BLCA

Briggs Lake Chain Association

INTRODUCTION

How we got to this point

Short History

- Healthy Lakes Partnership 2002
- Healthy Lakes Committee of the Briggs Lake Chain Association (BLCA)
- Initial goal: Improve Water Quality and Lake Management Plan
- Improving Water Quality is like a big jigsaw puzzle

Major efforts include:

- Water quality monitoring since 1975, and a number of other projects
- Conservation projects: shoreland restoration, rain gardens, runoff control
- AIS management: curly leaf pondweed (coming up: zebra mussels?)
- Land use and zoning (because land use affects water quality)
- Water level stabilization
- Septic system and other point and non point pollution issues

BLCA — INTRODUCTION

How we got to this point

Origins of the Study

With all of the data we collected, we knew little about the contribution of septics and runoff, things we property owners have control over.

"We have met the enemy, and he is us." Pogo (Walt Kelly)

- Through networking with other lake associations, we heard about A. W. Research Laboratories, Inc. (AWRL) and this high tech and effective way of addressing septic and runoff issues.
- Contact with AWRL and references (Deer Lake, Pelican Lake, Round Lake, Lake Francis, Thirty Lake Watershed, Cormorant Lake Watershed District, Little Minnie Belle)
- AWRL presentation to board and association members
- BLCA board decides to pursue the study for $18500
- 2 parts: a) ALA (Aerial Lakeshore Analysis) summer
  b) GWI (Ground Water Intrusion) winter
- Request to County: Includes AWRLpresentation to commissioners
- Request to Township
- *County contributed $9250; Palmer Township $2000*
- Overflights are done; Data has been collected and prepared for the HLC
- Healthy Lakes Committee in steep learning curve

BLCA —— *INTRODUCTION*

How we got to this point

Here we are! More to come.

"We have met the enemy, and he is us." Pogo (Walt Kelly)

- *Unflattering News Release:* Minnesota Pollution Control Agency (MPCA) puts the Briggs Lake Chain and the Elk River on their Impaired Waters List due to high levels of phosphorous and Chlorophyl a
- No legal leverage as lake association, so we rely on partnerships and collaborations
- Building partnerships
  - ERWA (Elk River Watershed Association)
  - SWCD (Soil and Water Conservation District)
  - MN DNR (Department of Natural Resources)
  - Sherburne County, Sherburne county Zoning
  - Palmer Township
  - MPCA (Minnesota Pollution Control Agency)
  - Central MN Initiative Foundation
  - MN Waters

Education and volunteer action: what we rely on

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2012

BLCA Flyover

Grand Overview

Briggs Lake Chain Association

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The Healthy Lakes Committee (HLC) of the Briggs Lake Chain Association (BLCA) has been active for a long time working to improve water quality.

- It has offered all the things mentioned in the introduction
- Volunteers have been testing water flowing into and out of the lakes. They also take regular measurements of lake water quality. These tests have helped determine causes of the deteriorating water quality
- Some of the BLCA projects & BLCA testing done are:
  - Secchi Disc monitoring of the lakes since 1975 (determines turbity/clarity).
  - Mass Balance Monitoring in 2006/7.
  - BLAAS (Alternative Septic Systems) 2002.
  - Total Phosphorus and chlorophyll a testing since 2008.
  - Copper Sulphate for 20 years during the 1980/90s to control algae.
  - Chemical treatment for Curly-Leaf Pondweed since 2004.
  - Inlet and Outlet Streams and River testing 2000 through 2009.
- Projects & testing done by other agencies are:
  - Total Spectrum of Water particles in 1998 by the MPCA.
  - Total Spectrum in 2002/3 monitored by SCSU and Sherburne County.
  - Sniffer Boat in 1991 by Palmer Township
  - Inlet and Outlet Stream monitoring in 1992 by Palmer Township.

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Briggs Lake Chain Association

Deteriorating water quality

- Farm and livestock run-off via Briggs Creek and The Elk River (which runs through Big Elk Lake and floods into the upper three lakes via the Bayou), ditch 13 which drains into Big Elk Lake and the spring fed creek that drains into the north end of Lake Julia. Controlling runoff into these waterways falls to State and County jurisdictions. They have been working at it but have a big job ahead.
- The rest is point and non-point sources of septic effluent and other nutrient runoff into the lakes through the properties surrounding them. This is something the BLCA and we lakeshore property owners can address.
- The tests of water into and out of our lakes show the water is of lower quality when it leaves than when it entered. This means lakeshore residents are part of the problem.
- **All four of our lakes have fallen into Impaired Waters Status according to the Minnesota Pollution Control Agency (MPCA)**
- **Impaired waters** are lakes, rivers, and streams that do not meet state water-quality standards, set to protect a body of water's beneficial use, for one or more pollutants.

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The Flyover Process

The Flyover study is a step in the process of turning around the water quality in our chain of lakes.

- Healthy Lakes Committee recognized the flyover could be an effective way to assess the role of individual property owners in the decline of our lake quality
- Problems on individual properties could be identified so they can be fixed
- The BLCA sponsored and planned the A. W. Research Laboratories, Inc. (AWRL) Flyover study, with financial assistance from Sherburne County and Palmer Township

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The Flyover Process

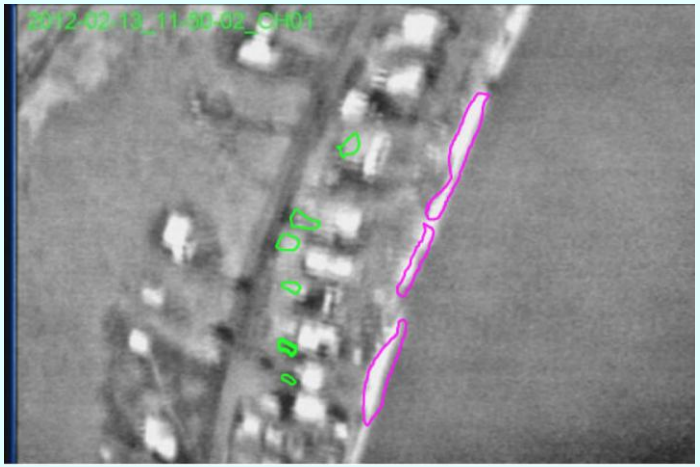
Two Flyovers Were Done

- Data was collected as video images taken in June 2011 and February 2012
- Summer and winter thermal images
- Enabled sensors to detect areas colder or hotter than the surroundings

Lake Amphibian

TWO REMOTE SENSING AIRCRAFT

Aerocanard



Winter Thermal

Summer Thermal

AWRL Examines Data for Factors Impacting Water Quality

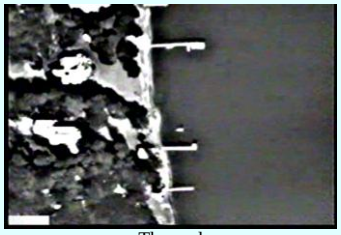
- Cameras recorded various types of images: high-resolution color photographs (for topography, property lines and landmarks), Water Penetrating, Infrared, Chlorophyll a, and Thermal
- Hundreds of photos examined
- Detected point and non-point sources of nutrients that may impact the lakes

AWRL Produces Report

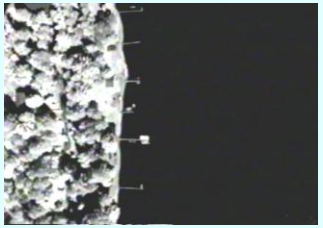
- Five Big books
- Many computer discs
- AWRL Recommendations
- Final report is expected at a later date

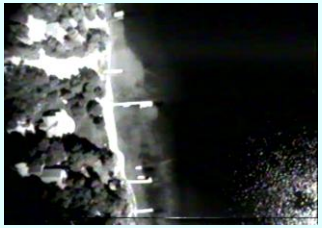
Example Report


Thermal


Thermal


Visible


Hyperspectral IR


Hyperspectral WP

Influence on Lake

Map Position	Septic Point Source	Septic Non-point Source	Runoff Point Source	Runoff Non-point Source	Toxic Point Source	Toxic Non-point Source
14.1		X		X		
14.2		X		X		
14.3		X		X		

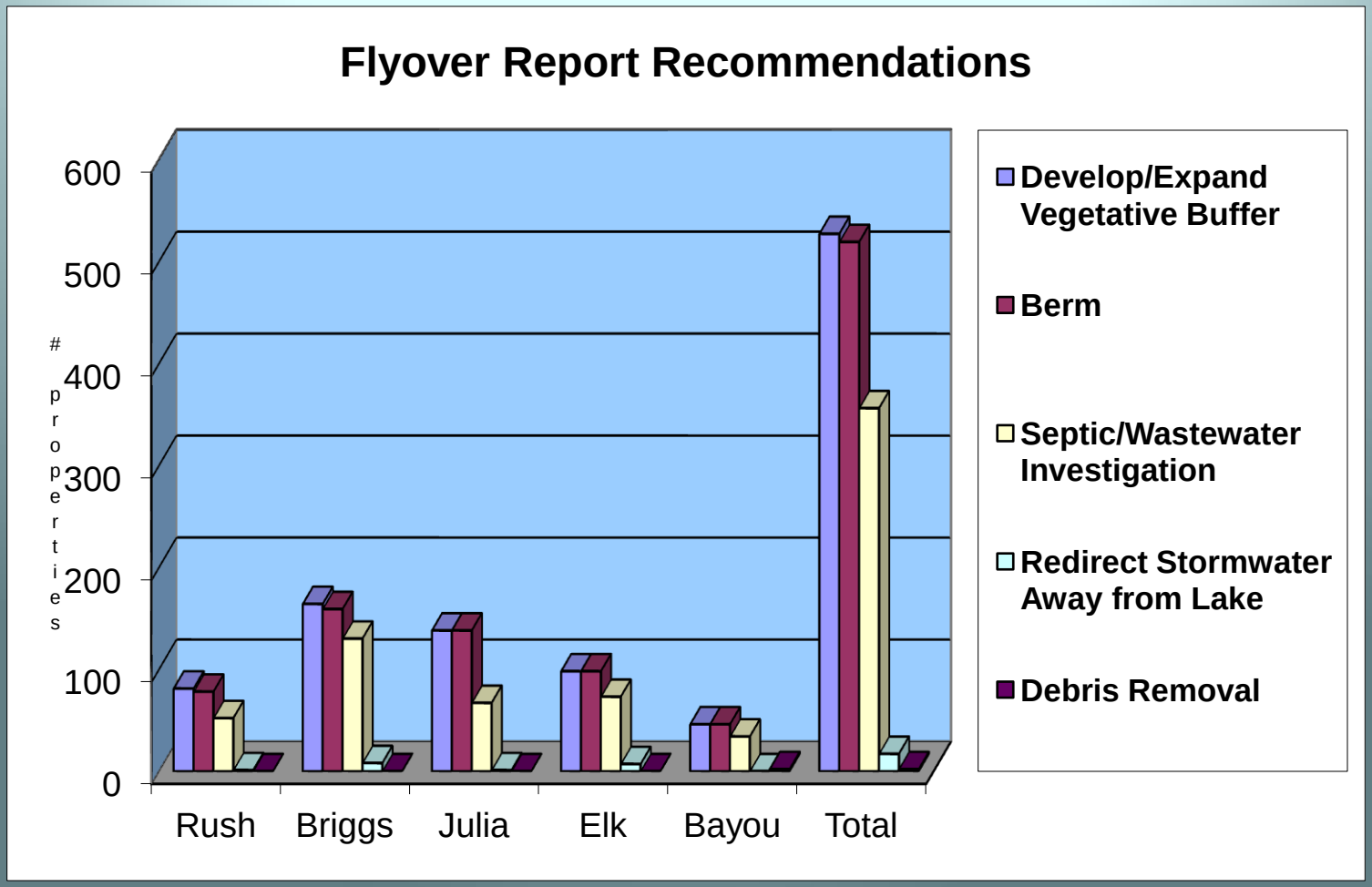
Ordinance Non-conformity

Map Position	Lake Setback	Percent Impervious	Lot Line Setback	Fill/Dredge in Lake bed	Vegetative Buffer less than 100 feet	Other
14.1	X				X	
14.2	X				X	
14.3	X				X	

Recommendations

Map Position	Septic/Wastewater Investigations	Develop/Expand Vegetative Buffer	Berm	Redirect Stormwater away from lake	Debris Removal
14.1	X	X			
14.2	X	X			
14.3	X	X			

Flyover Report Recommendations



Groundtruthing

- Nobody's property on our lakes is perfect
- HLC volunteers will need to be trained by AWRL
- HLC volunteers hope to look at properties with the owners' cooperation and together examine the property for potential problems, and determine if there is a problem, the extent and source of the problem
- Implementation of the Recommendation and the "Notes" part of the analysis for these confirmed problems is CRUCIAL to getting the full value of the flyover study. Groundtruthing is essentially an on-site validation of concerns identified in the examination of the aerial images. It involves an on-site consultation with a trained volunteer and a validation of the data for that site.
- A HLC priority is to groundtruth the properties of the HLC members first then people who volunteer/sign up

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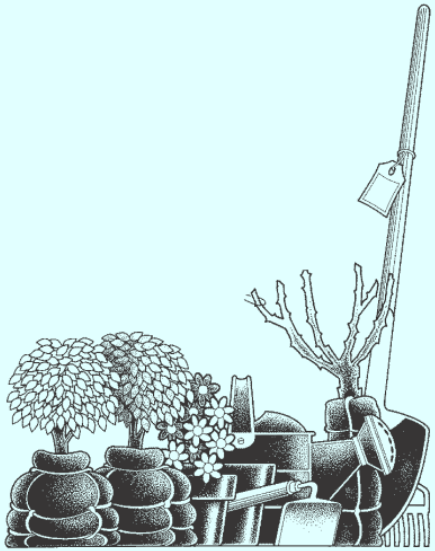

Property Owners Mission

- Use the AWRL report and groundtruthing to validate point and non-point sources of nutrients destined for the lake
- Prioritize actions to minimize the adverse impacts of the pollution
- Successful efforts will help in attaining the ultimate goal of improved water quality, along with cleaner and healthier environment for everyone to enjoy

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Timeline

- Groundtruther volunteers trained by this fall.
- AWRL final report in August
- Groundtruthing starts after training
- Property owners address recommendations and start using Best Management Practices after Groundtruthing

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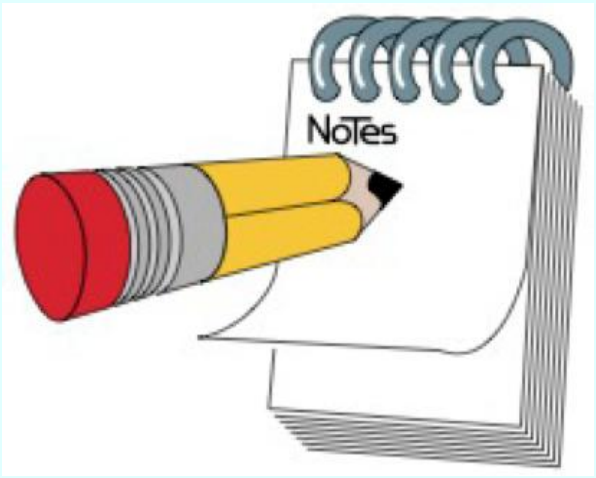
Researching Aid

- BLCA and HLC are investigating help for property owners with financing for recommended projects
- Low interest loans may be available for qualified owners.
- Grants are being explored



Sign Up and Volunteer Today

Sign up for:

- Communications – email address
- Taking the training to become a groundtruth volunteer – two day training
- Getting on the list for a personal consultation with a trained volunteer to validate the flyover data and recommendations for your property

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Please join us in fixing our lakes

The Healthy Lakes Committee

BLCA — FAQ's (Frequently Asked Questions)

The Flyover Study

What is the purpose of the Flyover Study?

- Use advanced technology to find pollution sources
- Identify septic and runoff problem areas
- Develop recommendations to address problems
- BLCA wants: failing septic systems get fixed / reduce runoff

How valid is the study methodology and how widespread is its use?

- Used in many MN lakes, nationally, internationally
- Will test validity with on-site follow-up — groundtruthing

How does flyover data identify problem areas?

- Thermal imaging shows potential problem areas
- Warm or cool spots need investigation

What sort of data is provided?

- Thermal images overlaid on photos and maps
- Concerns identified by property number and address
- Potential problems identified by type — septic, runoff, etc.

Does a problem area mean a septic system has failed?

- Maybe maybe not -- could be from other sources
- Data validated by field inspection and discussion (groundtruthing)

BLCA — FAQ's (Frequently Asked Questions)

Use of Data and Reporting

How will I learn if my property has a "problem" affecting lake quality?

- Specially trained BLCA volunteers will do "groundtruthing"
- Groundtruthing will verify data and identify source
- On-site validation begins with HLC members and those who volunteer (sign up)

Will the data remain confidential or be made public? Shared with County or neighbors?

- Good question -- we feel the data should be shared
- County says data not to be used for enforcement

If my property has a problem will I be forced to correct it?

- If a public health problem – yes
- Otherwise probably not – **but this won't solve the problem!**

BLCA — FAQ's (Frequently Asked Questions)

Problem Resolution

Is participation voluntary?

- Yes, (depending on severity)
- Major pollution sources must be corrected

Will I get help with correcting a problem?

- BLCA volunteers can help

Are funds available to help pay for corrective measures?

- SERP grants for shoreland buffers – thru the MN DNR
- Mini-Grants for runoff problems – thru the BLCA
- USDA low-interest loans and grants
- May be other grants for septic problems

Will this program solve our lake pollution problems?

- Not by itself
- There are multiple causes of pollution
- Correction will be a multi-stepped approach over a long period of time we can't "fix" rivers and streams, but can fix septics and runoff

BLCA — FAQ's (Frequently Asked Questions)

Schedule

When will information be available to property owners?

- In fall of 2012

When will ground-truthing meetings be held?

- After volunteers are trained and report is finalized
- Please sign up for your groundtruthing consultation

Thank you

Please join us in fixing our lakes

The Healthy Lakes Committee