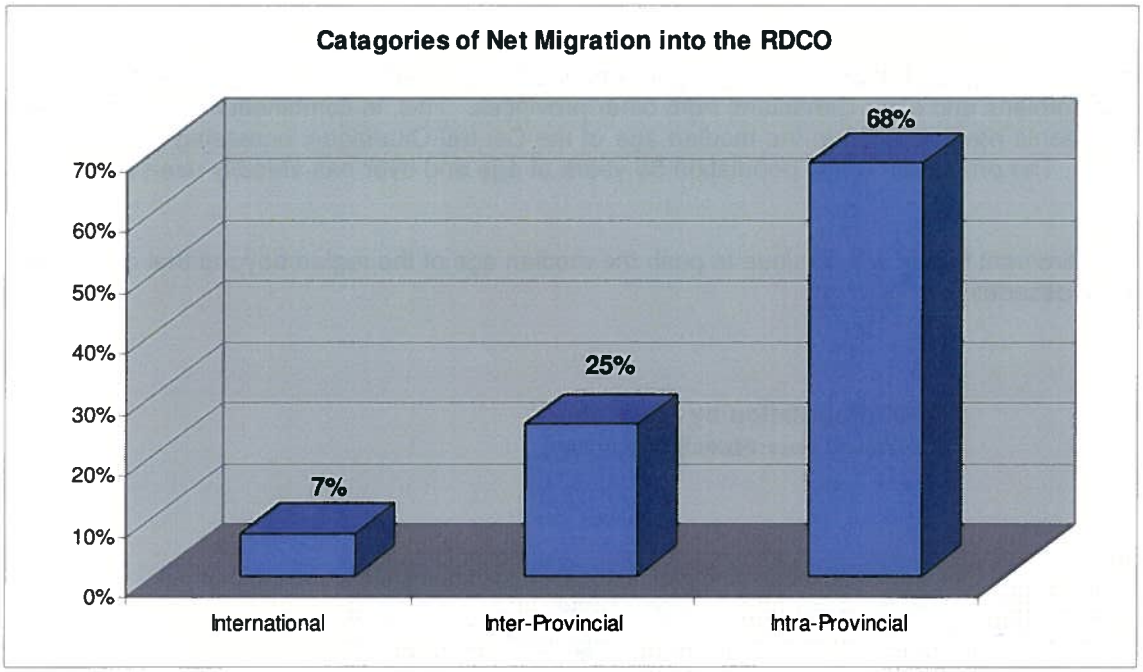
According to BC Stats: Population Estimates (PEOPLE 31, May 2006), the vast majority of population increases in the region have been caused by in-migration rather than by natural increases - net birth/mortality population gains. In fact, between 2001 and 2006, natural increases accounted for only 103 new regional residents whereas in-migration - individuals or families electing to relocate to the RDCO – brought over 14,000 people to the region.

The attributes of the region – pleasant scenery, temperate climate and diverse economy – has encouraged British Columbians as well as other Canadians from outside the province to relocate to the RDCO. Stats Canada reports that high inflows of migrants have resulted in the region's population almost doubling in the past 25 years, making it one of the fastest growing areas of British Columbia.

In the past five years, the largest segment of the Central Okanagan's migrants (68%) came from within BC while about one in four migrants (25%) were from other provinces. Over the same period, the RDCO has experienced a moderate inflow of international migrants (7%).[3]

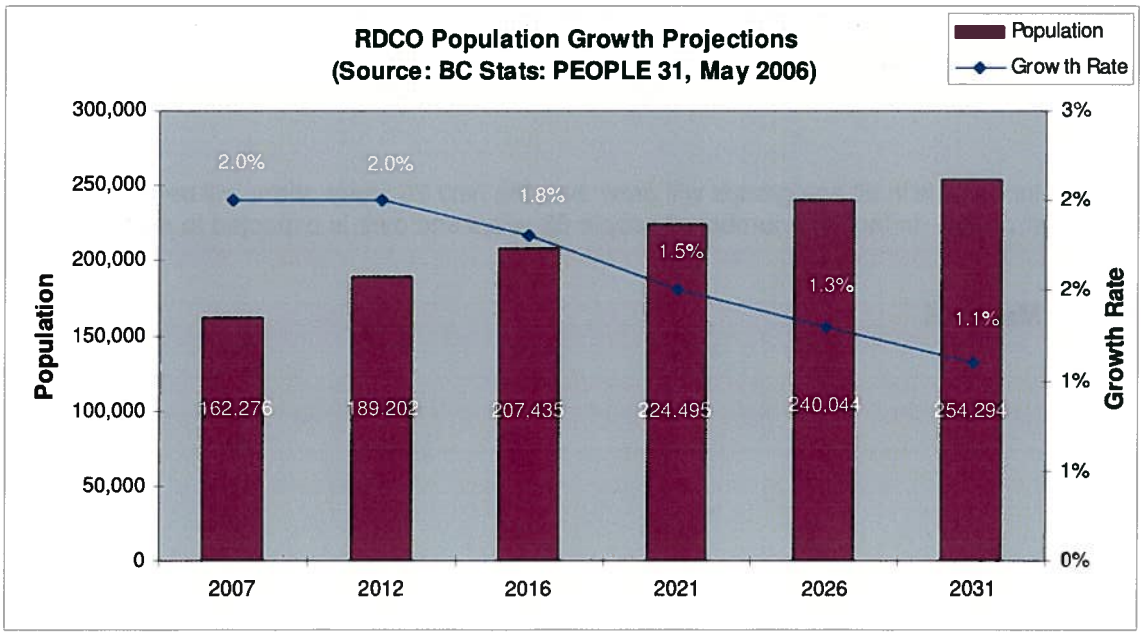
According to BC Stats Population Estimates, net in-migration from all three sources is expected to account for the majority of the region's population increases in the foreseeable future.

[3] ibid



Population Growth Projections

The Regional District's population is expected to grow by an average of 1.6% over the next 25 years. In the near term, growth will occur more rapidly (averaging 2% per annum for the next 5 years) and gradually decline to 1.1% by 2031.

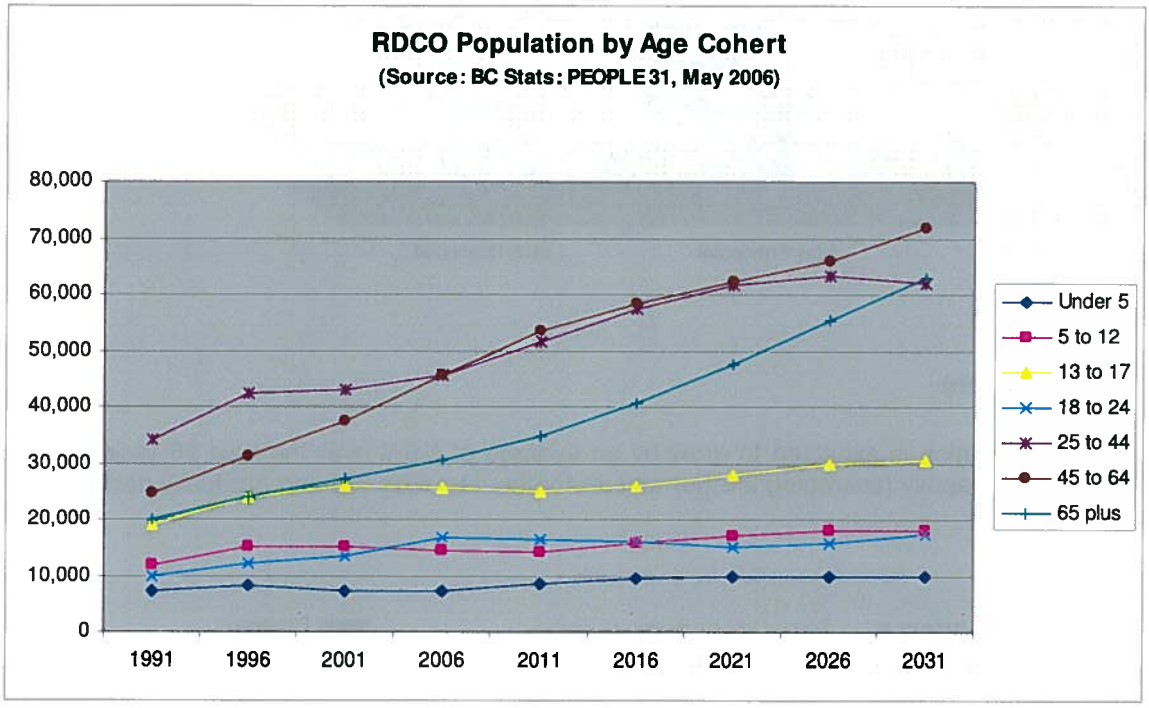


It is anticipated that in-migration to the region will offset a reduction in natural increases to the extent that about 85,000 new residents will be added to the RDCO population by 2031 - representing a 52% increase in the number of individuals residing in the region in 2007.

Age Distribution

The region's moderate climate and readily available local amenities make the RDCO an attractive retirement locatio for aging British Columbians and older Canadians from other provinces. This, in combination with the advancing ag of native RDCO residents have resulted in the median age of the Central Okanagan increasing by almost five years since the mid 1980s. The proportion of the population 55 years of age and over has steadily risen from 27% in 1996 to 29% in 2006.[4]

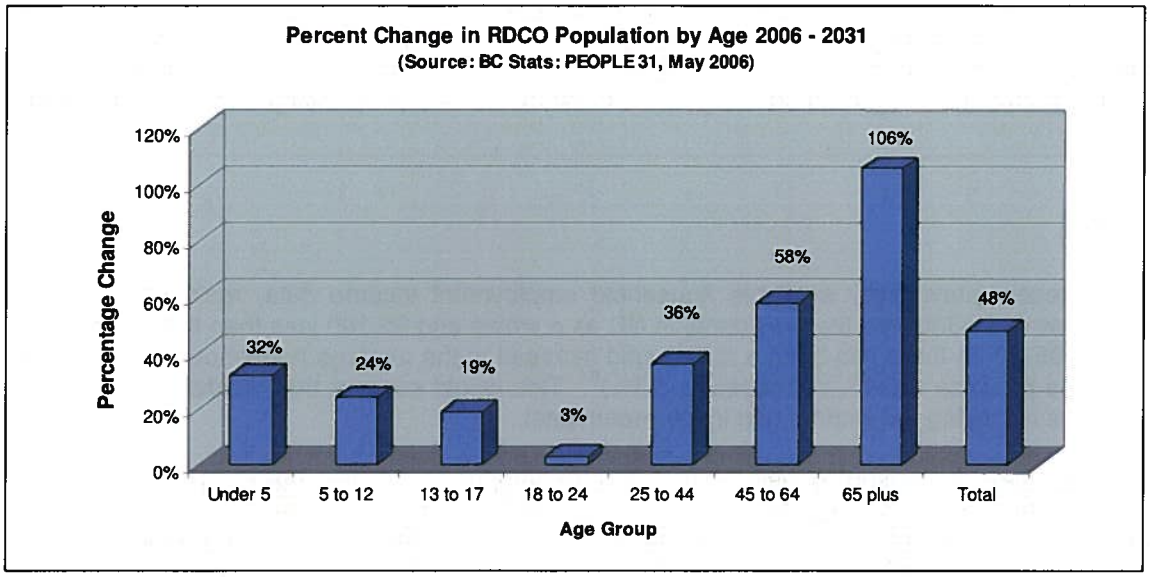
It is likely that the "retirement factor" will continue to push the median age of the region beyond that of the province for the next two or three decades.



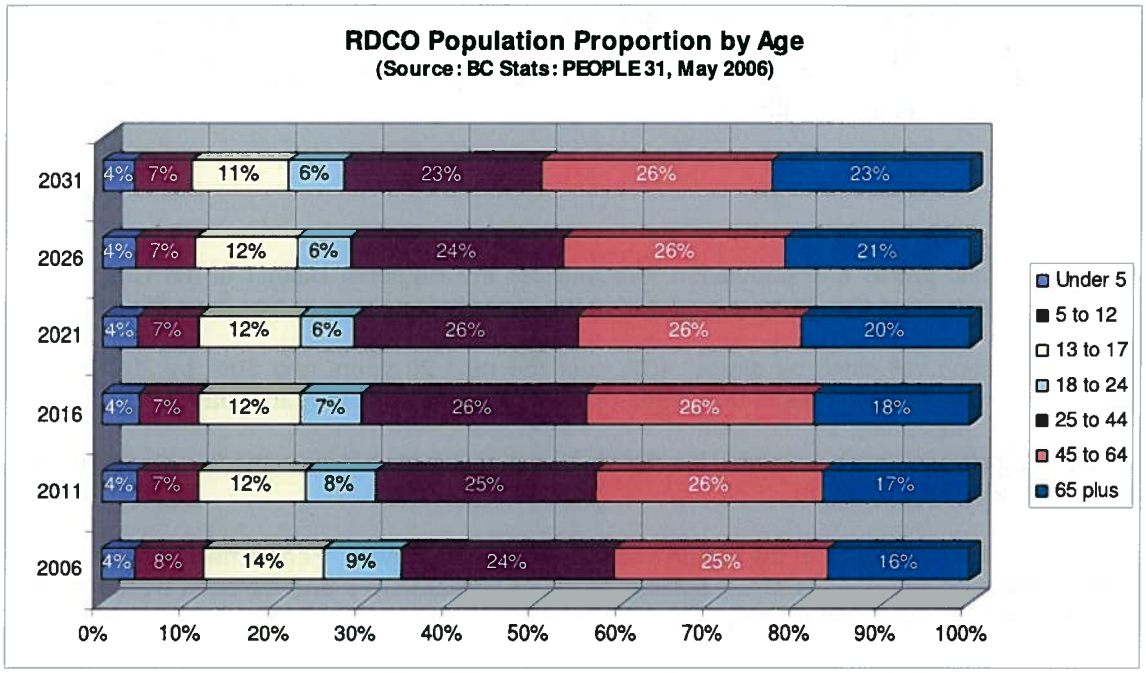
Although the number of individuals in all age groups will grow over the next 25 years, there will be a dramatic upsurge in the head-count of older adults. In fact, the number of people 65 years and over is expected to more than double by 2031.

BC Stats: PEOPLE 31, May 2006

[4] BC Stats: PEOPLE 31, May 2006



While the number of people in each age group will increase over time, the proportion of the RDCO's population 44 years of age and under is projected to decrease from 59% in 2006 to about 50% in 2031. Conversely, the proportion of the population 45 years and older is projected to increase to almost half of the Central Okanagan's population by 2031.



An older population will undoubtedly result in changes to consumer preferences and expectations regarding access to services – available through either the public or private sectors. As such, service providers will likely be expected to develop new forms of infrastructure and alternative methods of service delivery that conform to the needs and desires of an aging population – including adjustments to facilities and service approaches available at marinas and boat launches. For example, reduced mobility of older adults might require additional attention paid to the accessibility and safety at public launches or docks. Parking facilities that are easily navigated may become minimum expectation of aging consumers. Additionally, watercraft sales, transporting boats from home storage to public launches and moorage priorities may be influenced by the boating habits, preferences and limitations of an older population.

Going forward, it will be important that planners and decision makers in the region monitor the affects of the local aging trends to assist in the development of infrastructure and service delivery strategies. Staying close to the changes in the marketplace caused by these trends will be imperative to ensure that future initiatives remain in step with the needs and expectations of older adults – a group that will some become the largest consumer segment in the RDCO.

Household Income

According the most recent provincially available household employment income data, residents of the Regional District earn approximately $4,300 less than residents in BC as a whole and $5,100 less than the rest of Canadians.[5] However, recently (2005-2006) there has been a more rapid increase in the average household income in the RDCO than the balance of the province (20.4% compared to 3.3%)[6]. This would suggest that residents of the region have made significant strides in closing the income gap in the recent past.

Despite the foregoing, there is reason to believe that a large proportion of the region's population would have sufficient resources to engage in boating or other water based activities as a recreation option of choice. A considerable number of "well-healed" out-of-province seasonal residents (who presumably report income elsewhere) spend their summers in the Central Okanagan. Additionally, retirees who do not report employment income can access other sources of funds and resources in order to pursue selected recreational activities – including boating. Finally, self employment is rampant in the region – there are an estimated 9,500 home-based businesses in the RDCO, contributing between $152.5 million to $229.3 million in direct earnings to the Central Okanagan economy[7]. Issues associated with accurate tracking of this sector could artificially skew the actual median household income of the RDCO.

It would therefore seem reasonable to presume that household income should not be considered a major impediment to residents of the region participating in boating activities. In fact, some might suggest that the resources available to a significant proportion of RDCO residents would help to insulate this group from troubling financial times or downturns in the local, national or international economies.

Summary

The analysis of the democratic profile and population forecasts for the Regional District of the Central Okanagan suggest that the following implications should be considered in the recommendations arising from this study.

- RDCO's total population will climb by almost 40% over the next 20 years and 50% by 2031. This growth will add 85,000 more residents to the region than live in Central Okanagan today.
- While the region's total population will grow, the distribution of residents between the five electoral areas will remain similar to the current situation.
- In-migration will produce almost all of the region's future population growth. People new to the RDCO will arrive with preconceived notions of acceptable levels of infrastructure and services based upon experiences in their previous home jurisdictions.
- The region's population will age over time. While there will be modest increases in the younger age cohorts, there will be a dramatic upswing in the number of individuals over the age of 45 years with the most significant growth in the over 65 age group. This trend will significantly influence the preferences of the region's consumer base to the extent that they will expect the provision of "age sensitive" infrastructure and the delivery of services in a manner consistent with individual needs.

[5] BC Stats, Profile of British Columbia Regions: Central Okanagan, September 2005
[6] FP Markets Canadian Demographics, 2007 80th Edition, Financial Post, 2006
[7] 2007 Economic Profile, Regional District of Central Okanogan, Economic Development Commission, August 2007

- Neither household income or a lack of financial resources are likely to impede a significant proportion of the region's population from participating in their recreation pursuits of choice including water based activities.

6. Governing Authorities Review

Potential Governance Models

The consulting team undertook a review of existing governing authorities and service delivery approaches for marine recreation facilities in the region and in other jurisdictions across the country.

The work program also called for consultation with key stakeholders and those with vested interests in the future provision of marine recreation facilities on the three lakes within the subject area. Accordingly, telephone interviews were conducted with owners/managers of private marina facilities in the RDCO and representatives of area yacht clubs. These interviews are ongoing. A summary of consultation findings will be presented in the next phase of the study.

The purpose of the review and stakeholder consultation was to identify the implications of alternative management models and partnership options available to the Regional District. Recommendations for potential future directions that the RDCO might pursue for the oversight of marine recreation facilities and/or the delivery of new marinas services will be the subject of discussions with the Committee during latter phases of this study.

Brief descriptions of several alternatives that have thus far emerged from the research are presented below. A high level illustration of their associated merits and drawbacks is provided in Table 1.

Public Sector Self Management Model

Normally, in response to demonstrated need for marine recreation infrastructure and services, a municipality or government authority develops the required facilities using public funds and operates the service utilizing public service personnel. Although this model is not currently utilized in the Regional District, it is a frequent model of choice for numerous municipalities, regional districts and First Nations communities throughout Canada.

Public Sector Contract-Out Model

Normally, in response to demonstrated need for marine recreation infrastructure and services, a municipality or government authority develops the required facilities using public funds. The public entity than enters into a management, operating, or service agreement with an outside entity - either a private sector group or a not-for-profit organization. Usually, the public entity employs an open, fair and transparent process to search for and select an appropriate contractor such as the traditional Request for Proposal process. The contract it out model is currently not employed by any public jurisdictions in the RDCO.

Joint Venture Model

Either in response to demonstrated need for marine recreation infrastructure or as a result of an unsolicited proposal from an outside entity, a municipality or government authority enters into an agreement with a third party to develop and operate marine recreation facilities. The nature of these relationships vary widely and are largely dependent upon the availability of an appropriate joint venture partner as well as the public entity's experience with, and willingness to develop and manage these relatively complicated relationships. In certain cases, the joint venture partner is sourced through a formal search and selection process. In others instances circumstances dictate a sole source approach – i.e. a private landowner proposes an acceptable partner relationship and no other proponents are available. While there are no marina related joint ventures in the Central Okanagan, there are several other examples of facility development and operating relationships between the public and private sector – Prospera Place, Capital

News Centre, etc. It is also noteworthy that the Canadian Council of Public Private Partnerships reports that there is increasing evidence that joint venture models are becoming more widely accepted by variety of public jurisdictions across the country in all facets of recreation facility provision and service delivery.

Private Sector Model

For any number of reasons the private sector may elect to develop and operate marine recreation facilities. Some facilities are developed for purely commercial reasons based upon a valid business case responding to local market conditions. The ownership of these private marinas may rest with individuals, large corporations or small companies made up of several independent shareholders. Several private marina operations currently exist on Lake Okanagan and Wood Lake in the Regional District. Private marina facilities are also developed as amenities to larger residential, commercial, recreational or resort projects. In these cases the stand-alone marina facilities may not be supported by a valid business case, but are otherwise seen as marketing or retention advantages for the project as a whole. A host of these latter developments either exist or are planned for the RDCO.

Not-For-Profit Organization Model

This model involves a Not-For-Profit Corporation being responsible for the development, management and operations of the marine facilities. The Corporation would be subject to all federal legislation, provincial statutes and municipal bylaws that govern not-for-profit organizations. The Corporation is governed by a Board comprised of Directors who would be elected or appointed by constituents (in the case of yacht clubs directors are chosen from within the club's membership) or stakeholder groups (such as ratepayers, government agencies in the case of harbour authorities). At its discretion, the Board would decide upon either the self managed or contracted out approach to operate the facilities. In order to reach its decision regarding the most appropriate operating approach, the Board would normally conduct a cost-benefit analysis. This model sometimes involves relationships between the Not-For-Profit organization and local government authorities such as in the case when the organization may require capital financial assistance for projects deemed as providing benefit to the public good. Yacht clubs in the Regional District employee this model.

TABLE 1

Model	*Merits*	*Drawbacks*
Merits and Drawbacks of Potential Governance Models		
Public Sector Self Management	• Direct public sector decision-making control for capital development and operations • Opportunities to integrate marine facility operations with other "like government services" • Ability to manage and control quality of service and operations • Potential net proceeds available from operations	• Reliant upon public sector funding for capital development and operations • Government authority absorbs all operating risks and financial liabilities • Potential public sector personnel limitations and liabilities • Need to develop operating expertise not currently available from within government authorities • Need to create administrative systems and controls required to undertake a new area of business
Public Sector Contract-Out	• Direct public sector decision-making control over capital develop • Opportunities to develop a management contract specifically tailored to the subject site and consistent with public service values • Ability to access operating expertise from experienced marina operators • Ability to offload day-to-day operating responsibilities to a third party • Opportunity to share operating and financial risks with operator • Ability to access marina specific technologies that may not otherwise be available to the government authority	• Reliant upon public sector funding for capital development • Government authority absorbs all financial liabilities associated with capital development • Process of searching for and selecting an appropriate contractor could be time consuming • Need to develop standards of operation that can be articulated in the contract • Contractor controls quality, albeit in accordance with contract particulars • Need to dedicate time and staff resources to manage the contract

Joint Venture	• Ability to transfer some of the capital costs to joint venture partner • Ability to share the operating risks with the joint venture partner • Ability to access operating expertise from an experienced marina operator • Opportunity to negotiate a reasonable operating approach with joint venture partner that protects the public's interest well supporting a reasonable and viable business case for the project • Opportunities to benefit from order of magnitude cost savings if the marina facility is associated with a larger project • Ability to offload day-to-day operating responsibilities to joint venture partner	• Potentially a limited number of local qualified and willing joint venture partners • The process of searching for and selecting a joint venture partner could be time consuming and complicated • Need to develop standards of operation that can be articulated in the joint venture agreement if the partner is to absorb the operating responsibilities • There will undoubtedly be compromises associated with the joint venture agreement that many be troublesome • Need to dedicate staff time and resources to monitor the performance of the joint venture partner
Private Sector	• The private sector is entirely responsible for the capital costs of development • All operating risks and liabilities are absorbed by the private sector • There is no government responsibilities associated with day-to-day operations • Market conditions dictate fees and therefore no government responsibility to subsidize fees	• All development decisions rest with the private sector • The private sector is three to establish operating standards – including fees – with no input from government authority • The continuous availability of recreational marine facilities is completely dependant upon private sector decision-making and the financial viability of operations

Not-For-Profit Organization	• Government authority may have some influence over the structure and governance model adopted by the organization • Government authority might occupy Board position(s) • Opportunity to offload day-to-day operating responsibilities to the organization • Not-for-profit organization absorbs operating risks and liabilities to the extent of their insurability	• Organization will be responsible to comply with all federal legislative obligations, provincial statutes and local by-laws governing not-for-profit organizations • Decision-making tends to be cumbersome • If the not-for-profit organization is unable to financially support major yet necessary capital projects, it would likely approach government for financial assistance • Board of Directors is to a certain extent responsible for the liabilities of the organization • Need to dedicate staff time and resources to monitor the performance of the not-for-profit organization if the marine facility is an extension of government operations

7. Ipsos Reid Marine Recreation Facilities Survey

The objectives, methodology and executive summary of the Ipsos Reid Survey have been included within this report as it provides insight into a number of aspects of boating in the Okanagan.

Objectives of the Research

Specifically, the main objectives of the research were to:

- Assess overall perceptions of the opportunities for boating in the Central Okanagan;
- Determine participation in boating activities;
- Gauge the overall level of boat ownership and specific behaviours among boat owners, including the type(s) of boats owned and mooring versus transporting boats;
- Measure the likelihood of purchasing a boat in the next five years;
- Assess perceptions of current marine recreation facilities, including the number of current facilities available and satisfaction with current facilities;
- Gauge attitudes towards marine recreation facilities in the Central Okanagan generally;
- Identify priorities for improving marine recreation facilities over the next five years; and,
- Determine views on service delivery, including the role of individual local governments versus a single coordinated regional entity, the role of local governments versus private operators, support for partnerships with private operators, and support for using public funds to develop new marinas.

Ultimately, the results of the research will provide input into the development of a twenty year plan and implementation strategy for marine recreation facilities in the Regional District.

Methodology

- In total, 1,000 telephone interviews were conducted with a randomly selected representative sample of adult (18 years or older) Regional District of Central Okanagan residents.
- Sample was drawn by census subdivision and respondents had to confirm that they lived in one of the target areas of interest (see table below). To ensure randomness within households, the "birthday method" of selecting respondents was used (i.e., asking to speak to the person in the household who had most recently celebrated a birthday).
- All interviews were conducted between the dates of June 3 and 15, 2008.
- A summary of the final number of interviews conducted in each area, along with the associated margins of error, can be found in the table below.

Region	Number of Interviews	Margin of Error (19 times out of 20)
Kelowna	426	±4.7%
Westside	224	±6.5%
Lake Country	113	±9.2%
Peachland	112	±9.3%
West Electoral Area	62	±12.4%
East Electoral Area	63	±12.3%
Total	1,000	*±3.1%*

The final data were weighted to ensure that the age, sex, and regional distribution reflects the actual population in the RDCO according to the 2006 Census data.

Executive Summary

Perceptions of Boating in the Central Okanagan

- Perceptions of the opportunities for boating in the Central Okanagan are overwhelmingly positive.
- The few respondents who rate the area's boating opportunities poorly primarily attribute this to a lack of marine recreation facilities including boat launches and mooring facilities/marinas. They also say boating in the Central Okanagan is too congested and busy.

Participation in Boating Activities

- Okanagan Lake is the most heavily used lake in the Regional District of Central Okanagan.
- Similar usage levels are reported for both Wood Lake and Kalamalka Lake.
- Leisure boating is the most common boating activity; Okanagan Lake sees the highest number of leisure boaters.
- Water skiing or wake boarding is another popular activity, particularly on Kalamalka Lake and Wood Lake.
- Fishing is more common on Wood Lake than either Okanagan Lake or Kalamalka Lake.
- These findings suggest that while Okanagan Lake is used most heavily overall, Wood Lake and Kalamalka Lake may attract specific niche markets.

Boat Ownership

- Four-in-ten households own a boat. One-in-ten will likely purchase a boat in the next five years.
- Just over one-quarter of current boat owners have a valid Service Canada Pleasure Craft License.
- Motor boats and boats with oars or paddles are the most common.
- The majority of motor boats and sail boats are over 15 feet.
- Motor boats are usually transported to and from the water using a trailer, while sail boats are usually moored at a marina or dock.
- Those who moor their motor boat are evenly divided amongst those who are a member of a boat or yacht club, rent slip from private marina, or have a personal dock. Those who moor their sail boat are most likely to be a member of a boat or yacht club.
- The vast majority of those who transport their motor boat or sail boat to and from the water store it at home.
- Very few of those transporting their motor boat or sail boat to and from the water are on a waiting list for space at a marina or dock, suggesting that these respondents transport their boat out of personal preference rather than a lack of space at marinas or docks.

Perceptions of Current Marine Recreation Facilities

- There is a demand for more marine recreation facilities, with six-in-ten respondents saying there are "not enough" of these facilities currently available in the Central Okanagan.
- Most residents are satisfied with the overall marine recreation facilities that are available.
- However, specific aspects of these facilities could be improved, with the majority of those who have participated in boating activities over the past twelve months expressing dissatisfaction with parking facilities and the availability of public mooring facilities. Relatively high levels of dissatisfaction are also seen for washroom facilities, public boat launches, and fuelling facilities.

Attitudes Towards Marine Recreation Facilities

- Residents' attitudes towards marine recreation facilities support survey findings showing there is a demand for more of these offerings.
- Eight-in-ten agree the Central Okanagan's current facilities are insufficient to meet the demands of the region's growing population and tourists.
- More than three-quarters agree local governments should invest more in these facilities.
- Two-thirds agree it is important to build new or upgrade existing facilities because the current facilities are in poor shape.
- Nearly two-thirds *disagree* that regardless of how good an idea it might be, local

governments should not invest in new marine recreation facilities right now.

Future Priorities

- Residents' top two priorities for marine recreation facilities over the next five years are expanding parking facilities at boat launches and offering additional boat launch facilities.
- Second-tier priorities include increasing the number of public boat slips as well as the number of marinas.
- Respondents attach the lowest priority to offering more dry dock boat storage.

Service Delivery

- When it comes to managing marine recreation facilities, a slight majority of respondents would prefer to see individual local governments continue managing the facilities in their own community rather than create a single coordinated regional entity for this responsibility.
- Nearly nine-in-ten respondents think local governments in the Central Okanagan should play a role in providing marine recreation facilities.
- More than eight-in-ten would support local governments working in partnership with private operators to provide marine recreation facilities.
- A similar proportion would support local governments using public funds to develop new marinas in partnership with the private sector.
- Overall, these findings suggest that residents want to see local governments involved in the provision and management of marine recreation facilities.

Closing Comments

This Report has covered all areas as outlined in the Deliverables for Part A. - Inventory, Demographics and Service Delivery Review. The inventory activities continued until the end of July to ensure a true reflection of lake usage during the peak period.

The mapping, photos, and documented facilities will be reviewed to ensure accuracy and completeness. The data regarding pleasure craft licenses and boat registration will be analyzed.

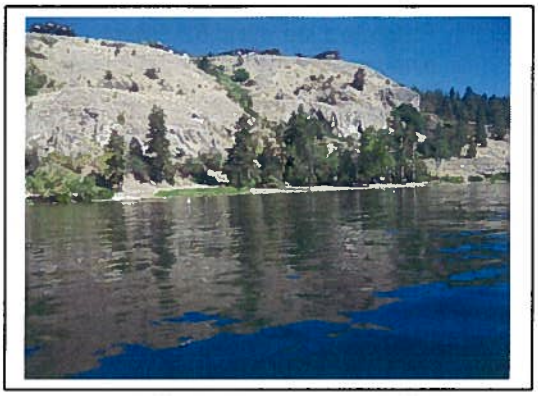
Consultation with stakeholders is an ongoing part of the study, and feedback will be sought right up until the final report.

The next phase of the study, the Analysis and Synthesis will be undertaken by the whole consulting team, and will be based on the data collected to date, including the findings of the Ipsos Reid report.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

ANALYSIS AND SYNTHESIS REPORT

PART B



MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY

Submitted by:

GDH Solutions

In association with
The JF Group and
Summit Environmental Consultants

August 29, 2008

MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY: PART B. ANALYSIS AND SYNTHESIS

TABLE OF CONTENTS

Introduction

This report provides an analysis of demand for marine recreational facilities on the major lakes and the potential facilities required to meet that demand. The analysis is based on the data collected in PART A and the information contained on environmental issues and impacts in PART C. It also includes preliminary economic impact analysis information.

This report is organized into the following sections:

1. Projected Demand for Recreational Marine Facilities
2. Analysis of Potential Facility Locations
3. Governing Authorities Part 2
4. Consultation Update
5. Economic Impact Analysis

The mapping for Part B is provided under separate cover.

1. Projected Demand for Recreational Marine Facilities

The potential demand for recreational marine facilities on the major lakes is anticipated to grow at the same or greater rate than the projected population growth. This will put considerable strain on the current recreational marine facilities on the lakes.

The major facilities which include boat launches, moorage slips, gas pumps and grey water pump outs are inadequate to serve the current needs.

Although there are considerably more than 12 locations which are used to launch boats, the following twelve are the most frequently used:

- Fintry Park - RDCO- West E.A.
- Bear Creek - RDCO- West E.A.
- Westbank – Westside
- Pincushion Bay – Peachland
- Doggie Beach - Peachland
- Coral Beach – Lake Country
- Okanagan Centre – Lake Country
- Oyama – Lake Country
- Ponderosa Rd/ Winfield North – Lake Country
- Sutherland Bay – Kelowna
- Water Street – Kelowna
- Cook Street/Lakeshore – Kelowna

There are 1560 slips at the yacht clubs and marinas in the Regional District. Private residential moorage is not included.

With respect to gas pumps, the following are the 8 publicly accessible locations:

- Okanagan Lake Resort RDCO West E.A.
- Shelter Bay Marina- WFN
- Pentowna Marina- Peachland
- Kelowna Marina -Kelowna
- Eldorado Marina – Kelowna
- Turtle Bay Marina- Lake Country
- Tween Lakes Trailer Park- Lake Country
- Owls Nest Resort- Lake Country

There are only three pump outs on Lake Okanagan in the Central region: Kelowna Marina, Eldorado Marina, Shelter Bay Marina. On Wood Lake there is one at Turtle Bay Marina, and none on Kalamalka Lake located within the region.

Demand exceeds the available inventory in all areas. A possible exception is the number of gas pumps in the south end of Kalamalka Lake. It is difficult to analyze whether there is a shortage of fuelling facilities on this lake, as many boats go through the pass from Wood Lake, and the majority of Kalamalka Lake is not within the study area.

All indications received by the study team are that a higher level of service is needed immediately, with the greatest shortages being boat launches, moorage slips and moorage buoys. It was not possible to obtain an accurate count of moorage buoys available to the public, due to the lack of records or enforcement.

The washroom facilities at the marinas are very limited and often not easily accessible. Places to tie up and use facilities are few.

Dry dock storage is available both on a seasonal basis, and for concierge purposes. The following is a list of the main dry dock storage within the Regional District boundaries: Dockside (500), Malibu (400), Eldorado (200), Rayburn (100), and Winfield (300). There are a few additional locations with a small number of boats stored at each location. These are primarily in Kelowna.

Over the next 20 years the number of boats in the Regional District boundaries could exceed 100,000. In order to meet this demand a significant investment is required in the major facilities over this time period. If the level of service were to just remain the same, on a per capita basis, the following would be required within 10 years:

- an additional 2 gas pumps
- an additional 3 boat launches (or equivalent)
- an additional 380 slips

By the year 2028 these numbers would be (in total):

- an additional 4 fuelling facilities
- an additional 5 launches, or the equivalent in launch capacity
- an additional 723 slips

If the service levels were to be increased by just ten percent above the current level of service the numbers of facilities required in 20 years would increase to: 5 new gas pumps, 7 new boat launches, and 951 boat slips.

Additional pump outs are also required, preferably at least one per municipality on Lake Okanagan, except Kelowna, which already has two locations.

There is a demand for "places to go" on the lakes including restaurants, parks, camping areas and attractions. There are a number of opportunities on the lake for these types of facilities, which will be considered in the analysis and recommendations.

2. Analysis of Potential Facility Locations

In order to further analyze the 47 points of interest identified in PART A of the report, criteria have been developed for the selection and elimination of sites for new or upgraded marine recreational facilities.

Marinas

New and/or expanded Marinas could address the needs for moorage slips, fuelling, pump outs and washrooms. Parking facilities on site would also be required.
The criteria for the selection of a site for use as a Marina are:

1. Environmental consideration: area should be rated as "low sensitivity". This rating was applied by Summit Environmental to areas which were determined to have a low probability of having important environmental features and would therefore experience lower potential impacts.
2. The foreshore area should include a large enough parcel of land to accommodate parking and facilities associated with a marina.
3. Road access.
4. Suitable water access (depth and shelter)

Boat Launches

Boat launches should preferably accommodate a double launching area and include docks, a parking lot for cars and trailers and washroom facilities.

The criteria for a boat launch are:

1. "Low sensitivity" environmental rating
2. Large parcel of land for car and trailer parking
3. Primary or secondary road access
4. Not within residential neighbourhoods
5. Appropriate water depth

Hand or small boat launches could be located in "moderate sensitivity" areas, and would require limited on on-street parking only.

Mooring Buoys

Mooring buoys should be provided in a manner that allows for both day and overnight use.

The criteria for mooring buoys:

1. High, medium or low sensitivity ratings. If the rating is high they must be located outside of shore spawning habitat range.
2. Located in sheltered areas
3. Located offshore of public lands only, e.g. parks or crown lands

Dry Dock Storage

Dry dock storage is ideally located in proximity to, but not on the foreshore lands.

Criteria for dry dock storage are:

1. Environmental rating would depend on location of facility, but should likely be medium or low sensitivity.
2. Proximity to a boat launch or potential launch
3. Land parcel and appropriate zoning to accommodate a large industrial style building

Points of Interest

Each of the forty–seven points of interest has been analyzed based on the criteria outlined in the previous section. The points are listed by municipality.

REGIONAL DISTRICT OF CENTRAL OKANAGAN West Electoral Area

R1 Fintry Park:
Existing Facilities: Boat launch with dock, washrooms, parking, beach, camping in park, mooring buoys. Preliminary Suggested Direction: Additional mooring buoys in bay to north of launch
Analysis: Meets all three criteria

R2 Agate Bay
Existing Facilities: Mooring buoys, beaching area. PSD: Additional buoys for day and overnight use.
Analysis: Meets all three criteria; however there would be high environmental impact on spawning habitat.

R3 Agate Bay South
Existing Facilities: Mooring buoys, beaching area. PSD: Additional mooring buoys for day and night use.
Analysis: Meets all three criteria; however there would be high environmental impact on spawning habitat.

R4 Wilson Landing North
Existing Facilities: Beach PSD: Additional mooring buoys
Analysis: Does meet criteria; however domestic water intake must be considered.

R5 Traders Cove Regional Park
Existing Facilities: unpaved parking area, large open space park areas, beach, picnic shelter, toilets, boat moorage bay, navigational light. PSD: Additional mooring buoys for day and overnight use.
Analysis: Meets all three criteria, if buoys placed outside spawning area.

R6 Tolko Lands
Existing: Graving docks for bridge construction/dismantling, entrance road, construction trailer.
PSD: Potential for full scale marina, boat launch, parking areas, dry boat storage
Analysis: Moderate sensitivity rating, meets other three criteria.

R7 Bear Creek
Existing Facilities: Single launch- Parking (40) cars (15) trailers (temporary use of park's day use lot), beach, washrooms, picnic areas, camping, all in Bear Creek Park. PSD: Re-instate double boat launch as soon as possible.
Analysis: High sensitivity rating, meets other criteria – could be combined with Tolko Lands

R8 OK Mountain Park
Existing Facilities: Mooring buoys, small dock, beach area. PSD: Additional mooring buoys.
Analysis: Meets all three criteria, if buoys are outside of spawning area.

R9 Scruggins Reef
Existing Facilities: Mooring buoy, dive area. PSD: Additional mooring buoys.
Analysis: Meets all three criteria.

DISTRICT OF WESTSIDE

W1 Raymer Bay Regional Park:
Existing Facilities: Beach: Small parking area, washrooms& picnic shelter, mooring buoys.
PSD: Additional mooring buoys (day and overnight use).
Analysis: Meets all three criteria, although domestic water intake is nearby.

W2 Casa Loma Resort:
Existing Facilities: Lakeshore Resort-Private/Commercial, Safe Harbour/ Public Rental and Visitors Slips. PSD: Additional visitor slips and mooring buoys.
Analysis: Meets all criteria for buoys; and could add slips as it is a low sensitivity rated area.

W3 Kalamoir Park
Existing Facilities: Park, beach, washrooms, parking, mooring buoys. PSD: Additional mooring buoys.
Analysis: Meets all criteria

W4 Gellatly Bay
Existing Facilities: Beach, swim platform, washrooms, parking, mooring buoys. PSD: Additional mooring buoys.
Analysis: Sensitivity rating is medium, however the impact of additional mooring buoys would be high due to spawning habitat.

W5 Westbank Yacht Club
Existing Facilities: Double bay launch, vehicle & trailer parking (12), plus car parking (40), Yacht Club facility, public washrooms. PSD: Additional parking and boat storage
Analysis: Does not meet criteria to upgrade the launch; no room on site for additional parking or boat storage; although there may be opportunities on private land in the vicinity. It is in a high sensitivity zone, and high impact to the environment.

W6 Gellatly Nut Farm Regional Park
Existing Facilities: Park, parking lot, tourist attraction, beach. PSD: Dock for day visitors.
Analysis: Has not yet been assessed for environmental sensitivity.

DISTRICT OF PEACHLAND

P1 Davis Cove
Existing Facilities: Beach, mooring buoys. PSD: Additional mooring buoys for day and overnight use.
Analysis: Does not meet the criteria for public lands, although Peachland controls the foreshore.

P2 Pincushion Bay
Existing Facilities: Double bay cement boat launch, washroom nearby, beach, with on street parking. PSD: Upgrade launch area, add parking.
Analysis: Meets environmental criteria, but insufficient land base for parking

P3 Peachland Yacht Club
Existing Facilities: 55 slips, 2 visitors' bays, adjacent washrooms, snack bar .PSD: Upgrade boat slips
Analysis: Meets criteria.

P4 Heritage Park
Existing Facilities: Day mooring (28), park area; adjacent to restaurants, boutiques and amenities.
PSD: Upgrade day moorage; consider overnight moorage
Analysis: Meets criteria.

P5 Pentowna Marina
Existing: 82 Slips, rentals, gas pump, washroom
PSD: Upgrade docks and slips; potential expansion to marina
Analysis: Meets criteria, with the exception of land for additional parking.

P6 Doggie Beach
Existing: Double bay launch, parking area for 20 (unmarked spots)cars and trailers PSD: Concierge Boat Storage Proposed (Private sector)
Analysis: Meets criteria.

DISTRICT OF LAKE COUNTRY

L1_Coral Beach
Existing Facilities: Boat launch with doc, 2 parking spots, washrooms, and park.PSD: Additional parking
Analysis: Does not meet criteria – no land for parking; medium sensitivity.
L2 Lake Country Sailing & Boating Association- Marshal Park
Existing Facilities: Small Boat storage, launch, washrooms, beach (10) car parking
PSD: Install dock and improve parking.
Analysis: Meets criteria for dock (medium sensitivity) but on the edge of red zone. Some land available for parking.

L3 Whiskey Cove
Existing Facilities: Beach, parking lot, "unofficial" boat launch. PSD: Install boat launch
Analysis: Does not meet criteria – medium sensitivity.

L4: Kopje Regional Park
Existing Facilities: Beach, washrooms, Historical House, Parking (25)
PSD: Boat launch, additional parking for trailers, mooring buoys
Analysis: Does not meet criteria for launch– medium sensitivity. However the environmental impacts for a boat launch were rated as low to moderate. Could have mooring buoys.

L5 Pixie Beach
Existing Facilities: Public beach, mooring buoys. PSD: Additional mooring buoys.
Analysis: Meets criteria for buoys. Could accommodate more marine facilities at this location, as it is rated " low sensitivity", with the main concern being an irrigation water intake nearby.

L6 Okanagan Centre Safe Harbour
Existing Facilities: double launch/parking for 10 car/trailers. PSD: Marina Development and additional parking.
Analysis: Does not meet criteria – medium sensitivity and in red zone.

L7 Sheltered Area
Existing Facilities: None. PSD: Additional buoys.
Analysis: Meets criteria.

L8: Sheltered Bay
Existing Facilities: beach, mooring buoys PSD: Additional buoys
Analysis: Meets criteria.

L9: Kaloya Regional Park
Existing Facilities: Parking (70 cars), beaches, washrooms, picnic areas, buoys
PSD: Capacity for new boat launch and car/trailer parking, additional buoys
Analysis: Meets criteria.

L10: Lake Country Board & Sail Club Existing Facilities: Beach, docks, mooring buoys.
PSD: Upgrade docks.
Analysis: Meets criteria.

L11: Twin Lakes Channel Crossing-maintenance required
Analysis: Low sensitivity.

L12: Oyama Launch
Existing Facilities: Launch, roadside parking
PSD: Upgrade launch, provide parking area

L13 Picnic Area
Existing Facilities: Picnic Area, Mooring buoys. PSD: Mooring buoys.
Analysis: Meets criteria

L14: Sheltered Bay
Existing Facilities: Mooring Buoys. PSD: Additional buoys.
Analysis: Meets criteria if buoys are placed outside spawning areas.

L15: Winfield/Ponderosa Rd.
Existing Facilities: 2 Roadside Launches & Road-side parking
PSD: Upgrade when HWY 97 re-located
Analysis: Meets criteria – low sensitivity; land will be available once Highway 97 is re-located.

CITY OF KELOWNA

K1 Paul's Tomb
Existing Facilities: Mooring Buoys. PSD: Additional buoys.
Analysis: Meets criteria, but is in high impact area for spawning.

K2 Sutherland Bay
Existing Facilities: Double launch, beach & washrooms, on-street parking.
PSD: Enhanced boat launch; Small Boat Club location. Future considerations: Parking, Dry Boat Storage, Moorage.
Analysis: Meets criteria except for proximity to residential area.

K3 Waterfront Park
Existing Facilities: docks, boat rentals, beach. PSD: hotel / strata/public expansion
Analysis: Low sensitivity area. Good opportunity for public/private partnerships.

K4 Kelowna Yacht Club
Existing Facilities: Moorage 620 slips, Yacht club facility, Grey water pump out, parking lot
PSD: Expand moorage; clubhouse re-location
Analysis: Meets criteria for additional moorage.

K5 Kelowna Marina and Kerry Park
Existing Facilities: Marina, rentals, gas pump, beach, park, parking
PSD: Expansion and restructuring under City consideration; should include improved marina facility, new gas pump/storage, public moorage slips.
Analysis: Medium sensitivity zone – limits opportunity for expansion.

K6 City Park
Existing Facilities: beach, parking, washrooms, concessions
PSD: Capacity for Small Boat Club- hand launch, mooring buoys
Analysis: Medium sensitivity zone; could accommodate small boat launch and club

K7 Kinsmen Park
Existing Facilities: Park, beach, washrooms, concession, parking lot, mooring buoys.
PSD: Additional mooring buoys
Analysis: Meets the criteria.

K8 Lakeshore Boat Launch, Eldorado/Manteo
Existing Facilities: Quad Launch, Marina (66) slips, gas, grey water pump out, trailer parking (40) & car parking (30) Valet boat storage (200).PSD: Marina expansion and upgrades.
Analysis: Medium sensitivity, plus yellow zone spawning habitat.

K9 Bluebird Beach:
Existing Facilities: Beach, playground, parking lot, mooring buoys. PSD: Additional mooring buoys.
Analysis: Meets the criteria

K10 Central Okanagan Sailing Association
Existing Facilities: Club house and washrooms, boat launch, major docks, beach, parking, boat storage. PSD: Upgrade launch and docks.
Analysis: Low sensitivity, but limited land area for parking and in residential area.

K11 Cedar Creek
Existing Facilities: Beach and Launch, second beach & picnic area; limited parking capacity at launch. PSD: Upgrade launch.
Analysis: Low sensitivity, but limited land area for parking.

K12 Bertram Creek Park
Existing Facilities: Beach, picnic areas, parking, washrooms, playground PSD: Mooring Buoys
Analysis: High sensitivity for Kokanee Spawning, but rated medium overall.

In the next phase, PART D, specific sites and facilities will be recommended and included in the 20 Year Plan for implementation.

3. Governing Authorities Part 2

The Regional District of Central Okanogan (RDCO) is interested in examining its future role associated with marine recreation facilities and/or the delivery of marine services on the District's major lake system. Governance approaches used by other jurisdictions and the related merits and drawbacks of the different management models were described in the previous consultant's report (Part A).

Several alternatives described in the earlier report are already employed on the District's lakes. Municipalities use the "public sector self management model" in maintaining boat launches within their jurisdictional boundaries. The "private sector model" applies to all marinas on the major lakes while the "not-for-profit organizational model" is applicable to yacht clubs. To date, the "contracting out" and "joint venture" alternatives have not been implemented within the RDCO.

Several issues are relevant to the assessment of what is required to effectively govern and manage marine facility and service delivery on the lakes in the study area. These include:

- local circumstances and precedents have resulted in different marine service delivery approaches employed by RDCO municipalities;
- the current system has evolved with no overarching oversight or guiding principles to ensure consistency over time;
- private and not-for-profit entities employ a variety of service provision philosophies and approaches;

- beyond legislative requirements, there is no universally applied standard that governs marine service provision;
- the current approach is increasingly under stress caused by escalating demands for more and new types of marine services; and
- the public's expectations for unfettered access and comfortable enjoyment of the lake system are rising.

Effective governance and service delivery models normally conform to a "form follows function" philosophy, meaning that the model focuses on meeting the needs of selected target audiences by addressing what is required to enhance current service levels while providing for additions to fill gaps in the existing system. Our research would suggest that the preferred governance and service delivery model should make allowance for the following requirements:

- coordination of marine services – regardless of service provider - on the three lakes in the jurisdictions affected by this study;
- a mechanism to ensure that the marine facilities inventory arising from this study remains current and up-to-date;
- standardization of "like" services that may be offered by a variety of different providers on the lake system – e.g. signage at launches;
- systematic, transparent and fair approaches to the determination of potential marine facility additions and/or improvements;
- means to ensure the environmental standards are maintained;
- methods and tools to effectively communicate with users of the lakes as well as those affected by lake use;
- mechanisms to remain current with the needs and desires of boaters;
- approaches to capitalize on the collective energies and expertise of individuals, groups, organizations and agencies capable of and willing to contribute to the success of the RDCO lake system;
- opportunities to improve customer service and increase the public's access to the lake system; and
- approaches to optimize the use of public sector resources and to gain greater access to new sources of capital.

In view of these diverse requirements, it is possible that the governance and service delivery model that is most appropriately applied to the RDCO lake system will be a hybrid of a number of different types of approaches that combine to meet boaters' needs. And, as is frequently the case, there will be a single factor that will dictate the selected model's success – willingness of all involved to work together to improve the current circumstance and to remain keenly focused on improvement. Simply put, there must be a shared commitment to passionately pursue results that are consistent with the needs and expectations of boaters and those affected by lake use.

The selected model should create a foundation to ensure that service delivery mechanisms are designed from a client perspective, obtaining good value, utilizing systematic management practices and striving for positive results. This can be achieved by ensuring that compatible organizations are assigned appropriate responsibilities within the governance structure as well as by capitalizing on the capacities of individuals or entities involved in service delivery.

The next phase of the study will examine the applicability of various governance approach is to this situation, circumstances and needs of the RDCO lake system. A governance and service delivery model will be recommended in PART D.

4. Consultation Update

The consultation process was reported on in Part A. The first of three public meetings was held on August 13th in Kelowna. It was run as an open house, followed by a more formal meeting for one hour. A second open house was held on August 19th in Peachland. Both were fairly well attended by a range of stakeholders. Participants were asked to fill out questionnaires.

The comments that were received during the two public open houses/meetings were fairly consistent, although there were issues specific to each local area. Participants included boaters, non-boaters, environmentalists and a good number of individuals interested in the business aspects of boating (marina/restaurant/resort development; boat sales and storage).

Participants expressed dissatisfaction with the state of marine recreational facilities generally in the study area. There was consensus that the study is very timely and that "something needs to be done". People expressed doubts as to the motivation of the local governments to implement any changes, and hoped that the Study would not just sit on the shelf once completed.

People are concerned about preserving the way of life in the Okanagan, and some feel that the situation with boating is out of control from both an enforcement perspective and congestion on the lakes during busy periods. Many feel that it is important to have a Plan to deal with not only the facilities, but the whole boating picture. Many felt that the study area should have included all of Okanagan Lake.

People were concerned about trailer parking and congestion on local streets, and are wary of any improvements to boat launches as it would result in more traffic.

The persons with development interests expressed dissatisfaction and frustration with the development approvals process, primarily at the municipal level, but provincial approvals as well.

The majority of respondents would be willing to pay a fee to launch their boats, provided parking is available; a number of people felt they paid enough taxes and should not have to pay additional fees. The same applied to moorage buoys. There is interest in a two-tiered user pay system-residents versus visitors. There is majority support for a new "super launch" located outside of developed areas.

Many felt that new large residential and resort developments should provide access and amenities for the public including boat slips, waterfront access. There was a suggestion that developers pay into a fund for marine facility improvements.

Protecting the environment was deemed extremely or very important. Any new or improved facilities must respect the environment.

There was mixed reaction to support for Tourism. Some felt "we need to get our own house in order first". Some don't want more boats, others support destinations and amenities.

There was good support for some sort of Lake Authority or Alliance, although there were questions as to how that would work, and who would participate in this organization.

In general, the public feels that there is a role for government in the protection of the lakes and the communities surrounding them, as well as in the provision of appropriately located boat launches. . Mooring buoys should be placed and maintained by government (most said Provincial) or through a public/private partnership and that fees should be charged.

5. Economic Impact Analysis

This analysis has been conducted utilizing the Boating Economic Impact Model developed Dr E. Mahoney, Dr Dan Stynes and Dr Yue Cui of the Recreational Marine Research Centre at Michigan State University. GDH Solutions acknowledges the support of the Association of Marine Industries, the Great Lakes Commission, the U.S. Coast Guard and the B.C. Marine Trades Association.

The Executive Summary for Marinas, Yacht Clubs and Boat launches follows. The complete reports for each of the three areas are in the Appendix.

EXECUTIVE SUMMARY for MARINAS, YACHT CLUBS & BOAT LAUNCHES

This report provides the estimates of the economic impacts for the Regional District of Central Okanagan using boater spending and marine impact model. Recreational Boating at Marinas, Yacht Clubs and at boat launches produces direct and indirect revenues for many different types of businesses. It contributes to the community quality of life through resident and tourism activities. The estimates of annual craft spending have been adjusted for this region using the basis of the national spending surveys conducted in 2006 and 2007. The averages have been adjusted using the consumer price indices for each category.

The activity of a boat on Okanagan, Wood and Kalamalka Lakes creates spending on fuel, groceries, entertainment and at restaurants. The implied annual craft costs include insurance, taxes, storage, repairs, servicing, accessory purchases and trailers. Since most boats are not manufactured in the local area, loan payments are included but boat purchase is not. Wholesale and retail margins are not equated in these activity impacts but can be obtained from the local economic development authorities.

MARINAS

Economic Impact Reports have been conducted at 8 commercially operated marinas based on the present composite operating capacity of 699 slips and boating support amenities which include rentals. Based on a comparative with the national norms of boating activity and test case of this regional district, this represents 22,424 boating days. In this composite, the sector spending categories depend upon the direct and secondary effects on the lakes and not necessarily specific services at a single locale. For example, boat fuelling is not marinas specific. The economic effect of marinas does include sales, jobs and labour incomes at direct and secondary levels. The detail reports include the higher potential for value added impact; however for this analysis it is not verifiable.

MARINAS ECONOMIC IMPACT- DIRECT - $4.27M
MARINAS ECONOMIC IMPACT SECONDARY - $2M
TOTAL MARINA EFFECT - $6.3M

YACHT CLUBS

There are 3 public associated Yacht Clubs operating in the regional district. Individual economic impact reports have been conducted based on the current operating capacity of 861 slips. Similar to the marina formula this translates into 27,178 boating days. Only the Kelowna Yacht Club has a fully operating club facility with staff, but direct spending of boaters at the other clubs is a still considered within the local effect. The potential for value added does not apply at this time.

YACHT CLUB ECONOMIC IMPACT – DIRECT - $5M
YACHT CLUB ECONOMIC IMPACT – SECONDARY - $2.37M
TOTAL YACHT CLUB EFFECT - $7.4M

BOAT LAUNCHES

A total of 27 boat launches were monitored over 43 days to develop the norms for an Okanagan season of 123 days. For the analysis of this economic indicator 52,820 boats were launched between May 16 to September 14.08. Boat launching is very much a weather driven activity. The launch range was 11peak days of 1,200 launches per day to 15 low days of 50 launches. The average boats launched per day is 429. Three test cases were conduct by on the water and under the bridge counts to verify launch-lake activity comparisons. The economic impact model indicates the implied jobs and labour force to maintain these craft. For the economic impact derivatives of this report the secondary effects are a guide and value added would require a future business case.
BOAT LAUNCH ECONOMIC IMPACT –DIRECT- $25.5M

ECONOMIC IMPACT VARIABLES AND SUMMATION

The economic impact of boating as reported by Discover Boating Canada is $15.6B and $3B is attributable to British Columbia which does include purchase of boats and related tourism activities. The study indicates from sales tax revenue that 27 cents of the boating dollar is spent at the marina or yacht club, 21 cents for fishing/tourism, 16 cents on retail sales, 16 cents on gas and 14 cents on boat purchase/payments. The remaining 6 cents is insurance and licensing.

This Economic Impact Composite Report respects the cooperation from the Marina and Yacht Club operators and owners. The impact of these services for residents and tourist are supported by Marine Business of Dockside, Malibu and Rayburn. The dry-land storage impact of 1,560 berths is contained within this report but boat sales are not part of this particular template. The cooperation from these service centres indicate that growth of boating matches the provincial growth rate of +2.6%.

The terms of reference of this study does not include private moorage nor the tourism impact from ticketed commercial operations from local moorage; specifically the Fintry Queen, Okanagan Princess, Executive House Boat, and the Kelowna Princess. The reported tourism spending is about $345M per annum (2001)

It cannot go unnoted that the regional district is home to Campion boats with over 83 dealers worldwide. Boat manufacturing revenues is $2B in Canada $277M in British Columbia. The building of Allante, Chase and Explorer Campion craft contributes healthily to the regional economy. These variables are secondary impact contributors to the total economic impact figures

ECONOMIC IMPACT OF BOATING
$39.2M

Further to this current status, the development activity for future private/strata moorage is conservatively estimated at 1400. The commercial/public moorage forecast within 5 years is at 400. The Economic Impact for 400 new public slips would be: $3.5M

MARINAS

TABLE 1 - Number of Different Type and Size Boats Kept at the Marina

Boats Type and Size	Number of Boats	Average Days Per Boat	Total Boat Days
Power <40'	651	32	20,757
Power 40'+	14	45	636
Sail <40'	34	30	1,031
Transient Power	-	-	-
Total	**699**	**-**	**22,424**

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Kept at the Marina

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	20.4	0.4	8.9	14.5
Marina Services	386.0	7.4	141.7	237.4
Restaurant	546.7	13.7	214.9	242.7
Recreation & Entertainment	81.7	1.6	30.0	50.2
Repair & Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	113.6	2.4	46.2	61.7
Gas Service Stations (Margin &Sales)	244.9	2.9	94.8	123.2
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins & Sales)	41.9	1.0	19.8	27.7
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	1,435.3	29.5	556.3	757.4
Secondary Effects	723.4	8.6	232.7	399.7
Total Effects	**2,158.7**	**38.0**	**789.0**	**1,157.1**

TABLE 3 - Economic Impacts of Craft Spending by Boats Kept at the Marinas

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,218.3	23.4	447.1	749.3
Repairs	1,216.4	8.8	232.3	534.0
Insurance	71.4	0.9	35.0	62.1
Credit Intermediaries	14.9	0.1	6.1	11.8
Retail Margins	312.8	7.7	148.1	206.4
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	2,833.9	40.8	868.6	1,563.6
Secondary Effects	1,299.9	15.3	423.8	707.3
Total Effects	**4,133.7**	**56.1**	**1,292.5**	**2,270.9**

TABLE 4- Economic Impact of both Craft and Trip Spending by Boats Kept at the Marinas

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	20.4	0.4	8.9	14.!
Marina Services	1,604.3	30.8	588.8	986.6
Restaurant	546.7	13.7	214.9	242.7
Recreation & Entertainment	81.7	1.6	30.0	50.2
Repair & Maintenance	1,216.4	8.8	232.3	534.0
Insurance &Credit	86.3	1.0	41.1	73.9
Gas Service	244.9	2.9	94.8	123.2
Other Retail Trade	468.3	11.1	214.1	295.8
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	4,269.1	70.3	1,424.9	2,321.0
Secondary Effects	2,023.3	23.8	656.6	1,107.0
Total Effects	**6,292.4**	**94.1**	**2,081.5**	**3,428.0**

YACHT CLUBS

TABLE 1 - Number of Different Type and Size Boats Kept at the Yacht Clubs

Boats Type and Size	Number of Boats	Average Days Per Boat	Total Boat Days
Power <40'	686	32	21,872
Power 40'+	-	-	-
Sail <40'	175	30	5,305
Sail 40'+	-	-	-
Total	**861**	**32**	**27,178**

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labor Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	27.6	0.6	12.1	19.6
Marina Services	433.0	8.3	158.9	266.3
Restaurant	620.7	15.6	243.9	275.6
Recreation & Entertainment	91.5	1.8	33.6	56.3
Repair & Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	129.9	2.7	52.9	70.5
Gas Service Stations (Margin &Sales)	256.5	3.1	99.3	129.0
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins &Sales)	49.4	1.2	23.4	32.7
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	1,608.7	33.2	624.0	850.0
Secondary Effects	809.9	9.6	260.3	447.2
Total Effects	**2,418.5**	**42.8**	**884.3**	**1,297.2**

TABLE 3 - Economic Impacts of Craft Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,534.0	29.4	563.0	943.4
Repairs	1,404.1	10.1	268.2	616.4
Insurance	78.7	1.0	38.6	68.5
Credit Intermediaries	15.5	0.1	6.4	12.3
Retail Margins	378.0	9.3	178.9	249.4
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	3,410.3	49.9	1,055.0	1,890.0
Secondary Effects	1,565.3	18.4	510.8	853.1
Total Effects	**4,975.6**	**68.4**	**1,565.8**	**2,743.1**

TABLE 4 - Economic Impact of both Craft and Trip Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	27.6	0.6	12.1	19.6
Marina Services	1,967.0	37.7	721.9	1,209.7
Restaurant	620.7	15.6	243.9	275.6
Recreation & Entertainment	91.5	1.8	33.6	56.3
Repair & Maintenance	1,404.1	10.1	268.2	616.4
Insurance & Credit	94.2	1.1	44.9	80.7
Gas Service	256.5	3.1	99.3	129.0
Other Retail Trade	557.3	13.2	255.2	352.6
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	5,019.0	83.2	1,679.0	2,739.9
Secondary Effects	2,375.2	28.0	771.1	1,300.3
Total Effects	**7,394.2**	**111.2**	**2,450.1**	**4,040.2**

BOAT LAUNCHES

TABLE 1 - Boats Using the Launch Sites Over The Boating Season.08

Type of Boats	Number Boats Launched	Number of Launch/Days
Power <25'	43,700	27/123
Power 25'+	9,120	27/123
Total	**52,820**	**3,321**
Boating Norms*	**Days Launches**	**Totals**
Peak	11days X 1200	13,200
High	43 X 590	25,370
Mid-Range	54 X 250	13,500
Low	15 X 50	750
TOTALS		**52,820**

- The Boat Launch Norms where developed from a 43 day monitoring period

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Using the Launch Sites

Sector/Spending category	Sales (000's $)	Jobs	Labour Income (000's $)	Value Added (000's $)
Direct Effects				
Lodging	260.1	5.3	113.7	184.1
Marina Services	348.6	6.7	127.9	214.4
Restaurant	791.8	19.9	311.2	351.5
Recreation &Entertainment	179.1	3.4	65.7	110.1
Repair &Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	206.5	4.3	84.1	112.2
Gas Service Stations (Margin &Sales)	593.0	7.1	229.5	298.3
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins &Sales)	90.0	2.2	42.6	59.5
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	2,469.0	48.9	974.6	1,330.1
Secondary Effects	1,244.2	14.8	403.9	692.5
Total Effects	**3,713.2**	**63.7**	**1,378.5**	**2,022.6**

TABLE 3 - Economic Impacts of Craft Spending by Boats Using the Launch Sites

Sector/Spending category	Sales (000's $)	Jobs	Labour Income (000's $)	Value Adde (000's $)
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,635.0	31.4	600.0	1,005.5
Repairs	13,844.3	99.8	2,644.3	6,077.7
Insurance	1,929.6	25.6	945.5	1,678.8
Credit Intermediaries	402.8	2.0	165.1	318.6
Retail Margins*	5,531.5	132.3	2,622.9	3,635.9
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	23,343.2	291.0	6,977.9	12,716.4
Secondary Effects	10,623.8	122.5	3,443.6	5,725.9
Total Effects	**33,967.0**	**413.5**	**10,421.4**	**18,442.3**

TABLE 4 - Economic Impact of both Craft and Trip Spending by Boats Using the Launch Sites

Sector/Spending category	Sales (000's $)	Jobs	Labour Income (000's $)	Value Added (000's $)
Direct Effects				
Lodging	260.1	5.3	113.7	184.
Marina Services	1,983.5	38.1	728.0	1,219.9
Restaurant	791.8	19.9	311.2	351.5
Recreation & Entertainment	179.1	3.4	65.7	110.1
Repair & Maintenance	13,844.3	99.8	2,644.3	6,077.7
Insurance & Credit	2,332.4	27.6	1,110.7	1,997.4
Gas Service	593.0	7.1	229.5	298.3
Other Retail Trade	5,828.0	138.8	2,749.5	3,807.5
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	25,812.2	340.0	7,952.4	14,046.5
Secondary Effects	11,868.0	137.3	3,847.5	6,418.4
Total Effects	**37,680.2**	**477.2**	**11,799.9**	**20,464.9**

Terms Used in this Economic Impact Analysis

Term	Definition
Sales	Sales of firms within the region resulting from boater spending.
Jobs	The number of jobs in the region supported by the boater spending. Job estimates are not full time equivalents, but include part time positions. Seasonal jobs are adjusted to annual equivalents, e.g. four jobs for three months each equates to one job.
Income	Labour income, including wages and salaries, payroll benefits and incomes of sole proprietor's
Value added	Income accruing to households in the region plus rents and profits of businesses and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a marina includes wages and salaries paid to employees, their payroll benefits, profits of the marina, and sales and other indirect business taxes. The marina's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the marina.
Direct effects	Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the boater spending.
Secondary effects	These are the changes in the economic activity in the region that result from the re-circulation of the money spent by boaters. Secondary effects include indirect and induced effects.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to boaters. For example, restaurant supply firms benefit from boater spending in restaurants.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the boater spending. For example, marina employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services.
Total effects	Sum of direct, indirect and induced effects. ■ Direct effects accrue largely to boating and tourism-related businesses in the area ■ Indirect effects accrue to a broader set of businesses that serve these firms. ■ Induced effects are distributed widely across a variety of local businesses that provide goods and services to households in the region.
Multipliers	Multipliers capture the size of the total effects relative to the direct effects. A sales multiplier of 2.0 means that for every dollar of direct sales, there is another dollar of sales in the region due to secondary effects. Direct effect multipliers convert sales to the associated income, jobs and value added by using simple ratios. For example, nationally 34 cents of every dollar of sales in restaurants goes to wages and salaries and 48 cents to value added. There are about 22 jobs for every million dollars in restaurant sales. These ratios are used to convert estimates of sales in each economic sector to the associated income, jobs, and value added. The job to sales ratios vary from region to region.

APPENDIX I - ECONOMIC IMPACT ANALYSIS: MARINAS

This analysis has been conducted utilizing the Boating Economic Impact Model developed Dr E. Mahoney, Dr Dan Stynes and Dr Yue Cui of the Recreational Marine Research Centre at Michigan State University.

GDH Solutions acknowledges the support of the Association of Marine Industries, the Great Lakes Commission, the U.S. Coast Guard and the B.C. Marine Trades Association.

This report provides estimates of the **Marina economic impacts** of the OKANAGAN LAKES. The marina produces direct and indirect revenues for many different types of businesses (e.g., retail, restaurants) in the local area. It also contributes to the visual character of the waterfront and contributes to the community's quality of life. Unfortunately, the economic contributions of marinas like this often go unrecognized or are undervalued. This report provides estimates of the direct and indirect economic impacts associated with the spending by the owners of boats that rent seasonal and annual slips, and the direct spending by transient boaters (tourists) staying at the OKANAGAN LAKES.

Economic impacts are estimated using a boater spending and impact model. Boater spending averages on a per day basis for trip spending and per boat basis for annual craft spending are adapted from spending profiles developed from two different national boater surveys conducted by the Recreation Marine Research Center (RMRC) at Michigan State University in 2005. Estimates of annual craft spending for boats kept at marinas are taken from a national survey of more than 12,500 boaters conducted in 2005 and 2006.

Annual craft spending averages were price adjusted to 2008 using consumer price indices for each spending category. Annual craft spending includes storage (during the boat season), insurance, taxes, replacement outboard motors, trailers, fuel, repairs & marine services and accessories. Loan payments for the year are included, but purchases of new boats are not. Since most boats, trailers, motors and other equipment purchased by boaters are not manufactured in the local area, only the retail and wholesale margins on these purchases are included as local impacts.

Trip spending estimates, including what boaters spend on groceries, lodging, entertainment and restaurants, came from a 2006 national survey of more than 6,000 boaters that gathered information about more than 13,000 boating trips. Trip sending includes what boaters spend on boating trips for fuel, groceries, lodging, entertainment, and restaurants. Spending averages were price inflated to 2008. Spending profiles were developed for

different size and type boats in different regions of the country. The craft and trip spending averages used here are for boats kept at marinas in Pacific Region.

The spending averages are applied to the number of slip renters and transient boaters at OKANAGAN LAKES. Distinct spending averages are used for power and sail boats divided into two size classes. Spending is divided into 12 trip spending categories and eight craft spending categories.

Total spending by these boaters who rent slips seasonally or annually or are transient renters is applied to a set of economic ratios and multipliers that reflect the local economy. The impact region is defined to include roughly a 30 mile radius of the marina. Economic ratios and multipliers were estimated with the IMPLAN input-output modeling system. Because the size of multipliers differ depending on the size and nature (e.g., types of businesses) of the local economy distinct sets of multipliers were developed for rural (population less than 100,000), small metro (populations 100,000-500,000), and larger metro regions (population over 500,000). Multipliers representing "Small Metro Areas" were selected for this analysis. Economic ratios translate the spending into wages and salaries and jobs supported by the boater spending. Multipliers estimate the secondary effects as this spending flows through the local economy. Total effects include the (1) direct sales, jobs and income in firms selling directly to boaters, (2) indirect effects in firms that supply goods and services to boating businesses, and (3) induced effects resulting from household spending of income earned directly or indirectly from boater spending.

A total of 699 boats are being kept at OKANAGAN LAKES during 2007. This includes 665 power boats ranging from 16' to more than 40' and 34 sailboats. It is estimated that the 699 seasonal/annual slip renters will take their boats out on the water a total of 22,424 days in 2007. The average number of boating days per boat is 32 days. The marina rented slips to transient boaters a total of - nights in 2007.

The boaters who rent slips for the season or annually contribute to the local and state economies through spending on the upkeep and maintenance of their craft and also spending on their boating trips. Boaters who keep their boats in slips will spend about 4,973 thousand dollars annually on craft upkeep and maintenance not counting fuel. This spending is broken down as follows: 24% on slip/storage fees, 23% to loan payments including principal and interest, 24% for repairs, 7% for insurance, and 15% for accessories. Combining trip and craft spending, a typical boat spends $3,869 per year on boating trips and $7,114 per year on craft-related expenses.

The Inputs to the Model

TABLE 1 - Number of Different Type and Size Boats Kept at the Marinas

Boats Type and Size	Number of Boats	Average Days Per Boat	Total Boat Days
Power <40'	651	32	20,757
Power 40'+	14	45	636
Sail <40'	34	30	1,031
Sail 40'+	-	-	-
Transient Power	-	-	-
Transient Sail	-	-	-
Total	**699**	**-**	**22,424**

Spending Profiles By Boats Kept at the Marinas

TABLE 1A - Average Spending on Boat Trip by Boats Kept at the Marinas ($ Per Boat Day)

	Boat Type and Size					
CATEGORY	Power <40'	Power 40'+	Sail <40'	Sail 40'+	Transient Power	Transient Sail
Lodging	0.9	0.3	1.5	2.2	4.4	4.3
Marina services	17.3	25.6	10.3	18.3	40.8	28.5
Restaurant	24.4	36.7	16.4	30.7	44.1	33.6
Groceries	19.9	32.6	14.7	24.6	31.5	27.4
Boat fuel	41.1	61.6	3.6	8.0	59.5	8.4
Auto fuel	9.2	8.6	5.8	6.6	9.2	5.9
Repair & Maintenance	-	-	-	-	-	-
Marine supplies	-	-	-	-	-	-
Recreation & Entertainment	3.7	4.4	2.0	6.6	8.6	6.5
Shopping	2.9	6.3	2.9	5.2	12.9	11.6
Other services	-	-	-	-	-	-
Other goods	2.5	1.8	2.0	2.9	-	-
Total	**122**	**178**	**59**	**105**	**211**	**126**

TABLE 1B - Average Annual Craft Spending by Boats Kept at the Marinas ($ Per Boat Per Year)

CATEGORY	Boat Type and Size			
	Power <40'	Power 40'+	Sail <40'	Sail 40'+
Slip	1,652.2	4,635.8	2,289.1	4,096.3
Loan Payments	1,506.6	9,842.1	902.0	5,232.7
Motors	27.8	38.9	11.3	13.8
Trailers	16.7	8.6	6.7	6.1
Insurance	472.8	2,556.4	395.3	1,266.2
Repairs	1,681.5	5,218.7	1,432.1	4,135.1
Accessories	1,041.4	3,174.6	1,197.2	3,521.3
Taxes	331.2	1,102.3	224.1	677.2
Total	**6,730**	**26,577**	**6,458**	**18,949**

Estimates of Total Spending by Boats Kept at the Marinas

TABLE 1C - Total Trip Spending by Different Size and Type Boats Kept at the Marina ($ Thousands)

CATEGORY	Boat Type and Size						Total	PCT
	Power <40'	Power 40'+	Sail <40'	Sail 40'+	Transient Power	Transient Sail		
Lodging	18.68	0.19	1.55	-	-	-	20.42	1%
Marina services	359.09	16.29	10.62	-	-	-	386.00	14%
Restaurant	506.46	23.36	16.90	-	-	-	546.72	20%
Groceries	413.05	20.75	15.15	-	-	-	448.95	17%
Boat fuel	853.09	39.20	3.71	-	-	-	896.00	33%
Auto fuel	190.96	5.47	5.98	-	-	-	202.41	7%
Repair & Maintenance	-	-	-	-	-	-	-	-
Marine supplies	-	-	-	-	-	-	-	-
Recreation & Entertainment	76.80	2.80	2.06	-	-	-	81.66	3%
Shopping	60.19	4.01	2.99	-	-	-	67.19	2%
Other services	-	-	-	-	-	-	-	-
Other goods	51.89	1.15	2.06	-	-	-	55.10	
Total	**2,530**	**113**	**61**	**-**	**-**	**-**	**2,704**	**100%**

TABLE 1D - Total Craft Spending by Different Size and Type Boats Kept at the Marinas ($ Thousands)

CATEGORY	Boat Type and Size				Total	PCT
	Power <40'	Power 40'+	Sail <40'	Sail 40'+		
Slip	1,075.58	64.90	77.83	-	1,218.31	24%
Loan Payments	980.80	137.79	30.67	-	1,149.25	23%
Motors	18.10	0.54	0.38	-	19.03	0%
Trailers	10.87	0.12	0.23	-	11.22	0%
Insurance	307.79	35.79	13.44	-	357.02	7%
Repairs	1,094.66	73.06	48.69	-	1,216.41	24%
Accessories	677.95	44.44	40.70	-	763.10	15%
Taxes	215.61	15.43	7.62	-	238.66	5%
Total	**4,381**	**372**	**220**	**-**	**4,973**	**100%**

TABLE 1E - Numbers of Boats, Boating Days and Craft and Trip Spending by Different Size and Type Boats Kept at the Marinas

CATEGORY	Boat Type and Size						
	Power <40'	Power 40'+	Sail <40'	Sail 40'+	Transient Power	Transient Sail	Tot
Number of boats	651	14	34	-	-	-	69
Annual craft spending per boat	$6,730	$26,577	$6,458	$18,949	-	-	
Total craft spending ($ Thousands)	$4,381	$372	$220	-	-	-	$4,97
Average days per boat	32	45	30	33	1	1	
Total boat days	20,757	636	1,031	-	-	-	22,42
Average trip spending per boat day	$122	$178	$59	$105	$211	$126	
Total trip spending per boat per year	$3,887	$8,087	$1,795	$3,418	$211	$126	
Total trip spending ($ Thousands)	$2,530	$113	$61	-	-	-	[illegible]C
Total craft&trip spending per boat per year	$10,617	$34,664	$8,253	$22,366	$211	$126	
Total craft& trip spending ($ Thousands)	$6,912	$485	$281	-	-	-	$7,67
Pct of spending by boats	90%	6%	4%	-	-	-	100
Pct of boats	93%	2%	5%	-	-	-	100
Pct of boat days by boats	93%	3%	5%	-	-	-	100
Pct of spending on trips by boats	37%	23%	22%	-	-	-	35

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Kept at the Marinas

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	20.4	0.4	8.9	14.5
Marina Services	386.0	7.4	141.7	237.4
Restaurant	546.7	13.7	214.9	242.7
Recreation & Entertainment	81.7	1.6	30.0	50.2
Repair & Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	113.6	2.4	46.2	61.7
Gas Service Stations (Margin &Sales)	244.9	2.9	94.8	123.2
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins & Sales)	41.9	1.0	19.8	27.7
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	1,435.3	29.5	556.3	757.4
Secondary Effects	723.4	8.6	232.7	399.7
Total Effects	**2,158.7**	**38.0**	**789.0**	**1,157.1**

TABLE 3 - Economic Impacts of Craft Spending by Boats Kept at the Marinas

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,218.3	23.4	447.1	749.3
Repairs	1,216.4	8.8	232.3	534.0
Insurance	71.4	0.9	35.0	62.1
Credit Intermediaries	14.9	0.1	6.1	11.8
Retail Margins	312.8	7.7	148.1	206.4
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	2,833.9	40.8	868.6	1,563.6
Secondary Effects	1,299.9	15.3	423.8	707.3
Total Effects	**4,133.7**	**56.1**	**1,292.5**	**2,270.9**

TABLE 4 - Economic Impact of both Craft and Trip Spending by Boats Kept at the Marinas

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	20.4	0.4	8.9	14.5
Marina Services	1,604.3	30.8	588.8	986.6
Restaurant	546.7	13.7	214.9	242.7
Recreation & Entertainment	81.7	1.6	30.0	50.2
Repair & Maintenance	1,216.4	8.8	232.3	534.0
Insurance &Credit	86.3	1.0	41.1	73.9
Gas Service	244.9	2.9	94.8	123.2
Other Retail Trade	468.3	11.1	214.1	295.8
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	4,269.1	70.3	1,424.9	2,321.0
Secondary Effects	2,023.3	23.8	656.6	1,107.0
Total Effects	**6,292.4**	**94.1**	**2,081.5**	**3,428.0**

APPENDIX II - ECONOMIC IMPACT ANALYSIS: YACHT CLUBS

This analysis has been conducted utilizing the Boating Economic Impact Model developed Dr E. Mahoney, Dr. Dan Stynes and Dr. Yue Cui of the Recreational Marine Research Centre at Michigan State University.
GDH Solutions acknowledges the support of the Association of Marine Industries, the Great Lakes Commission, the U.S. Coast Guard and the B.C. Marine Trades Association.

Name of the Marina:	OKANAGAN LAKES
Type of the Marina:	Publicly owned marina yacht clubs
Types of Slips Rented:	Seasonal, Annual or Condominium Slips
Region of the country:	Pacific
Type of Economy:	Small Metro Areas. (Populations of 100-500,000)
Date:	9/2/2008

This report provides estimates of the **economic impacts of Yacht Clubs** on Lake Okanagan. The yacht clubs (referred to as marinas) produce direct and indirect revenues for many different types of businesses (e.g., retail, restaurants) in the local area. It also contributes to the visual character of the waterfront and contributes to the community's quality of life. Unfortunately, the economic contributions of marinas like this often go unrecognized or are undervalued. This report provides estimates of the direct and indirect economic impacts associated with the spending by the owners of boats that rent seasonal and annual slips during 2008 at Lake Okanagan Yacht Clubs.

Economic impacts are estimated using a boater spending and impact model. Boater spending averages on a per day basis for trip spending and per boat basis for annual craft spending are adapted from spending profiles developed from two different national boater surveys conducted by the Recreation Marine Research Center (RMRC) at Michigan State University in 2005. Estimates of annual craft spending for boats kept at marinas are taken from a national survey of more than 12,500 boaters conducted in 2005 and 2006.

Annual craft spending averages were price adjusted to 2008 using consumer price indices for each spending category. Annual craft spending includes storage (during the boat season), insurance, taxes, replacement outboard motors, trailers, fuel, repairs & marine services and accessories. Loan payments for the year are included, but purchases of new boats are not. Since most boats, trailers, motors and other equipment purchased by boaters are not manufactured in the local area, only the retail and wholesale margins on these purchases are included as local impacts.

Trip spending estimates, including what boaters spend on groceries, lodging, entertainment and restaurants, came from a 2006 national survey of more than 6,000 boaters that gathered information about more than 13,000 boating trips. Trip sending includes what boaters spend on boating trips for fuel, groceries, lodging, entertainment, and restaurants. Spending averages were price inflated to 2008. Spending profiles were developed for different size and type boats in different regions of the country. The craft and trip spending averages used here are for boats kept at marinas in Pacific Region.

The spending averages are applied to the number of slip renters and transient boaters at okanagan lakes. Distinct spending averages are used for power and sail boats divided into two size classes. Spending is divided into 12 trip spending categories and eight craft spending categories.

Total spending by these boaters who rent slips seasonally or annually or are transient renters is applied to a set of economic ratios and multipliers that reflect the local economy. The impact region is defined to include roughly a 30 mile radius of the marina. Economic ratios and multipliers were estimated with the IMPLAN input-output modeling system. Because the size of multipliers differ depending on the size and nature (e.g., types of businesses) of the local economy distinct sets of multipliers were developed for rural (population less than 100,000), small metro (populations 100,000-500,000), and larger metro regions (population over 500,000). Multipliers representing "Small Metro Areas" were selected for this analysis. Economic ratios translate the spending into wages and salaries and jobs supported by the boater spending. Multipliers estimate the secondary effects as these spending flows through the local economy. Total effects include the (1) direct sales, jobs and income in firms selling directly to boaters, (2) indirect effects in firms that supply goods and services to boating businesses, and (3) induced effects resulting from household spending of income earned directly or indirectly from boater spending.

A total of 861 boats are being kept at Lake Okanagan Yacht Clubs during 2008. This includes 686 power boats ranging from 16' to more than 40' and 175 sailboats. It is estimated that the 861 seasonal/annual slip renters will take their boats out on the water a total of 27,178 days in 2008. The average number of boating days per boat is 32 days.

The boaters who rent slips for the season or annually contribute to the local and state economies through spending on the upkeep and maintenance of their craft and also spending on their boating trips. Boaters who keep their boats in slips will spend about 5,747 thousand dollars annually on craft upkeep and maintenance not counting fuel. This spending is broken down as follows: 27% on slip/storage fees, 21% to loan payments including principal and interest, 24% for repairs, 7% for insurance, and 16% for accessories. Combining trip and craft spending, a typical boat spends $3,461 per year on boating trips and $6,675 per year on craft-related expenses.

Total trip spending by these boats kept at the Yacht Clubs are estimated to be $5 million, with 15% spent on marina services, 21% on restaurants and bars, 17% groceries, 8% auto fuel and 31% boat fuel. Secondary Effects represent an additional $2.4M For a total of $7.4M.

The direct economic effects on the local economy of this spending are 83 jobs[1], $1.7 million in labour income and $2.7 million in value added[2]. The marina's non-labour operating costs such as purchases of supplies and services from other firms are not included as value added by the marina. Direct effects cover the impacts in businesses selling goods and services directly to these boaters. This includes 38 jobs in marina services, 16 jobs in restaurants and bars, and 13 jobs in retail stores.

Including secondary effects, the total impact on the local economy is 111 jobs, $2.5 million in labour income and $4.0 million in value added.

[1] Jobs are not full time equivalents, but include full time and part time jobs. Seasonal positions are adjusted to an annual basis, e.g., two jobs for six months equates to one job on an annual basis. Labor income includes wages and salaries, payroll benefits and income of sole proprietors. Value added includes labor income as well as profits and rents and sales taxes and other indirect business taxes.

[2] Value added is the income accruing to households in the region plus rents and profits of businesses and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a marina includes wages and salaries paid to employees, their payroll benefits, profits of the marina, and sales and other indirect business taxes.

The Inputs to the Model

TABLE 1 - Number of Different Type and Size Boats Kept at the Yacht Clubs

Boats Type and Size	Number of Boats	Average Days Per Boat	Total Boat Days
Power <40'	686	32	21,872
Power 40'+	-	-	-
Sail <40'	175	30	5,305
Sail 40'+	-	-	-
Total	**861**	**32**	**27,178**

Spending Profiles by Boats Kept at the Yacht Clubs

TABLE 1A - Average Spending on Boat Trip by Boats Kept at the Yacht Clubs ($ Per Boat Day)

	Boat Type and Size			
CATEGORY	Power <40'	Power 40'+	Sail <40'	Sail 40'+
Lodging	0.9	0.3	1.5	2.2
Marina services	17.3	25.6	10.3	18.3
Restaurant	24.4	36.7	16.4	30.7
Groceries	19.9	32.6	14.7	24.6
Boat fuel	41.1	61.6	3.6	8.0
Auto fuel	9.2	8.6	5.8	6.6
Repair & Maintenance	-	-	-	-
Marine supplies	-	-	-	-
Recreation & Entertainment	3.7	4.4	2.0	6.6
Shopping	2.9	6.3	2.9	5.2
Other services	-	-	-	-
Other goods	2.5	1.8	2.0	2.9
Total	**122**	**178**	**59**	**105**

TABLE 1B - Average Annual Craft Spending by Boats Kept at the Yacht Clubs ($ Per Boat Per Year)

CATEGORY	Boat Type and Size			
	Power <40'	Power 40'+	Sail <40'	Sail 40'+
Slip	1,652.2	4,635.8	2,289.1	4,096.3
Loan Payments	1,506.6	9,842.1	902.0	5,232.7
Motors	27.8	38.9	11.3	13.8
Trailers	16.7	8.6	6.7	6.1
Insurance	472.8	2,556.4	395.3	1,266.2
Repairs	1,681.5	5,218.7	1,432.1	4,135.1
Accessories	1,041.4	3,174.6	1,197.2	3,521.3
Taxes	331.2	1,102.3	224.1	677.2
Total	**6,730**	**26,577**	**6,458**	**18,949**

Estimates of Total Spending by Boats Kept at the Yacht Clubs

TABLE 1C - Total Trip Spending by Different Size and Type Boats Kept at the Yacht Clubs($ Thousands)

CATEGORY	Boat Type and Size				Total	PCT
	Power <40'	Power 40'+	Sail <40'	Sail 40'+		
Lodging	19.69	-	7.96	-	27.64	1%
Marina services	378.39	-	54.65	-	433.04	15%
Restaurant	533.69	-	87.01	-	620.70	21%
Groceries	435.26	-	77.99	-	513.25	17%
Boat fuel	898.96	-	19.10	-	918.06	31%
Auto fuel	201.23	-	30.77	-	232.00	8%
Repair & Maintenance	-	-	-	-	-	-
Marine supplies	-	-	-	-	-	-
Recreation & Entertainment	80.93	-	10.61	-	91.54	3%
Shopping	63.43	-	15.39	-	78.82	3%
Other services	-	-	-	-	-	-
Other goods	54.68	-	10.61	-	65.29	2%
Total	**2,666**	**-**	**314**	**-**	**2,980**	**10**

TABLE 1D- Total Craft Spending by Different Size and Type Boats Kept at the Yacht Clubs ($ Thousands)

CATEGORY	Boat Type and Size				Total	PCT
	Power <40'	Power 40'+	Sail <40'	Sail 40'+		
Slip	1,133.41	-	400.59	-	1,534.00	27%
Loan Payments	1,033.53	-	157.85	-	1,191.38	21%
Motors	19.07	-	1.98	-	21.05	0%
Trailers	11.46	-	1.17	-	12.63	0%
Insurance	324.34	-	69.18	-	393.52	7%
Repairs	1,153.51	-	250.62	-	1,404.13	24%
Accessories	714.40	-	209.51	-	923.91	16%
Taxes	227.20	-	39.22	-	266.42	5%
Total	**4,617**	**-**	**1,130**	**-**	**5,747**	**100%**

TABLE 1E - Numbers of Boats, Boating Days and Craft and Trip Spending by Different Size and Type Boats Kept at the Yacht Clubs

CATEGORY	Boat Type and Size				
	Power <40'	Power 40'+	Sail <40'	Sail 40'+	Tot
Number of boats	686	-	175	-	86
Annual craft spending per boat	$6,730	$26,577	$6,458	$18,949	
Total craft spending ($ Thousands)	$4,617	-	$1,130	-	$5,74
Average days per boat	32	45	30	33	
Total boat days	21,872	-	5,305	-	27,17
Average trip spending per boat day	$122	$178	$59	$105	
Total trip spending per boat per year	$3,887	$8,087	$1,795	$3,418	
Total trip spending ($ Thousands)	$2,666	-	$314	-	$2,98
Total craft &trip spending per boat per year	$10,617	$34,664	$8,253	$22,366	
Total craft &trip spending ($ Thousands)	$7,283	-	$1,444	-	$8,72
Pct of spending by boats	83%	-	17%	-	100
Pct of boats	80%	-	20%	-	0
Pct of boat days by boats	80%	-	20%	-	100
Pct of spending on trips by boats	37%	-	22%	-	34

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Lodging	27.6	0.6	12.1	19.6
Marina Services	433.0	8.3	158.9	266.3
Restaurant	620.7	15.6	243.9	275.6
Recreation & Entertainment	91.5	1.8	33.6	56.3
Repair & Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	129.9	2.7	52.9	70.5
Gas Service Stations (Margin &Sales)	256.5	3.1	99.3	129.0
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins &Sales)	49.4	1.2	23.4	32.7
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	1,608.7	33.2	624.0	850.0
Secondary Effects	809.9	9.6	260.3	447.2
Total Effects	**2,418.5**	**42.8**	**884.3**	**1,297.2**

TABLE 3 - Economic Impacts of Craft Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands)
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,534.0	29.4	563.0	943.4
Repairs	1,404.1	10.1	268.2	616.4
Insurance	78.7	1.0	38.6	68.5
Credit Intermediaries	15.5	0.1	6.4	12.3
Retail Margins	378.0	9.3	178.9	249.4
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	3,410.3	49.9	1,055.0	1,890.0
Secondary Effects	1,565.3	18.4	510.8	853.1
Total Effects	**4,975.6**	**68.4**	**1,565.8**	**2,743.1**

TABLE 4 - Economic Impact of both Craft and Trip Spending by Boats Kept at the Yacht Clubs

Sector/Spending category	Sales ($ Thousands)	Jobs	Labour Income ($ Thousands)	Value Added ($ Thousands
Direct Effects				
Lodging	27.6	0.6	12.1	19.6
Marina Services	1,967.0	37.7	721.9	1,209.7
Restaurant	620.7	15.6	243.9	275.6
Recreation & Entertainment	91.5	1.8	33.6	56.3
Repair & Maintenance	1,404.1	10.1	268.2	616.4
Insurance & Credit	94.2	1.1	44.9	80.7
Gas Service	256.5	3.1	99.3	129.0
Other Retail Trade	557.3	13.2	255.2	352.6
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	5,019.0	83.2	1,679.0	2,739.9
Secondary Effects	2,375.2	28.0	771.1	1,300.3
Total Effects	**7,394.2**	**111.2**	**2,450.1**	**4,040.2**

APPENDIX III- ECONOMIC IMPACT ANALYSIS: BOAT LAUNCHES

This analysis has been conducted utilizing the Boating Economic Impact Model developed Dr. E. Mahoney, Dr. Dan Stynes and Dr. Yue Cui of the Recreational Marine Research Centre at Michigan State University. GDH Solutions acknowledges the support of the Association of Marine Industries, the Great Lakes Commission, the U.S. Coast Guard and the B.C. Marine Trades Association.

BOAT LAUNCHES SUMMARY

This report provides the estimates of the economic impacts for the Regional District of Central Okanagan using boater spending and marine impact model. Marine recreational use of launches produces direct and indirect revenues for many different types of businesses. It contributes to the community quality of life through resident and tourism activities. The estimates of annual craft spending have been adjusted for this region using the basis of the national spending surveys conducted in 2006 and 2007. The averages have been adjusted using the consumer price indices for each spending category.

A total of 27 boat launches were monitored over 43 days to develop the norms for an Okanagan season of 123 days. For the analysis of this economic indicator 52,820 boats were launched between May 16 to September 14.08. Boat launching is very much a weather driven activity. The launch range was 11peak days of 1,200 launches per day to 15 low days of 50 launches. The average boats launched per day is 429.

The launching of a boat on Okanagan, Wood and Kalamalka Lakes creates spending on fuel, groceries, entertainment and at restaurants. The implied annual craft costs include insurance, taxes, storage, repairs, servicing, accessory purchases and trailers. Since most boats are not manufactured in the local area, loan payments are included but boat purchase is not. Wholesale and retail margins are not equated in these activity impacts but can be obtained from the local economic development authorities.

The direct economic impact of the launch activities can be assessed at $25.8M per year with a secondary impact of $11.9M The boating activity from the monitored 27 sites could achieve the valued added potential of $14M should a business plan for destination travel be adopted across the lakes.

TABLE 1 - Boats Using the Launch Sites Over The Boating Season.08

Type of Boats	Number Boats Launched	Number of Launch/Days
Power <25'	43,700	27/123
Power 25'+	9,120	27/123
Total	**52,820**	**3,321**
Boating Norms*	**Days Launches**	**Totals**
Peak	11days X 1200	13,200
High	43 X 590	25,370
Mid-Range	54 X 250	13,500
Low	15 X 50	750
TOTALS		**52,820**

- The Boat Launch Norms where developed from a 43 day monitoring period

• Spending Profiles by Boats Using the Launch Sites

TABLE 1A - Average Spending on Boat Trip by Boats Using the Launch Sites ($ Per Boat Day)

	Boat Size	
CATEGORY	**Power <25'**	**Power 25'+**
Lodging	5.2	3.6
Marina services	4.7	15.7
Restaurant	12.4	27.4
Groceries	14.8	18.6
Boat fuel	20.6	66.0
Auto fuel	21.8	22.4
Repair & Maintenance	-	-
Marine supplies	-	-
Recreation & Entertainment	3.2	4.3
Shopping	2.4	4.0
Other services	-	-
Other goods	2.1	3.2
Total	**87**	**165**

TABLE 1B - Average Annual Craft Spending by Boats Using the Launch Sites ($ Per Boat Per Year)

CATEGORY	Boat Size	
	Power <25'	Power 25'+
Slip	20.3	82.0
Loan Payments	322.2	1,853.4
Motors	15.5	19.6
Trailers	11.0	33.0
Insurance	134.3	414.4
Repairs	187.6	619.1
Accessories	178.2	550.2
Taxes	45.2	128.8
Total	**914**	**3,701**

Total Spending

TABLE 1C - Total Trip Spending by Different Size Boats Using the Launch Sites (000's $)

CATEGORY	Boat Size		Total	PCT
	Power <25'	Power 25'+		
Lodging	227.24	32.83	260.07	5%
Marina services	205.39	143.18	348.57	7%
Restaurant	541.88	249.89	791.77	15%
Groceries	646.76	169.63	816.39	15%
Boat fuel	900.22	601.92	1,502.14	28%
Auto fuel	952.66	204.29	1,156.95	22%
Repair & Maintenance	-	-	-	-
Marine supplies	-	-	-	-
Recreation & Entertainment	139.84	39.22	179.06	3%
Shopping	104.88	36.48	141.36	3%
Other services	-	-	-	-
Other goods	91.77	29.18	120.95	2%
Total	**3,811**	**1,507**	**5,317**	**100%**

TABLE 1D - Total Craft Spending by Different Size Boats Using the Launch Sites (000's $)

CATEGORY	Boat Size: Power <25'	Boat Size: Power 25'+	Total	PCT
Slip	887.11	747.84	1,634.95	2%
Loan Payments	14,080.14	16,903.01	30,983.15	42%
Motors	677.35	178.75	856.10	1%
Trailers	480.70	300.96	781.66	1%
Insurance	5,868.91	3,779.33	9,648.24	13%
Repairs	8,198.12	5,646.19	13,844.31	19%
Accessories	7,787.34	5,017.82	12,805.16	17%
Taxes	1,975.24	1,174.66	3,149.90	4%
Total	**39,955**	**33,749**	**73,703**	**100%**

TABLE 1E - Numbers of Boats, Boating Days and Craft and Trip Spending by Different Size Boats Using the Launch Sites

CATEGORY	Boat Size: Power <25'	Boat Size: Power 25'+	Total
Number of boats	43,700	9,120	52,820
Annual craft spending per boat	$914	$3,701	-
Total craft spending (000's $)	$39,955	$33,749	$73,703
Average days per boat	1	1	-
Total boat days	43,700	9,120	52,820
Average trip spending per boat day	$87	$165	-
Total trip spending per boat per year	$87	$165	-
Total trip spending (000's $)	$3,811	$1,507	$5,317
Total craft & trip spending per boat per year	$1,002	$3,866	-
Total craft & trip spending (000's $)	$43,766	$35,255	$79,021
Pct of spending by boats	55%	45%	100%
Pct of boats	83%	17%	100%
Pct of boat days by boats	83%	17%	100%
Pct of spending on trips by boats	9%	4%	7%

Economic Impact Result/Tables

TABLE 2 - Economic Impacts of Trip Spending by Boats Using the Launch Site

Sector/Spending category	Sales (000's $)	Jobs	Labour Income (000's $)	Value Added (000's $)
Direct Effects				
Lodging	260.1	5.3	113.7	184.1
Marina Services	348.6	6.7	127.9	214.4
Restaurant	791.8	19.9	311.2	351.5
Recreation &Entertainment	179.1	3.4	65.7	110.1
Repair &Maintenance	-	-	-	-
Grocery Stores (Margin &Sales)	206.5	4.3	84.1	112.2
Gas Service Stations (Margin &Sales)	593.0	7.1	229.5	298.3
Sporting Goods/Equipment Retail Margins	-	-	-	-
Other Retail Trade (Margins &Sales)	90.0	2.2	42.6	59.5
Wholesale Trade (Margins &Sales)	-	-	-	-
Local Production of Goods	-	-	-	-
Total Direct Effects	2,469.0	48.9	974.6	1,330.1
Secondary Effects	1,244.2	14.8	403.9	692.5
Total Effects	**3,713.2**	**63.7**	**1,378.5**	**2,022.6**

TABLE 3 - Economic Impacts of Craft Spending by Boats Using the Launch Site

Sector/Spending category	Sales (000's $)	Jobs	Labor Income (000's $)	Value Added (000's $)
Direct Effects				
Boat Manufacture	-	-	-	-
Slip	1,635.0	31.4	600.0	1,005.5
Repairs	13,844.3	99.8	2,644.3	6,077.7
Insurance	1,929.6	25.6	945.5	1,678.8
Credit Intermediaries	402.8	2.0	165.1	318.6
Retail Margins*	5,531.5	132.3	2,622.9	3,635.9
Wholesale Trade	-	-	-	-
Manufacture: Motors, Trailers, Accessories	-	-	-	-
Total Direct Effects	23,343.2	291.0	6,977.9	12,716.4
Secondary Effects	10,623.8	122.5	3,443.6	5,725.9
Total Effects	**33,967.0**	**413.5**	**10,421.4**	**18,442.3**

TABLE 4- Economic Impact of both Craft and Trip Spending by Boats Using the Launch Site

Sector/Spending category	Sales (000's $)	Jobs	Labour Income (000's $)	Value Added (000's $)
Direct Effects				
Lodging	260.1	5.3	113.7	184.1
Marina Services	1,983.5	38.1	728.0	1,219.9
Restaurant	791.8	19.9	311.2	351.5
Recreation & Entertainment	179.1	3.4	65.7	110.1
Repair & Maintenance	13,844.3	99.8	2,644.3	6,077.7
Insurance & Credit	2,332.4	27.6	1,110.7	1,997.4
Gas Service	593.0	7.1	229.5	298.3
Other Retail Trade	5,828.0	138.8	2,749.5	3,807.5
Wholesale Trade	-	-	-	-
Other Local Production of Goods	-	-	-	-
Total Direct Effects	25,812.2	340.0	7,952.4	14,046.5
Secondary Effects	11,868.0	137.3	3,847.5	6,418.4
Total Effects	**37,680.2**	**477.2**	**11,799.9**	**20,464.9**

FINAL REPORT

MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY PART C – ENVIRONMENTAL ISSUES/IMPACTS - 2008

Prepared for:

GDH Solutions
252 5165 Trepanier Bench Road
Peachland B.C.
V0H 1X2

Prepared by:

Summit Environmental Consultants Ltd.
#200 - 2800 29th Street
Vernon, B.C.
V1T 9P9

Project 7010-006.01

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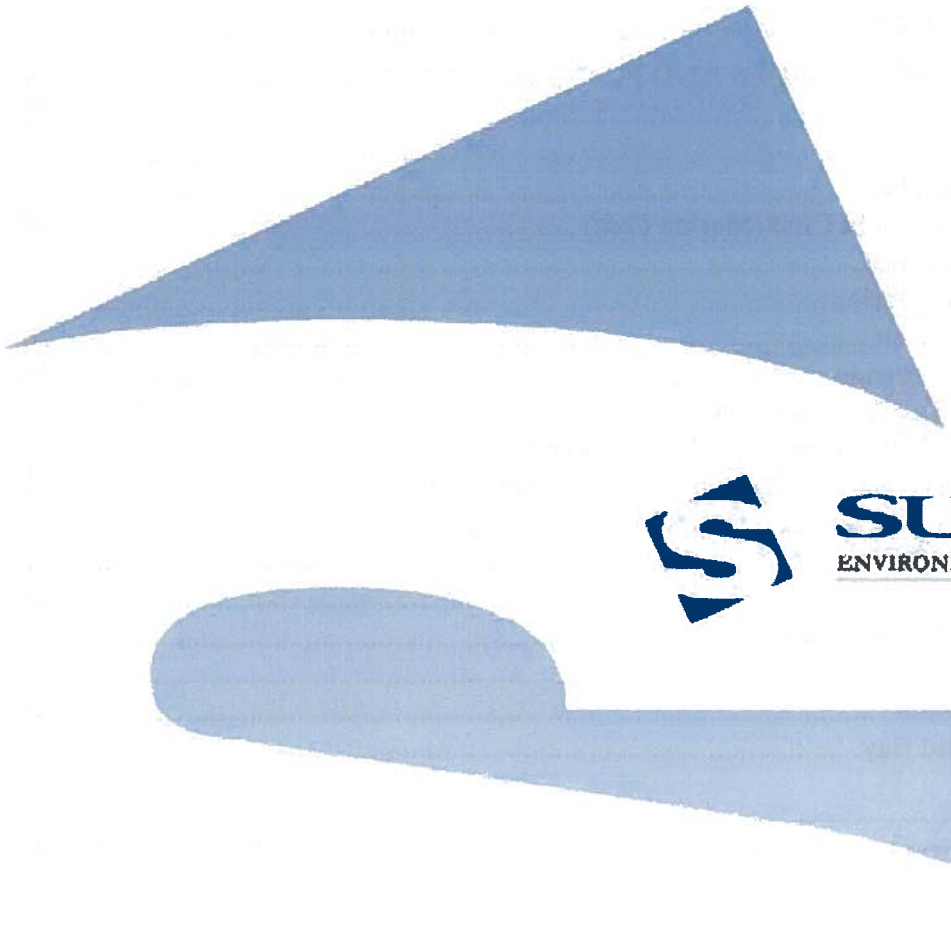

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

The Central Okanagan Regional District (RDCO) is considering increasing the overall capacity of marina and mooring facilities on the portions of Okanagan, Kalamalka, and Wood Lakes that are located within the RDCO boundary. In 2008, GDH Solutions of Kelowna was retained by RDCO to complete the Major Lakes Recreational Marine Facilities Study ("the study") to support planning for the increased moorage capacity. The scope of the study was outlined in the terms of reference dated February 11, 2008, GDH Solutions subcontracted Summit Environmental Consultants Ltd. to complete Part C of the study, which is to address potential environmental issues and impacts associated with current and future marine facilities. This report presents the results of Part C of the study.

The study area is located within the RDCO and includes the portions of Okanagan, Kalamalka and Wood Lakes that are located within the district boundary. These lakes have high value fisheries, recreational and water supply values. However, over the past 20 years, the population of RDCO has significantly increased and with that growth, has come increased demand for recreational boating opportunities. To meet the increasing demand for mooring, RDCO has initiated a 20 year plan to help plan marina facilities.

Upgrades to existing and installation of new marine facilities will need to comply with local government bylaws and with provincial and federal regulations. Each local government has specific bylaws associated with development and land alteration near lakes. Wildlife habitat and riparian vegetation are protected under applicable federal and provincial regulations. Similarly, land below the high water mark of the lakes is Crown Land that also has associated provincial and federal regulations. In particular, the federal *Fisheries Act* prohibits the harmful alteration, disruption or destruction (HADD) of fish habitat.

Marine facilities can have terrestrial and aquatic environmental impacts that may be minimized by mitigation that is appropriate to the sensitivity of the area. Work within the water may alter important fish spawning habitat and/or contribute to poor water quality.

Upland structures, such as roads, parking lots and toilet facilities, impact riparian habitat and promote stormwater infiltration to the lake due to impermeable surfaces.

This report describes the methodology used to develop a rating system that determines areas with environmentally sensitive habitat and acts as a screening tool for future facility locations.

1.2 ASSESSMENT OBJECTIVES

The general objective of this study is to assess the potential environmental issues and impacts of the existing and future marine facilities for the lakes within the RDCO. GDH Solutions visited 77 marine sites or potential sites. Forty-seven of those sites were identified as potentially suitable for future upgrades (existing facilities) or areas for future facilities.

The specific objectives for Part C were to:

- Map the locations of the potential sites identified by GDH Solutions;
- Identify and map all water intakes that are used for potable water use near the existing and proposed sites;
- Determine all environmental legislation that affects current and future marine facilities;
- Determine the sensitivity values pertaining to existing and future marine facilities by developing an environmental hazard rating system based on available information and guided by the applicable legislation;
- Rate each site and compare their overall environmental sensitivity; and
- Based on the sensitivity rating and what has been suggested for development at each site, complete a preliminary assessment of potential environmental impacts to assist in the screening of suitable sites for further investigation.

To meet the objectives of the project, existing information on environmental values within the project area were reviewed and mapped, and a rating system for sensitivity was

developed based on the proximity of the facility to the environmental feature. The methodology is described below in Section 3.0.

2.0 REGULATORY OVERVIEW

2.1 FEDERAL REGULATIONS

Following are the main federal regulations that will directly apply to the proposed marine facilities.

1. Fisheries Act

The federal *Fisheries Act* is the main federal legislation affecting all fish, fish habitat and water quality; Section 36(3) of the act deals with deposition of deleterious substances in water frequented by fish, while Section 35(1) deals with the harmful alteration, disruption or destruction (HADD) of fish habitat.

Any work that may alter riparian and instream fish habitat in important spawning areas will require a *Fisheries Act* Authorization (under Section 35(2)).

2. *Navigable Waters Protection Act* (NWPA)

The *Navigable Waters Protection Act* requires that Transport Canada be notified of any structures installed into navigable waters (i.e. boat launch, dock, mooring buoys). This federally regulated act protects the navigability of waterways by all types of vessels.

Marinas also require approval from Transport Canada (Navigable Waters Protection Division), which may also trigger a screening under the *Canadian Environmental Assessment Act* (CEAA).

3. Species at Risk Act (SARA)

The federal *Species at Risk Act* protects "at risk" wildlife (designated by COSEWIC[1]) and their habitats. At risk wildlife and plant species are listed in Schedule 1 of the *Act*. This protection applies to the plants and the animals and their "residences", but the habitat provisions currently only apply on federal lands in Canada, such as national parks, lands used by the Department of National Defense, and reserve lands. However, species at risk must be addressed in CEAA screenings as part of *Fisheries Act* Authorizations or NWPA approvals.

4. Migratory Bird Convention Act (Migratory Birds Regulation)

The *Migratory Bird Convention Act* is a federal act that protects migratory birds and nests from indiscriminate harvesting and destruction. Specifically, the Regulations stipulate that "no person shall disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird" (Section 6[a]), and "no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds (Section 35 [1]).

The act and regulations apply to proposed land clearing activities, which must be completed outside of the active breeding season of birds (April 1st and July 31st) unless no active nests are present.

2.2 PROVINCIAL REGULATIONS

The provincial regulations that directly influence upgrading and installing marine facilities include the following:

1. Drinking Water Protection Act (DWPA)

Water supply systems are regulated under the *Drinking Water Protection Act* (DWPA) and all water suppliers may be required by the Interior Health Authority (IHA) to complete a comprehensive risk assessment leading to a source protection plan. The Ministry of Health

[1] The Committee on the Status of Endangered Wildlife in Canada (COSEWIC; www.cosewic.gc.ca), is the independent agency that determines that status of species in Canada.

Services and the Ministry of Environment produced the "Comprehensive Drinking Water Source to Tap Assessment" guidelines that provide a step by step evaluation to identify potential hazards to drinking water sources, including marinas and other forms of water-based recreation.

2. *Water Act*

The provincial *Water Act* protects the quality of water, and fish and fish habitat, and the rights of licensed water users in BC. Under the *Water Act,* "habitat" includes the watercourse and the streamside (riparian) vegetation that provides nutrients and shade to the stream, whether the water body supports fish or not. Any activities that result in changes occurring in or about a stream, such as installation of a boat launch and/or wharf, require notification or approval under Section 9 of the *Water Act.*

3. Riparian Areas Regulation (RAR)

The Riparian Areas Regulation (RAR) is a provincial regulation that was enacted under the *Fish Protection Act.* The regulation states that any structure within 30 m of a waterbody, which requires a development permit from a local government, is subject to the RAR. As a requirement of approval, a Qualified Environmental Professional (QEP) must assess the proposed development.

Any development proposed within the property's calculated setback requires support from the local government and a variance from the Department of Fisheries and Oceans (DFO)

Parks, parkland and federal lands (e.g. First Nations reserve lands) are exempt from the RAR. However, the MOE would like these lands to comply with the regulation to show 'due diligence' and maintain equality for the regulation along the foreshore.

4. Municipal Sewerage Regulation and Sewerage System Regulation

The Municipal Sewerage Regulation (MSR – *Environmental Management Act*) and the Sewerage System Regulation (*Health Act*) would apply to sewerage discharges from marine facilities that are not connected to municipal wastewater collection and treatment systems.

The Sewerage System Regulation applies to in-ground septic systems with a daily domestic sewage flow of less than 22,700 liters. The MSR applies to larger discharges to either ground or surface water.

2.3 LOCAL GOVERNMENT

Most land below the high water mark is Crown Land and is therefore regulated by the provincial government. However, in the years to come, some local governments will be looking at regulating foreshore activity through development permit areas and local bylaws. The City of Peachland is currently the only local government within the assessment area that has jurisdiction over the foreshore water rights.

Any upland development (e.g. parking lots, toilet facilities, fuel storage and structures) will have to comply with the local government bylaws and with the specific floodplain regulations.

2.1.1 Central Okanagan Regional District

RDCO has adopted the RAR for development within 30 m of Okanagan Lake. Development proposed in Aquatic Ecosystem Development Permit Areas (i.e. area along the Okanagan lake foreshore) will require a professional report based on the "*Terms of Reference Professional Reports for Planning Service.*" Foreshore development will have to comply with the federal *Fisheries Act* and the provincial *Water Act*.

2.1.2 City of Peachland

The City of Peachland controls development along the foreshore through the Foreshore Development Permit Area, Shoreland Plan (Schedule I) and the Wharf and Buoy bylaw in the Official Community Plan (OCP). These permit areas and associated development activities do require provincial approval under the *Water Act*, prior to issuing municipal permits.

Within the Foreshore Development Permit, Okanagan Lake is recognized as an environmentally sensitive area. A minimum vegetated leave strip of 15 m is required to be free of development and land alterations. Any proposed development in this setback will likely require a variance to the bylaw. Development near identified shore spawning habitat will be referred to MOE. The City of Peachland also requires a RAR assessment to be completed as a condition of development permit for development or land alteration within 30 m of any water course (i.e. lake, creek, or drainage).

2.1.3 City of Kelowna

The City of Kelowna has a Natural Environment Development Permit Area located along the Okanagan lake foreshore and along creeks and streams. Within the OCP, the City of Kelowna has Riparian Management Area (RMA) setbacks for all water features (see Table 2.1 for creeks within the assessment area). If development cannot comply with these RMA setbacks, then the RAR will be triggered and applicants will require a development variance.

All foreshore development and trails through RMA area require provincial approvals.

Table 2.1 RMA setbacks within the Kelowna OCP for creeks within the RDCO boundary.

Water Feature (Lake, creek, stream)	City of Kelowna RMA setback
Okanagan Lake	15 m
Mill Creek	15 m (downstream of Hardy Road)
Mission Creek	15 m (Downstream of Gordon Road)
Bellevue (Sawmill) creek	15 m
Bertram Creek	15 m
Fascieux Creek	15 m
Thompson Creek	10 m (Downstream of Gordon Drive)
Lebanon Creek	15 m

2.1.4 District of Lake Country

The District of Lake Country is revising the OCP to adopt the RAR. Proposed developments within the Environmental Development Permit Area (EDPA) have defined setbacks. Currently, single or two family residential properties have a setback of 15 m from Okanagan Lake whereas commercial, industrial or multi-family properties have a 30 m setback.

3.0 METHODS

3.1 REVIEW OF EXISTING INFORMATION

The rating system used to compare potential sites is based on the existing information listed in Section 3.2. A number of information sources were reviewed and researched in preparation for the impact analysis, which includes, but is not limited to

- RDCOs Request for Proposal (RFO) for the *Central Okanagan Major Lakes Recreational Marine Facilities Study*;
- RDCO's Terms of Reference (TOR) for Professional Reports for Planning Services;
- Recent orthographic photos;
- Recent site photographs (2008) provided by GDH Solutions;
- Suncruiser magazine charts including sections E through I and M (suncruiser.ca)
- High Value Habitat Maps and Associated Protocols for Works along the Foreshore of Okanagan, Kalamalka and Wood Lake within the Okanagan (MOE Region 8; MOE 2007);
- Search of the B.C. Conservation Data Centre database and mapped known occurrences (CDC 2008b);
- Water license mapping from Land Resource Data Warehouse (LRDW);
- RDCO Sensitive Ecosystem Mapping;
- RDCO Sensitive Habitat Inventory and Mapping (SHIM);
- Zoning maps: RDCO, City of Peachland, City of Kelowna and the District of Lake Country;

- Local government Official Community Plans (OCP) and bylaws for the City of Peachland, City of Kelowna, District of Lake Country and RDCO;
- Provincial and federal legislation;
- Land development guidelines for the protection of aquatic habitat (Chilibeck 1992)
- BC Fishwizard database (FFSBC 2008);
- Riparian Areas Regulation Assessment Methods (MWLAP 2006);
- Private moorage guidelines (LWBC 2002); and
- Standards and Best Management Practices for Instream Works (MWLAP 2004).

3.2 RATING SYSTEM DEVELOPMENT

To compare the potential effects that existing and future marine facilities have on the environment, a hazard system was developed. The potential marine sites on Okanagan, Kalamalka and Wood Lake located within the RDCO boundary were assessed for the following criteria:

1. Proximity to waterworks, domestic or irrigation water intake(s)
2. Proximity to shore spawning habitat
3. Existing level of shoreline disturbance
4. Noise hazard - proximity to residential communities
5. Proximity to fish bearing stream(s)
6. Environmentally sensitive ecosystems – ecological communities
7. Environmentally sensitive ecosystems – wildlife habitat
8. Riparian Area

Each location is assigned a high, medium and low hazard rating based on proximity to the above criteria. To determine the overall risk rating for a site, each criteria is assigned a weight (low = 0.1, medium = 0.5, high = 1.0). The high weighting (1.0) was applied to the criteria that are controlled by regulation (e.g. the *Fisheries Act* applies to shore spawning habitat). The medium weighting (0.5) was applied to criteria where guidelines or Best Management Practices are in place, while the low (0.1) weighting is applied where the

criteria is only an issue some of the time (e.g. noise) or where it is already partly addressed by another criteria. .

The hazard and weighting criteria were developed during an in-house workshop at Summit, involving team members with expertise in fish habitat, wildlife habitat, vegetation, water quality and land use. The **risk rating** is the sum of the individual hazard rating multiplied by the weighted value; i.e.

$$\text{Risk} = \Sigma_{i\text{-}8} (h_i \times w_i)$$

Where h is the hazard rating, w is the weight, and i is criteria 1 through 8.

Information for all eight criteria were not available at all sites (e.g. urban sites typically lack ecosystem mapping). Therefore the confidence in the risk rating for each site was determined. Where data was not available for a particular criteria, a "moderate" hazard value was assigned. Sites with four or more features with unavailable data resulted in low confidence rating; areas with two or three feature with unavailable data were rated as moderate; and those with zero or one were considered high confidence.

It is important to note that the Ministry of Environment is currently completing inventories on rare and endangered species (including the red listed Rocky Mountain Ridge mussel locations) and more detailed shore spawning habitat. This information will likely be available in 2009; and should be considered as detailed site selection proceeds.

3.2.1 Waterworks, Domestic or Irrigation Intakes

The Interior Health Authority (IHA) will not permit marinas within 100 m from a domestic water intake. Therefore, the locations that were within a 100 m radius of these intakes were assigned a high risk rating which is consistent with the Source to Tap Guidelines (see Table 3.1).

A marine or boating facility proposed near (within 100 m) to a drinking water intake is a potential hazard because boating activities near the shore may cause sediment suspension near the intake and/or contaminants within the sediments may be re-mobilized. In addition, contaminants associated with fuels, such as BTEX[2], may pose a risk to a drinking water source.

The weight value for water intake is considered *high.* Protection of drinking water sources is based on the *Drinking Protection Water Act* regulatory requirements.

Table 3.1 Criteria used to determine risk rating for water intakes.

Water use	Within 100 m radius	Within 100 to 500 m radius	Greater than 500 m radius
Domestic/Waterworks	**H**	M	L
Irrigation	**H**	M	L
Other	M	L	L

3.2.2 Shore Spawning Habitat

The Ministry of Environment has mapped known shore spawning habitat in Okanagan, Kalamalka and Wood Lake. Areas that are located within a red zone are classified as "critical/very high" value habitat; a yellow zone is "high/moderate" value habitat; and, no color is "moderate/low value habitat (see Table 3.2). The red and yellow zones include a buffer that is considered acceptable by the ministry.

Marine facilities may alter shore spawning habitat by

- Removing valuable riparian vegetation important for shade, litter fall and large woody debris values;
- Mobilizing sediments which may covering eggs in the substrate and/or decrease water quality; and
- Covering substrate used by shore spawners.

[2] Benzene, toluene, ethylbenzene, and xylene.

The weight value is considered "high" for shore spawning habitat based on the regulatory requirements and the high potential impact to spawning habitat. Spawning habitat is protected under the *Fisheries Act*.

Table 3.2 Criteria used to determine risk rating for shore spawning habitat.

Spawning zone	Within zone	Within 500m of zone	Greater than 500 m distance
Red Zone	**H**	M	L
Yellow Zone	**H**	M	L
None	L	L	L

3.2.3 Shoreline Disturbance

The Okanagan Lake and Foreshore Inventory and Mapping indicates the level of shoreline disturbance within the RDCO as low (none or limited), moderate and high disturbance. Potential marina locations with no disturbance within 100 m were given a hazard rating of high. Using previously disturbed areas for marine facility use or expansion is optimal from an environmental perspective.

Marine and mooring facilities will increase disturbance levels along the foreshore by introducing a potential development footprint and by increasing 'foot-traffic' impacts

Table 3.3 Criteria used to determine hazard rating for shore disturbance.

Existing shoreline disturbance level	Within 100 m radius	100 to 500 m radius	Greater than 500 m radius
Low disturbance	**H**	M	L
Moderate disturbance	M	L	L
High disturbance	L	L	L

3.2.4 Residential Communities

Noise considerations were based on zoning near the location because increased motor boat activity may have associated impacts on the neighbouring communities. The zones are categorized as urban residential (high density housing), rural residential (low density housing), recreational and commercial/industrial and agricultural. Information was obtained from the local government zoning maps.

Noise was given a weight value of *low* since there are no existing regulations that pertain to potential noise issues generated from marine facilities. In addition, noise generated by boats is concentrated in the summer and during the day.

Table 3.4 Criteria used to determine risk rating for potential noise issues.

Land use	Within 500 m radius	500 m to 1 km radius	Greater than 1 km radius
Urban Residential (high density)	**H**	**M**	L
Rural Residential (low density)	M	M	L
Recreational	M	M	L
Commercial/Industrial	L	L	L

3.2.5 Fish-Bearing Streams

The criteria used for gauging the proximity of proposed developments to fish-bearing creeks was based on the implementation of work timing windows within 500 m of a spawning creek (MOE 2007). The mouths of fish bearing creeks are generally highly used by most spawners, and permit applications in this area generally require a provincial review.

The potential impacts associated with marine facilities close to fish bearing creeks and potential spawning areas are similar to those described in section 3.2.2 and were therefore given a weighting of *high*.

Table 3.5 Criteria used to determine risk rating for proximity to fish-bearing creeks.

	Within 100 m radius	100 to 500m m radius	Greater than 500 m radius
Fish Bearing Creek	H	H	L
Drainage	L	L	L

3.2.6 Environmentally Sensitive Ecosystems

The ecological community values are interpretations of Sensitive Ecosystem Inventory (SEI) community ranking combined with a numerical value assigned to the status of the ecological community[3] (i.e. red, blue, not listed or not applicable). Habitat values and ecological community significance were assessed through known digital data; therefore, no field surveys were completed by Summit to verify or refine classifications. Data interpretation follows methods used for the Rockchild Landing Environmental Impact Assessment (Summit 2008) and SEI for Bella Vista - Goose Lake Range (Clarke *et al.* 2004) and Commonage (Iverson 2002).

The relative value of each site in the assessment area was ranked according to the ecological conditions of the area based on the Central Okanagan SEI. Specifically within the SEI data, the "SEI ranking", Terrestrial Ecosystem Mapping (TEM) ecological community classification, and wildlife habitat values data were used to determine wildlife habitat and ecosystem ratings.

For TEM and SEI, each polygon (i.e. delineated area) is assigned up to three ecological components. The highest value of the three ratings was applied to the polygon for this analysis. Detailed data for the relative SEI, TEM and wildlife habitat values are provided in Appendix A.

For the purposes of this assessment, the SEI ranking is based on the following components:

[3] An ecological community is a unit of vegetation with a relatively uniform species composition and physical structure (CDC 2004). Ecological communities can be rated as red-listed (Endangered or Threatened) or blue-listed (Special Concern) in British Columbia.

- High valued habitat (4) is riparian and sparsely vegetated;
- Moderate valued habitat (3) is grassland, broadleaf woodland and coniferous forest;
- Low valued habitat (2) is mature forests and disturbed grasslands;
- Negligible (1) is non-rated/non sensitive

Ecological Communities

The ecological communities are rated according to their rarity in the province (CDC 2004).

- Red-listed ecological communities are rated high value (4);
- Blue-listed ecological communities are rated moderate value (3);
- other unlisted ecological communities are rated low value (2); and,
- non-vegetated or anthropogenically disturbed areas are considered negligible value (1).

The SEI and ecological communities' ratings were combined to provide an overall sensitive ecological community rating. Because a polygon has up to three values, if a high value is present that value is given to the entire polygon. This conservative approach is taken so that no sensitive communities will be missed or masked. When a high value is not present, the average of the three components was assigned to the polygon.

The weighting value for sensitive ecological communities was assigned a *medium* value. Marine facilities may impact red and blue listed communities; however, site-specific inventories can be completed to minimize this occurrence.

Table 3.6 Criteria used to determine risk rating for sensitive ecological communities.

	Within 50 m radius	**50 to 200 m radius**	**Greater than 200 m radius**
ESA 1 (high)	**H**	**H**	L
ESA 2 (medium)	**H**	M	L
ESA 3 (low)	L	L	L
ESA 4 (none)	L	L	L

Wildlife Habitat

Wildlife habitats values provided in the SEI data are based on nine species (Table 3.7), at various life stages, which are assigned a relative rating through the SEI process (Sarell *et al.* 2003). These ratings reflect suitability for various life requisites (e.g., living, foraging, breeding, denning, etc.). Some species are rated for more than one life requisite, so a total of 12 ratings area is provided for each polygon. The ratings are N (negligible), L (low), M (moderate), H (high), which are converted to numerical ratings from 1 (low) to 4 (high).

Table 3.7 Wildlife species with important habitat values in the assessment area.

English name	Scientific Name	BC Status	COSEWIC[1]
California bighorn sheep	*Ovis canadensis*	Blue	NR
badgers	*Taxidea taxus*	Red	E
flammulated owl	*Otus flammeolus*	Blue	SC
great basin gopher snake	*Pituophis catenifer deserticola*	Blue	T
Lewis's woodpecker	*Melanerpes lewis*	Blue	SC
Townsend's big-eared bat	*Corynorhinus townsendii*	Blue	NR
western painted turtles	*Chrysemys picta*	Blue	SC
western rattlesnake	*Crotalus oreganus*	Blue	T
western screech owl	*Megascops kennicottii macfarlanei*	Red	E

NR – no rated; E = Endangered; SC = Special concern; T = Threatened

[1] – Committee on the Status of Endangered Wildlife in Canada

The average of the 12 values are considered for the final sensitivity rating; however, if an area ranks high for any species, that is the final wildlife habitat rating used for that polygon. This conservative approach ensures that no sensitive habitat feature will be missed or masked. If a high value is not present, the average of the three components was assigned to the polygon.

The weight value for wildlife habitat value is considered *high* because of the relative scarcity of this habitat near water bodies in the Okanagan Valley and the importance of riparian habitat for a wide range of wildlife in addition to the listed species.

Table 3.8 Criteria used to determine risk rating for sensitive wildlife habitat

	Within 100 m radius	100 to 500 m radius	Greater than 500 m radius
ESA 1 (high)	**H**	**H**	L
ESA 2 (medium)	**H**	**H**	L
ESA 3 (low)	L	L	L
ESA 4 (none)	L	L	L

3.2.7 Riparian Area

The *Riparian Areas Regulation* (RAR), which is adopted by most local governments, including RDCO, and implemented by the province, requires an assessment within 30 m of the high water mark of any water feature. Default riparian setbacks widths are prescribed subject to modifications based on the outcomes of the field assessment.

The default RAR setbacks, under RAR, are 15 m for properties that border the lake on the north, west and east and 30 m on the south. Areas with a greater setback have higher sensitivity based on shade values and therefore given a high sensitivity rating.

The weighting value for the riparian value is considered *medium* since it is based on a provincial regulation.

Table 3.9 Criteria used to determine risk rating for foreshore riparian protection.

Default RAR Setback	Rating
30 m or more	**H**
15 to 30 m	M
Within 15 m	L

4.0 ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

The risk ratings for the 47 sites are summarized in Table 4.1. Also included in Table 4.1 is a short description of what is proposed for each site, based on Parts A and B. The proposed facilities range from new marinas down to adding additional mooring buoys at existing facilities. Potential environmental impacts depend on the type and magnitude of facilities being proposed. For example, large scale marinas and boat launches have a higher level of potential impact on the environment than small docks and mooring buoys, depending on site sensitivity.

New marinas or proposed upgrades to existing facilities, in order of highest to lowest potential environmental impact, are

1. Large marinas including boat slips, gas pumps, and gray water pump outs,
2. Boat launch, docks and on shore parking areas,
3. Docks,
4. Mooring Buoys, and
5. Dry dock boat storage on land.

The locations of the sites that were given a risk rating are shown on the maps in Appendix B. Photographs of the locations are presented in GDH Solution's (2008) "Part A Inventory Report". Additional points of interest are identified on the Appendix B maps; however, these areas do not have proposed upgrades and were not analyzed for a sensitivity rating.

The environmental impacts were assessed based on the sensitivity rating for each of the 47 locations and the upgrades or new facilities proposed (Table 4.1). These locations were chosen based on the need for upgrades, potential for expansion and/or space availability for new facilities. Each location is summarized in the following sections.

Table 4.1 Summary of the proposed upgrades and the environmental impacts for each location.

Summary of Facilities and Potential Impacts		Existing Facilities	Proposed Facilities	Potential Impact	Issues
Map ID	**Location**				
District of Peachland					
P1	**Davis Cove**	Mooring buoys	Mooring buoys	negligible	None
P2	**Pincushion Bay**	Double boat launch, parking, washrooms, beach	Upgrade boat launch	low	Potential cumulative impacts.
P3	**Peachland Yacht Club**	55 boat slips (2 visitor slips), and washrooms	upgrade boat launch and boat slips	low	None. Applicable regulations are Water Act and Fisheries Act
P4	**Heritage Park**	28 boat slips, park, beach, washrooms	Upgrade day moorage	negligible	none
P5	**Pentowna Marina**	72 boat slips, gas pump, rentals, washroom	Upgrade boat slip; possible expansion to marina size to the south	low	None. Environmental Impact Assessment may be required under CEAA
P6	**Doggie Beach**	Double boat launch, limited parking lot (approx 20 vehicles)	Dry Dock marina, boat launch and docks	low	None. Applicable regulations are Water Act and Fisheries Act
District of Westside					
W1	**Raymer Bay Regional Park**	Beach, small parking uphill, washrooms, picnic shelter, mooring buoys	Mooring buoys	moderate/high	Domestic water intake located within 78 m of park. High wildlife habitat and ecological communities
WFN 1	**Old Wharf**	A portion of an old ferry wharfs	Mooring dock	low	None.
WFN2	**Shelter bay**	Gas pump, moorage slips, washrooms, private boat launch	Expand existing marina (additional boat slips)	low	None.
W2	**Casa Loma**	Safe Harbour, boat slips and visitor slips, private boat launch	Additional boat slips for visitor use	low	High value wildlife habitat and ecological values close by.

W3	**Kalamoir Park**	Parking, beach, small parking area, washrooms, mooring buoys	Mooring buoys	low	None
W4	**Gellatly swim bay**	Beach, swim dock, washrooms, mooring buoys, small car parking area	Mooring buoys	high	Yellow zone spawning habitat. Within 500 m of Powers Creek.
W5	**Westbank Yacht Club**	Double bay cement launch, 12 vehicle/trailer parking, parking (40); washrooms; clubhouse	Possible boat/trailer storage across road	high	Storage area should be assessed for listed ecological communities and wildlife habitat.
City of Kelowna					
K1	**Paul's Tomb**	Mooring buoys	Mooring buoys	high	Red zone shore spawning habitat.
K2	**Sutherland Bay**	Double boat launch, beach, washrooms by beach, park, on street parking	Proposed Marina location	low	Potential noise issues
K3 and K5	**Kelowna Waterfront Park and Kerry Park**	Park, beach, private moorage (Grand Hotel and condos), boat rentals, floatplane rides, double launch with docks	Upgrades to existing facilities	moderate	Irrigation water intake is measured as being 40 m away from the marina. Intake should be located and a minimum of 100 m away.
K4	**Kelowna Yacht Club**	Moorage 620 slips, grey water pump out, clubhouse, car parking lots	additional boat slips and re-location of clubhouse	low	*Riparian Areas Regulation* may apply.
K6	**Kelowna City Park**	Commercial Docks, marina with gas pump, washrooms, rentals, single boat launch, car parking lots	Upgrades for small water craft	high	Yellow zone spawning habitat. Within 350 m of Mill Creek.
K7	**Kinsmen Beach**	Park, beach, washrooms, mooring buoys	Mooring buoys	low	Potential noise issues
K8	**Eldorado/Manteo Resort**	Marina with gas pump, pump out, ,moorage (66 slips), washrooms, boat launch	Marina upgrades	high	Yellow zone spawning habitat. Within 300 m of Mission Creek.

		(quad) with docks, car/trailer parking 65, cars 40			
K9	**Bluebird Beach**	Beach, mooring buoys	Mooring buoys	high	Yellow zone spawning habitat. Within 500 m of Mission Creek.
K10	**Central Ok Sailing Association**	small boat launch, docks, beach, washrooms, clubhouse, small parking area	Upgrade launch and dock	low	Urban residential within 40 m.
K11	**Cedar Creek**	Beach, Boat launch, small parking area for cars only	Upgrade launch	low	None. Applicable regulations are Water Act and Fisheries Act
K12	**Bertram Creek Regional Park**	Mooring buoys, washrooms, beach, dock	Mooring buoys	high	Red zone spawning habitat and within 130 m of Bertram Creek (although no known fish to this creek)
Regional District of Central Okanagan (RDCO)					
R1	**Fintry Provincial Park**	Beach, mooring buoys	Mooring buoys	low	Yellow zone spawning habitat on both sides of this location. Also, within 165 of high valued wildlife habitat and the shoreline has low disturbance.
R2	**Agate Bay North**	Mooring buoys	Mooring buoys	high	Red zone shore spawning habitat, low shoreline disturbance and within 250 m of high value wildlife habitat.
R3	**Agate Bay South**	Mooring buoys	Mooring buoys	high	Red zone shore spawning habitat, low shoreline disturbance and within 26 m of potential sensitive ecological communities.
R4	**Wilson North**	Beach, mooring buoys	Mooring buoys	low	Domestic water intake within 50 m and high wildlife habitat value.

R5	**Traders Cove**	Beach, dirt parking area uphill with lake access road blocked off, mooring buoys, navigational light on rocks	Mooring buoys	low	Red zone spawning habitat, low shoreline disturbance, and high value wildlife habitat and ecological communities.
R6	**Tolko Lands (industrial)**	Tolko Lands - former boat launch with parking. Currently graving docks for bridge contractor.	Marina, boat launch, dry dock storage, yacht club	low and high	High value wildlife habitat and ecological values close by and low shoreline disturbance.
R7	**Bear Creek**	Single boat launch with dock, parking lot 15 cars/trailers,40 cars, washrooms, beach, park, next to BC campground	Upgrade boat launch	high	Yellow zone spawning habitat. Within 500 m of Bear Creek.
R8	**OK Mountain Park Shores**	Mooring buoys, small dock	Mooring buoys	high	Red zone spawning habitat and low disturbance along shoreline
R9	**Scruggin's reef**	Mooring buoys	Mooring buoys	high	Red zone spawning habitat and low disturbance along shoreline
District of Lake Country					
L1	**Coral Beach**	Park, beach, boat launch with dock, on-street parking only	Parking lot upgrades	high	Domestic and irrigation water intakes within 30 m, yellow zone spawning habitat, and urban residential with 25 m
L2	**Marshall Park (Lake Country Sailing and Boating Association)**	Small boat launch, beach, washrooms, small boat storage	Install dock and improve parking	low/moderate	Domestic and irrigation intakes within 100 m of the launch, and urban residential homes within 30 m
L3	**Whiskey Cove**	Beach, parking lot (10 stalls), "unofficial" boat launch - no concrete	Upgrade boat launch and improve parking	low	Domestic water intake is located within 70 m, adjacent areas of red and yellow zone spawning habitat.
L4	**Kopje Regional Park**	Park, beach, historic house, washrooms, parking area f(25 stalls)	Install new boat launch and improve parking	low/moderate	Domestic and irrigation water intakes within 70 m.

L5	**Pixie Beach**	Beach, mooring buoys	Mooring buoys	low	Irrigation water intake within 100 m.
L6	**Ok Center Harbour**	Double boat launch, plus single, vehicle parking (10 stalls), washrooms	Upgrades to Harbour and boat launch, boat slips and increase parking	high	Red zone spawning habitat and 75 m from urban residential area.
L7	**Sheltered area**	Mooring buoys	Mooring buoys	high	Red zone shore spawning habitat.
L8	**Bay**	Mooring buoys	Mooring buoys	negligible	None
L9	**Kaloya Bay**	Park, parking lot 70 spots, beaches, washrooms	Install boat launch and upgrade parking	low	None. Applicable regulations are Water Act and Fisheries Act
L10	**Lake Country Board and Ski Club**	Docks, beach mooring buoys	Upgrade to dock	low	None - Water act notification required
L11	**Twin Lakes Channel Crossing**	Narrow Channel with docks on one side (needs dredging)	Dredging	moderate	None. Applicable regulations are Water Act and Fisheries Act.
L13	**Oyama Boat Launch**	Boat launch, roadside parking	Upgrade boat launch and parking	low	Rural (low density) residences within 60 m. Applicable regulations are Water Act and Fisheries Act.
L14	**Picnic Area**	Mooring buoys	Mooring buoys	low	None
L15	**Sheltered bay**	Mooring buoys	Mooring buoys	high	Red zone shore spawning habitat.
L16	**Winfield North**	Roadside pull-off "unofficial boat launch"	Upgrade boat launch and parking	low	None. Applicable regulations are Water Act and Fisheries Act.

4.1 DISTRICT OF PEACHLAND

4.1.1 Davis Cove

Davis Cove's *low* sensitivity rating has a moderate confidence level. This location has a small parking lot, a toilet facility and a sandy beach for public use. Recent photographs confirm that the shoreline is quite disturbed with little mature riparian vegetation. There are residential homes very close to Davis Cove; however, very few important environmental features are identified. Domestic water intakes are located within 500 m of this area but none are within the 100 m high hazard zone.

Proposed additional mooring buoys at this location together with the area's existing uses will likely have *negligible* environmental impacts.

4.1.2 Pincushion Bay

Pincushion Bay is rated *low* sensitivity, with a moderate confidence level. Currently there are two boat concrete boat launches, a dock, and on-street parking, all of which are adjacent to the Peachland Yacht club.

Pincushion Bay scored high for potential noise issues because it is close to residential areas and the center of the City of Peachland. Domestic water intakes are located within 500 m of this area but none are within the 100 m high risk zone. There are no other environmental features of concern identified for this location.

This area is suitable for its existing use and for upgrades to the boat launch and dock. The impacts to this area will likely be *low*. Cumulative impacts should be considered during the planning phase due to the close proximity of the Peachland Yacht Club.

4.1.3 Peachland Yacht Club (Marina Park)

The Peachland Yacht Club scored *low* for sensitivity with a moderate confidence level. There is no known spawning habitat in this area and residential water intakes are more than 500 m away. This area only scored high for potential noise issues because it is also within 30 m of urban residential (high density housing).

Currently there are 55 boat slips, with two visitor bays. Upgrades to the existing boat slips are required to maintain the existing use. The proposed upgrades are expected to have *low* environmental impacts since the property is located in a low sensitive area.

4.1.4 Heritage Park

Heritage Park is a public day use mooring facility. There are currently docks within a sheltered area (breakwater), fuel pumps and a washroom facility. This area had a *low* sensitivity rating based on moderate confidence level. Similar to the other facilities near the main center of Peachland, potential noise issues received a high rating. There are no other important environmental features identified. The nearest domestic water intake is about 300 m from this area so there should be no direct impact to this intake.

Current uses and the proposed upgrades to the existing boat slips are expected to have a *negligible* environmental impact.

4.1.5 Pentowna Marina

The Pentowna Marina has moorage for 72 boats, a fuel pump, parking lot, restaurant and washroom facilities. The marina has a *low* sensitivity rating based on a moderate confidence level. There are no environmental concerns although the location scored high for potential noise issues.

Upgrades to the existing boat slips and possible marina expansion to the south will likely have *low* environmental impact. The marina is not located in high value spawning habitat and there is very little existing riparian vegetation.

4.1.6 Doggie Beach

Doggie Beach has a double wide boat launch for public use, with two docks and limited parking for vehicle with trailers. The *low* sensitivity rating for this area has a moderate confidence level. There are no environmental concerns although the location scored high for potential noise issues. An urban residential area on the upland side of Doggie Beach may be impacted by increased marine activity.

The current uses are likely not having environmental impacts. A large scale dry dock marina is proposed to be built on the spit of land that divides doggie beach and the boat launches. This facility will likely have *low* impacts to the area and will benefit the environment by storing boats (that contain fuel) out of the water.

4.2 DISTRICT OF WESTSIDE

4.2.1 Raymer Bay Regional Park

Raymer Bay Park is currently used for swimming and picnicking, with some mooring buoys for day use. This area rates *medium* sensitivity with a high confidence rating. The shoreline of the park has low disturbance and high value wildlife habitat and ecological communities are nearby. In addition, there is a domestic water intake within 80 m.

The existing buoys and additional mooring buoys will have *moderate* to *high* impacts to the drinking water, especially if located within the high hazard radius of 100 m.

4.2.2 Old Wharf (Westbank First Nations Land)

The 'old wharf' is located at the end of a publicly accessible road on the Westbank First Nations (WFN) land. The upland area has been previously disturbed by trailers and other structures that have been recently removed. This area is rated *low* sensitivity with a moderate confidence rating. There are no environmental concerns for this location although there is an irrigation intake located within 400 m to consider.

Proposed moorage in this location will likely have *low* impacts because of the low sensitivity rating.

4.2.3 Shelter Bay Marina (Westbank First Nations Land)

Shelter Bay Marina is rated *low* sensitivity with a high confidence rating. The marina has fuel pumps, a private boat launch and a washroom facility.

This area does not have any high risk ratings for the identified features. The existing marina and proposal to expand the marina with additional boat slips will likely have *low* environmental impacts.

4.2.4 Casa Loma

Casa Loma is a resort with a private marina located on the foreshore of Okanagan Lake. The marina has both private and visitor boat slips and a private boat launch. This location has a *low* sensitivity rating based on a high confidence level. High value wildlife habitat and ecological communities are close to the resort. Noise issues is rated high because there is urban residential (high density housing) within 65 m of the marina.

The existing use of the marina and boat launch has *low* impacts on aquatic habitat. The resort is willing to install more boat slips for public use, which should not cause impacts to the foreshore.

4.2.5 Kalamoir Park

Kalamoir Park, a public access park for swimming and picnicking in the Kelowna area has a few mooring buoys in the area for day use. There are also washroom facilities and a small parking lot. This area has a *low* sensitivity rating based on a high confidence rating. The location has high risk ratings for close proximity to high value wildlife habitat, potential noise issues and there is low disturbance along the shoreline.

Impacts to Kalamoir Park will like be *negligible* with additional mooring buoys, especially if the proposed mooring buoys are to be installed away from the shoreline.

4.2.6 Gellatly Bay

Gellatly Bay has a *medium* sensitive rating with a high confidence level. This public use area currently has mooring buoys but no other marine facilities. The area is within yellow zone (moderate value) shore spawning habitat and is within 500 m of the mouth at Powers Creek.

The use and proposed addition of mooring buoys in this location have *high* impacts as increased use will disturb the substrate used for spawning.

4.2.7 Westbank Yacht Club

The Westbank Yacht Club is located in an area rated *high* sensitivity based on a high confidence level. The yacht club is located in a red zone (critical/high value) for shore spawning habitat and is also within 50 m of Powers Creek. In addition, this location is within 8 m of valuable wildlife habitat and 70 m of identified red listed plant communities

Environmental impacts based on current uses are *high*. The yacht club is heavily used for recreation. Proposed boat and trailer storage across the road from the club may impact identified ecological communities and potential wildlife habitat for rare and endangered species.

4.3 CITY OF KELOWNA

4.3.1 Paul's Tomb

Paul's Tomb is rated *low* sensitivity with a moderate confidence level. This location is a public use area with mooring buoys for day use. The foreshore has red zone (critical/high value) shore spawning habitat. There are no other high risk environmental features;

however, there is no existing data for rare and endangered ecological communities and wildlife habitat.

Proposed additional mooring buoys will likely increase public use and will have *high* impacts to the high value spawning areas.

4.3.2 Sutherland Bay

Sutherland Bay has a boat launch and infrastructure within 15 m of Okanagan Lake. This location rates *low* sensitivity with a moderate confidence level. This area scored high for potential noise issues. Wildlife habitat and red and blue listed ecological communities locations are unknown.

Sutherland Bays proposed major upgrade includes a marina with fuel pumps and grey water pump-outs. Anticipated environmental impacts will be *low* because there are minimal high risk ratings in this area.

4.3.3 Kelowna Waterfront Park and Kerry Park

The Kelowna Waterfront Park and Kerry Park are located on Okanagan Lake near the downtown area. They include marinas with fuel pumps and parking lots, and the Grand Hotel. This location has a *low* sensitivity rating with a moderate confidence level. An irrigation intake within 40 m of the marina results in a high risk rating. There were no other environmental features identified. There is no existing information for rare and endangered wildlife habitat near this area. However, the parks have been developed for recreation and landscaped for many years, and very little natural habitat remains.

Proposed major upgrades and additions to the existing marina will have *moderate* impact. The location of the water intake should be identified prior to continuing with future upgrades.

4.3.4 Kelowna Yacht Club

The Kelowna Yacht Club has a *low* sensitivity rating based on a moderate confidence level. There are no high risk ratings identified in this area. Like the Waterfront Park, the waterfront has been extensively modified for more than 50 years and there is low potential for affects on natural habitats.

Additional boat slips will likely have a *low* impact to the surrounding environment.

4.3.5 Kelowna City Park

Kelowna City Park has a *medium* sensitivity rating based on a moderate confidence. This location is about 350 m from Mill Creek and is within yellow zone (high/moderate value) spawning habitat. Again, the natural habitat has been modified over the years so there is little potential for affects on wildlife habitat values.

Any proposed dock or boat launches will have *high* impacts due to the yellow zone spawning habitat along the foreshore.

4.3.6 Kinsmen Beach

Kinsmen Beach Park, which is used for swimming and picnicking, has mooring buoys. This area rates *low* sensitivity with a moderate confidence level. Noise issues scored high for this area with an urban residential area located within 70 m of the beach. No other environmental features were identified as high risk. There is currently no SEI data for rare and endangered ecological communities and wildlife habitat.

Additional mooring buoys will likely have *negligible* environmental impact based on the available information.

4.3.7 Eldorado/Manteo Resort

The Cook Street boat launch Eldorado and the Manteo Resort have a *medium* sensitivity rating based on a moderate confidence level. The resort is within 300 m of Mission Creek and is within yellow zone (high/moderate value) spawning habitat. No other environmental features were identified as high risk. There is currently no SEI data for red and blue listed ecological communities and wildlife habitat.

Major marine upgrades could have *high* environmental impacts in this location due to the shore spawning habitat.

4.3.8 Bluebird Beach

Bluebird Beach rates as *medium* sensitivity with a moderate confidence level. The beach, which is currently used for public access, has mooring buoys for day use. This location is within yellow zone (high/moderate value) spawning habitat and is within 500 of Mission Creek.

Additional mooring buoys in this area will have *high* impacts because of the high value spawning habitat.

4.3.9 Central Okanagan Sailing Association

The Central Okanagan Sailing Association foreshore scores *low* sensitivity with a high confidence level. Potential noise issues area a concern because there are urban residential homes within 40 m of this location. No other known environmental features were identified nearby.

Installation of a boat launch and dock will likely have *low* environmental impacts. There are also potential impacts associated with loss of possible riparian vegetation and foreshore substrate; however, potential impacts can be mitigated.

4.3.10 Cedar Creek Beach

The Cedar Creek beach site has a *low* sensitivity rating based on a high confidence level. There is currently a boat launch, beach area and limited parking (cars only) at this location. No red or blue listed ecological communities or sensitive wildlife habitat was identified near this location.

This area did not score high for any of the identified environmental features. Therefore, installing a dock and boat launch will likely have *low* impacts.

4.3.11 Bertram Creek Regional Park

Bertram Creek Regional Park scores *medium* sensitivity with a high confidence level. There is an irrigation water intake within 20 m of the location. In addition, the shoreline of the park is considered red zone (critical/very high value) spawning habitat. This location is within 130 m of Bertram Creek; however, there are no known fish species to the creek.

The park is currently used primarily for swimming and picnicking. It has a parking area, a toilet facility, and a protected swimming area.

Additional buoys in this area will likely have *high* impacts to shore spawners in the area.

4.4 REGIONAL DISTRICT OF CENTRAL OKANAGAN (RDCO)

4.4.1 Fintry Provincial Park

Fintry Provincial Park has a boat launch, dock, trailer turn around, parking, and washroom facility. The area is heavily used by hikers and campers in the summer months. Fintry is rated as *medium* for sensitivity with a high confidence level. There is some high valued wildlife habitat within 165 m of the park and the shoreline has been determined as low disturbance. The park is situated between two yellow zone spawning habitat areas.

Impacts are likely to be *low* with the added mooring buoys, provided the buoys are kept outside of the adjacent high value spawning habitat. In addition, the current uses (i.e. boat launch and dock) in this area are likely not impacting the foreshore.

4.4.2 Agate Bay South

Agate Bay South has mooring buoys and is primarily used for day use. This location scores *medium* sensitivity because it is located within red zone (critical/very high) spawning habitat, has a low foreshore disturbance, and is within 250 m of high value (ESA) habitat for wildlife.

Additional mooring buoys will likely have *high* environmental impacts to high value spawning habitat. Boat launches and docks along the foreshore will also have high impacts to fish habitat.

4.4.3 Agate Bay North

Agate Bay North has similar high risk features as identified in Agate Bay South (Section 4.6.1), with the addition of sensitive ecological communities within 26 m of the bay. The bay rates *medium* sensitivity and the confidence level is high because all of the data was available.

Similarly, the proposed additional mooring buoys will have *high* impacts to spawning habitat.

4.4.4 Wilson North

Wilson North beach is currently a public use area with mooring buoys for day use. This area is rated *moderate* sensitivity based on high confidence. A domestic water intake is located within 50 m of this area. In addition, high value wildlife habitat is found in the area.

The proposed increased number of mooring buoys should have *low* environmental impacts; however, the domestic water intake should be located and considered before increasing the boat moorage in this area.

4.4.5 Traders Cove

Traders Cove has a *high* sensitivity rating with a high confidence level. There is an irrigation intake within 30 m of this area and urban residential homes within 120 m. The entire bay of the cove is located in a red zone (critical/high value) for shore spawning habitat and it extends around the point and to the north of the location. The shoreline has low disturbance. Also, high value wildlife habitat and ecological communities are found nearby.

Additional mooring buoys in this area will likely have *high* environment impacts to fish habitat because the buoys will be located in the red zone.

4.4.6 Tolko Lands

Tolko's property on the Westside is zoned for commercial use and there are some remnants of an old launch but it is not available for use. This property also borders the dock at Bear Creek Provincial Park. This location has *moderate* sensitivity based on a high confidence rating. Areas with low shoreline disturbance and high value wildlife habitat and ecological communities are nearby.

Because there is no identified red or yellow zone shore spawning habitat on the property foreshore, impacts are likely to be low for fish habitat. However, facilities proposed upland such as dry dock storage, parking, and toilet facilities may have *high* impacts on the identified ESAs (wildlife habitat and red and blue listed ecological communities).

4.4.7 Bear Creek Provincial Park

Bear Creek is located within a provincial park; it has a boat launch, a dock, and picnic tables. This area has a *high* sensitivity rating based on a high confidence rating. The boat launch

and dock are located within yellow zone (high/moderate value) spawning habitat and within 500 m of Bear Creek. In addition, high value wildlife habitat and ecological communities are nearby.

Upgrading the boat launch will have *high* impacts. The boat launch has likely already impacted the shore spawning habitat by covering the substrate. Therefore, upgrading within the same footprint will likely impact adjacent habitat.

4.4.8 Okanagan Mountain Park Shores

The Okanagan Mountain Park Shores provincial park is used for recreation and to preserve the grassland ecosystem. The park has a *medium* sensitivity rating with a high confidence rating. The shoreline has low disturbance and is located in red zone (critical/very high value) spawning habitat.

Additional mooring buoys would have *high* environmental impacts to the spawning zone.

4.4.9 Scruggin's Reef

Scruggin's Reef is a diving area located within the Okanagan Mountain Provincial Park, with no existing marine facilities. This location has been graded *low* sensitivity with a moderate confidence level. Although the overall hazard rating is low, this area is located in red zone (critical/very high value) spawning habitat that has low shoreline disturbance.

As in Okanagan Mountain Park Shores in Section 4.4.8, proposed mooring buoys will likely have *high* impact to the spawning zone. Other upgrades that will affect the shoreline substrate and vegetation will have greater impacts and should be avoided.

4.5 DISTRICT OF LAKE COUNTRY

4.5.1 Coral Beach

Coral Beach is a public use park that has a beach; it is used primarily for swimming and launching boats. There is a formal boat launch and on street parking for vehicles with trailers. This beach is considered *medium* sensitivity, based on a moderate confidence level.

High risk ratings were influenced by the presence of a domestic and irrigation water intakes within 30 m, yellow zone (high/medium value) spawning habitat, and urban residential with 25 m.

Existing use of the boat launch is likely having *high* impacts to fish habitat in this area. Boat launches with mooring increase activity in the area and may disturb substrate used for spawning.

4.5.2 Marshall Park (Lake Country Sailing and Boating Association)

Marshall Park (also known as the Lake Country Sailing and Boating Association) currently has a small boat launch area, a public beach, toilet facilities, and some small boat storage. This area has rated *medium* for sensitivity with moderate confidence level. Domestic and irrigation intakes are found within 100 m of the launch. In addition, urban residential homes are within 30 m, so they may be impacted by increased noise levels.

Proposed upgrades include a dock and improved parking areas, which will likely have *low to moderate* impacts. There will likely be little impact to the foreshore although improving parking may cause a loss of riparian vegetation. In addition, there are water intakes nearby, so increasing the boat usage in this area could negatively affect the water quality.

4.5.3 Whiskey Cove

Whiskey Cove is a public beach area with no formal boat launch although this area is currently being used to launch boats. This location has graded *medium* sensitivity and the

confidence level is moderate. A domestic water intake is located within 70 m of the beach area. Although this area does not have any important spawning habitat, it is very close to both red and yellow zones.

A boat launch will likely have *low* impacts to fish spawning habitat provided boaters are kept away from adjacent high value zones. The shoreline is moderately disturbed so the boat launch approach and additional parking will have minimal impacts on riparian vegetation.

4.5.4 Kopje Regional Park

Kopje Regional Park has a beach, a historic house, washroom facilities, and a parking area (25 cars). This area is rated *medium* sensitivity with a moderate confidence level. There is no existing information on ecological communities or wildlife habitat. Domestic and irrigation water intakes were identified within 70 m of the park. All of the other features had a medium or low risk rating.

Increasing the boating activities will likely affect the water quality near the water intakes. The other environmental features suggest that this area would be suitable for a boat launch and mooring dock. Proposed upgrades are likely to have *low to moderate* environmental impacts.

4.5.5 Pixie Beach

Pixie Beach is a public use area for picnicking and swimming. There are some mooring buoys for day use. This location is graded *low* sensitivity with a moderate confidence level. There is no existing data for rare and endangered wildlife habitat or ecological communities. An irrigation water intake within 100 m of the beach is considered high risk. No other environmental features were identified for this area.

Additional mooring buoys will likely have *low* impact provided they are installed further away from the intake.

4.5.6 Okanagan Center Harbour

Okanagan Harbour is a large marine facility that has boat slips, a double boat launch, parking for up to 10 vehicles with trailers and a washroom facility. This area has a *medium* sensitivity rating with a moderate confidence level. There is no existing data for rare and endangered wildlife habitat or ecological communities.

The facility is located within red zone (critical/high value) shore spawning habitat and has low disturbance along the shoreline. The location is also within 75 m of an urban residential area.

Proposed upgrades to the facility will likely have *high* environmental impacts. Boat launches and docks will impact spawning substrate along the foreshore.

4.5.7 Kalamalka Lake – Sheltered Area

This Sheltered Area on Kalamalka Lake has mooring buoys for day use. This location has *medium* sensitivity because it's within red zone (critical/high value) shore spawning habitat. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance. Therefore, the confidence level is moderate.

The proposed mooring buoys will likely have a *high* impact. This area would not be suitable for proposed docks or boat launches.

4.5.8 Kalamalka Lake - Bay

The Bay on Kalamalka Lake has mooring buoys for day use. This area has been rated *low* sensitivity. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance; therefore, the confidence level is moderate.

The proposed additional mooring buoys will have a *negligible* impact.

4.5.9 Kaloya Bay Regional Park

The Kaloya Bay Regional Park has parking stalls (70), beaches, and washroom facilities. This area is considered *low* sensitivity. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance; therefore, the confidence level is moderate.

Installing a boat launch and potential upgrades to the parking area will likely have *low* environmental impacts.

4.5.10 Lake Country Board and Sail Club

The Lake Country Board and Sail Club has beach access to Wood Lake. The facility uses docks and beach mooring buoys. This area rates *low* sensitivity with a moderate confidence level. Again, the area has no available data for listed ecological communities, wildlife habitat, and shoreline disturbance. No environmental features had a high risk score in this location.

Environmental impacts are likely *low* for the existing use of this area and the proposed upgrades (i.e. dock, mooring buoys).

4.5.11 Twin Lakes Channel Crossing

The Twin Lake Channel Crossing provides boat access from Wood Lake to the south end of Kalamalka Lake. Day use docks are located along one side of the narrow channel.

The crossing has a *low* sensitivity rating and has no high risk ratings for any of the environmental features. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance. Therefore, the confidence level is moderate.

Provided that dredging has a useful purpose and is completed with a mitigation plan in place, impacts may be considered *moderate*. No upgrades are proposed in this area.

4.5.12 Oyama Boat Launch

The Oyama boat launch is located on the north end of Wood Lake and has some parking available for vehicles with trailers. This area scores *low* sensitivity. The rural (low density) residences within 60 m of the boat launch may be impacted by increased boat usage.

Proposed upgrades to the boat launch and increasing parking for trailers will likely have *low* environmental impacts.

4.5.13 East side of Wood Lake - Picnic Area

The picnic area along the east side of Wood Lake has mooring buoys for day use. This area has graded *low* sensitivity. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance, so the confidence level is moderate.

Provided the proposed Highway Bypass is approved and proceeds, this area will be suitable for potential boat launch and moorage. Likely, *low* impacts will be associated with these facilities.

4.5.14 East side of Wood Lake – Sheltered Bay

The Sheltered Bay along the east side of Wood Lake has mooring buoys for day use. This area has been rated *medium* sensitivity because it's within red zone (critical/high value) shore spawning habitat. No data was available for listed ecological communities, wildlife habitat, and level of shoreline disturbance, so the confidence level is moderate.

The proposed mooring buoys will likely have a *high* impact. This area would not be suitable for proposed docks or boat launches.

4.5.15 Winfield North

Winfield North is a roadside pull off that is being used as an area to launch boats without the proper facilities. This area has scored *low* sensitivity and has a moderate confidence rating.

The area has limited wildlife and ecological communities and no mapped shoreline disturbance. However, this area along Highway 97 has very small patches of riparian vegetation between the highway and the high water mark of Wood Lake. Few listed species may be present in this area and likely there is no terrestrial wildlife habitat.

Proposed upgrades to Winfield North include a formal concrete boat launch and parking area. The upgrades will likely have *low* environmental impacts because there is no identified spawning habitat. Also, the shoreline is highly disturbed and noise should not be an issue.

5.0 RECOMMENDATIONS AND SUMMARY

The recommendations for the proposed marine facilities are based on the sensitivity ratings for each location, as discussed in Section 3.0 and on the issues and impacts identified in Section 4.0. Overall, 3 sites were rated as high, 19 sites as medium, and 27 sites as low.

The rating system was based on existing environmental data and does not account for the proposed or existing facilities. A summary of the risk rating is located in Appendix C and the sensitivity data cards for each location are in D. The sensitivity rating for an area should be considered during the planning phase of future marine facilities.

In general,

- Areas with high sensitivity have important features that should be preserved and such areas shall not be considered for upgrades or new facilities. These areas likely have important shore spawning habitat, domestic water intake locations, sensitive wildlife habitat and/or close proximity to fish bearing creeks. Mooring buoys outside of the shore spawning habitat range are suitable in these areas.
- Areas with moderate sensitivity should be considered for small or seasonal boat launches and docks and associated parking areas unless the area is located within red

or yellow zone spawning habitat. A site-specific environmental impact assessment should be completed along the foreshore and upland areas.

- Areas with low sensitivity are recommended for existing and future facilities. The rating system screened these areas and determined these areas have a low probability of having important environmental features and therefore they will experience lower potential impacts.

Major facilities, boat launches and docks should be avoided in areas with red or yellow zone spawning habitat unless a qualified professional completes an EIA that determines that proposed upgrades will not cause a harmful alteration, disruption, or destruction (HADD) of fish habitat.

MOE is currently updating the shore spawning habitat maps with recently collected information and will have more information on rare and endangered species within the RDCO (G. Furness pers comm). This information will provide valuable data that will increase the confidence ratings of the data collected and provide more detailed information for each location. Future consideration of the Rocky mountain ridge mussel locations is recommended.

A summary of the proposed impacts for each area is provided below.

5.1 DISTRICT OF PEACHLAND

All locations analyzed within the District of Peachland had low sensitivity ratings and proposed upgrades are likely to have negligible impacts. The limited information available for this area means that the confidence rating was moderate. However, there is moderate disturbance along the foreshore in Peachland and many upland developments, so it is likely there will be limited impacts to rare and endangered species and riparian values.

A search of the Conservation Data Center database shows occurrences of the red-listed Lewis's woodpecker (# and the Western screech owl (#6673) in the Peachland area. Two

Lewis's woodpecker nests were observed in 2003 in a ponderosa pine near Deep Creek. The Western Screech owl was observed in 2003 along the riparian vegetation of Trepanier Creek.

The riparian vegetation along Okanagan lake foreshore is limited and therefore very valuable. Every effort should be made to maintain existing mature vegetation and to replace any removed vegetation according to the DFO and MOE tree replacement criteria.

Any new facilities at Davis Cove and Pincushion Bay should ensure a 100 m distance from any domestic water intakes. In addition, cumulative impacts should also be considered when considering large scale marina facilities in the Peachland area.

5.2 DISTRICT OF WESTSIDE

The foreshore mapping along Okangan Lake within the District of Westside indicates a majority of the foreshore to have high disturbance levels expect for the area around Kalamoir Park, which is considered low disturbance.

Gellatly Bay and the Westbank Yacht Club in the southern end of the District are constrained by yellow zone spawning habitat. These two areas are not recommended for upgrades, unless a detailed foreshore assessment is completed.

5.3 CITY OF KELOWNA

Proposed upgrades in the Kelowna area are acceptable although Kelowna City Park, the Eldorado and Manteo Resort Marine are located in sensitive spawning locations. These areas are not recommended for upgrades, unless a detailed foreshore assessment is completed.

Sutherland Bay is proposed for major marina upgrades. The impacts associated with the marina are low. Wildlife habitat and ecological communities information does not exist, so a more detailed, site-specific assessment should be completed to determine if rare and endangered species will be impacted with improvements.

Kelowna Water Front Park is ALSO proposed for major upgrades. Impacts are expected to be low; however, cumulative impacts to aquatic and terrestrial habitats should be assessed because there is no existing information. Impacts to Kelowna City Park are high and assessments should determine the extent of the spawning habitat prior to upgrades for small boats.

5.4 REGIONAL DISTRICT OF CENTRAL OKANAGAN (RDCO)

The Westside of Okanagan Lake within RDCO has red and yellow zone spawning habitat covering nearly the entire length of the foreshore in this area. All of the points analyzed in this area scored high for spawning habitat. There also seems to be an increase in domestic and irrigation water use.

Bear Creek and Traders Cove have high sensitivity; therefore, these areas should be assessed to determine the extent of the habitat and whether detrimental effects on habitat will occur because of the proposed upgrades.

The Tolko lands will have little impacts to fish habitat but there may be some terrestrial impacts. This area is ideal for a proposed marina because the distance is greater than 100 m from urban residential areas and all water intakes are more than 800 m away. All infrastructure should be proposed outside of 15 m from the high water mark of Okanagan Lake. Further impact assessments to determine the presence of any rare or endangered species is recommended.

The Fintry area had medium sensitivity for the points analyzed, although there was some data not available for red and blue listed ecological communities and wildlife habitat. Red and yellow zone spawning habitats should be protected from upgrades that will cover the substrate or remove critical mature riparian vegetation.

5.5 DISTRICT OF LAKE COUNTRY

Okanagan Lake, within the District of Lake Country has red and yellow zone spawning habitat for the entire length of the foreshore. Pixie Beach and Coral Beach are the only points analyzed along the foreshore that doesn't have high value habitat. Other environmental constraints in this area are domestic and irrigation water intakes in the lake.

The points analyzed in the Wood Lake area all had *low* sensitivity and were suitable for the proposed upgrades. The center and south end of Wood Lake will likely have higher sensitivity with the presence of red and yellow zone spawning habitat.

A search of the CDC database shows the Oyama boat launch, Kaloya Park and the Twin Lakes crossing occurring within the radius of the red-listed peach-leafed willow. The occurrence ID is #4471 and this willow was observed in Oyama at stony shore. This species should be considered for these areas and should be protected from development.

Dredging in the Twin lake channel will have high impacts and such activities should follow the "*Best Management Practices for Instream Works*".

All locations analyzed on Kalamalka Lake had low sensitivity ratings and proposed upgrades are likely to have negligible impacts. There is limited information in this area so the confidence rating was moderate. The east side of Kalamalka Lake is less disturbed and has valuable mature riparian that could be disturbed by development. The more developed west side of the lake parallels Highway 97 and much of the shoreline has been affected by the existing railway tracks.

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APPENDIX A

Data for Relative SEI, TEM and Wildlife Habitat Values

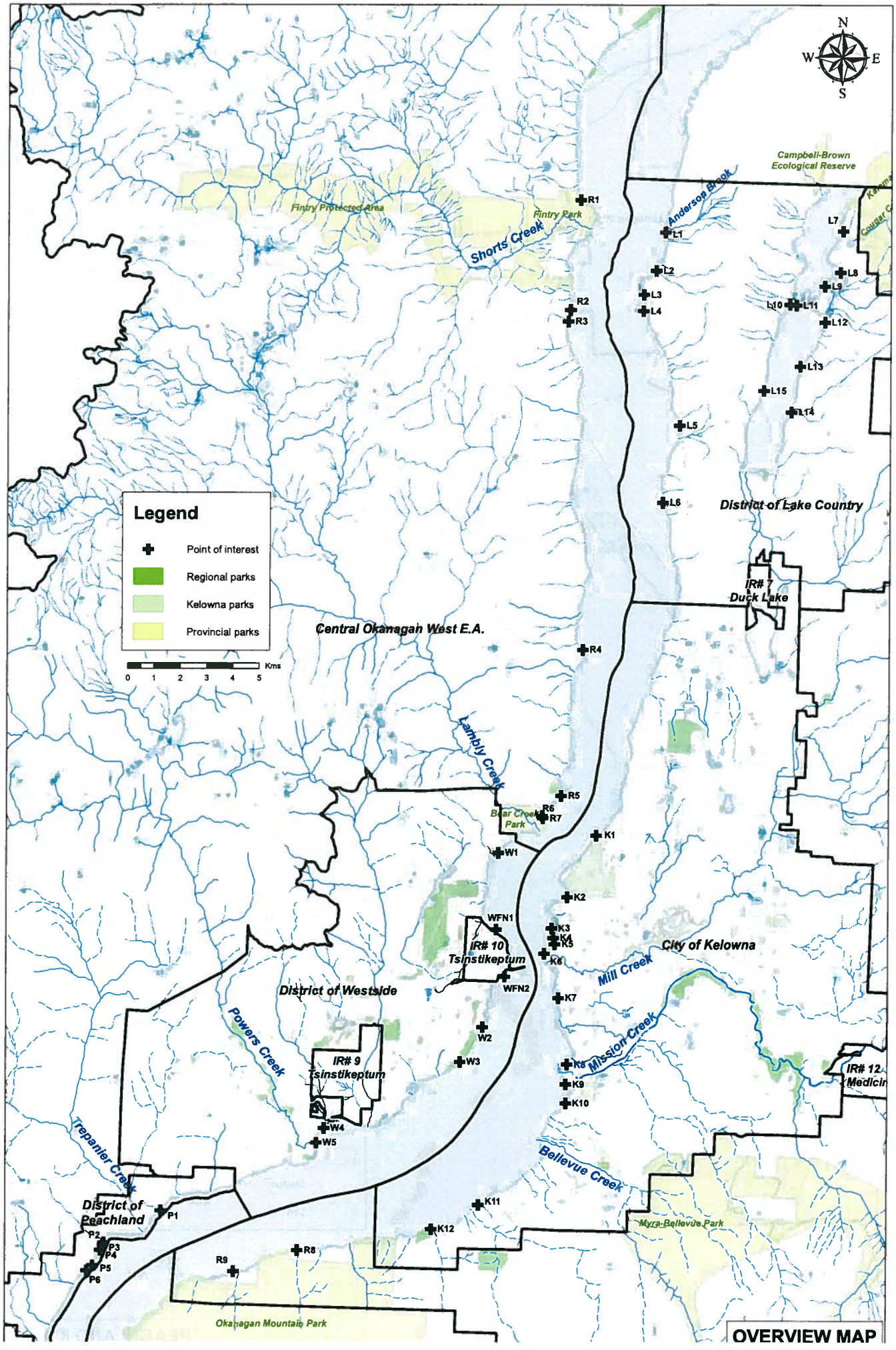
Data for the relative SEI, TEM and wildlife habitat values.

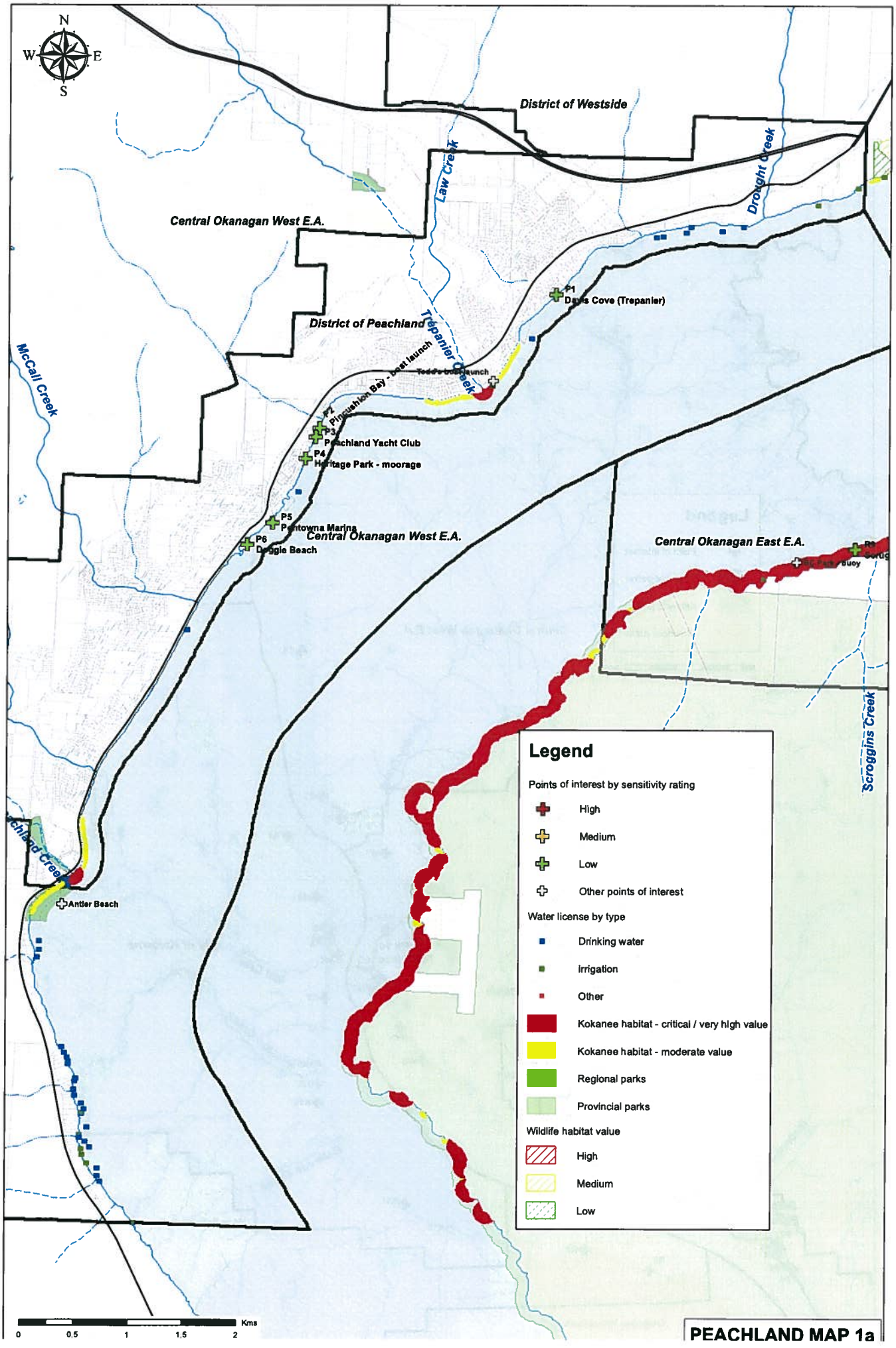
Component	Description	Assigned Value for Condition
Sensitive Ecosystem*	Average of up to 3 SEI ratings for each polygon. The highest of three values were used for the polygon (conservative rating).	**1 = NA/Low** NA = Non-Sensitive
		2 = Low MF = Mature Forest DG = Disturbed Grassland
		3 = Moderate BW = Broadleaf Forest GR = Grassland WD = Coniferous Woodland
		4 = High RI = Riparian SV = Sparsely Vegetated
Ecological Community**	Average of up to 3 TEM site series for each polygon. The highest of three values were used for the polygon (conservative rating).	**1 = NA** Non-vegetated/anthropogenic
		2 = Low Other Vegetated Ecosystems
		3 = Moderate Blue-listed
		4 = High Red-Listed
Wildlife Habitat*	Based on habitat value ratings for 9 for rare or sensitive species plus various life-requisites, for a total of 12, as well as 5 habitat ratings for bighorn sheep.	**1 = NA** Negligible wildlife habitat suitability
		2 = Low value habitats
		3 = Moderate value habitats
		4 = High value habitats

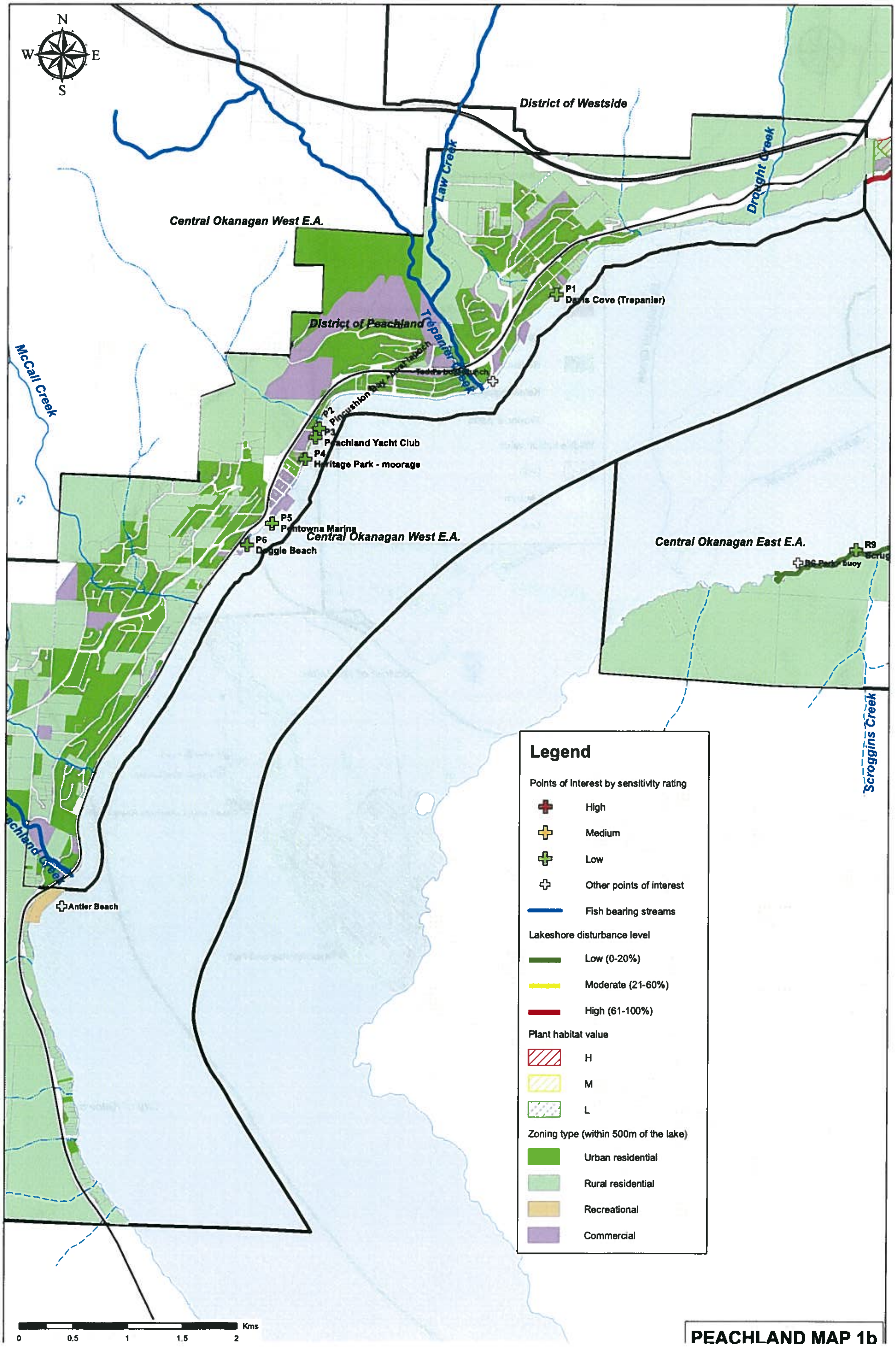
* Based on SEI classifications; ** Based on TEM data

APPENDIX B

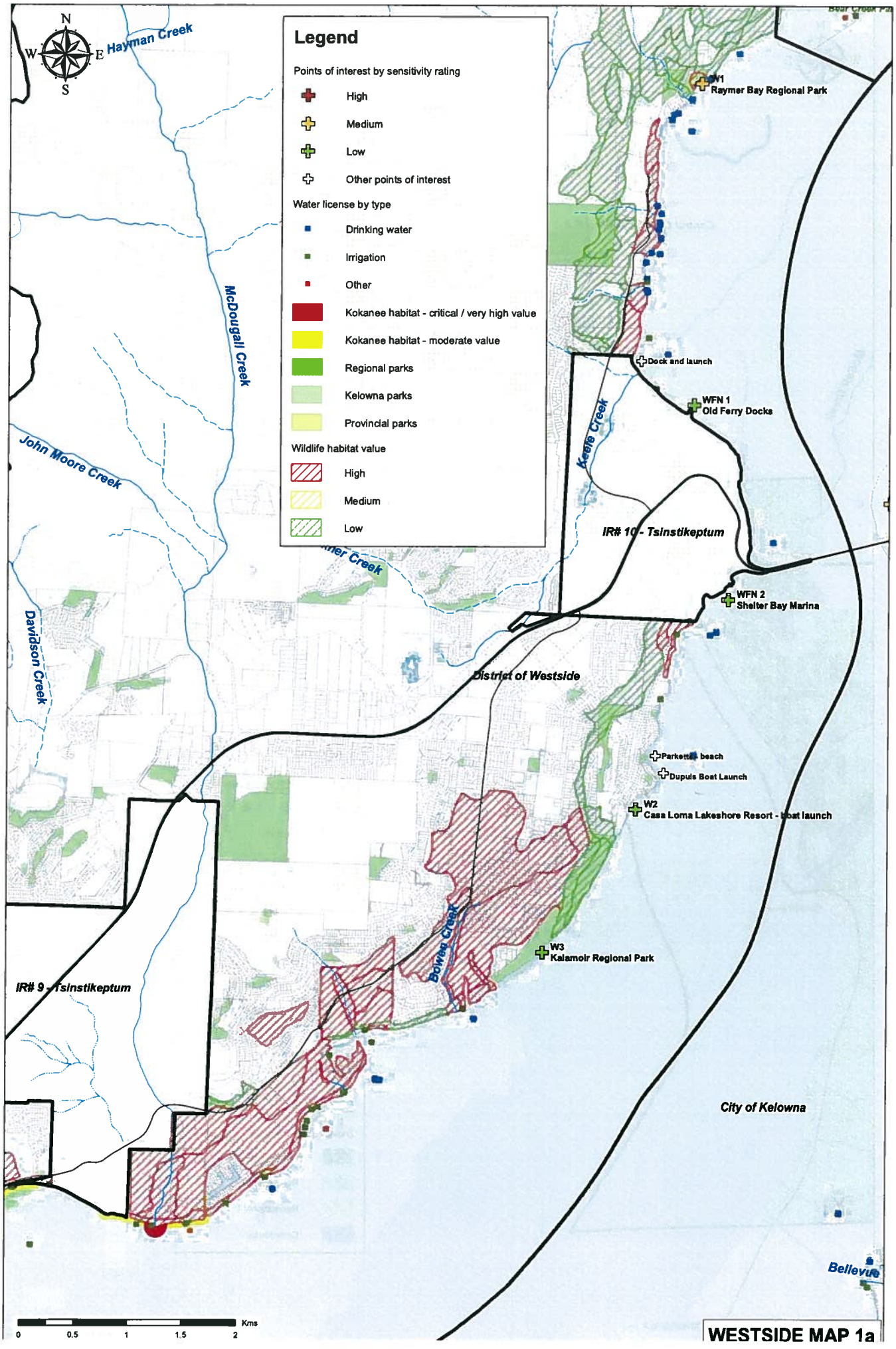
Sensitivity Mapping

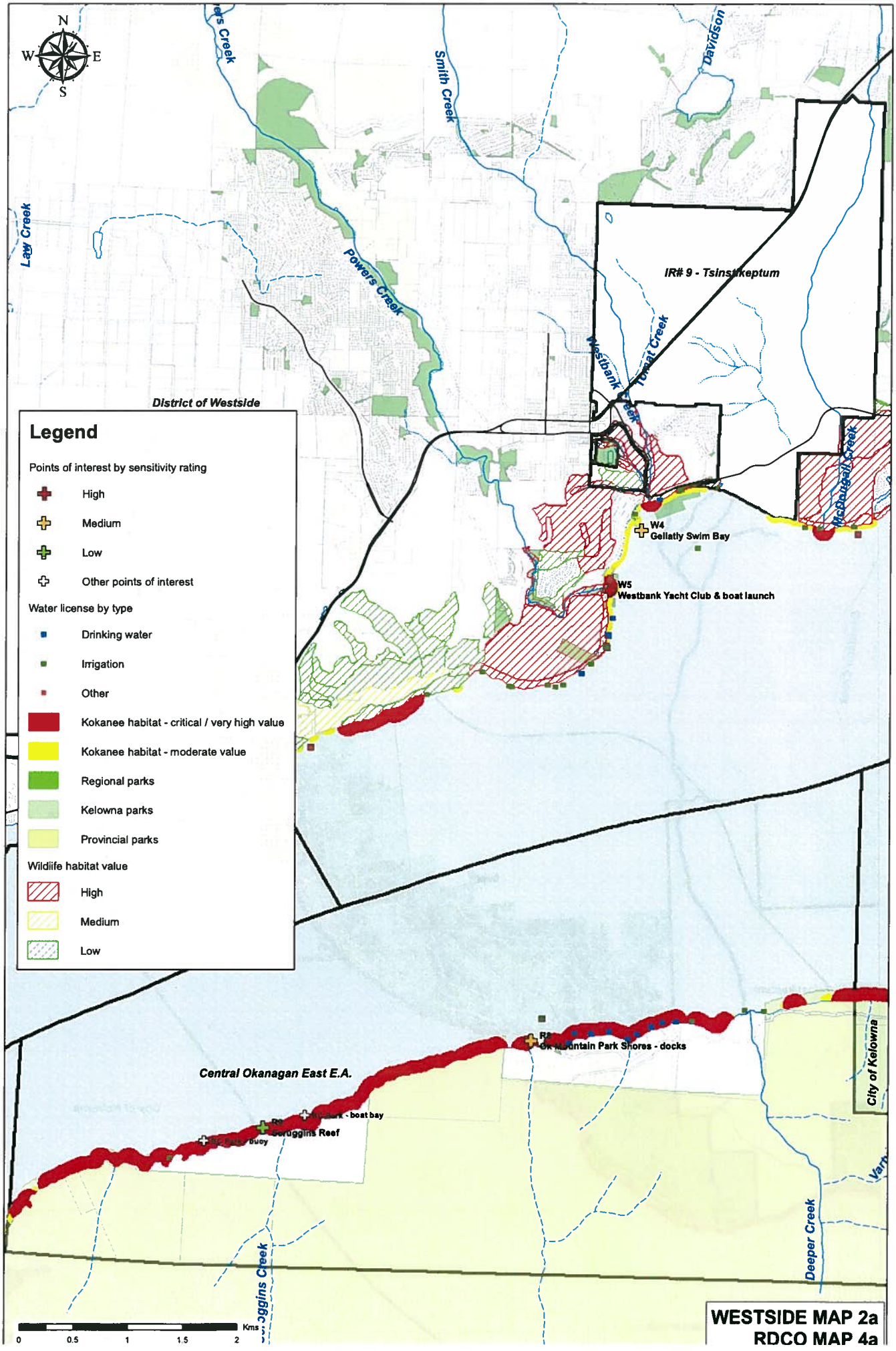

N
W
E
S
Legend
Point of interest
Regional parks
Kelowna parks
Provincial parks
Kms
0 1 2 3 4 5
Campbell-Brown Ecological Reserve
Fintry Protected Area
Fintry Park
Shorts Creek
Andersoa Brook
R1
R2
R3
R4
R5
R6
R7
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L15
L14
District of Lake Country
IR# 7
Duck Lake
Central Okanagan West E.A.
Lambly Creek
Bear Creek Park
K1
K2
K3
K4
K5
K6
K7
K8
K9
K10
K11
K12
W1
W2
W3
W4
W5
WFN1
WFN2
IR# 10
Tsinstikeptum
City of Kelowna
Mill Creek
Mission Creek
District of Westside
Powers Creek
IR# 9
Tsinstikeptum
IR# 12
Medicin
Trepanier Creek
Bellevue Creek
District of Peachland
P1
P2
P3
P4
P5
P6
R8
R9
Myra-Bellevue Park
Okanagan Mountain Park
OVERVIEW MAP

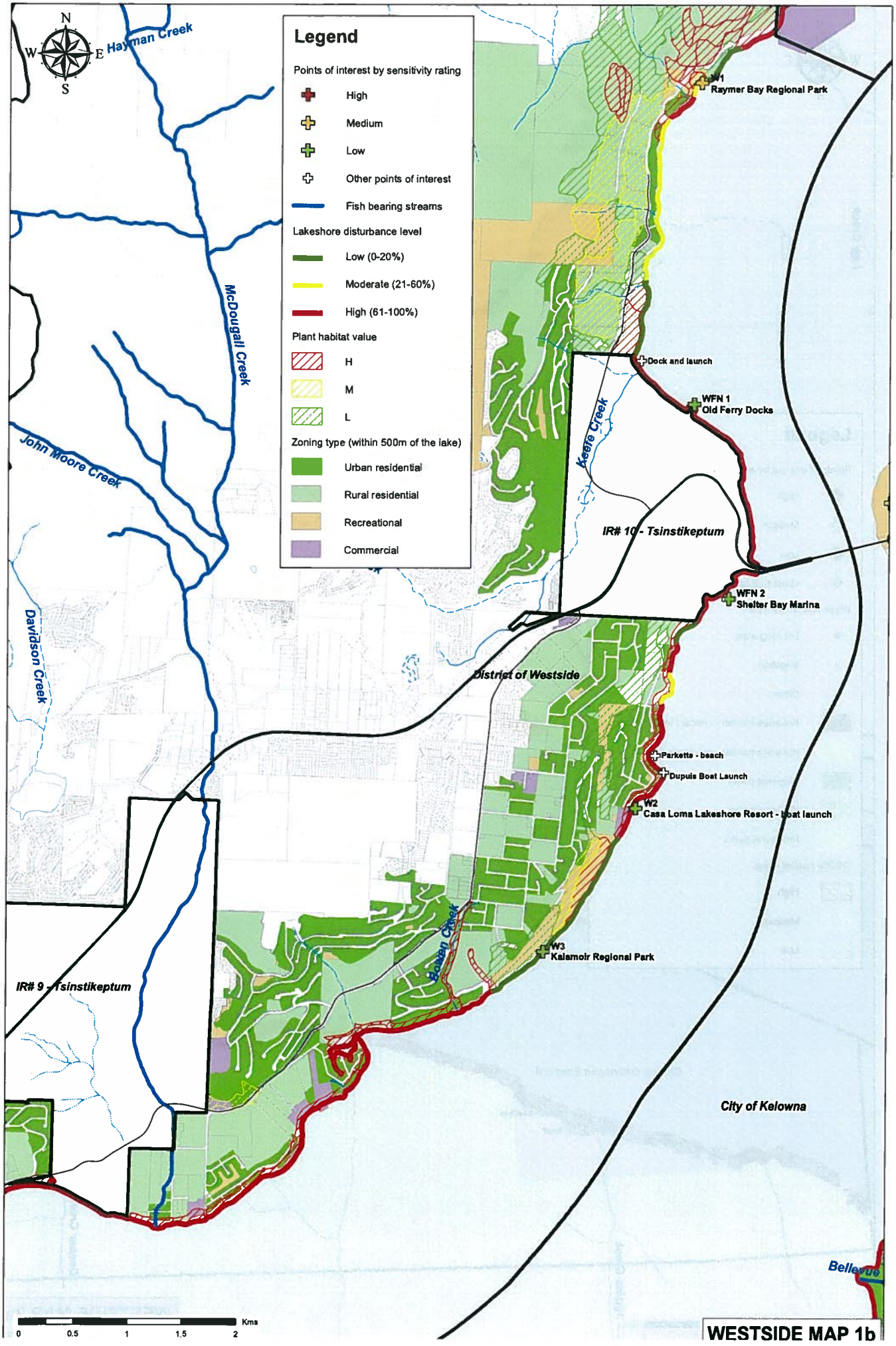

N
W
E
S
District of Westside
Central Okanagan West E.A.
Law Creek
Drought Creek
P1
Davis Cove (Trepanier)
District of Peachland
Trepanier Creek
McCall Creek
Todd's boat launch
Pincushion Bay - boat launch
P2
P3
Peachland Yacht Club
P4
Heritage Park - moorage
P5
Peachland Marina
P6
Doggie Beach
Central Okanagan West E.A.
Central Okanagan East E.A.
Scroggins Creek
Antler Beach
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
PEACHLAND MAP 1a

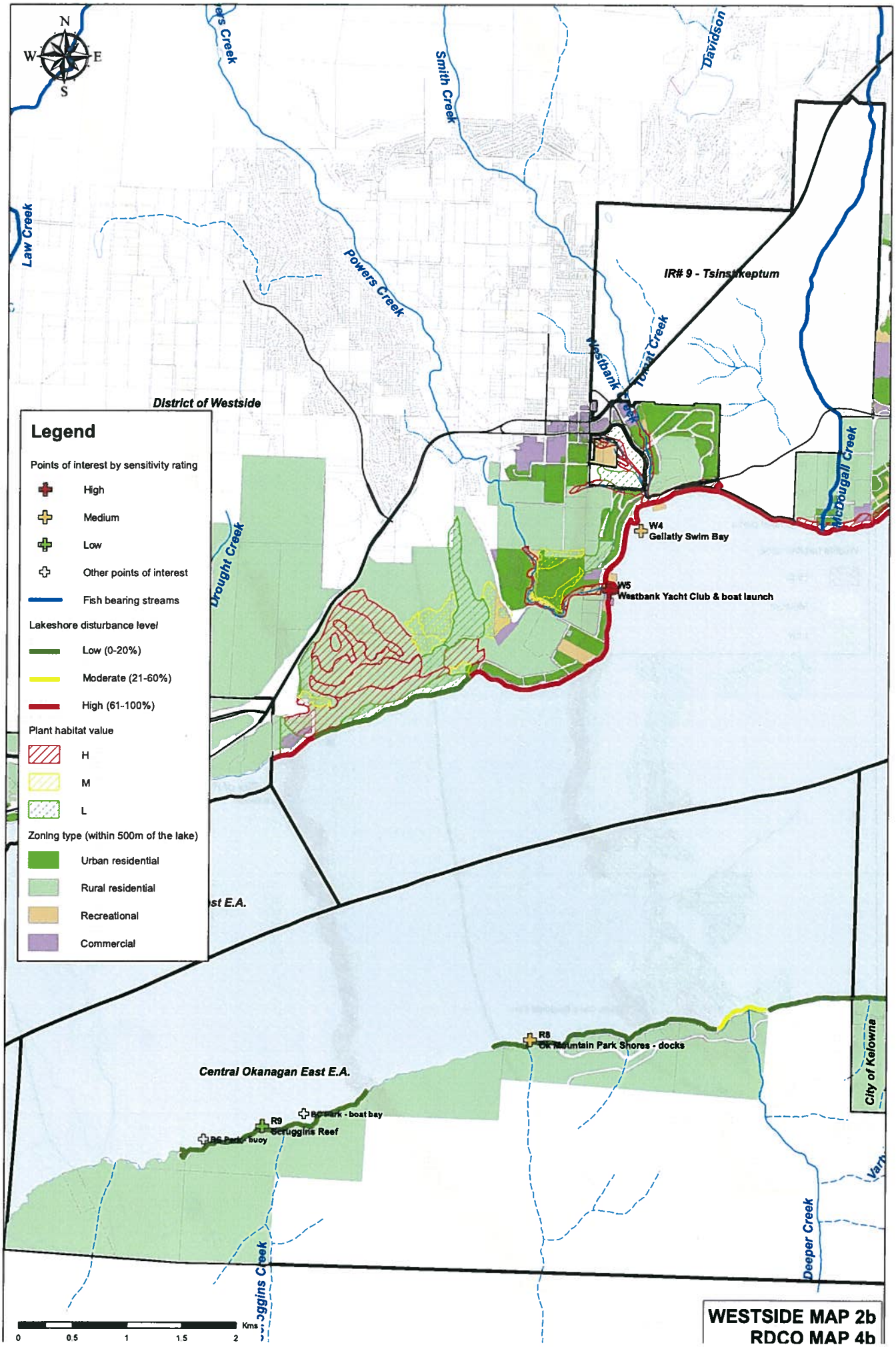


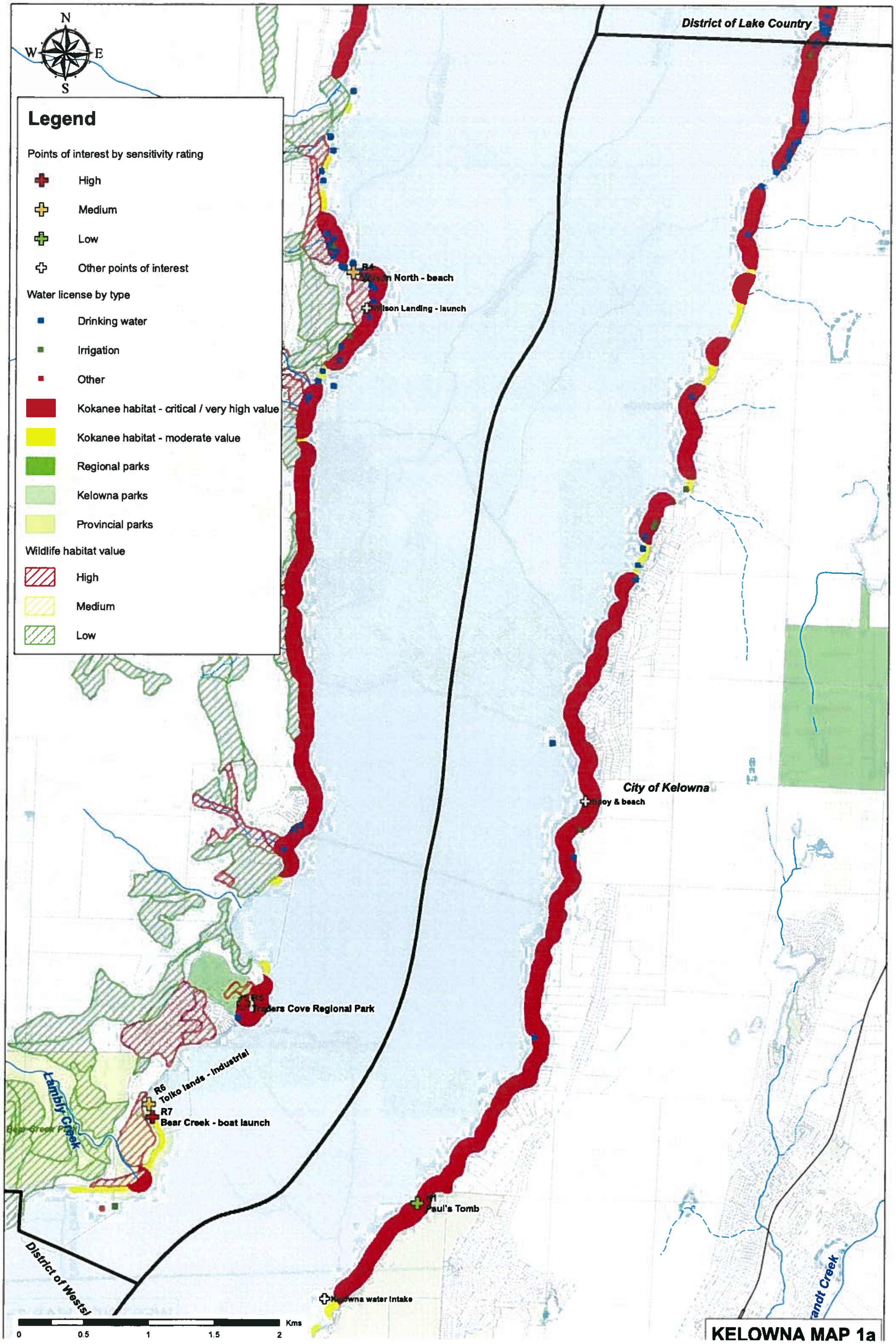
PEACHLAND MAP 1b

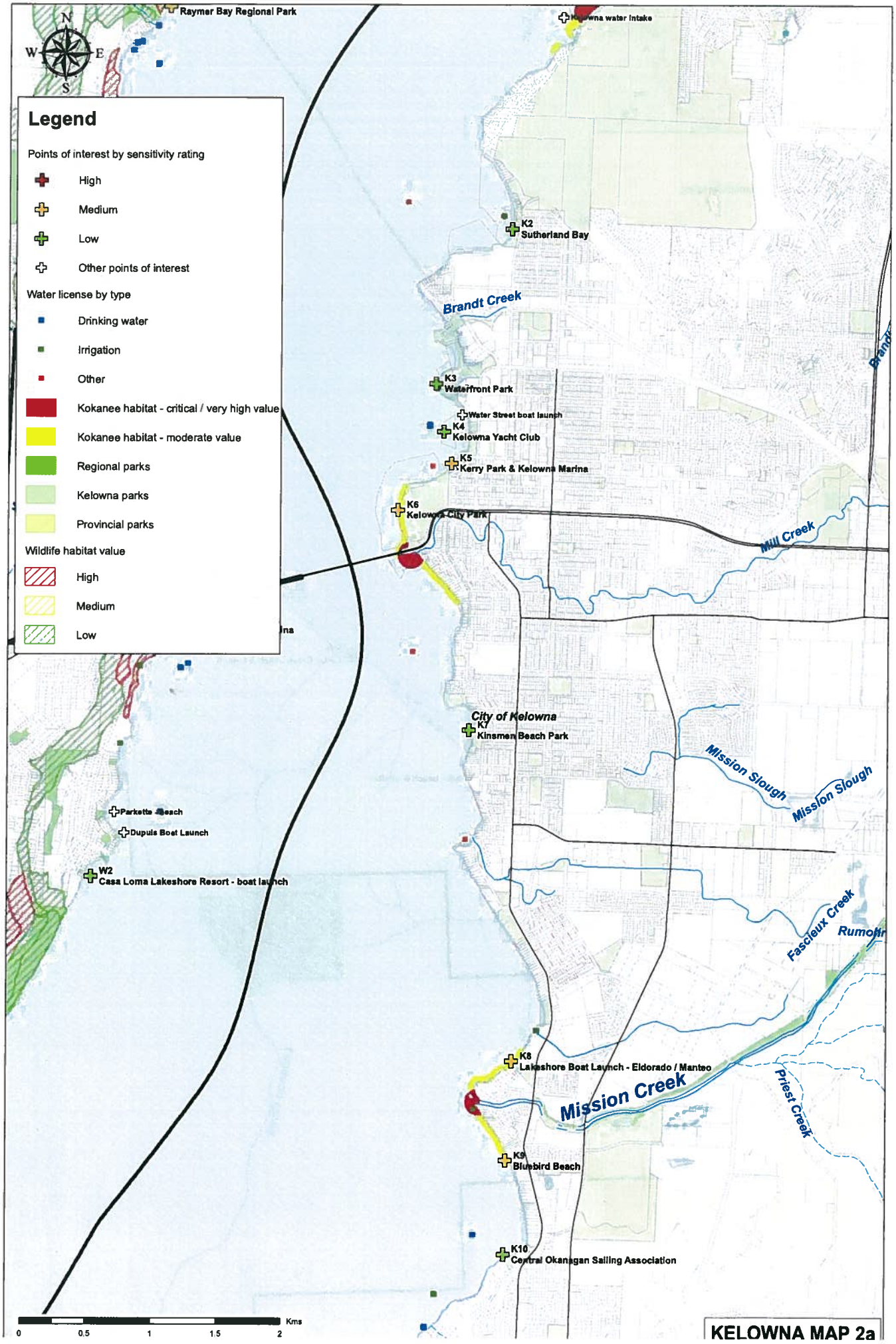

N
W
E
S
Hayman Creek
McDougall Creek
John Moore Creek
Davidson Creek
Keefe Creek
Bowen Creek
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
W1
Raymer Bay Regional Park
Dock and launch
WFN 1
Old Ferry Docks
IR# 10 - Tsinstikeptum
WFN 2
Shelter Bay Marina
District of Westside
Parkett beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
W3
Kalamoir Regional Park
IR# 9 - Tsinstikeptum
City of Kelowna
Bellevue
0
0.5
1
1.5
2
Kms
WESTSIDE MAP 1a

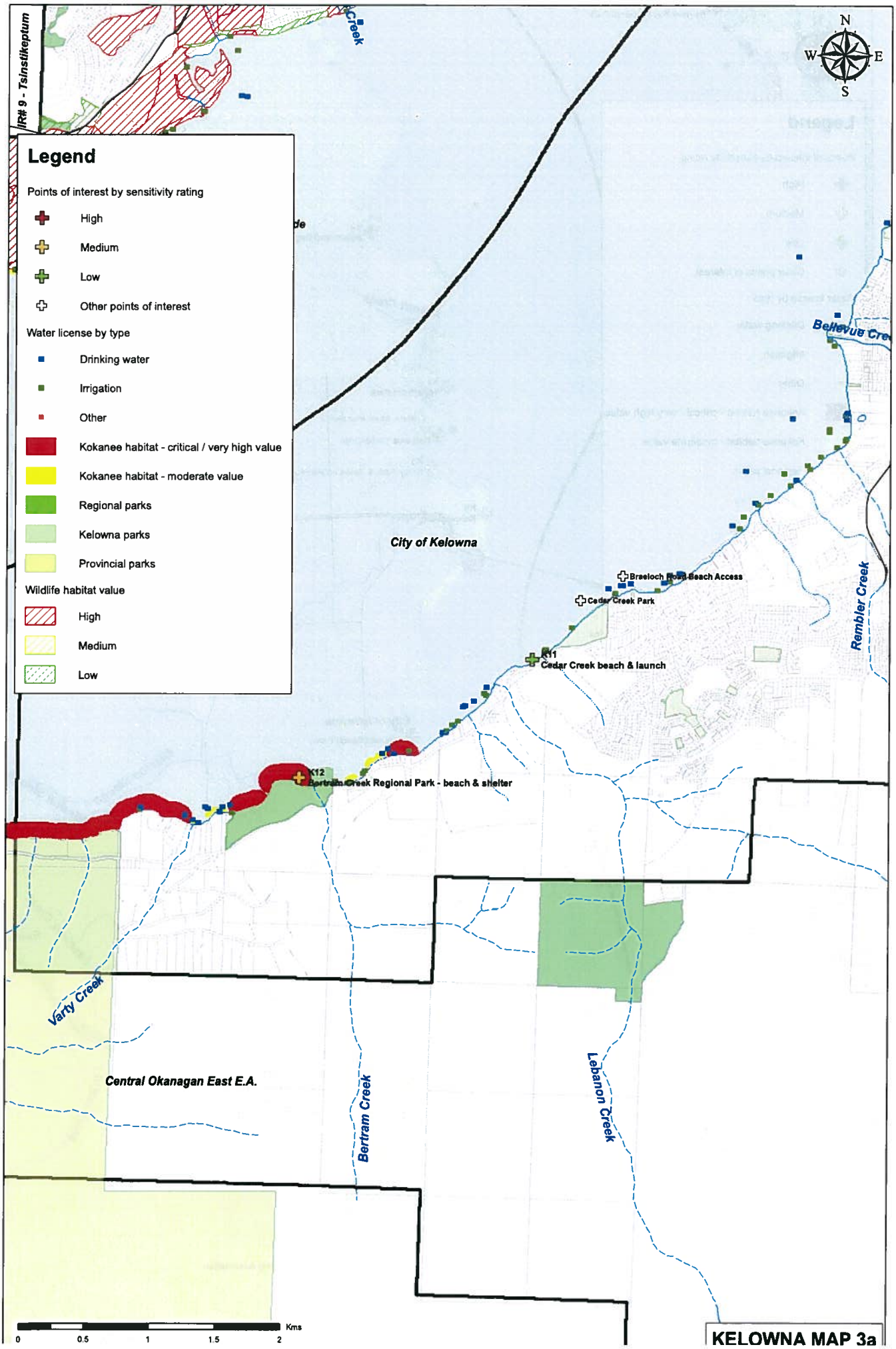

N
W
E
S
Law Creek
Powers Creek
Smith Creek
Davidson
IR# 9 - Tsinstikeptum
Westbank Creek
Tonial Creek
McDougall Creek
District of Westside
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
W4
Gellatly Swim Bay
W5
Westbank Yacht Club & boat launch
Central Okanagan East E.A.
City of Kelowna
Deeper Creek
0
0.5
1
1.5
2
Kms
WESTSIDE MAP 2a
RDCO MAP 4a

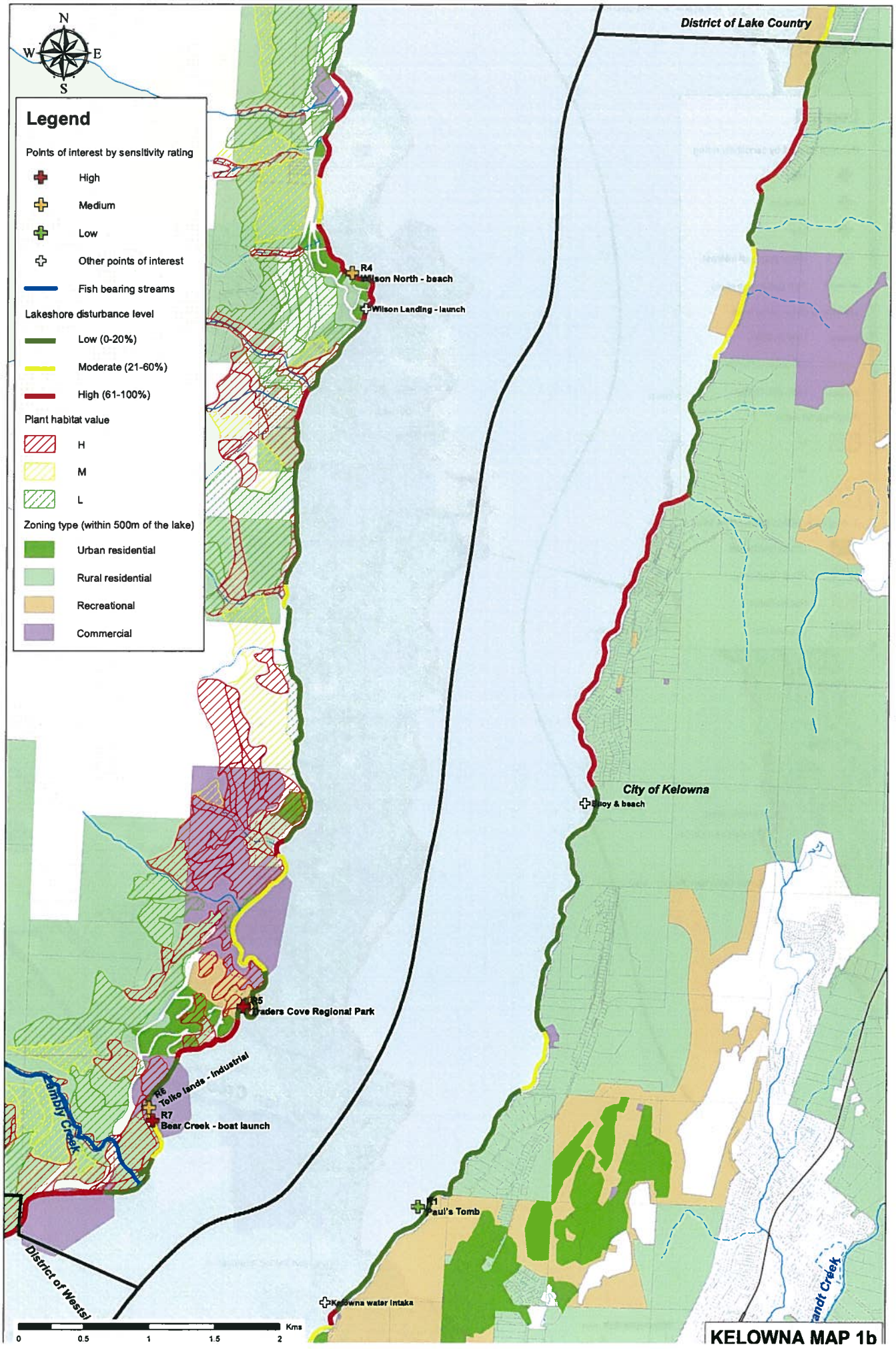

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
Hayman Creek
McDougall Creek
John Moore Creek
Davidson Creek
Keefe Creek
Bowen Creek
W1
Raymer Bay Regional Park
Dock and launch
WFN 1
Old Ferry Docks
IR# 10 - Tsinstikeptum
WFN 2
Shelter Bay Marina
District of Westside
Parkette - beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
W3
Kalamoir Regional Park
IR# 9 - Tsinstikeptum
City of Kelowna
Bellevue
Kms
0
0.5
1
1.5
2
WESTSIDE MAP 1b

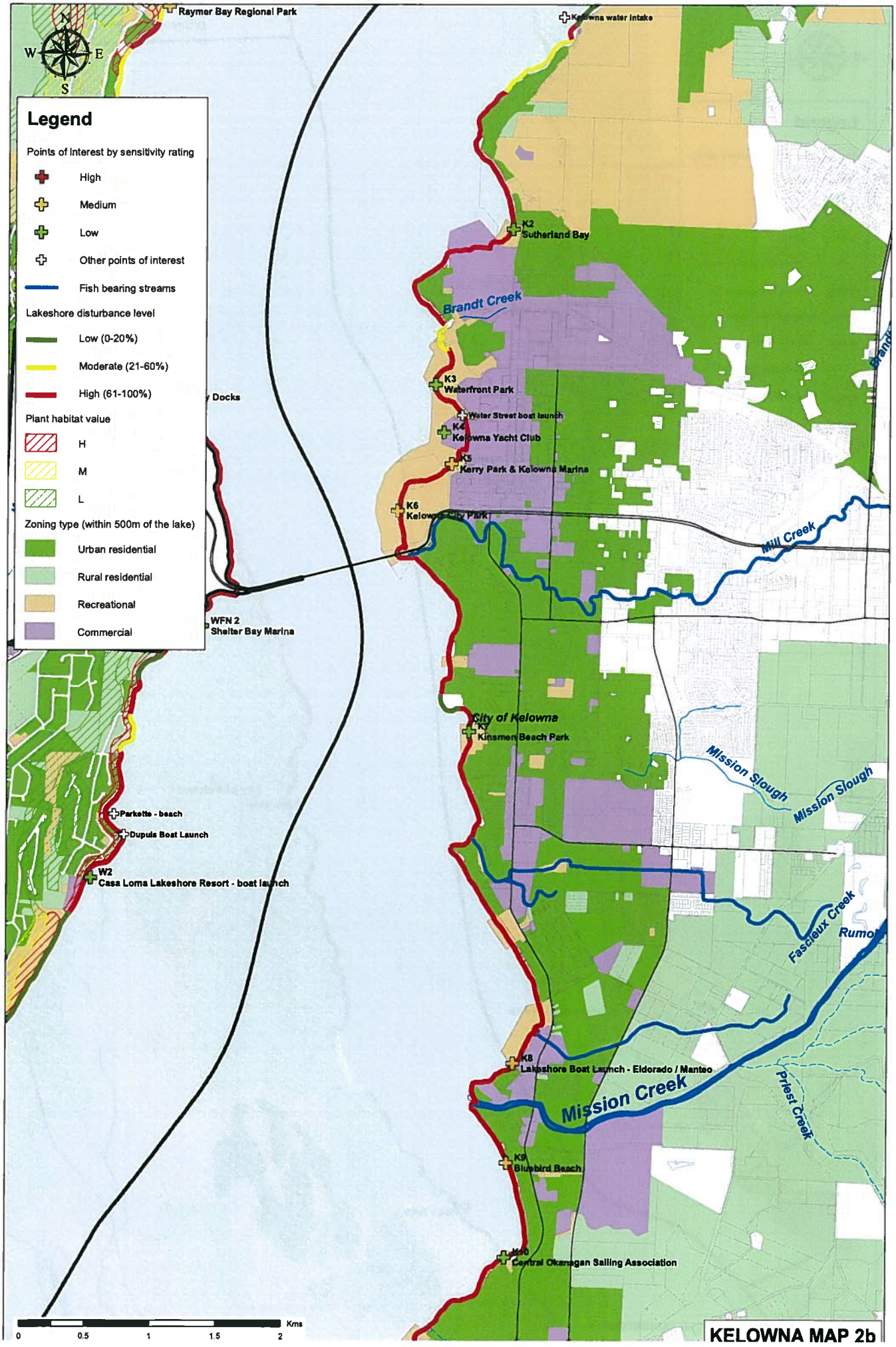

N
W
E
S
Law Creek
Powers Creek
Smith Creek
Davidson
IR# 9 - Tsinstikeptum
Westbank Creek
Tonest Creek
McDougall Creek
District of Westside
Drought Creek
W4
Gellatly Swim Bay
W5
Westbank Yacht Club & boat launch
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
st E.A.
R8
Ok Mountain Park Shores - docks
Central Okanagan East E.A.
City of Kelowna
R9
Bruggins Reef
Deeper Creek
Kms
0
0.5
1
1.5
2
WESTSIDE MAP 2b
RDCO MAP 4b

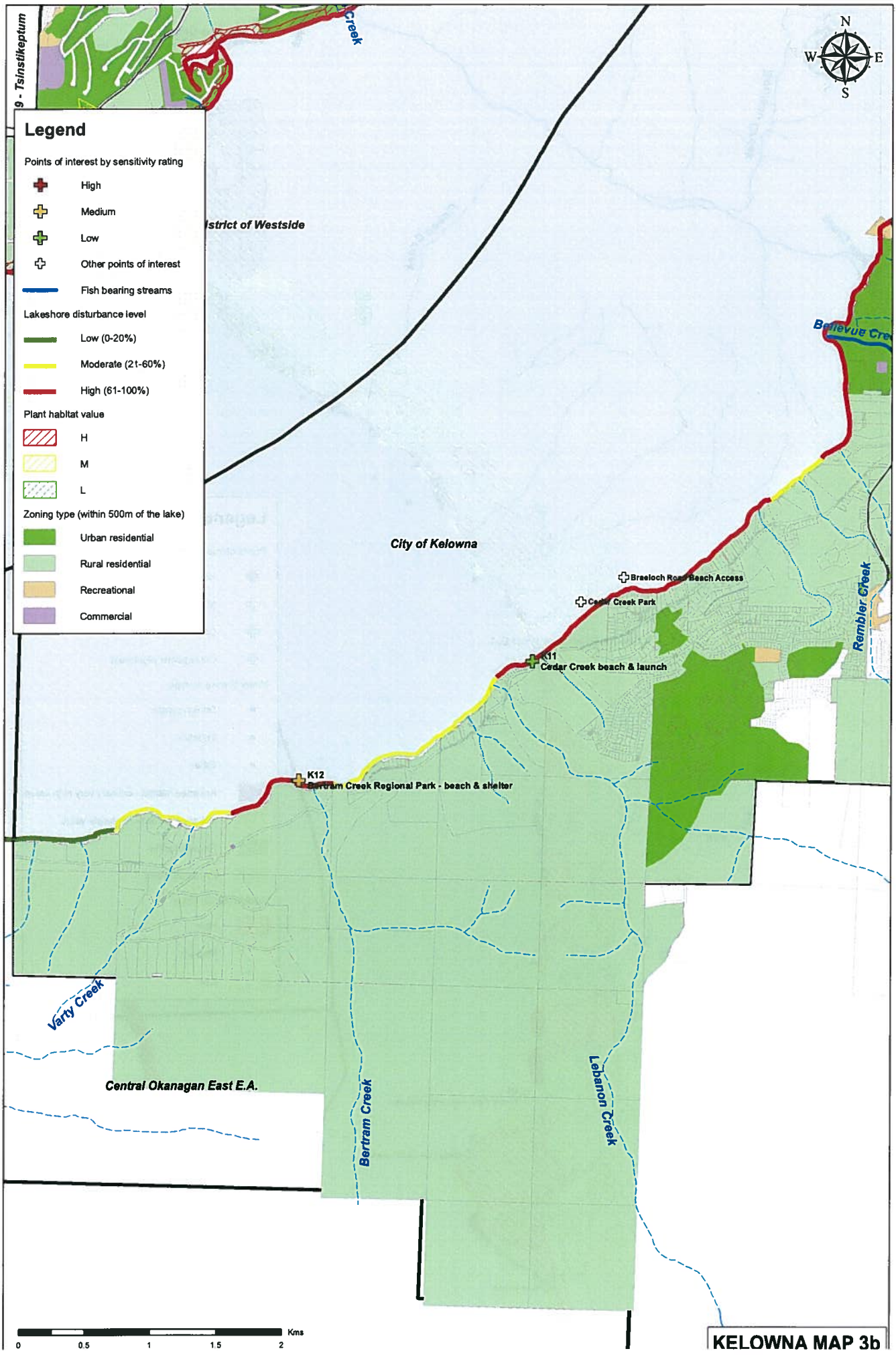

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
District of Lake Country
R4
Wilson North - beach
Wilson Landing - launch
City of Kelowna
Traders Cove Regional Park
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
Lambly Creek
Paul's Tomb
Kelowna water intake
District of Westsi
0
0.5
1
1.5
2
Kms
KELOWNA MAP 1a

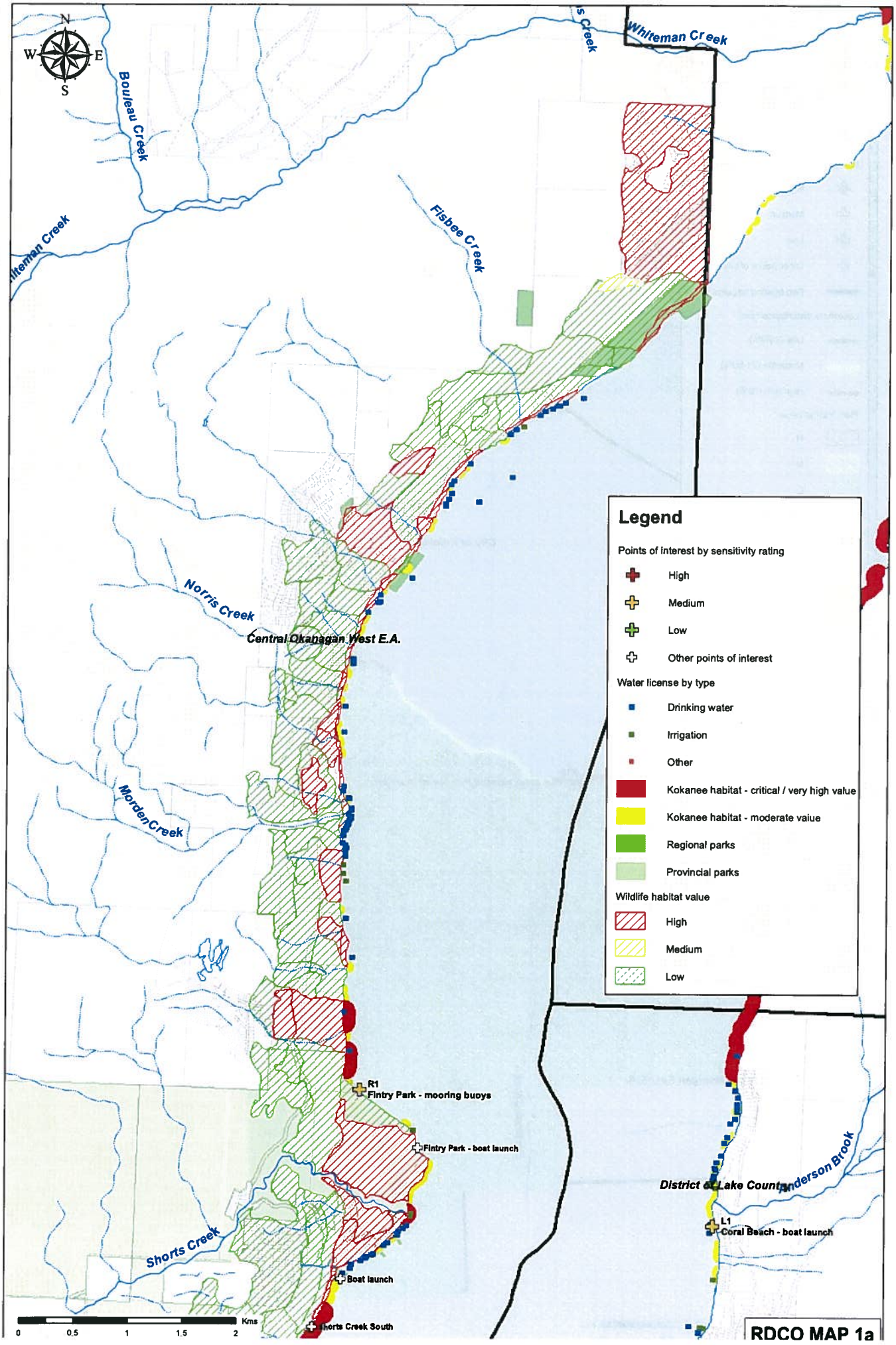

Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
N
W
E
S
Raymer Bay Regional Park
Kelowna water intake
K2
Sutherland Bay
Brandt Creek
K3
Waterfront Park
Water Street boat launch
K4
Kelowna Yacht Club
K5
Kerry Park & Kelowna Marina
K6
Kelowna City Park
Mill Creek
City of Kelowna
K7
Kinsmen Beach Park
Mission Slough
Mission Slough
Parkette Beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
Fascieux Creek
K8
Lakeshore Boat Launch - Eldorado / Manteo
Mission Creek
Priest Creek
K9
Bluebird Beach
K10
Central Okanagan Sailing Association
0
0.5
1
1.5
2
Kms
KELOWNA MAP 2a

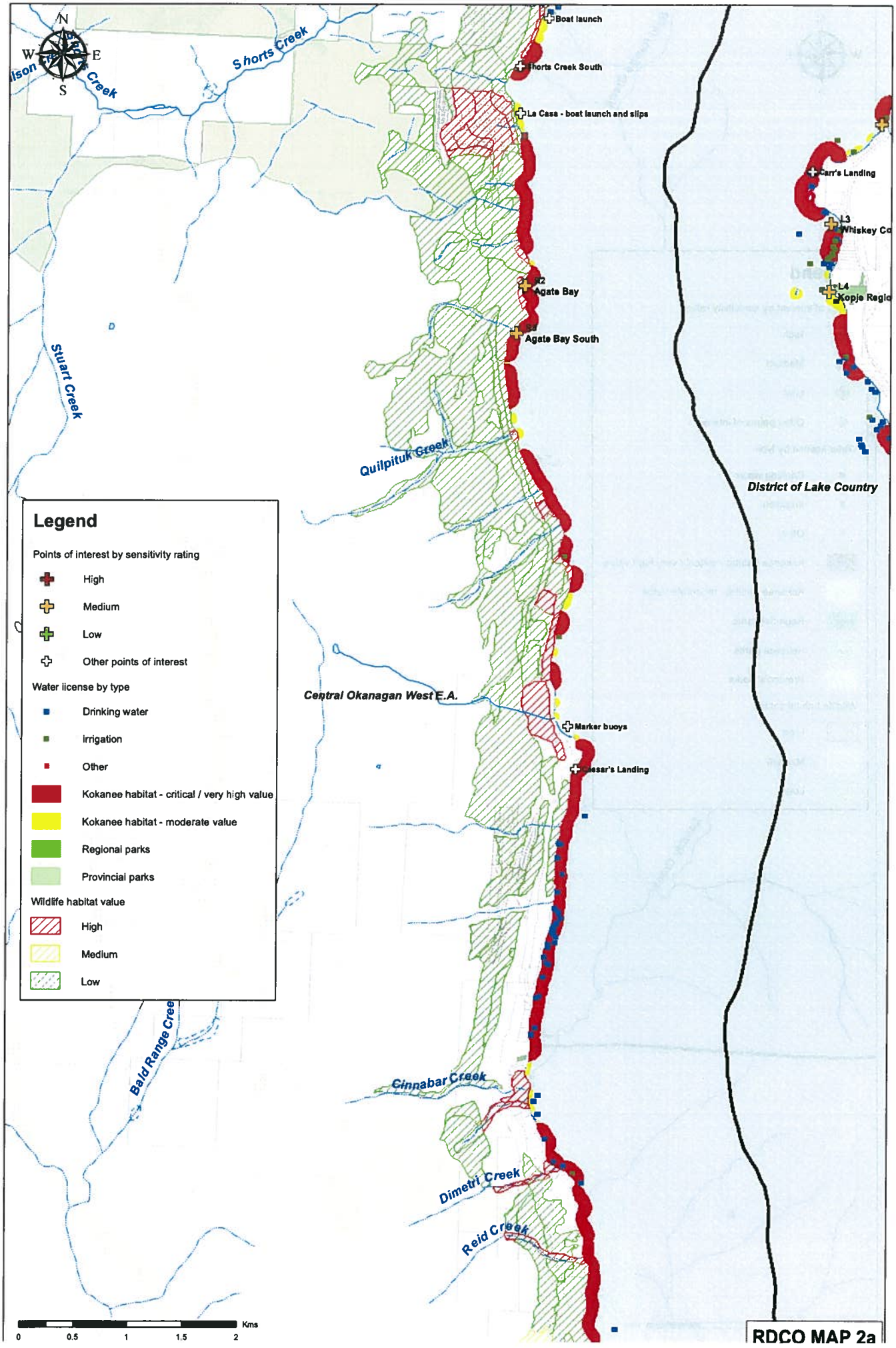

IR# 9 - Tsinstikeptum
Creek
N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
City of Kelowna
Bellevue Cre
Braeloch Road Beach Access
Cedar Creek Park
K11
Cedar Creek beach & launch
Rembler Creek
K12
Bertram Creek Regional Park - beach & shelter
Varty Creek
Central Okanagan East E.A.
Bertram Creek
Lebanon Creek
0
0.5
1
1.5
2
Kms
KELOWNA MAP 3a

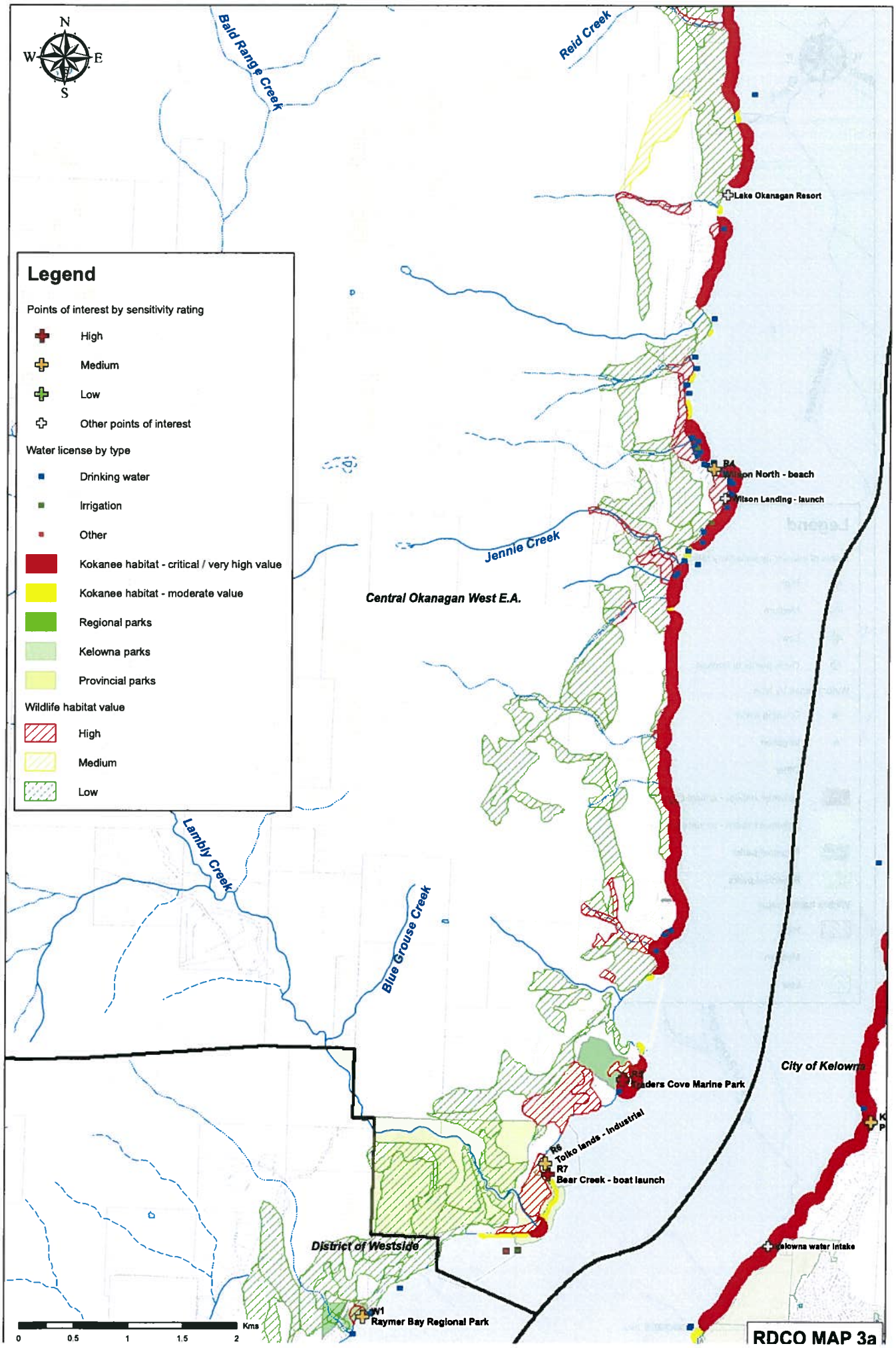

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
District of Lake Country
R4
Wilson North - beach
Wilson Landing - launch
City of Kelowna
Boat launch & beach
R5
Traders Cove Regional Park
R6
Tolko lands - Industrial
R7
Bear Creek - boat launch
Bear Creek
R1
Paul's Tomb
Kelowna water intake
District of Westside
Kms
0
0.5
1
1.5
2
KELOWNA MAP 1b

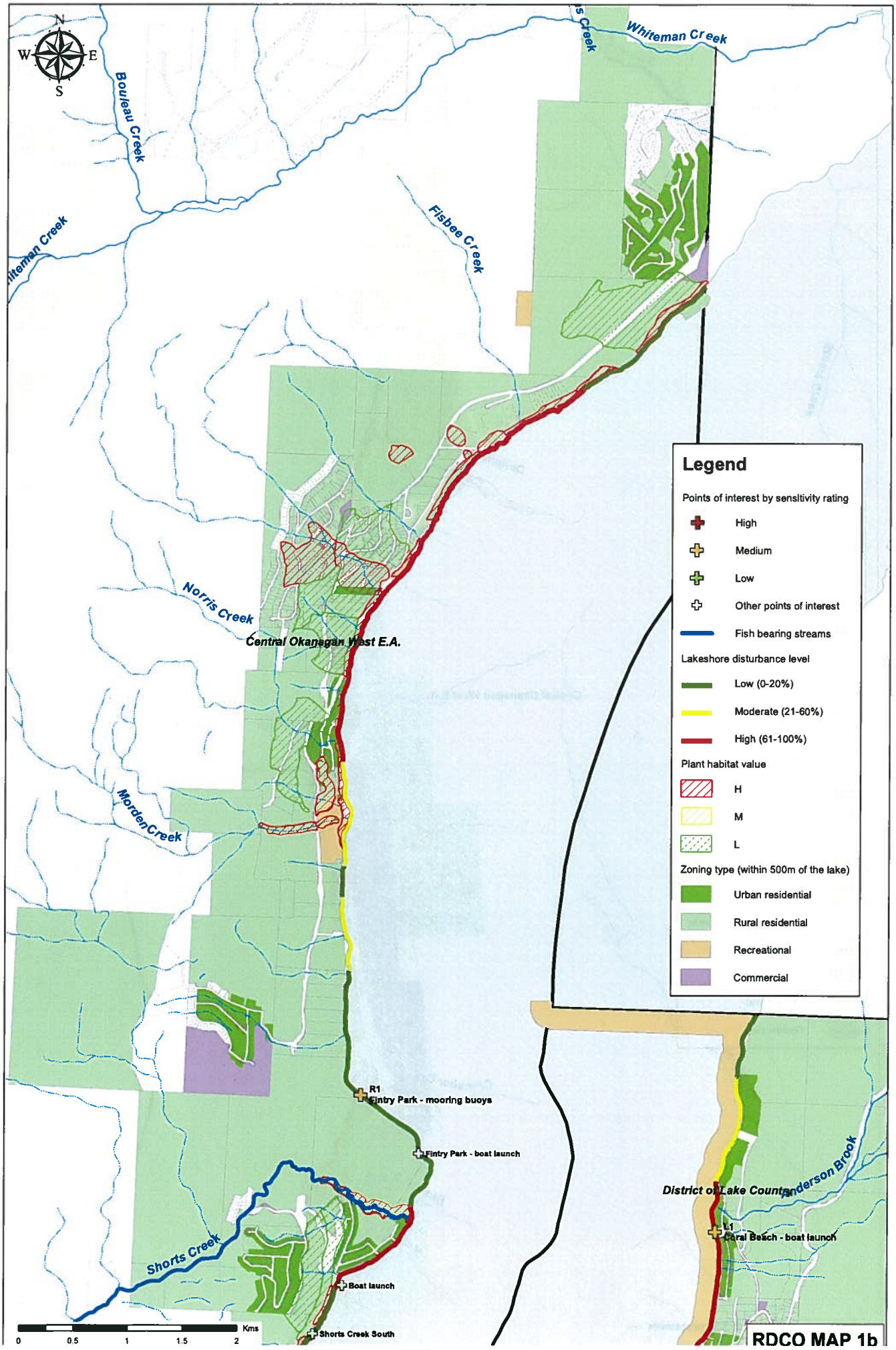

Raymer Bay Regional Park
Kelowna water intake
N
W
E
S
Legend
Points of Interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
K2
Sutherland Bay
Brandt Creek
K3
Waterfront Park
Water Street boat launch
K4
Kelowna Yacht Club
K5
Kerry Park & Kelowna Marina
K6
Docks
WFN 2
Shelter Bay Marina
Mill Creek
City of Kelowna
K7
Kinsmen Beach Park
Mission Slough
Mission Slough
Parkette - beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
Fascieux Creek
K8
Lakeshore Boat Launch - Eldorado / Manteo
Mission Creek
Priest Creek
K9
Bluebird Beach
K10
Central Okanagan Sailing Association
Kms
0
0.5
1
1.5
2
KELOWNA MAP 2b

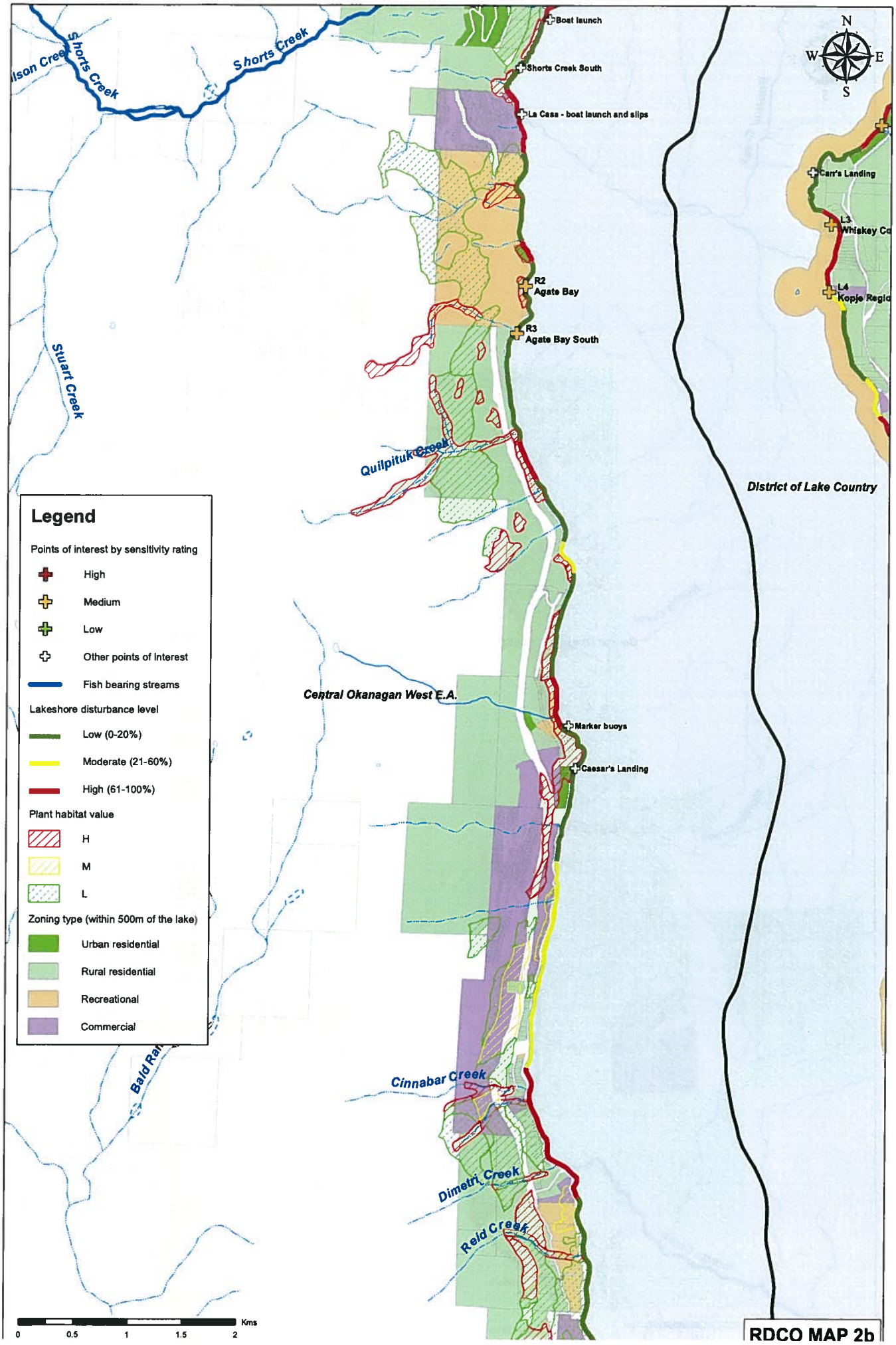

Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
N
W
E
S
9 - Tsinstikeptum
Creek
District of Westside
City of Kelowna
Bellevue Cre
Braeloch Road Beach Access
Cedar Creek Park
K11
Cedar Creek beach & launch
Rambler Creek
K12
Bertram Creek Regional Park - beach & shelter
Varty Creek
Central Okanagan East E.A.
Bertram Creek
Lebanon Creek
0
0.5
1
1.5
2
Kms
KELOWNA MAP 3b

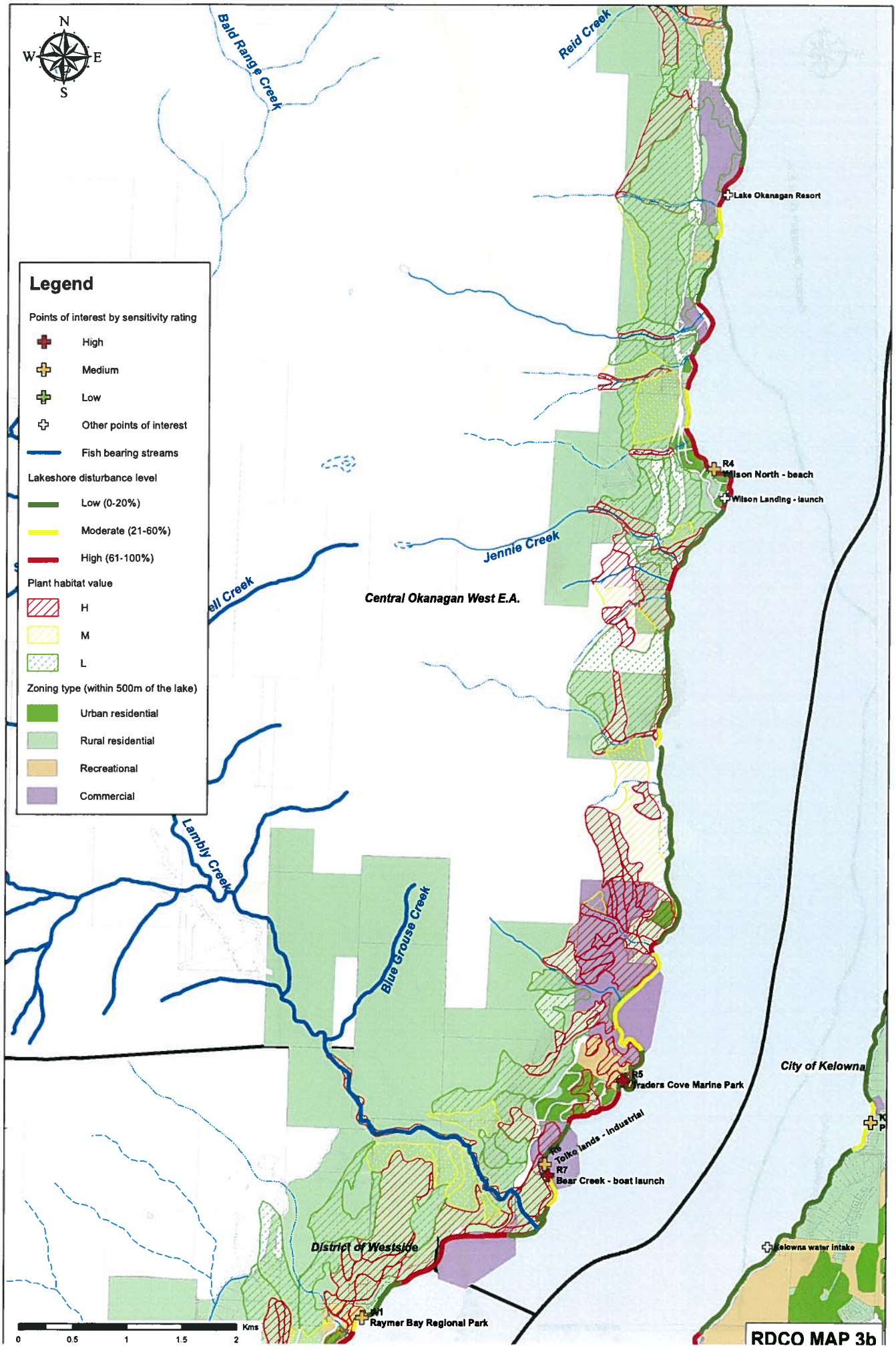

N
W
E
S
Bouleau Creek
Whiteman Creek
Fisbee Creek
Norris Creek
Central Okanagan West E.A.
Morden Creek
Shorts Creek
Anderson Brook
District of Lake Country
R1
Fintry Park - mooring buoys
Fintry Park - boat launch
Boat launch
Shorts Creek South
L1
Coral Beach - boat launch
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
RDCO MAP 1a

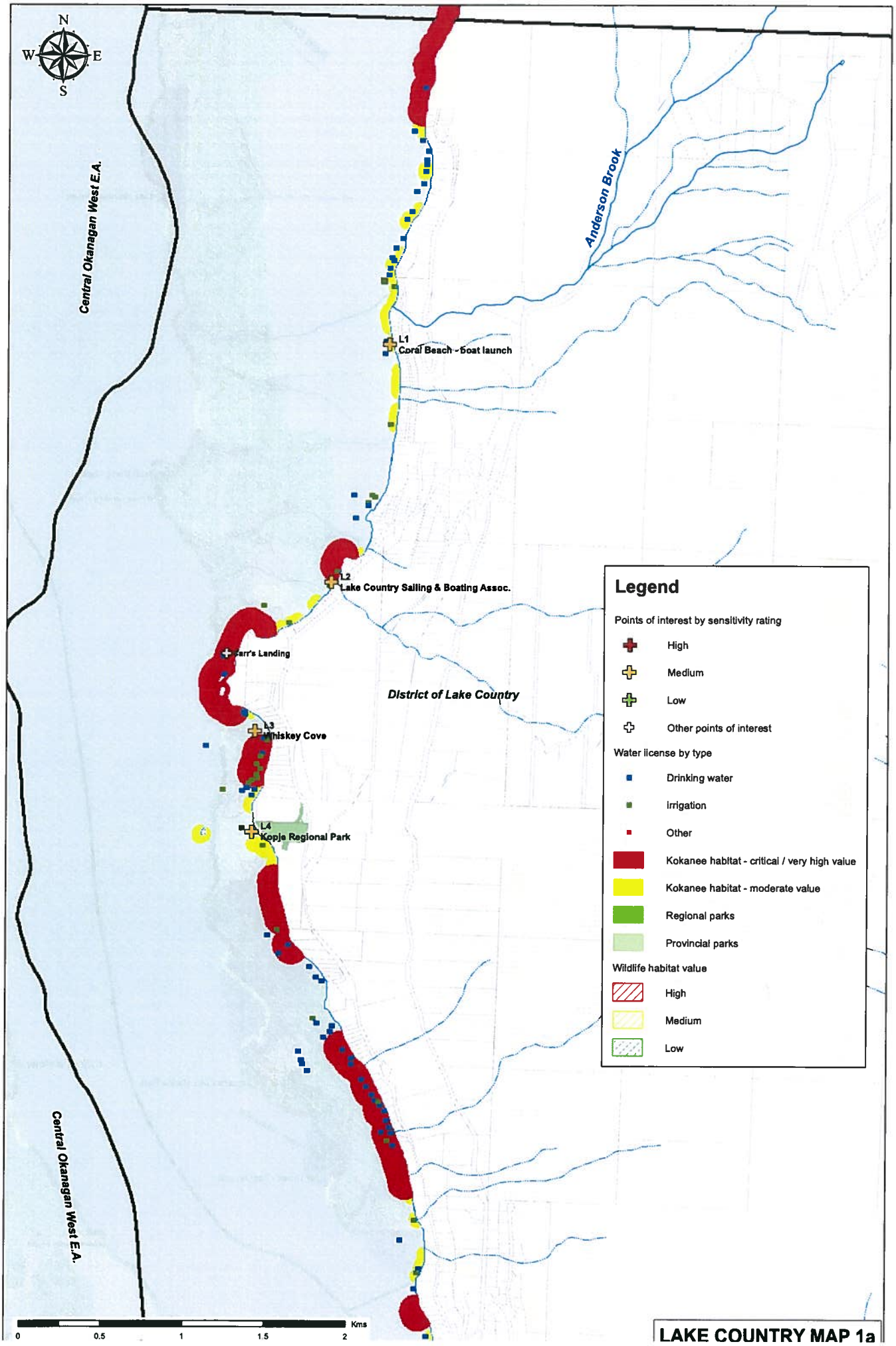

N
W
E
S
Shorts Creek
Boat launch
Shorts Creek South
La Casa - boat launch and slips
Carr's Landing
L3
Whiskey Co
L4
Kopje Regio
R2
Agate Bay
R3
Agate Bay South
Stuart Creek
Quilpituk Creek
District of Lake Country
Central Okanagan West E.A.
Marker buoys
Caesar's Landing
Bald Range Cree
Cinnabar Creek
Dimetri Creek
Reid Creek
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
RDCO MAP 2a

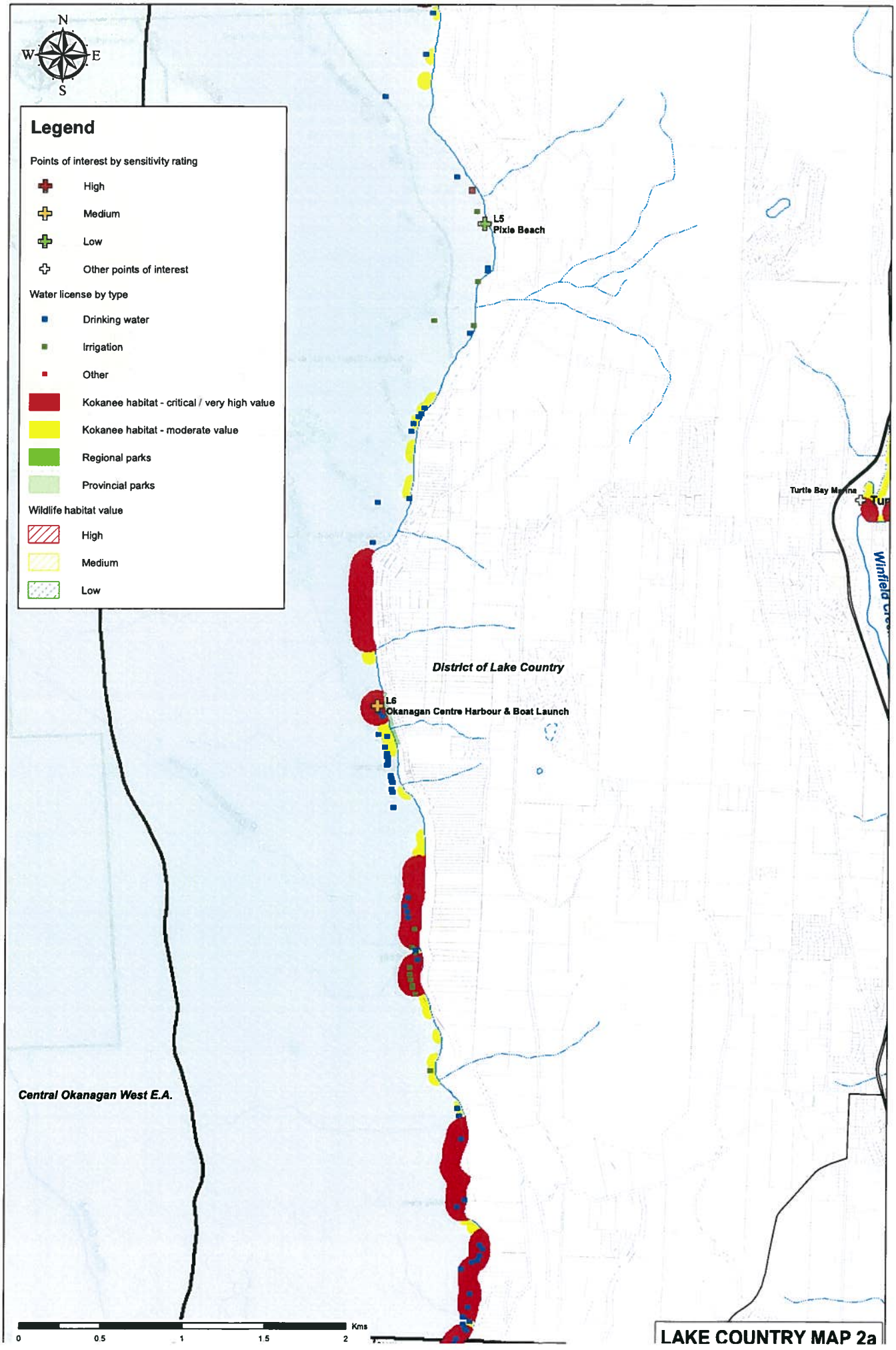

N
W
E
S
Bald Range Creek
Reid Creek
Lake Okanagan Resort
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
R4
Wilson North - beach
Wilson Landing - launch
Jennie Creek
Central Okanagan West E.A.
Lambly Creek
Blue Grouse Creek
City of Kelowna
R5
Traders Cove Marine Park
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
District of Westside
Kelowna water intake
RV1
Raymer Bay Regional Park
0
0.5
1
1.5
2
Kms
RDCO MAP 3a

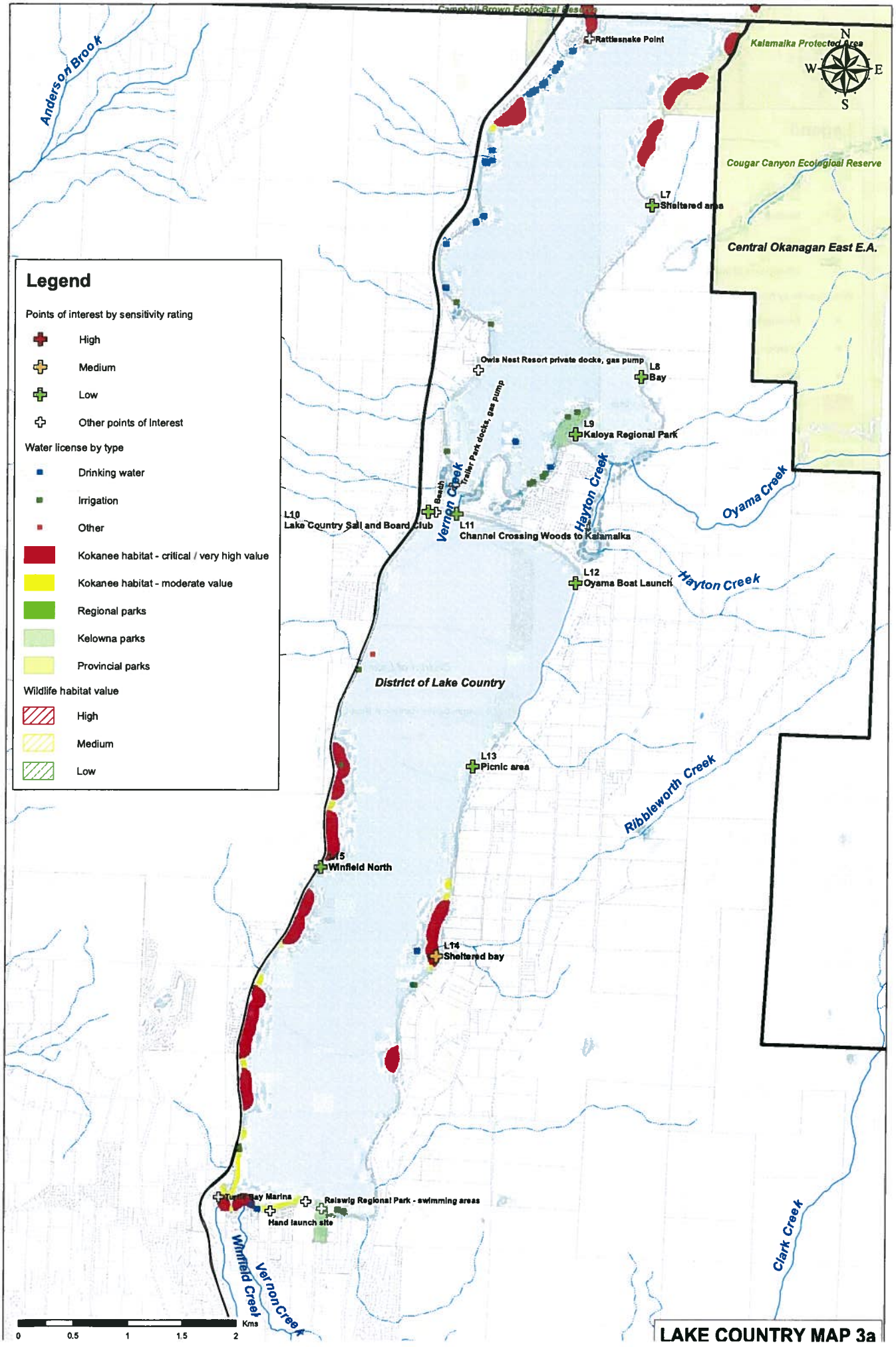

N
W
E
S
Boulleau Creek
Whiteman Creek
Fisbee Creek
Norris Creek
Central Okanagan West E.A.
MordenCreek
Shorts Creek
Anderson Brook
District of Lake Country
R1
Fintry Park - mooring buoys
Fintry Park - boat launch
Boat launch
Shorts Creek South
L1
Coral Beach - boat launch
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
Kms
0
0.5
1
1.5
2
RDCO MAP 1b


Boat launch
Shorts Creek South
La Casa - boat launch and slips
Shorts Creek
Shorts Creek
Stuart Creek
R2
Agate Bay
R3
Agate Bay South
Quilpituk Creek
Central Okanagan West E.A.
Marker buoys
Caesar's Landing
Cinnabar Creek
Dimetri Creek
Reid Creek
Carr's Landing
L3
L4
District of Lake Country
N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of Interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
0
0.5
1
1.5
2
Kms
RDCO MAP 2b


N
W
E
S
Bald Range Creek
Reid Creek
Lake Okanagan Resort
R4
Wilson North - beach
Wilson Landing - launch
Jennie Creek
Central Okanagan West E.A.
Lambly Creek
Blue Grouse Creek
City of Kelowna
R5
Traders Cove Marine Park
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
District of Westside
Kelowna water intake
R1
Raymer Bay Regional Park
Kms
0
0.5
1
1.5
2
RDCO MAP 3b
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial


N
W
E
S
Central Okanagan West E.A.
Anderson Brook
L1
Coral Beach - boat launch
L2
Lake Country Sailing & Boating Assoc.
Carr's Landing
District of Lake Country
L3
Whiskey Cove
L4
Kopje Regional Park
Central Okanagan West E.A.
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 1a


N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
L5
Pixie Beach
Turtle Bay Marina
Winfield Creek
District of Lake Country
L6
Okanagan Centre Harbour & Boat Launch
Central Okanagan West E.A.
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 2a



Legend

Points of interest by sensitivity rating

- High
- Medium
- Low
- Other points of Interest

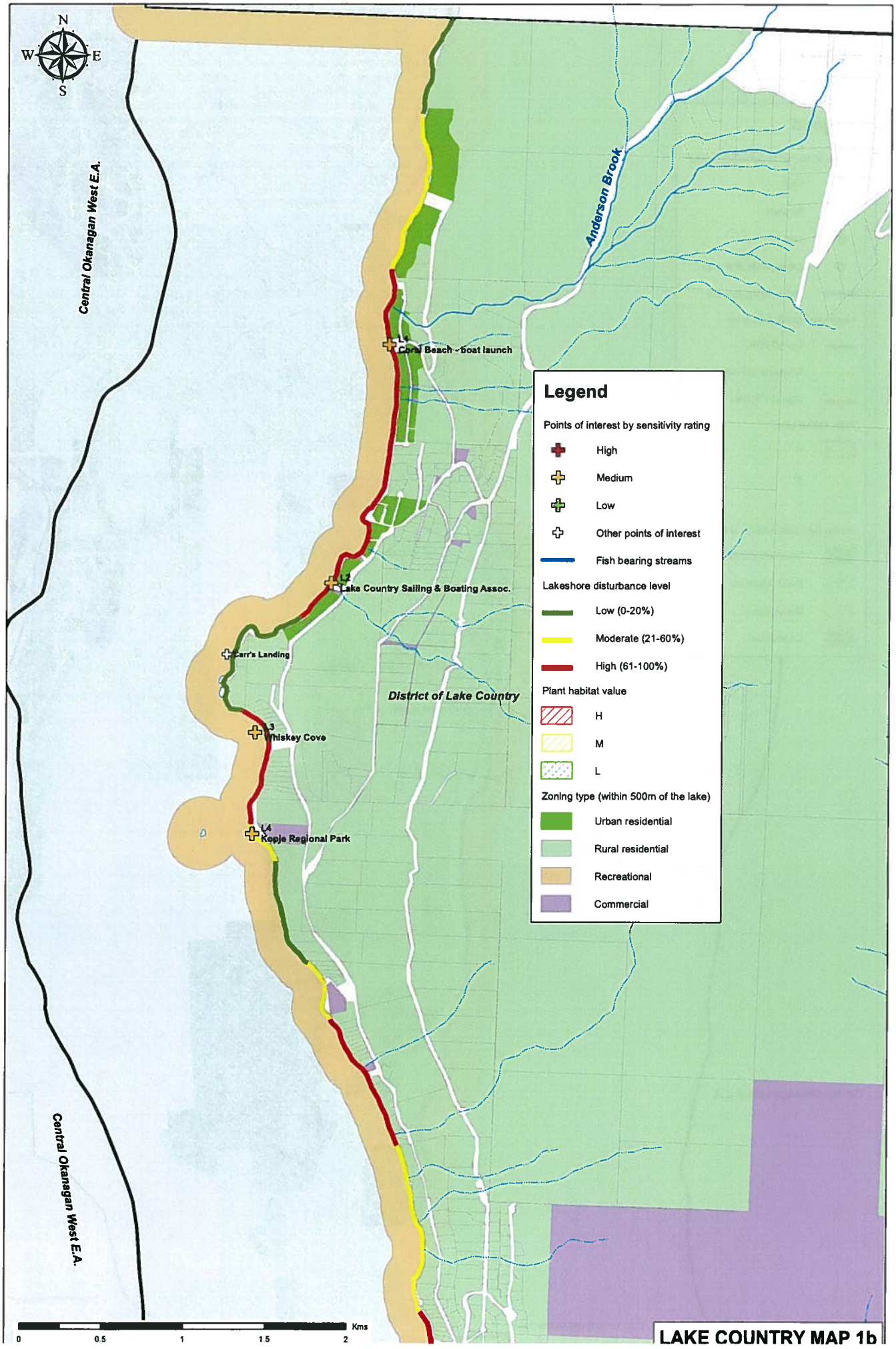
Water license by type

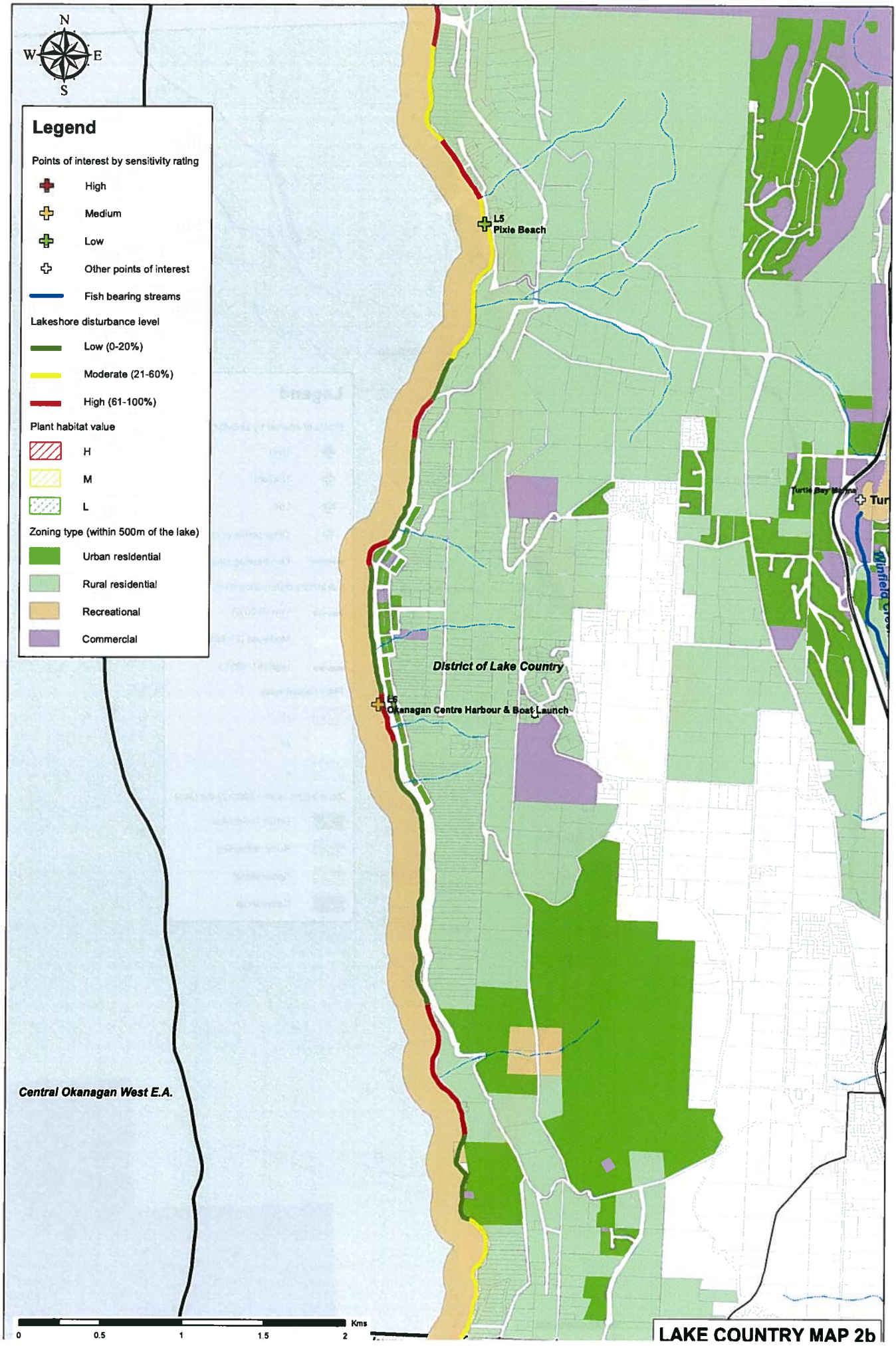
- Drinking water
- Irrigation
- Other

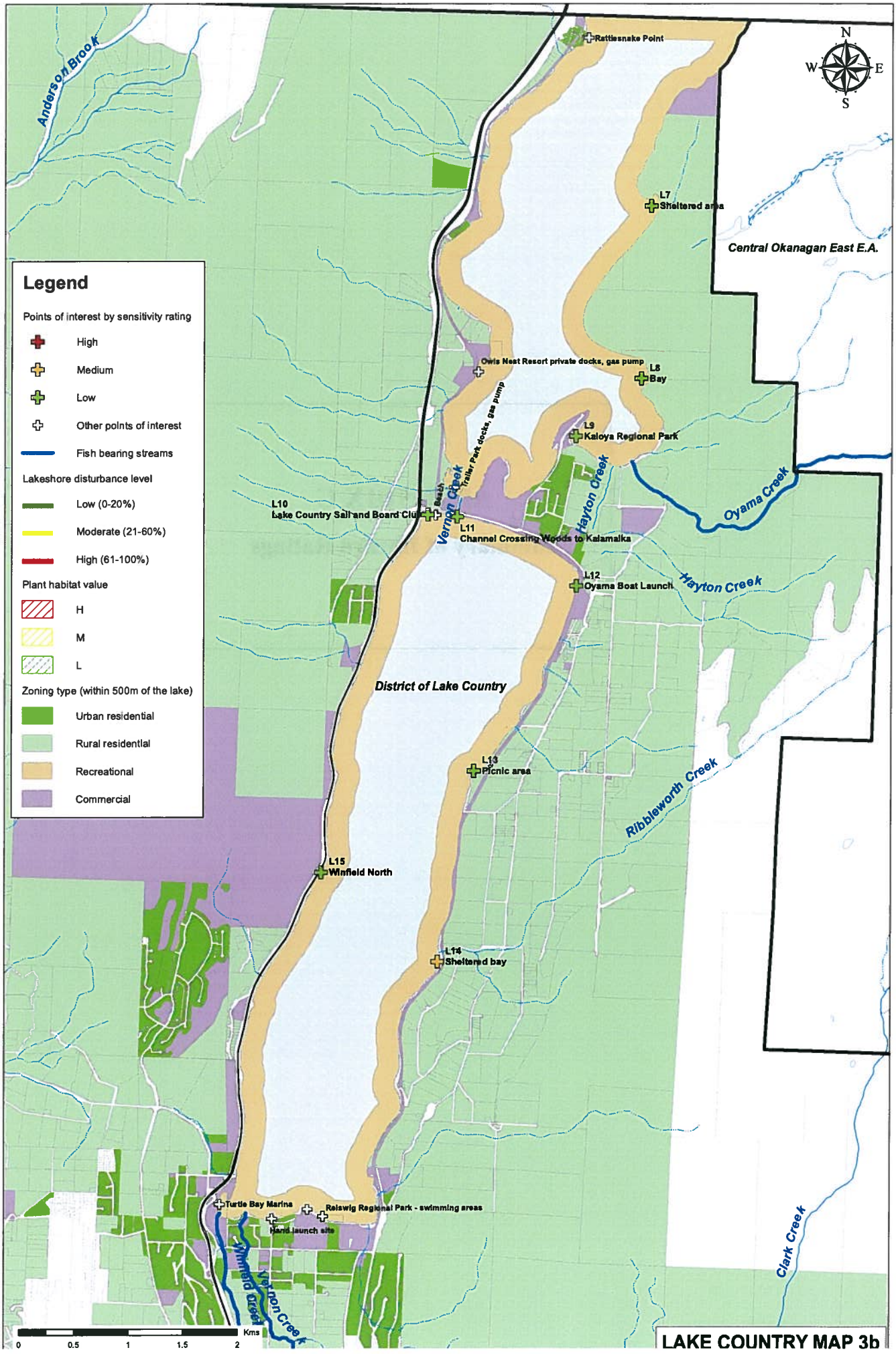
- Kokanee habitat - critical / very high value
- Kokanee habitat - moderate value
- Regional parks
- Kelowna parks
- Provincial parks

Wildlife habitat value

- High
- Medium
- Low


N
W
E
S
Central Okanagan West E.A.
Anderson Brook
L1
Coral Beach - boat launch
L2
Lake Country Sailing & Boating Assoc.
Carr's Landing
District of Lake Country
L3
Whiskey Cove
L4
Kopje Regional Park
Central Okanagan West E.A.
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 1b


N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
L5
Pixie Beach
Turtle Bay Marina
Tur
Winfield Creek
District of Lake Country
L6
Okanagan Centre Harbour & Boat Launch
Central Okanagan West E.A.
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 2b


Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
N
W
E
S
Anderson Brook
Rattlesnake Point
L7
Sheltered area
Central Okanagan East E.A.
Owls Nest Resort private docks, gas pump
L8
Bay
L9
Kaloya Regional Park
Trailer Park docks, gas pump
Vernon Creek
Hayton Creek
Oyama Creek
L10
Lake Country Sail and Board Club
L11
Channel Crossing Woods to Kalamalka
L12
Oyama Boat Launch
Hayton Creek
District of Lake Country
L13
Picnic area
Ribbleworth Creek
L15
Winfield North
L14
Sheltered bay
Turtle Bay Marina
Reiswig Regional Park - swimming areas
Hand launch site
Winfield Creek
Vernon Creek
Clark Creek
Kms
0
0.5
1
1.5
2
LAKE COUNTRY MAP 3b

APPENDIX C

Summary of Hazard Ratings

Points of Interest - Potential Improvements		Potential Improvements[1]	Domestic Water intake	Proximity to fish-bearing Creek	Shore Spawning Habitat	Shoreline Disturbance	ESA- Wildlife habitat	ESA- Ecological Communities	Noise Pollution	Riparian Values	Sensitivity Rating[2]	Confidence rating[3]
Map	**Location**											
District of Peachland												
P1	Davis Coves	**D**	M	L	L	M	M	M	H	L	L	M
P2	Pincushion Bay	**B**	M	L	L	M	M	M	H	L	L	M
P3	Peachland Yacht Club	**B**	L	L	L	M	M	M	H	L	L	M
P4	Heritage Park	**C**	M	L	L	M	M	M	H	L	L	M
P5	Pentowna Marina	**C**	M	L	L	M	M	M	H	L	L	M
P6	Doggie Beach	**E**	L	L	L	M	M	M	H	L	L	M
District of Westside												
W1	Raymer Bay Regional Park	**D**	H	L	L	H	H	H	H	L	M	H
WFN 1	Old Wharf		M	L	L	L	M	M	M	M	L	M
WFN 2	Shelter Bay	**A**	M	L	L	M	M	M	M	L	L	M
W2	Casa Loma	**C**	L	L	L	M	H	H	H	L	L	H
W3	Kalamoir Park	**D**	L	L	L	H	H	M	H	L	L	H
W4	Gellatly Bay	**D**	M	L	M	L	H	L	H	L	M	H
W5	Westbank Yacht Club	**BE**	M	H	H	L	H	H	H	L	H	M
City of Kelowna												
K1	Paul's Tomb	**D**	L	L	H	H	L	L	H	L	L	M
K2	Sutherland Bay	**AB**	M	L	L	L	M	M	H	L	L	M
K3/5	Kelowna Waterfront Park/Kerry Park	**A**	H	L	L	L	M	M	M	L	L	M
K4	Kelowna Yacht Club	**A**	M	L	M	L	M	M	M	L	L	M
K6	Kelowna City Park	**C**	L	H	H	L	M	M	M	L	M	M
K7	Kinsmen Beach	**D**	L	L	L	M	M	M	H	L	L	M
K8	Eldorado/Manteo Resort	**A**	H	M	M	L	M	M	H	L	M	M
K9	Bluebird Beach	**D**	M	H	H	L	M	M	H	L	M	M
K10	Central Ok Sailing Association	**B**	M	L	L	M	M	M	H	M	L	M

	Points of Interest - Potential Improvements	Potential Improvements[1]	Domestic Water intake	Proximity to fish-bearing Creek	Shore Spawning Habitat	Shoreline Disturbance	ESA- Wildlife habitat	ESA- Ecological Communities	Noise Pollution	Riparian Values	Sensitivity Rating[2]	Confidence rating[3]
K11	Cedar Creek	B	M	L	L	L	M	M	M	M	L	M
K12	Bertram Creek Regional Park	D	H	L	H	L	M	M	M	L	M	M
Regional District of Central Okanagan (RDCO)												
R1	Fintry Provincial Park	D	M	L	M	H	H	L	M	L	M	H
R2	Agate Bay North	D	L	L	H	H	H	L	M	L	M	H
R3	Agate Bay South	D	L	L	H	H	H	H	H	L	M	H
R4	Wilson North	D	H	L	M	M	H	L	H	L	M	H
R5	Traders Cove	D	H	L	H	H	H	H	H	L	H	H
R6	Tolko Lands	ABCD	L	L	M	H	H	H	M	M	M	H
R7	Bear Creek		L	H	H	M	H	H	M	M	H	M
R8	OK Mountain Park Shores	D	M	L	H	H	M	M	M	L	M	M
R9	Scruggins Reef	D	L	L	H	H	M	M	M	L	L	M
District of Lake Country												
L1	Coral Beach	B	H	L	H	L	M	M	H	L	M	M
L2	Marshall Park	C	H	M	M	M	M	M	H	L	M	M
L3	Whiskey Cove	B	H	L	M	M	M	M	M	L	M	M
L4	Kopje Regional Park	B	H	L	M	M	M	M	M	L	M	M
L5	Pixie Beach	D	H	L	L	M	M	M	M	L	L	M
L6	Ok Center Harbour	ABC	H	L	H	H	M	M	H	L	M	M
L7	Sheltered area	D	M	L	H	M	M	M	M	L	M	M
L8	Bay	D	L	L	L	M	M	M	M	L	L	M
L9	Kaloya Bay	B	M	L	L	M	M	M	H	L	L	M
L10	Lake Country Board and Ski Club	C	L	L	L	M	M	M	M	L	L	M
L11	Twin Lakes Channel Crossing		L	L	L	M	M	M	M	M	L	M
L12	Oyama Boat Launch	B	L	L	L	M	M	M	H	M	L	M
L13	Picnic Area	D	L	L	L	M	M	M	M	L	L	M

	Points of Interest - Potential Improvements	Potential Improvements[1]	Domestic Water intake	Proximity to fish-bearing Creek	Shore Spawning Habitat	Shoreline Disturbance	ESA- Wildlife habitat	ESA- Ecological Communities	Noise Pollution	Riparian Values	Sensitivity Rating[2]	Confidence rating[3]
L14	Sheltered bay	D	M	L	H	M	M	M	M	L	M	M
L15	Winfield North	B	L	L	M	M	M	M	M	L	L	M
[1] -	**Potential Improvements**											
	A = Major facility such as a Marina with boat slips, gas											
	B = Boat launch including a cement ramp, docks and on shore parking areas.											
	C = Boat Slips or docks.											
	D = Mooring Buoys, away from shore.											
	E = Dry dock boat storage on land.											
[2] -												
	Sensitivity Rating											
	High = 7+ points (max 10.6)											
	Med = 4 to 7 points											
	Low = 0 to 4 points											
[3] -												
	Confidence Rating											
	Low = > 4 data equals no											
	Medium = 2 to 3 data equals no											
	High = 0 to 1 data equals no											

APPENDIX D

Sensitivity Cards by Location

Sensitivity Rating
High = 7+ points (max 10.6)
Med = 4 to 7 points
Low = 0 to 4 points

Confidence Rating
Low = > 4 data equals no
Medium = 2 to 3 data equals no
High = 0 to 1 data equals no

District of Peachland

P1 - Davis Cove

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

P2 - Pincushion Bay

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
L	0.5	0	0	y
Total score			**2.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

P3 - Peachland Yacht Club

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**1.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

P4 - Heritage Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

P5 - Pentowna Marina

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

P6 - Doggie Beach

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**1.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

District of Westside

W1 - Raymer Bay Regional Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.4**	**no = 0**

bold = no data available therefore assigned "moderate rating"

WFN 1 - Old Wharf

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	1	0.5	y
Total score			**3.1**	**no = 2**

bold = no data available therefore assigned "moderate rating"

WFN 2 - Shelter Bay Marina

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**2.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

W2 - Casa Loma Lakeshore Resort

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**3.3**	**no = 0**

bold = no data available therefore assigned "moderate rating"

W3 - Kalamoir Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	1	0.5	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.9**	**no = 0**

bold = no data available therefore assigned "moderate rating"

W4 - Gellatly Bay

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	0	0	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**4.2**	**no = 0**

bold = no data available therefore assigned "moderate rating"

W5 - Westbank Yacht Club

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	2	2	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**8.2**	**no = 2**

bold = no data available therefore assigned "moderate rating"

City of Kelowna

K1 - Paul's Tomb

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**3.9**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K2 - Sutherland Bay

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K3/5 - Kelowna Waterfront Park and Kerry Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**3.6**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K4 - Kelowna Yacht Club

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**3.6**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K6 - Kelowna City Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	2	2	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**5.6**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K7 - Kinsmen Beach

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**1.8**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K8 - Eldorado / Manteo Resort

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	1	1	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K9 - Bluebird Beach

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	2	2	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**6.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K10 - Central Okanagan Sailing Association

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	1	0.5	y
Total score			**3.3**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K11 - Cedar Creek

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	1	0.5	y
Total score			**3.1**	**no = 2**

bold = no data available therefore assigned "moderate rating"

K12 - Bertram Creek Regional Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**5.6**	**no = 2**

bold = no data available therefore assigned "moderate rating"

Regional District of Central Okanagan (RDCO)

R1 - Fintry Provincial Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	0	0	y
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.3**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R2 - Agate Bay

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.4**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R3 - Agate Bay South

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	0	0	y
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.3**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R4 - Wilson North Beach

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	0	0	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.3**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R5 - Traders Cove Marine Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**7.4**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R6 - Tolko Lands - Industrial

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	1	0.1	y
Riparian	0.5	1	0.5	y
Total score			**4.8**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R7 - Bear Creek Provincial Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	2	2	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	2	2	y
ESA - Plant	0.5	2	1	y
Noise	0.1	1	0.1	y
Riparian	0.5	1	0.5	y
Total score			**7.7**	**no = 0**

bold = no data available therefore assigned "moderate rating"

R8 - Okanagan Mountain Park Shores

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.8**	**no = 2**

bold = no data available therefore assigned "moderate rating"

R9 - Scruggins Reef

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**3.8**	**no = 2**

bold = no data available therefore assigned "moderate rating"

District of Lake Country

L1 - Coral Beach Boat Launch

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	0	0	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L2 - Marshall Park - Lake Country Sailing and Boating

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	1	1	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.8**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L3 - Whiskey Cove

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L4 - Kopje Regional Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L5 - Pixie Beach

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	1	0.1	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**3.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L6 - Okanagan Centre Harbour & Boat Launch

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	2	2	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	2	0.2	y
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**5.9**	**no = 2**

bold = no data available therefore assigned "moderate rating"

L7 - Sheltered Area (Kalamalka Lake)

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**2.7**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L8 - Bay (Kalamalka Lake)

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**1.7**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L9 - Kaloya Regional Park

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	0	0	y
Total score			**2.8**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L10 - Lake Country Board and Ski

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**1.7**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L11 - Channel Crossing Woods to Kalamalka Lake

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	1	0.5	y
Total score			**2.2**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L12 - Oyama Boat Launch

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	2	0.2	y
Riparian	0.5	1	0.5	y
Total score			**2.3**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L13 - Picnic Area (east side of Wood Lake)

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	0	0	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**1.7**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L14 - Sheltered Bay (east side of Wood Lake)

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	1	1	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	2	2	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	y
Total score			**4.7**	**no = 3**

bold = no data available therefore assigned "moderate rating"

L15 - Winfield North

Environmental Features	Weight	Risk score (2, 1, 0)	Total	Data (y/n)
Water intake	1.0	0	0	y
Proximity to Streams	1.0	0	0	y
Spawning habitat	1.0	1	1	y
Shoreline disturbance	0.1	**1**	0.1	**n**
ESA - Wildlife	1.0	**1**	1	**n**
ESA - Plant	0.5	**1**	0.5	**n**
Noise	0.1	1	0.1	y
Riparian	0.5	0	0	
Total score			**2.7**	**no = 2**

bold = no data available therefore assigned "moderate rating"

MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY

Recommendations and Conclusions

Part D

A BLUEPRINT FOR THE FUTURE

Submitted by:

GDH Solutions

In association with
The JF Group and
Summit Environmental Consultants

Recommendations and Conclusions

A BLUEPRINT FOR THE FUTURE

Table of Contents

Introduction

The Recommendations and Conclusions, Part D, provides the concluding chapter of the Major Recreational Lakes Marine Facilities Study. The supporting background information and analysis was provided in Parts A, B, and C between May and September 2008. Environmental lake and shoreline mapping has been completed at various phases and the final maps relate to the recommended potential improvements.

The Blueprint for the Future is intended to be used as a "stand alone" document to guide recreational marine facility development in the region over the next 20 years. It is the action plan for the implementation of sustainable recreational marine facilities.

There are two major motivators for the implementation of the Blueprint for boating in the Central Okanagan:

1. The high quality of life in the region for current and future residents should include support for boating. Four in ten households own a boat, and seventy-two percent of the boaters live in the Central Region. Many people are drawn to the Okanagan for the boating opportunities; however the marine facilities are in need of upgrade and repair. There is good support for government investment for marine recreational facilities, and two thirds of those surveyed believe that government should invest in marine facilities right now.

2. The economic impact of boating in the Central Okanagan is $39M and has the potential to grow from $39.2M to $68.7M. However, if the issues of access, services, moorage, boat storage and destinations are not addressed by public and private initiatives, the current economic impact level may decline.

Key Issues

During the research and consultation for this study, several key issues became evident.

Vision for Boating in the Okanagan. The lack of a common vision for the future of boating in the Okanagan has resulted in an uncoordinated, inefficient, and underfunded system for the provision of recreational marine facilities in the Central Okanagan. The continuing rate of growth in the region combined with the current lack of support for the boating community will result in a "crisis for boating" in the Central Okanagan.

Status of Recreational Marine Facilities. The current number and quality of recreational marine facilities is inadequate to meet the demands of residents and tourists. The current demand for slips alone is 33% greater than the supply. Local governments have made little investment in facilities. They primarily provide boat launches (all with parking problems) some docks for day use, and lease some lands for yacht clubs and marinas. All the marinas are owned and operated by the private sector, with no common "standards". The greatest need is safe, accessible boat launches with associated parking areas.

Authority and Management. The present method of providing public recreational marine facilities by the five districts and WFN is not meeting the needs of the local residents or tourists. There is no specific funding mechanism or source of revenue for new or improved marine facilities. The region lacks a coordinating body to facilitate the development of a marine recreation facility system.

Private Sector Investment. The private sector has invested in marinas, boat launches, and moorage on the lakes. The private sector has the potential for increasing current service levels of

marine recreational facilities provided that local government plays a supporting role in the creation of these services.

Economic Impact. The current and potential economic impact of boating in the central Okanagan has not been considered as an important factor relating to the provision of marine recreational facilities. The current economic impact is approximately $39 million, which is in jeopardy due to the deteriorating quality of the boating experience.

Environmental Impact. Concern for the environment has been an important component of this study. Comprehensive mapping of sensitive habitats was undertaken on the Central Okanagan lakes to identify potential new or expanded facility areas. Further detailed environmental investigations would be required prior to the acquisition or development of any new or expanded recreational marine facility to ensure that sensitive habitats would not be affected.

Key Recommendations

General Recommendations

IT IS RECOMMENDED THAT:

1. The RDCO take the lead role in establishing a coordinating body to collaboratively work with all local governments in the delivery of recreational marine facilities on the lakes.

2. The "Blueprint for the Future" be adopted by RDCO and the municipalities of Kelowna, Lake Country, Westside and Peachland as a guide for the development of recreational marine facilities on the major lakes.

3. All proposed marine facilities, be assessed for potential involvement by the private sector through joint ventures, contracting out, or private sector models.

4. Environmental considerations be taken into account for all developments as the environmental review identified that there are many sensitive foreshore areas as well as areas that are more suitable for marine facility development.,

5. Further foreshore environmental mapping be undertaken for Wood and Kalamalka Lakes to gain a better understanding of the environmental sensitivity of the foreshore on those lakes.

6. The development and improvement of boat launches and marinas with supporting infrastructure, and boat channels, be given high priority by local government organizations.

7. The issue of provision and maintenance of mooring buoys be considered on a Region wide basis. A mooring buoy policy for the entire region should be developed, and then enforced in coordination with all local governments, the Regional District, BC Parks and Transport Canada. Long term moorage buoy use also needs to be considered.

8. New developments (residential and commercial) with waterfront access be reviewed for opportunities to provide additional facilities for public use, including transient and seasonal moorage, boat launches, gas pumps, pump-outs, public washrooms, and beach access. Official community plans should include provision of sites for marine recreational facilities.

9. The application and approval process for waterfront facilities to support boating be reviewed in each jurisdiction to ensure applicants have easy access to information concerning all requirements.

10. The economic impact of boating be considered when reviewing waterfront plans and developments that include marinas and boat launches as well as those that provide destinations for local boaters and tourists.

11. Revenue generation be explored such as: launch and mooring buoy permits; revenue from other levels of government including marine fuel taxes and boat registration fees; using special area charges for marine facilities; tourism grants; and federal/provincial infrastructure funding programs.

12. A signage program be undertaken to clearly mark marine facility locations, regulations and provide educational information.

13. The RDCO initiate discussions with the Regional District of Okanagan-Similkameen and the Regional District of Northern Okanagan regarding opportunities to coordinate the provision of recreational marine facilities on the lakes.

14. RDCO (or the coordinating body) to examine Peachland's crown foreshore head lease agreement to determine viability for similar leases on other foreshore lands.

Governance and Service Delivery Recommendations

The most appropriate governance approach would capitalize on the collective energies and expertise of individuals, groups, organizations, governments and agencies that are capable of contributing to the success of recreational marine facilities on the lakes. The governance model should respond to the needs that have emerged from the research and consultation phases of the study. These needs are:

- coordination of marine services;
- a mechanism to maintain an accurate marine facilities inventory;
- standardization of "like" services – e.g. signage at launches;
- systematic approaches to implement additions and/or improvements to infrastructure;
- means to ensure that environmental standards are maintained and improved;
- methods and tools to effectively communicate with users;
- mechanisms to remain current with the needs and desires of boaters;
- opportunities to increase the public's access to the lake system;
- approaches to optimize the use of public sector resources; and opportunities to gain greater access to new sources of capital.

The Current Situation

- Moorage is provided by not-for-profit societies (yacht clubs) and private marinas. In each case, the entity deals with municipal government on matters related to local zoning and bylaws, and the provincial government for water licenses or water leases, the DFO regarding fish, Transport Canada and their departments of Navigable Waters and Office of Boating Safety for signage, buoys, aids to navigation etc.
- Mooring buoys are distributed along the shoreline and in many cases are maintained by the yacht club that is nearest the buoy.
- Boat launches are maintained by the municipality within which they reside.
- There is very little coordination of marine planning, development or operating activities between municipalities.
- Several potential marine development proposals or expansions plans have been presented to municipal and other agency officials. There is a sense by the potential developers that officials are not willing or able to respond to these proposals in a timely fashion.

- While the public would support the investment of public funds in the development of new marine facilities, there seems to be little appetite for more bureaucracy or government involvement in the operations of new marinas.

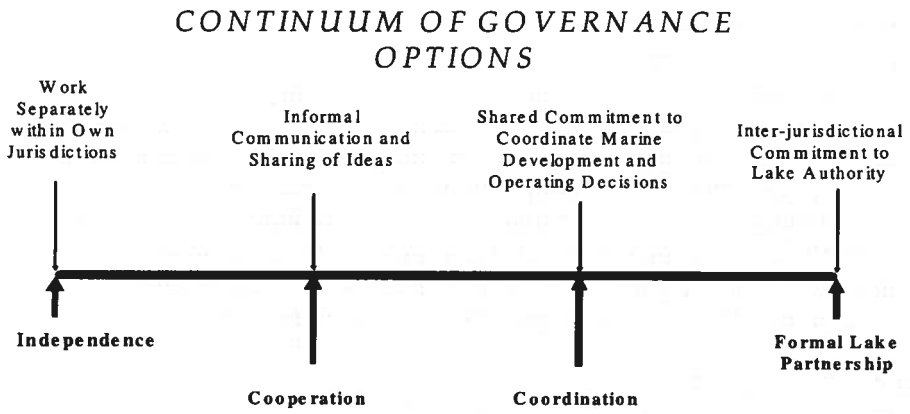
Governance Approach

The consultants met with the Committee to discuss governance options that would respond to the needs of the RDCO Lake system while remaining sensitive to the nuances of the current situation. Various governance alternatives employed in other jurisdictions were examined for their applicability to the local circumstance.

One of the organizations which were reviewed was the Okanagan Basin Water Board (OBWB). The OBWB has been empowered to act as a coordinating body for basin-wide water resource management on behalf of the three Regional Districts. For many years the OBWB has been directing its efforts toward the most urgent recommendations of the 1974 *Okanagan Basin Study* – reducing phosphorus and nitrogen inputs to the lakes and controlling the Eurasian milfoil.

Although the Study, called the "Comprehensive Framework Plan" also considered water based recreation, including boating, provided some recommendations for shoreline recreational facilities up to the year 2020, the OBWB does not appear to have embraced marine recreation as part of their mandate.

The consultants developed a continuum of options that could be considered by the Regional District, as depicted in the following figure:



The consultants suggested - and the Committee agreed – that the circumstances of the RDCO Lake system call for a coordination model. The Committee also agreed that a coordinating body would require resources, including a contract staff person, in order to be effective.

THEREFORE, THE CONSULTANTS RECOMMEND THAT:

- The Regional District of Central Okanagan take the lead role in establishing a *coordinating body* to collaboratively work with all local governments in the delivery of recreational marine facilities on the lakes.
- The Regional District of Central Okanagan provide dedicated resources to support the coordinating committee.
- RDCO initiate discussions with the OBWB to determine opportunities to work collaboratively on the implementation of recreational marine facilities.

The recommended body would not have legislative or authoritative powers but would represent the interests of all individuals and organizations involved in the provision, management and operation of marine facilities and infrastructure. However, the coordinating body would be responsible for the following:

- To provide leadership, coordination and direction for the provision, management and operations of marine facilities and infrastructure on the major lakes in the regional district.
- To explore the potential of incorporating language into current zoning and official community plan documents throughout the region that will assist in expanding current levels of marine facilities within waterfront developments.

- To facilitate and where possible expedite the approval process between senior levels of government and potential marine facility developers.

- To guide common sourcing and procurement procedures for the development of new or expanded marine facilities – i.e. RFP's, search and selection process, etc.

- To act as a common source of information and/or as assistance to developers or others interested in creating or maintaining marine infrastructure.

- To access funding opportunities through various levels of government and by securing funding partners as well as creating revenue opportunities.

- To develop and circulate common standards regarding "like marina facilities and services" provided by others.

- To advocate and represent local marine needs with senior levels of government, agencies and other appropriate organizations.

- To communicate with and between government, non-government, business and the general public regarding matters related to marine infrastructure and operations.

In accordance with these responsibilities, the coordinating body could deal with the following action items that respond to specific local circumstances as well as other recommendations that have arisen throughout this study.

- Continue to cooperate and coordinate with Westbank First Nation regarding the development of recreational marine facilities; and for tourism initiatives, such as "destinations".

- Establish a "Revenue for Boating" Task Force to identify and take action on potential sources of revenue and grants. This could include negotiating with Transport Canada for boat registration fees, working with UBCM to access gas taxes for marine fuel; and instituting a user pay system for launches and mooring buoys; using Special Area Charges for marine facilities.

- Develop a template for Public/Private Partnerships and Joint Ventures Request for Proposals (RFP), for recreational marine facilities.

- Hold a Marine Industry Symposium for the private sector to discuss their participation in the implementation of the Blueprint.

- Meet with Tourism Kelowna to discuss tourism destination improvements on the lakes; co-develop a Boating Marketing Plan.

- Host a "special destination" conference with the wine industry for boat access plans to extend boating season into Spring and Fall.

- Work with the RDNO and the RDO-S to develop a destination and development business plan.

- Host a series of workshops with lake based recreational activity groups and clubs such as Waterskiing, Sailing, Wakeboarding, Parasailing, and Dragon boating etc. to determine "best practices" for sustainability and effective lake use.

The participants on the coordinating body should include representation from the each of the local municipalities and WFN. A technical advisory committee could provide advice to the coordinating committee. This advisory group could include, but not be limited to: representatives from the following disciplines: Tourism, Marine Industry, Environment; Developers; Yacht Clubs; Marina Operators, and Small Boat Clubs.

Service Delivery

The consultants also recommend that the following approach be adopted for the delivery of marine services in the Central Okanagan:

- Municipal governments would take advantage of the resources provided by the *coordinating body* to create joint venture agreements with private sector or not-for-profit partners for development and/or expansion of recreational marine facilities
- Municipal governments remain primarily responsible for the development and maintenance of boat launches within their jurisdictions, but that all options be considered within the context of a coordinated plan

Economic Impact Recommendations

The annual economic impact of boating has the potential of growing from the current level of$39.2M to a forecasted $68.7 by implementing the Study recommendations and adapting a business plan for marine facilities. It is therefore recommended that a Recreational Marine Facilities Economic Impact Business Plan be developed to include:

- The recovery of latent marina operations and services valued at $5.5M of economic impact
- The expediting of an additional 300 marina slip with an economic impact of $6.6M
- The upgrading of current yacht clubs operations for an additional $6.4M in economic impact
- The constructing of a dedicated full service launch for resident and tourist boaters with a dedicated commercial-concierge Kelowna launch for an economic impact of $6.4M

It is also recommended that a *'boater friendly'* Marketing Plan be developed, which includes an extended boater 'shoulder' season with an economic impact of $11M.

Facility Recommendations

Although this is a twenty (20) year plan, the majority of the facilities are urgently required and should be provided within the next five years, with the remainder within(10) years. Due to the constantly changing environment, including the economy, and the pace of implementation, the facility needs should be reviewed in 2018. Recommendations are provided by facility type, with details as to location and timing located in the Appendices.

Boat Launches

The analysis indicated that the current number and capacity of boat launches was inadequate for peak summer use. At least five (5) additional launches and significant improvements to the main launch sites are needed within the next 20 years. It is recommended that the RDCO provide one (1) new boat launch, with four bays, within the next three years. Opportunities for seasonal or temporary parking should be explored, such as recreation centres or arenas and industrial lots. Sites that are not within walking distance of the launches could be served by a shuttle bus in peak periods. All new or improved sites should institute a fee to park and/or launch.

Dedicated small craft launch areas with amenities are needed in various locations. Channels for the small craft should be provided at these launch areas. Stronger communication and support with local boat associations should be undertaken.

Marinas

Marinas available to the public in the Regional District are consistently at capacity and cannot accommodate the current demand for boat moorage. These marinas, which include both yacht clubs and privately operated marinas, are the only source of large volume boat moorage spaces available to boat owners who don't have access through a private residential development. There are 500 names on waiting lists (primarily at yacht clubs) which indicates an under supply, today, of about 33 percent, based on the current supply of1560 public slips.

In addition to the current undersupply, the growing population will increase the need for more moorage slips and marina facilities. This demand would support four (4) more marinas with fuelling facilities, pump outs, with 200-400 slips each.

It is recommended that the RDCO provide one (1) new marina in the short term, using an appropriate partnership model. In addition there is a need for all the municipalities to facilitate the development and approval processes for new and expanded marina facilities. These private sector initiatives will help to meet the demand through both public marinas and private moorage at residential developments.

Grey Water Pump Outs

There is a severe shortage of pump-outs within the Central Okanagan. New regulations require that pump-outs be hooked into the municipal sewage system, which means that some of the current marinas could not add a pump-out station. It is recommended that each jurisdiction investigate the opportunity to provide a pump out on their foreshore, as public feedback has indicated that boats are dumping their grey water directly into the lakes due to the lack of convenient facilities.

Mooring Buoys

Public consultation has indicated that there is considerable unmet demand for mooring buoys for both day and overnight use. Resident and tourists seek locations to tie up their boats and enjoy the lakes, without having to burn fuel driving up and down the lake. Public mooring buoys are currently provided and maintained by the yacht clubs.

Mooring buoys should be provided at a number of locations on all three lakes. Buoys should be placed offshore from public lands, and should not interfere with swimming areas at beaches. An additional fifty (50) buoys on Lake Okanagan should be considered, as well as a number on Wood and Kalamalka. Refer to the general recommendations regarding mooring buoy policies.

Dry Dock Storage

Storage of boats in areas that are readily accessible from the lakes would reduce the need for trailer parking and would result in more "older adult" and tourist friendly boat launching. Municipal lands should be considered for boat storage with concierge service, potentially provided by the private

sector. Boat concierge services reduce the number of boat trailers on the roads, thereby reducing traffic congestion and CO2 emissions. At lease three boat storage locations should be considered, plus one to replace the Eldorado Boat Storage.

There is also a need for storage for non-motorized boats, in proximity to the foreshore. They should be located around the lakes, in consultation with the small boat clubs.

Destinations

Public feedback during the study has indicated that there is a demand for places to go on the lakes to eat, use restrooms and enjoy land based recreational and shopping activities. The lack of destinations on the lakes discourages boaters from more frequent outings which negatively impacts tourism and economic benefits. There are a number of locations that could be suitable for installation of visitor docks/piers and new facilities to serve tourist and resident boaters. It is recommended that each jurisdiction review these opportunities with a view to enhancing the boating experience as well as increasing economic impact.

Boating Channels

In order to provide for safe boating on the lakes, it is recommended that designated hand launch areas and boat channels be provided in a number of locations around the lakes. The locations should be determined in consultation with the small boat clubs.

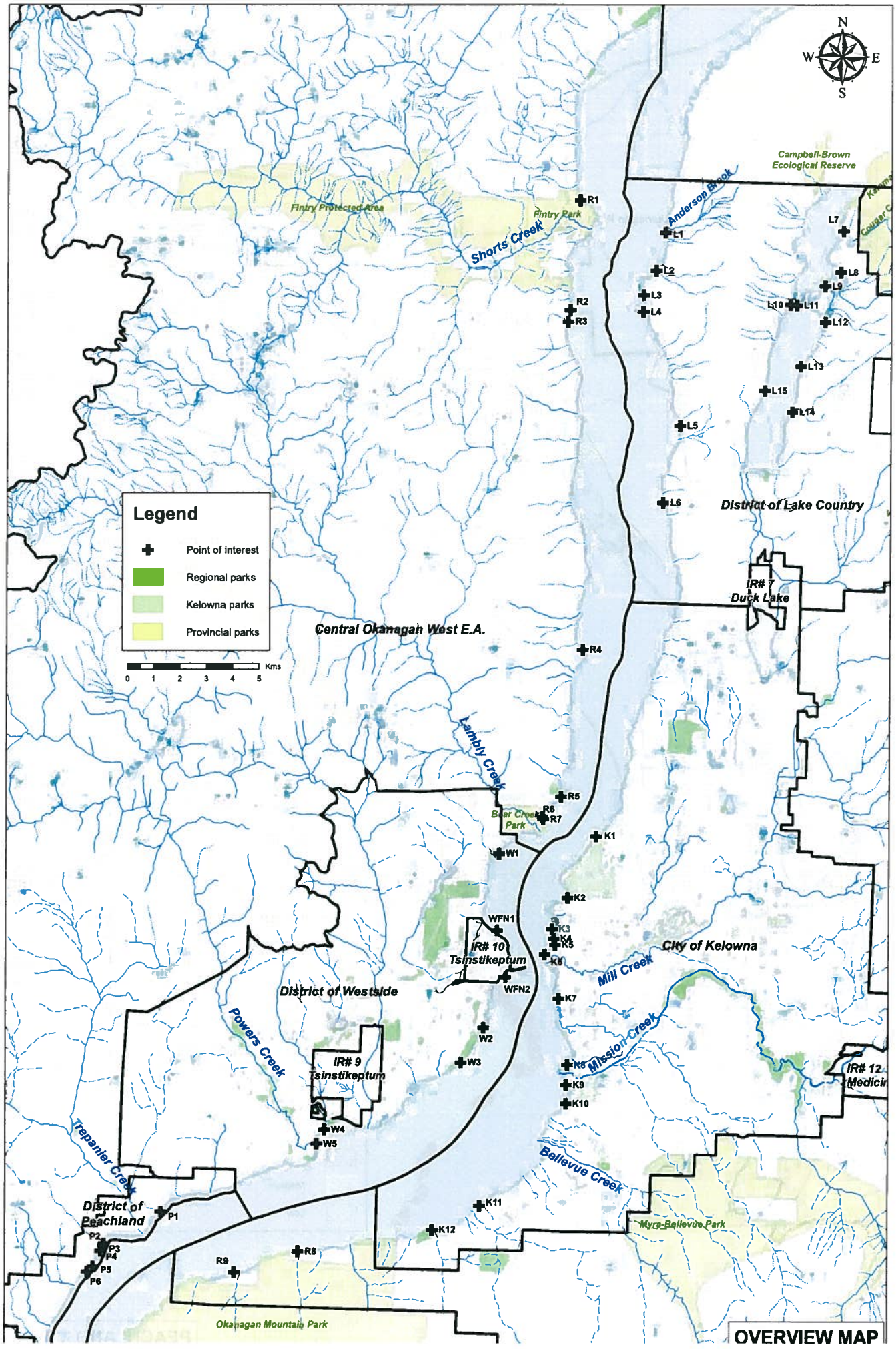
Public Consultation

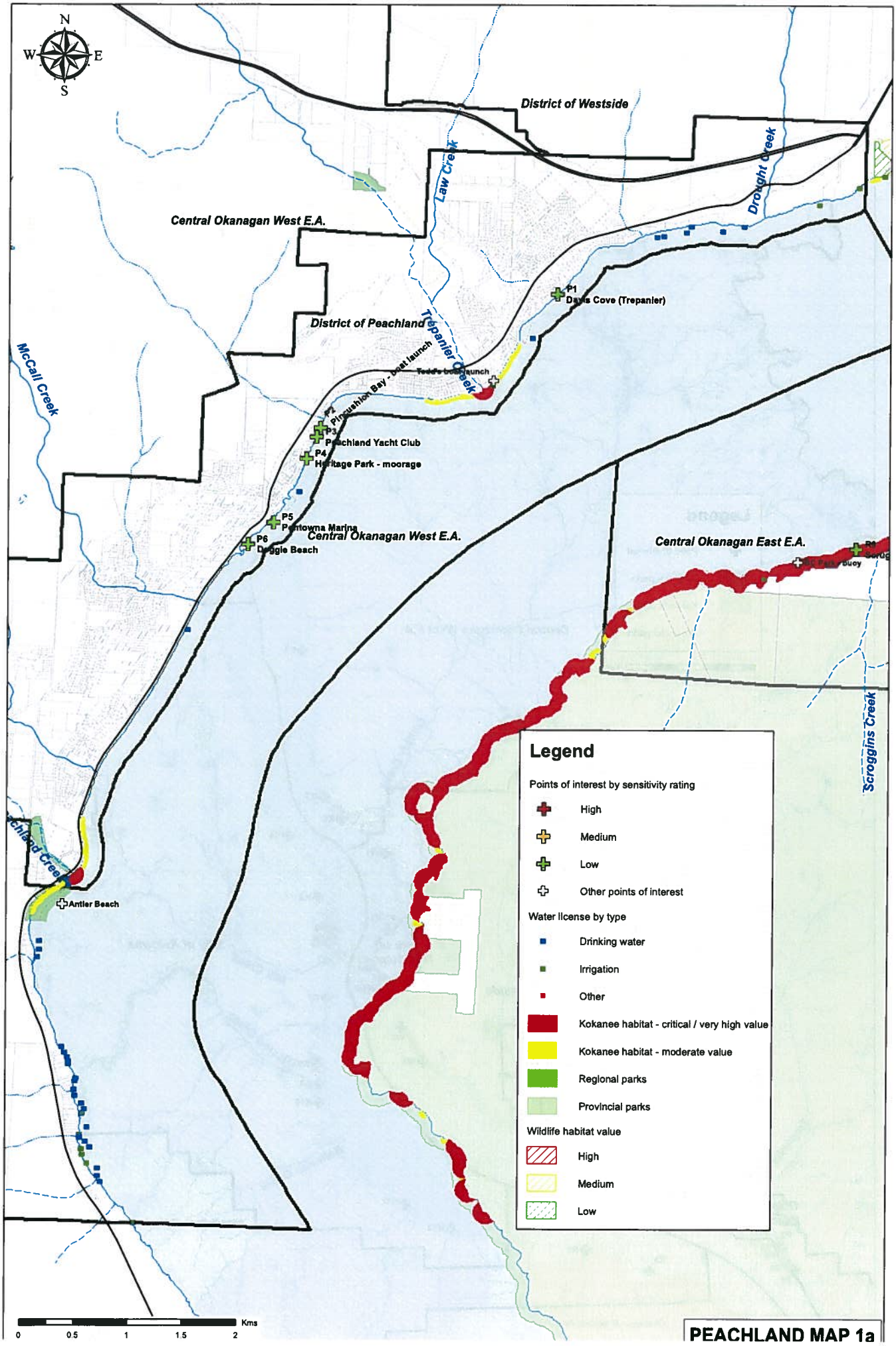
Public input has been sought and received in a variety of methods throughout the study. Stakeholders and the public provided valuable information to the consulting team throughout the study process. The third and final public meeting was held on September 18th, to present the draft recommendations. There was strong reaction. The participants expressed concern that the recommended numbers of moorage slips, boat launches and mooring buoys was inadequate to meet the current and future demand. Participants in the meeting represented private operators and developers, the marine industry, yacht clubs, the tourism industry, boat owners, municipal government and local residents.

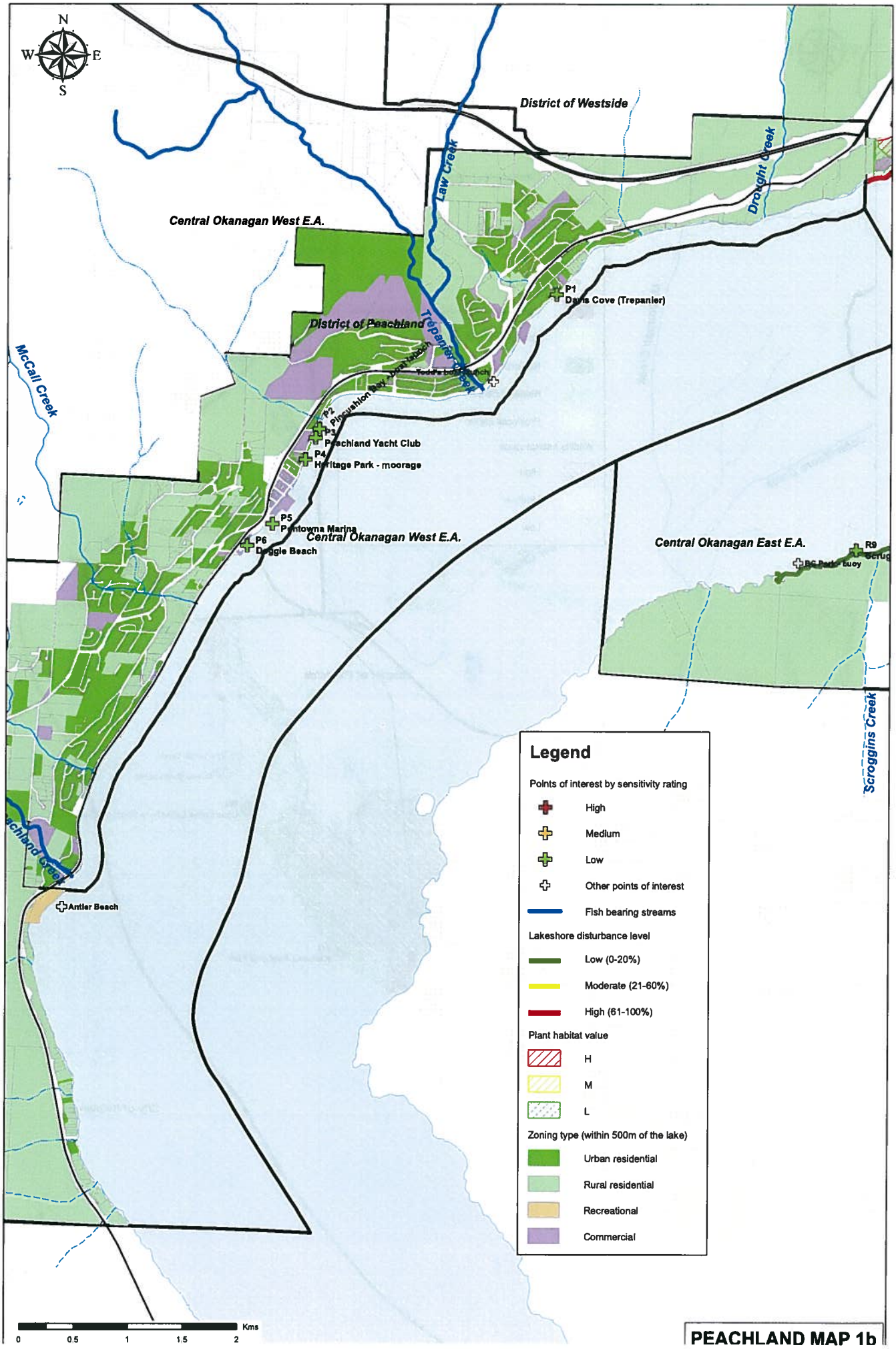
Conclusion

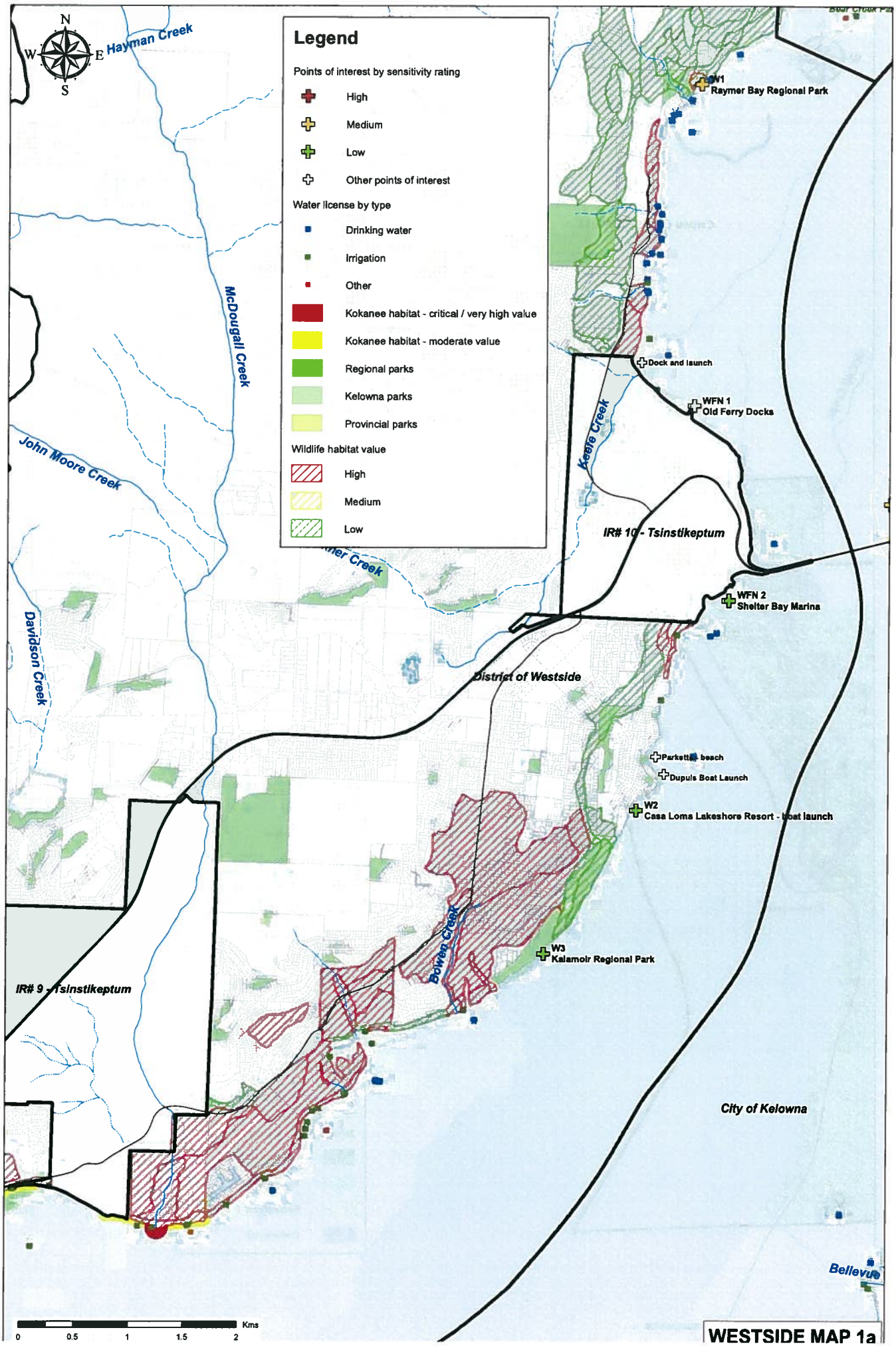
The Study results have shown the tremendous need for the provision of additional marine recreational facilities in the Central Okanagan. The study has provided a "Blueprint for Action" and will help set the direction for the future. The extensive interest and participation in the Study by a large number of stakeholders will help support the implementation of the recommended actions. The consultation process has also created expectations for action to be taken to provide a better boating experience.

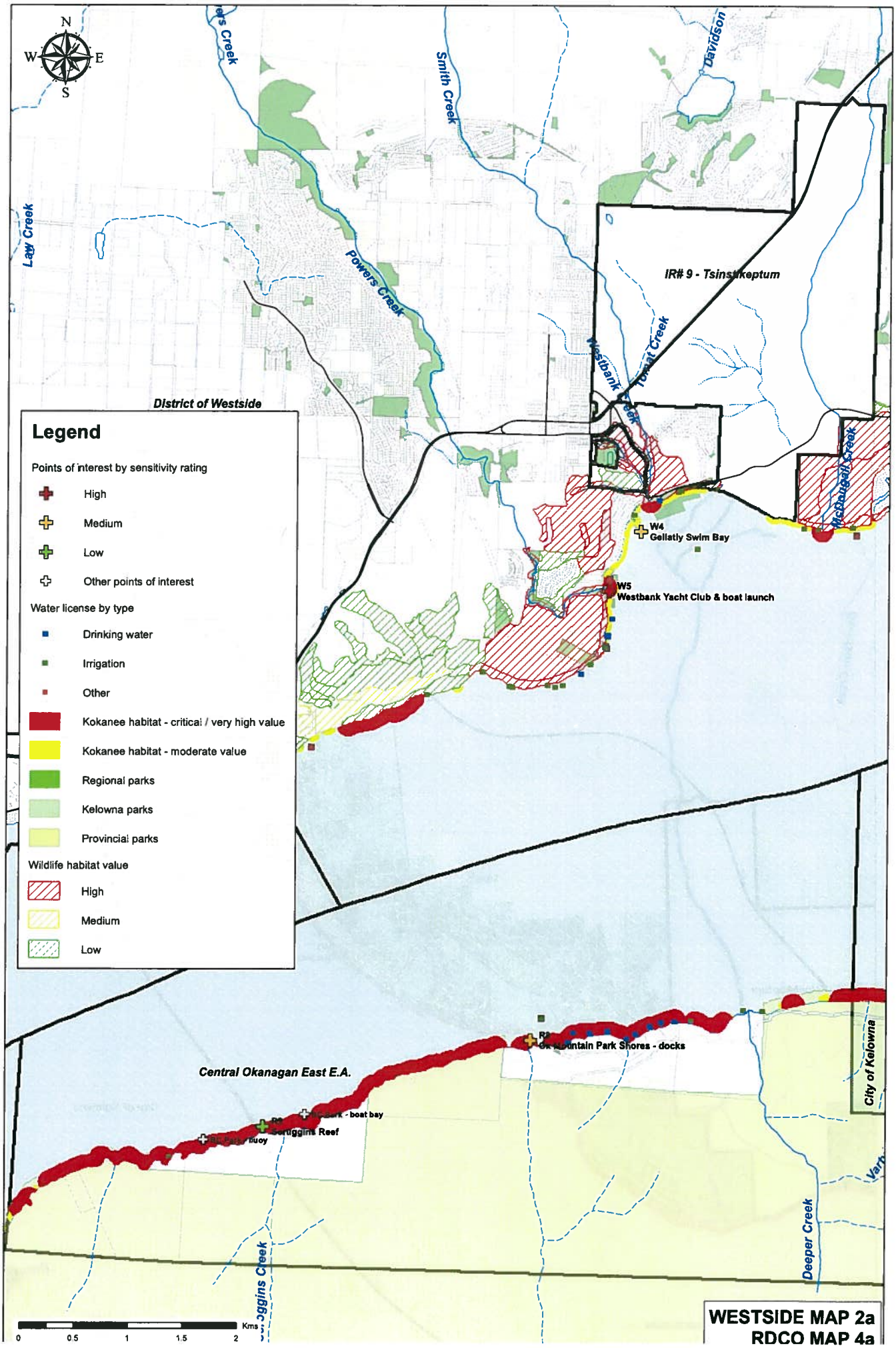
There is an opportunity for the RDCO to take a leadership role by creating and supporting a coordinating body to collaboratively work with all local governments and the private sector in the delivery of recreational marine facilities on the lakes.

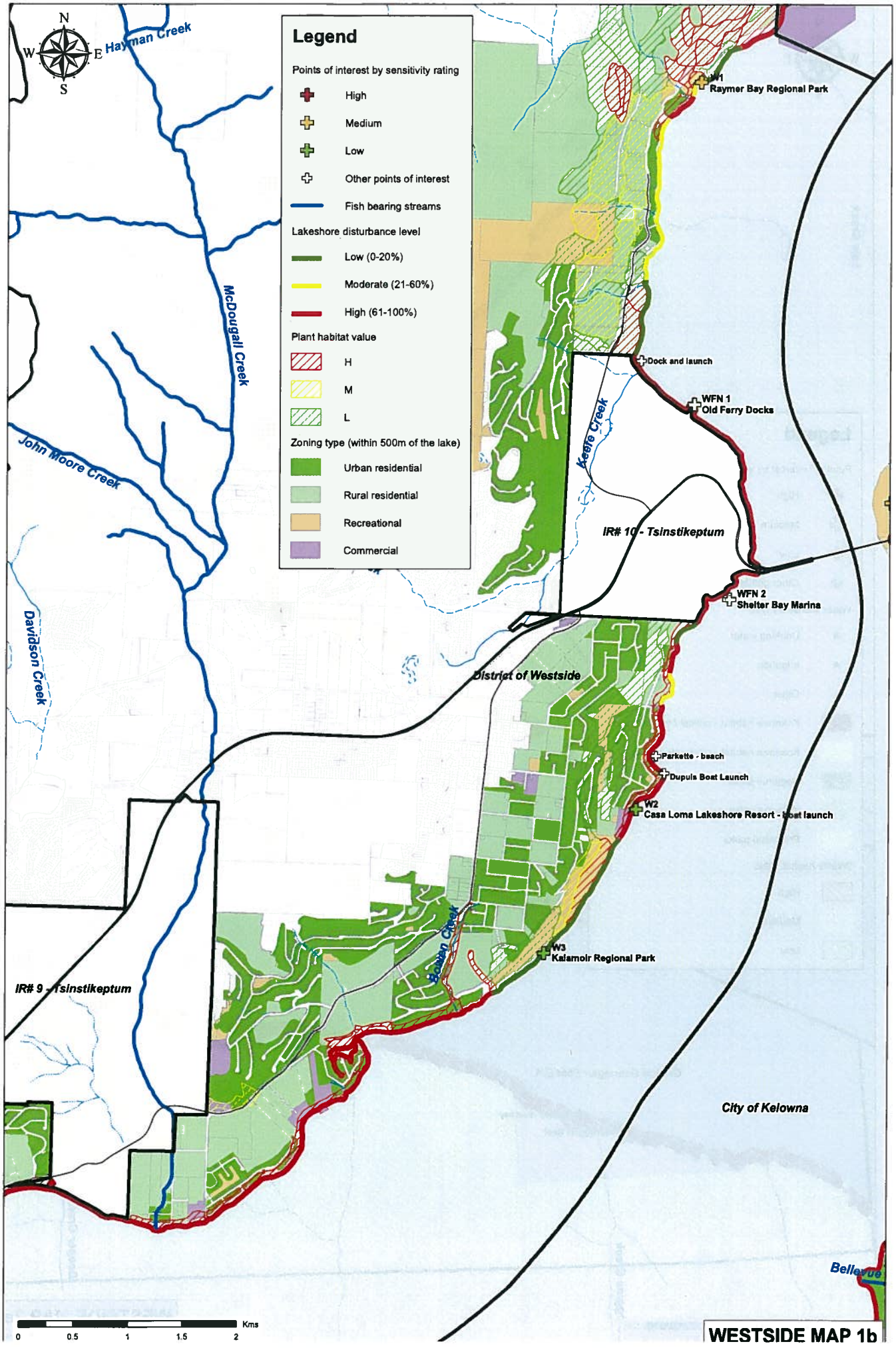

N
W
E
S
Legend
Point of interest
Regional parks
Kelowna parks
Provincial parks
Kms
0 1 2 3 4 5
Campbell-Brown Ecological Reserve
Finlay Protected Area
Finlay Park
Shorts Creek
Anderson Brook
R1
R2
R3
R4
R5
R6
R7
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
District of Lake Country
IR# 7 Duck Lake
Central Okanagan West E.A.
Lambly Creek
Bear Creek Park
K1
K2
K3
K4
K5
K6
K7
K8
K9
K10
K11
K12
W1
W2
W3
W4
W5
WFN1
WFN2
IR# 10 Tsinstikeptum
City of Kelowna
Mill Creek
Mission Creek
District of Westside
Powers Creek
IR# 9 Tsinstikeptum
IR# 12 Medicine
Trepanier Creek
Bellevue Creek
District of Peachland
P1
P2
P3
P4
P5
P6
R8
R9
Myra-Bellevue Park
Okanagan Mountain Park
OVERVIEW MAP

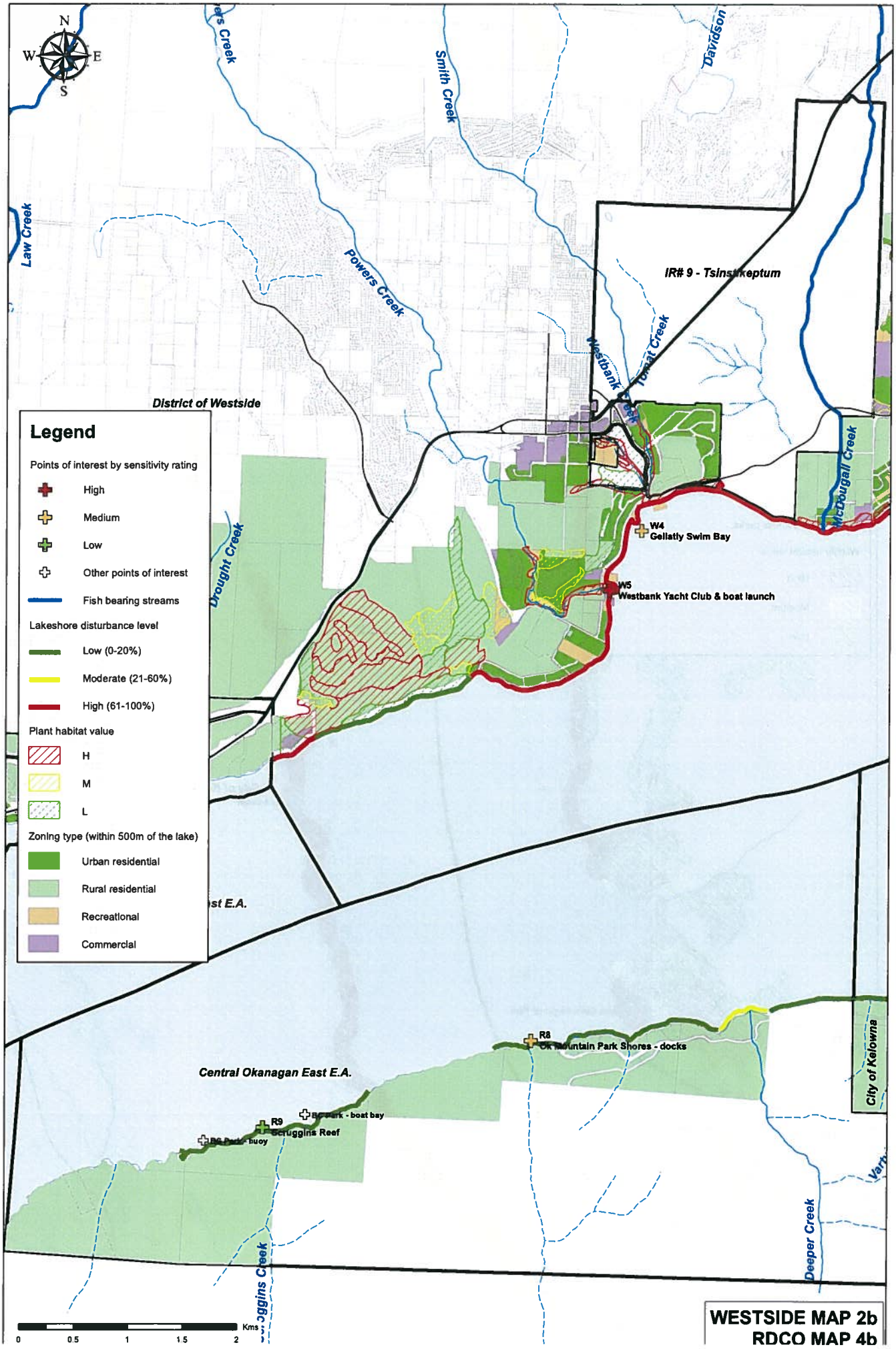

N
W
E
S
District of Westside
Law Creek
Drought Creek
Central Okanagan West E.A.
P1
Davis Cove (Trepanier)
District of Peachland
Trepanier Creek
McCall Creek
Todd's boat launch
P2
Pinoushion Bay - boat launch
P3
Peachland Yacht Club
P4
Heritage Park - moorage
P5
Penticton Marina
P6
Doggie Beach
Central Okanagan West E.A.
Central Okanagan East E.A.
Antler Beach
Scroggins Creek
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
Kms
0
0.5
1
1.5
2
PEACHLAND MAP 1a

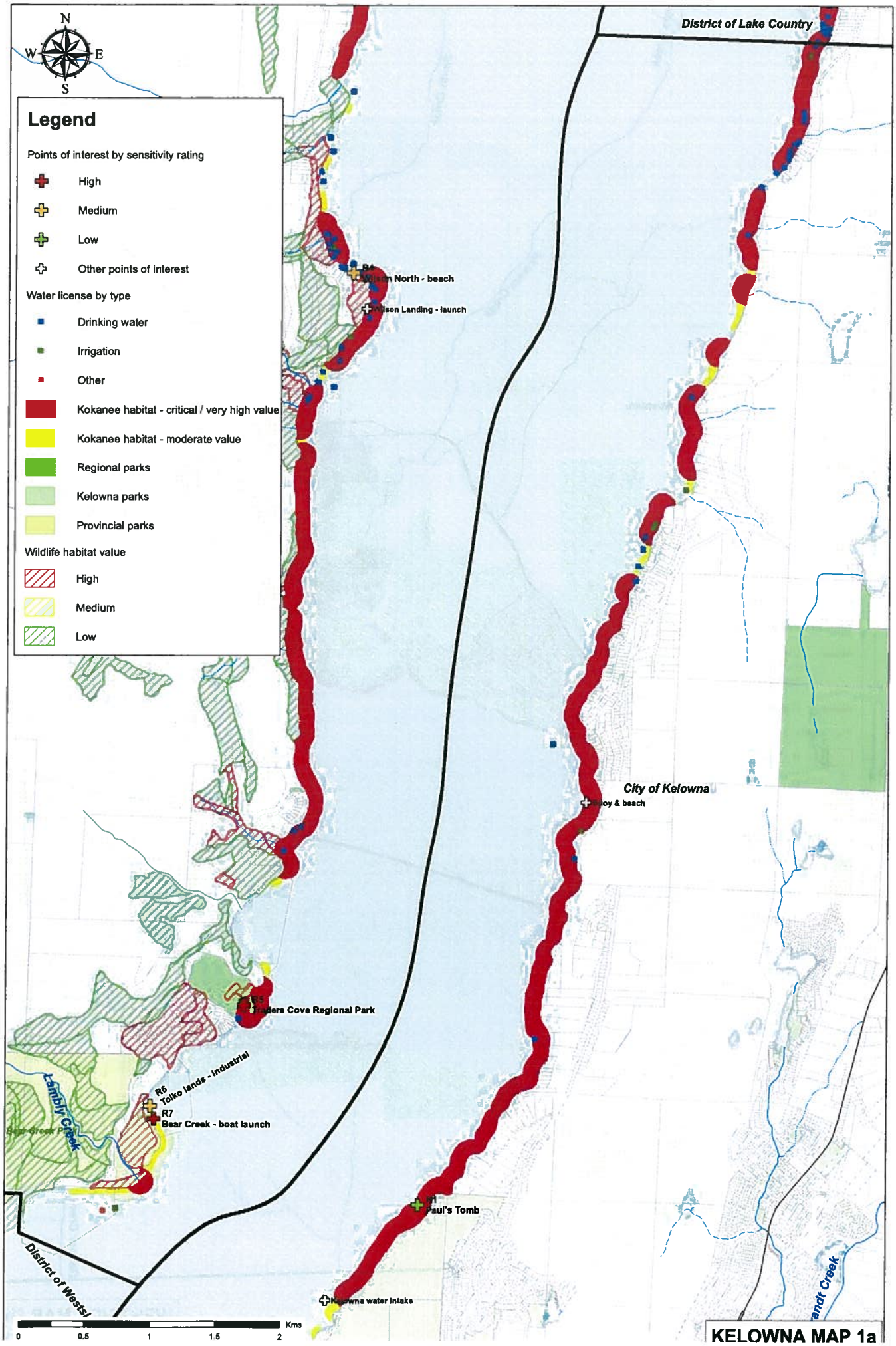

N
W
E
S
District of Westside
Law Creek
Drought Creek
Central Okanagan West E.A.
P1
Davis Cove (Trepanier)
District of Peachland
Trepanier Creek
McCall Creek
Pincushion Bay
Todd's Log Beach
P2
P3
Peachland Yacht Club
P4
Heritage Park - moorage
P5
Pentowna Marina
P6
Doggie Beach
Central Okanagan West E.A.
Central Okanagan East E.A.
R9
Peachland Creek
Antler Beach
Scroggins Creek
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
Kms
0
0.5
1
1.5
2
PEACHLAND MAP 1b

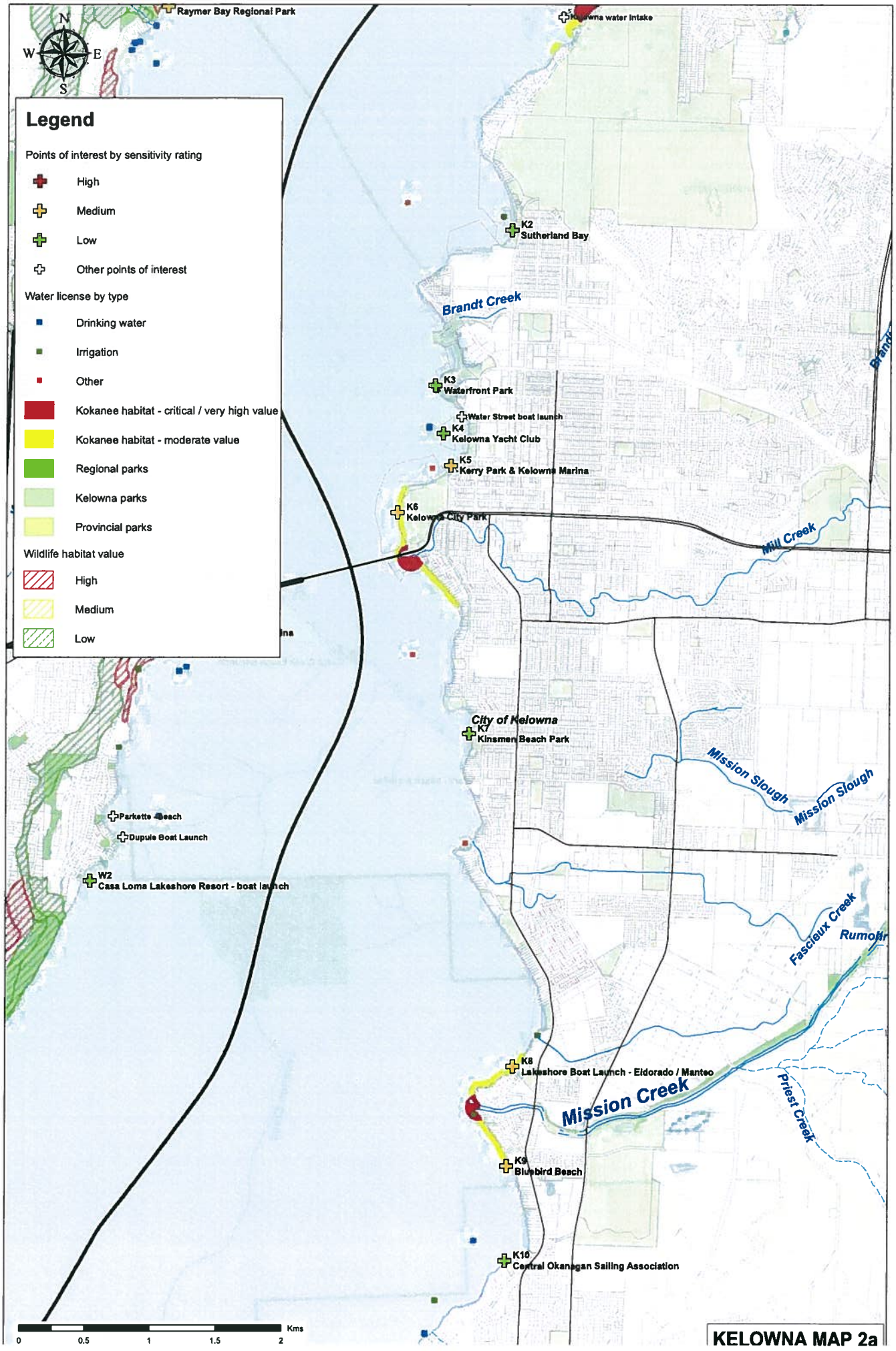

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
Hayman Creek
McDougall Creek
John Moore Creek
Davidson Creek
Keefe Creek
Bowen Creek
W1
Raymer Bay Regional Park
Dock and launch
WFN 1
Old Ferry Docks
IR# 10 - Tsinstikeptum
WFN 2
Shelter Bay Marina
District of Westside
Parkett beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
W3
Kalamoir Regional Park
IR# 9 - Tsinstikeptum
City of Kelowna
Bellevue
0
0.5
1
1.5
2
Kms
WESTSIDE MAP 1a

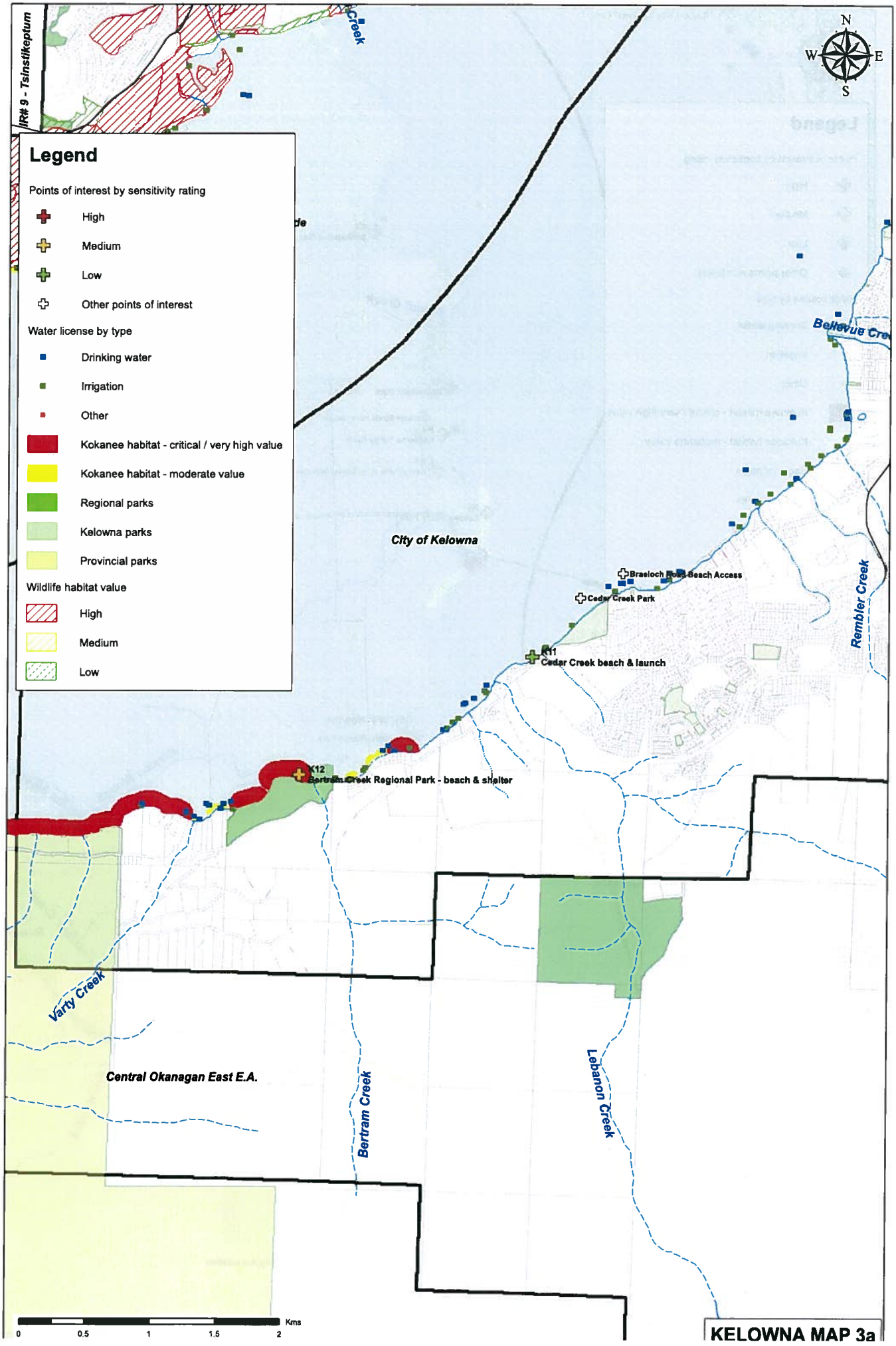

N
W
E
S
Law Creek
Powers Creek
Smith Creek
Davidson
IR# 9 - Tsinstikeptum
Westbank Creek
Tonait Creek
McDougall Creek
District of Westside
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
W4
Gellatly Swim Bay
W5
Westbank Yacht Club & boat launch
Central Okanagan East E.A.
City of Kelowna
Deeper Creek
Kms
0
0.5
1
1.5
2
WESTSIDE MAP 2a
RDCO MAP 4a

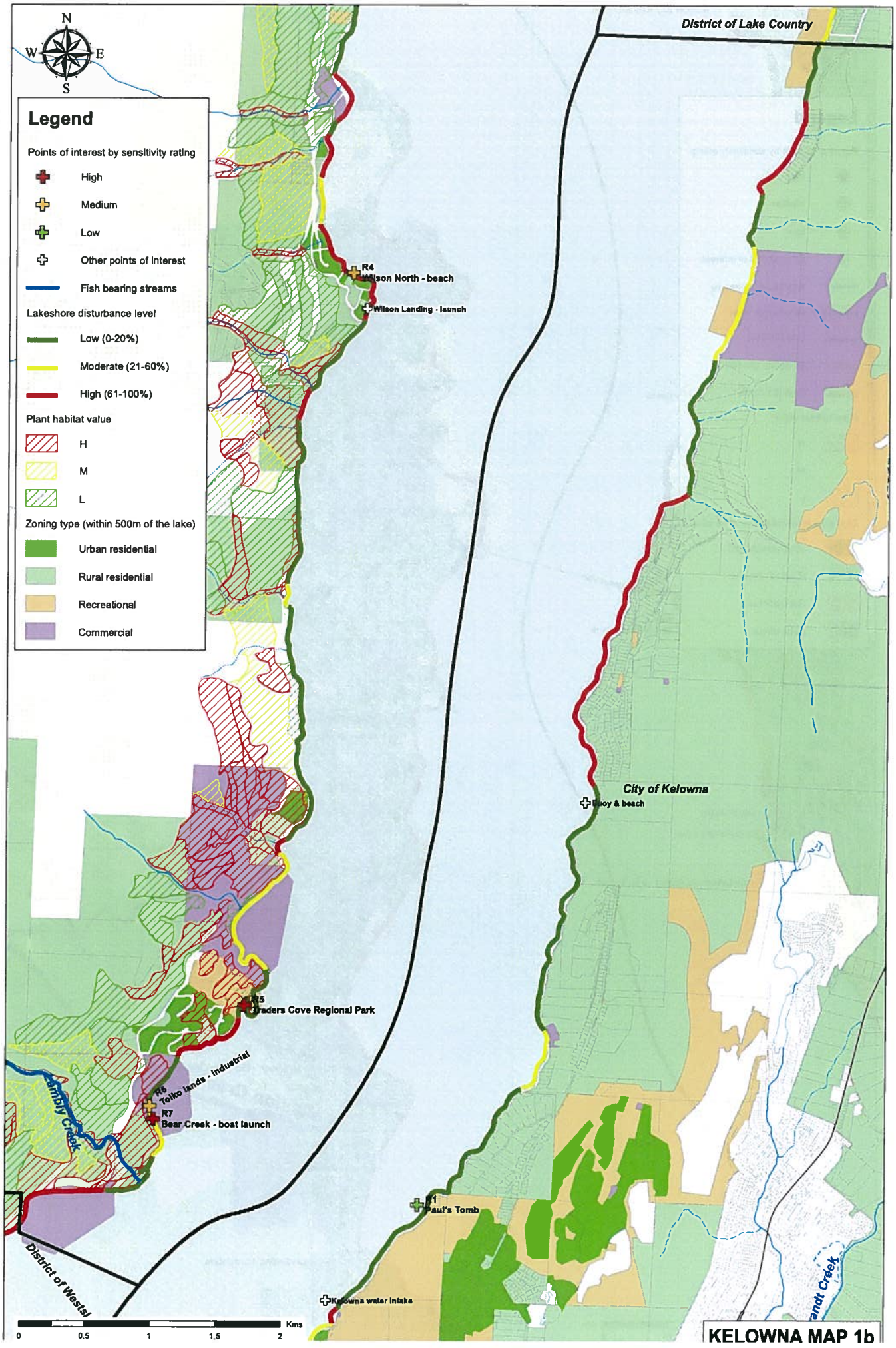

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
Hayman Creek
McDougall Creek
John Moore Creek
Davidson Creek
Keefe Creek
Bouton Creek
W1
Raymer Bay Regional Park
Dock and launch
WFN 1
Old Ferry Docks
IR# 10 - Tsinstikeptum
WFN 2
Shelter Bay Marina
District of Westside
Parkette - beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
W3
Kalamoir Regional Park
IR# 9 - Tsinstikeptum
City of Kelowna
Bellevue
0
0.5
1
1.5
2
Kms
WESTSIDE MAP 1b

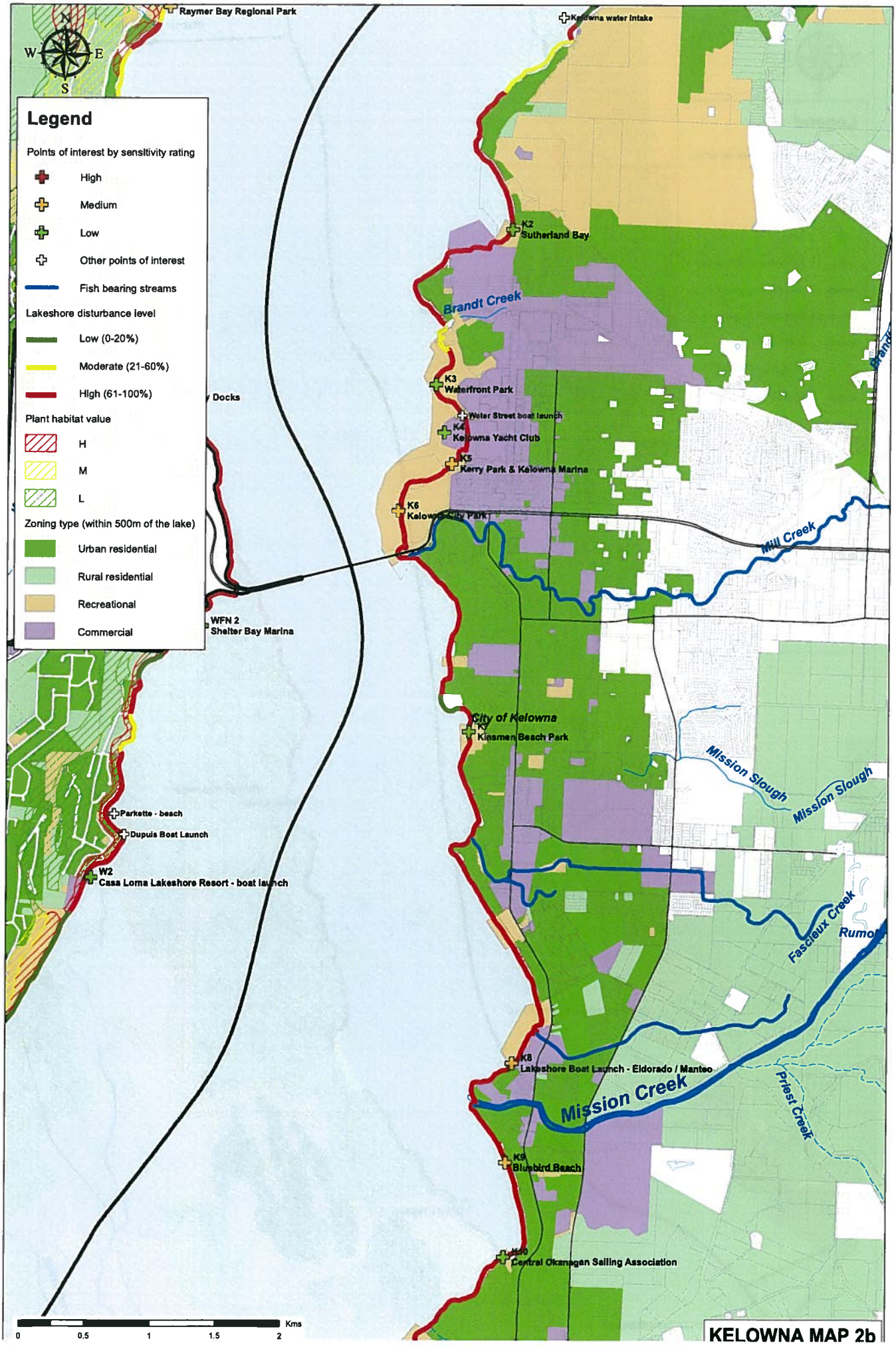

N
W
E
S
Law Creek
Powers Creek
Smith Creek
Davidson
IR# 9 - Tsinstikeptum
Westbank Creek
Tonait Creek
McDougall Creek
District of Westside
Drought Creek
W4
Gellatly Swim Bay
W5
Westbank Yacht Club & boat launch
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
Central Okanagan East E.A.
R8
Ok Mountain Park Shores - docks
City of Kelowna
R9
Scruggins Reef
Deeper Creek
0
0.5
1
1.5
2
Kms
WESTSIDE MAP 2b
RDCO MAP 4b

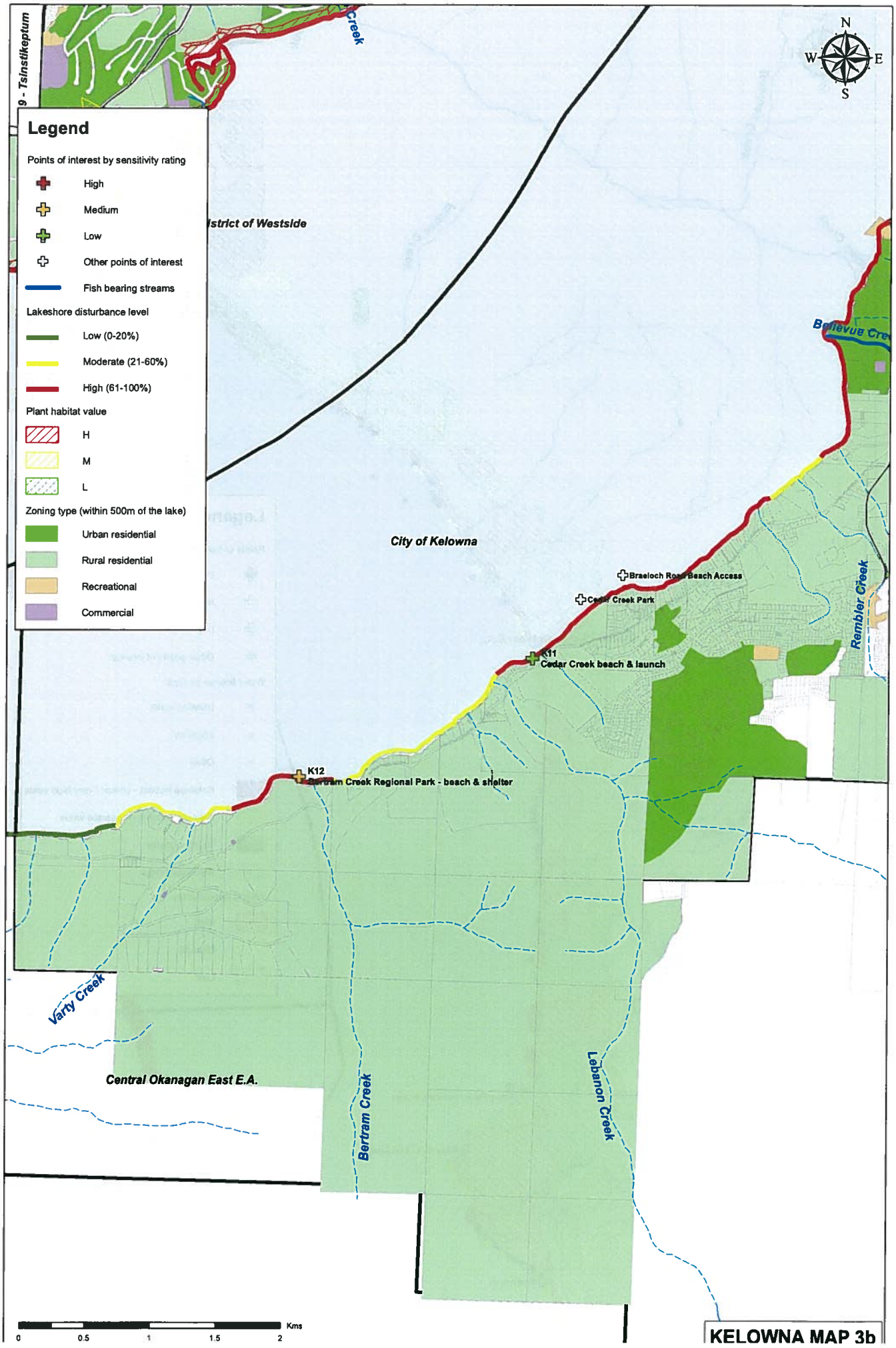

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
District of Lake Country
Wilson Landing - launch
City of Kelowna
Traders Cove Regional Park
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
Lambly Creek
Bear Creek Park
Paul's Tomb
District of West
Kelowna water intake
Kms
0
0.5
1
1.5
2
KELOWNA MAP 1a

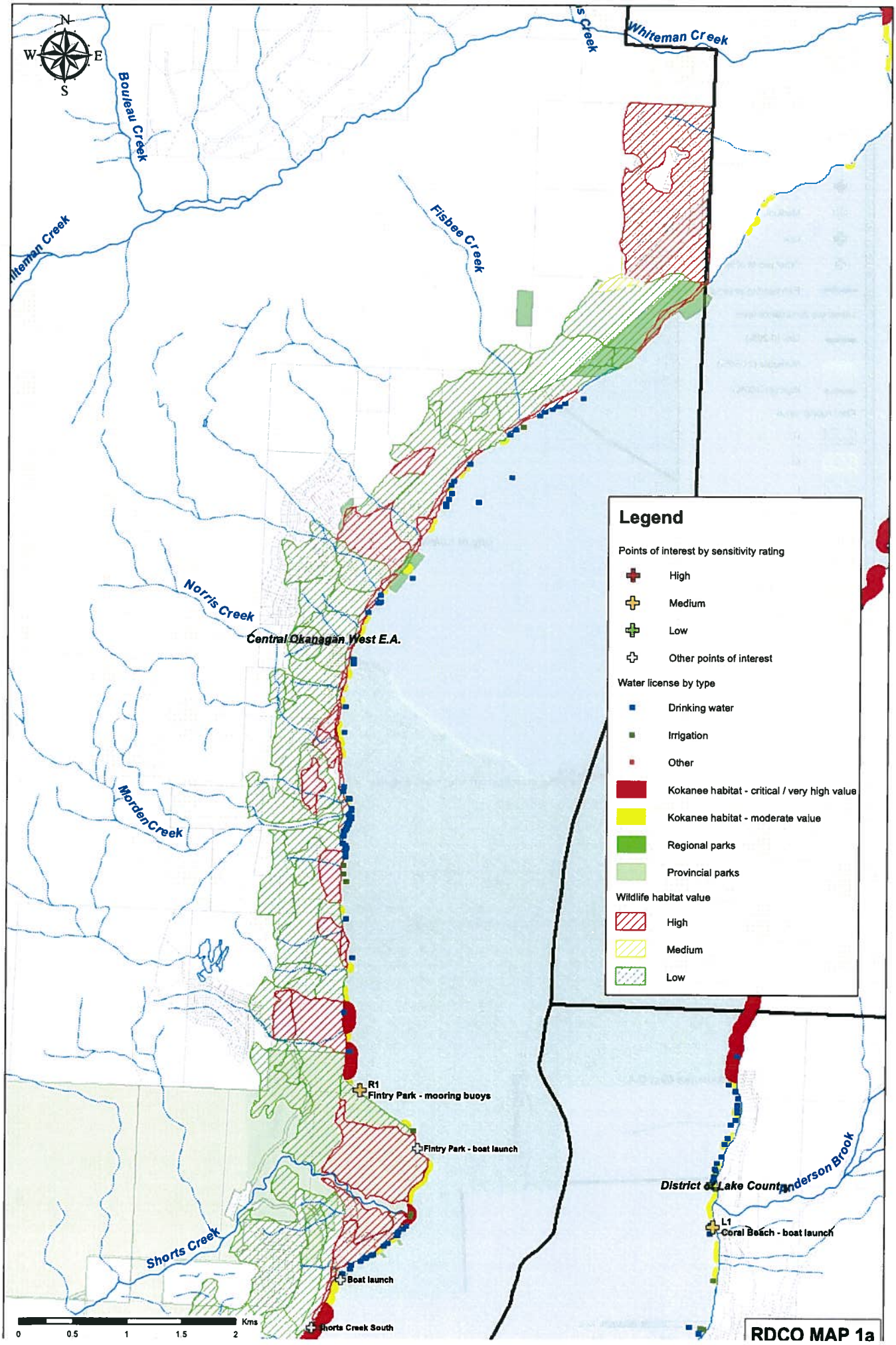

Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
N
W
E
S
Raymer Bay Regional Park
Kelowna water intake
K2
Sutherland Bay
Brandt Creek
K3
Waterfront Park
Water Street boat launch
K4
Kelowna Yacht Club
K5
Kerry Park & Kelowna Marina
K6
Kelowna City Park
Mill Creek
City of Kelowna
K7
Kinsmen Beach Park
Mission Slough
Mission Slough
Parkette Beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
Fascieux Creek
Rumohr
K8
Lakeshore Boat Launch - Eldorado / Manteo
Mission Creek
Priest Creek
K9
Bluebird Beach
K10
Central Okanagan Sailing Association
0
0.5
1
1.5
2
Kms
KELOWNA MAP 2a

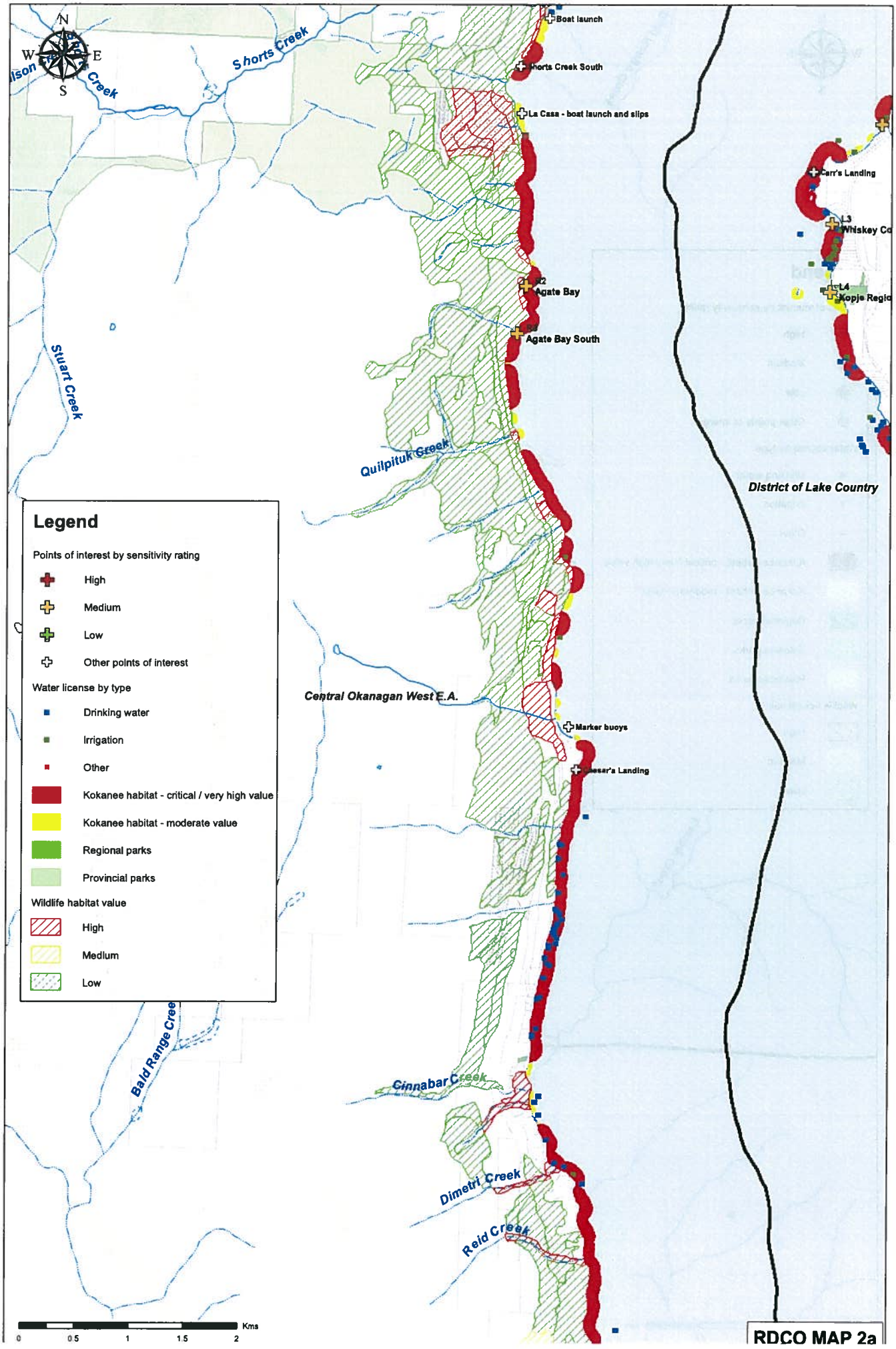

IR# 9 - Tsinstikeptum
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
N
W
E
S
City of Kelowna
Braeloch Road Beach Access
Cedar Creek Park
K11
Cedar Creek beach & launch
K12
Bertram Creek Regional Park - beach & shelter
Rembler Creek
Varty Creek
Central Okanagan East E.A.
Bertram Creek
Lebanon Creek
0
0.5
1
1.5
2
Kms
KELOWNA MAP 3a

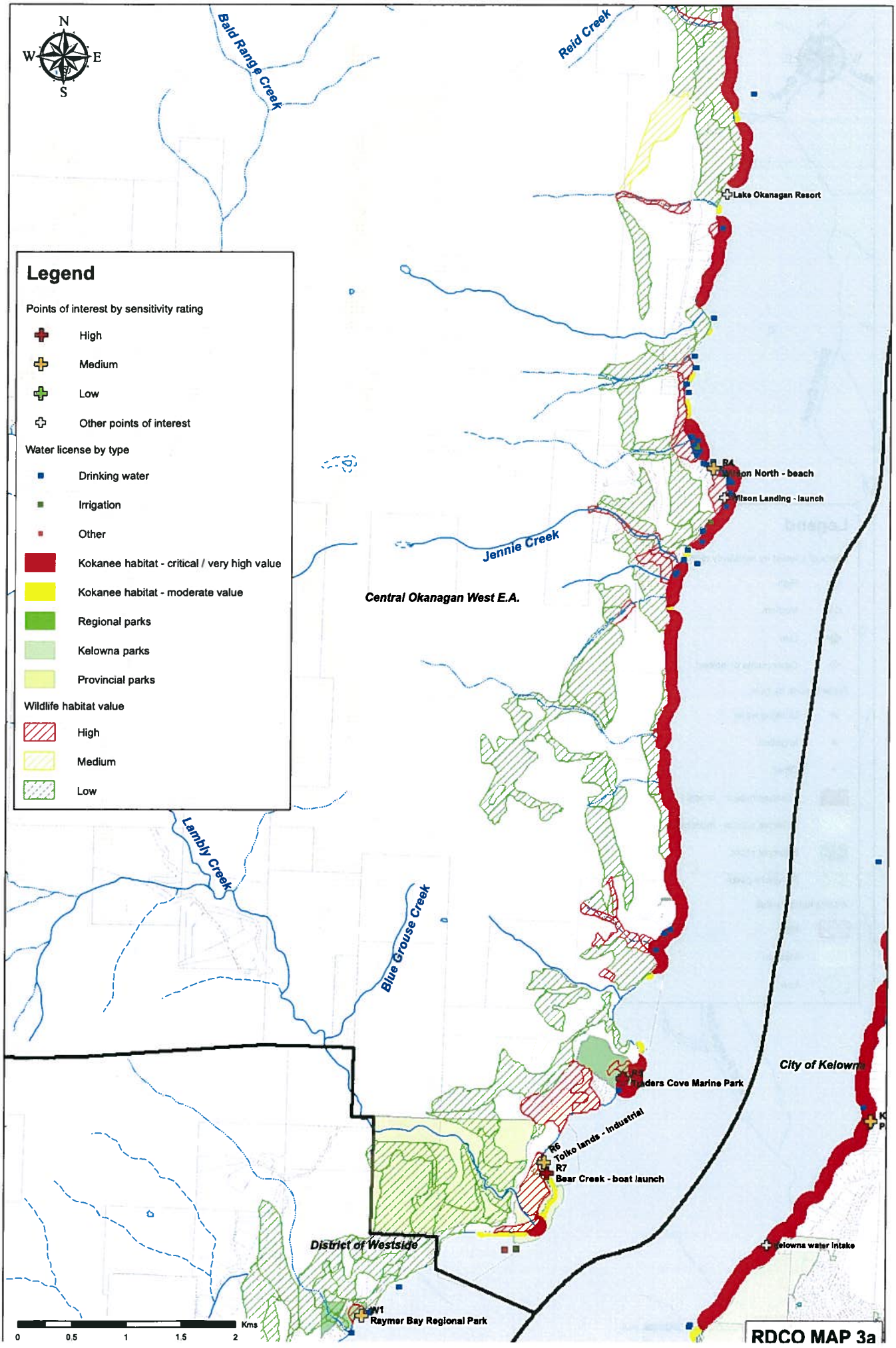

N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
District of Lake Country
R4
Wilson North - beach
Wilson Landing - launch
City of Kelowna
Buoy & beach
R5
Traders Cove Regional Park
R6
Tolko lands - Industrial
R7
Bear Creek - boat launch
Bear Creek
#1
Paul's Tomb
Kelowna water intake
District of Westsi
Kms
0
0.5
1
1.5
2
KELOWNA MAP 1b

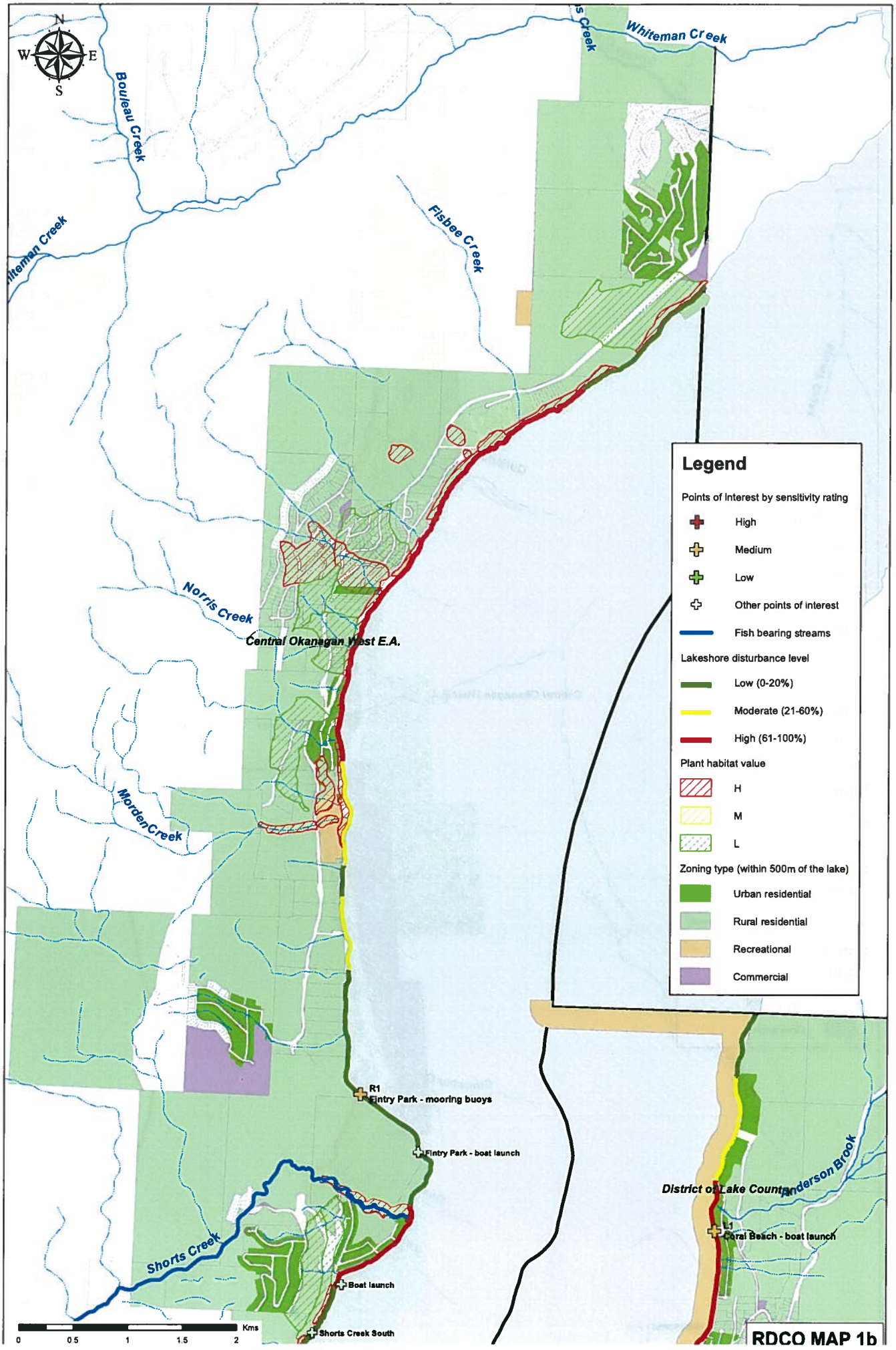

Raymer Bay Regional Park
Kelowna water intake
K2
Sutherland Bay
Brandt Creek
K3
Waterfront Park
Water Street boat launch
K4
Kelowna Yacht Club
K5
Kerry Park & Kelowna Marina
K6
Mill Creek
WFN 2
Shelter Bay Marina
City of Kelowna
K7
Kinsmen Beach Park
Mission Slough
Mission Slough
Parkette - beach
Dupuis Boat Launch
W2
Casa Loma Lakeshore Resort - boat launch
Fascieux Creek
K8
Lakeshore Boat Launch - Eldorado / Manteo
Mission Creek
Priest Creek
K9
Bluebird Beach
Central Okanagan Sailing Association
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
N
W
E
S
0
0.5
1
1.5
2
Kms
KELOWNA MAP 2b

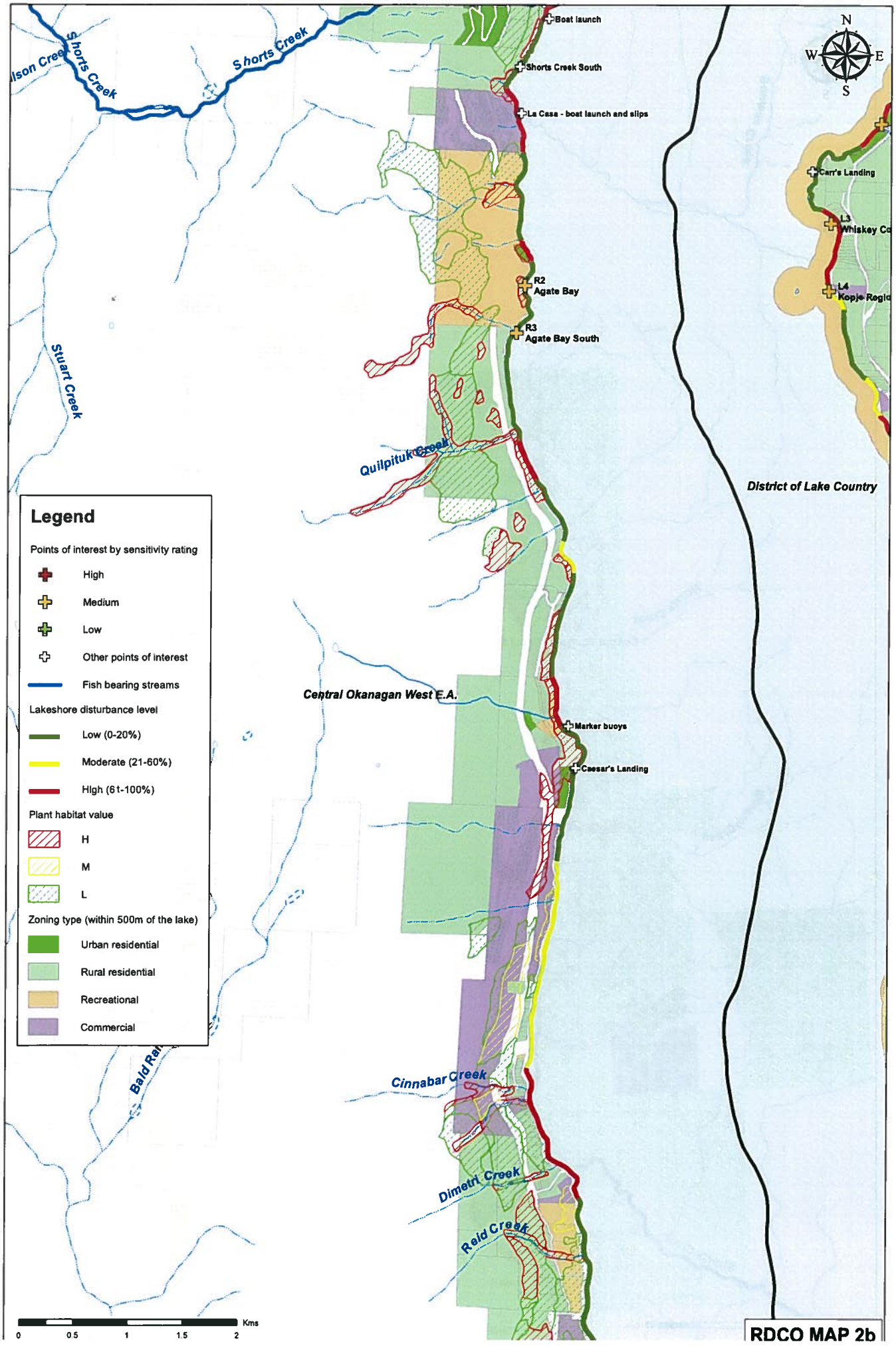

Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
N
W
E
S
9 - Tsinstikeptum
Creek
District of Westside
City of Kelowna
Bellevue Cre
Braeloch Road Beach Access
Cedar Creek Park
K11
Cedar Creek beach & launch
Rembler Creek
K12
Bertram Creek Regional Park - beach & shelter
Varty Creek
Central Okanagan East E.A.
Bertram Creek
Lebanon Creek
0
0.5
1
1.5
2
Kms
KELOWNA MAP 3b

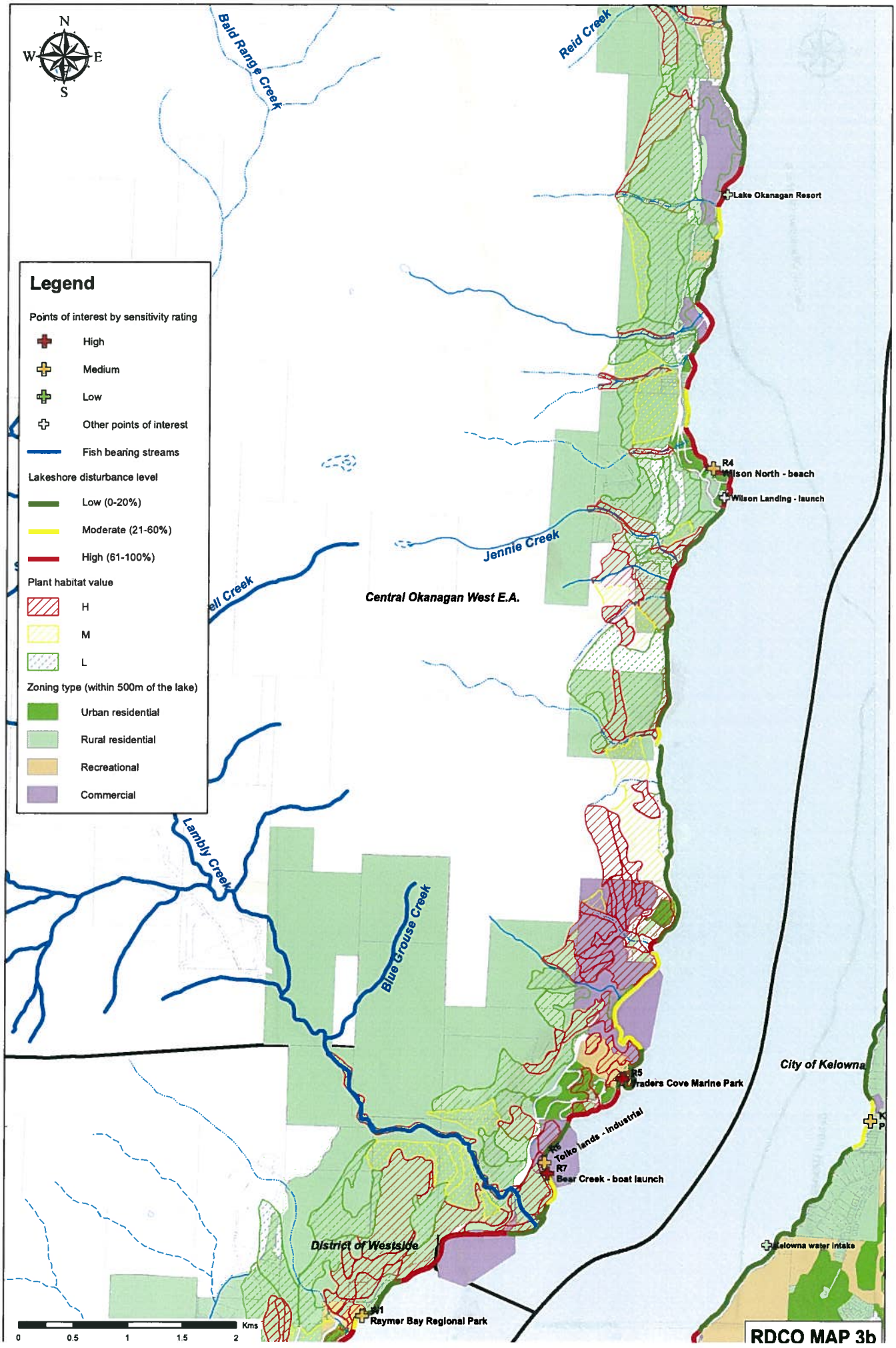

N
W
E
S
Whiteman Creek
Bouleau Creek
Fisbee Creek
Norris Creek
Central Okanagan West E.A.
Morden Creek
Shorts Creek
Anderson Brook
District of Lake Country
R1
Fintry Park - mooring buoys
Fintry Park - boat launch
L1
Coral Beach - boat launch
Boat launch
Shorts Creek South
Kms
0
0.5
1
1.5
2
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
RDCO MAP 1a

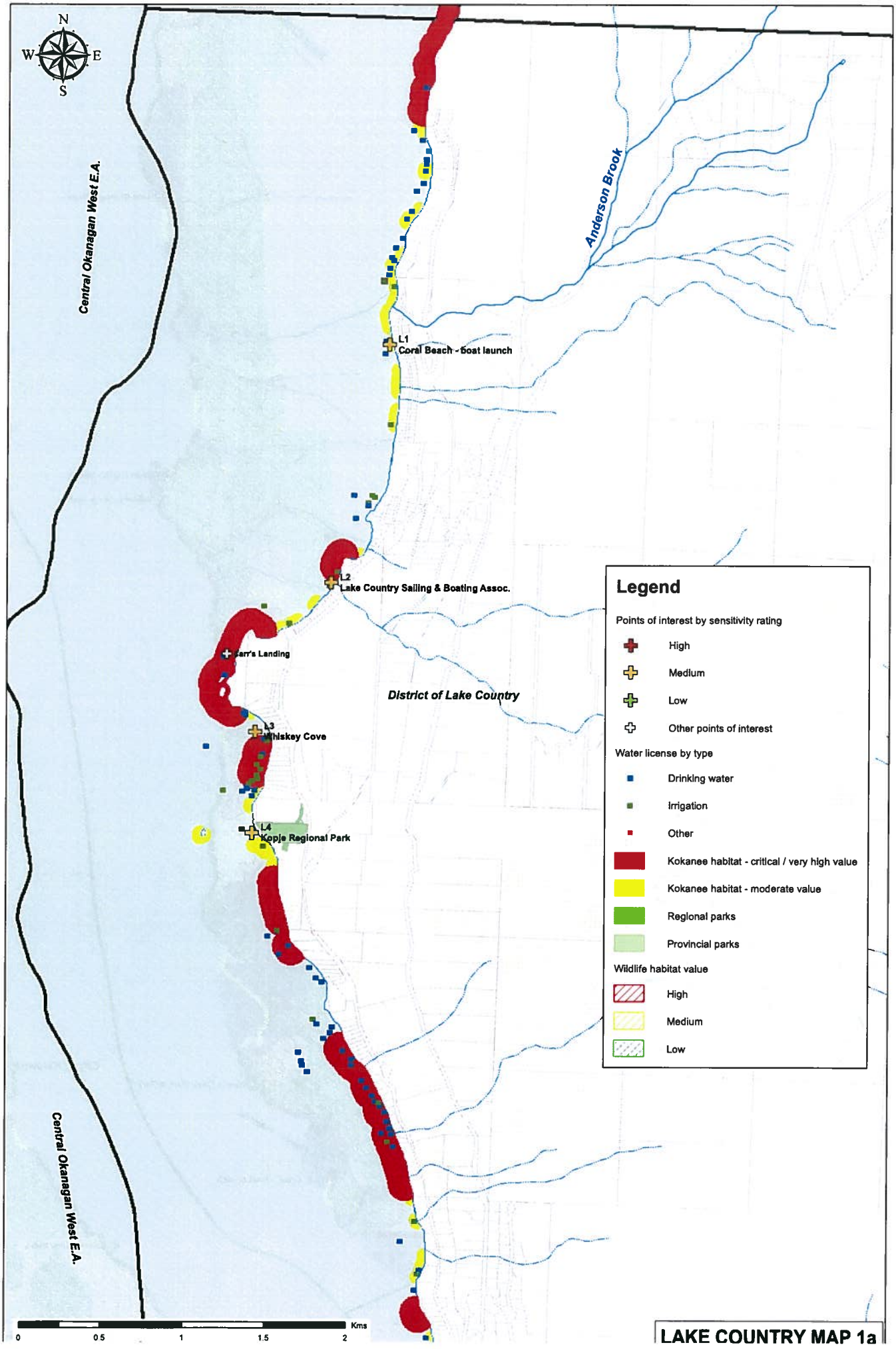

N
W
E
S
Shorts Creek
Creek
Boat launch
Shorts Creek South
La Casa - boat launch and slips
Carr's Landing
L3
Whiskey Co
L4
Kopje Regio
R2
Agate Bay
R3
Agate Bay South
Stuart Creek
Quilpituk Creek
District of Lake Country
Central Okanagan West E.A.
Marker buoys
Caesar's Landing
Bald Range Cree
Cinnabar Creek
Dimetri Creek
Reid Creek
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
RDCO MAP 2a

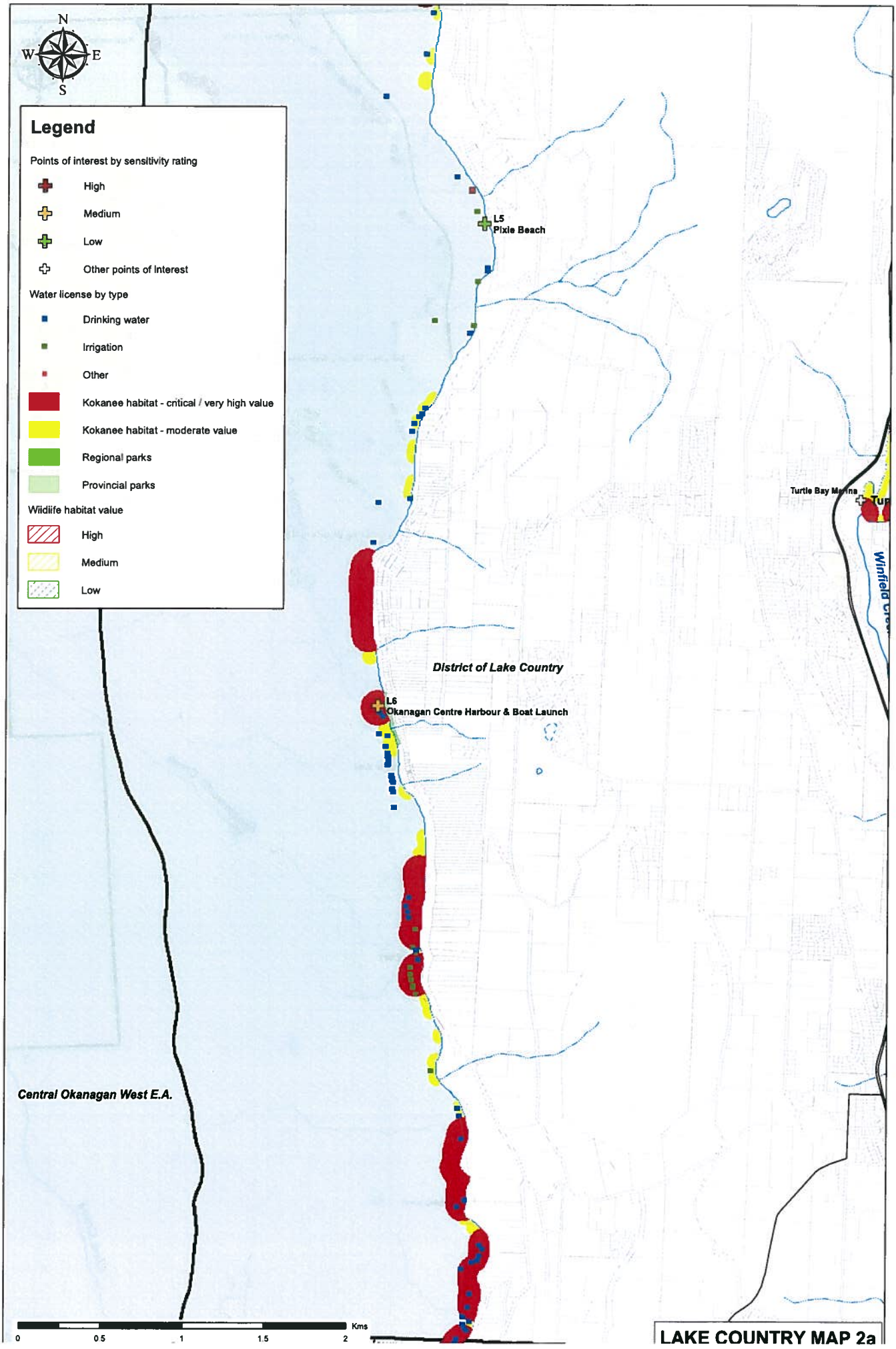

N
W
E
S
Bald Range Creek
Reid Creek
Lake Okanagan Resort
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
Jennie Creek
Central Okanagan West E.A.
Wilson Landing - launch
Lambly Creek
Blue Grouse Creek
Traders Cove Marine Park
City of Kelowna
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
District of Westside
Kelowna water intake
W1
Raymer Bay Regional Park
0
0.5
1
1.5
2
Kms
RDCO MAP 3a


N
W
E
S
Whiteman Creek
Bouleau Creek
Fisbee Creek
Norris Creek
Central Okanagan West E.A.
Morden Creek
Shorts Creek
Anderson Brook
District of Lake Country
R1
Fintry Park - mooring buoys
Fintry Park - boat launch
Boat launch
Shorts Creek South
L1
Coral Beach - boat launch
Legend
Points of Interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
0
0.5
1
1.5
2
Kms
RDCO MAP 1b


Boat launch
Shorts Creek South
La Casa - boat launch and slips
Carr's Landing
L3
Whiskey Co
R2
Agate Bay
L4
Kopje Regio
R3
Agate Bay South
Shorts Creek
Stuart Creek
Quilpituk Creek
District of Lake Country
Central Okanagan West E.A.
Marker buoys
Caesar's Landing
Cinnabar Creek
Dimetri Creek
Reid Creek
N
W
E
S
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
0
0.5
1
1.5
2
Kms
RDCO MAP 2b


N
W
E
S
Bald Range Creek
Reid Creek
Lake Okanagan Resort
R4
Wilson North - beach
Wilson Landing - launch
Jennie Creek
Central Okanagan West E.A.
Lambly Creek
Blue Grouse Creek
City of Kelowna
R5
Traders Cove Marine Park
R6
Tolko lands - industrial
R7
Bear Creek - boat launch
District of Westside
Kelowna water intake
R1
Raymer Bay Regional Park
Kms
0
0.5
1
1.5
2
RDCO MAP 3b
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial


N
W
E
S
Central Okanagan West E.A.
Anderson Brook
L1
Coral Beach - boat launch
L2
Lake Country Sailing & Boating Assoc.
Carr's Landing
District of Lake Country
L3
Whiskey Cove
L4
Kopje Regional Park
Central Okanagan West E.A.
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 1a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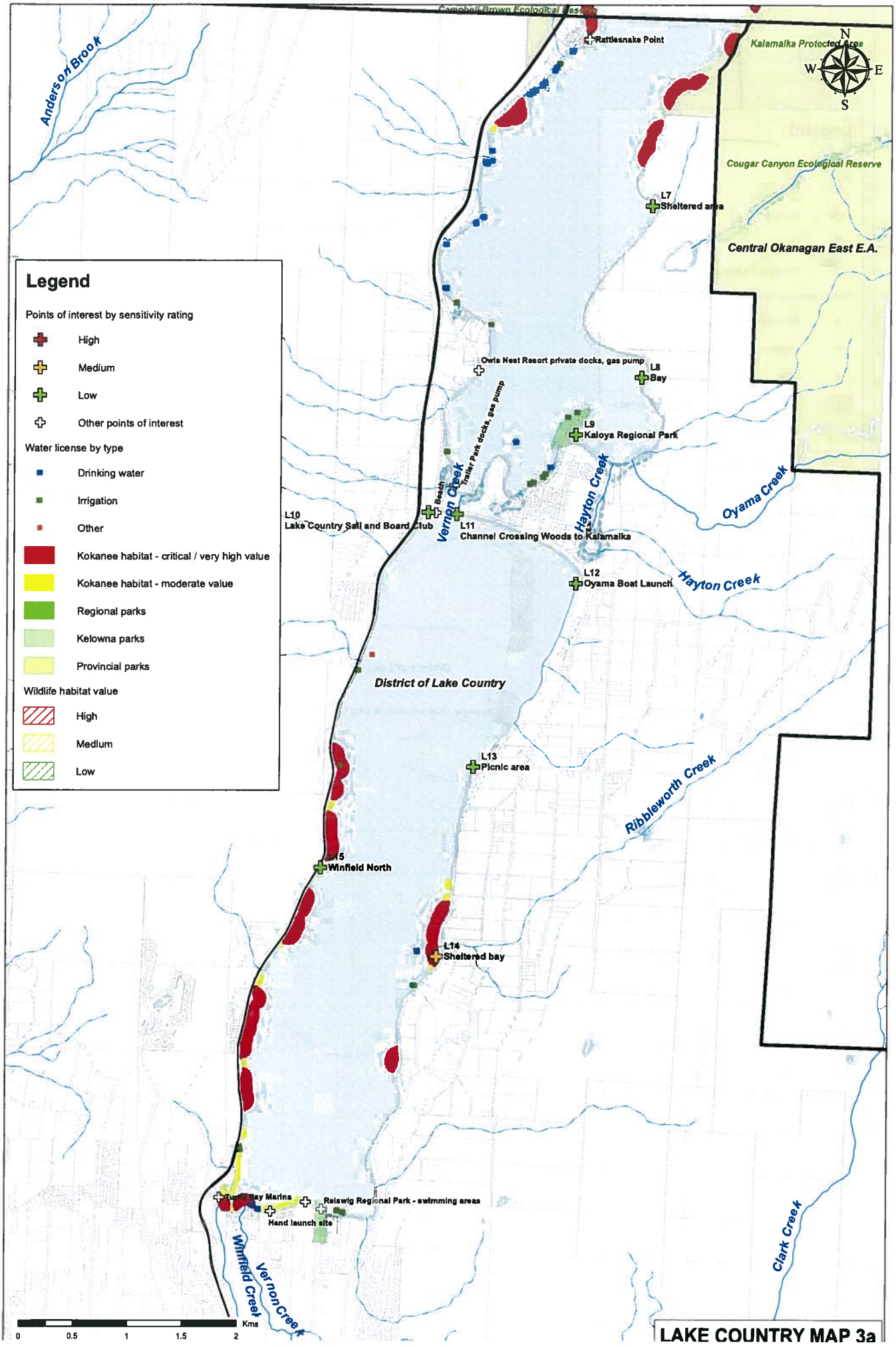
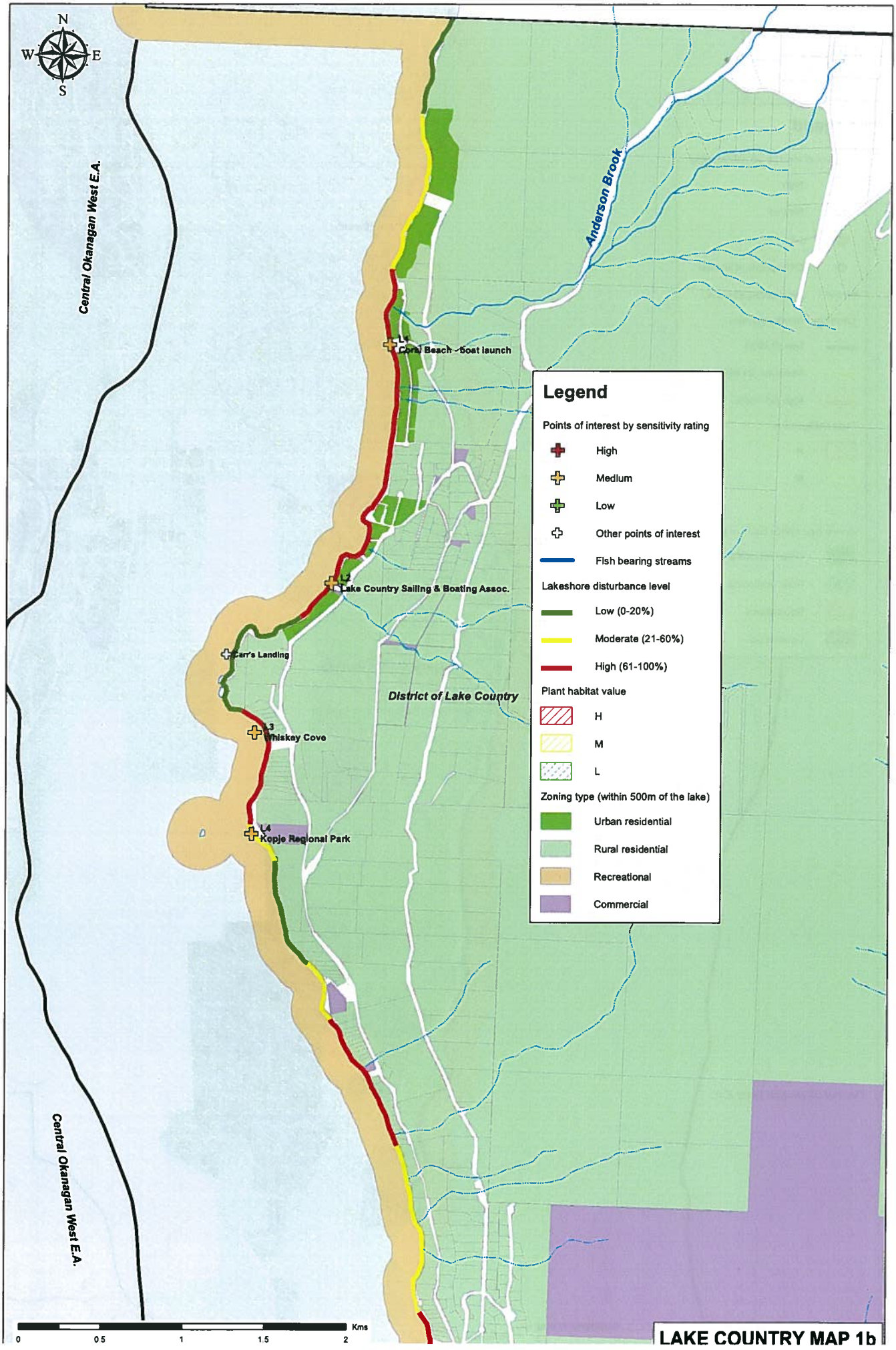
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of Interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Provincial parks
Wildlife habitat value
High
Medium
Low
L5
Pixie Beach
Turtle Bay Marina
Winfield Creek
District of Lake Country
L6
Okanagan Centre Harbour & Boat Launch
Central Okanagan West E.A.
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 2a


Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Water license by type
Drinking water
Irrigation
Other
Kokanee habitat - critical / very high value
Kokanee habitat - moderate value
Regional parks
Kelowna parks
Provincial parks
Wildlife habitat value
High
Medium
Low
Anderson Brook
Campbell Brown Ecological Reserve
Rattlesnake Point
Kalamalka Protected Area
Cougar Canyon Ecological Reserve
Central Okanagan East E.A.
L7
Sheltered area
Owls Nest Resort private docks, gas pump
L8
Bay
L9
Kaloya Regional Park
Trailer Park docks, gas pump
Vernon Creek
Hayton Creek
Oyama Creek
L10
Lake Country Sail and Board Club
L11
Channel Crossing Woods to Kalamalka
L12
Oyama Boat Launch
Hayton Creek
District of Lake Country
L13
Picnic area
Ribbleworth Creek
L5
Winfield North
L14
Sheltered bay
Reiswig Regional Park - swimming areas
Hand launch site
Winfield Creek
Vernon Creek
Clark Creek
N
S
E
W
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 3a


N
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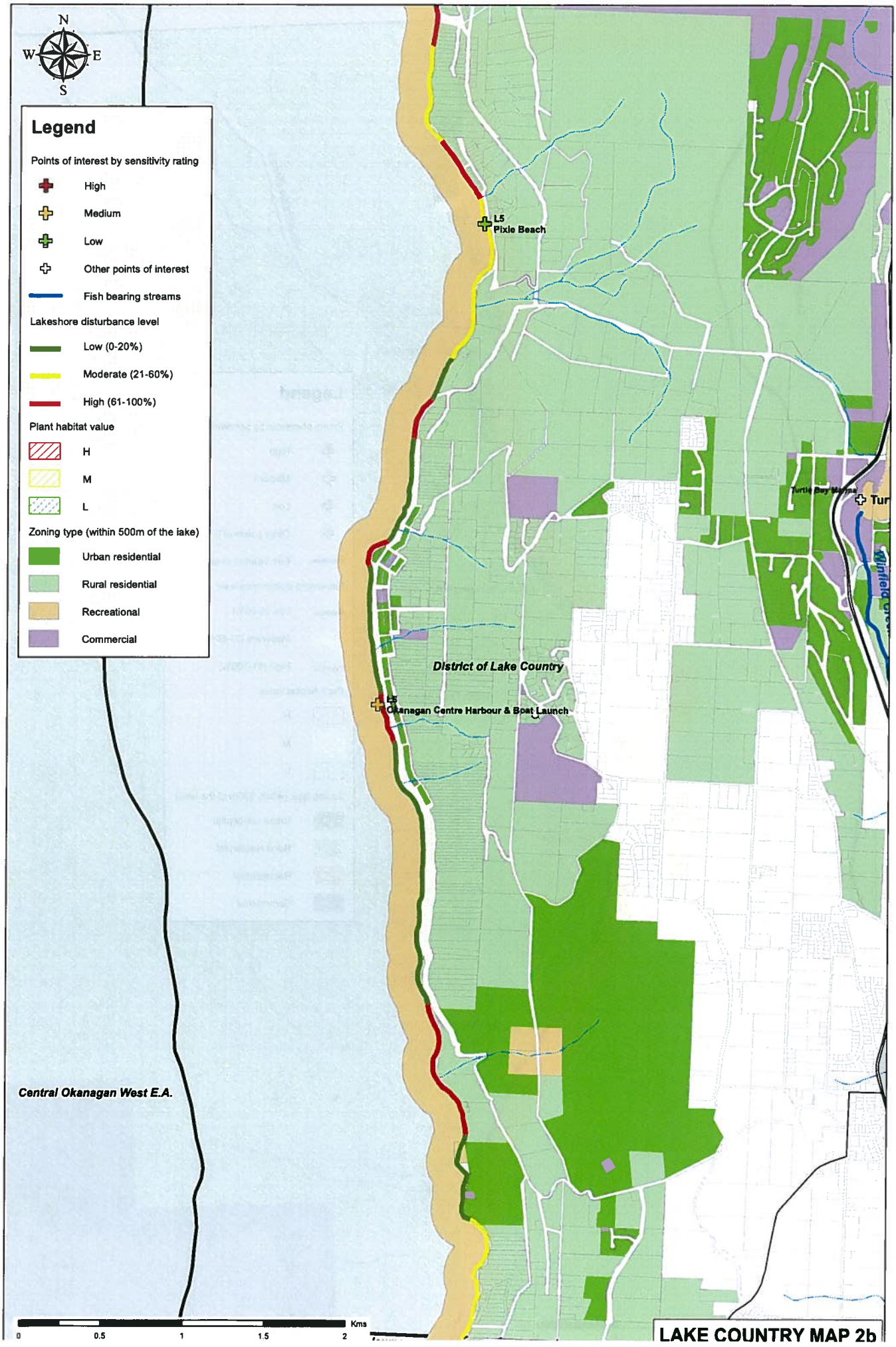
Central Okanagan West E.A.
Anderson Brook
L5
Coral Beach - boat launch
L2
Lake Country Sailing & Boating Assoc.
Carr's Landing
District of Lake Country
L3
Whiskey Cove
L4
Kopje Regional Park
Central Okanagan West E.A.
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 1b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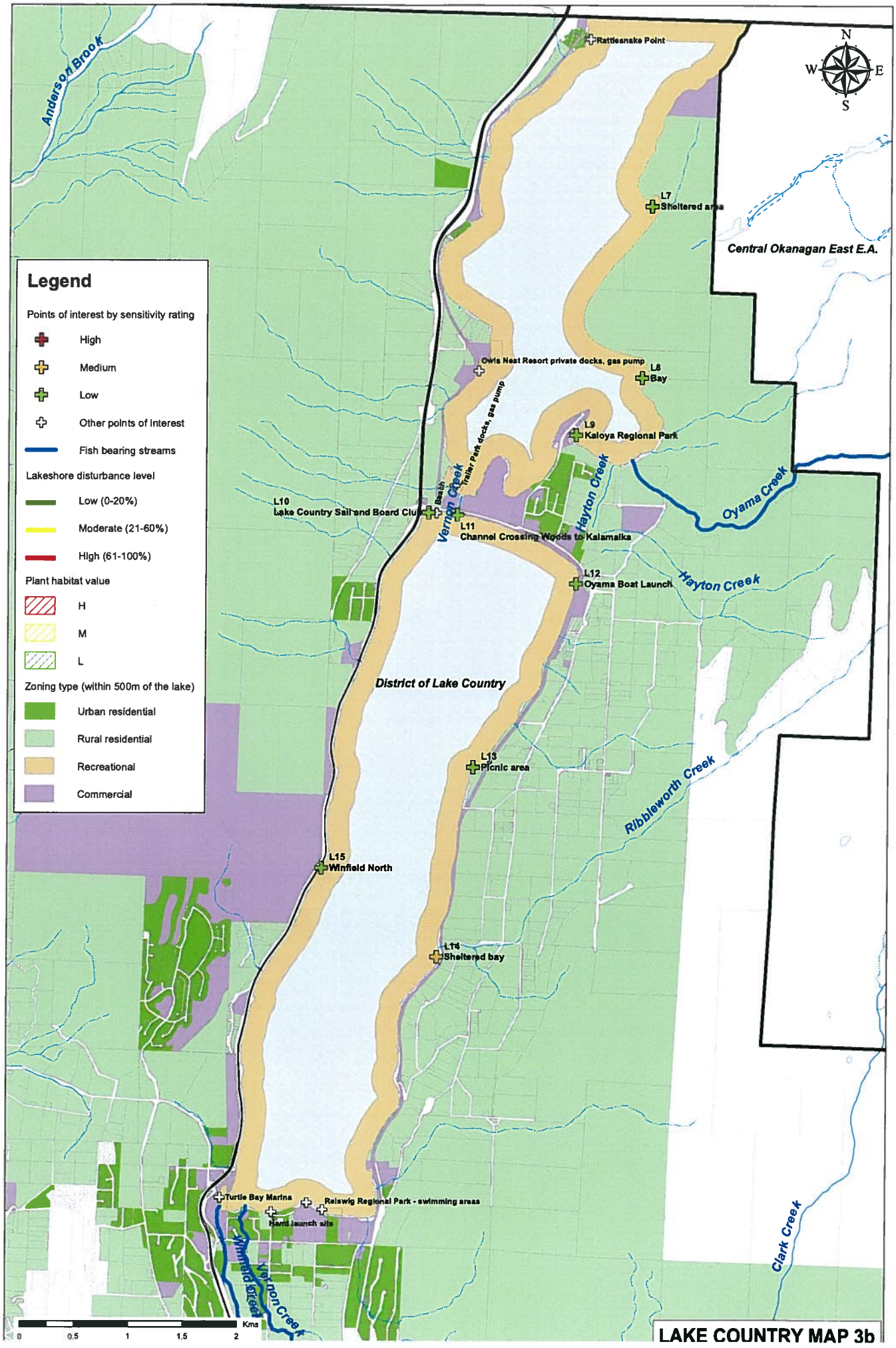
Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
L5
Pixie Beach
Turtle Bay Marina
Tur
Winfield
District of Lake Country
L5
Okanagan Centre Harbour & Boat Launch
Central Okanagan West E.A.
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 2b


Legend
Points of interest by sensitivity rating
High
Medium
Low
Other points of Interest
Fish bearing streams
Lakeshore disturbance level
Low (0-20%)
Moderate (21-60%)
High (61-100%)
Plant habitat value
H
M
L
Zoning type (within 500m of the lake)
Urban residential
Rural residential
Recreational
Commercial
N
W
E
S
Anderson Brook
Rattlesnake Point
L7
Sheltered area
Central Okanagan East E.A.
Owls Nest Resort private docks, gas pump
L8
Bay
L9
Kaloya Regional Park
Trailer Park docks, gas pump
Vernon Creek
Hayton Creek
Oyama Creek
L10
Lake Country Sail and Board Club
Beach
L11
Channel Crossing Woods to Kalamalka
L12
Oyama Boat Launch
Hayton Creek
District of Lake Country
L13
Picnic area
Ribbleworth Creek
L15
Winfield North
L14
Sheltered bay
Turtle Bay Marina
Reiswig Regional Park - swimming areas
Hand launch site
Winfield Creek
Vernon Creek
Clark Creek
0
0.5
1
1.5
2
Kms
LAKE COUNTRY MAP 3b

MAJOR LAKES RECREATIONAL MARINE FACILITIES STUDY

Appendices

The Appendices include the following:

- Recommended Improvements by Jurisdiction
- Recreational Marine Facility Implementation Schedule
- Steering Committee Members
- Consultation Process Participants
- Organizations and Agencies consulted during the Study

Recommended Improvements by Jurisdiction

Recommendations for major and minor facilities are listed under each jurisdiction. It should be noted that larger facilities will likely require additional environmental assessments. The improvements as listed by municipality should be considered by each jurisdiction for consideration in their annual planning and budgeting process. Opportunities to use municipal lands for recreational marine facilities should be identified and pursued.

1. RDCO

1.1 The Tolko Lands and the Bear Creek Boat launch lands should be acquired either through purchase or lease in order to allow for the development of a major recreational marine facility. The site could accommodate a "super boat launch with extensive parking; a marina with moorage slips and fuelling facilities, a dry dock storage and concierge service. This development could be undertaken through a joint venture or other type of partnership with the private sector. Refer to the governance and service delivery recommendations.

1.2 Mooring buoys for day and overnight use should be provided in or near the following points: Fintry Park, Agate Bay, Wilson Landing, Traders Cove and along the shores of Okanagan Mountain Park.

1.3 The Gellatly Nut Farm should be evaluated for the installation of a dock for day moorage for access to the park facilities (heritage site, beach, washrooms)

1.4 Mooring buoys should be provided in Raymer Bay, and off Kalamoir Park (both RDCO parks).

1.5 Kalamoir Park should be evaluated for the installation of a pier for day moorage for access to the park facilities (trails, picnic areas, beach and washrooms).

1.6 Kopje Regional Park should be evaluated for a dock for day usage as well as a boat launch. There is sufficient land for parking away from the foreshore.

1.7 Kaloya Regional Park, on Lake Kalamalka, should be further evaluated for the installation of a boat launch and additional parking to accommodate trailers. There are currently no boat launches within the regional district on Kalamalka Lake. Kaloya meets the criteria for a launch location from both an environmental and land capacity basis.

1.8 The channel between Wood and Kalamalka Lakes needs to be maintained and improved.

1.9 Bertram Creek Regional Park should be considered for mooring buoys as well as a dock for boaters to use the park facilities.

1.9 Small boat storage is needed in Peachland, potentially at Antler Beach; along with a small boat channel.

1.10 RDCO, in collaboration with the District of Lake Country should upgrade the boat launches in the Safe Harbour and provide day moorage slips in the facility.

2. District of Westside

2.1 The Westbank boat launch requires additional parking for boat trailers and cars. The opportunity to acquire lands in the vicinity for seasonal parking or to provide safer roadside parking needs to be investigated.

2.2 The mooring buoys in Gellatly Bay should be reviewed as they don't appear to conform to Canadian Coast Guard Standards.

2.3 The road ends along the waterfront should be reviewed for potential access to the lake for hand (boat) launches. These launch sites should be marked with buoys in the water to alert power boats to stay clear of the area.

2.4 Small boat storage facilities should be provided at one or more of the hands launch areas.

2.5 Small boat channels should be provided at the hand launch areas, where possible.

3. District of Peachland

3.1 Additional moorage should be provided in the vicinity of Heritage Park for day use; and overnight use should be implemented.

3.2 Pentowna Marina should be considered for upgrades and expanded to provide additional slips. Peachland should support any application in this regard.

3.3 Doggie Beach boat launch parking should be upgraded by providing markings in the parking lot and some reconfiguring of the area. There is an opportunity for private sector operated dry dock storage across the highway. Peachland should facilitate this.

3.4 Small boat storage is needed in Peachland, potentially at Antler Beach; along with a small boat channel. This should be done in collaboration with RDCO.

4. District of Lake Country

4.1 The parking area at Marshall Park, location of Lake Country Sailing and Boating needs to be upgraded. The launch should be clearly posted as "hand launch only".

4.3 There is interest from the private sector in developing a marina through a public\private partnership in the Pixie Beach area. This should be considered as there is a need for more slips as well as fuelling and a pump out facility in Lake Country. Parking will be a major factor and should be considered in the development application.

4.4 The Oyama launch should be upgraded and parking provided on municipal lands. The District of Lake Country will need to negotiate rail crossing with CN/KPR.

4.5 Mooring buoys for day and overnight use should be located on Wood, Okanagan, and Kalamalka lakes in sheltered areas as indicated in the inventory.

4.6 The District of Lake Country, in collaboration with RDCO should upgrade the boat launches in the Safe Harbour and provide day moorage slips in the facility. The District of Lake Country should also explore purchasing land for parking in the vicinity of the Safe Harbour (Okanagan Centre).

4.7 The re-location of Highway 97 provides an opportunity for Lake Country to provide safe access to the west side of Wood Lake. A review should be done to determine the best uses of the old highway corridor for marine recreational purposes. There is interest from the private sector in a new marina in the Ponderosa Road area.

5. Kelowna

51.1 There is interest from the developers of the McKinley Landing project to build a marina, dry boat storage and a boat launch on their site. The City should facilitate this application, if the environmental issues can be addressed.

5.2 Sutherland Bay is an appropriate site for additional recreational marine facilities. It is recommended that the boat launch be upgraded and include a dock. The parking situation should be reviewed with a view to securing seasonal parking in the vicinity of the park. A dry boat storage area could be located at the very north end of the park on land that is currently being assembled for the park. There is interest in locating the City's small boat clubs here, which is currently in the hands of the clubs.

5.3 Waterfront Park provides an excellent opportunity, possibly through a joint venture, to provide additional moorage and better access to water sports. The Water Street boat launch should be maintained but the parking situation needs to be addressed. This could be done by providing parking fro trailers at Prospera Place, by designating and designing an area of the lot specifically for that purpose

5.4 The Kelowna Yacht Club should continue to be supported in their application for additional moorage.

5.5 The Kelowna Marina should be an integral part of the City's waterfront plan in order to provide moorage for temporary day and night use. The gas pump is essential to boating in the area. The current facilities are inadequate to operate a full service marina.

5.6 Kerry Park re-development needs to consider the increasing demand for boating facilities from the city residents as well as tourists. The commercial operations need room to expand as well.

5.7 City Park – Due to the potential environmental sensitivity, one needs to proceed with caution. This could be a potential site for small boat clubs, and hand launch facilities.

5.8 Cook Street boat launch should be maintained as a major launch site. The City should work with Mission Group and Eldorado Hotel in the development of a number of public slips for day and overnight use.

5.9 Mooring Buoys should be provided along the shoreline, off shore from parks, wherever possible. Public docks should also be considered in locations where boaters could access restaurants, beaches, washrooms and so on.

5.10 Boat channels for small boats should be provided near hand launch areas, in consultation with small boat clubs.

Westbank First Nation

WFN has two significant developments underway adjacent to the Old Ferry Wharf area. These developments have both planned extensive waterfront developments, including a large number of moorage slips. A restaurant is planned on the waterfront, and water taxi service to Kelowna. A new marina is planned on the north side of the bridge. These facilities will be an integral part of the future recreational marine facilities on the lake, and will contribute to meeting the demand for amenities.

Recreational Marine Facility Implementation Schedule

Timeframe	Actions
2009-2013 (A) **Short Term**	A1 RDCO to acquire lands, with BC Parks, and develop public private partnership for a super boat launch, moorage and boat storage on the Tolko lands on the West side. A2 RDCO to undertake a feasibility study for two new boat launches, one at Kopje Regional Park and the other at Kaloya Regional park. A3 RDCO to undertake a detailed inventory and GPS mapping of mooring buoys that are located offshore from RDCO lands. Based on the results, additional mooring buoys should be provided and maintained by RDCO. A4 RDCO to build docks at Gellatly Nut Farm and Kalamoir Park and promote them as destinations for boaters. A5 RDCO to address the issue of improvements to the channel between Wood and Kalamalka Lakes. A6 RDCO to review sites for potential small boat storage facilities, at hand launch sites. A7 City of Kelowna to facilitate the development of a new marina, with moorage slips, both seasonal and transient (through a partnership) at Kerry Park area to replace the old Kelowna marina. A8 Kelowna to build centrally located restrooms. A9 Kelowna to ensure that gas continues to be available on their waterfront. A10 Kelowna to work with the private sector (Grande Hotel, Lakesports and others) to provide additional moorage and opportunities for better tourism destinations. A11 The City of Kelowna continue to support the Kelowna's Yacht Club's application for additional moorage. A12 Kelowna to revise the parking arrangement at Water Street boat launch to facilitate more efficient use of the launch; provide car and trailer parking at Prospera Place (seasonal); institute a "pay for launch" permit system. A13 The City of Kelowna work with the developers of major new foreshore amenities (G Group, Mission Group and others) to ensure the marine facilities serve the general public for boating, and that their applications are supported and processed in a timely manner. Grey water pump outs to be provided as part of waterfront developments. A14 Kelowna to support small boat clubs and users by providing short term boat storage, parking and other facilities at Sutherland Bay, or at City Park (needs more analysis). A15 Kelowna to incorporate opportunities for dry dock storage in areas in proximity to the waterfront in their land use planning, in particular close to Sutherland Bay (PPP)

	A16 District of Lake Country: Upgrade Oyama Launch and provide parking area. A17 The District of Lake Country to work with developers of lakefront amenities to ensure they serve the public boater interest (Lakestone, Renascence, Pixie Beach and others) and facilitate the applications for new marine facilities, including grey water pump outs and fuelling facilities. A18 Lake Country to provide mooring buoys along their foreshores, in appropriate locations on all three lakes for mooring buoys. A19 District of Westside to review options to provide additional parking and dry dock storage in the vicinity of Westbank Yacht Club. A20 Westside to review the mooring buoy situation in Gellatly Bay with a view to providing opportunities for better public moorage. A21 Westside to undertake a review of all the public road ends in order to assess opportunities for better access to the water by boaters. A22 Peachland to undertake improvements to the boat launch and in particular the parking area at Doggie Beach; and to support boat storage through a partnership. A23 Peachland to support and facilitate the upgrading and possible expansion of the Peachland Yacht Club. A24 As a component of the waterfront re-development plan: Peachland become a Destination, by providing additional moorage for visitors, both day and night use; institute a fee for docking; provide restrooms in Heritage park area; provide pump out. A25 All municipalities should investigate areas that would be suitable to provide boat channels for small boat safety. These should be located in the vicinity of hand launch areas.
Timeframe	**Actions**
2014-2018 (B) **Medium Term**	B1 If supported by the feasibility study, RDCO, to build a boat launch with parking and a dock for visitors at Kopje Regional Park. B2 City Of Kelowna to upgrade the boat launch at Sutherland and provide opportunities for off-site parking (seasonal). B3 Kelowna to explore partnerships for the continued development of the waterfront park areas to better serve boaters; including upgrading of the Yacht Club premises. B4 Lake Country to develop foreshore improvements along old Highway 97, to benefit boat access to Wood lake. B5 Lake Country to improve parking area at Marshall Park launch. B6 Westside to provide upgraded parking and for Westbank boat launch, as a result of actions taken in 2009-2013.

	B7 Peachland to support Pentowna Marina in the application and development of additional moorage (PPP). B8 In 2018 an updated Recreational Marine Facility Plan should be developed, based on new technology and demands, and a course of action should be charted accordingly.
Timeframe	**Actions**
2019-2028 (C) **Long Term**	C1 RDCO to build a boat launch and expanded parking facilities at Kaloya Regional Park, on Lake Kalamalka, during this five year period. C2 Commence implementation of new Facilities as identified in the 2018 Plan. C3 RDCO to develop a PPP for Vertical Boat Storage facilities.

Steering Committee Members

The consulting team thanks the steering Committee members for their participation and guidance throughout the Study.

Bill Vos
Murray Kopp
Wayne Darlington
David Graham
Steve Schaffrick
Ray Boogaards
Dave Smith
Krista Derrickson
Jason Tansem

Consultation Process Participants

The following is a list of persons who participated in one or more aspects of the consultation process. The study team acknowledges their support and appreciates their insights, and thank the many others who participated and are not listed.

DOROTHY HORTON
BRIAN EVANGER
YVONNE CRAWFORD
JACK CAVANAGH
BRYAN LAKUSTRA
JANICE CORNETT-CHING
ROB LADEN
KEVIN BOWLES
KEN SMITH
GEORGE & ROSE HANNA
GARY & NANCY KOOPMAN
BILL MORRISON
DARCY & BARRY YEO
BILL NICHOLISHEN
GAVIN BROWN
TIMOTHY MCCANN
REBECCA PENZ
BRUCE SMITH
DAVE HAYES
ANDY SCHWAB
RON & DEVON RUBADEAU
DR. ED MAHONEY
DAN STYNES
TOM TREADGOLD
EDNA THIESSEN
JASON TANSEM
JIM NIXON
RYAN SMITH
JOANNE ADAMSON
BOB LYNCH
STEWART SMITH
CARLY THOMAS
JAYSON MCCARTHY
JAMES LEE
PETER JOYCE
GILL HARDY
MICHAEL CASTINGS
BROCK ELLIOTT
SUSAN FLORO
TAZMIN SURANI
KEN WINNICK
AL HARRISON
KEVIN ISABEY
LISA JANTZ
MIKE NEEDHAM
KELLI HARTMAN
BARRIE HEWER
SCOTT WILSHAW

ROBERT LOUIE
RON CANNAN
JAMES BAKER
BARRY BEARDSELL
DR. ANNA WARWICK SEARS
WAYNE&DONNA DUDYCH
JENNIFER TUCCARO
MIKE BATT
JENNIFER BATT
CAPTAIN JC RATHWELL
CAPTAIN KIRK STOTT
JEN KELLY
STUART COOK
DALE KOEPKE
RICK KNIGHT
RICHARD DICK
RANDY PROST
MARTIN FRENCH
JOSEPH LINKEVIC
JAN GLADSTONE
HEATHER SCHWAUB
KEITH BARIC
DAVE RICHMOND
HENRICK WEHRMAN
GRANT GAUCHER
VIKKI DRUMMOND
DAN BROWN
PAT FOSBERY
JAYNE FOSBERY
ROD COOK
CONRAD WIKER
KEVIN RICHTER
DOUG DERRICKSON
ALVINA BUEHLER
DAVE FORAI
SUSAN FROST
JUDIE STEEVES
BRENT PERSELLO
KEN JONATHAN
CAM & LES LESLIE
DENIS & VELMA BATEMAN
RICHARD BROW
PETER DILL
LORNE & MARION BARCLAY
BRADLEY HALE
DAVID CHAPMAN
ROY BLAIR
TIM & LANA EVANS
LINDA JONES-EVANS

BUD & AUDREY MCEWAN
PAUL HANSON
GARY & PAULINE MARTY
MICHAEL BERGER
JEAN FLINTOFT
ADELE LU
LYNDA ZORN
BRYANT MAVISTA
MIKE ADAMS
DENISE & BRIAN HILBERT
JIM KEELER
WAYNE DUTCHAK
DOUG JONES
RANDY FOCHT
ELISHA DUCEY
STACEY HUNTER
GARY THOMPSON
LAYTON THOMAS
LEONA PARKER ELLIOTT
PETER MORRISSEAU
BRAD SIEBEN
LINDA BAUER
PHIL JOHNSON
JON SHAW
FRANK & JUDY RIECKMANN
NANCY CAMERON
TOM SUITOR
DOUG FIELDING
JEFF HUDSON
TOM HEDQUEIST
PHILLIP SEIPP
WILLI SEIPP
EGON WEGER
SARAH PAWLITSKY
HANNY KOOYMAN
KEN WEBSTER
WILL PULFORD
RICHARD BROWN
BARRY & BARB HICKS
PAUL MCVEY
RON FORBES
PAUL DUPUIS
HEIDI SIMKINS
RON FRALICK
DAVE SLOBODAN

Organizations and Agencies consulted during the Study:

Transport Canada and their Office of Boating Safety; Marine Safety; Coast Guard
Service Canada
Oceans and Fisheries
BC Ministry of the Environment, including:
Ecosystems Branch & BC Parks
Tourism BC
Tourism Kelowna
RCMP
Interior Health
Okanagan Basin Water Board
BC Marine Trades
Boating Canada
ICBC
Marine Research Centre, Michigan State University
Westbank First Nation
District of Peachland
District of Lake Country
District of Westside
City of Kelowna
RDCO