



Watershed Planning and Management in the North Saskatchewan River Basin

Presentation to
City of Fort Saskatchewan Council
Jan 24, 2017

North Saskatchewan Watershed Alliance (NSWA)

- ◆ A multi-stakeholder, non-profit society (Incorporated 2000)
- ◆ Charitable Status 2016
- ◆ Appointed **WPAC** under *Water for Life* by GOA in 2005
- ◆ Current Staff: 8 FTE
- ◆ 2016-17 Budget: \$725K
- ◆ Contributions from 30+ municipalities



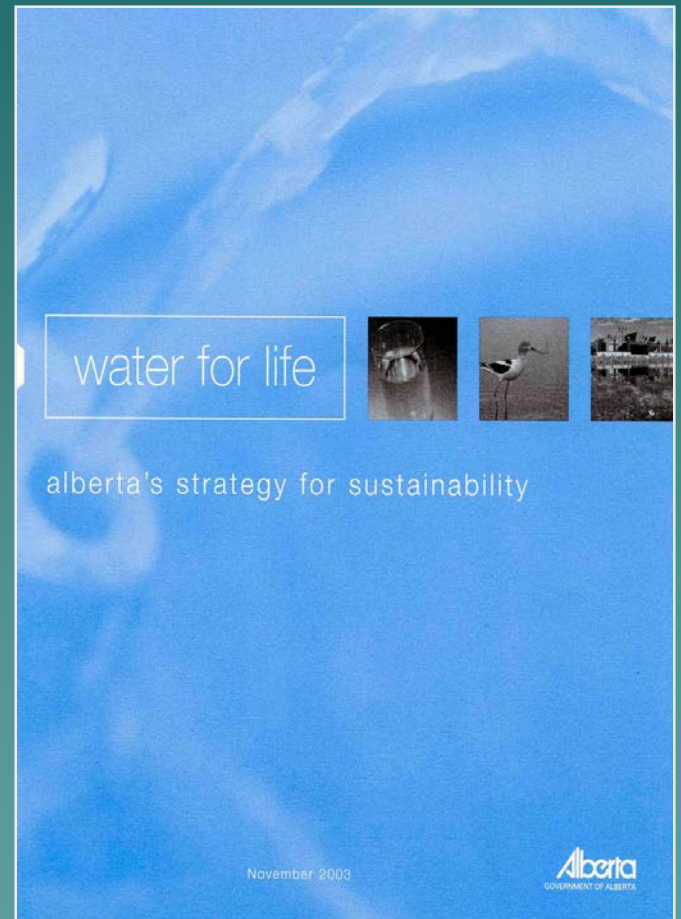
Water for Life Strategy (2003)

◆ Goals

- Safe drinking water
- Healthy aquatic ecosystems
- Reliable water supplies for a sustainable economy

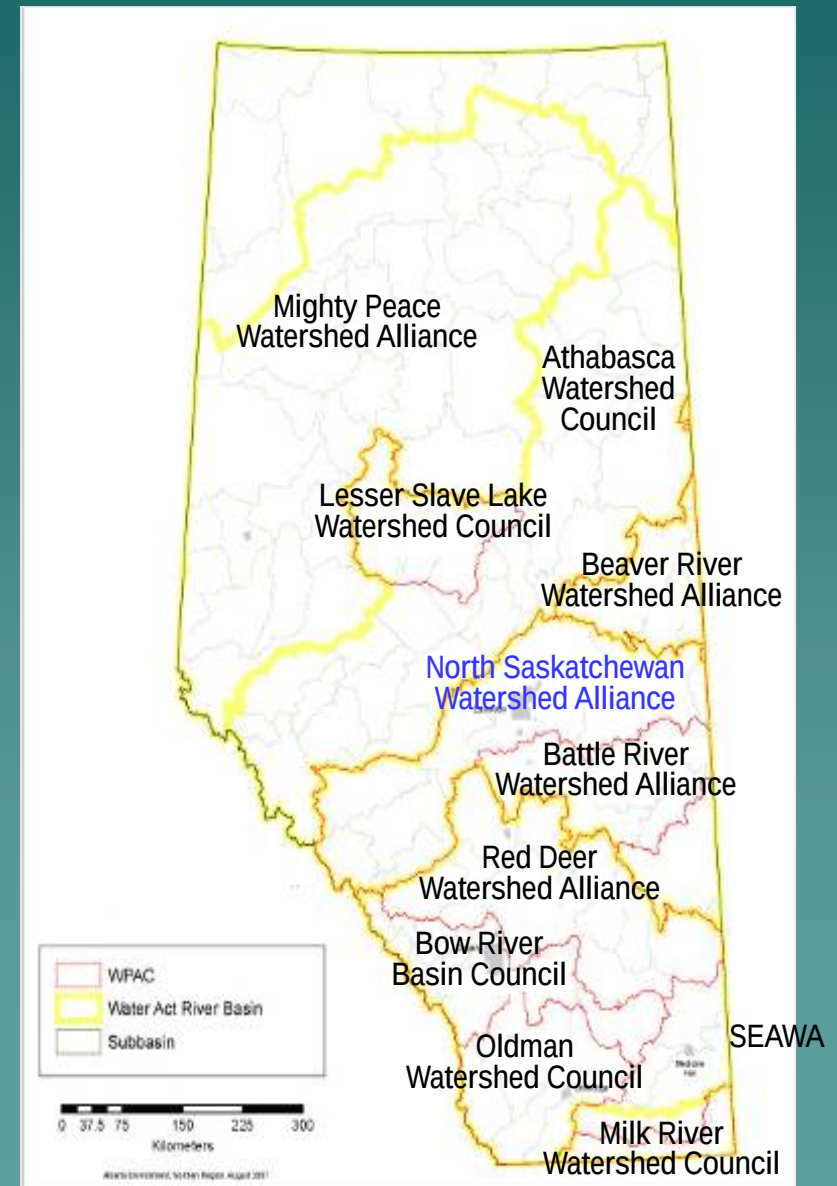
◆ Approaches

- Knowledge and research
- Water conservation
- **Create partnerships (WPACs)** to *“lead watershed planning and foster stewardship”*



Watershed Planning & Advisory Councils

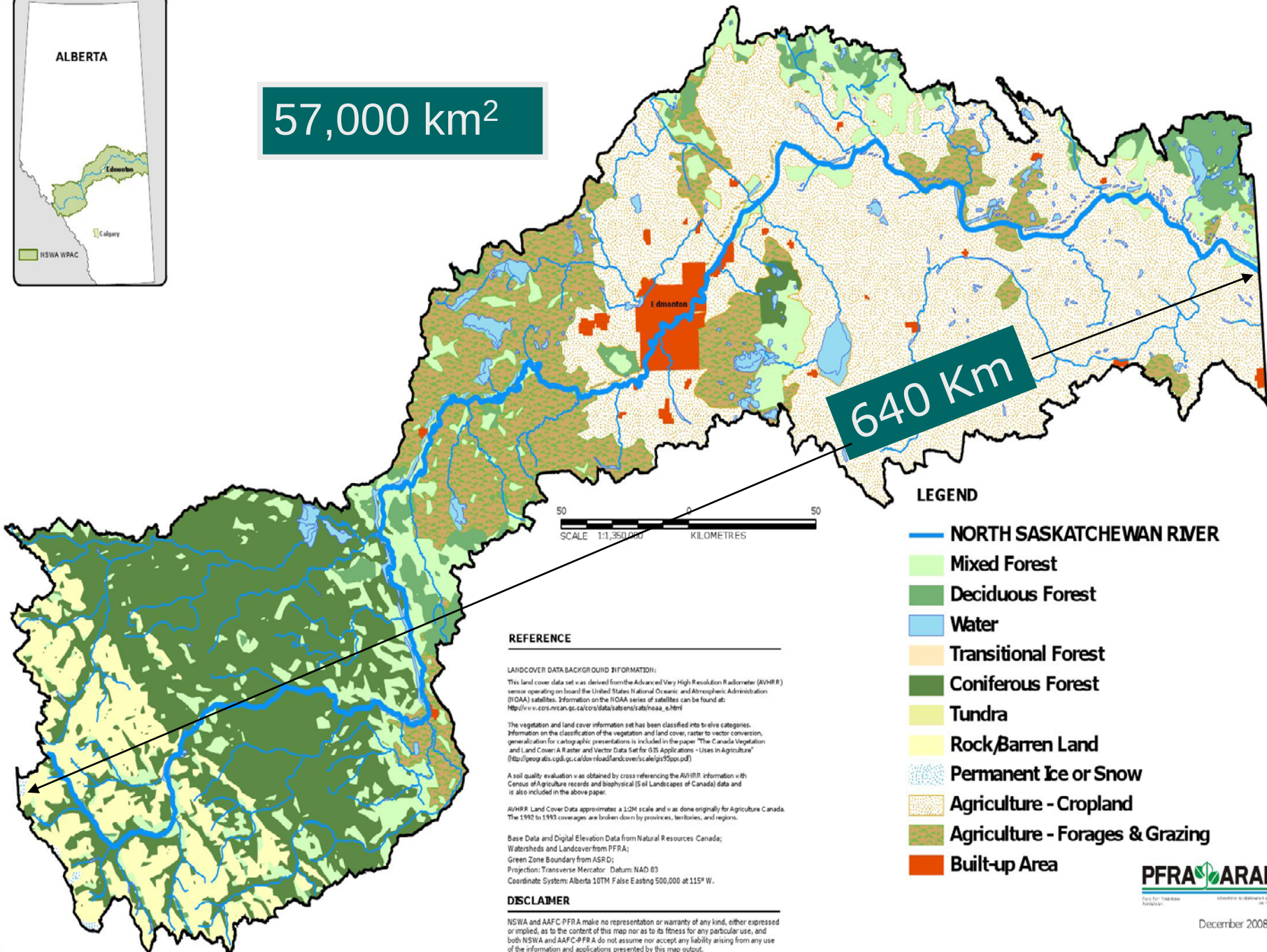
- ◆ **Eleven WPACs** appointed
- ◆ WPACs collaborate regularly
- ◆ WPAC roles:
 - Prepare State of Watershed Reports
 - Prepare Watershed Management Plans
 - Contribute knowledge
 - Support municipalities and local watershed stewardship groups





57,000 km²

640 Km



LEGEND

- NORTH SASKATCHEWAN RIVER
- Mixed Forest
- Deciduous Forest
- Water
- Transitional Forest
- Coniferous Forest
- Tundra
- Rock/Barren Land
- Permanent Ice or Snow
- Agriculture - Cropland
- Agriculture - Forages & Grazing
- Built-up Area

REFERENCE

LANDCOVER DATA BACKGROUND INFORMATION:

This land cover data set was derived from the Advanced Very High Resolution Radiometer (AVHRR) sensor operating on board the United States National Oceanic and Atmospheric Administration (NOAA) satellites. Information on the NOAA series of satellites can be found at: http://www.cors.mcm.gc.ca/cors/data/satens/sats/naaa_e.html

The vegetation and land cover information set has been classified into five categories. Information on the classification of the vegetation and land cover, rather than vector conversion, generalization for cartographic presentations is included in the paper "The Canada Vegetation and Land Cover: A Raster and Vector Data Set for GIS Applications - Uses in Agriculture" (<http://geogratis.gc.ca/doc/rldo/landcover/sc/ale/gis95psi.pdf>)

A soil quality evaluation was obtained by cross-referencing the AVHRR information with the Census of Agriculture records and biophysical (Soil Landscapes of Canada) data and is also included in the above paper.

AVHRR Land Cover Data approximates a 12M scale and was done originally for Agriculture Canada. The 1992 to 1993 coverages are broken down by provinces, territories, and regions.

Base Data and Digital Elevation Data from Natural Resources Canada; Watersheds and Landcover from PFRA;

Green Zone Boundary from ASRD;

Projection: Transverse Mercator Datum: NAD 83

Coordinate System: Alberta 10TM False Easting 500,000 at 115° W.

DISCLAIMER

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NSWA Executive Members

- ◆ President: Reeve Pat Alexander
(Clearwater County)
- ◆ Vice-Pres: Ken Crutchfield
(Wildlife Society)
- ◆ Treasurer: Dr. Steve Craik (EPCOR)
- ◆ Secretary: Candace Vanin (AAFC)

NSWA Board Members

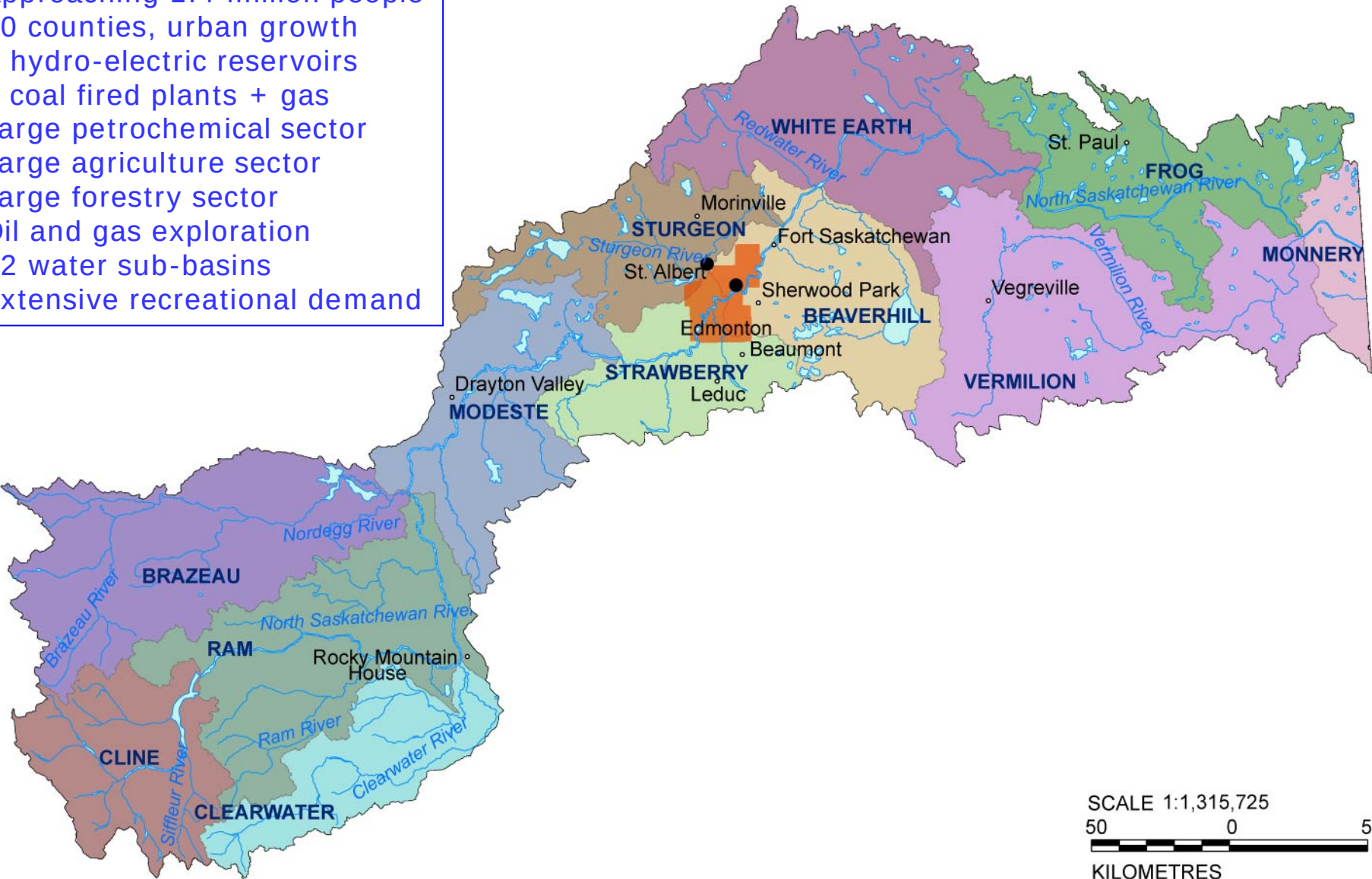
- ◆ Dr. L. Danielson (Northeast Capital Ind. Assoc.)
- ◆ Marc Gressler (Councillor, Brazeau County)
- ◆ John McNab (Councillor, Parkland County)
- ◆ Dwight Dach (Councillor, County of St. Paul)
- ◆ Brian Laustsen (TransAlta)
- ◆ Jason Wilkins (Husky Energy)
- ◆ Bob Winship (Weyerhaeuser Co.)
- ◆ Al Corbett (Drainage Council)
- ◆ Bill Fox (Alberta Beef Producers)
- ◆ Alison Ronson (CPAWS)
- ◆ Jamie Bruha (Alberta Environment and Parks)
- ◆ Tony Lemay (Alberta Energy Regulator)
- ◆ John Thompson (WatreCon Consulting)
- ◆ Advisors (CoE, First Nations, Metis)

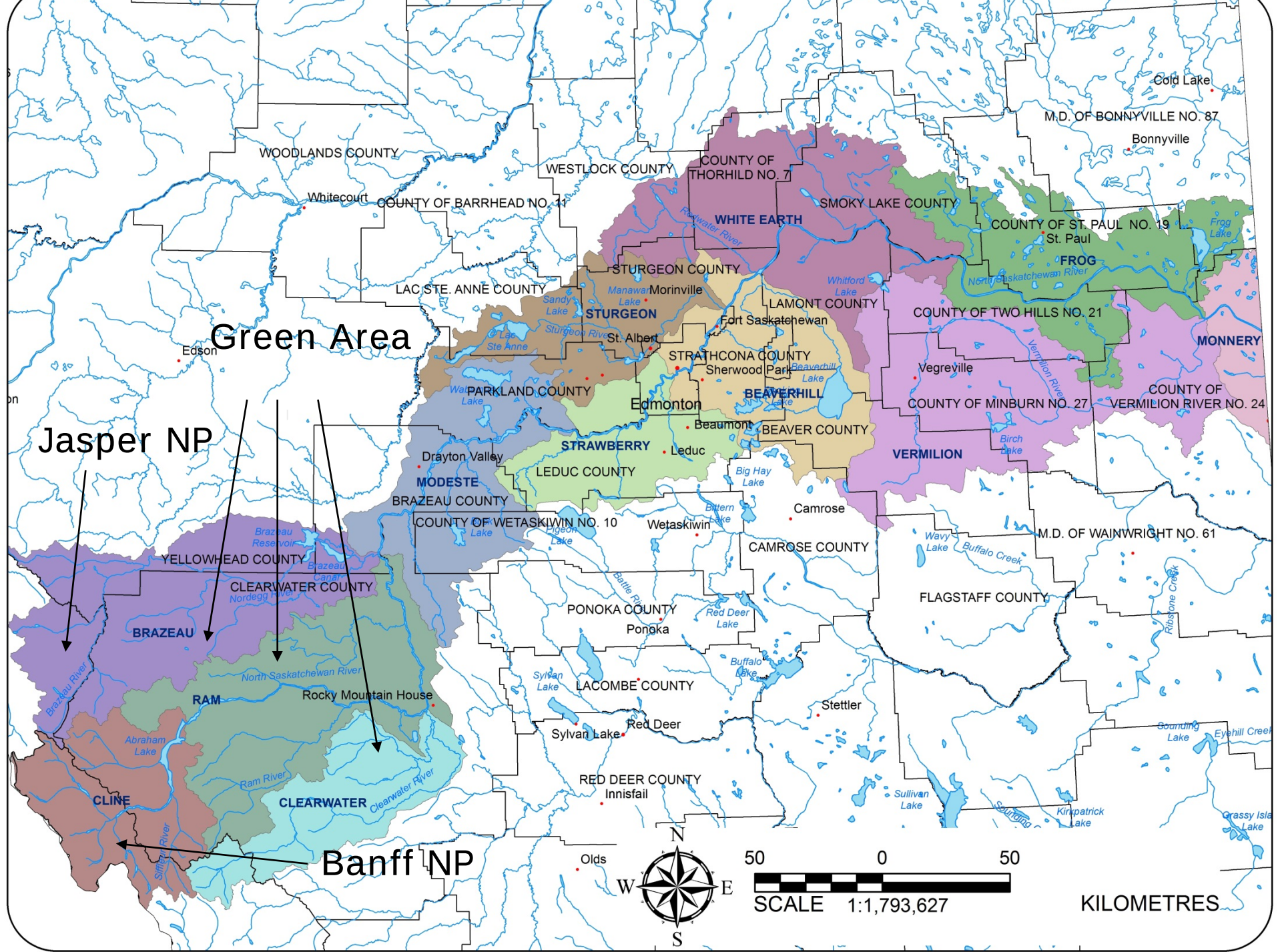
Staff

- ◆ Billie Milholland, B.A. (Communications)
- ◆ Elisa Brose, B.Sc., B.Ed. (Administration)
- ◆ Meghann Wendell (Administration)
- ◆ G. Thompson, P. Eng. (Technical Coordinator)
- ◆ Melissa Logan, P. Biol. (Planning Coordinator)
- ◆ Mary Ellen Shain, M.Sc. (Planning Coordinator)
- ◆ Mara Erickson, M.Sc. (Stewardship Coordinator)
- ◆ Dr. Cristina Buendia-Fores (Technical Advisor)
- ◆ Breda Muldoon, M.Sc (Planning Intern)
- ◆ David Trew (Executive Director)

Major features:

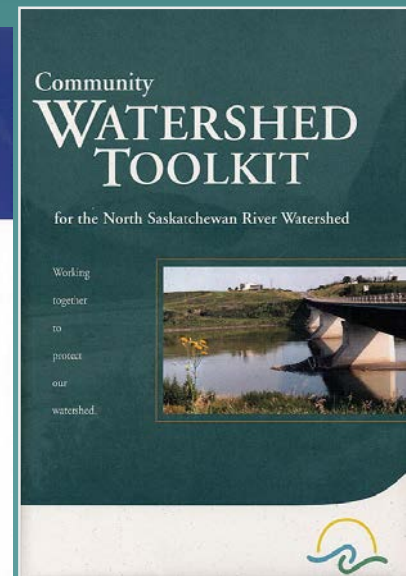
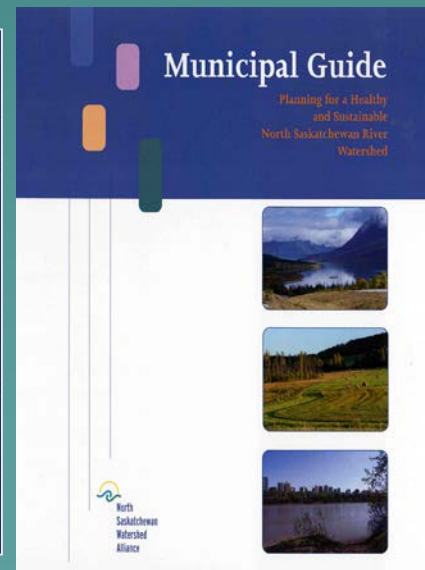
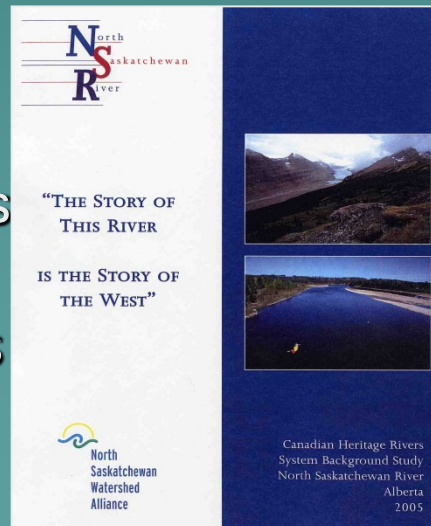
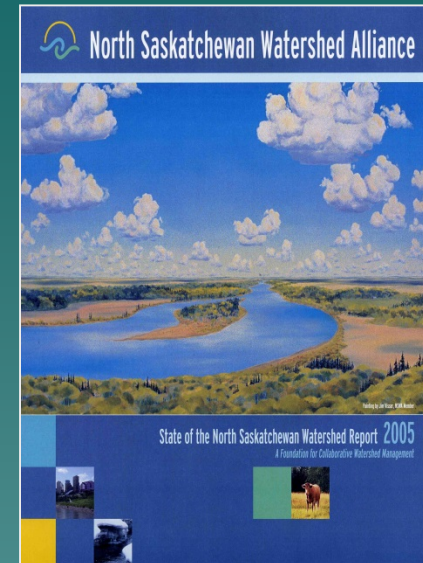
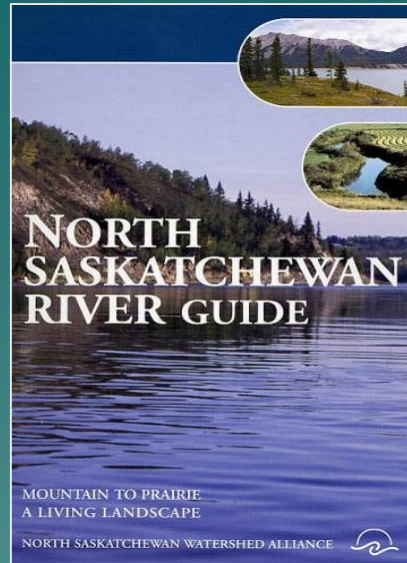
- Approaching 1.4 million people
- 20 counties, urban growth
- 2 hydro-electric reservoirs
- 3 coal fired plants + gas
- Large petrochemical sector
- Large agriculture sector
- Large forestry sector
- Oil and gas exploration
- 12 water sub-basins
- Extensive recreational demand





NSWA Reports

- ◆ North Saskatchewan River Guide (2002)
- ◆ Community Watershed Stewardship Toolkit (2002)
- ◆ Canadian Heritage Rivers Program (2005)
- ◆ State of the Watershed Report (2005)
- ◆ Municipal Resource Guide (2006)
- ◆ 19 technical reports (2006-16)
- ◆ 10 planning reports (2006-16)





Integrated Watershed Management Plan for the North Saskatchewan River in Alberta



North Saskatchewan Watershed Alliance

IWMP Recommendations (2012)

- ◆ Outlines actions and responsibilities for:
 - 1) Water quality protection
 - 2) Water supply management
 - 3) Aquatic ecosystem protection
 - 4) Groundwater protection
 - 5) Alignment of land and water planning at the regional scale

Key Implementation Strategy:

Municipal Watershed Partnerships

Municipal Watershed Partnerships

- ◆ Vermilion River Watershed Alliance
- ◆ Sturgeon River Watershed Alliance
- ◆ Headwaters Alliance
- ◆ Lake Stewardship – Wabamun, Mayatan, Jackfish, Isle, Ste. Anne
- ◆ Capital Region Water Management Framework
- ◆ Blackmud/Whitemud Surface Water Management Group

Vermilion River Watershed Management Plan

Prepared by the Vermilion River Watershed Management Project Steering Committee
on behalf of the North Saskatchewan Watershed Alliance



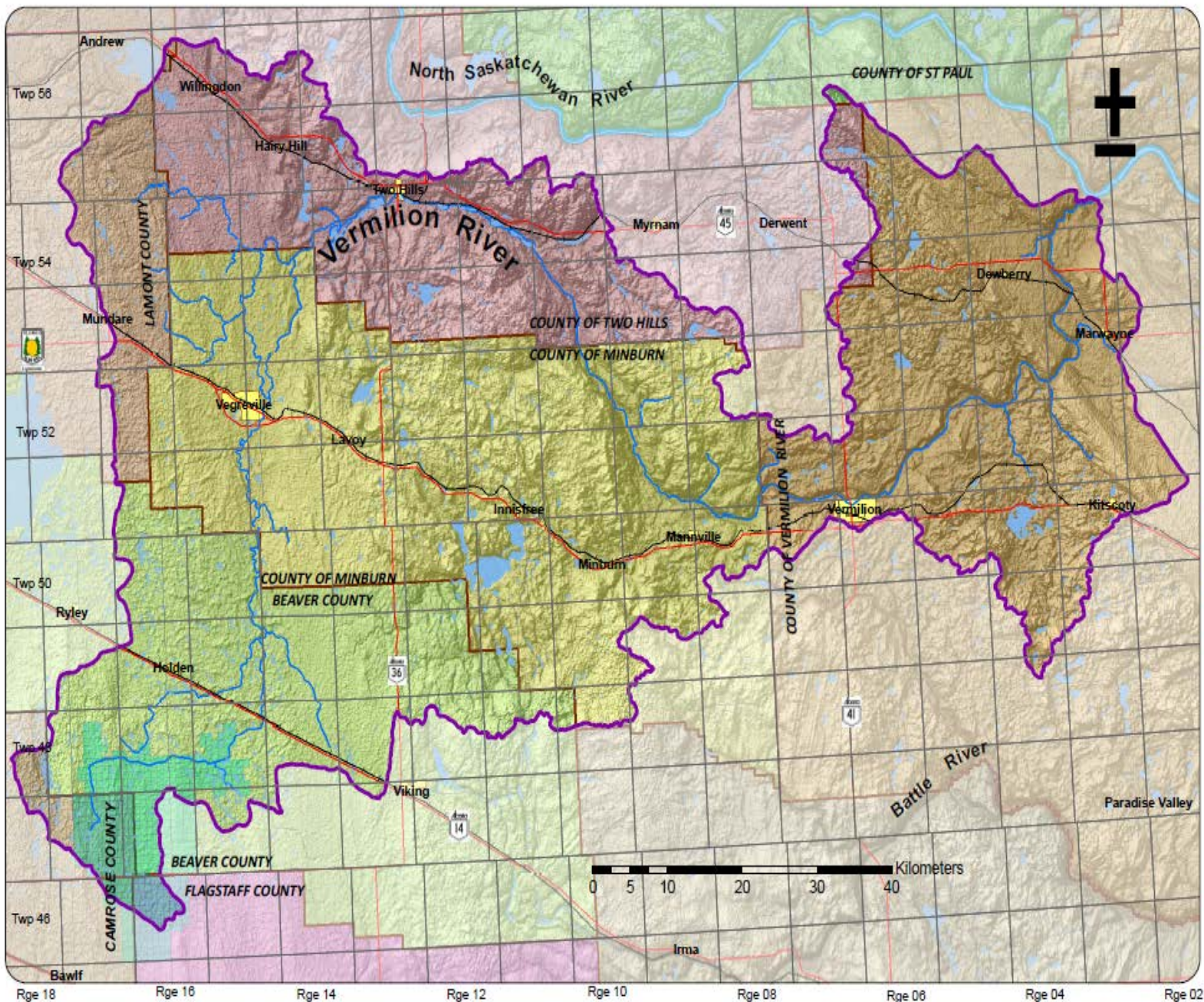


Vermilion River Watershed Basemap



Legend

- Townships
- Vermilion Watershed
- Highway
- Roads
- Rail
- Vermilion River
- Holden Drainage District
- Urban Municipalities
- Rural Municipalities



Vermilion River Watershed Alliance

-Council Representatives-

Pat Gordeyko, County of Two Hills

Ed Parke, County of Vermilion River

Dale Collison, Beaver County

Roger Konieczny, Minburn County

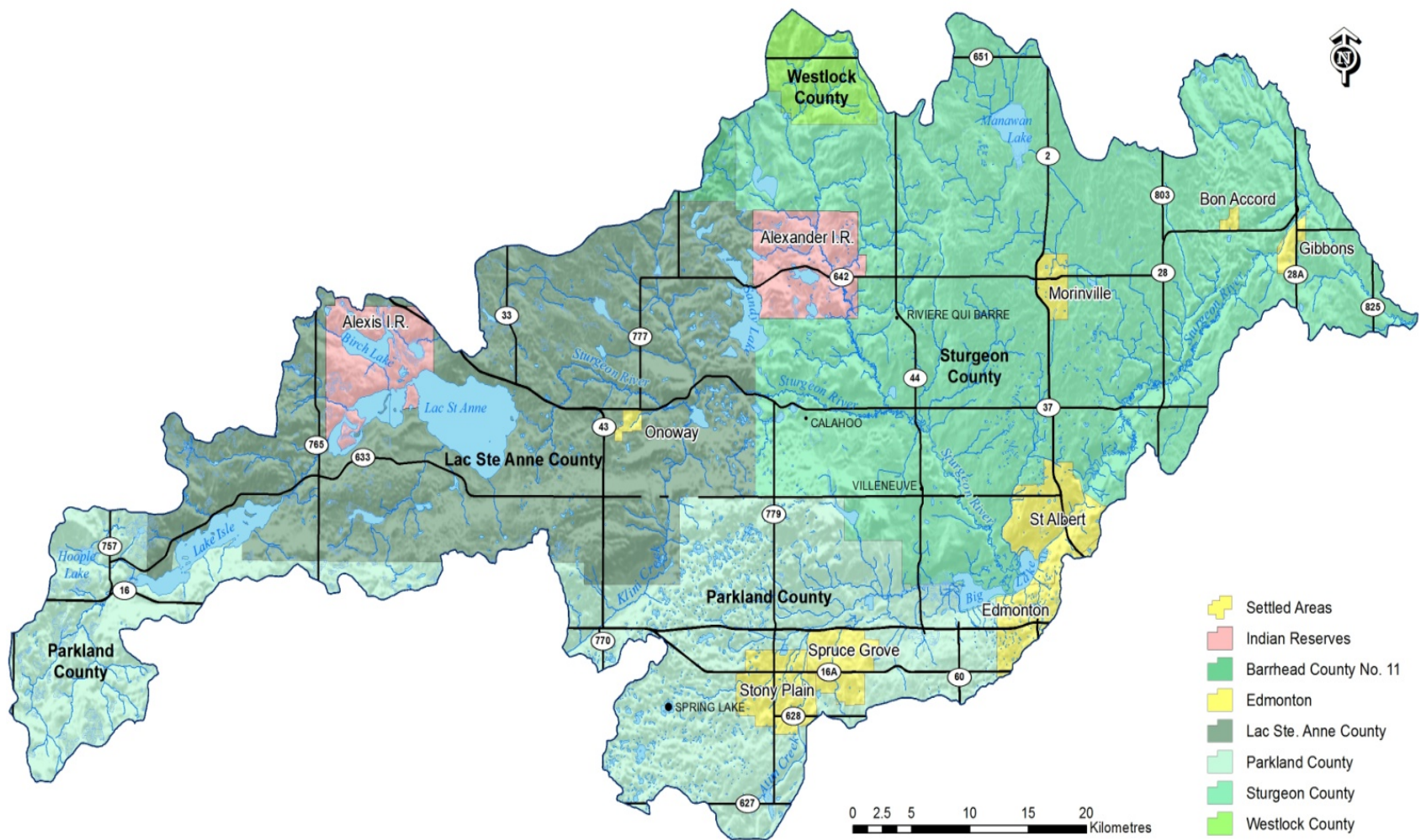
Dwight Dach, County of St Paul

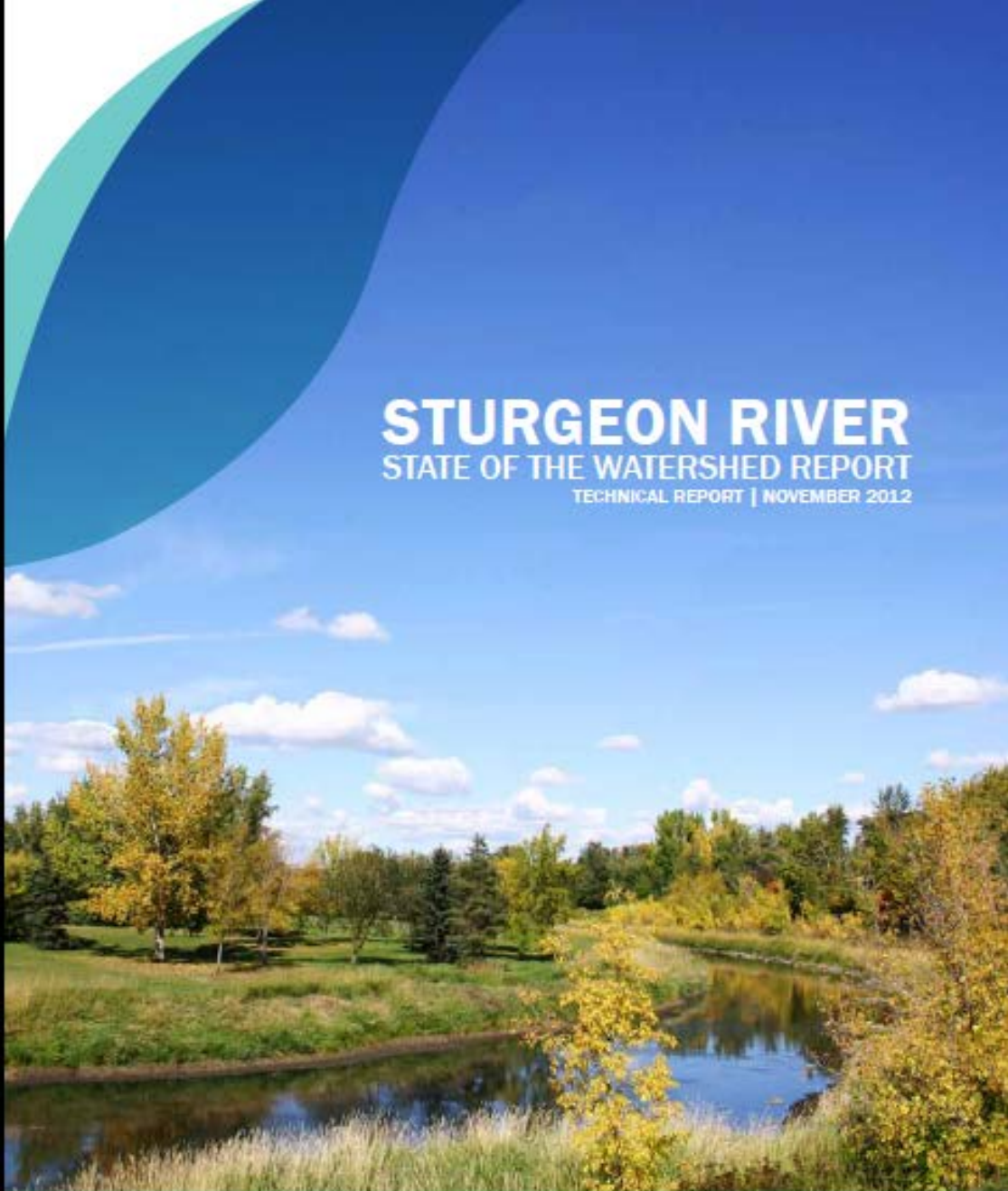
David Berry, Town of Vegreville

Willie Babiuk, Town of Two Hills

Richard Yaceyko, Town of Vermilion

Jim Charpentier, Holden Drainage District





STURGEON RIVER

STATE OF THE WATERSHED REPORT

TECHNICAL REPORT | NOVEMBER 2012

Sturgeon River Watershed Alliance

-Council Representatives-

AnnLisa Jensen, Parkland County

Robert Kohn*, Lac Ste Anne County

Ferd Caron, Sturgeon County

Ed McLean, City of Spruce Grove

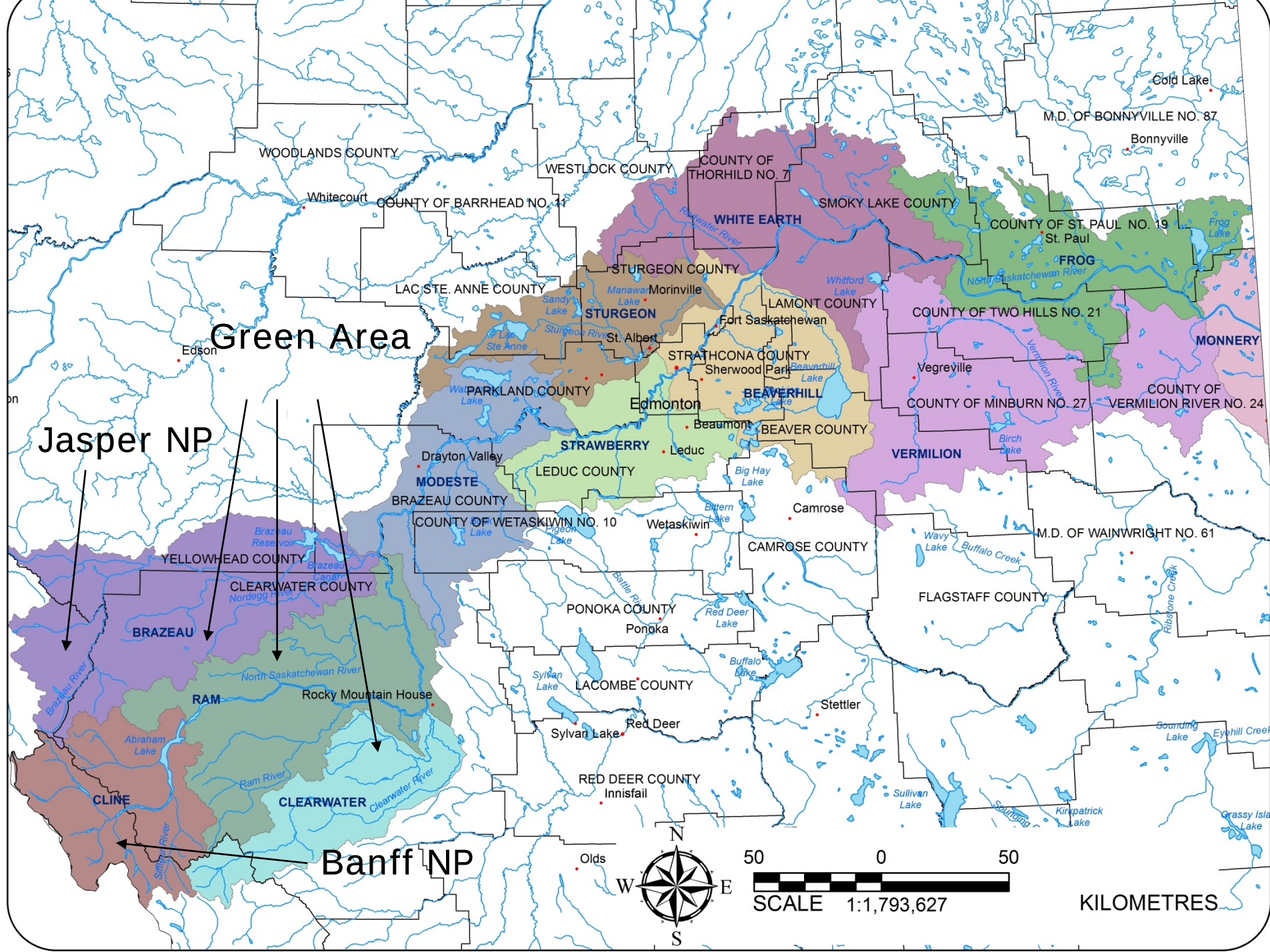
Ed Gibbons, City of Edmonton

Jean Woodger, Town of Gibbons

Robert Russell, City of St. Albert

Brennan Fitzgerald, Town of Morinville

Josh Alexis, Alexis First Nation



Headwaters Alliance

-Council Representatives-

Pat Alexander, Clearwater County

Jim Duncan, Clearwater County

AnnLisa Jensen, Parkland County

Tanni Doblanko, Leduc County

Marc Gressler, Brazeau County

Lyle Seely, Wetaskiwin County

Fred Nash, Town of RMH

Fayrell Wheeler, Town Of Drayton Valley

Michael Laveck, Town of Devon

Barry Rasch, Village of Thorsby

Lake Management Partnerships



Photo Credit: O2 Planning + Design Inc. and Parkland County

Parkland County

- ◆ NSWA now collaborating with County of Parkland, AEP and WWMC to develop advice for a “lake land use plan” for Lake Wabamun
- ◆ Cooperative projects with other lake WSGs: Mayatan, Jackfish, Isle, Lac Ste. Anne, Antler

Mayatan Lake Watershed Management Plan

Draft for Discussion



April 2016

**Jackfish Lake
State of the Watershed Report**



April 2016

Riparian Health Assessment of Wabamun Lake

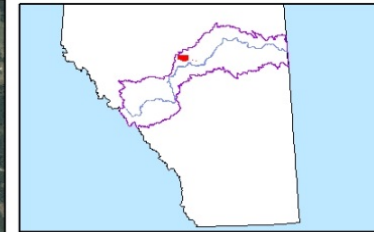
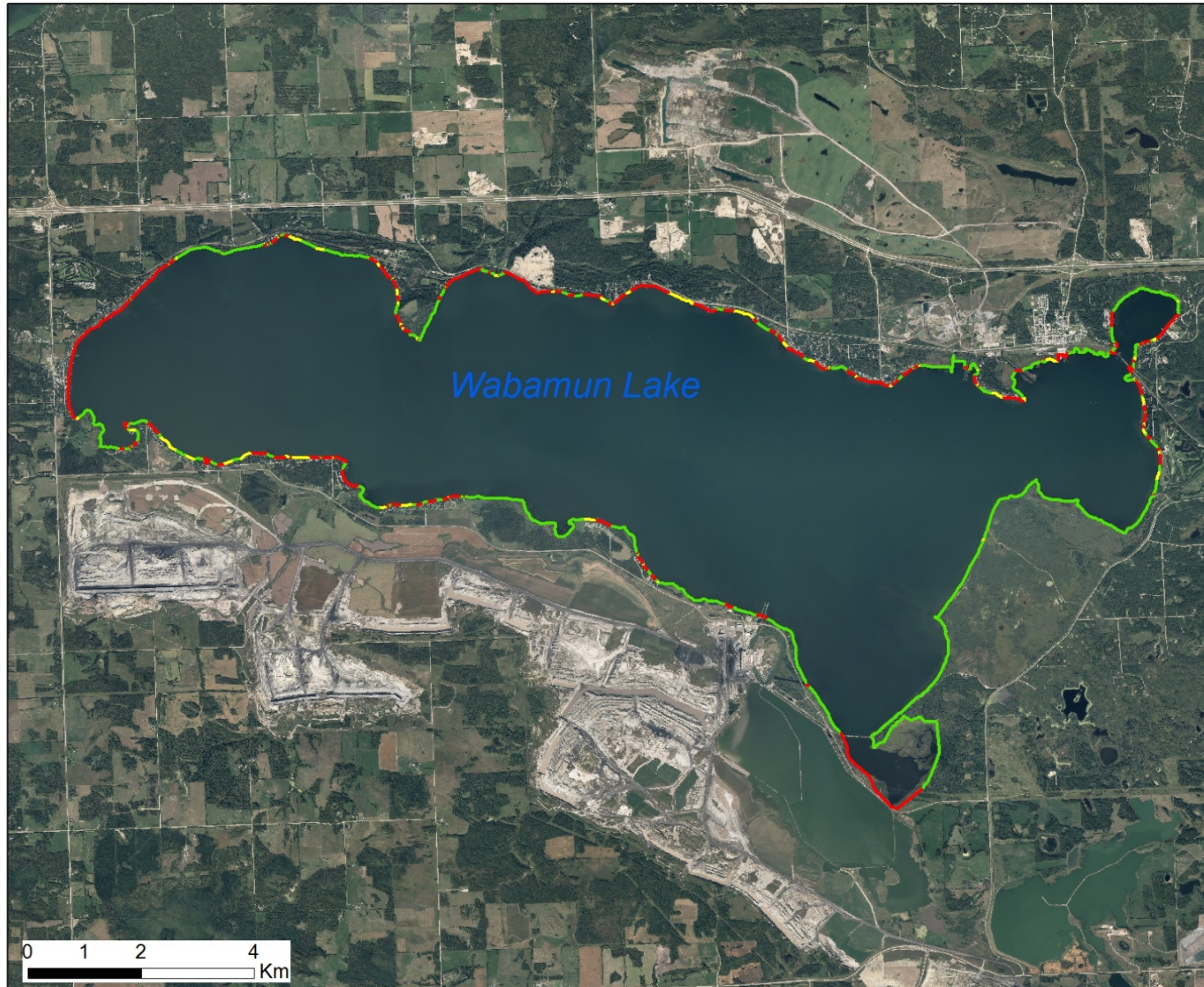
An Aerial Assessment Using an Unmanned Air Vehicle



May 2015



Wabamun Lake: Aerial Riparian Health Assessment (2014)



Inset Map Legend

-  Lake Wabamun
-  North Sask. River
-  North Sask. Watershed



Map Legend

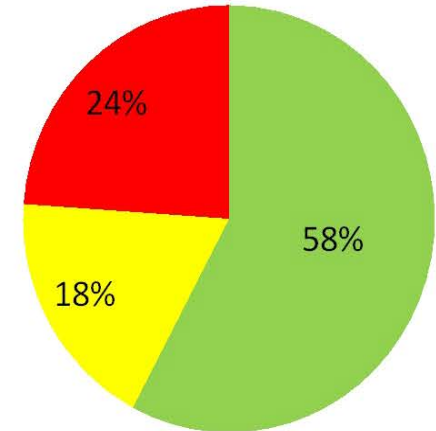
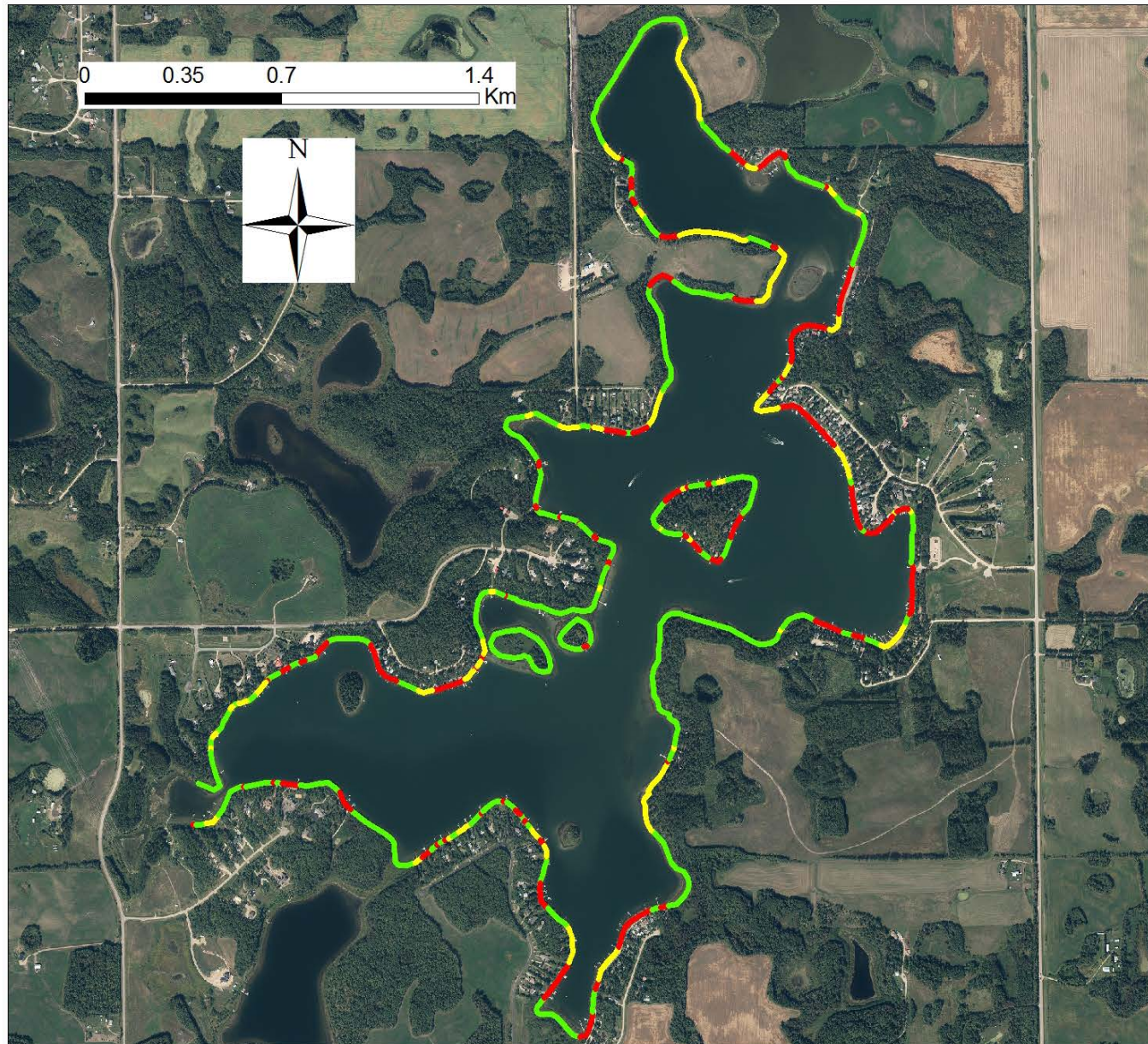
Shoreline Health Rating

-  Healthy
-  Moderately Impaired
-  Highly Impaired

This map created for the Wabamun Watershed Management Council by the North Saskatchewan Watershed Alliance on January 30, 2015.

The information presented here is based on high resolution videography that was captured in August of 2014. As well, The orthophotographs captured in 2013 were provided by Parkland County. Funding for the project was provided by the Land Stewardship Centre

Jackfish Lake: Aerial Riparian Health Assessment



Map Legend

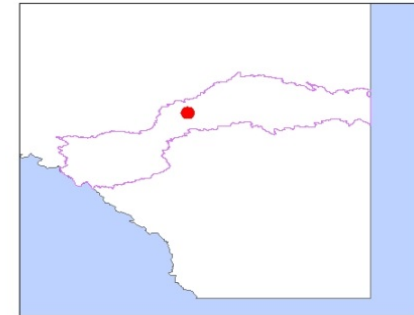
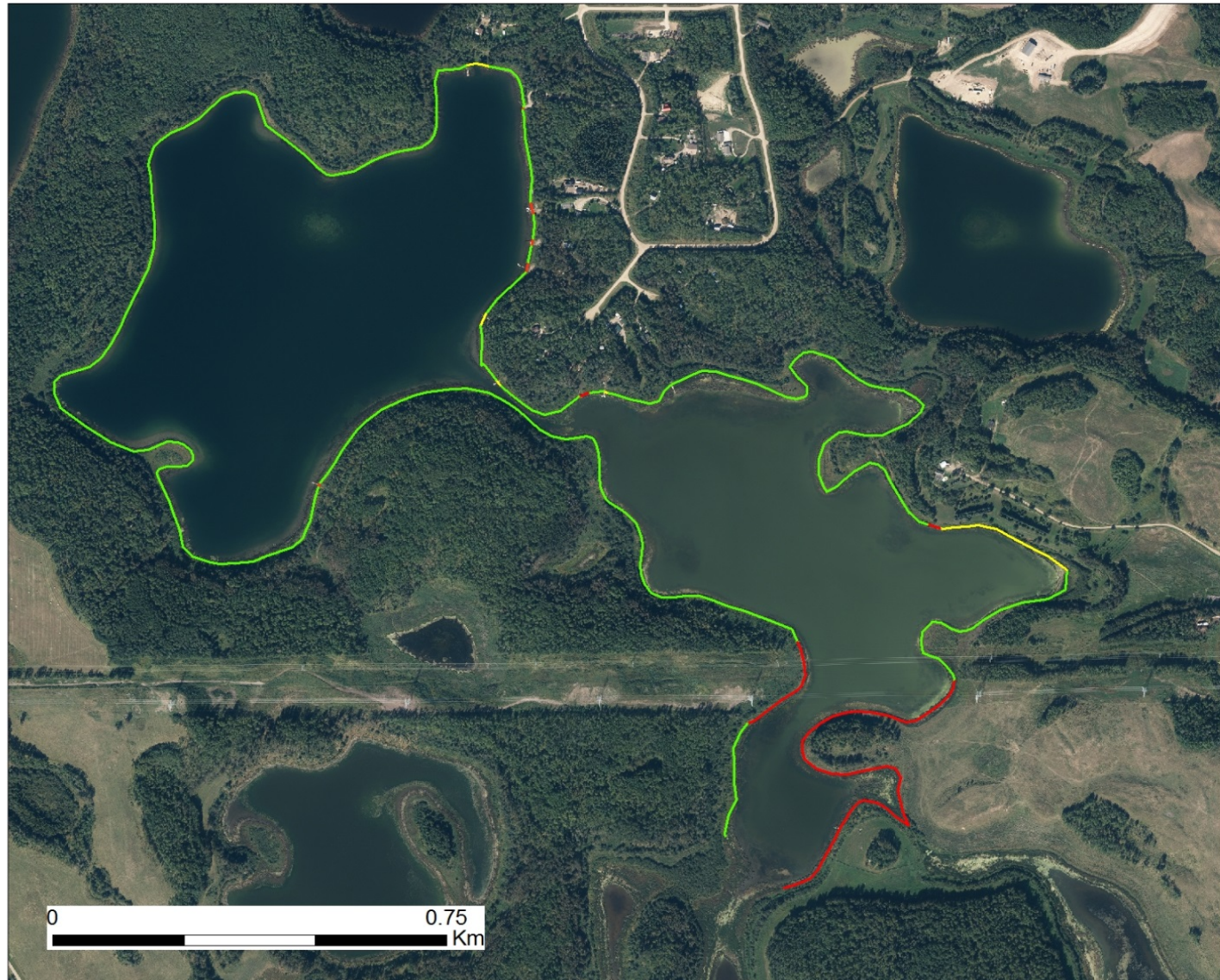
Health

- Healthy
- Highly Impaired
- Moderately Impaired

This map was created by the North Saskatchewan Watershed Alliance on May 07, 2015.

The information presented here is based on high resolution videography that was captured in August of 2014. The orthophotographs, captured in 2013, were provided by Parkland County. Funding for the project was provided by the Jackfish Lake Management Association.

Mayatan Lake: Aerial Riparian Health Assessment (2014)



Inset Map Legend

-  Mayatan Lake
-  North Saskatchewan Watershed
-  Alberta Boundary



Map Legend

Shoreline Health Rating

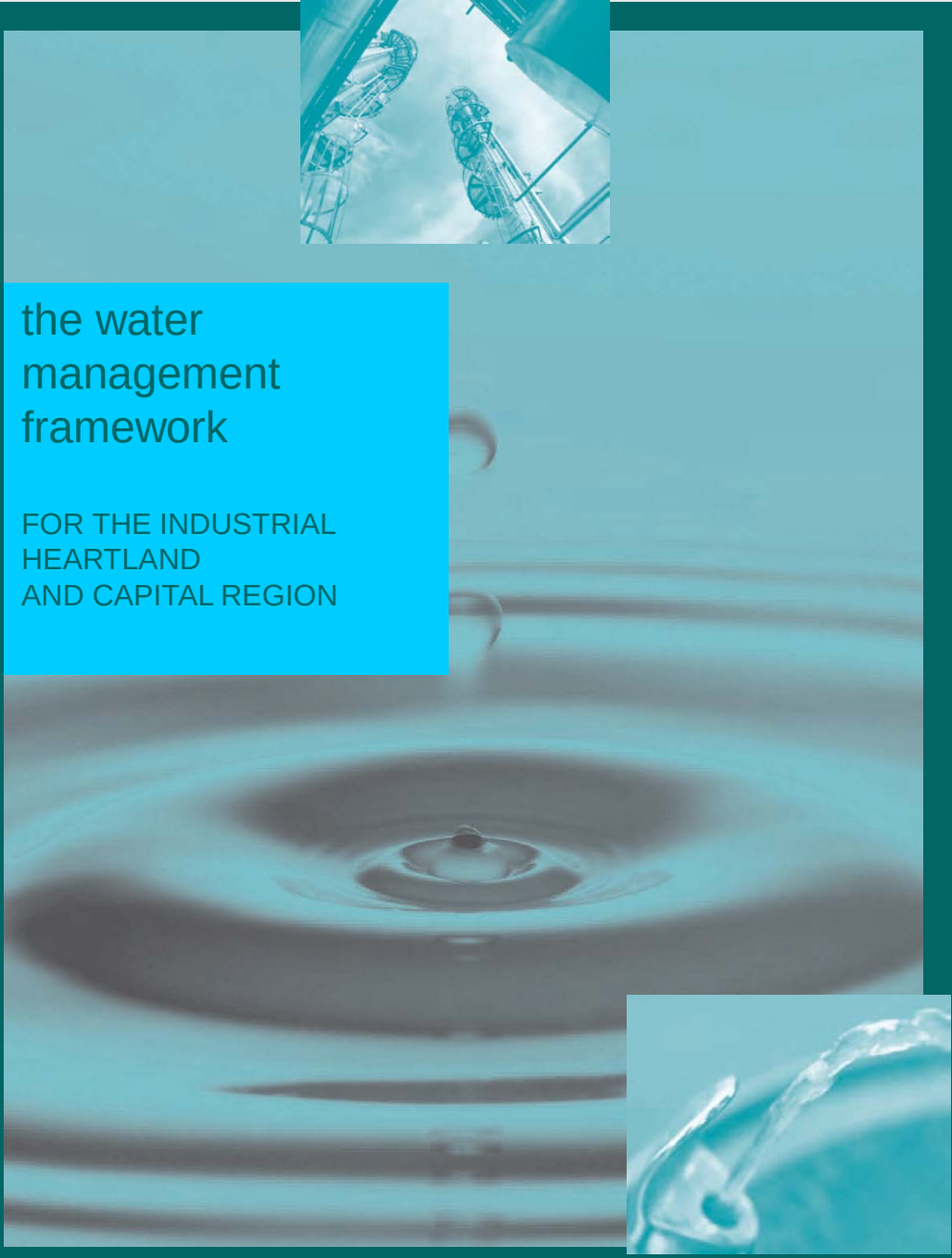
-  Healthy
-  Moderately Impaired
-  Highly Impaired

This map was created by the North Saskatchewan Watershed Alliance on April 17, 2015.

The information presented here is based on high resolution videography that was captured in August of 2014. The orthophotographs, captured in 2013, were provided by Parkland County. Funding for the project was provided by the Mayatan Lake Management Association.

Antler Lake



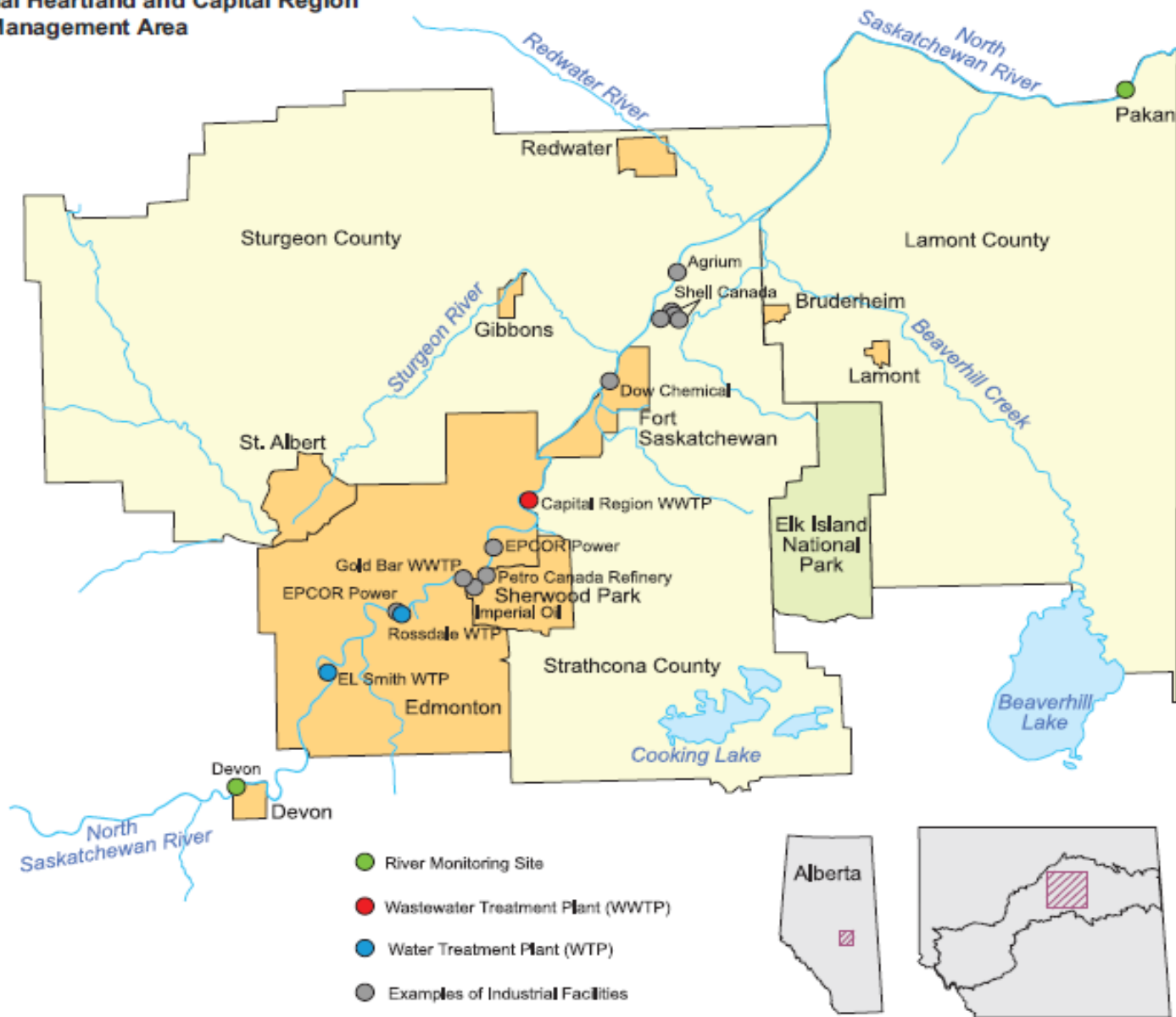


the water management framework

FOR THE INDUSTRIAL
HEARTLAND
AND CAPITAL REGION



Industrial Heartland and Capital Region Water Management Area

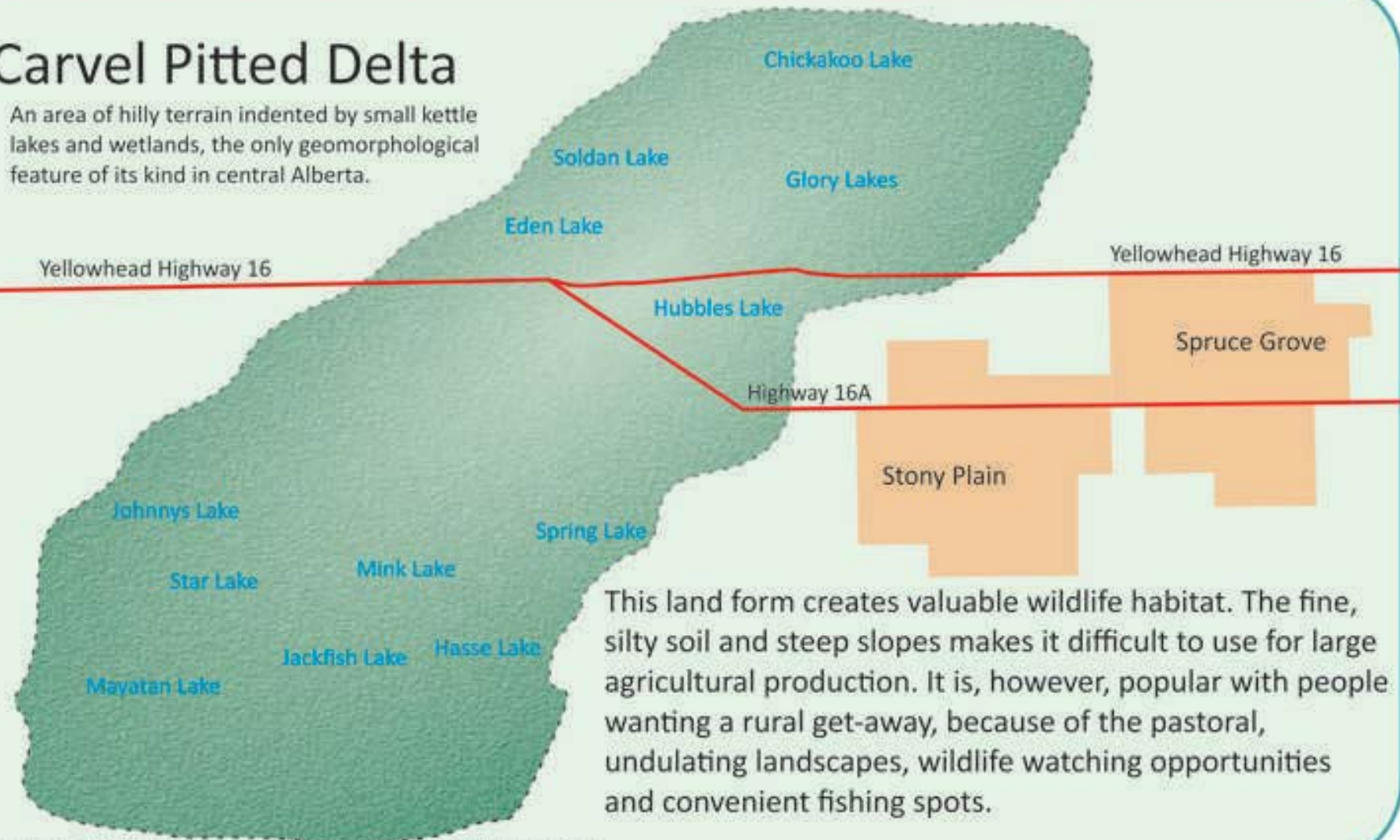


Status

- ◆ Central Alberta rivers have improved since 1970s - as a result of advanced wastewater treatment and strong regulations
- ◆ Water quality in most lakes has not improved, and remains poor or threatened – even though much applied research is available
- ◆ Watershed management plans for lakes and rivers must be integrated into current land use planning – municipal and provincial
- ◆ Focus on restoration – conservation – local stewardship

Carvel Pitted Delta

An area of hilly terrain indented by small kettle lakes and wetlands, the only geomorphological feature of its kind in central Alberta.

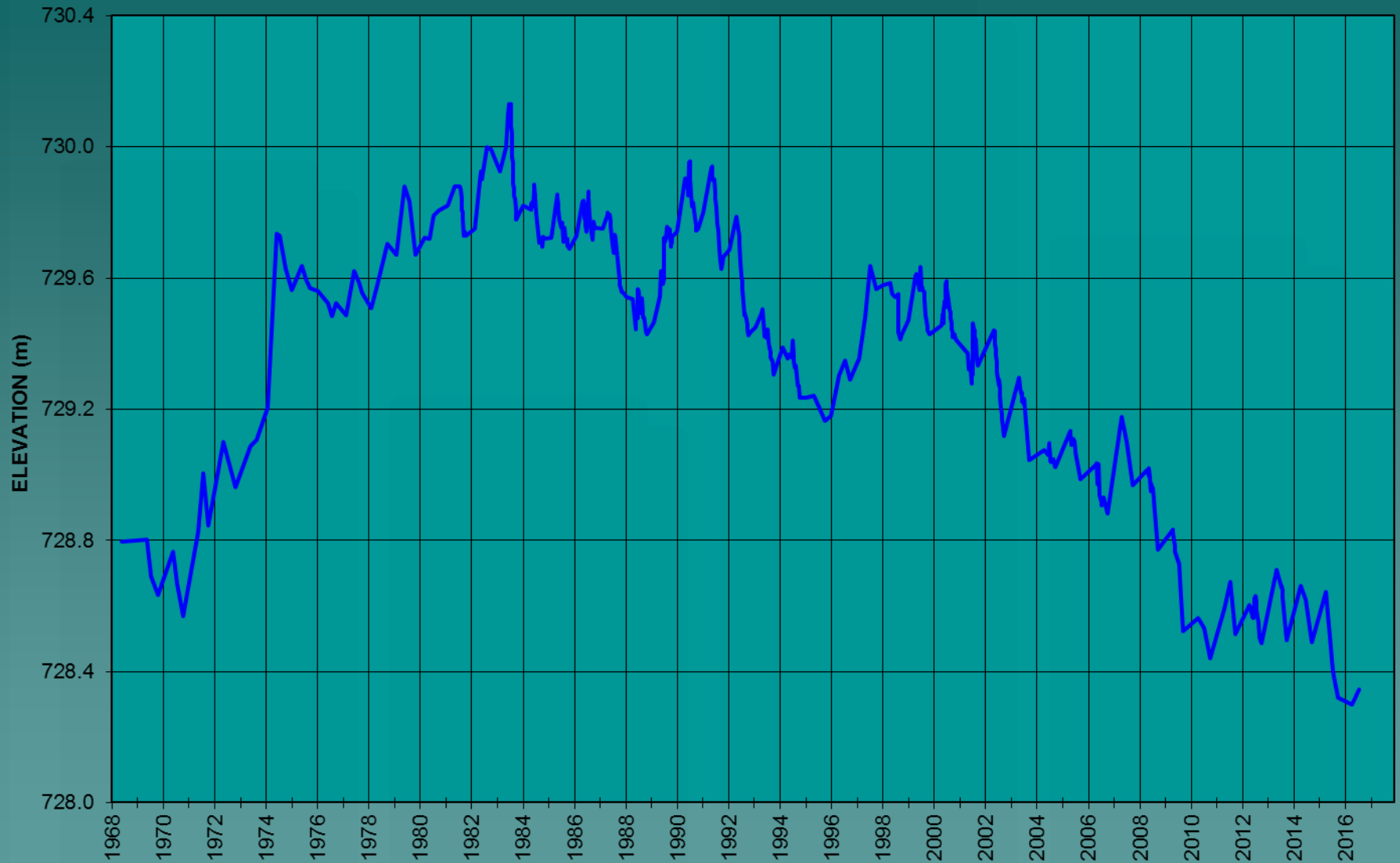


This land form creates valuable wildlife habitat. The fine, silty soil and steep slopes makes it difficult to use for large agricultural production. It is, however, popular with people wanting a rural get-away, because of the pastoral, undulating landscapes, wildlife watching opportunities and convenient fishing spots.

adapted from Parkland County's Environmental Conservation Master Plan 2014

JACKFISH LAKE NEAR STONY PLAIN (05DE902)

Historical Water Levels

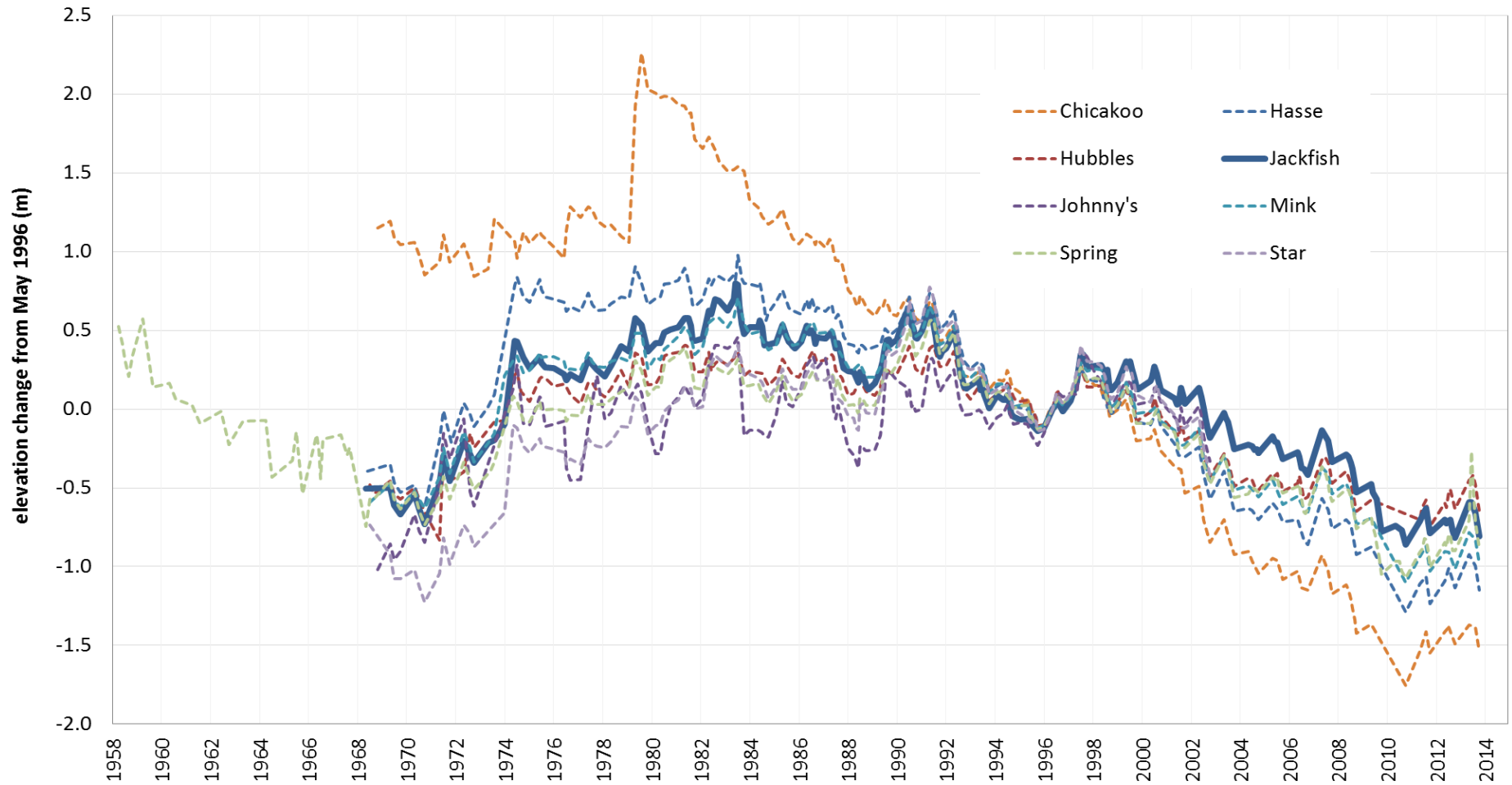


LATEST AVAILABLE W.L. = **728.346** M ON **AUG 11, 2016**.

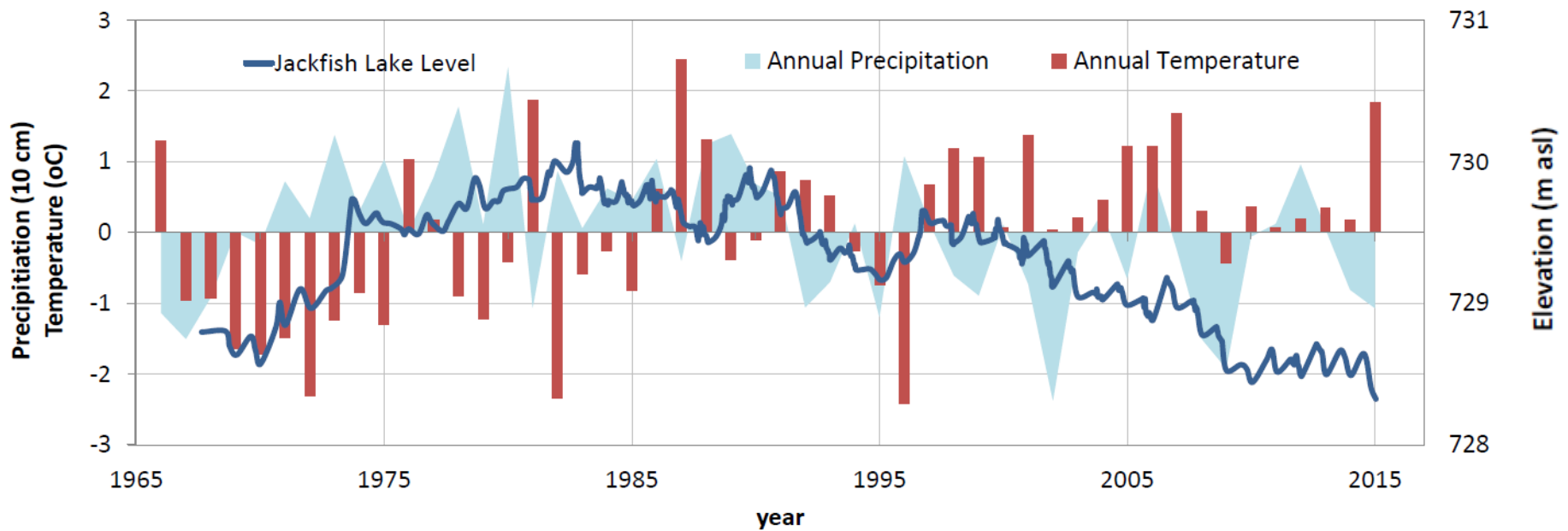
Winter Fish Kill 2016



Parkland County Lakes



Climate and Lake Level





A Century of Landscape Change



BILLIE
MILHOLLAND

LIVING IN THE SHED



LIVING IN THE SHED

ALBERTA'S NORTH SASKATCHEWAN RIVER WATERSHED

B I L L I E M I L H O L L A N D

Thank you

