Community Based Monitoring for Lake Watershed Management

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ALMS
Alberta Lake Management Society

Outline

- All about ALMS
- LakeWatch
- Nutrient Budgets
- Stream Monitoring
- Outreach Programs
- Workbook for Lake Watershed Planning

What is ALMS?

- Charitable society, formed in 1991
- Two full time staff and up to four seasonal staff, 15 board members, ~60 volunteers
- Purpose: to promote comprehensive management of lakes, reservoirs and their watersheds.

Achieving Our Purpose

- Collect data to understand lake function and management options
- Educate and increase awareness of the importance of lakes and their watersheds
- Promote the protection and management of lakes and their watersheds
- Provide expertise and collaborate with others

What is LakeWatch?

- Monitoring program which allows individuals or stewardship groups to track the health of their lake over time.
- Volunteers meet technicians 5 times throughout the summer.
- Volunteers provide transportation!

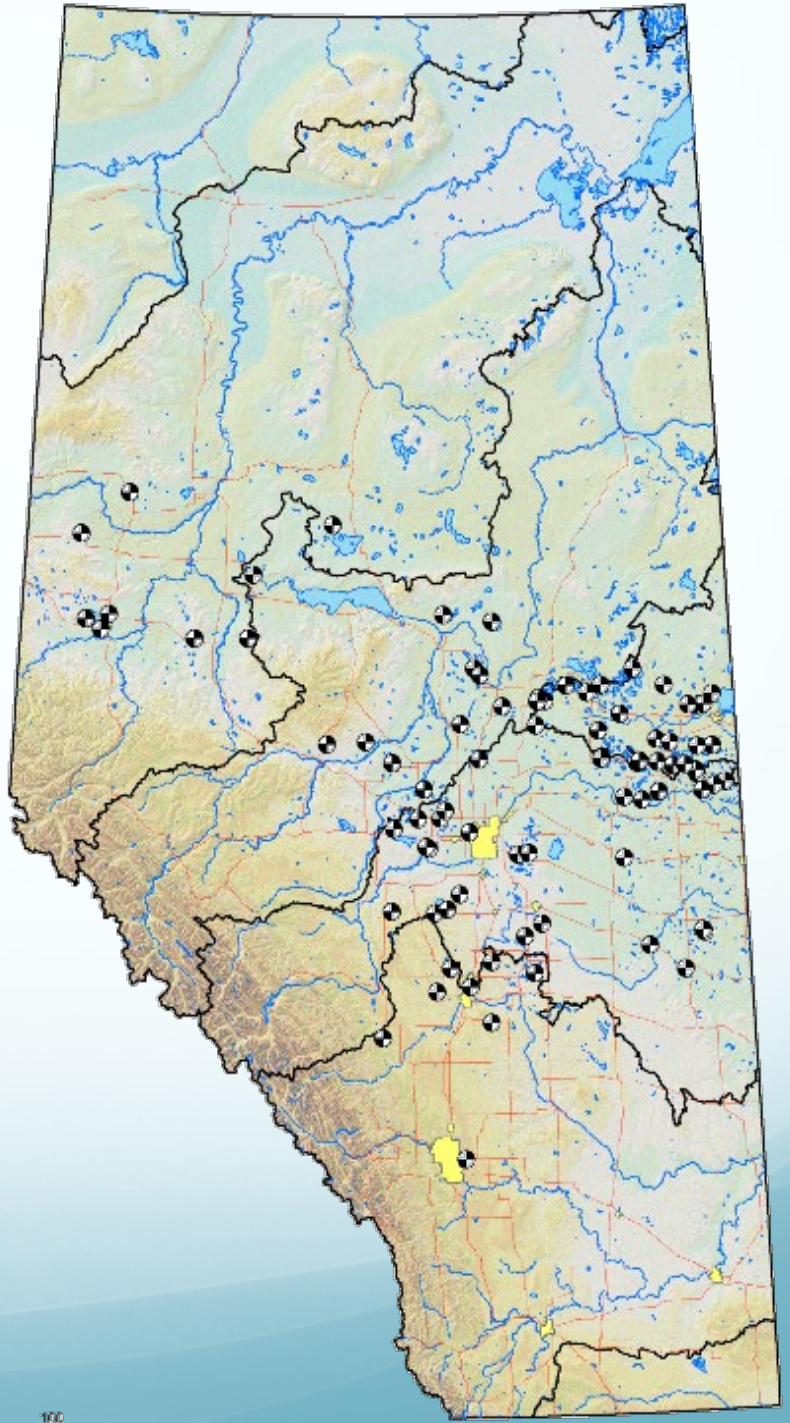
LakeWatch Partners

- A cooperative venture between ALMS and Alberta ESRD:
  - 10 Base Lakes
  - 5 Provincial Parks Lakes
- Also partner with the Beaver River Watershed Alliance:
  - 10 Lakes within the Beaver River & N Sask River Watersheds.
- Funding from individual counties/municipalities to have specific lakes sampled.

Total = ~25 lakes each year.

Lakewatch Lakes

- Sampled over 100 unique lakes or reservoirs across the province.
- Just over 30 of which fall into the North Saskatchewan River Watershed.
- Last season's lakes included:
  - Lac St. Anne
  - Pigeon
  - Jackfish
  - Mayatan West & East
  - Wizard
  - Laurier
  - Clear



LakeWatch Data

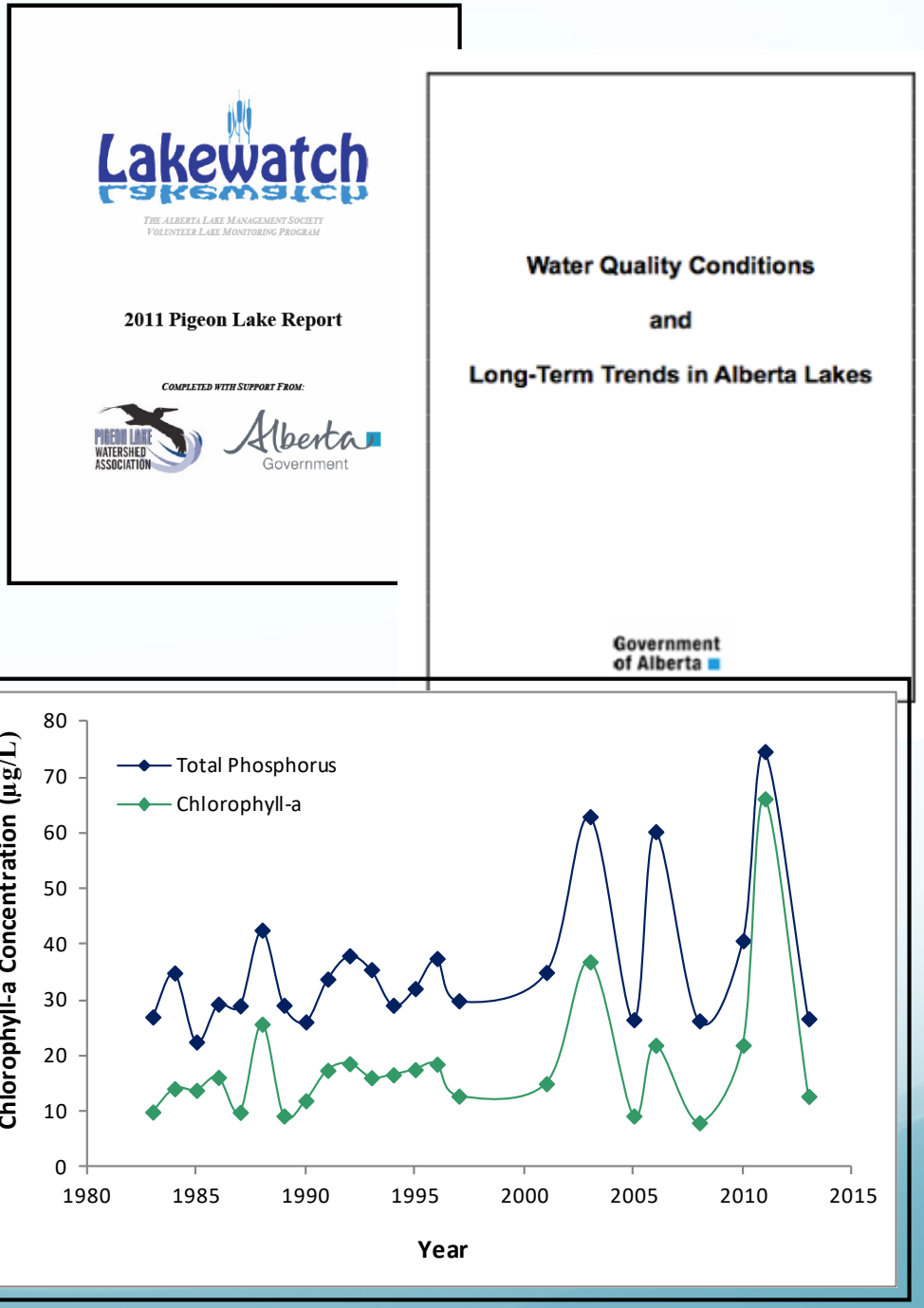
- Parameters collected include:
  - Nutrients (TP, TDP, TKN, Nitrates, Nitrites)
  - Metals
  - Temperature and Dissolved Oxygen profiles
  - Chlorophyll-*a*
  - Water clarity
  - Phytoplankton Taxonomy
  - Zooplankton Taxonomy
  - Routine Water Chemistry
  - Cyanotoxins (microcystin)
  - Invasive species…

Invasive Species Monitoring

- Intensive monitoring program looking for invasive zebra and quagga mussels.
- Involves monitoring for juvenile veligers and attached adult mussels at every lake sampled.
- First time monitoring has been conducted in Alberta.
- Monitoring for invasive plant species to start in 2014

Benefits of Lakewatch

- High quality data are used in managing lakes
- Data made public as well as uploaded into AESRD database.
- Increase awareness and empower stewards.

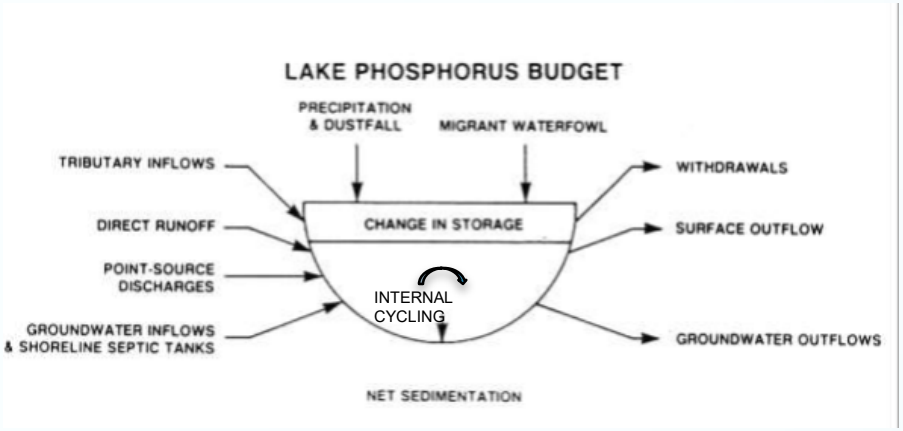


Mayatan Lake Success:

- Identified a concern for health of lake
- Led to the creation of a State of the Watershed Report.
- Began WQ monitoring through LakeWatch – now have three continuous years of data.
- Currently developing a Lake Watershed Management Plan

Pigeon Lake Nutrient Budget

- Rigorous monitoring program which will lead to the creation of a lake nutrient budget.
- Weekly enhanced lake sampling.
- Biweekly Stream Samples including flow and chemistry.
- Paleolimnology sediment cores

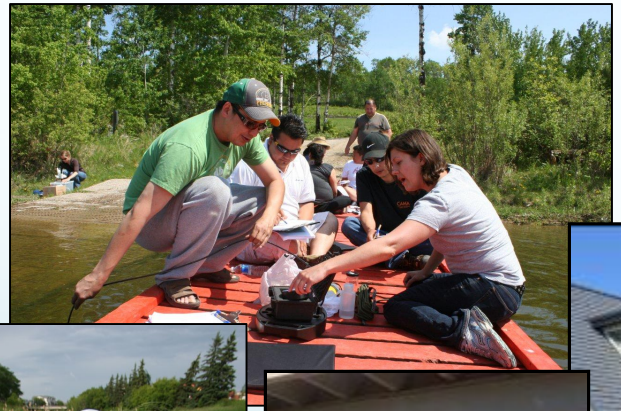


Steam Monitoring

- Tributary data is key to lake management
- Opportunity for citizen scientists collecting data on streams
- Ecotrust and TD have funded a pilot project in the Beaver Hills/ Elk Island National Park
- Currently writing protocols for citizen collection of nutrients, TSS and flow data. Developing an equipment bank.
- Volunteers needed!

Education & Outreach

- AWQA Alberta Water Quality Awareness
- Beach Outreach
- Events



Education & Outreach

- Monthly newsletter
- Annual workshop
- Webinars
- Presentations & promotion of LMP


The New Wave

Your water e-news

ALMS
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Alberta Lake Management Society Newsletter March 2012

Alberta Water Quality Awareness

Alberta Water Quality Awareness (AWQA) 2012 Registration Opens on April 1st!

This summer, hundreds of Albertans will be working together to create a province-wide snapshot of water quality with free water testing kits provided by the Alberta Water Quality Awareness Day program. Interested Albertans will need to register online (www.awqa.ca) for their free kits between April 1st and April 30th. The requested kits will be distributed in early May to interested teachers, youth groups, farmers, ranchers, watershed groups and other individuals to test lakes, streams, rivers and wetlands for basic aquatic health.

AWQA
Alberta Water Quality Awareness Day

SAVE THE DATE!

ALMS Annual Workshop this year in Alberta's Lakeland Region
Cold Lake, Alberta
September 28 & 29, 2012

Topics will include:
- Water usage and Management
- Planning for Healthy Watersheds
- Facing and Dealing with Water Quality Issues

Volunteers Needed

Provide science-based direction and planning advice to make the most cost effective, balanced, and long-term action plan for a lake.

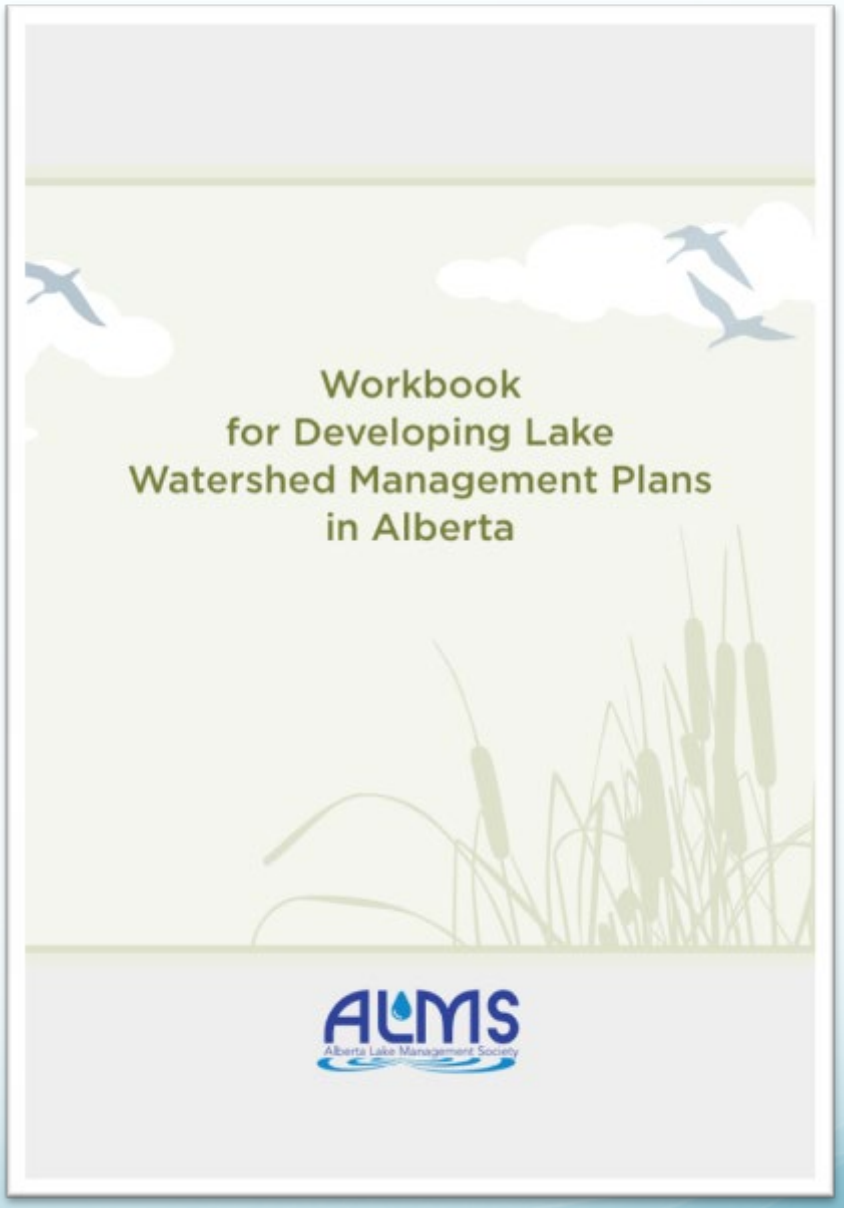
Where you want to be

Watershed Scale Source Activity Control	Eliminate or reduce sources which generate pollutants.	e.g. Fertilizer ban
Transport Reduction	Capture and remove or convert pollutants before they enter target resource	e.g. Treatment wetlands
Instream/Inlake Treatments	Enhancing internal processes for pollutant inactivation	e.g. Aeration
Ecosystem Restoration	Repair damage to resources when controls fail	e.g. Fish habitat restoration

Where you want to avoid being

Workbook for Developing Lake Watershed Management Plans in Alberta

- Specific to Alberta
- Consistent with ESRD policies and legislation
- Targeted for WSGs



Available at www.alms.ca

Watershed Management Planning Cycle

New Projects

- Lake Management Framework
  - ESRD Water Conversation promises
  - Alberta Water Council Project Team
  - Alberta Environmental Monitoring, Evaluation & Reporting Agency (AMERA)

In the NSRW?

- LakeWatch
- Nutrient Budgets
- Stream Monitoring
- Education & Outreach
- Lake Watershed Management Planning

Questions?

780-702-ALMS

www.alms.ca