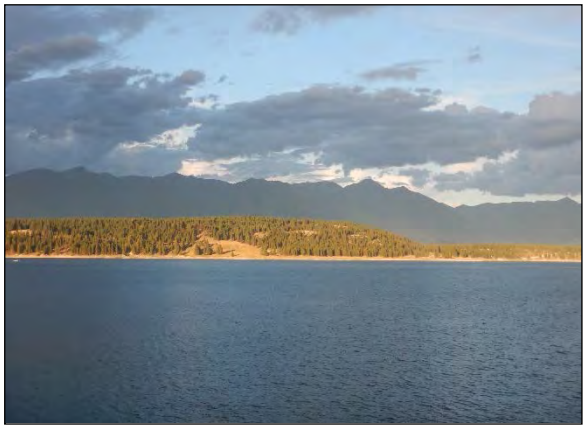
LAKE KOOCANUSA
SHORELINE MANAGEMENT GUIDELINES



Prepared For:
East Kootenay Integrated
Lake Management Partnership

Prepared By:
VAST Resource Solutions Inc.

October 17, 2017

BOX 538, CRANBROOK, BC V1C 4J1
PHONE: (250) 426-5300 • FAX: (250) 426-5311 • WWW.VASTRESOURCE.COM

ACKNOWLEDGEMENTS AND CONTRIBUTORS

Funding and In-kind contributions for this project were provided by:

The Koocanusa Sensitive Habitat Inventory Mapping project was managed and delivered with financial support from the Fish and Wildlife Compensation Program. www.fwcp.ca
Ministry of Forests, Lands and Natural Resource Operations (FLNRO)
East Kootenay Integrated Lake Management Partnership (EKILMP)
Lake Koocanusa Community Council
Canadian Columbia River Inter-tribal Fisheries Commission
Living Lakes Canada

The following individuals carried out field work:

L.B. Mac Donald, Terra Limnic Consulting
Heather Leschied, Living Lakes Canada
Peter Holmes, Ministry of Forests, Lands and Natural Resource Operations (FLNRO)
Walter Kehler, Lake Koocanusa Community Council

VAST would like to acknowledge the following individuals for their technical contributions to this project:

L.B. Mac Donald, Terra Limnic Consulting
Heather Leschied, Living Lakes Canada
Peter Holmes, BC Ministry of Environment

The report was completed by the following VAST Professionals:

Jessica Romeo, BSc, BIT
Darcy Hlushak, BSc, GISP
Ben Meunier, MSc
Ian Adams, MSc, RPBio
Mary-Louise Polzin, Ph D, RPBio

Geographical Information System (GIS) mapping and analysis was completed by:

Darcy Hlushak, BSc, GISP, GIS analyst

Suggested Citation:

VAST Resource Solutions Inc. 2017. Lake Koocanusa Shoreline Management Guidelines. Report prepared for the East Kootenay Integrated Lake Management Partnership. Prepared by J. Romeo, D. Hlushak, I. Adams and B. Meunier.

Cover Photos:

Top: Ben Meunier; Left Top and Bottom: Heather Leschied

PREFACE

This report provides Shoreline Management Guidelines (the Guidelines) for the Canadian portion of Lake Koocanusa, which extends between Wardner, BC and the US/Canada border.

A recent increase in development proposals and recreational activities along the foreshore of Lake Koocanusa, including vegetation clearing, construction, off-road vehicle use, and cattle grazing, have rapidly degraded natural habitat and present a threat to the long-term sustainability of local fish and wildlife populations.

The Guidelines in this document provide a science-based assessment of habitat value and required level of protection for individual segments of the lake's foreshore. They were prepared based on the technical results from the Foreshore Inventory and Mapping exercise (FIM) and the Aquatic Habitat Index analysis (AHI).

The objective of the Guidelines is to help plan future developments and recreational activities on Lake Koocanusa, while conserving and restoring natural habitat that local fish and wildlife species rely on to complete their life cycle.

It is noted here that certain applications may require other agency approvals such as Interior Health or the Archaeology Branch for pre-contact archaeology sites, or pos-contact heritage wreck sites, and it is the responsibility of the proponent to ensure that all applicable permits or applications have been submitted and approved prior to prceeding with any works.

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

The Shoreline Management Guidelines (Guidelines) are intended to conserve fish and wildlife habitat and are a tool to assist landowners and recreational users proposing new developments and/or recreational activities along the shoreline. The Lake Koocanusa shoreline has a diversity of important fish and wildlife habitats and species. Future developments and activities should incorporate measures to guaranty the protection and long-term sustainability of fish and wildlife populations in the area, and whenever possible, help restore physical and ecological functions where they have been impacted. This is particularly important in ecologically sensitive areas. Clearly defined policies and associated strategies will help guide future decisions and promote a coordinated approach to foreshore management among regulatory agencies.

The Guidelines in this document were prepared based on findings from the Sensitive Habitat Inventory Mapping study (SHIM), which included the following exercises:

1. **Foreshore Inventory and Mapping** (FIM) was conducted to identify and inventory important habitat features across the reservoir. Data sources included fish and wildlife surveys completed by the EKILMP team, as well as information from various provincial databases; and

2. **An Aquatic Habitat Index** (AHI) was generated using the FIM data to determine the relative habitat value of each shoreline segment. This index follows similar methods that were developed for other lakes in the East Kootenay Region, including Windermere Lake, Tie Lake, Rosen Lakes and Columbia Lake.

In an effort to standardize shoreline management guidelines between lakes across the region, large sections of the following document were adapted from the Lake Windermere guideline document developed by the East Kootenay Integrated Lake Management Partnership in 2008, and this document is used as a template. The original authors are given full credit for any portion of this document that are similar to the original document.

The original guidelines and activity risk table developed for natural lakes was modified to take into consideration the significant variations in water levels occurring in active hydroelectric reservoirs, such as Lake Koocanusa. A risk table was developed to differentiate varying levels of risks associated with projects/activities proposed along the shoreline at full-pool. The full-pool shoreline is defined as the elevation band between 744.9 to 749.5 m (2444 - 2459 feet) and the 30 meter zone of adjacent upland. The drawdown zone is identified as the elevation between 730.9 and 744.9 m (2398 - 2444 feet).

2.0 SHORELINE MANAGEMENT GUIDELINES FOR LAKE KOOCANUSA

A colour scheme was developed to rank shoreline segments based on fish and wildlife habitat values, determined through the AHI analysis. The colour scheme (red, orange, yellow or grey) represents a shoreline segment's level of sensitivity to development. The delineation of each shoreline segment can be found on the SHIM maps in Appendix A. The SHIM maps, the activity risk table, and the process flow chart form the basis of the Guidelines.

The following is a How-to Guide for development planning along the Lake Koocanusa shoreline:

1. Determine the colour zone that your development project/activity is situated in using the maps in Appendix A. Note that Red Zones are designated Conservation Areas. No development should be considered or approved in these zones.

2. Determine the risk level associated with your specific activity using the Shoreline Activity Risk Table (Table 1). If your activity is not listed, assume high risk, and contact FrontCounter BC for advice.

a. If a species at risk has been identified in the area, the risk increases as identified in the Modifier Column of the Activity Risk Table.
b. If your activity is identified as High Risk, consider relocating your project to a colour zone with less sensitive habitat (e.g., move to a yellow or grey zone) or select a lower risk activity.

3. Use the Flow Chart to determine your projects regulatory review requirements based on the risk of the proposed development/activity.

2.1 Step 1 – Shoreline Sensitivity Colour Zones

Use the SHIM maps in Appendix A to determine the shoreline colour classification for the area of the proposed development/activity. The definitions and guidelines for each colour category are provided below.

Red Shoreline

Defined by: Very High Value Habitats

Recommendation:
These areas have been identified as essential for the long term maintenance of fish and/or wildlife values through the Aquatic Habitat Index analysis process. These areas are located along the shoreline and include most tributary inlets, shallow vegetated areas, and zones essential for fish and/or wildlife populations to complete their life cycle. Proponents should consider moving high risk activities to other areas if possible, or pursuing lower risk activities.
EKILMP recommends that these areas be designated for conservation use, and that no development or activities that can impact these sensitive communities occur within them. Low impact water access recreation and traditional First Nation uses are permissible in these areas, but permanent structures or alteration of existing habitats are prohibited. Habitat restoration and enhancement projects are encouraged in these areas where warranted.

Orange Shoreline

Defined by: High Value Habitats

Background:
These shoreline segments have been identified as High Value Habitat Areas for fish and/or wildlife through the AHI Analysis. These areas are sensitive to development, provide important ecological functions, but may be at risk from adjacent development pressures. Restoration opportunities potentially exist in these areas. Proponents should consider moving high risk activities to other areas if possible, or pursuing activities that have lower associated risks.

Yellow Shoreline

Defined by: Moderate Current Ecological Values in the Aquatic Habitat Index.

Background:
These areas have generally experienced more intensive development disturbance and pressures. Generally, these areas do not contain critical habitat features required by fish and wildlife to maintain viable populations. However, these areas still provide important connectivity between high value habitat areas important for fish and wildlife to complete their life cycles. Development is more appropriate on these shorelines, and should incorporate protection of habitat features that remain. Intensive development below the high water mark and/or within riparian areas could have unacceptable environmental impacts without proper planning. Restoration may be an option in some areas that have experienced some developments. Development may proceed for low risk activities provided a Best Management Practice (BMP) or Regional Operating Statement (ROS) is followed. High risk activities without a BMP or ROS will require a report from a Qualified Environmental Professional (QEP).

Grey Shoreline

Defined by: Low and Very Low Value Habitats identified by the Aquatic Habitat Index

Background:
These are shorelines identified during the Habitat Index Analysis as having lower ecological value. However, they still may contain valuable habitats requiring some protection, such as in-lake wetlands, or gravel/cobble substrate areas.

Human development has been concentrated in these areas and has resulted in disturbances to the natural fish and wildlife habitat. In keeping with the objective of concentrating development in areas that are already disturbed, or of low value, new developments may be considered in these areas. Redevelopment will also be considered. New developments or redevelopment proposals shall incorporate fish and wildlife habitat restoration or improvement features where feasible and practical. Obtain advice from a QEP for habitat restoration techniques. For example, a retaining wall redevelopment may be moved back from the HWM and/or incorporate re-vegetation or other fish and wildlife features in the design.

2.2 Step 2 - Activity Risk Matrix and Analysis

Shoreline developments/activities have been assigned risk ratings based on the level of potential risk they may pose to fish and wildlife habitat values. Recognizing that the different shoreline zones have different habitat values and levels of sensitivity, the risk of each activity has been identified for each shoreline colour zone (Table 1). In the table, each colour zone and activity combination has been rated as either: Very High (VH), High (H) or Low (L). A species at risk modifier column has also been provided, which should be used if a species at risk has been identified in the project area.

It should be noted that when several activities with varying risk factors are proposed for the same location, the cumulative risk may increase and move the proposed project into a higher risk category. A Qualified Environmental Professional (QEP) may be required to determine if the overall risk has increased. If your activity is not listed, contact FrontCounter BC for advice. The Activity Risk Table often distinguishes between activities above the high water mark (HWM) and below the HWM. The HWM as opposed to the 'natural lake boundary' is the standard practice used by DFO when considering impacts to fish and wildlife values.

RISK RATING DESCRIPTORS

Very High Risk Activities

Several activities are rated as Very High Risk. These activities occur primarily in Red and Orange zones that have very high or high ecological ratings. The activities listed are known to have significant negative effects on fish and wildlife habitats and there are no options available to effectively mitigate their impact. Applications for these types of development in the zones identified will not be considered.

High Risk Activities

Proposals within the High Risk category pose a significant threat to fish and/or wildlife habitat values and often will require a Harmful Alteration, Disruption or Disturbance of Fish Habitat (HADD) authorization under the *Fisheries Act*. While some mitigation measures may be available, they are often too costly to implement. Proponents are encouraged to avoid activities with a High Risk, consider activities that are a lower risk, or relocate the proposed activity to a less sensitive area. If the proponent wishes to proceed with a High Risk activity, a QEP must be retained to complete an Environmental Assessment (EA) and develop a mitigation strategy to effectively address all negative effects of the project on the environment. The results of the EA should be submitted for review by regulatory agencies.

Low Risk Activities

With appropriate design and planning, Low Risk activities can be incorporated along the foreshore with minimal impacts on fish and wildlife habitat values. These activities must follow Best Management Practices (BMPs) and Department of Fisheries and Ocean Regional Operating Statements (ROS) where available. Where BMP/ROS are not available, or a deviation to the BMP/ROS is proposed, a QEP must be retained to determine the potential impact of the project on aquatic habitat, design mitigation measures to minimize environmental impacts, and apply for appropriate permits from regulatory agencies. Examples of activities that have low risk along most/all of the shoreline are: maintenance dredging (previously approved) and erosion protection (soft-bioengineered).

Table 1: Shoreline Activity Risk Table (VH = Very High, H = High, L = Low).

Activity	Shore Zone Colour and Activity Risk				Modifier
	Red	Orange	Yellow	Grey	Species at Risk
Off-Road Motorized Vehicle use	VH	VH	H	H	VH
RV and camping	VH	H	L	L	VH
Dock[1]	VH	H	L	L	H
Elevated boardwalk below HWM	VH	H	L	L	H
Marina[2]	VH	H	H	H	H
Boat launch upgrade	VH	H	H	H	H
New boat launch	VH	H	H	H	H
Permanent rail launch system	VH	H	L	L	H
Removable rail launch system	VH	H	L	L	H
Boat lift - temporary	VH	H	L	L	H
Boat house (below HWM)[1]	VH	VH	VH	VH	VH
Boat house (above HWM vegetation removal)[1]	VH	H	H	H	H
Boat house (above HWM without vegetation removal)[1]	VH	H	L	L	H
Mooring Buoys	VH	H	H	H	H
Fuel facility[3]	VH	H	H	H	H
Dredging (new proposals)	VH	VH	VH	VH	VH
Maintenance dredging (previously approved)	VH	H	L	L	H
Beach creation above HWM	VH	VH	H	H	H
Beach creation below HWM	VH	VH	H	H	H
Public beach maintenance	VH	L	L	L	H
Aquatic vegetation removal	VH	VH	H	H	H
Upland vegetation removal	VH	VH	H	H	H
Breakwater	VH	H	H	H	H
Infill	VH	H	H	H	H
Groynes	VH	H	H	H	H
Waterline trenched	VH	H	H	L	H
Waterline drilled	VH	L	L	L	L
Over water piled structure (i.e., building, house, etc.)	VH	VH	VH	VH	VH
Erosion protection hard-joint planted	VH	H	H	L	H
Erosion protection vertical wall or retaining wall[4]	VH	H	H	L	H
Erosion protection (soft-bioengineered)	VH	H	L	L	H
Geothermal loops - open[5]	VH	H	L	L	L
Geothermal loops - closed	VH	H	L	L	L
Milfoil & invasive weed removal	H	H	H	L	H
Habitat restoration[6]	H	H	L	L	H

[1] These Guidelines are to be used in the initial development planning stage and do not cover all regulatory requirements. Docks and boathouses are an example of an activity that could require additional approval process through Transportation Canada or Ministry of Agriculture and Lands.

[2] Marinas or marina expansions in orange zones may not be acceptable depending on the habitat attributes.

[3] Fuel facilities are inherently high risk, and if approved will be subject to all other regulations.

[4] Retaining wall redevelopment should be designed to restore fish and wildlife values where feasible and practical.

[5] Geothermal loops open (water) versus closed (glycol) and associated risk must also be assessed and ranked for physical habitat and water quality aspects.

[6] Habitat restoration proposals are listed as high risk in red and orange zones because individual objectives and proposals must be reviewed

2.3 Step 3 - Decision Process Flow Chart

A flow chart outlining the decision-making process for the High and Low risk activities is presented in Figure 1. The chart is a tool to help identify the Guideline requirements outlined in the previous sections. Note that the flow chart provides guidelines only for the initial planning stages of a development project. Other regulatory requirements are not addressed through this process (such as approvals/notifications through RDEK, Transport Canada, BC *Water Act*, BC *Lands Act*), which are the responsibility of the proponent (Appendix B). The intent of the Guidelines is to streamline the subsequent permitting process. Contact FrontCounter BC to determine which permits, approvals or authorizations you need, in addition to fish and wildlife habitat authorizations.

Activities within the High Risk category raise significant concerns. These activities have significant challenges related to providing adequate mitigation or compensation to address the loss of fish and/or wildlife habitat values, and are costly to implement. High Risk activities often require a Harmful Alteration, Disruption or Destruction of fish habitat (HADD) authorization under Sec 35(2) of the Fisheries Act. Proponents are encouraged to avoid High Risk activities, revise activities to a lower risk option, or relocate the activity to a less sensitive area.

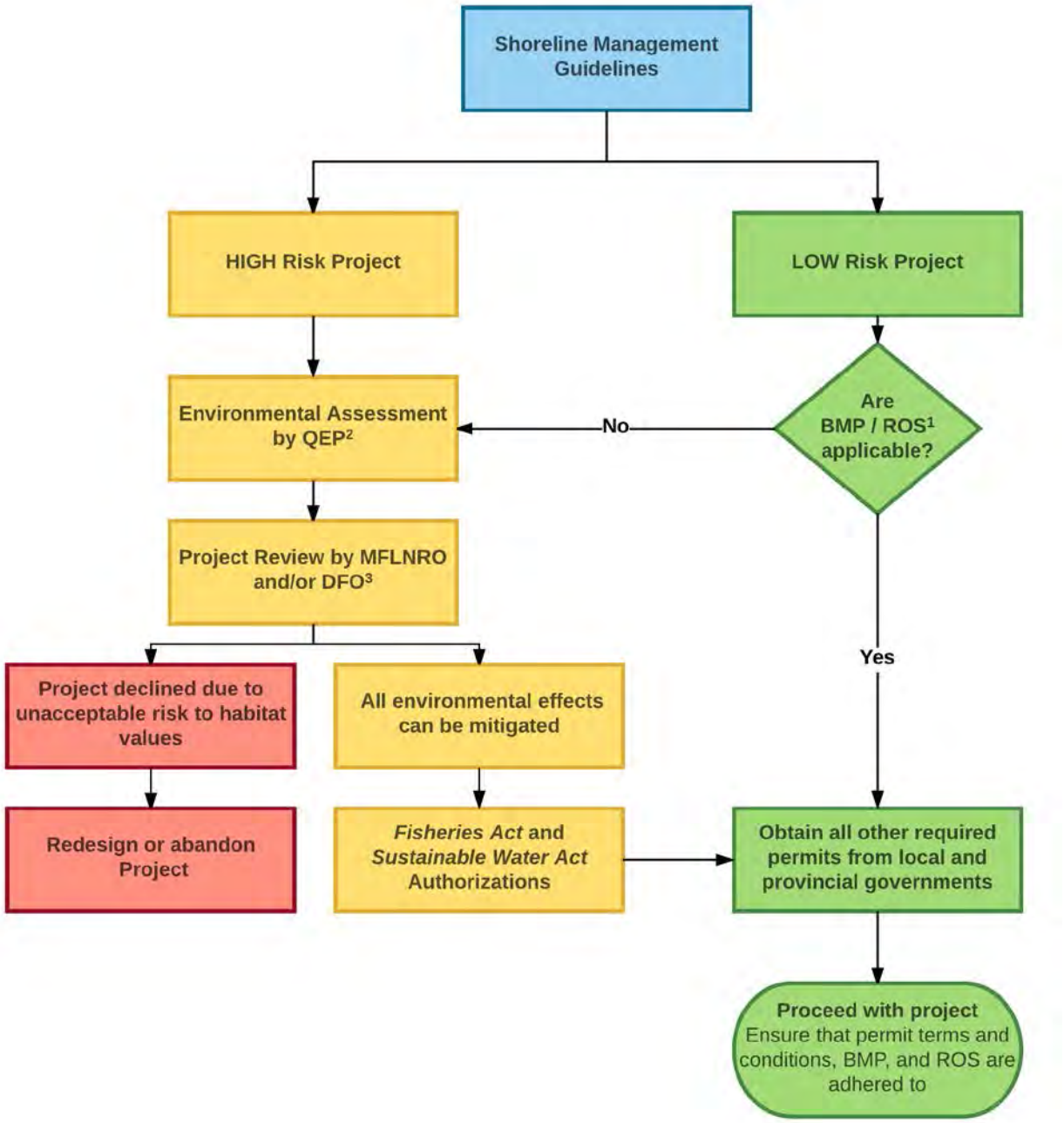


Figure 1: Decision-making process for regulatory approval of High and Low Risk Projects

[1]MP – Best Management Practice (Appendix C); ROS – Fisheries and Oceans Canada Regional Operating Statement
[2] QEP: Qualified Environmental Professional
[3]DFO- Fisheries and Oceans Canada; MFLNRO: Ministry of Forest, Land, and Natural Resource Operations

3.0 MITIGATION AND COMPENSATION CONSIDERATIONS

A QEP should be retained to assess the potential impacts of a project and develop a mitigation strategy. Results of this assessment are typically included in an Environmental Management Plan (EMP) submitted to regulatory agencies for review. The Lake Koocanusa Fish and Wildlife Habitat Assessment is a tool available to help with this task; however, further studies may be necessary, due to limitations of currently available information. The DFO principle of "no net loss" within the Policy for the Management of Fish Habitat (1986) applies to all proposals where the risk for a Harmful Alteration, Disruption or Destruction of fish habitat (HADD) exists. This involves following a sequence of mitigation alternatives. Mitigation is a process for achieving conservation through the application of a hierarchical progression of alternatives, which include: (1) avoidance of impacts, (2) minimization of unavoidable impacts, and (3) compensation for residual impacts that cannot be minimized. These alternatives are described as follows:

3.1 Avoidance of Impacts

The first step, avoidance, involves the prevention of impacts, either by choosing an alternate project, alternate design or alternate site for development. It is the first and best choice of mitigation alternatives. Because it involves prevention, the decision to avoid a high value area or to redesign a project so that it does not affect a high value area must be taken very early in the planning process. It may be the most efficient, cost effective way of conserving important habitats because it does not involve minimization, compensation or monitoring costs. Avoidance may include a decision of not proceeding with the project.

3.2 Mitigation of Impacts

Mitigation should only be considered once the decision has been made that a project must proceed, that there are no reasonable alternatives to the project, and that there are no reasonable alternatives to locating the project within high value habitats. Mitigation involves the reduction of adverse effects of development on the functions and values of the habitat at all project stages (including planning, design, implementation and monitoring), to the smallest practicable degree. Considering any planning efforts, DFO must authorize a HADD before work can commence.

3.3 Compensation

Compensation is the last resort in the mitigation process, an indication of failure in the two earlier steps. It should only be considered for residual effects that were impossible to minimize. Compensation refers to a variety of alternatives that attempt to replace the loss of, or damage to, habitat functions and values. Habitat compensation may be an option for achieving "no-net-loss" when residual impacts of projects on habitat productive capacity are deemed harmful after relocation, redesign, or mitigation options have been implemented. After reviewing the project proposal and the potential impacts to fish habitat, DFO may determine that the impacts are not acceptable if the habitat to be affected is critical habitat or compensation is not feasible. In addition, compensation for deposit of a deleterious substance into water frequented by fish is not acceptable. Habitat compensation involves replacing the loss of fish habitat with newly created habitat or improving the productive capacity of some other natural habitat. Depending on the nature and scope of the compensatory works, habitat compensation may require, but not be limited to, several years of post-construction monitoring and remediation, or redevelopment of the compensation works in the event the habitat is not meeting the compensation objectives. There is no guarantee that projects in high value fish habitats that result in HADD will be authorized under Section 35(2) if application is submitted.

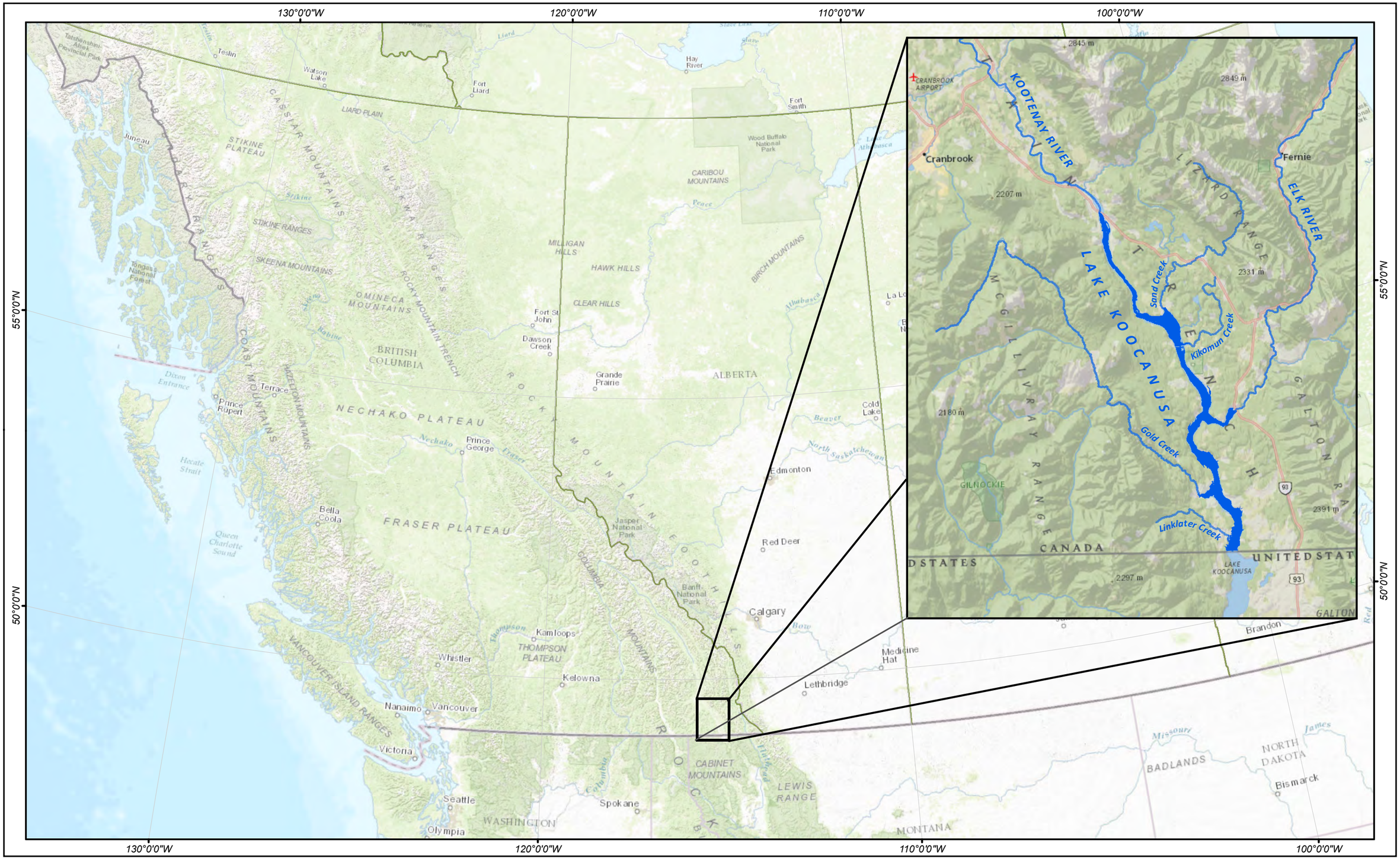
4.0 REFERENCES

McPherson, S. and D. Hlushak. 2008. Windermere Lake Fish and Wildlife Habitat Assessment. Consult report prepared for the East Kootenay Integrated Lake Management Partnership. Prepared by Interior Reforestation Co. Ltd., Cranbrook, BC.

Schleppe, J. and A. Patterson. 2011. St. Mary Lake Shoreline Management Guidelines. Ecoscape Environmental Consultants Ltd. Project File: 10-682. Prepared for: East Kootenay Integrated Lake Management Partnership.

APPENDIX A: MAP SERIES

Location Map

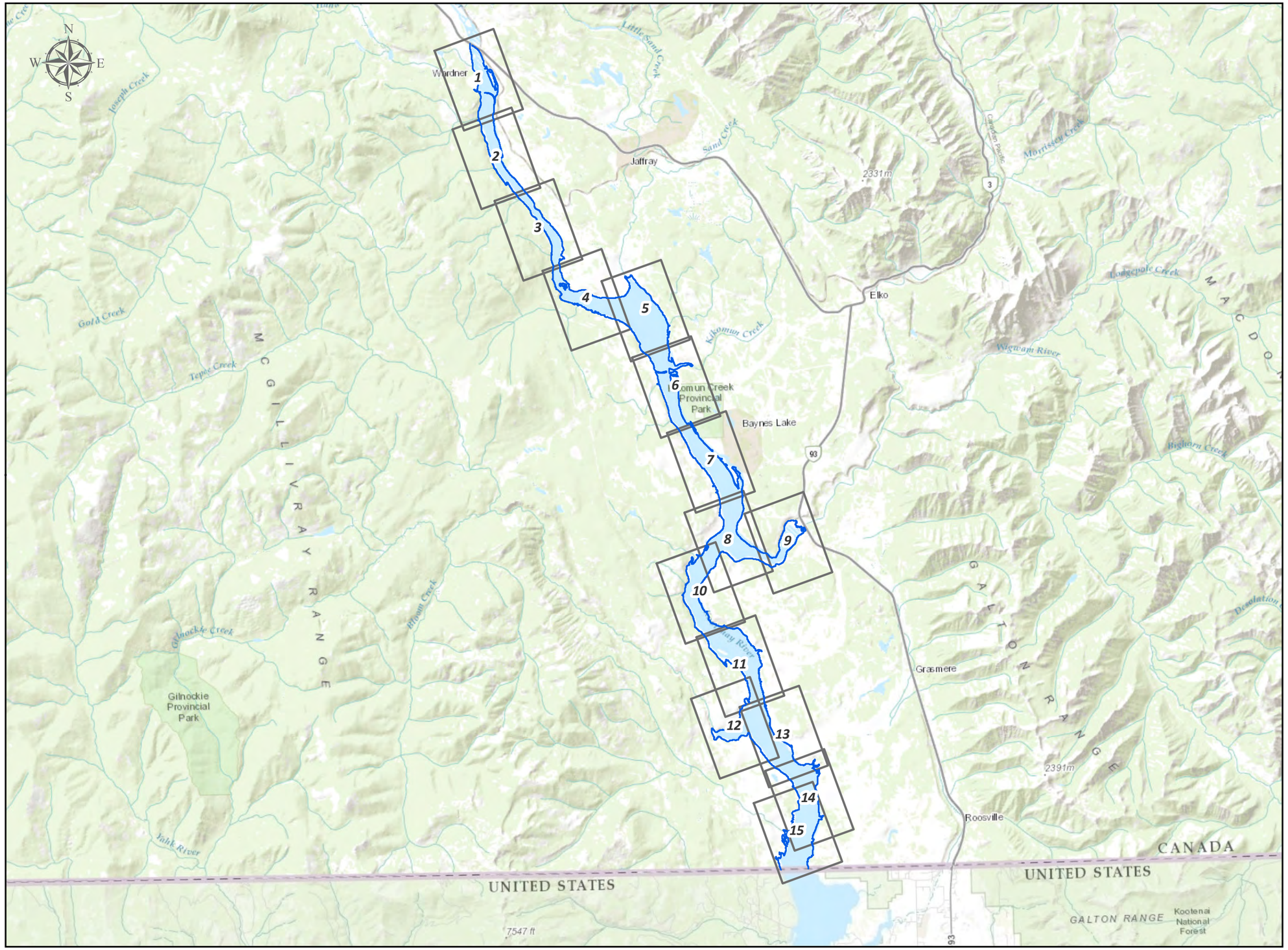


Lake Koocanusa

MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\LOCATION.mxd

LAKE KOOCANUSA
Shoreline Colour Map Series

MAP KEY



MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:20,000,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_KEY*		

1:225,000

0 2.5 5 7.5 10

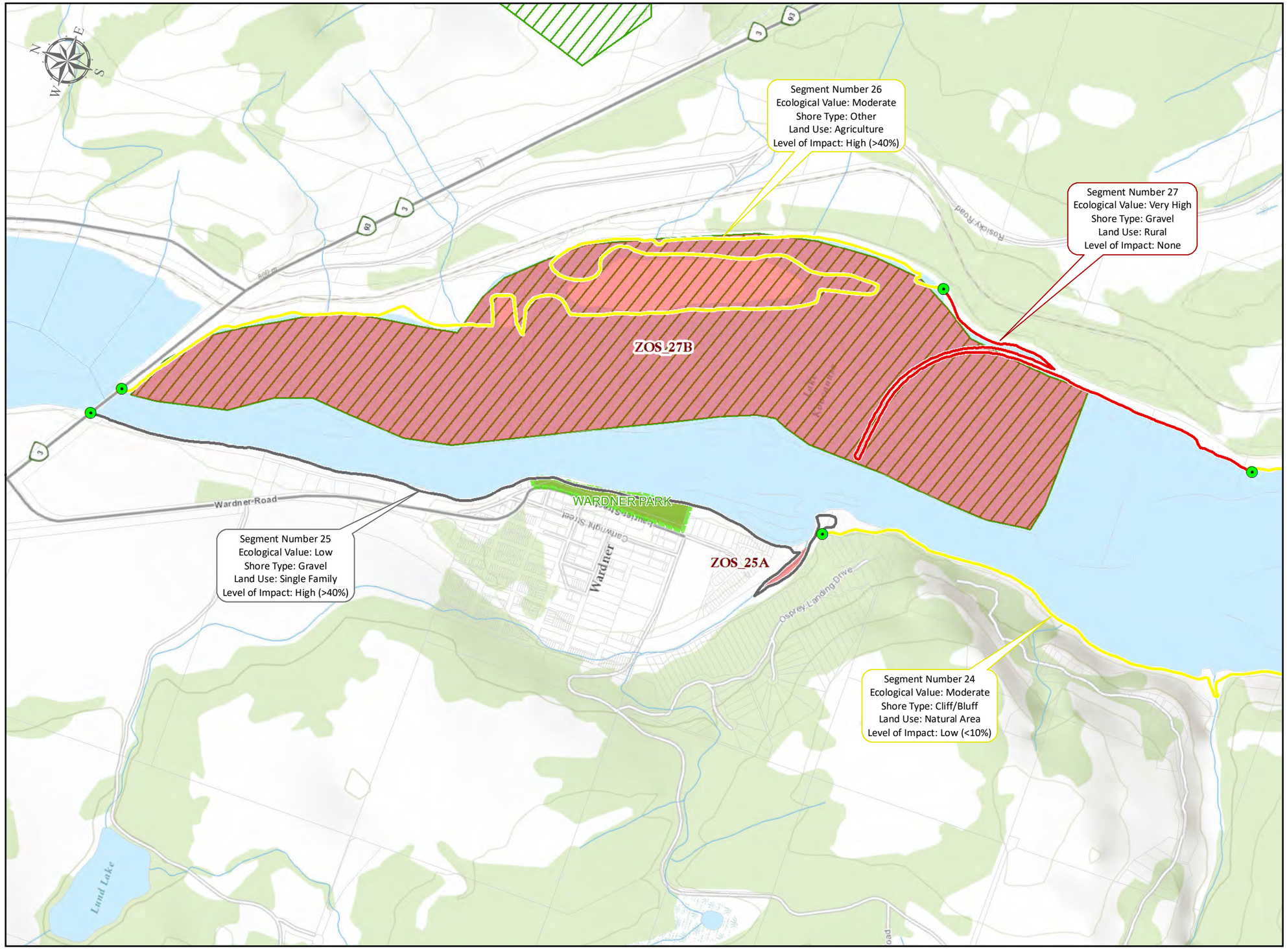
Kilometers

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study

OVERVIEW MAP

MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_KEY.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 1

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

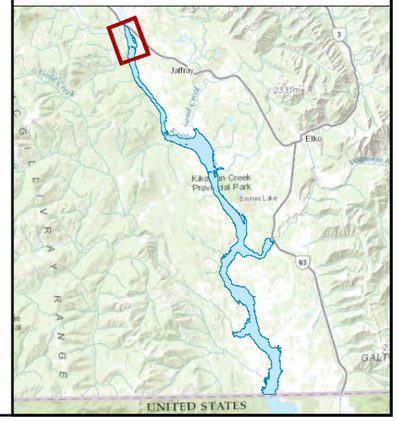
0 250 500 750

Meters

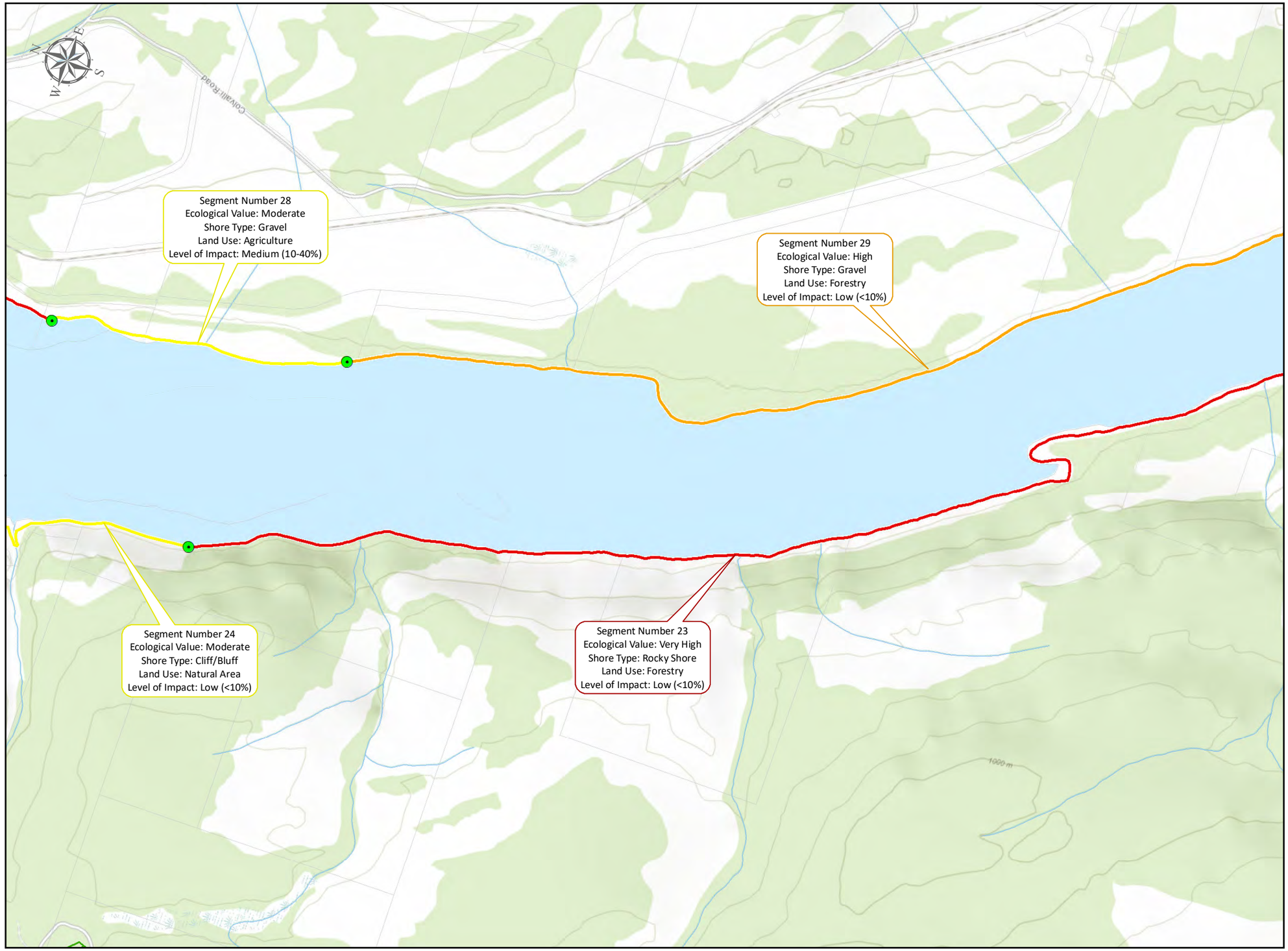
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 2

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

0 250 500 750

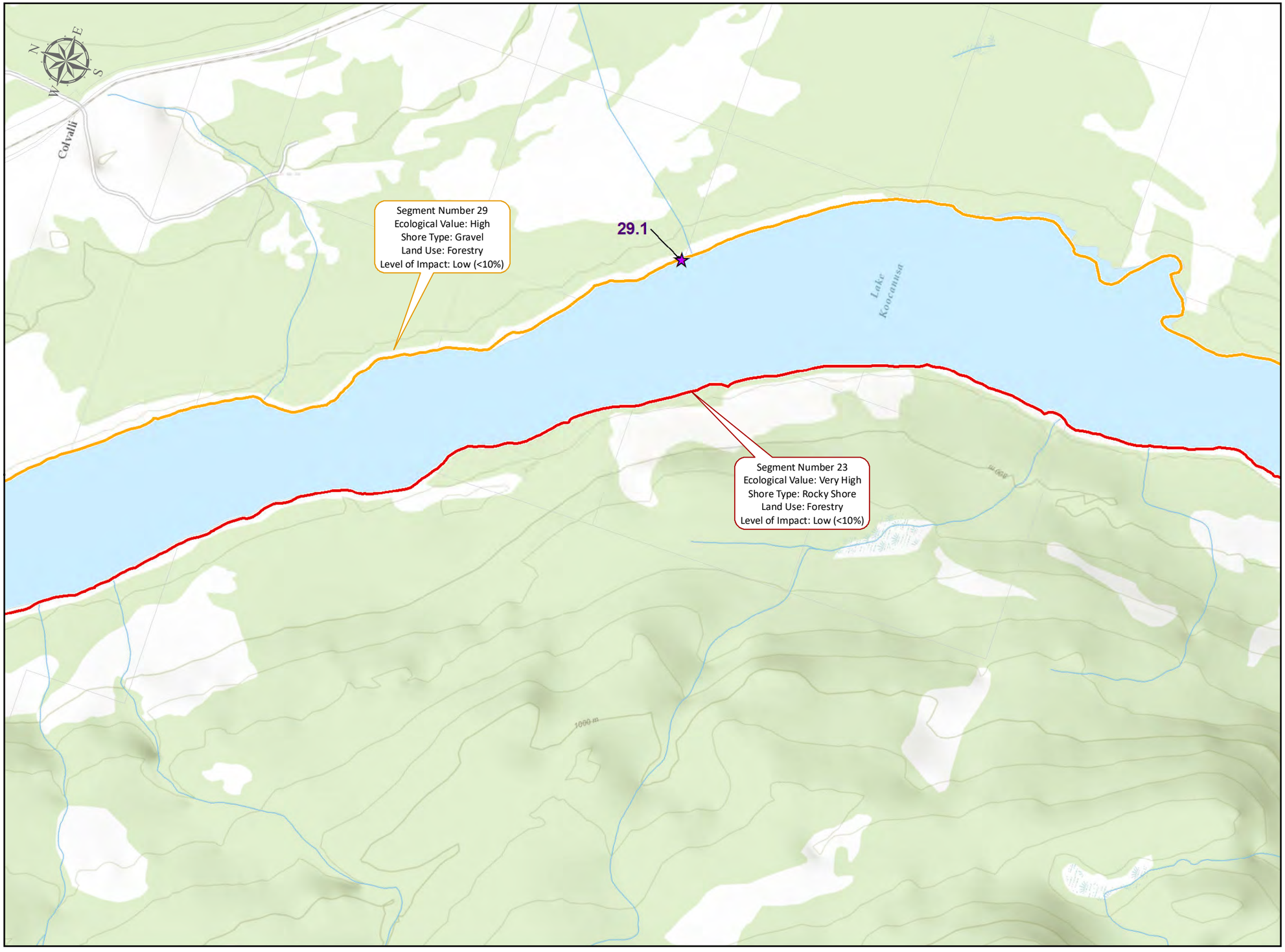
Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP

MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 3

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

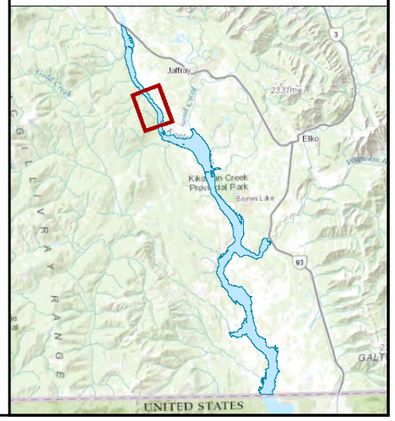
0 250 500 750

Meters

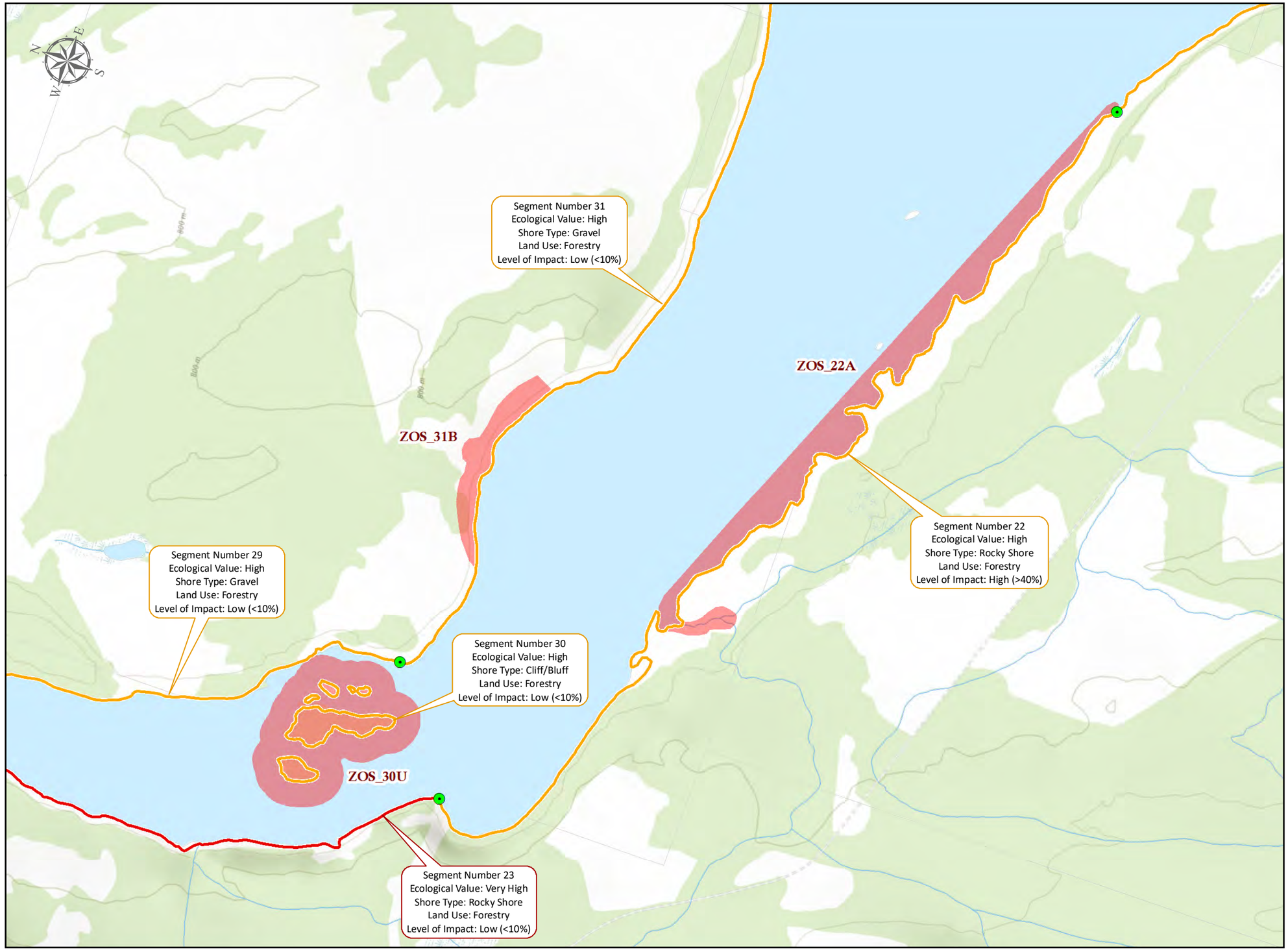
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 4

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

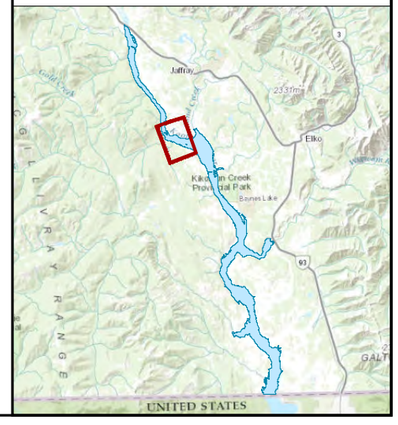
0 250 500 750

Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

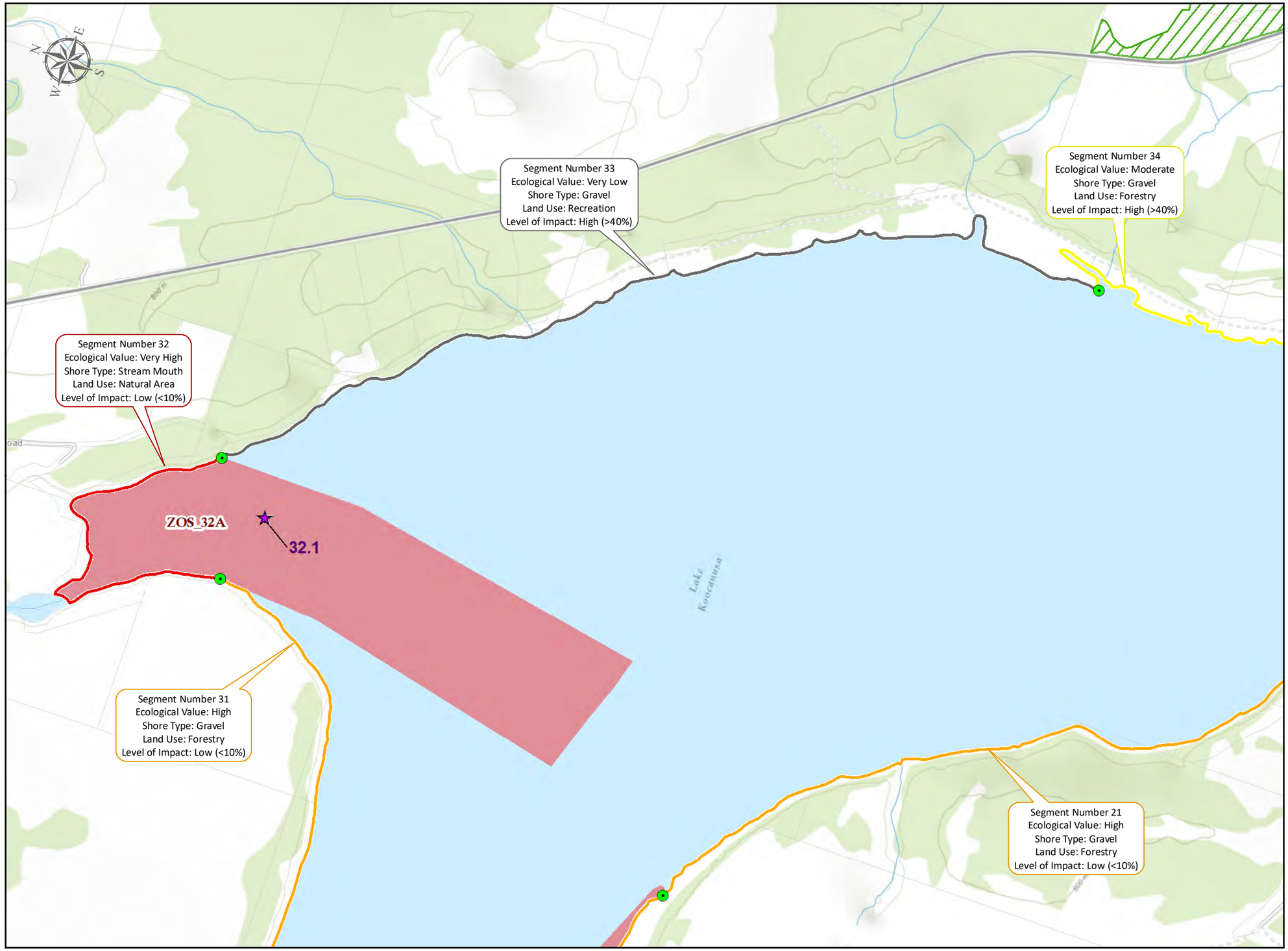
OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd

LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 5



LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

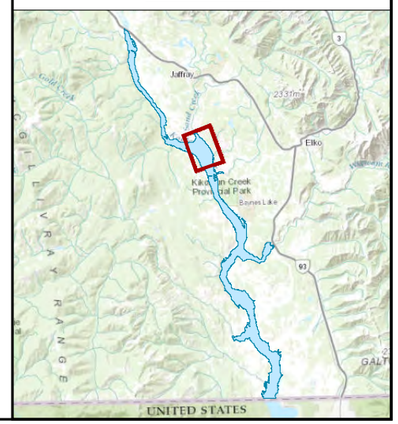
0 250 500 750

Meters

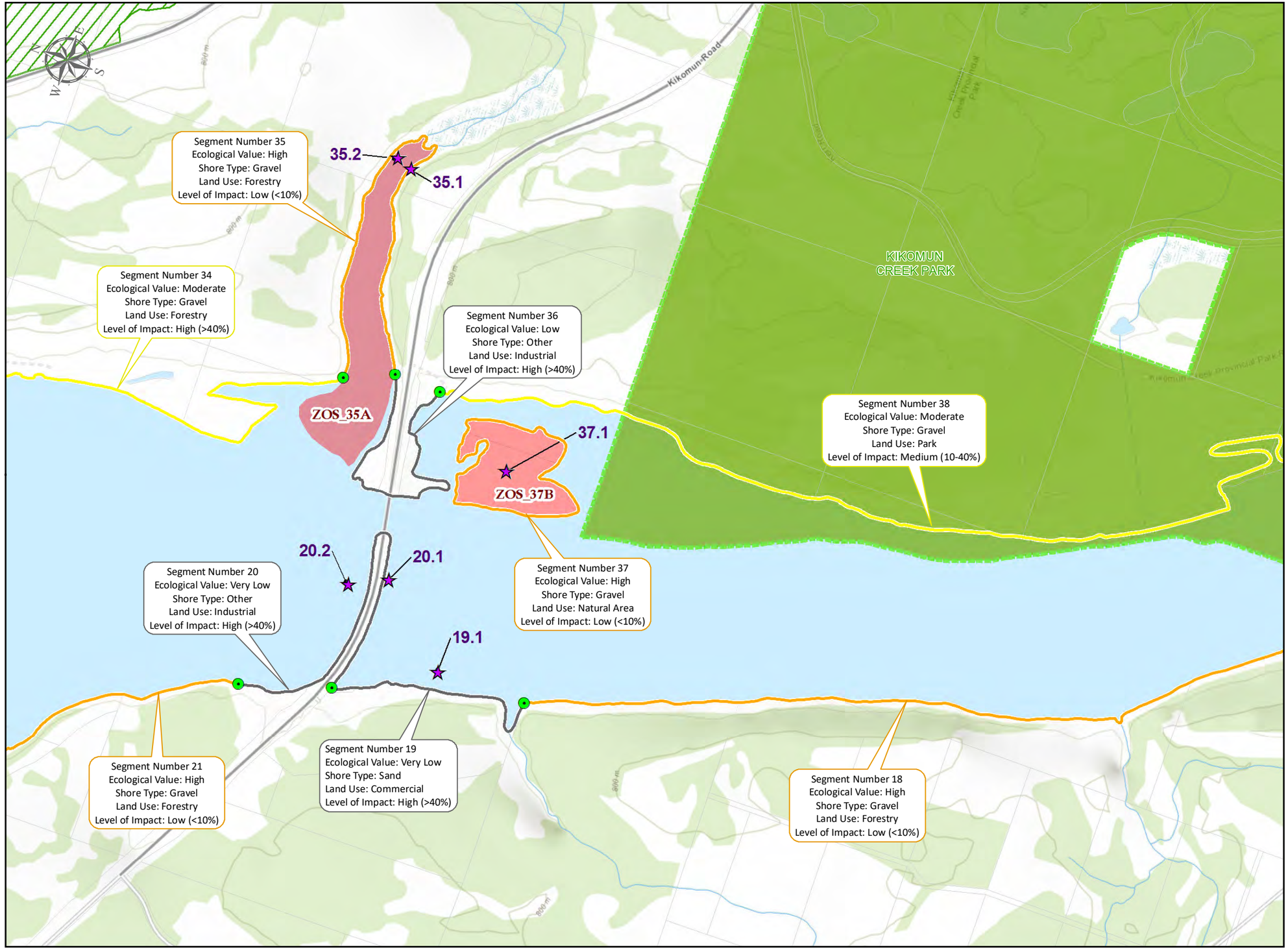
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 6

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

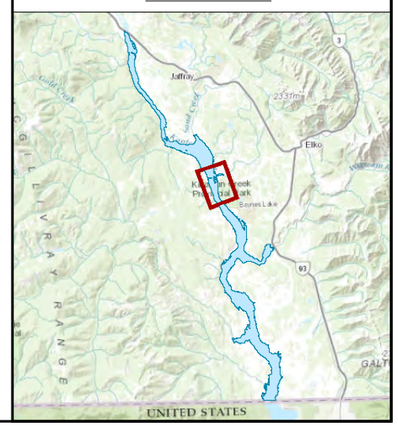
0 250 500 750

Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd

LAKE KOOCANUSA
Shoreline Colour Map Series

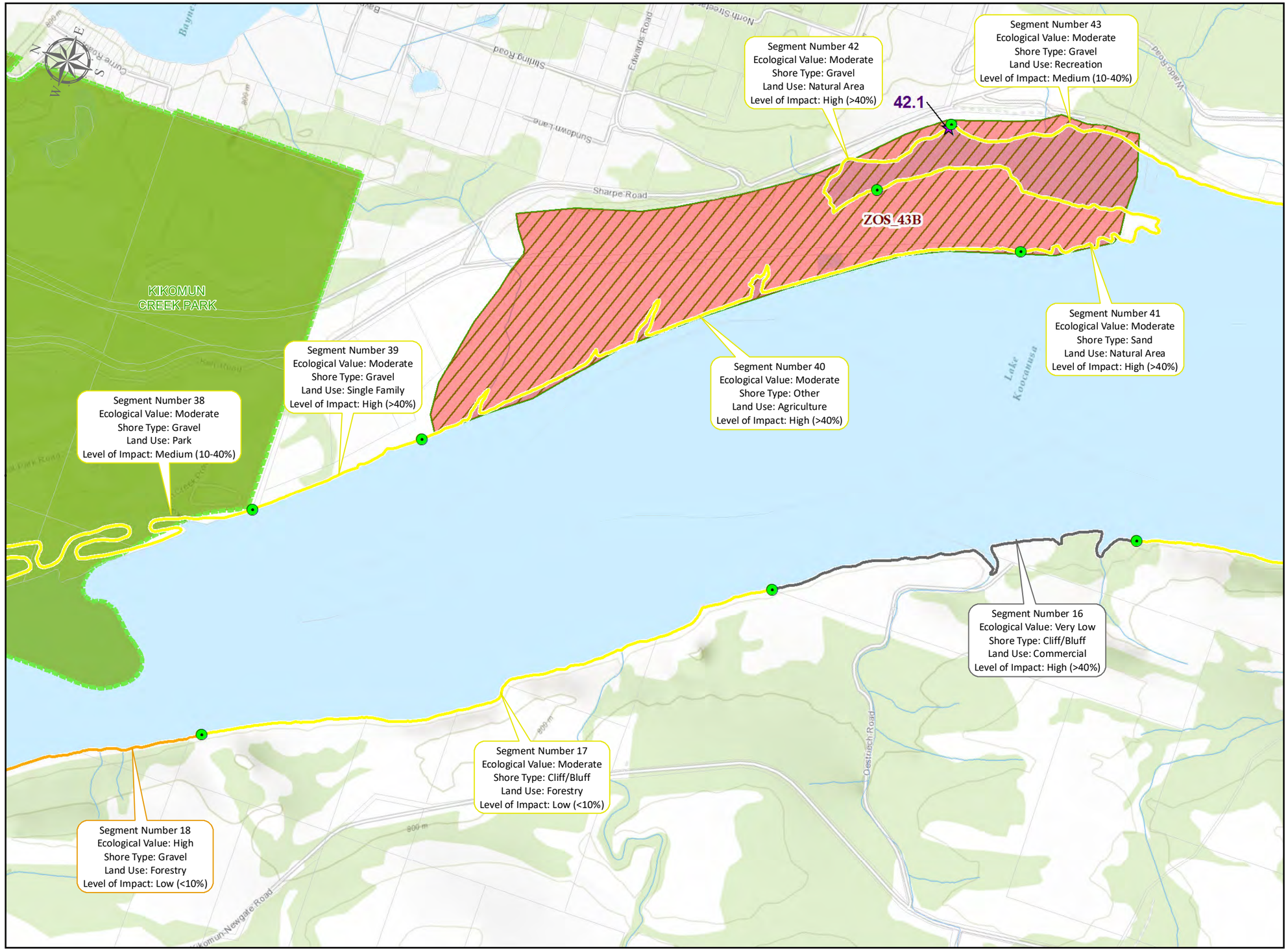
MAP NUMBER: 7

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY



MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

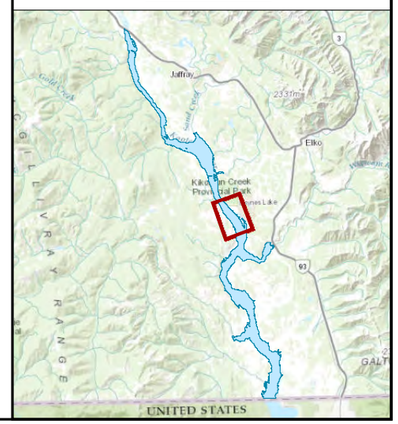
0 250 500 750

Meters

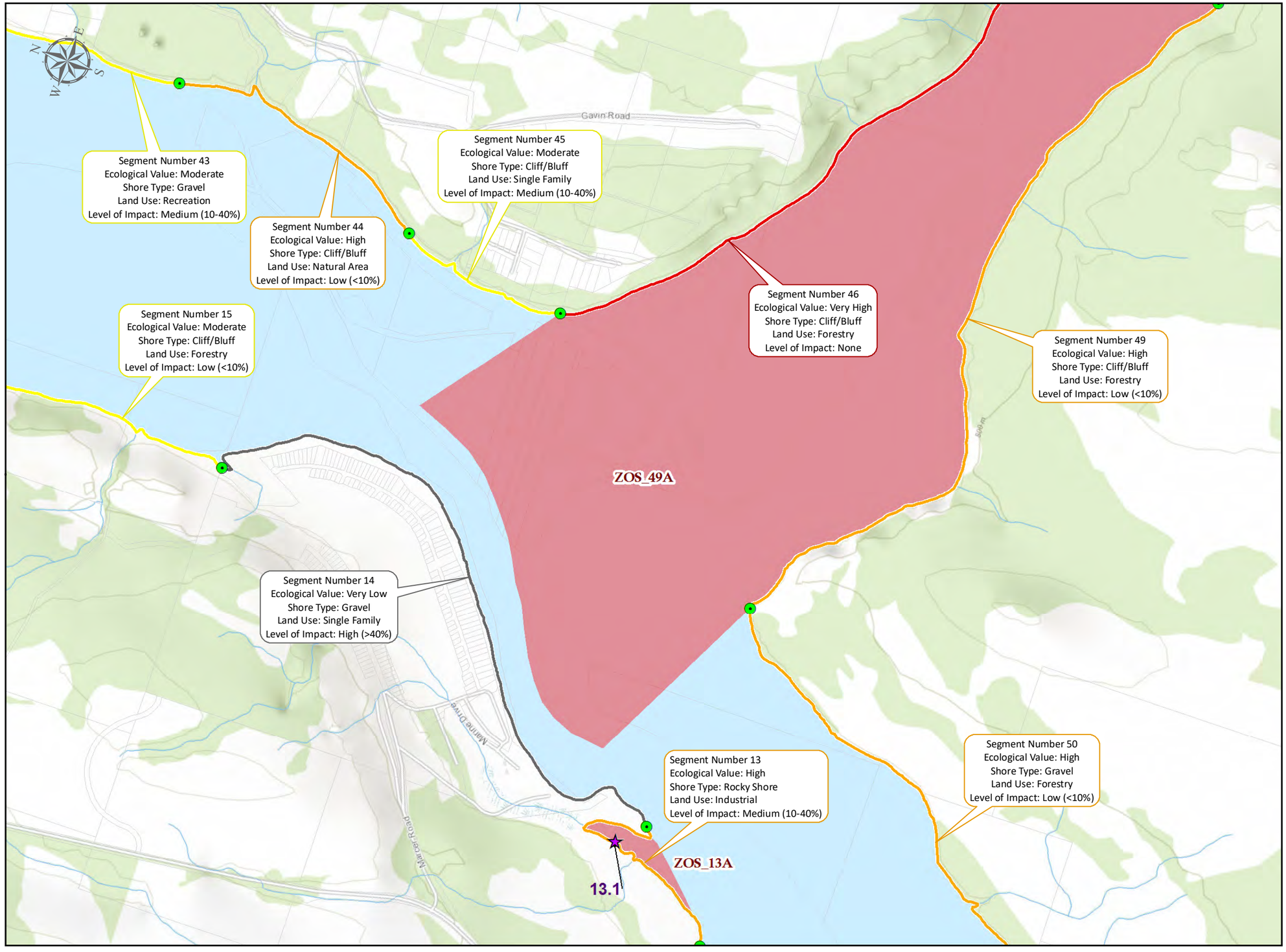
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 8

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

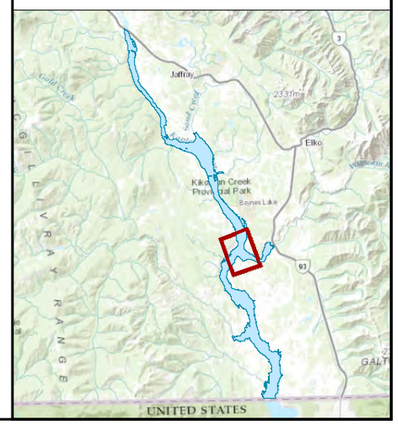
0 250 500 750

Meters

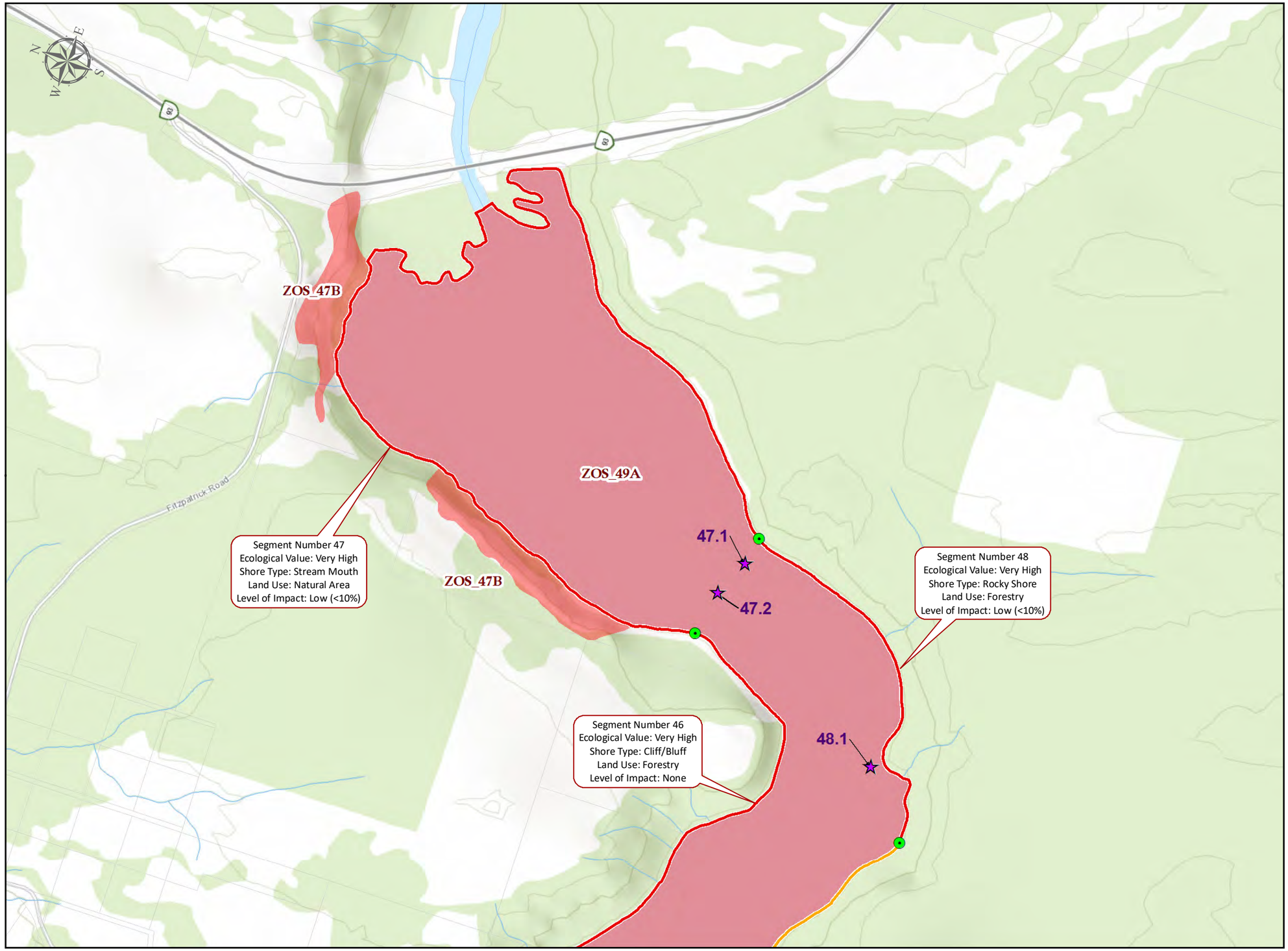
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 9

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

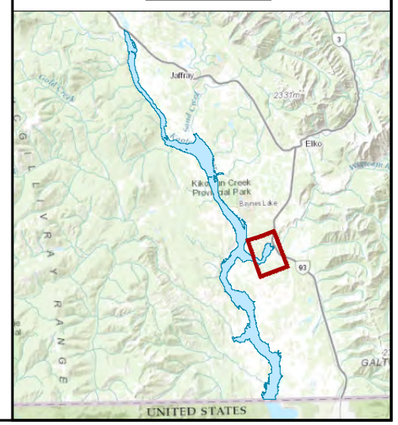
0 250 500 750

Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd

Segment Number 13
Ecological Value: High
Shore Type: Rocky Shore
Land Use: Industrial
Level of Impact: Medium (10-40%)

Segment Number 50
Ecological Value: High
Shore Type: Gravel
Land Use: Forestry
Level of Impact: Low (<10%)

ZOS_13A

13.1

Segment Number 52
Ecological Value: High
Shore Type: Gravel
Land Use: Forestry
Level of Impact: High (>40%)

Segment Number 51
Ecological Value: Moderate
Shore Type: Gravel
Land Use: Forestry
Level of Impact: Low (<10%)

ZOS_12A

Segment Number 12
Ecological Value: Moderate
Shore Type: Rocky Shore
Land Use: Recreation
Level of Impact: Medium (10-40%)

ZOS_10A

Segment Number 11
Ecological Value: High
Shore Type: Cliff/Bluff
Land Use: Forestry
Level of Impact: Low (<10%)

Segment Number 10
Ecological Value: Very High
Shore Type: Rocky Shore
Land Use: Forestry
Level of Impact: Medium (10-40%)

LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 10

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

0 250 500 750

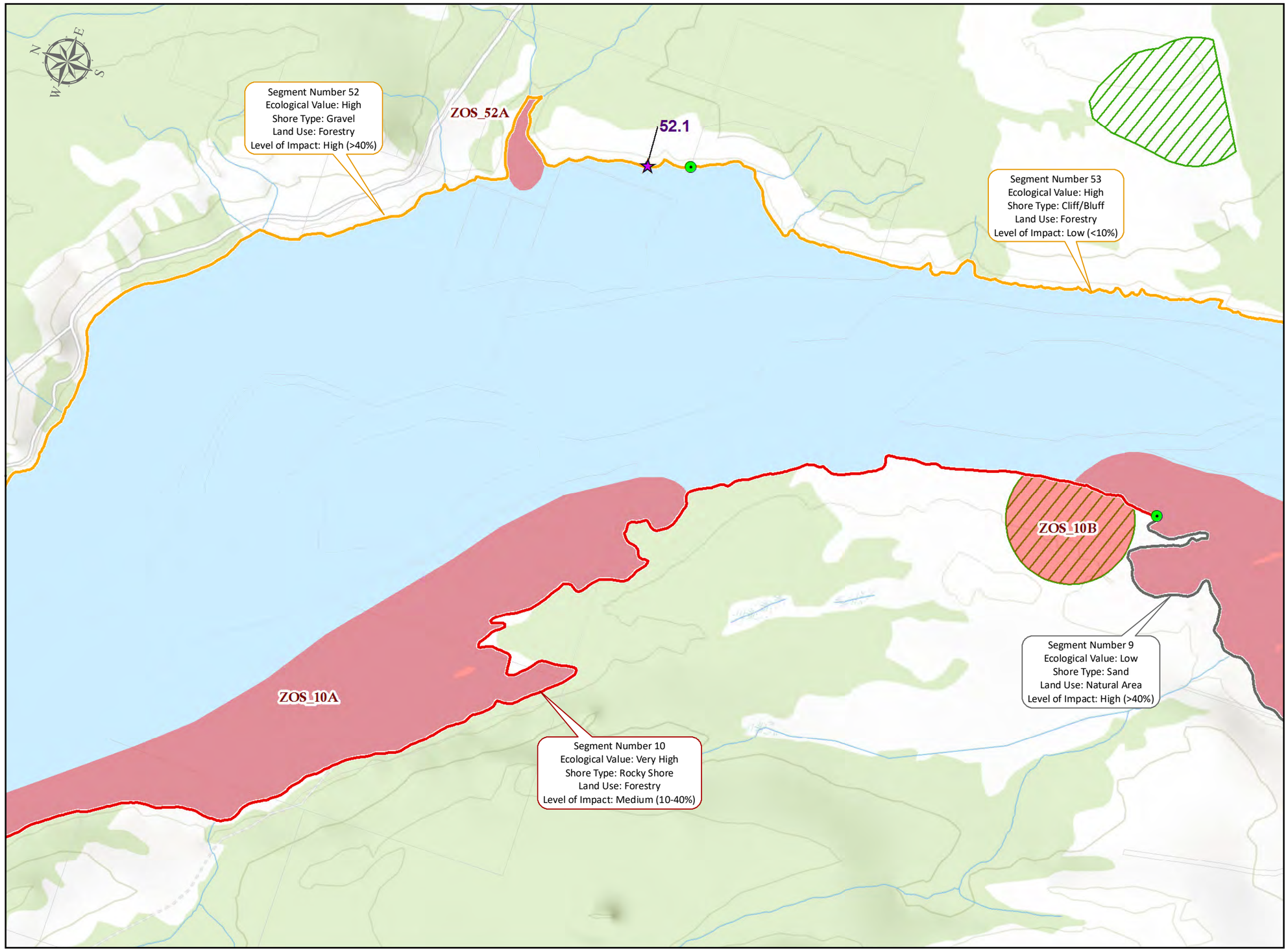
Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP

MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 11

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

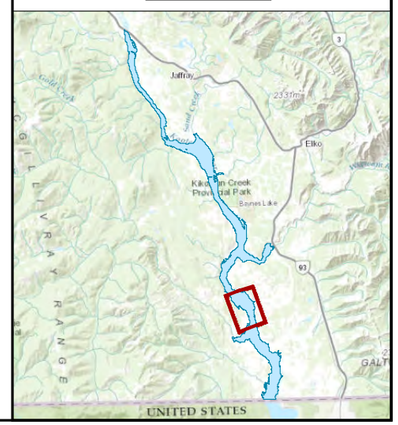
0 250 500 750

Meters

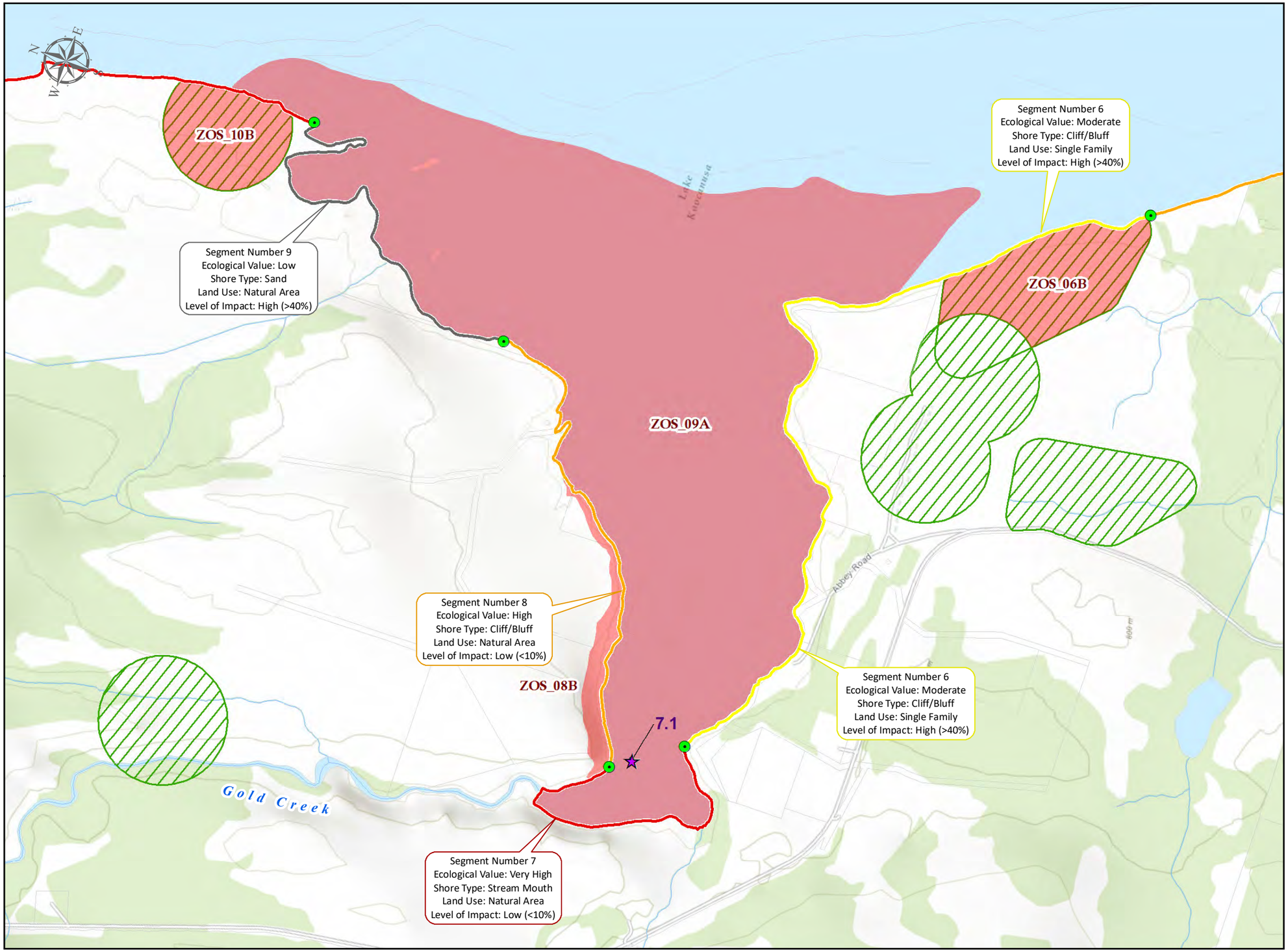
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 12

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

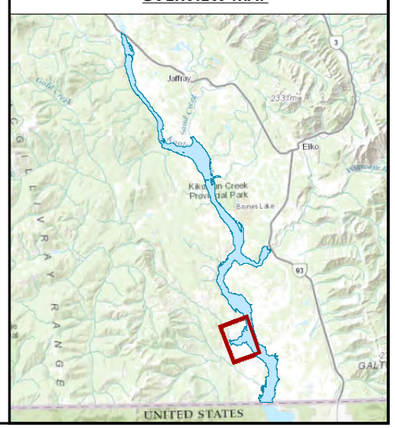
0 250 500 750

Meters

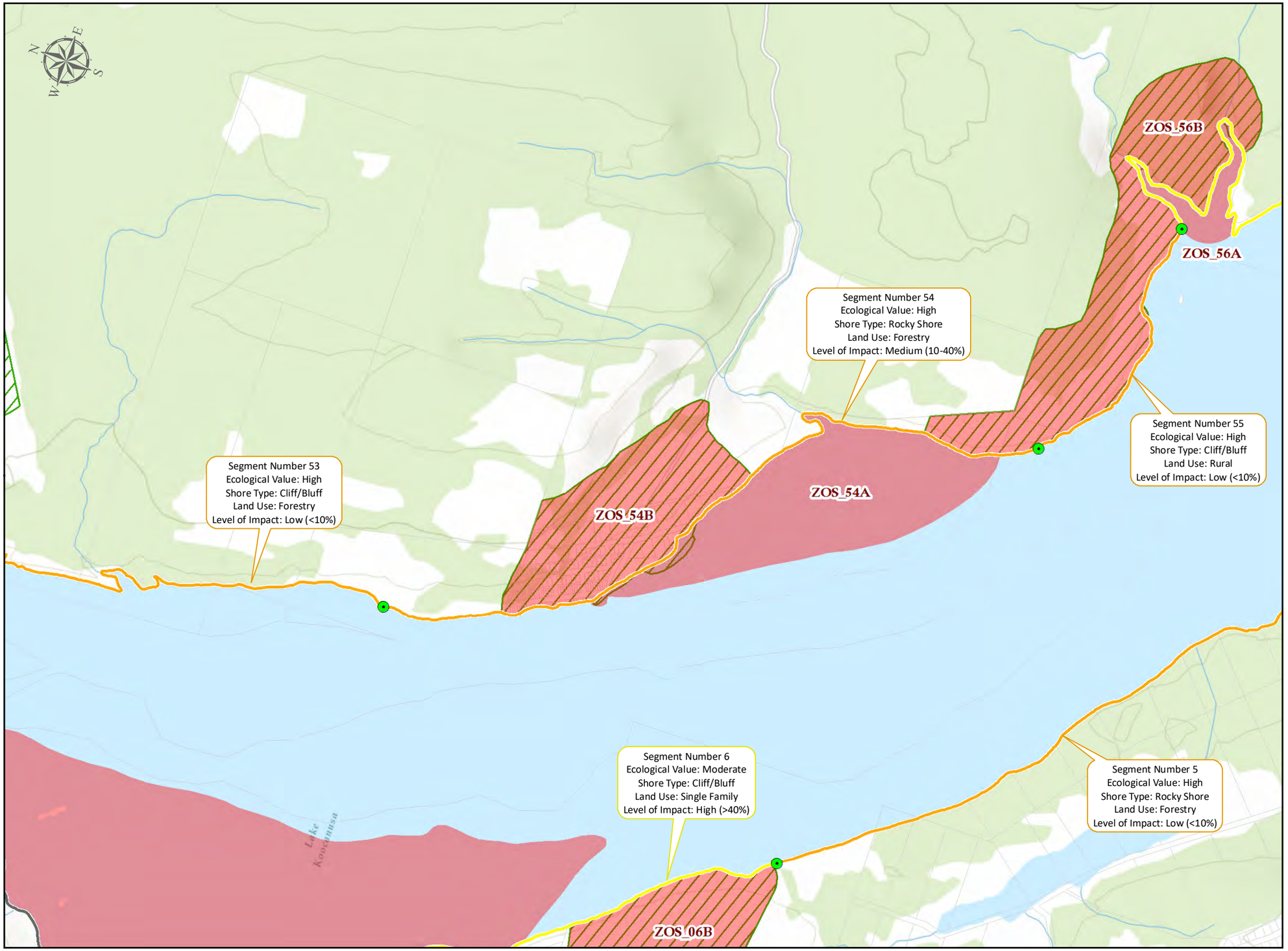
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 13

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

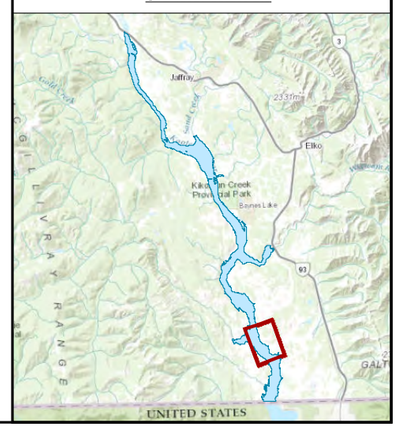
0 250 500 750

Meters

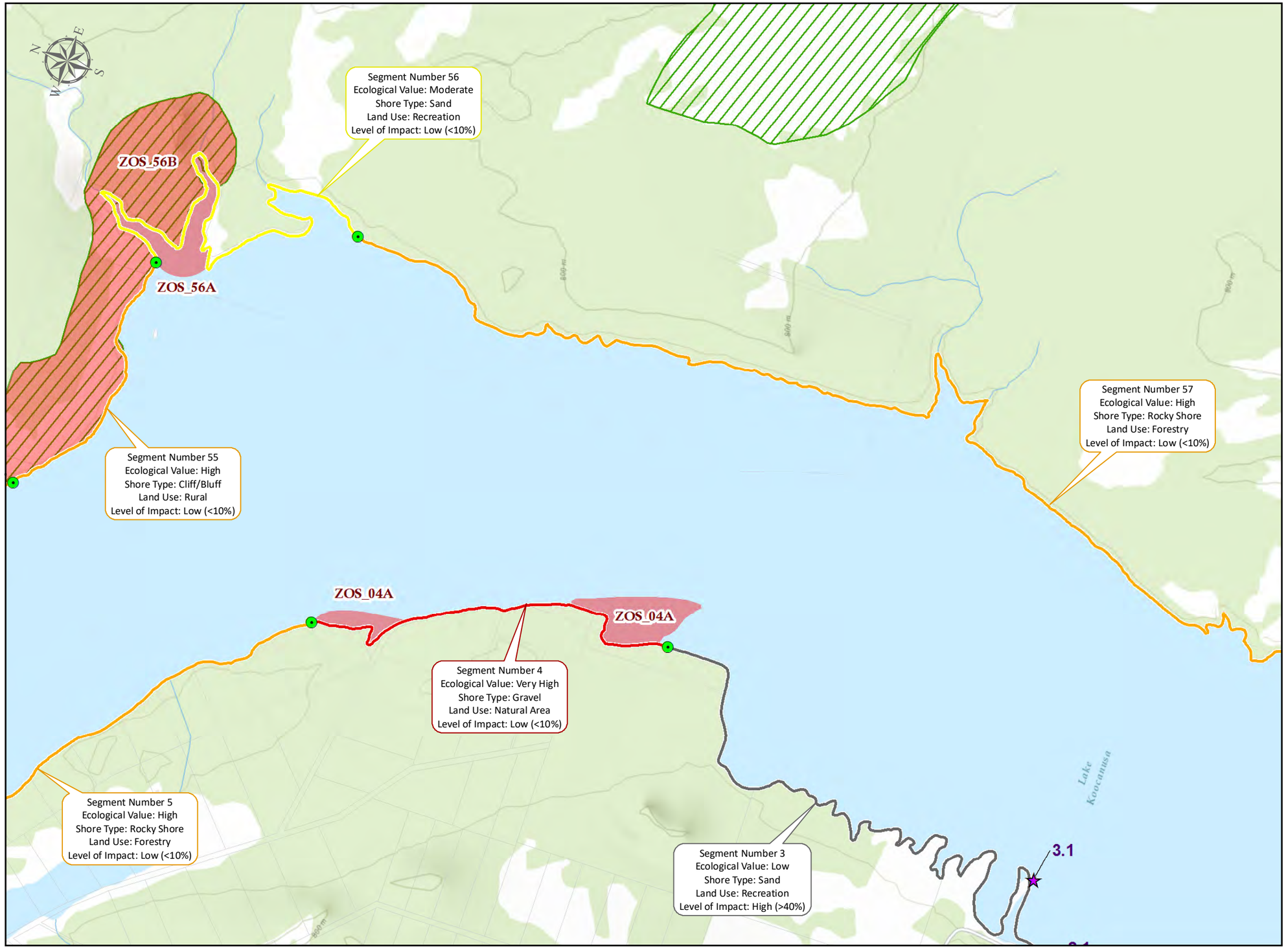
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 14

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	*DH*	**DATE**	*2017-Jun-07*
DRAWING	*DH*	**DATE**	*2017-Jul-28*
REVIEW	*EKILMP*	**DATE**	*2017-Jul-28*
MXD ID	*SHIM_KOOCANUSA_TABLOID*		

1:15,000

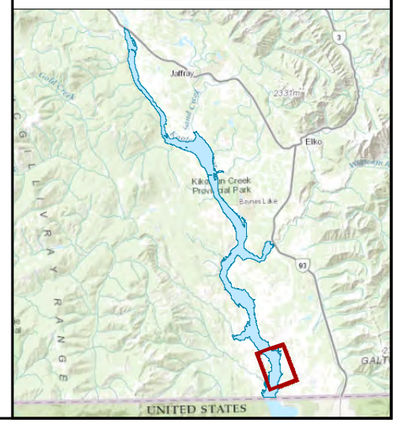
0 250 500 750

Meters

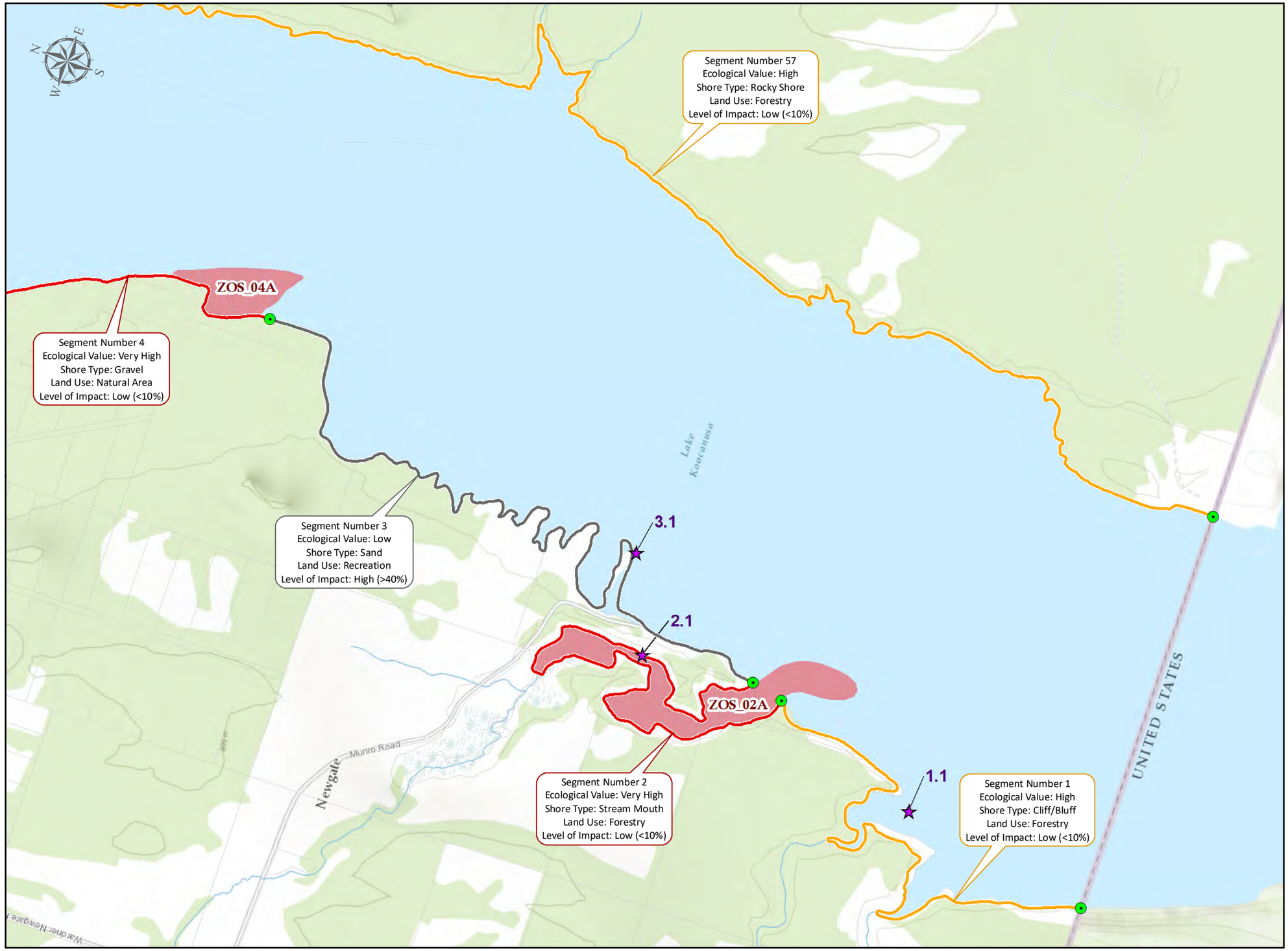
DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd



LAKE KOOCANUSA
Shoreline Colour Map Series

MAP NUMBER: 15

LEGEND

- Segment Break
- Sample Sites
- Provincial Park
- Wildlife Habitat Area (WHA)

SHORELINE COLOUR (Ecological Value)

- RED (Very High)
- ORANGE (High)
- YELLOW (Moderate)
- GREY (Low, Very Low)
- ZONES OF SENSITIVITY

MAP INFORMATION

1. MAP DATUM/PROJECTION: NAD 1983 UTM ZONE 11N.
2. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:15,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.

DESIGN	DH	DATE	2017-Jun-07
DRAWING	DH	DATE	2017-Jul-28
REVIEW	EKILMP	DATE	2017-Jul-28
MXD ID	SHIM_KOOCANUSA_TABLOID		

1:15,000

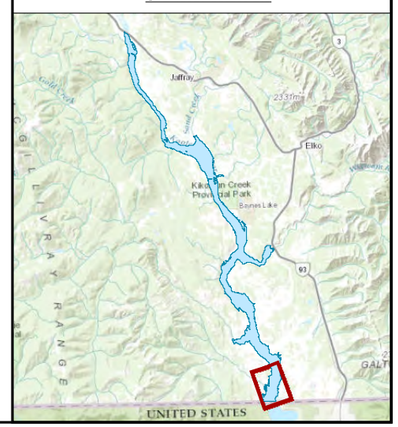
0 250 500 750

Meters

DATA SOURCES

- Topographic Base Maps provided by ArcGIS License
- Shoreline data based on TRIM and modified to more accurately represent full pool extent at time of study
- ZOS: GeoBC WHA or digitized from available data
- Property boundary data provided by RDEK
- Parks/Protected Areas/WHA - GeoBC

OVERVIEW MAP



MXD Path: P:\16.0107.00_Lake Koocanusa SHIM\GIS\MXD_DATA\SHIM_KOOCANUSA_TABLOID.mxd

APPENDIX B: ADDITIONAL REGULATORY REQUIREMENTS

REGULATORY FRAMEWORK AND OPERATIONAL GUIDELINES

This section provides a summary of federal and provincial environmental legislation upon which protection and mitigation plans were developed for this project.

FEDERAL LEGISLATION

Canada Fisheries Act provides broad prohibition from polluting waters with substances that are deleterious to fish and fish habitat, and of works that result in "harmful alteration, disruption or destruction" (HADD) of fish habitat, unless authorized by the Minister of the Department of Fisheries and Oceans (DFO) in exchange for the compensation of similar habitat that avoids "no net loss" of productive habitat.

Species at Risk Act prevents Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, provides for the recovery of endangered or threatened species, and encourages the management of other species to prevent them from becoming at risk.

Canada Migratory Birds Convention Act implements an internationally recognized Convention between Canada and the United States to protect various species of migratory game birds, migratory insectivorous birds, and migratory non-game birds including herons. The taking of nests or eggs of migratory game, insectivorous, or non-game birds is prohibited, except for permitted scientific or propagating purposes.

Canadian Environmental Protection Act addresses "cradle-to-grave" management of persistent toxic substances, and requires assessment of new substances prior to their introduction into Canada, placing the onus on manufacturers and importers of chemical compounds to prove their safety to human health and the environment.

Navigation Protection Act regulates works that may result in permanent or temporary obstacles or navigational hazards in all navigable Canadian waters.

Transportation of Dangerous Goods Act regulates the transport of all dangerous goods in Canada, whether by rail, road, air, or water, and establishes safety standards and documentation to be complied with such that all containers, packages, and means of transport are clearly marked with applicable prescribed safety marks. It also establishes requirements regarding emergency response assistance plans.

Pesticides Act is intended to 1) prevent and mitigate harmful effects to the environment and human health, and 2) rationalize and reduce the use of pesticides. The Act promotes the analysis, assessment and control of the effects of the use of pesticides through specific activities intended to widen knowledge about these products (environmental monitoring, for example).

PROVINCIAL LEGISLATION

British Columbia Wildlife Act prohibits, except by regulation, the taking, injuring, molesting, or destroying of: (a) a bird or its egg; (b) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron, or burrowing owl; (c) or the nest of any other bird species when the nest is occupied by a bird or its egg.

British Columbia Water Sustainability Act and Fish Protection Act provides for the management of surface water through the allocation of rights to divert, store or use water for any purpose, and provides a means

to ensure access to an authorized source of water and to acquire land to protect water quality for domestic use. Establishes an approval mechanism to enable works "in and about a stream", as well as short-term use of water to facilitate construction needs.

British Columbia Environmental Management Act establishes, among others, the Contaminated Sites Regulation, Hazardous Waste Regulation, and Spill Reporting Regulation and provides a permitting system to enable the authorized discharge of effluent to water, disposal of solid waste to land, and discharge of emissions to the atmosphere. This Act provides guidelines for the regulation of activities which introduce waste into the environment, store special waste, or treat or recycle special waste.

British Columbia Heritage Conservation Act protects all archaeological sites on provincial Crown or private land that predate AD 1846.

British Columbia Fire Services Act establishes the B.C. Fire Code Regulation and the B.C. Fire Code which sets out requirements for the siting, installation, and secondary containment for storage tanks containing flammable and combustible materials.

Regional District of East Kootenay

The Regional District of East Kootenay (RDEK) provides local government services to rural areas outside municipal boundaries. The RDEK functions as a partnership of the municipalities and electoral areas (unincorporated areas) within its boundaries. These local governments work together through the RDEK to provide and coordinate services in both urban and rural areas. Regional districts are governed by the *Local Government Act* and other provincial legislation.

Lake Koocanusa Official Community Plan (OCP), Bylaw No. 2432, 2013.

The OCP is a long term strategic planning document intended to guide and direct decision making with respect to the change or conservation of land uses.

APPENDIX C: BEST MANAGEMENT PRACTICES AND REGIONAL OPERATING STATEMENTS

Many provincial and federal agencies have developed Best Management Practices (BMP) in order to provide consistent direction to the public on acceptable development methods. The BMPs provide information to help ensure that proposed development activities are planned and carried out in compliance with the various applicable legislation, regulations, and policies. The range of activities that associate BMPs is broad.

The province of BC has, over a period of many years, developed a series of BMPs. These have evolved into "Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia." The Develop with Care Guidelines have links to several provincial BMPs related to shoreline development activities. Examples are as follows:

- Standards and Best Management Practices for Instream Works;
- Best Management Practices for Small Boat moorage on Lakes
- Timing and Terms and Conditions for Changes In and About a Stream Specified by MOE Habitat Officers, Kootenay Region
- Small Boat Moorage
- Boat Launch Construction and Maintenance on Lakes
- Lakeshore Stabilization
- Installation and Maintenance of Water Line Intakes
- Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia
- Best Management Practices for Amphibians and Reptiles in Urban and rural Environments in BC
- Best Management Practices for Recreational Activities on Grasslands in the Thompson and Okanagan Basins

The Regional Operating Statements (ROS) developed by DFO, provide information regarding several low risk activities associated with shoreline development, including but not limited to:

- Aquatic Vegetation Removal in Lakes
- Bridge & Culvert Maintenance
- Dock and Boathouse Construction in Freshwater Systems
- Routine Maintenance Dredging for Navigation
- Public Beach Maintenance
- Clear Span Bridges
- Culvert Maintenance
- Directional Drilling
- Small Moorings
- Underwater Cables in Freshwater Systems
- Overhead Line Construction
- Maintenance of Riparian Vegetation in Existing Rights of Ways
- Dry Open Cut Stream Crossing
- Isolated Ponds