

A program of the



SIGURD OLSON
ENVIRONMENTAL INSTITUTE

Erica LeMoine
LoonWatch Coordinator

Email:

loonwatch@northland.edu

www.northland.edu/loonwatch

Education • Monitoring • Research

LoonWatch Mission

Engage, educate and connect students and citizens with resource professionals.

Education • Monitoring • Research

**Wisconsin Loon
Population Survey**

Training
Workshops

**Sigurd T. Olson Loon
Research Award**

Email and
Phone Public
Questions

**Annual Lakes
Monitoring Program**

Educational
Materials

Work Study and
Interns



Website and
Facebook

Advisory Council

Speakers' Bureau

Newsletter

**Get the
Lead Out!**

Events

**Loon Appreciation
Week**

Common Loon



Ginger Gumm

$\frac{1}{4}$ Mile Water Runway



Yellow-Billed Loon



E. Potapov - VIREO

Pacific Loon



Hank Krizman

Red-Throated Loon



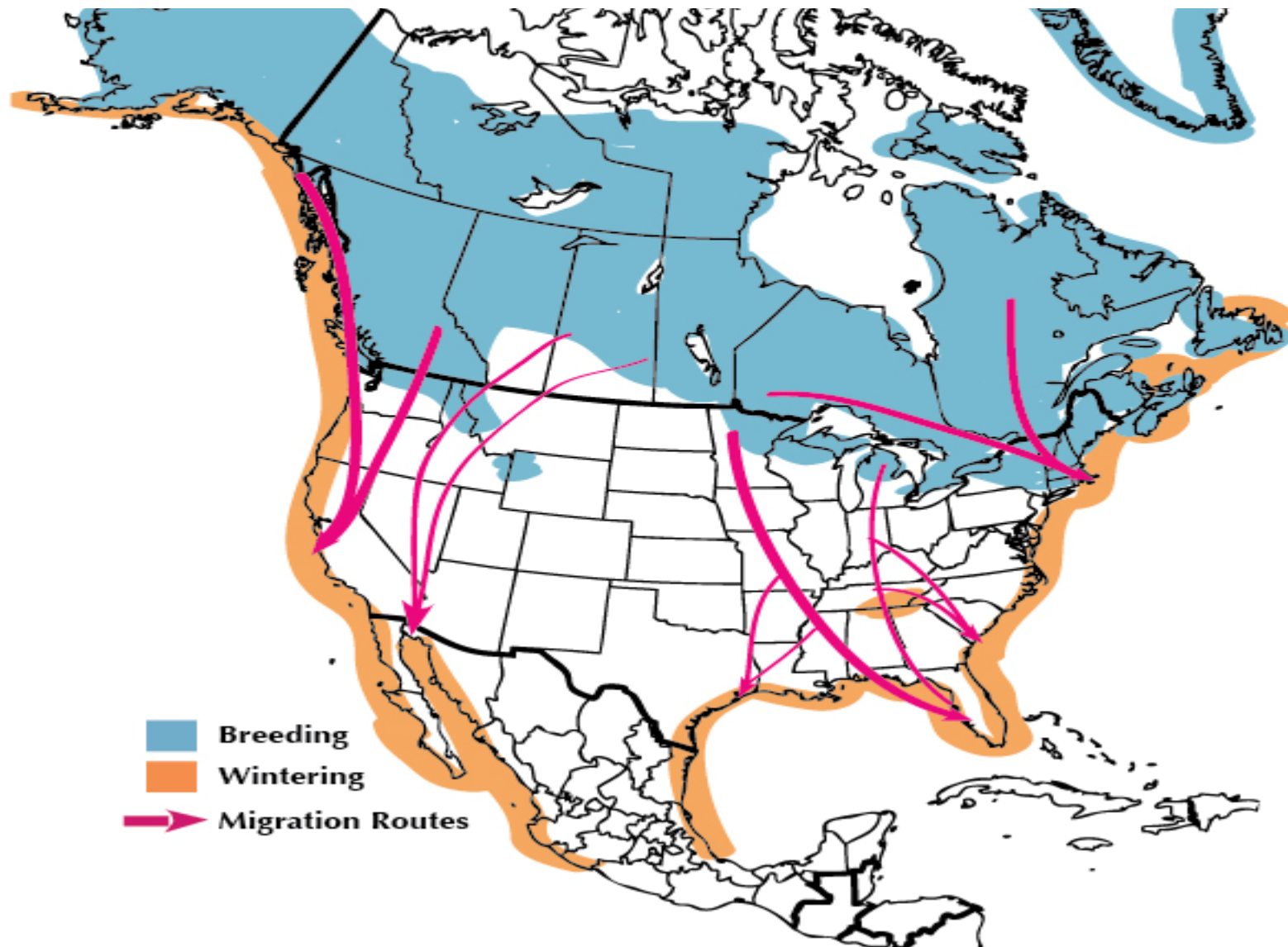
T. Vezo - VIREO

Arctic Loon



PublicDomainImages.net

Common Loon Range and Migration in North America



Spring Migration Stopover Lakes



Al Schoegler

Migration



05/02/2013
Eagle River Airport

Yodel

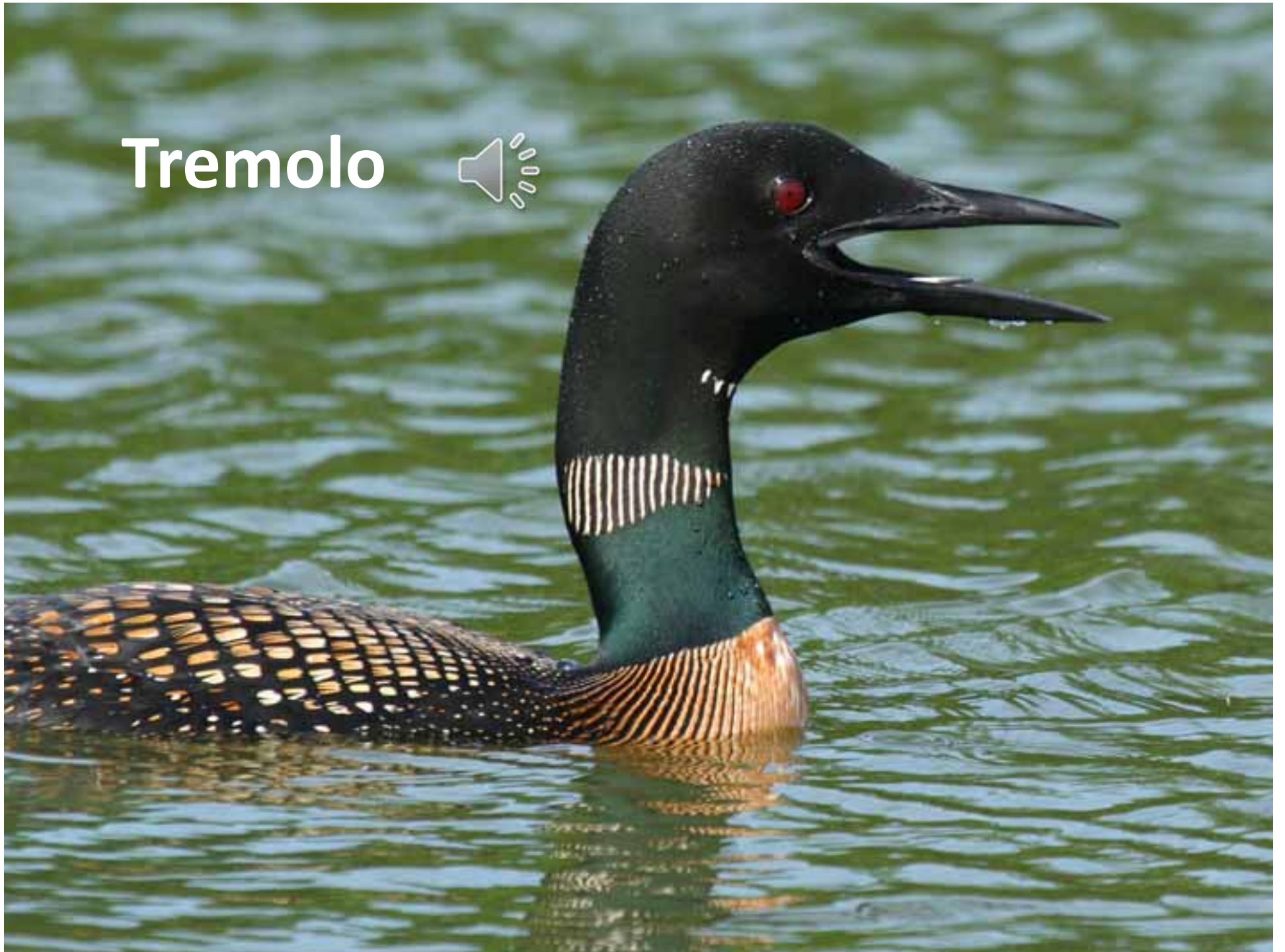


Gregory Nelson

Wail



Tremolo



In Flight Tremolo



Ginger Gumm / Daniel Poleschook Jr.

Hoot



Loon Calls *courtesy of Jay Meger*

David Rippon

Look Alike Species



Common
Merganser



Look Alike Species



Photo by George Jameson



Western Grebe

Look Alike Species



Double-crested
Cormorant



Look Alike Species



Nesting Habitat



Nesting Habitat



Nesting Habitat



Linda Grenzer

Artificial Nesting Platforms

Do you know the history of loons on your lake?

ANP's might be appropriate if loons have not successfully hatched chicks in 3 years or more because:

1. Water level fluctuations
2. Humans have altered shoreline habitat
3. Predation

You may need a permit.

No guarantee that loons will use the ANP.

Sandy Gillum

Predators



Loon Eggs



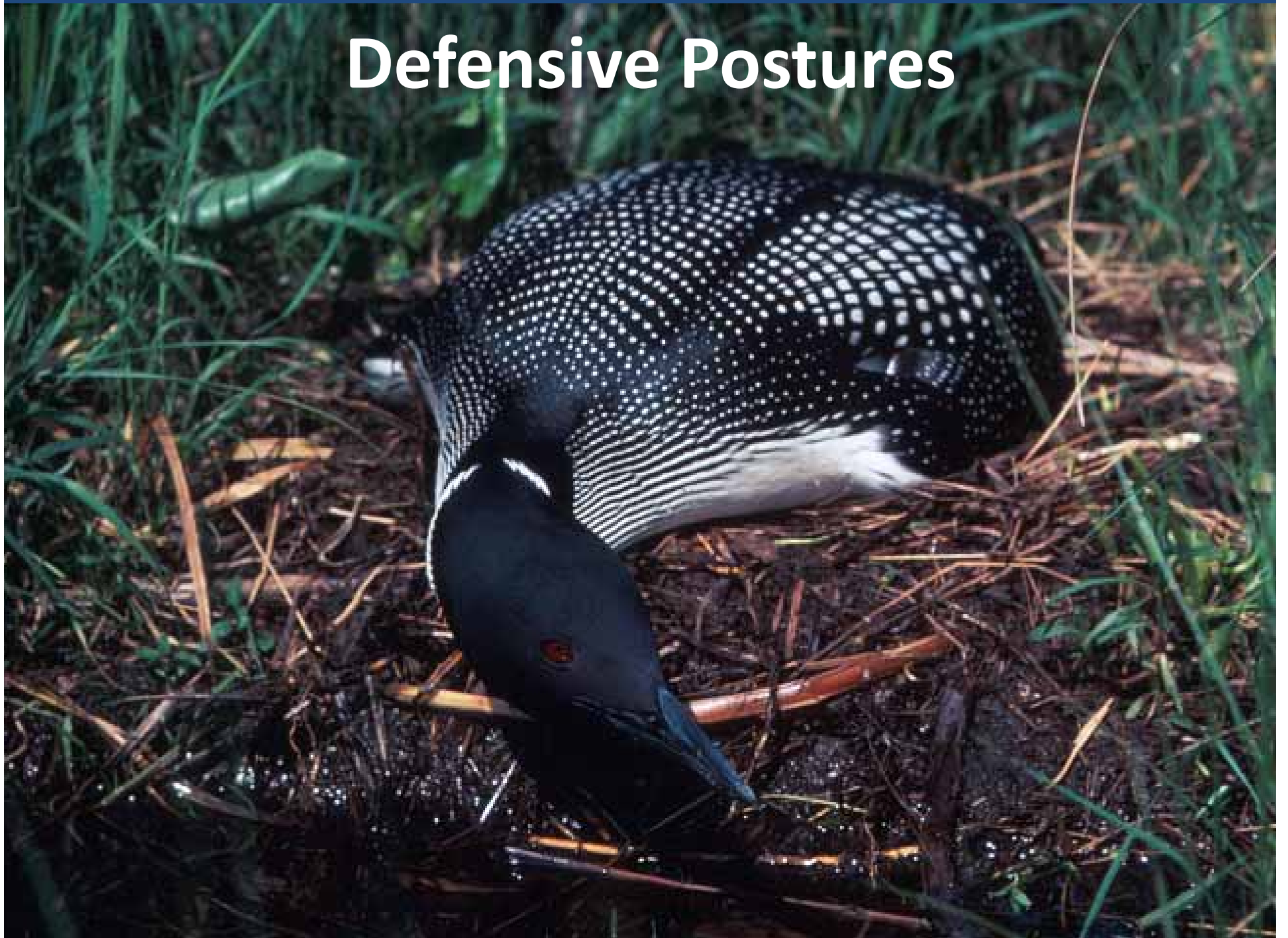
Nesting Behavior



Chick Rearing



Defensive Postures



Defensive Postures



Loon ID



© Bob Wright

2-week-old Chick

Loon ID



© Robert Scholl 2005 All Rights Reserved

6-week-old Chick

Loon ID



12-week-old Chick

Threats

- Loss of Habitat

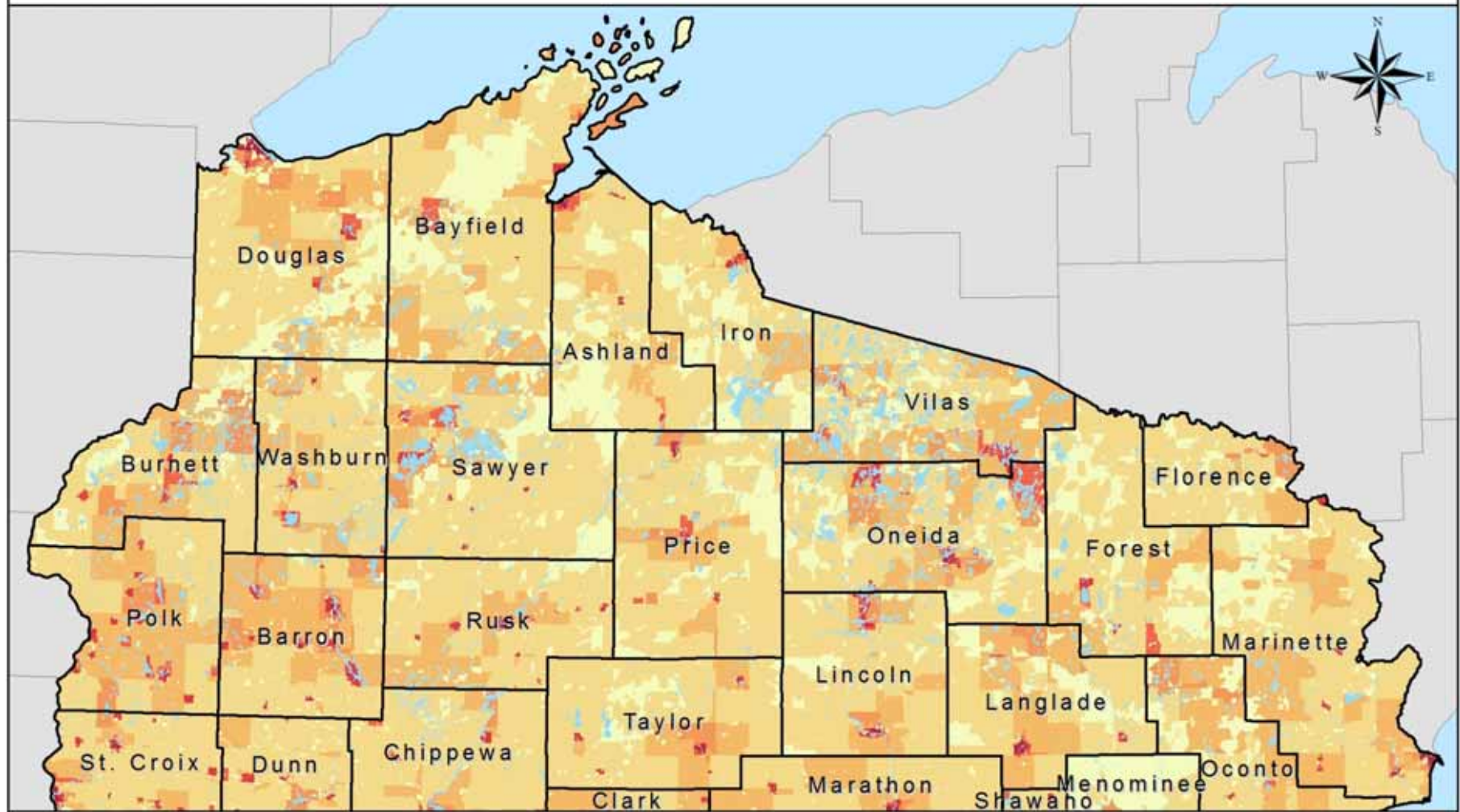


Past and Present Common Loon Breeding Range in North America

-  **Current Range**
-  **Historical
Southern Limit**

McIntyre 1988

Census 1940 Housing Density Northern Wisconsin



Housing Units Per Square Mile

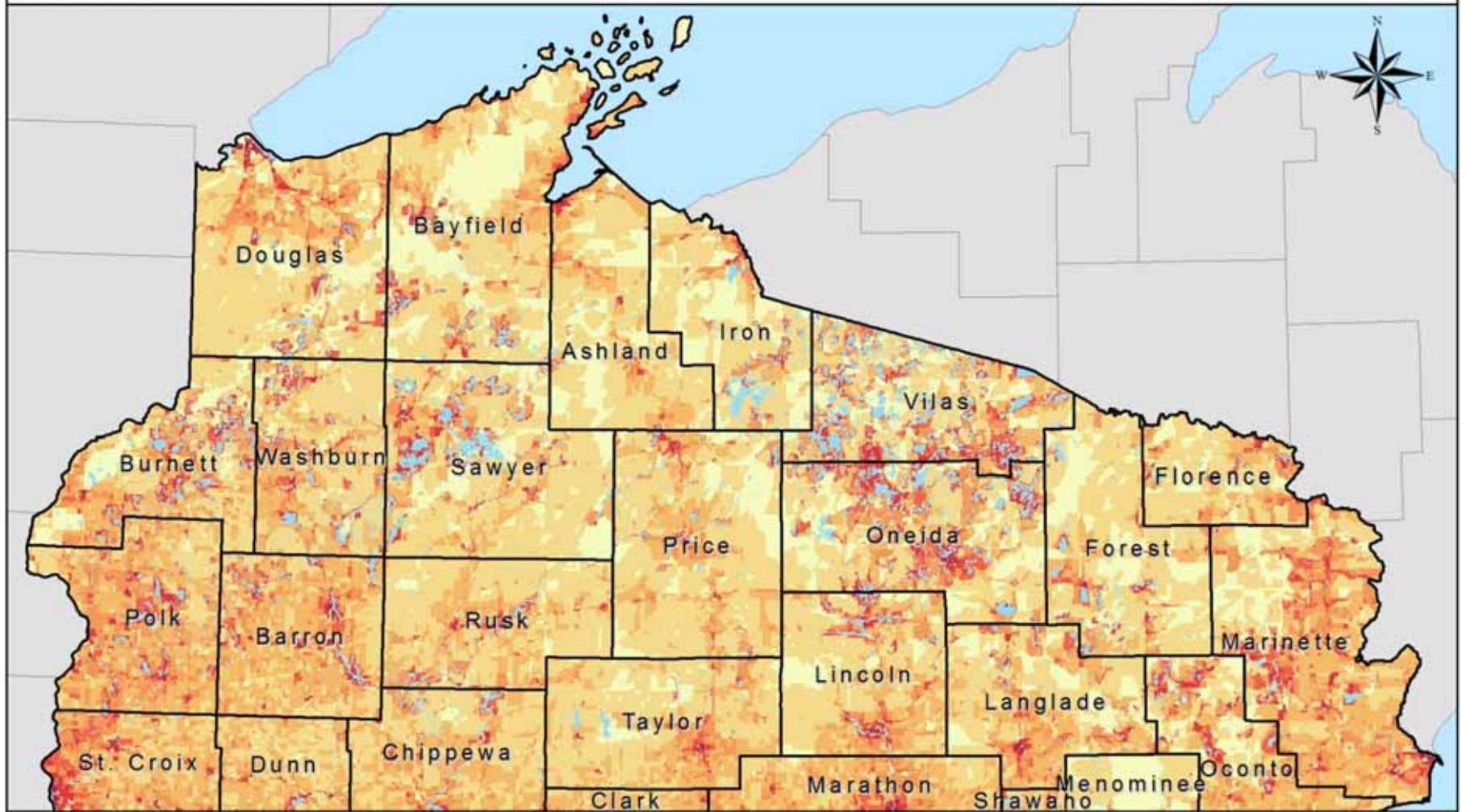


Sources:
 Roads: ArcGIS Streetmap USA, 2010
 1940 - 1980 Housing Density: US Census Partial Block Group Data
 Hammer, R. B. S. I. Stewart, R. Winkler, V. C. Radeloff,
 and P. R. Voss. 2004. Characterizing spatial and temporal
 residential density patterns across the U.S. Midwest, 1940-1990.
 Landscape and Urban Planning 69: 183-199.
<http://silvis.forest.wisc.edu/old/Library/HousingData.php>



Applied Population Laboratory
 UW Madison
<http://www.apl.wisc.edu/>

Census 1990 Housing Density Northern Wisconsin



Housing Units Per Square Mile

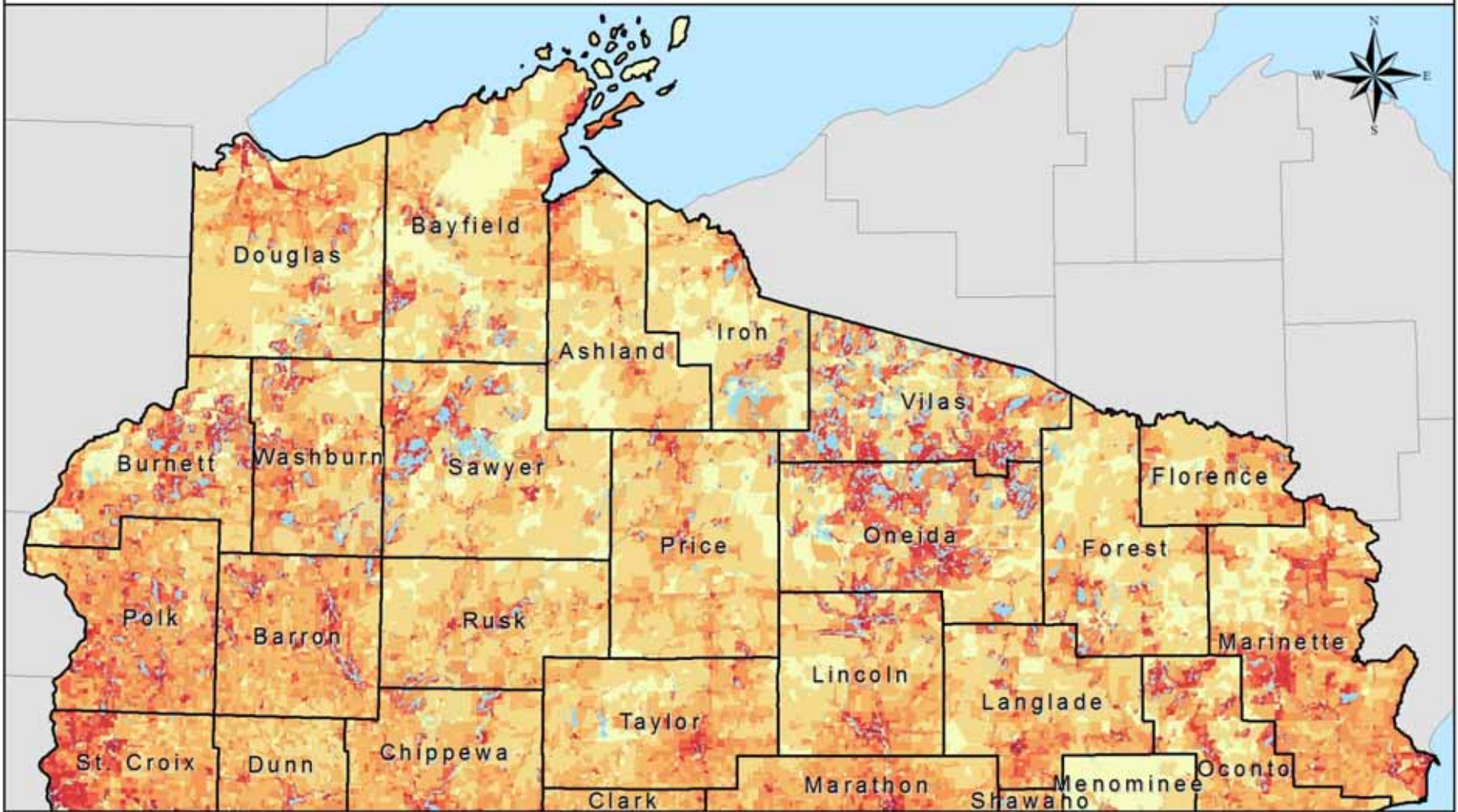


Sources:
Roads: ArcGIS Streetmap USA, 2010
1990 Housing Density: US Census Bureau (census blocks)



Applied Population Laboratory
UW Madison
<http://www.apl.wisc.edu/>

Census 2010 Housing Density Northern Wisconsin



Housing Units Per Square Mile



Sources:
Roads: ArcGIS Streetmap USA, 2010
2010 Housing Density: US Census Bureau (census blocks)

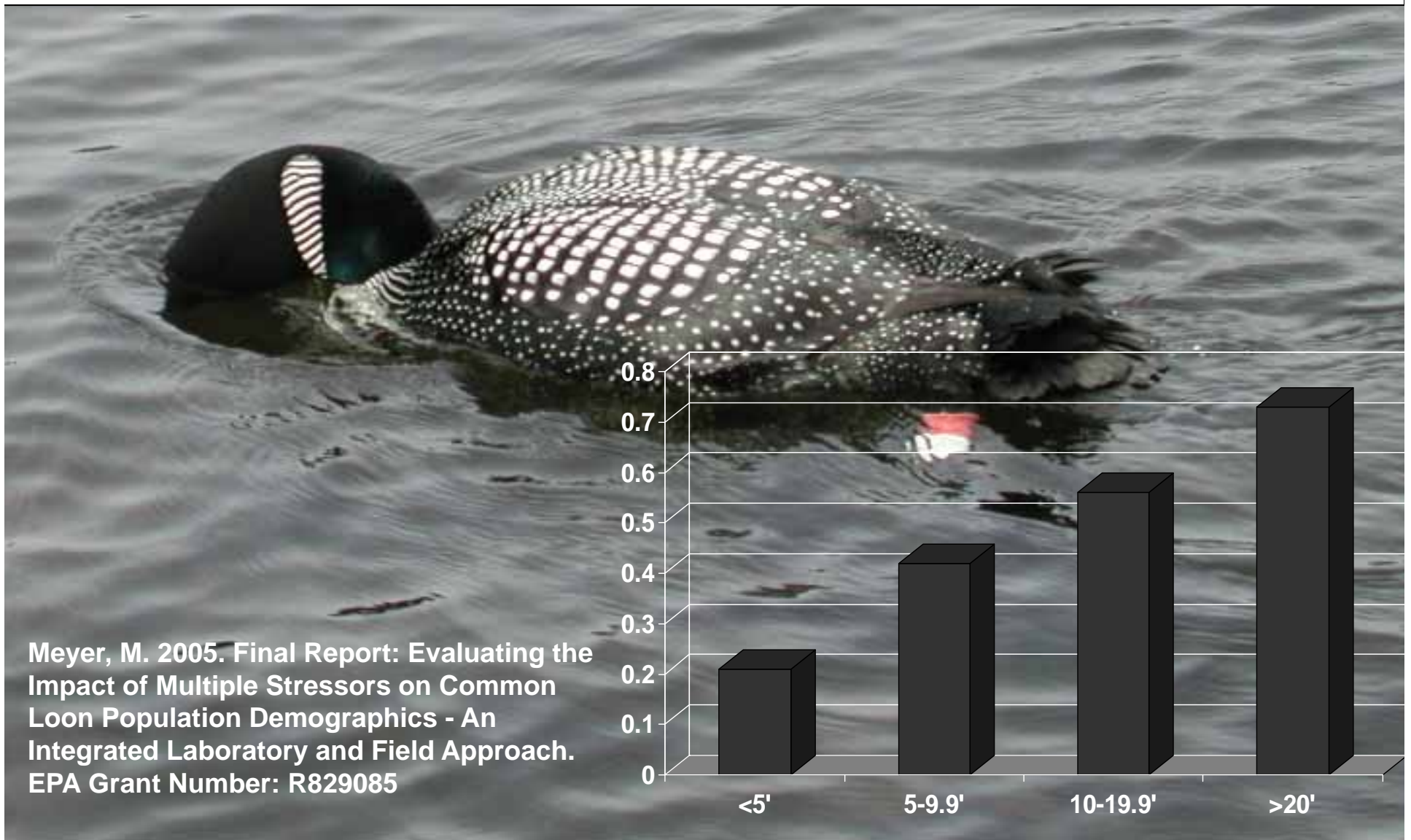


Applied Population Laboratory
UW Madison
<http://www.apl.wisc.edu/>

Threats

- Loss of Habitat
- Poor Water Quality

Wisconsin Loons More Likely Found on Lakes with Good Water Clarity

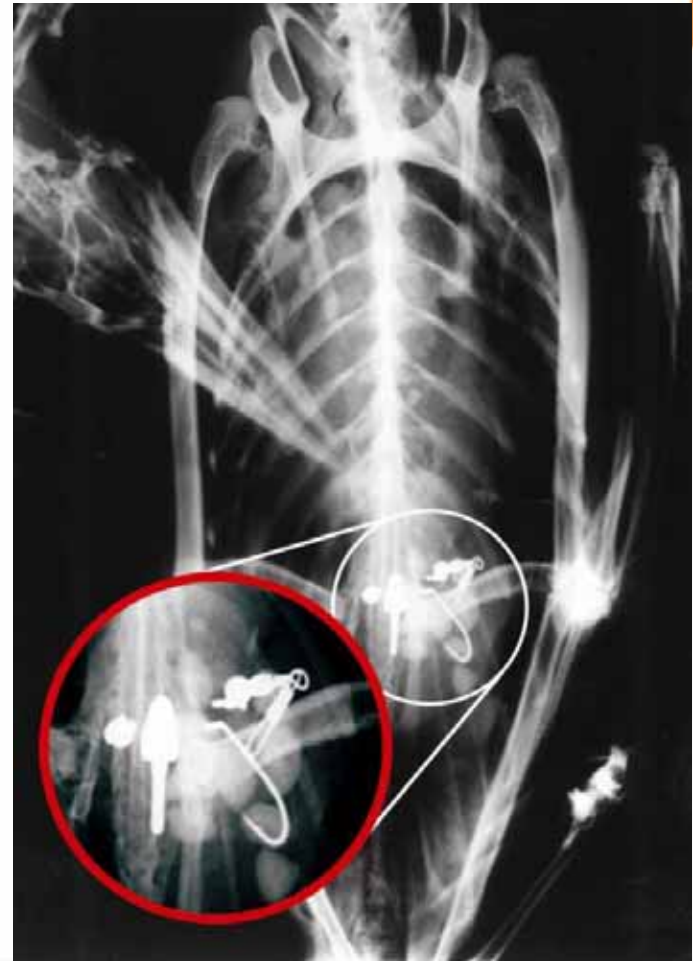


Threats

- Loss of Habitat
- Poor Water Quality
- **Toxins**

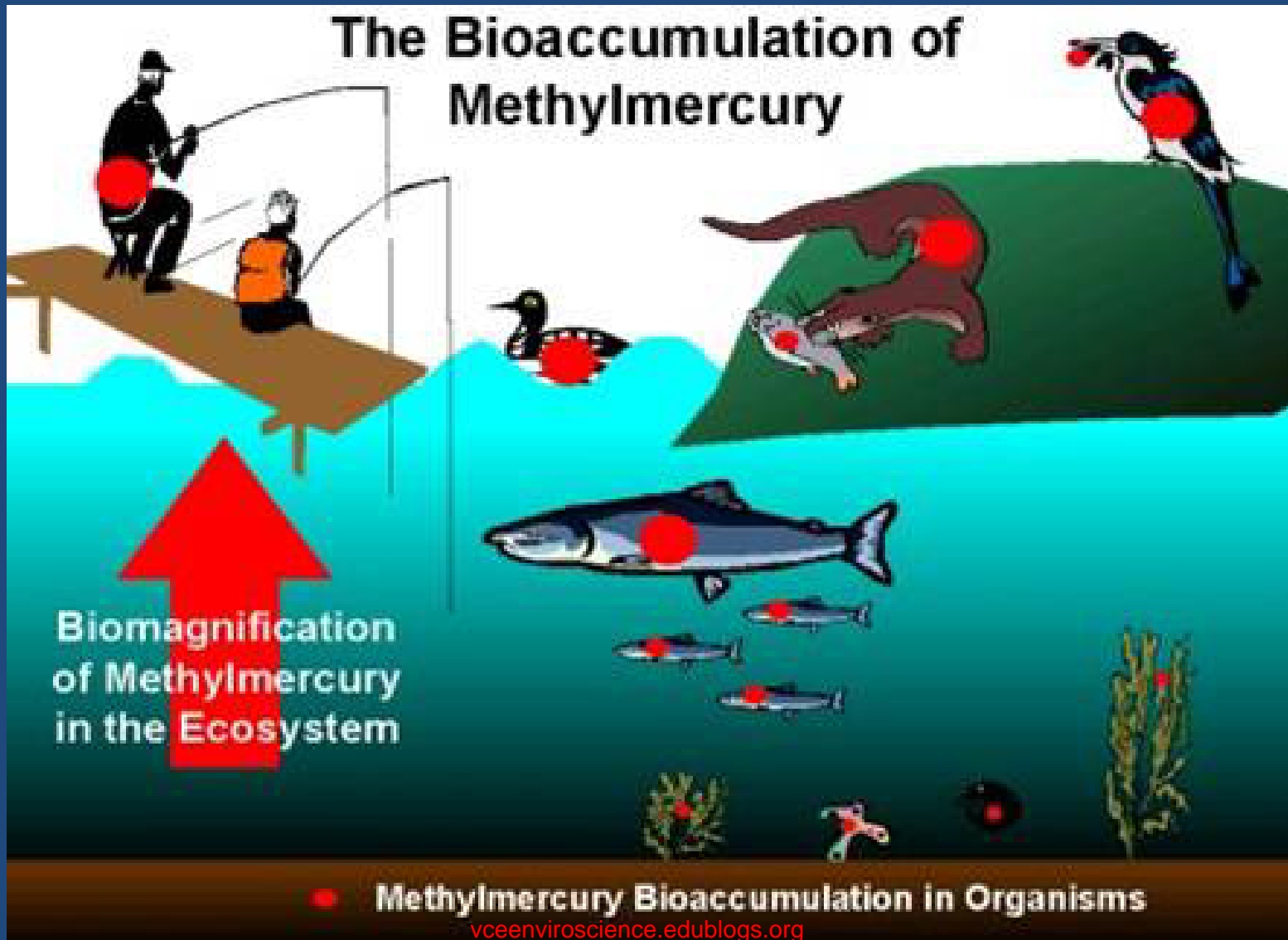
Lead Fishing Tackle

- Approximately 20% of loons succumbed to lead poisoning
- X-ray shows lead tackle in a loon's stomach



Mercury

How Do Loons Ingest Mercury?



Avian Botulism



Three of the 236 common loons that washed ashore in October 2012 along seven miles of northern Lake Michigan beach near the eastern Upper Peninsula community of Gulliver

Threats

- Loss of Habitat
- Poor Water Quality
- Toxins
- Human Disturbance

Education • Monitoring • Research

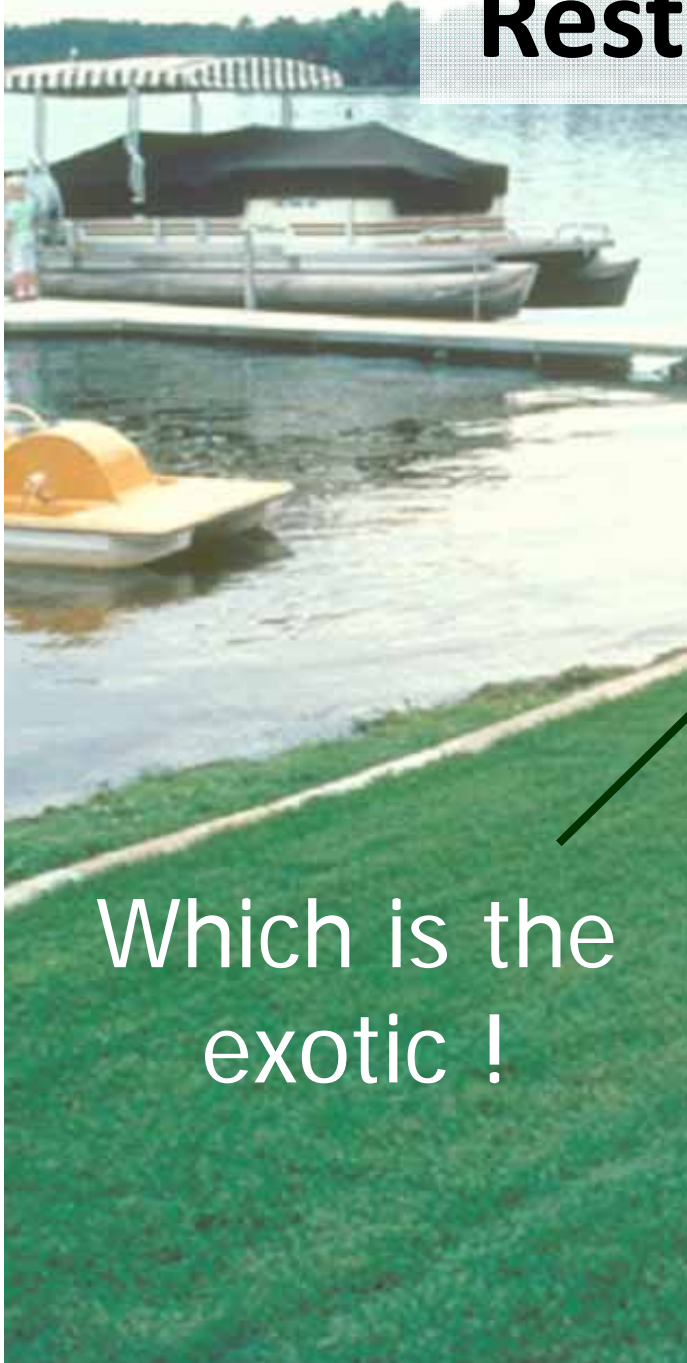


What Can Be Done to Protect Loons?

- Restore Your Shoreland to Native Plants

Education • Monitoring • Research

Restore Your Shoreland



Kentucky
bluegrass

switch-
grass

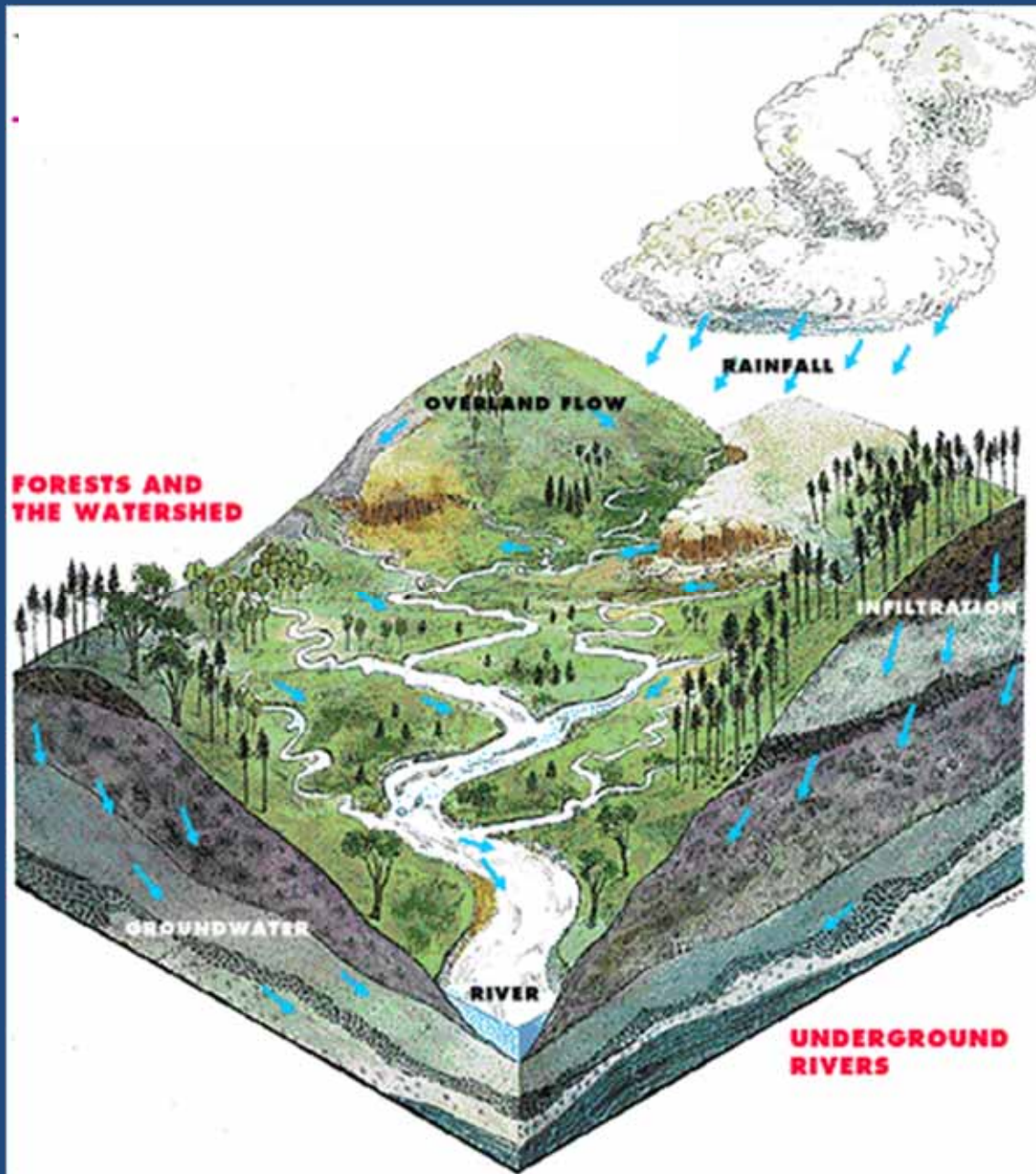
prairie
cordgrass

cylindric
blazing
star

What Can Be Done to Protect Loons?

- Restore Your Shoreland to Native Plants
- Build a Rain Garden and Utilize Rain Barrels

We all live in a watershed!



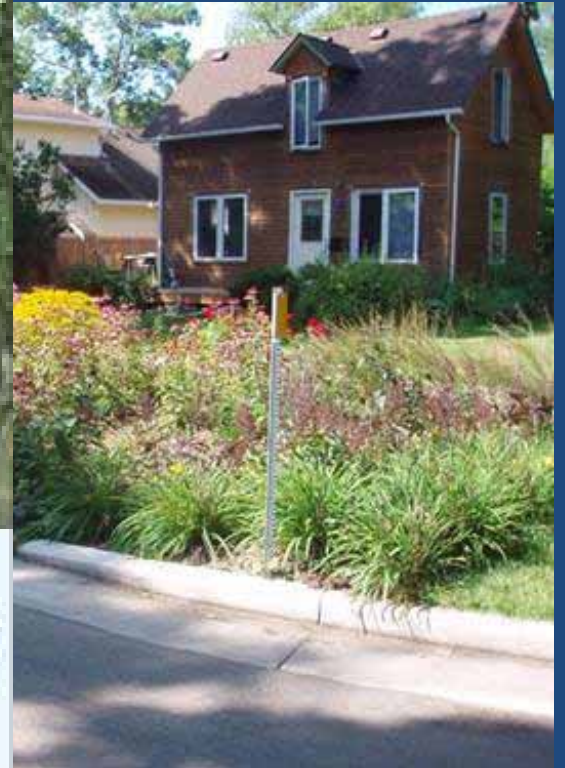
Build a Rain Garden and Utilize Rain Barrels



Project Location:
River Falls, WI



A rain barrel used to collect rooftop runoff using a gutter / downspout system



What Can Be Done to Protect Loons?

- Restore Your Shoreland to Native Plants
- Build a Rain Garden and Utilize Rain Barrels
- **Get the Lead Out!**

Get the Lead Out!

Replace your tackle with lead-free tackle



Education • Monitoring • Research

What Can Be Done to Protect Loons?

- Restore Your Shoreland to Native Plants
- Build a Rain Garden and Utilize Rain Barrels
- Get the Lead Out!
- Reduce Your Energy Consumption

Education • Monitoring • Research

Reduce Your Energy Consumption

- Walk or bike to work, store, errands
- Carpool
- Use public transportation
- Drive the posted speed limit
- Make sure your tires are properly inflated
- Purchase locally produced products

What Can Be Done to Protect Loons?

- Restore Your Shoreland to Native Plants
- Build a Rain Garden and Utilize Rain Barrels
- Get the Lead Out!
- Reduce Your Energy Consumption
- **Contact your local legislators**



Contact Your Local Legislators

Latitude and longitude: 46.55612, -90.95244

Your Legislators



Senator Janet Bewley
(D - Ashland)
Senate District 25
(608) 266-3510
(800) 469-6562
Sen.Bewley@legis.wi.gov



Representative Beth Meyers
(D - Bayfield)
Assembly District 74
(608) 266-7690
(888) 534-0074
Rep.Meyers@legis.wisconsin.gov

U.S. House of Representatives and U.S. Senate

Education • Monitoring • Research

Current Science and Trends

Common Loon Research in Wisconsin

Dave Evers
Biodiversity Research Institute
Gorham, ME

Mike Meyer, Nova
Ecological Services
Arbor Vitae, WI

Kevin Kenow, USGS
La Crosse, WI

Jay Mager
Ohio Northern
University

Walter Piper
Chapman University
Orange, CA

Erica LeMoine
LoonWatch
Ashland, WI



Photo courtesy Michele Woodford

Loon Bands



Banding Loons

Dave Evers



Territorial Dispute

Walter Piper



Lake Preference – ABJ's



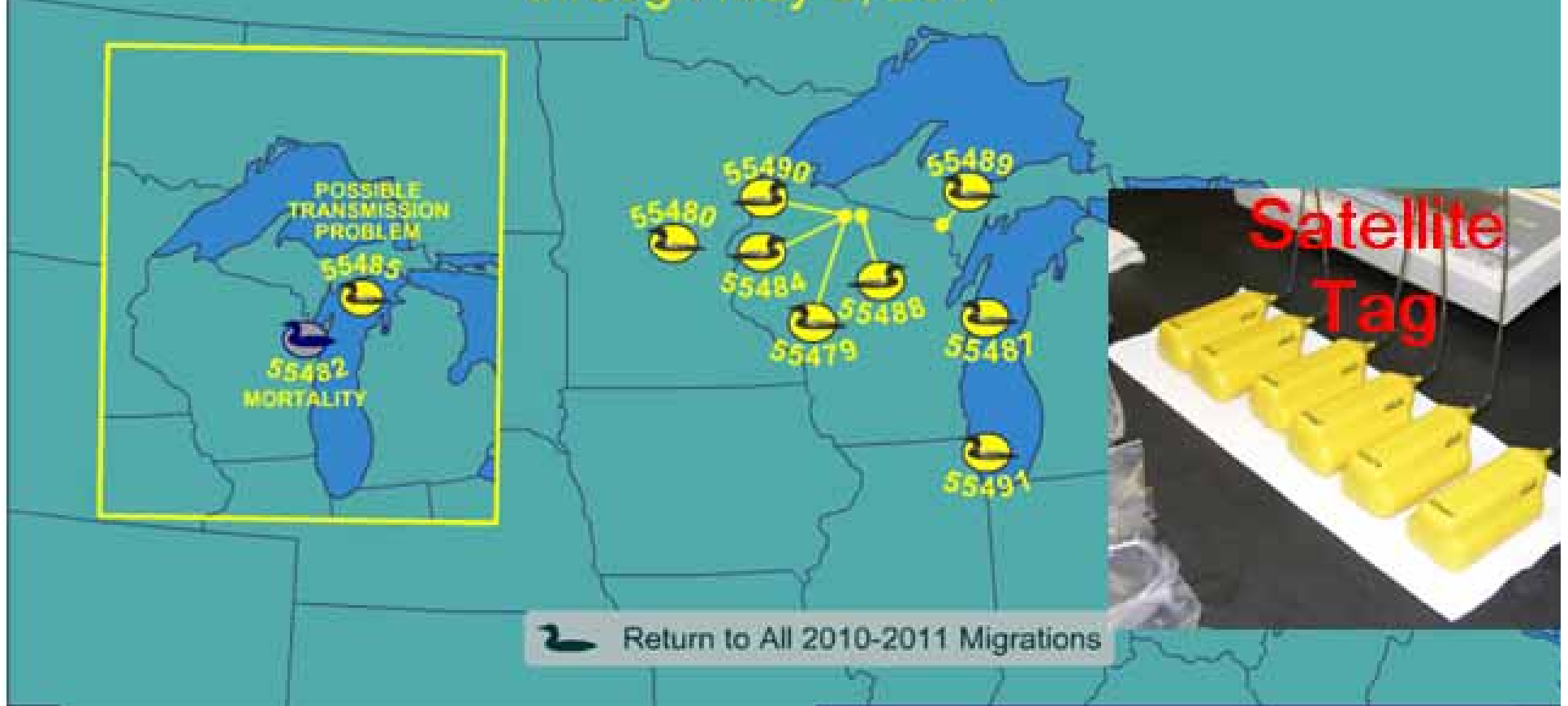
Common Loon Migration Study

Kevin Kenow

Common Loon Movements and Migrations 2010 - 2011

Current Locations

through May 5, 2011



Migration of Radiomarked Common Loons in 2010

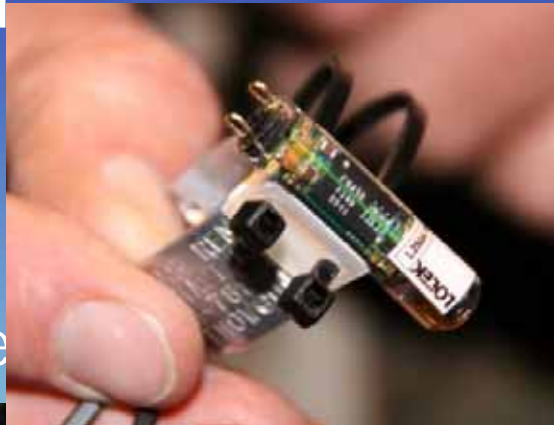
Stopover Lakes

- Lake Michigan
- Lake Erie
- Lemon Lake, IN
- Brookeville Lake, IN
- Lake Monroe, IN
- Patoka Lake, IN
- Barren River Lake, KY
- Center Hill Lake, TN
- Chickamauga Lake, TN
- Tims Ford Lake, TN
- Weiss Lake, AL



Geolocator Tags

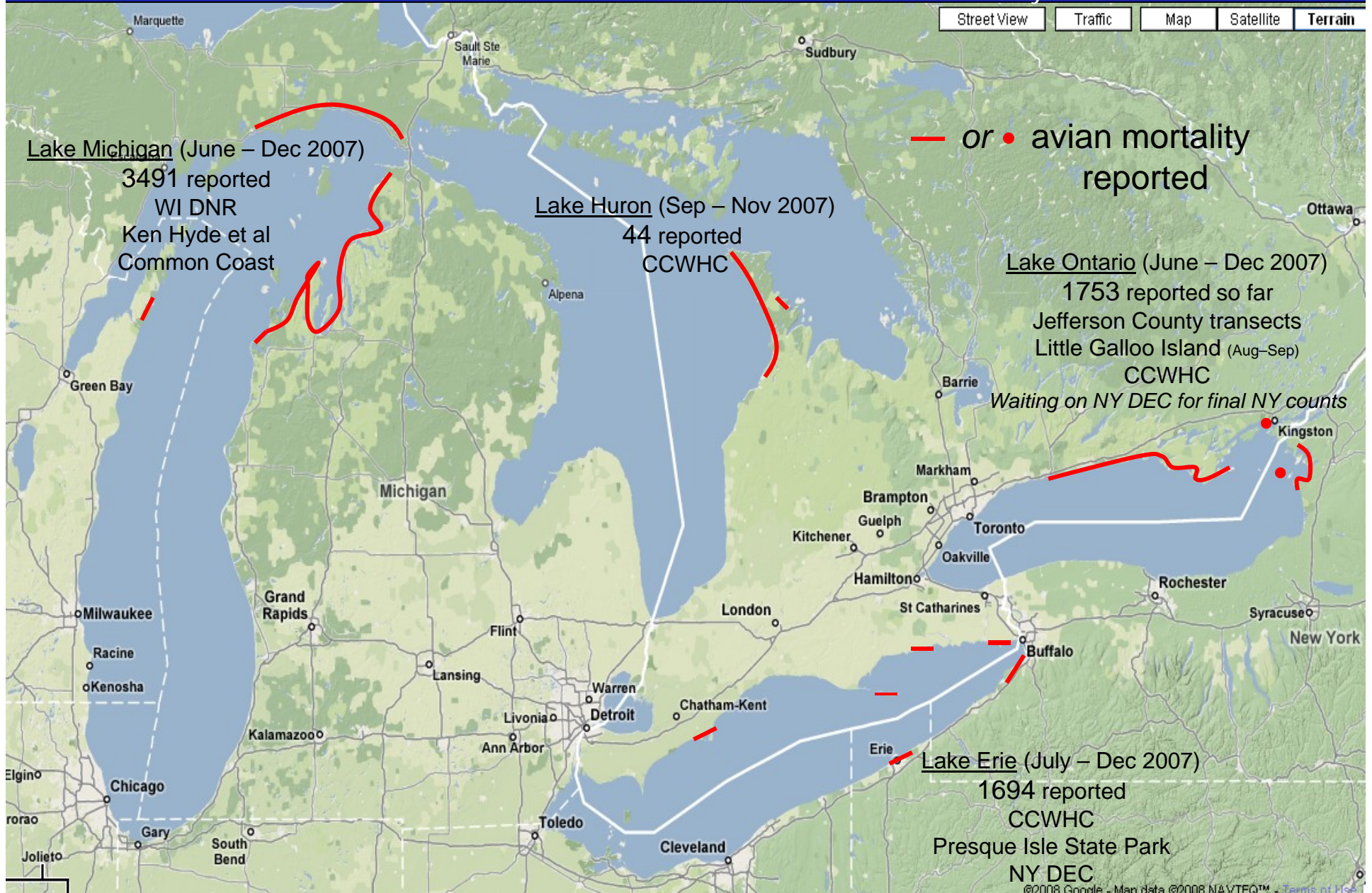
- Foraging Patterns
- 80 tags in WI
- Download temp and pressure data every hour
- Stores 3 years data
- 7 years to recapture





Preliminary 2007 Great Lakes Carcass Count = 6982

Courtesy M. Jankowski USGS



Loon: trl_14

Natal lake: Tamarac Lake, Becker County, MN

SHOW ALL LOONS

✕ loon locations

Juvenile Satellite-Tagged Loons

✕ Tamarac Lake, Mn
8/22 thru 11/08/14

✕ Illinois
1/9 thru 11/11/14

✕ Indiana
Rest stop 11/12/14

✕ Tennessee
Overnight 11/12/14

✕ Gulf of Mexico
11/13/14 thru 4/16/15

Atlantic Ocean

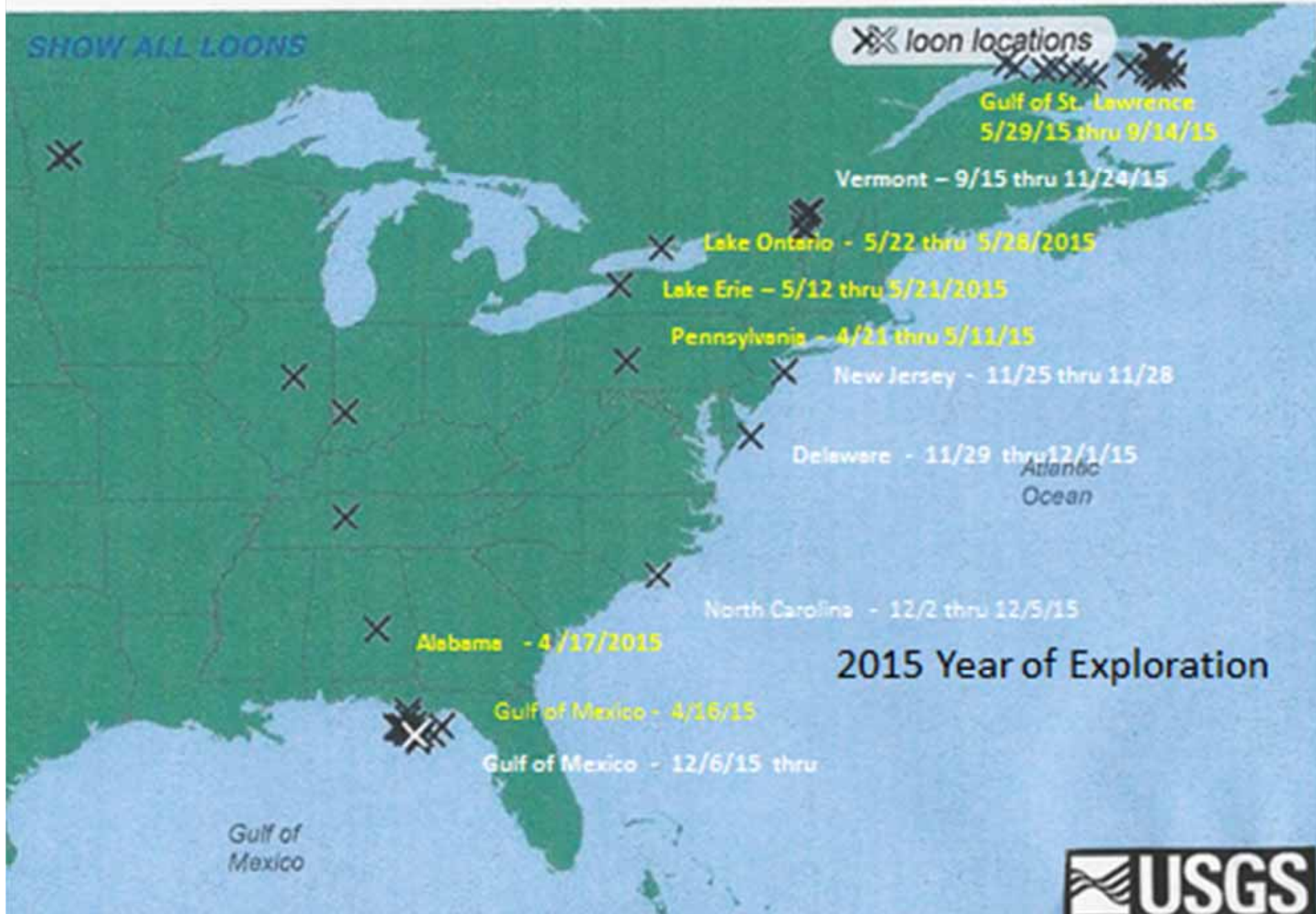
2014 Fall Migration
11/8/14 thru 11/13/14

Gulf of Mexico



Loon: trl_14

Natal lake: Tamarac Lake, Becker County, MN





Juvenile Satellite-Tagged Loons

Video about USGS loon research in the Upper Midwest: [Unraveling Mysteries of the Common Loon](#)

Juvenile Loon Data: [Current data](#) [All 2015 birds](#) [All 2014 birds](#) [Adult Loon Data, 2010-12](#)

Loon ID	Last updated
lm_14	Dec. 6, 2015
trl_14	Feb. 16, 2016
sl_14	Jan. 18, 2016
rl_15	Feb. 18, 2016
al_15	Jan. 24, 2016
lwl_15	Feb. 17, 2016
lhl1_15	Feb. 17, 2016
lhl2_15	Nov. 30, 2015
mwl_15	Feb. 17, 2016
pl_15	Feb. 16, 2016

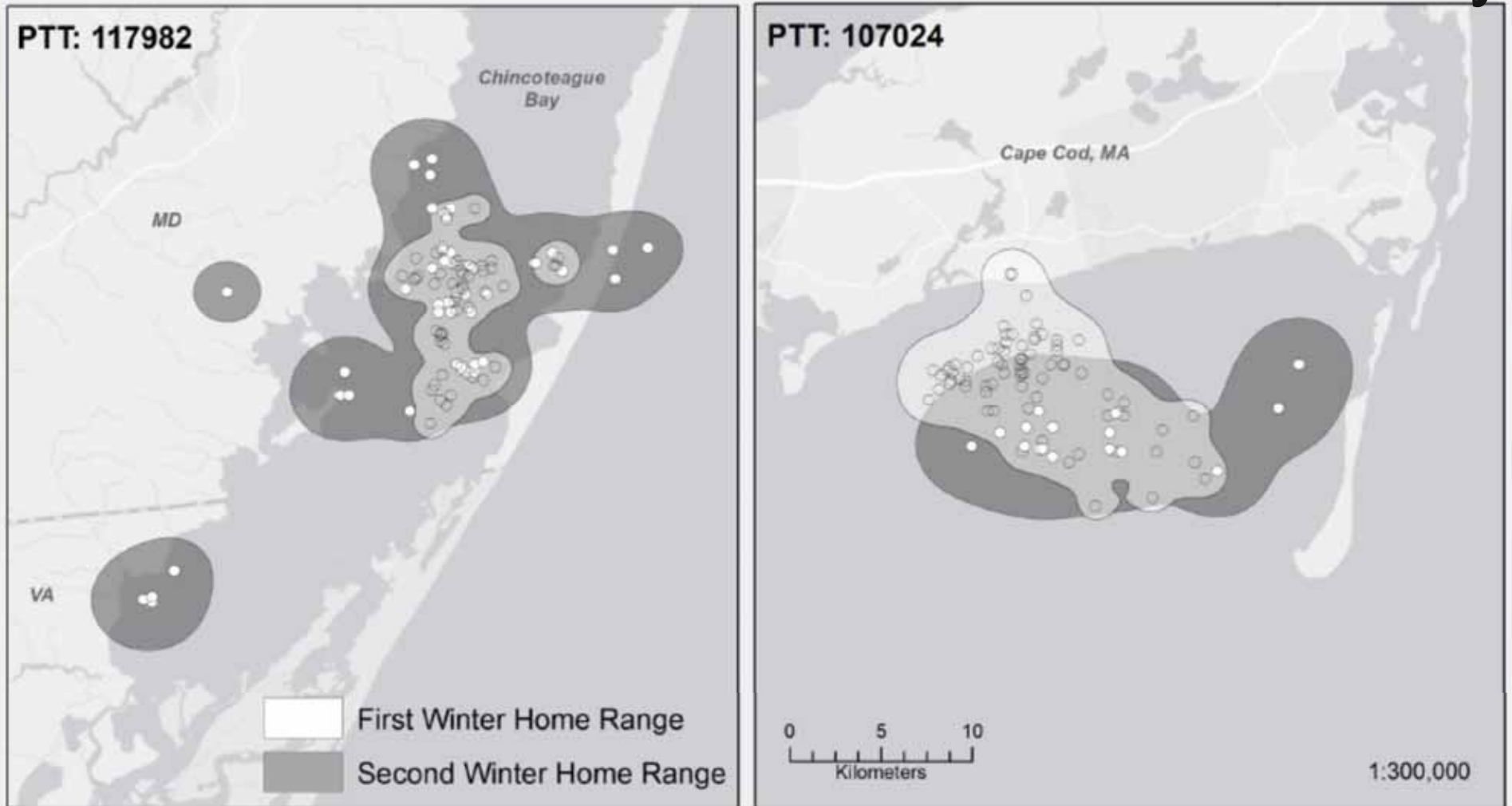
Loon locations through February 18, 2016

click upon loon locations for details

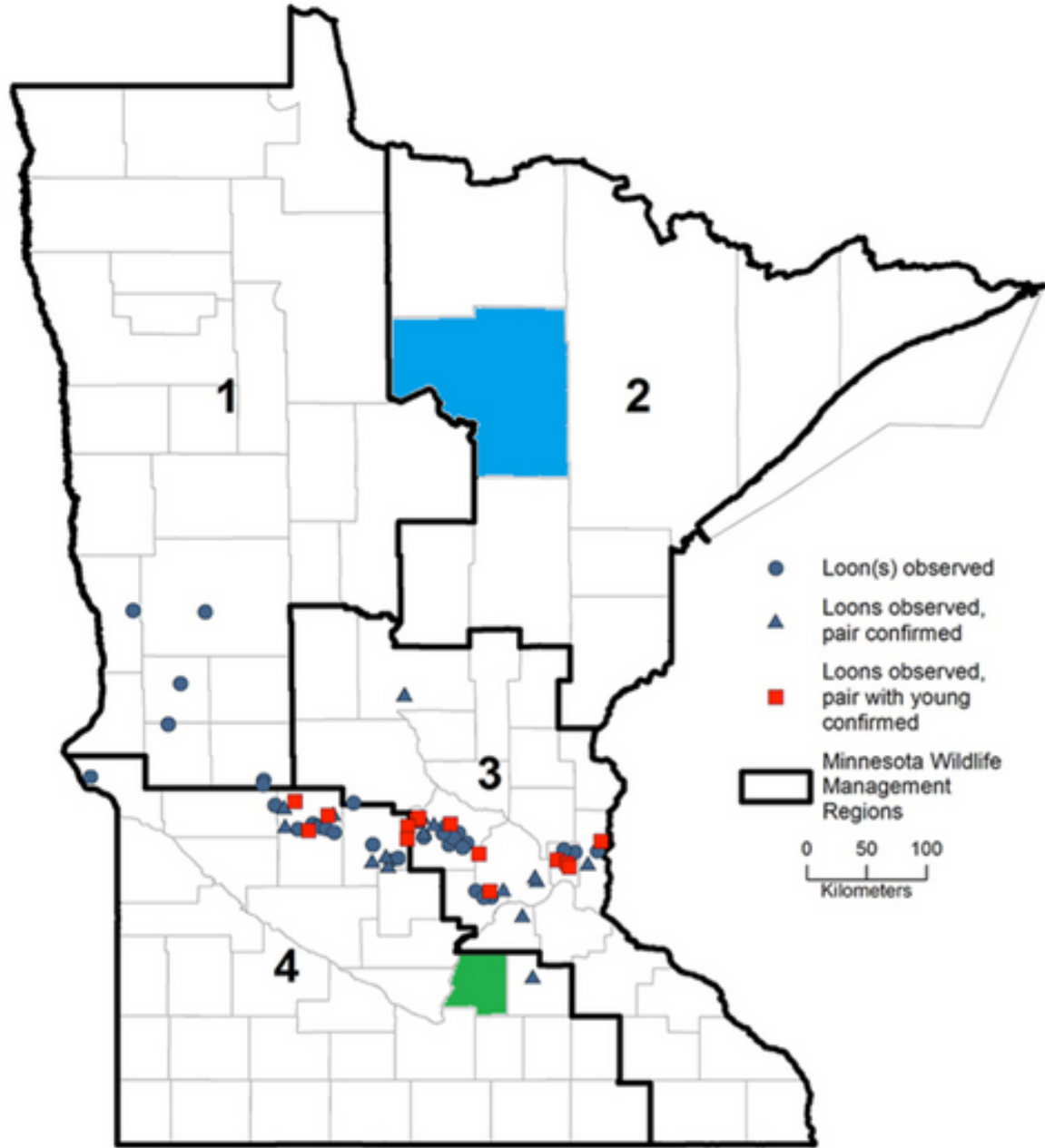


Two loons in Maine implanted with satellite transmitters, used same area in consecutive winters! Adult loons exhibit winter site fidelity*

Winter Site Fidelity



*Paruk, J.D., M. Chickering, D. Long, IV, H. Uher-Koch, A. East, E. A. Adams, K. A. Kovach, D.C. Evers. 2015. Winter site fidelity in Common Loons across North America. 2015. *The Condor: Ornithological Applications* 117:485-493.

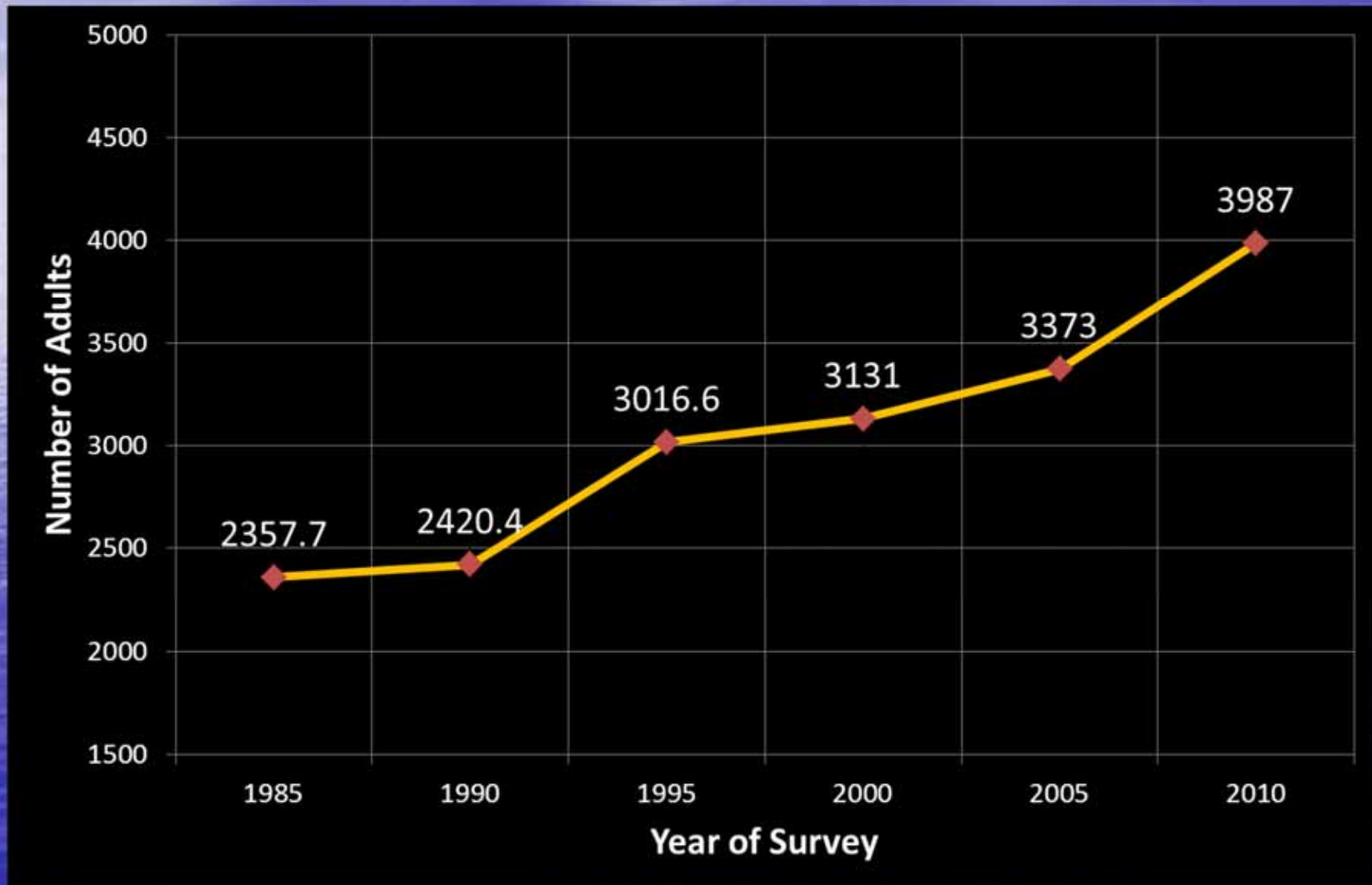


Loon Translocation and Rearing



- Translocate chicks at age 6-10 weeks old
- Continue rearing chicks on lake in pens
- Release chicks when able to forage effectively on own
- Confirm fledging (natal flight) and track local and regional movements

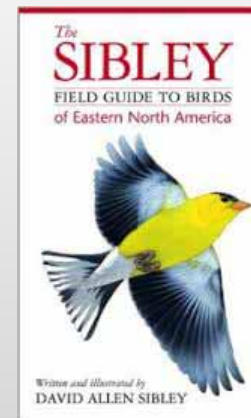
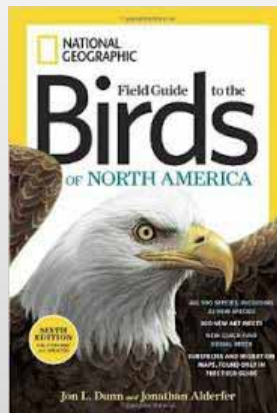
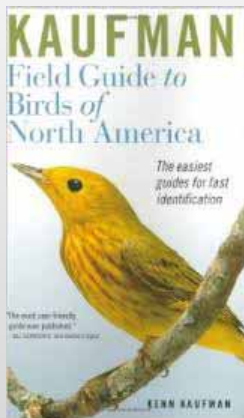
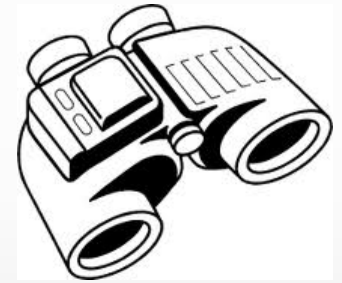
Population Estimates of Adult Common Loons in Wisconsin



IT'S TIME FOR A 10 MINUTE BREAK.

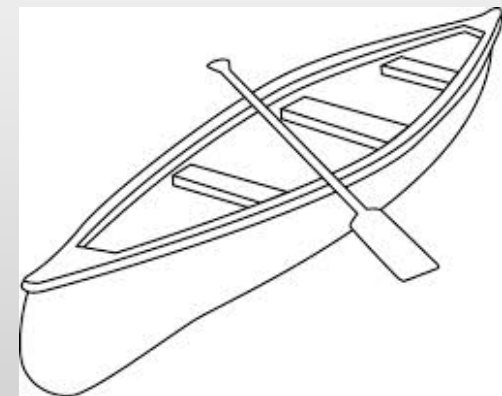
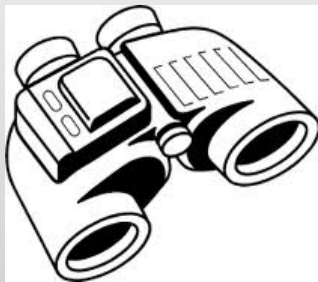
Equipment

- Make sure you are able to positively identify loons – adults, chicks and juveniles.
- Low light and bright light conditions, wind, fog, and rain can make it difficult to see.
- Bring binoculars, your survey form and instructions, and a field guide.



Equipment

1. Be careful – wear life vests if you go in a boat or canoe
2. Try to avoid disturbing the loons as you count them
3. Bring binoculars, spotting scope (if available), pencil, monitoring form, map, instructions, field guide
4. Remember to check your boat (and boat trailer if applicable) for aquatic invasive species (esp plants) when removing it from the water. We recommend washing your boat before transferring it to a different water body.
5. Have fun!



Binoculars – How to Use Em'

1. Fit

Eyeglass Wearer



Non-Eyeglass Wearer



Adjust interpupillary distance



2. Focus

Focus with your left eye by focusing ring.



Then, focus with your right eye with diopter



Loon Citizen Scientists



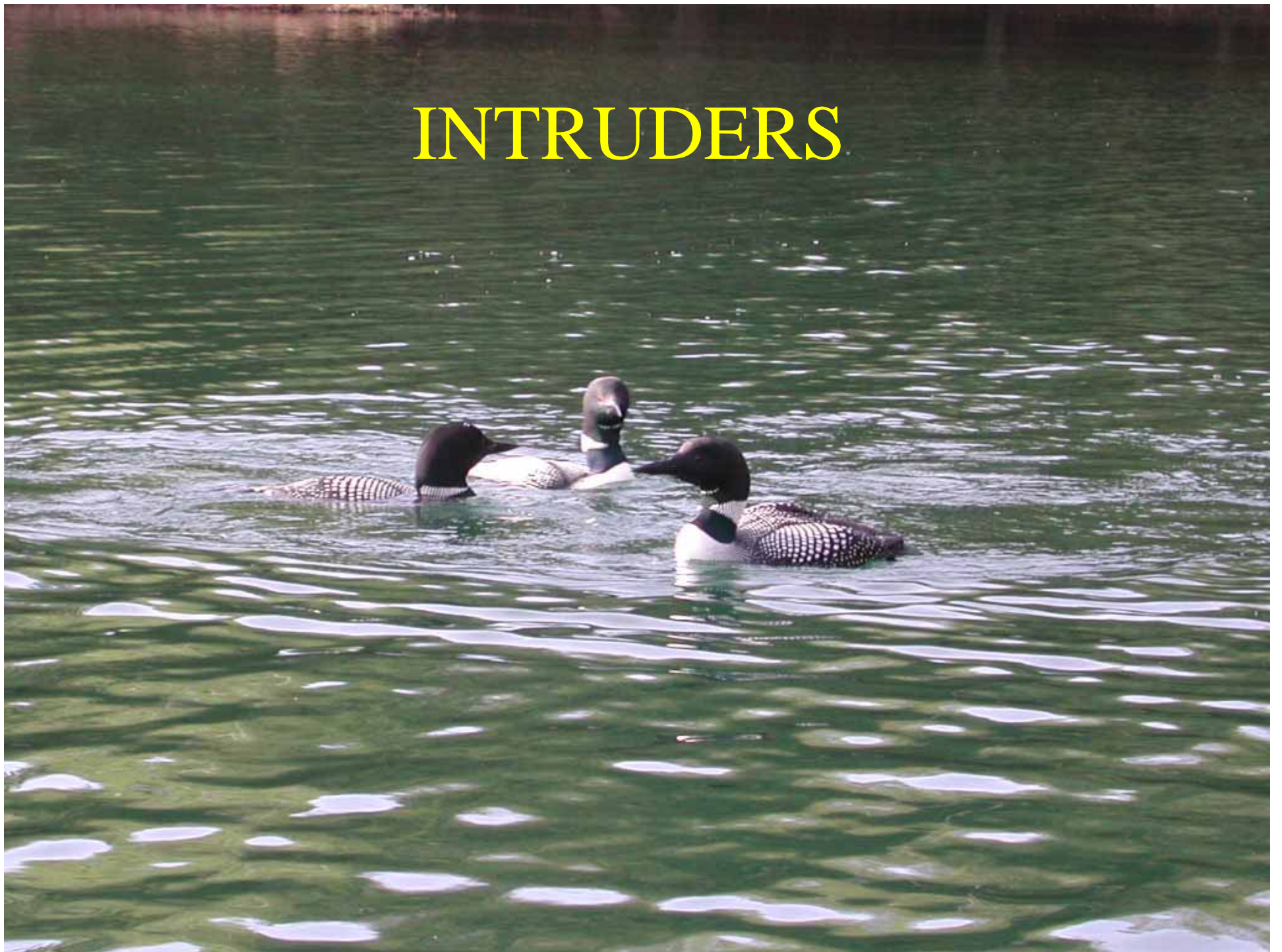
Ginger Gumm / Daniel Poleschook

TERRITORIAL PAIRS





INTRUDERS

















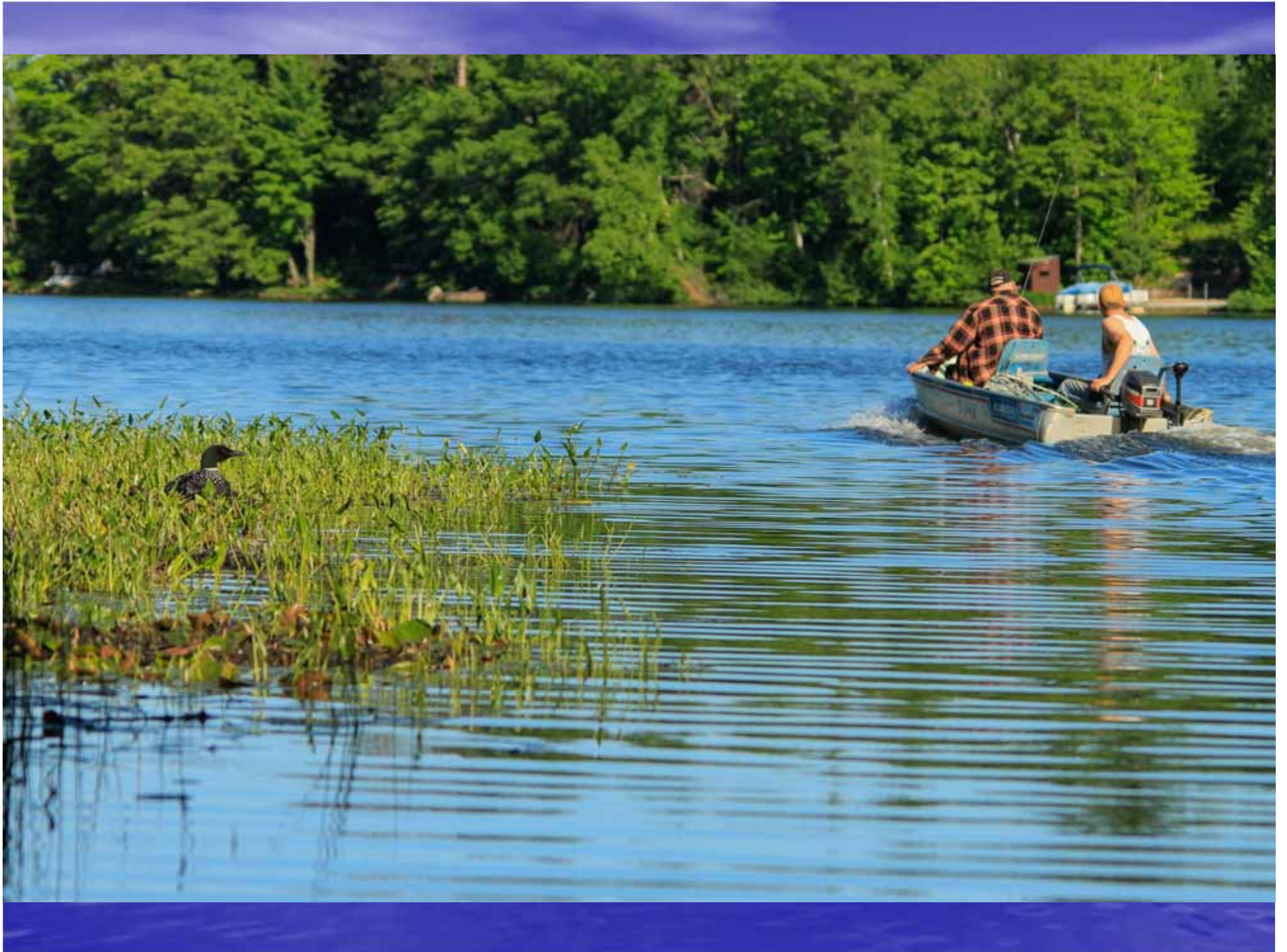


LOON NESTS





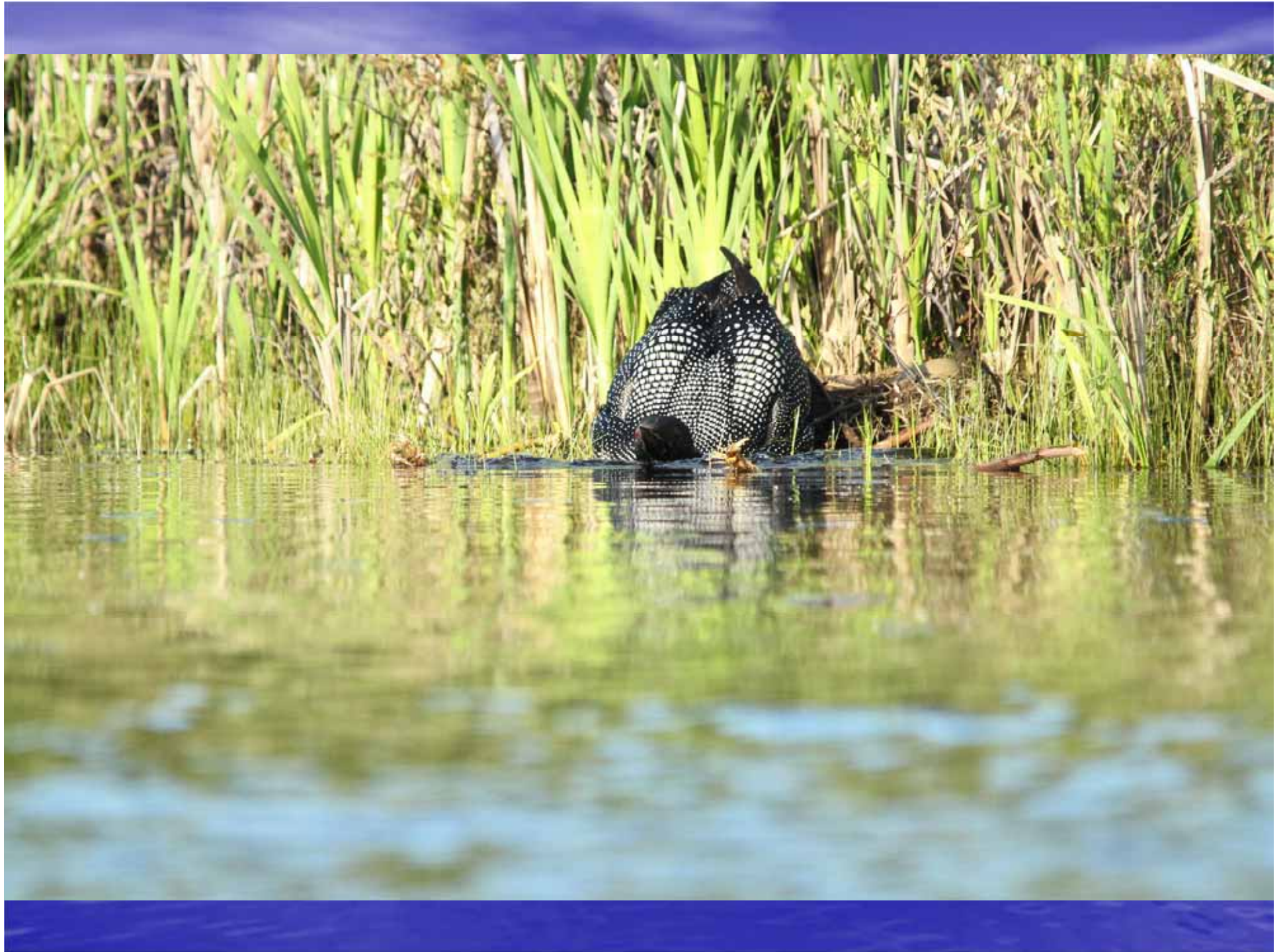


















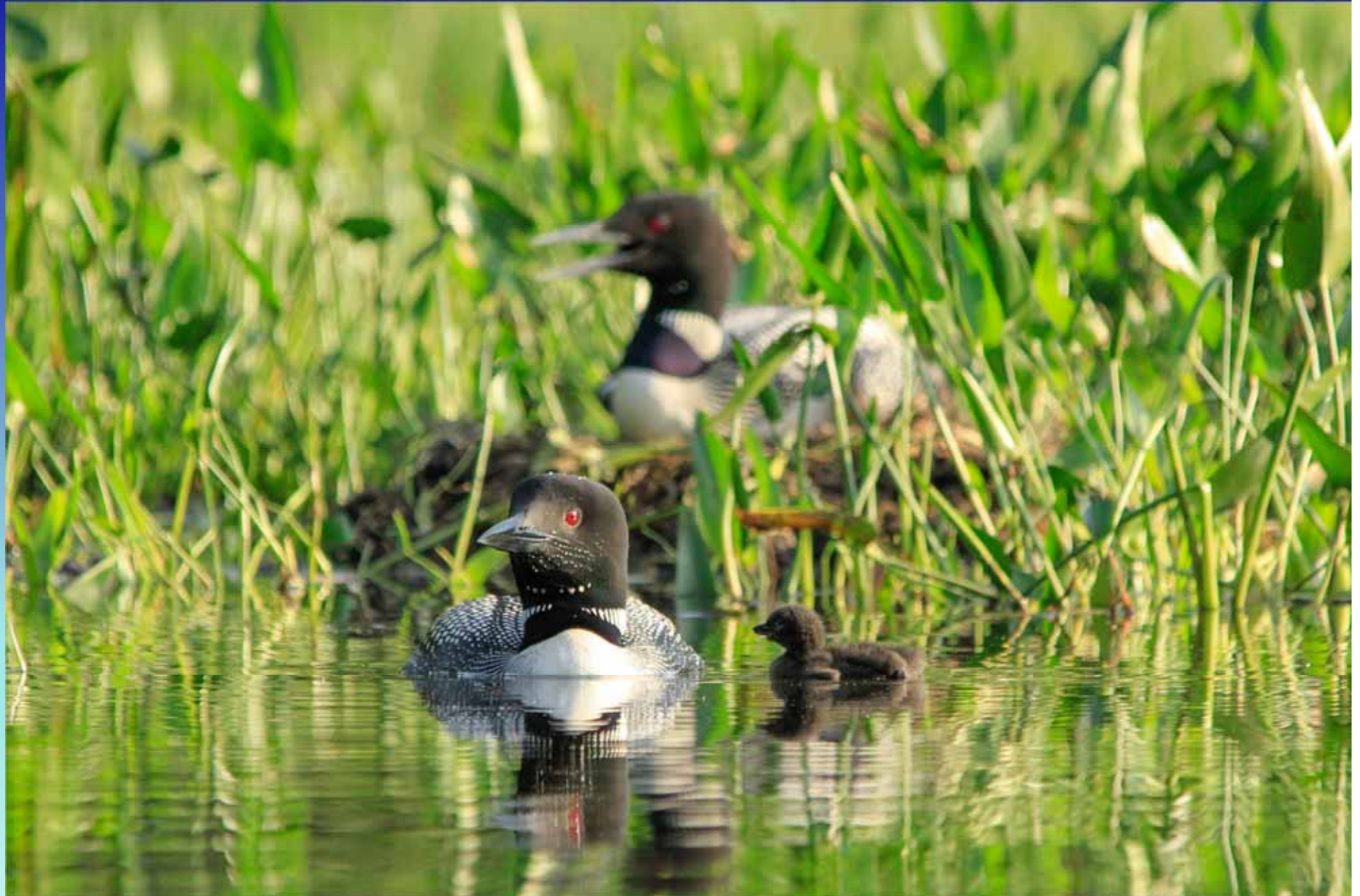








Chick Survival









Chick Phenology



Recently Hatched

Linda Grenzer



2 Day Old Chick

Linda Grenzer



4 Day Old Chicks

Linda Grenzer



7 Day Old Chicks

Linda Grenzer



10 Day Old Chick

Linda Grenzer



Two Week Old Chick

Linda Grenzer



3 Week Old Chick

Linda Grenzer



3 Week Old Chick

Linda Grenzer



5 Week Old Chicks

Linda Grenzer



6 Week Old Chick

Linda Grenzer



7 Week Old Chick

Linda Grenzer



Two Month Old Chick

Linda Grenzer



Juvenile Chick

Linda Grenzer

Spring



Spring

Linda Grenzer

Summer



Summer

Linda Grenzer

Late Summer



Late Summer

Linda Grenzer

Early Fall



Early Fall

Linda Grenzer

Mid Fall



Mid Fall

Linda Grenzer

Late Fall



Late Fall

Linda Grenzer

LOON BANDS





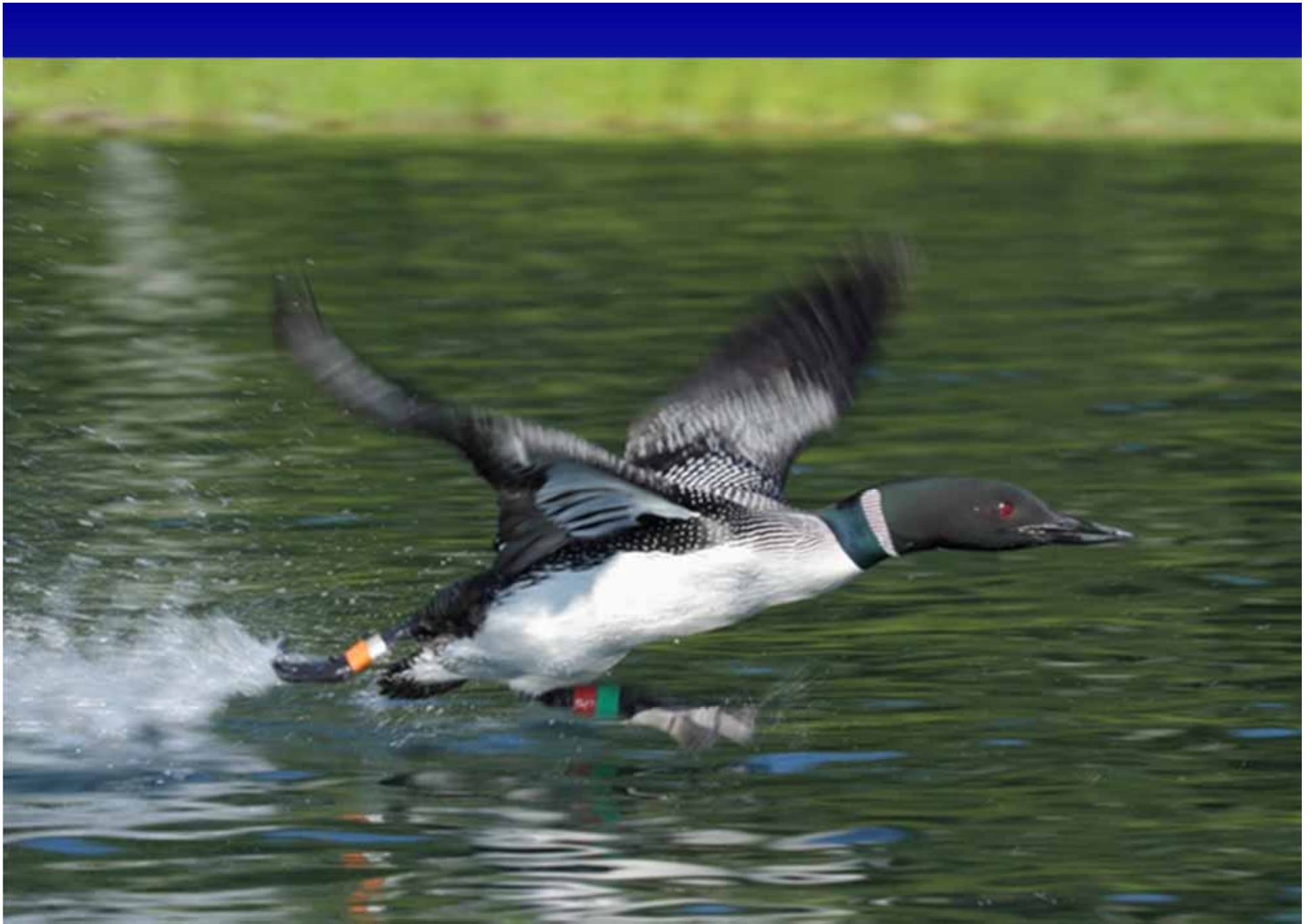
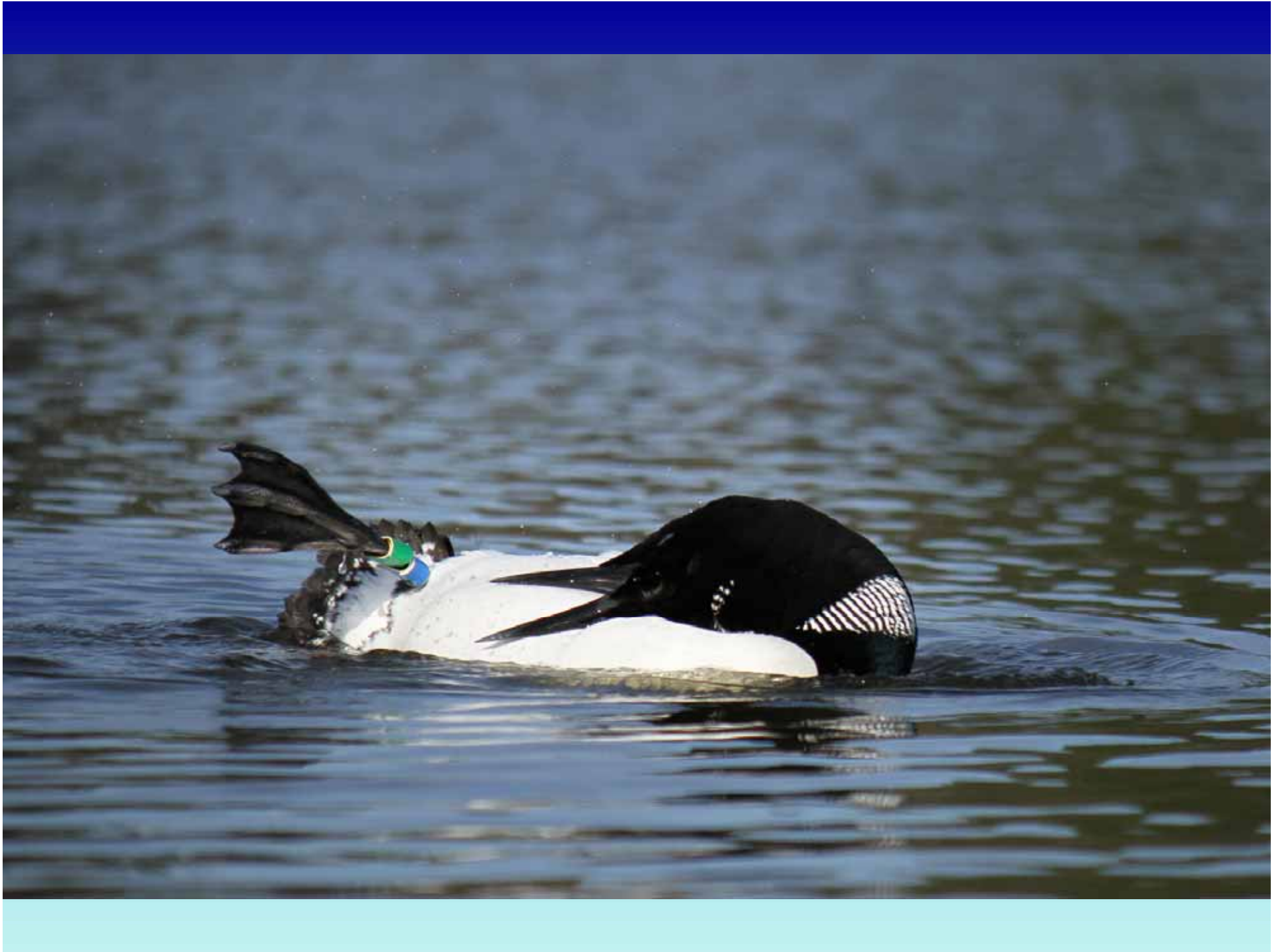


Photo – Matt Erlandson







Annual Lakes Monitoring Program



0

County	Lake	WBIC	Survey Entire Lake	Territorial pairs	Nesting Pairs	Chick Rearing Pairs	Chicks Hatched	Chicks 8 wks	Floaters
Ashland	English Lake	2914800	Yes	2	0	0	0	0	3
	Galilee	2935500	Yes	1	1	1	1	1	2
	Little Clam Lake	1861100	Yes	0	0	0	0	0	1
	Pole Lake	187500	Yes	1	0	0	0	0	1
	Torrey Lake	2406700	Yes	0	0	0	0	0	2
Barron	Bass Lake	1833100	Yes	1	1	1	2	0	1
	Hemlock Lake	2109800	Yes	1	0	0	0	0	1
	Kirby Lake	1858200	Yes	1	1	0	0	0	0
	Loon Lake	2478600	Yes	1	1	1	1	1	10
	Lower Vermillion	2098200	Yes	1	1	0	0	0	0
	Red Cedar Lake	2109600	Yes	5	2	2	3	2	9
	Sand Lake	2661100	Yes	2	1	0	0	0	6
	Spring Lake	1882800	Yes	1	1	0	0	0	3
	Bayfield	Atkins Lake	2734000	No	Unk	Unk	Unk	Unk	Unk
Bass Lake		2901100	Yes	1	1	0	0	0	2
Bass Lake		2733600	No	1	0	0	0	0	1
Bony Lake		2742500	Yes	0	0	0	0	0	5
Crystal Lake		2897300	Yes	1	1	0	0	0	5
Hammil Lake		2467900	Yes	1	1	0	0	0	2
Island Lake		2764600	Yes	1	Unk	0	0	0	1
Kern Lake		2900500	Yes	1	0	0	0	0	1
Little Bass		2735200	Yes	1	1	0	0	0	1
Long Lake		2767100	Yes	1	1	1	1	1	6
Lower Eau Claire Lake		2741600	Yes	2	2	1	1	1	5
Marengo Lake		2921100	Yes	1	0	0	0	0	1
Middle Eau Claire Lake		2742100	Yes	1	0	0	0	0	5
Perry Lake		2730800	Yes	1	1	0	0	0	1
Phantom		2771200	Yes	1	0	0	0	0	6
Price Lake		2491300	Yes	1	0	0	0	0	0
Roger Lake		2772600	Yes	1	1	0	0	0	1
Samoset Lake		2494800	Yes	0	0	0	0	0	2
Sandbar		2502900	Yes	1	0	0	0	0	0
Sweet Lake		2743700	Yes	1	1	0	0	0	6

Annual Lakes Monitoring Program

- An annual monitoring program. Ideally, volunteers **monitor once a week from ice-out to migration.**
- Volunteers collect **productivity and phenology data**: arrival date, floaters, territorial pairs, nesting pairs, # of nesting attempts, # chicks, # chicks surviving to 8 weeks.
- **Volunteers can select the lake(s)** they want to monitor.



Weekly lake surveys document presence of:



Chick Survival



Protocol

- READ THE INSTRUCTIONS
- **Volunteers have the option to participate at an enhanced level** – this is very helpful for management recommendations
 - Check the box above the contact information if you want to participate
- Return your monitoring form no later than **November 15**

2015 Annual Lake Monitoring Form

  **Please read the enclosed instructions!** 

Remember to use only **one form per lake**. Please mail this form and the lake map to LoonWatch by **Nov 15, 2015**.

LoonWatch • Northland College • 1411 Ellis Ave. • Ashland, WI 54806 • 715.682.1220 • loonwatch@northland.edu

Check here if you plan to participate in enhanced monitoring: **collect 6 or more observations between May 15 and July 15 -- as well as 2 observations of chicks in August, (if any are hatched).**

Contact Information

Name: _____	
Email Address: _____	
Permanent Mailing Address:	Summer Address (if different):
Street Address: _____	Street Address: _____
City/State/Zip: _____	City/State/Zip: _____
Phone #: _____	Phone #: _____
How many years have you volunteered for this program? _____	

Protocol

- Fill out basic information about the lake you are monitoring
- WBIC # can be found on your lake map
- Dates you started and stopped monitoring are very important – did you catch the first nesting attempt?
- Want more information about your lake including water quality? Check out the WI DNR website <http://dnr.wi.gov/lakes/>

Information About Your Lake

Lake Map, Acreage and WBIC # can be found at:

<http://dnr.wi.gov/lakes/maps/>

Lake Name: _____ County Name: _____

Town Name: _____ Lake Size (Acres) _____ WBIC # _____

1. Does your lake have an association? Yes No
2. Date you started monitoring: _____
3. Date you stopped monitoring: _____
4. Did you survey the entire lake? Yes No

- *If you surveyed only a portion of the lake, please indicate the surveyed area on your map.*

Protocol

- Let us know
 - If loons were observed on your lake
 - If loons stayed for the summer
 - If territorial pairs were present
 - If territorial pairs nested
- Let us know when you
 - Observed the first loons on your lake in spring
 - Observed loon rafts in the fall
 - # of loons observed in spring and fall

Loon Observations and Migration Information

5. Circle only one statement. Please read instructions to help you select your answer.
 - a. No loons were seen on this lake.
 - b. Loons visit this lake but do not stay for the summer.
 - c. Loons stayed on this lake all summer but there were no signs of nesting or territorial behavior.
(Usually, these loons are not in pairs.)
 - d. There were one or more territorial pairs present on this lake.
(Routinely observed a loon pair(s) on this lake who were not aggressive with each other.)
 - e. Both c. and d.
6. When did loons first arrive on the lake in spring? (month/day) ____/____ depart in fall? ____/____
7. Did loons use your lake as a stop-over during spring (March 1 – April 15) or fall (October 15 – December 15) migration? Yes No
What was the largest number seen? _____
8. If yes, please indicate during which migration the loons used your lake, and approximately how many birds were involved:
Spring Migration: _____ # individual loons Fall Migration: _____ # individual loons

Photo by Ray Thielbar

Protocol



Photo by Linda Grenzer

Protocol

- Survey Log
 - Fill out one row for each week you observed loons on your lake
 - Record the # of floaters, territorial pairs, nesting pairs, and chicks
- At the end of the season, use the survey log to fill out the Loon Season Summary

Weekly Loon Survey Log

Please indicate the weekly observation date, the type of residency and number of loons using your lake.
Use one row for each week.

Date	# Floater Adult Loons	# Territorial Pairs	# Nests with Incubating Adults	# Chicks	Comments



Photo by Jon Okerstrom

Protocol

- Record
 - # of territories
 - Give each territory a name
- Complete each step as it applies to your observations
 1. Were you able to locate the nesting site? Yes No
If yes, indicate the type of nesting site used:
Island On/near mainland shore
AND Different Lake Other



Photo by Rich Floyd

Loon Territory Summary

Identify each loon territory by its name or unique location on your lake, and outline this area on your lake map. For example, if you do not have a territory name, you may name them by a unique geographic reference, such as North Bay and South Bay territories. **IF YOU HAVE MORE THAN 2 TERRITORIES, MAKE A COPY OF THIS PAGE, fill out and return**

Total Territories on Lake: _____ # Territories

Loon Territory Description: _____

1. Were you able to locate the nesting site? Yes No

If yes, please indicate the type of nesting site used:

Island On/near mainland shore Artificial Nesting Platform Different Lake Other: _____

2. What type of ownership is the land where the nest is located?

Public Private Unknown

3. Did the eggs in the nest fail to hatch? Yes No

If yes, how was the nest lost?

*Predation by: _____ Water level change Other: _____ Unknown

- 3a. Was there a 2nd nesting attempt? (Yes /No) A 3rd nesting attempt (Yes/No)

If yes, did the nest fail to hatch? [2nd attempt (Yes/No); 3rd attempt (Yes/No)

Did loons re-nest at the same location? [2nd attempt (Yes/No); 3rd attempt (Yes/No)

If no, provide new location on map and label "2nd Attempt" and "3rd Attempt".

Protocol

- Complete each step as it applies to your observations

2. Type of ownership?

Public Private Unknown

3. Did the eggs fail to hatch?

Yes No

If yes, how was the nest lost?

Predation by _____

Water level change

Other _____

Unknown

Loon Territory Summary

Identify each loon territory by its name or unique location on your lake, and outline this area on your lake map. For example, if you do not have a territory name, you may name them by a unique geographic reference, such as North Bay and South Bay territories. **IF YOU HAVE MORE THAN 2 TERRITORIES, MAKE A COPY OF THIS PAGE, fill out and return**

Total Territories on Lake: _____ # Territories

Loon Territory Description: _____

1. Were you able to locate the nesting site? Yes No

If yes, please indicate the type of nesting site used:

Island On/near mainland shore Artificial Nesting Platform Different Lake Other: _____

2. What type of ownership is the land where the nest is located?

Public Private Unknown

3. Did the eggs in the nest fail to hatch? Yes No

If yes, how was the nest lost?

*Predation by: _____ Water level change Other: _____ Unknown

3a. Was there a 2nd nesting attempt? (Yes /No) A 3rd nesting attempt (Yes/No)

If yes, did the nest fail to hatch? [2nd attempt (Yes/No); 3rd attempt (Yes/No)]

Did loons re-nest at the same location? [2nd attempt (Yes/No); 3rd attempt (Yes/No)]

If no, provide new location on map and label "2nd Attempt" and "3rd Attempt".

Protocol

- Complete each step as it applies to your observations

3a. Was there a 2nd nesting attempt? Yes No

A 3rd Nesting attempt Yes No

If yes, did the nest fail to hatch? [2nd attempt (Yes/No)]; [3rd attempt (Yes/No)]

Did loons re-nest at the same location?

[2nd attempt (Yes/No)];

[3rd attempt (Yes/No)]

If no, provide new location on map

Loon Territory Summary

Identify each loon territory by its name or unique location on your lake, and outline this area on your lake map. For example, if you do not have a territory name, you may name them by a unique geographic reference, such as North Bay and South Bay territories. **IF YOU HAVE MORE THAN 2 TERRITORIES, MAKE A COPY OF THIS PAGE, fill out and return**

Total Territories on Lake: _____ # Territories

Loon Territory Description: _____

1. Were you able to locate the nesting site? Yes No

If yes, please indicate the type of nesting site used:

Island On/near mainland shore Artificial Nesting Platform Different Lake Other: _____

2. What type of ownership is the land where the nest is located?

Public Private Unknown

3. Did the eggs in the nest fail to hatch? Yes No

If yes, how was the nest lost?

*Predation by: _____ Water level change Other: _____ Unknown

3a. Was there a 2nd nesting attempt? (Yes /No) A 3rd nesting attempt (Yes/No)

If yes, did the nest fail to hatch? [2nd attempt (Yes/No); 3rd attempt (Yes/No)]

Did loons re-nest at the same location? [2nd attempt (Yes/No); 3rd attempt (Yes/No)]

If no, provide new location on map and label "2nd Attempt" and "3rd Attempt".

Protocol

- Fill in your form completely
- **Lines left blank** do not mean “0”, they **mean no data**
- **Zero is important data too** – we need the whole picture of what is happening out there.



Loon Season Summary

*** You must complete this table to have your data included in the report. If you do not see loons, write “0”.

Number of Territorial Pairs present on this lake:	
Number of Territorial Pairs with 1 or more nest attempt:	
Number of Territorial Pairs with successful hatch	
Total Chicks Hatched on this lake:	
Total Chicks Fledged (survived to 8 weeks):	
Number of Floaters present on this lake:	
Number of Nest Locations Determined:	

Number of Known Nest Attempts:

Nest Location Name	# of Nest Attempts

Comments

**Thank you for learning about loons!
Please help us spread the word about
how to protect loons and their habitat.**

