

A loon with a black head, red eye, and black-and-white checkered body is sitting on a nest of dry grass. In the background, there is a calm lake reflecting the sky and a line of evergreen trees under a cloudy sky.

loon lessons

UNCOMMON ENCOUNTERS WITH THE
GREAT NORTHERN DIVER

james d. paruk

Stories & Research

Jim Paruk, Ph.D.
Professor of Biology
St. Joseph's College
Standish, Maine

A. My Lens as a Biologist

B. Interpreting Behavior

C. New Scientific Findings

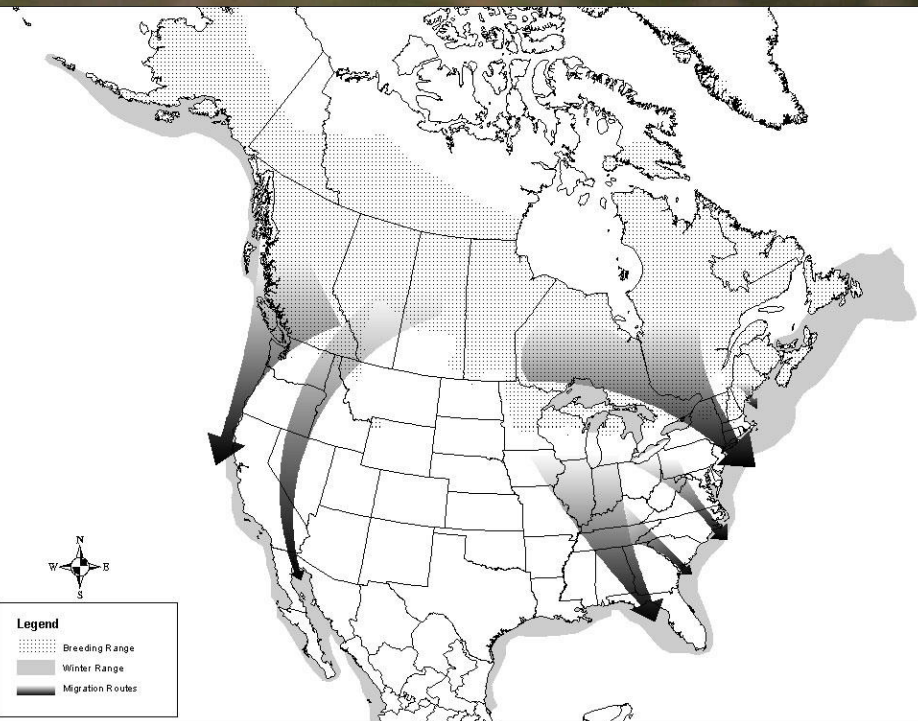
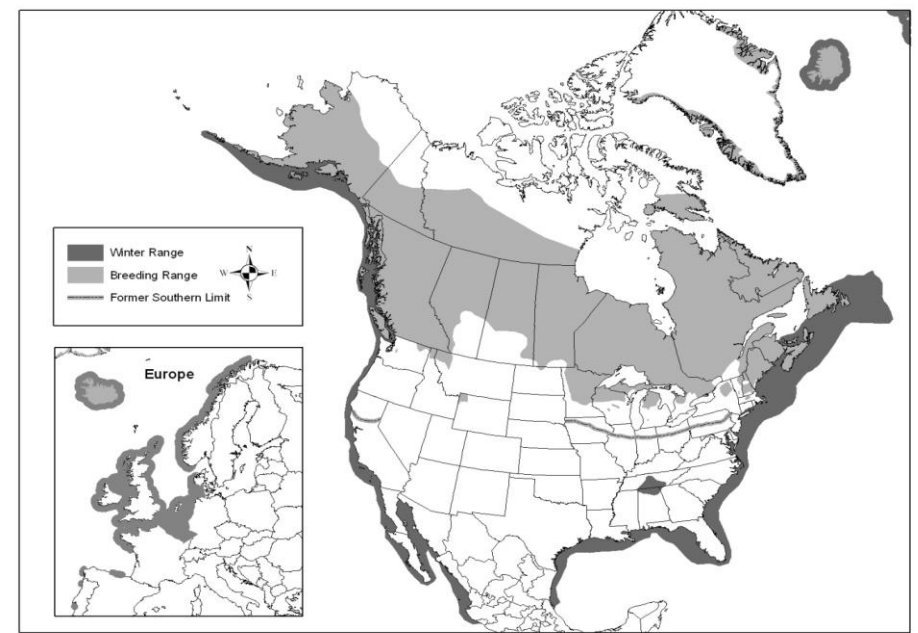
Questions?

A. My Approach: Behavior



50 mm Focal Length





Animals are motivated (drive) to

1. Eat

2. Reproduce

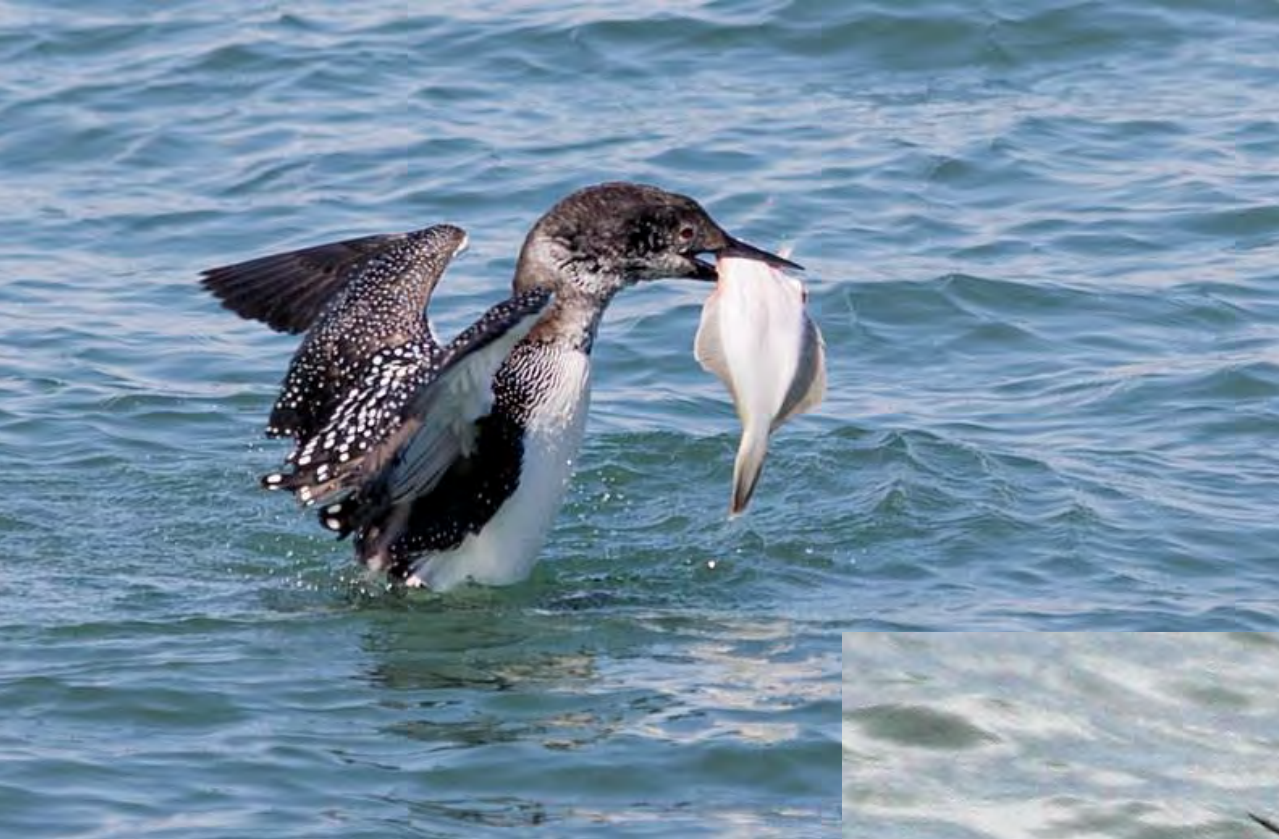
These 2 factors govern decisions
or choices

Behaviors that improve

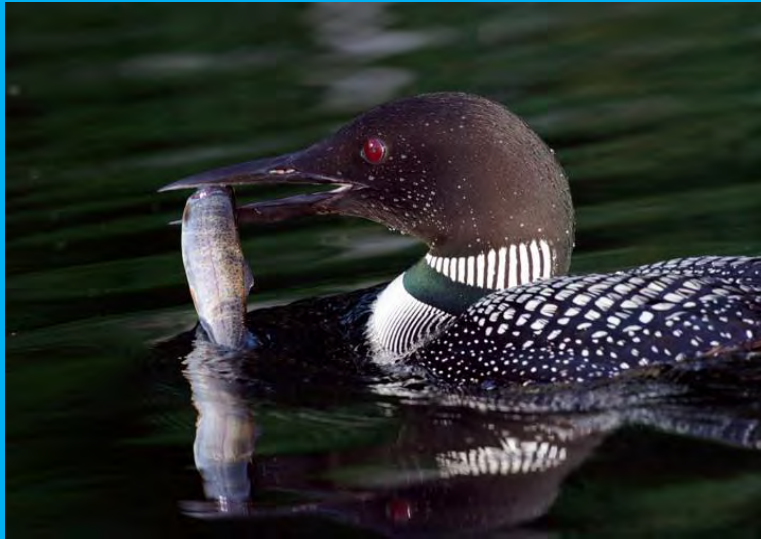
1. Foraging success

2. Reproductive success (e.g.,
choosing best nest site, partner)

Will get rewarded (selected) &
passed down to future
generations.....



Forage singly (breeding season)



Forage in groups (nonbreeding season)



A photograph of a body of water with a dolphin on the left and a loon on the right. The dolphin's head and back are visible above the water. The loon is a small bird with a white head and neck and a dark body, floating on the water. The background shows a distant shoreline with trees under a clear sky.

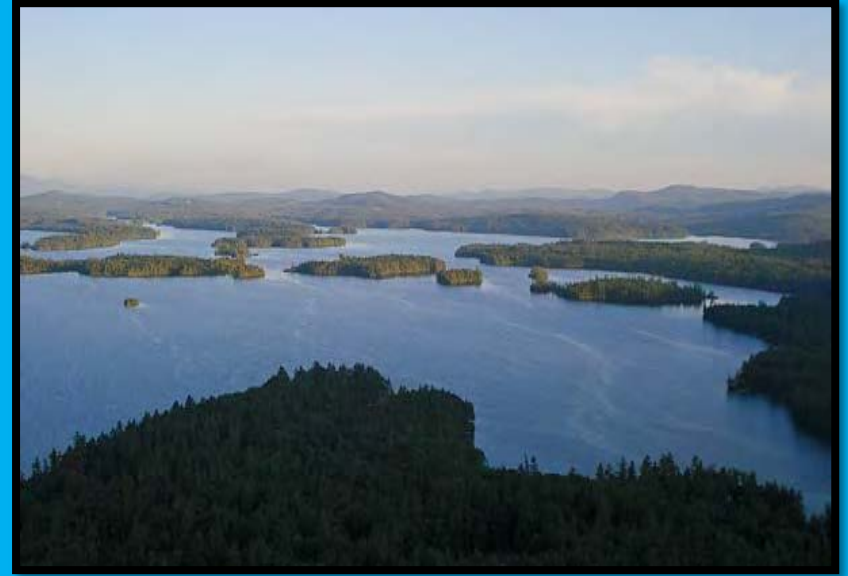
Dolphins and Loons Book Excerpt

Beneficial to be flexible, not rigid

Reproductive Success? Lake....

1. The Right Size (bays/coves, plenty of food)
2. Suitable nesting opportunities (island, cover, away from human development & human disturbance, etc.)
3. The Right Partner

Not all lakes are created equally



Size- 1 pair/lake OR many pairs/lake

Shape- presence of bays/coves, irregular

Amount of Water level fluctuation

Some nest locations better than others



Video/Camera









Stealth Cam

075 F

07-10-2012 13:00:12



2012-06-24 8:28:13 PM M 2/3

0 72°F



HC600 COVERT

RECONYX



2015-06-15 8:28:50 PM M 1/3

60°F



HC600 COVERT

RECONYX

General Rule

If successful- don't switch nest location between years



If unsuccessful- try a different location

Potential qualities of the right partner

Territorial (aggressive)

Faithful

Vigilant

Share parental
responsibilities equally



Aggressive Behavior is Rewarded



Potential qualities of the right partner

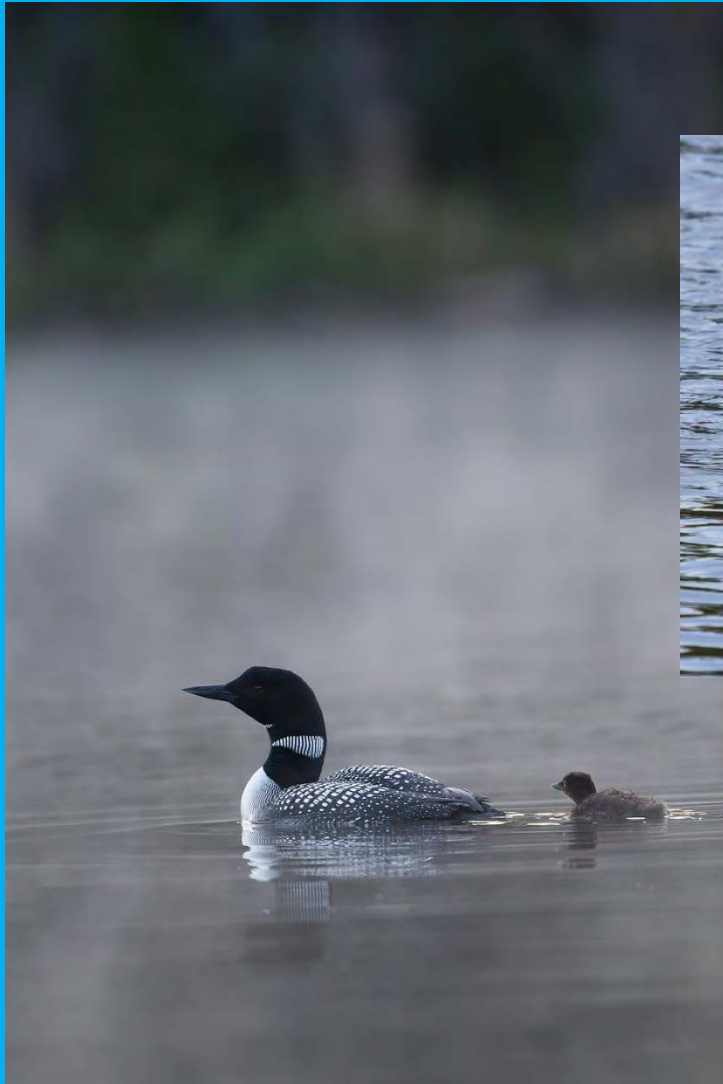
Territorial (aggressive)

Faithful



Mate Loses Partner
Book Excerpt

Vigilant

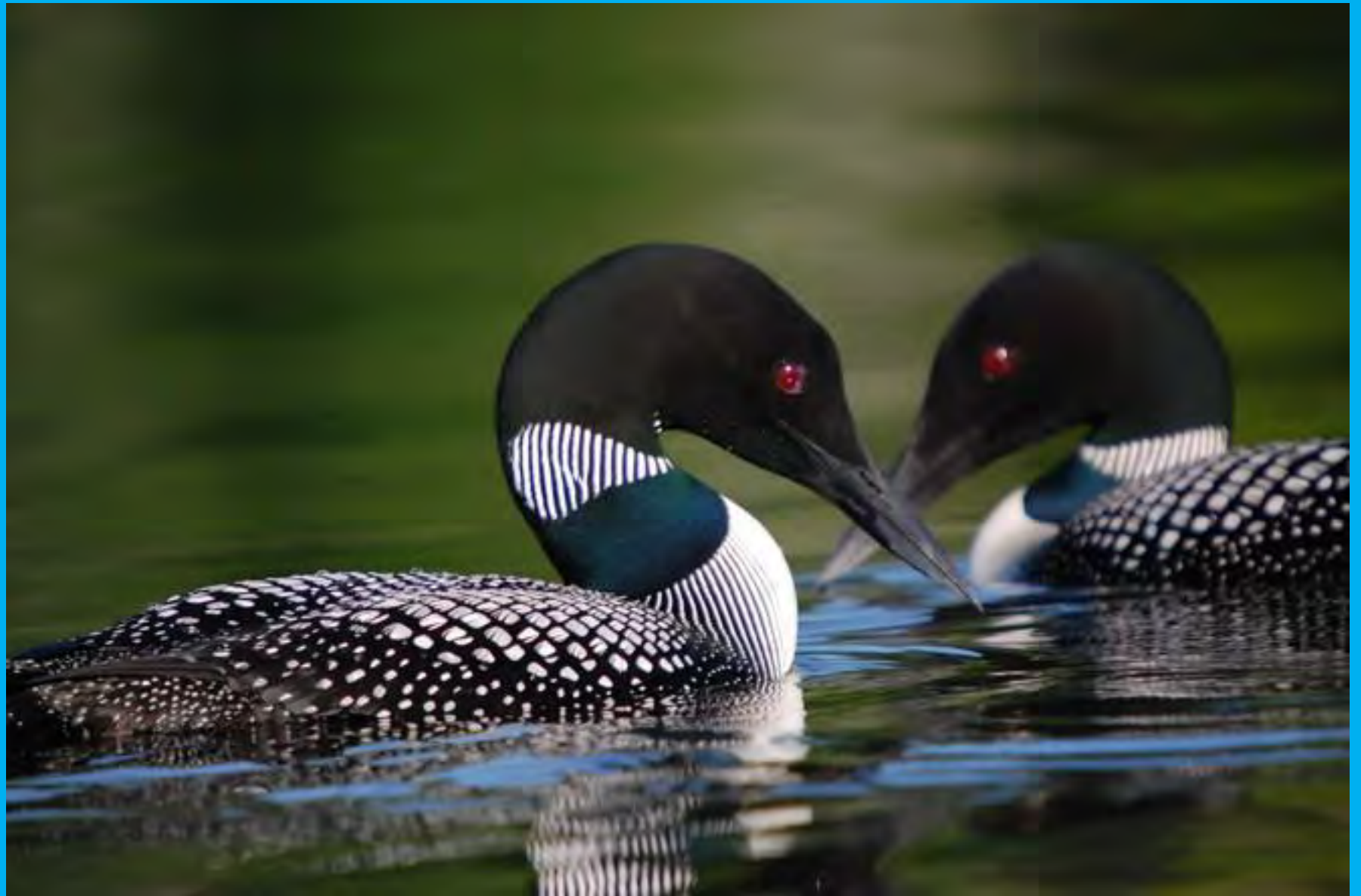


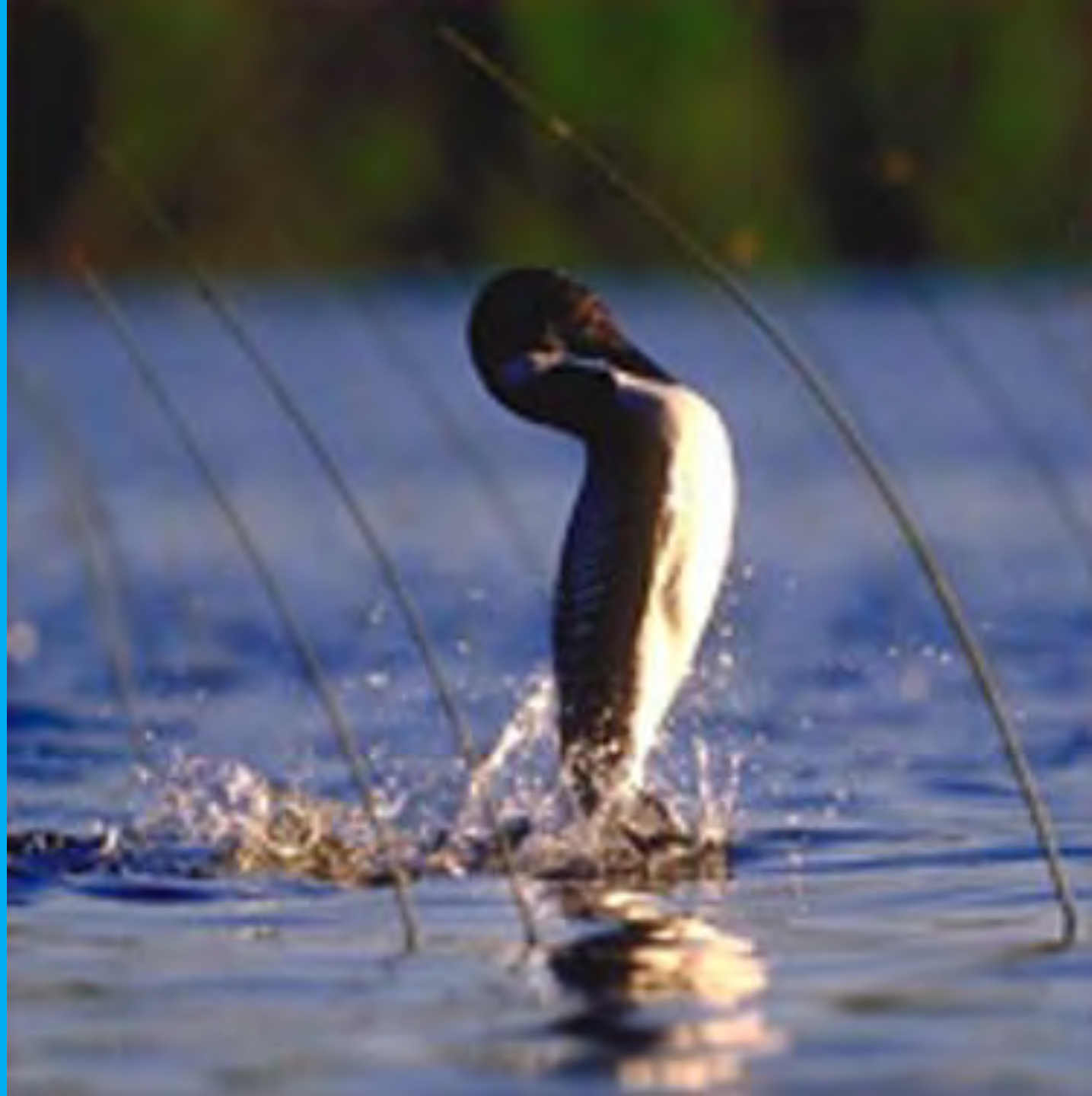
Share parental
responsibilities equally



B. Interpreting Behavior







Why the necklace? →





- Jewelry accentuates the neck
- It allows for comparisons to be made

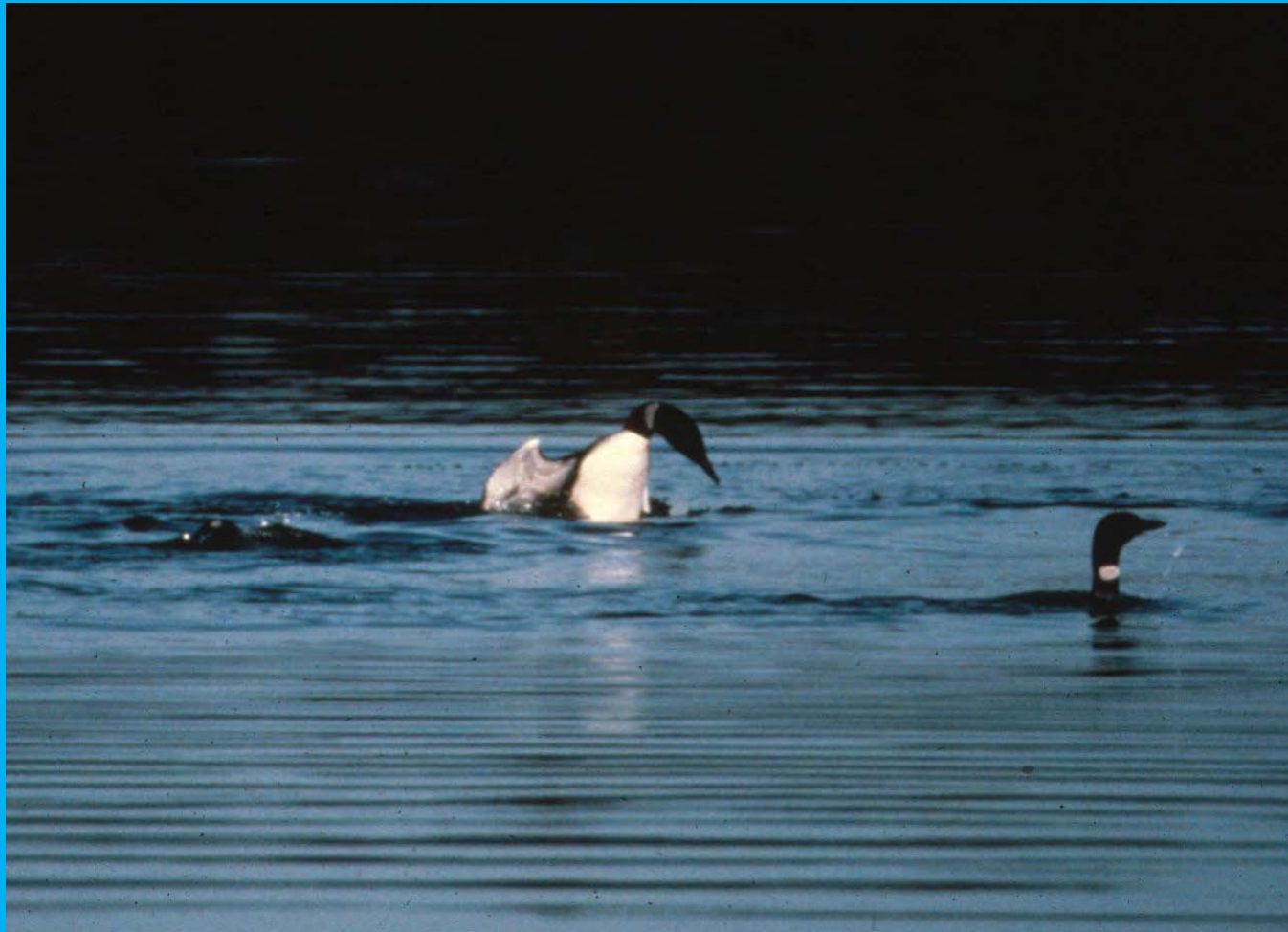


The necklace
aids in
“reading” the
state of the
animal:



dominant, sub-
dominant,
anxious, etc.,



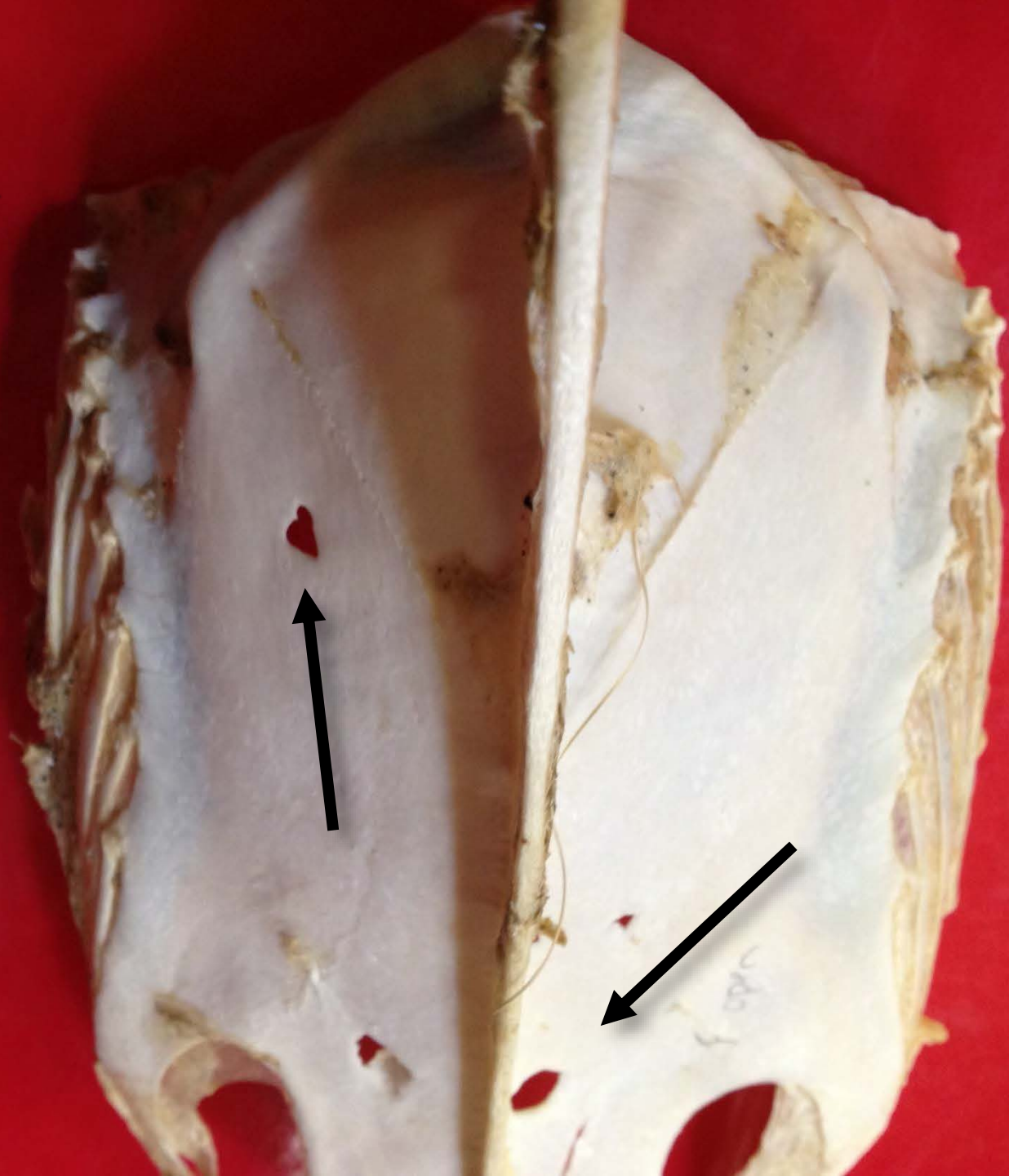


The ability to read another loons intent is critical to survival, Threat or not?

The necklace likely allows receiver to better assess the intentions of the intruder

**~1/2 Loons
have Sternal
Punctures**

**Both males
and females**



*Dr. Mark Pokras
Tufts University*

Vocalizations Express Intent/State

1. Hoot

2. Wail

3. Tremolo

4. Yodel

Gradations

Type 1, Type 2, Type 3

Hybrid calls

TremoloWail

TremoloYodel

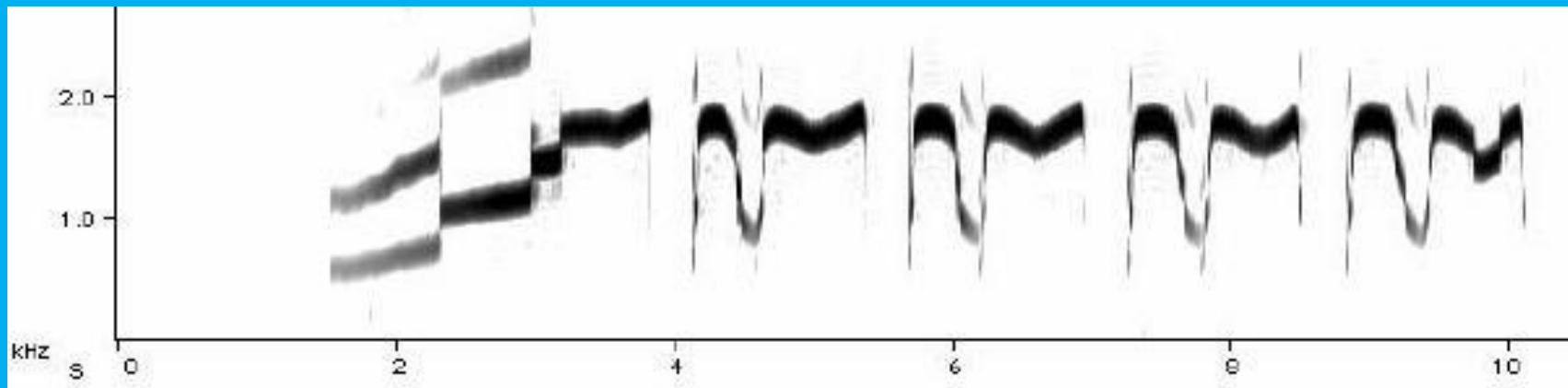


Yodel only produced by males

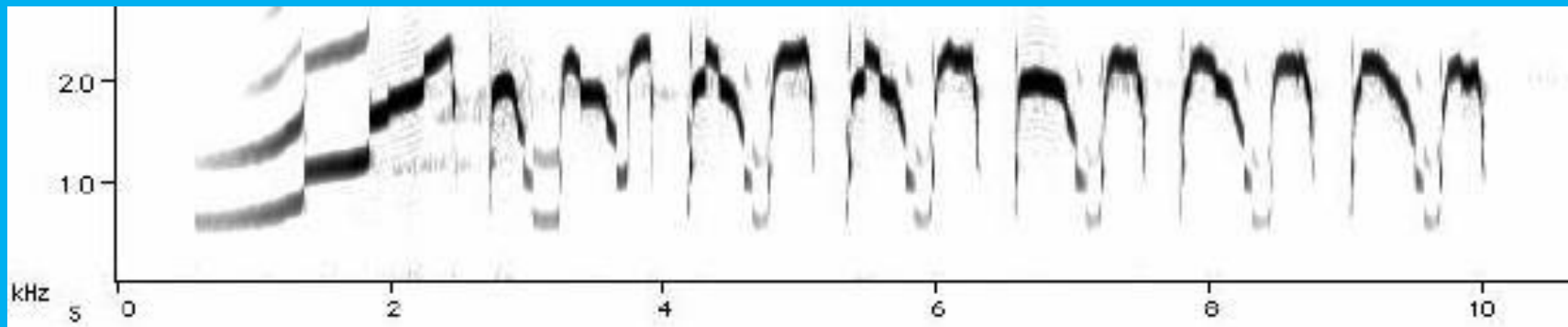


What do yodels communicate?

What's different about these 2 yodels?



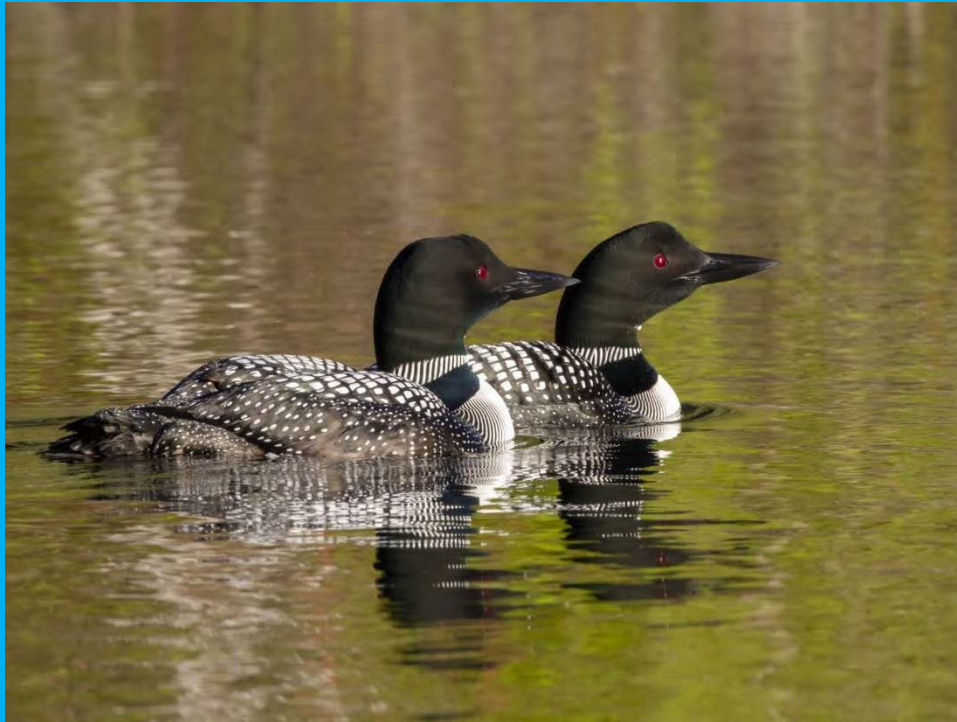
Neighbor responds to neighbor



Neighbor responds to stranger

C. New Scientific Discoveries

WHICH IS MALE? FEMALE?
SAME PAIR AS LAST YEAR?



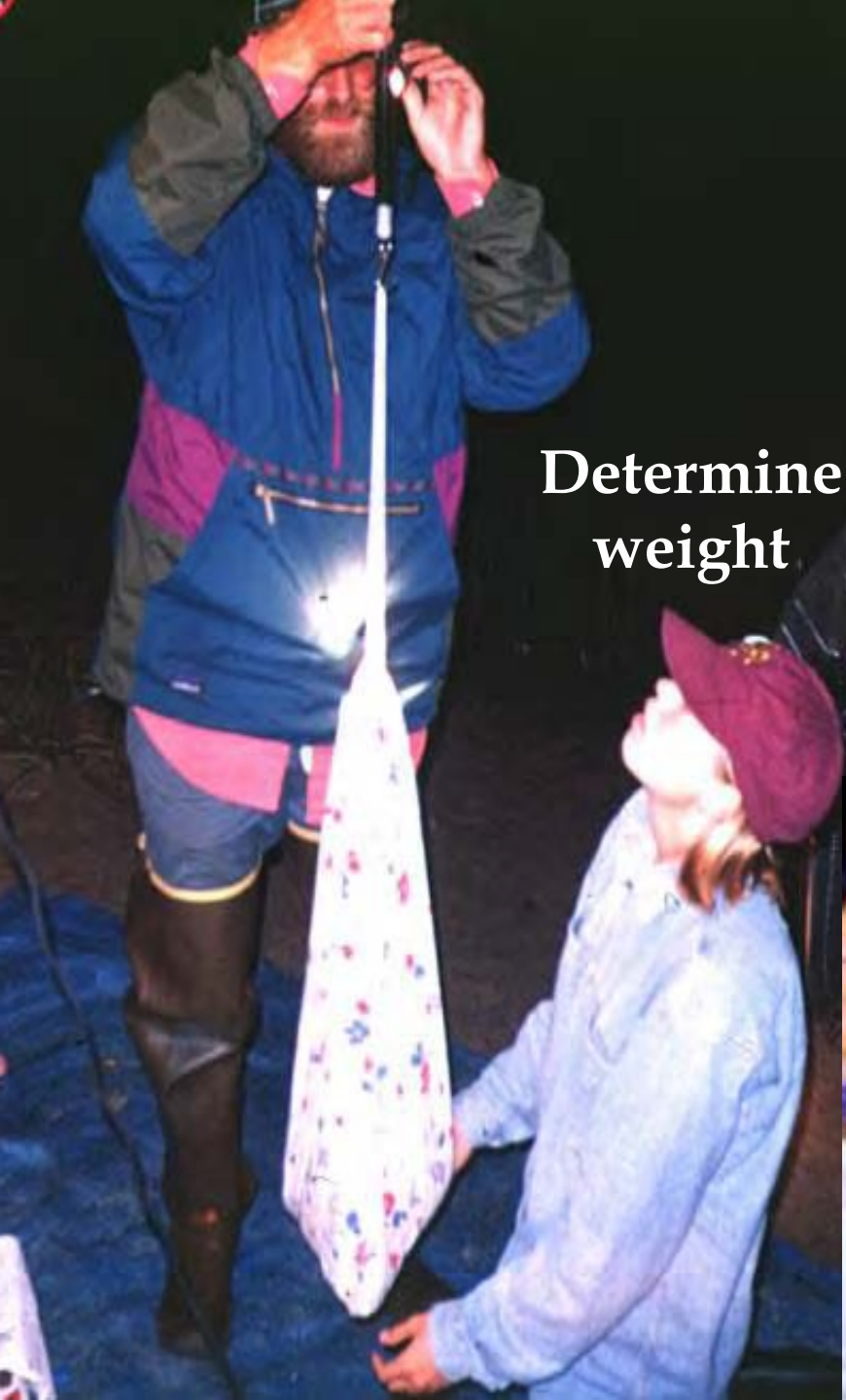
Cannot tell them apart



Dave Evers

Night lighting technique





Sample tissue for health (monitor toxins)





Eliminate guessing

Work all night for weeks, months, years,
decades

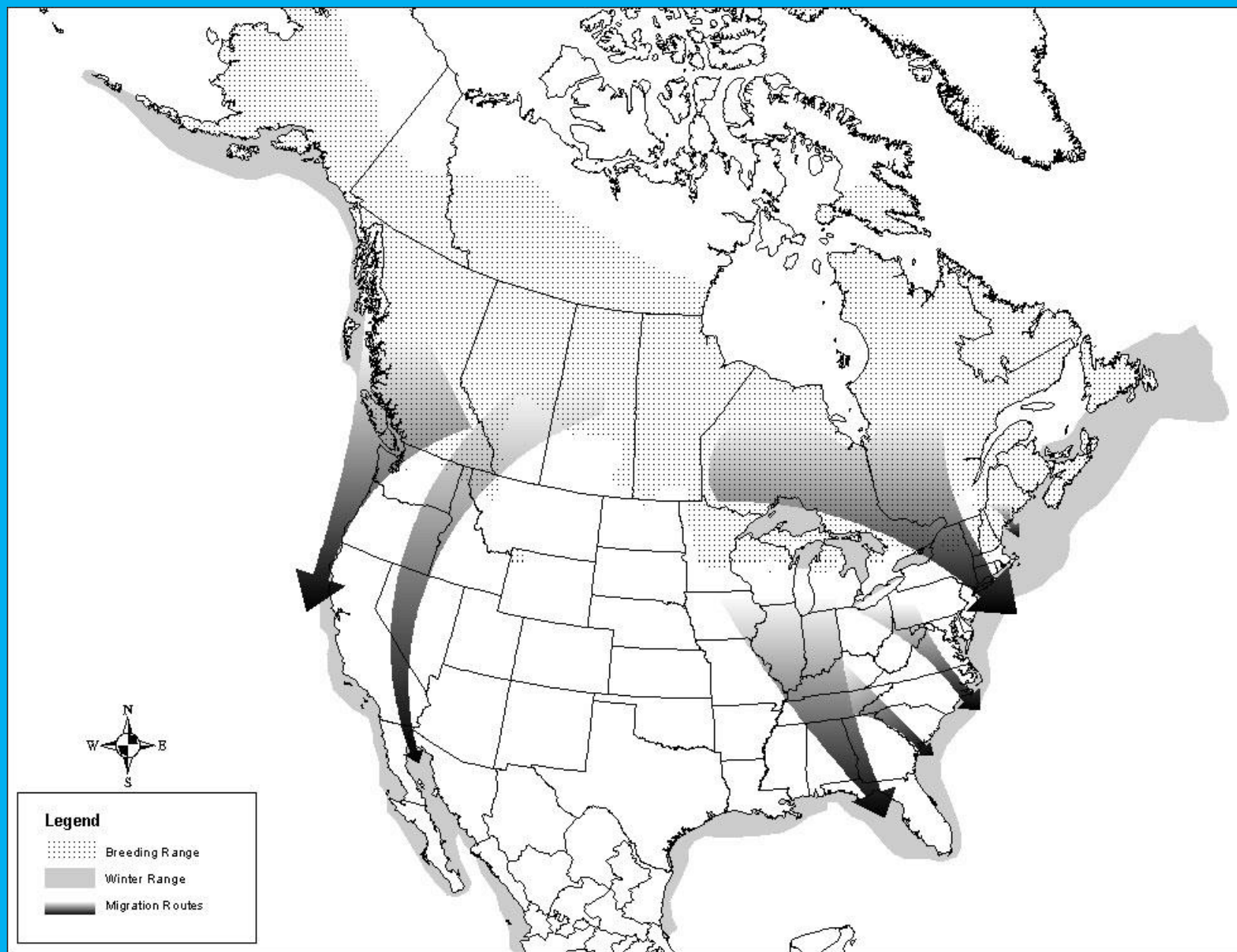


>5000 banded



Research Findings

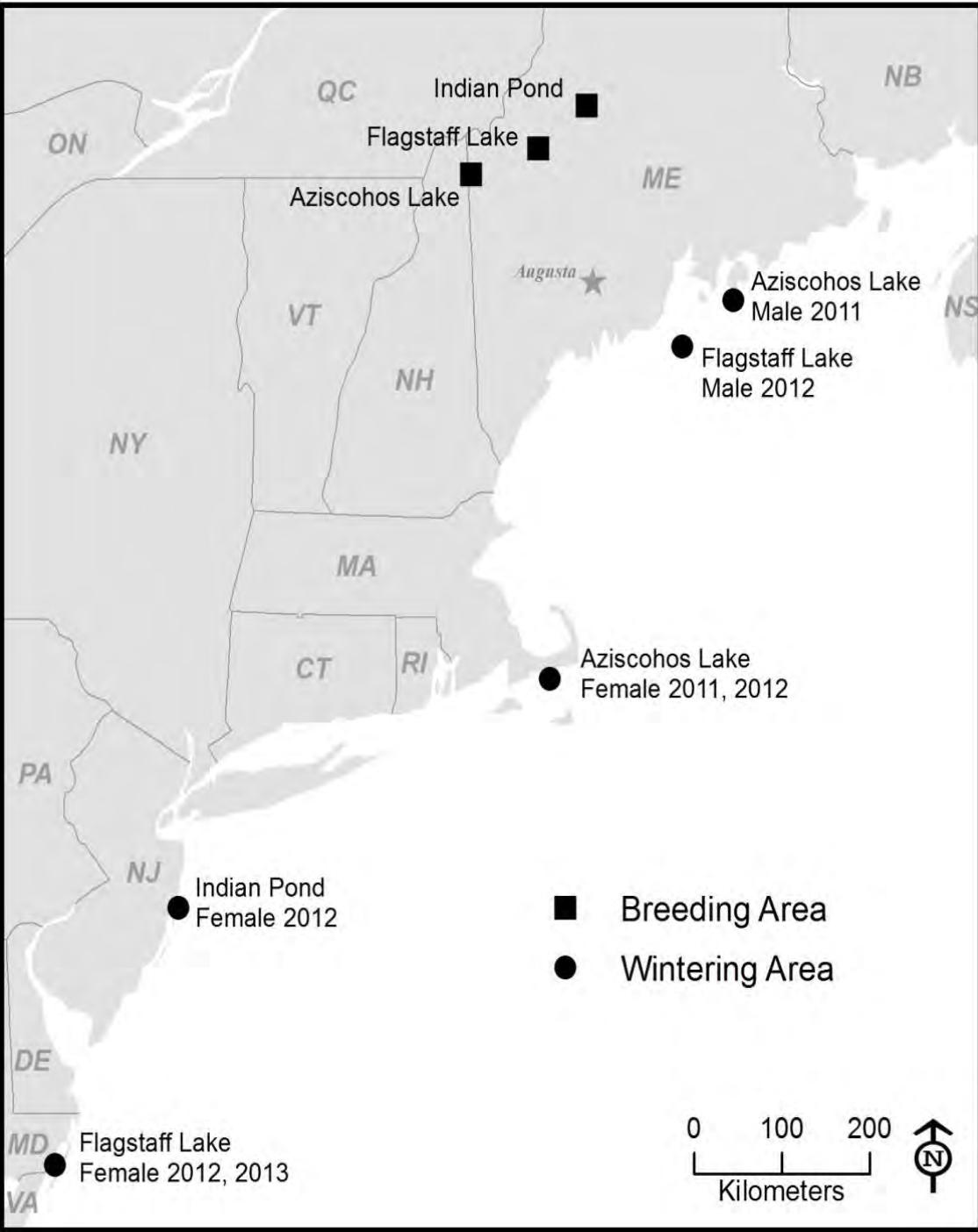
- Do not mate for life, ~6-7 years
- Live 30+ years
- Chicks return as adults to natal area
- Gain a territory ~ 5 years old
- Exhibit winter site fidelity



Satellite Transmitters



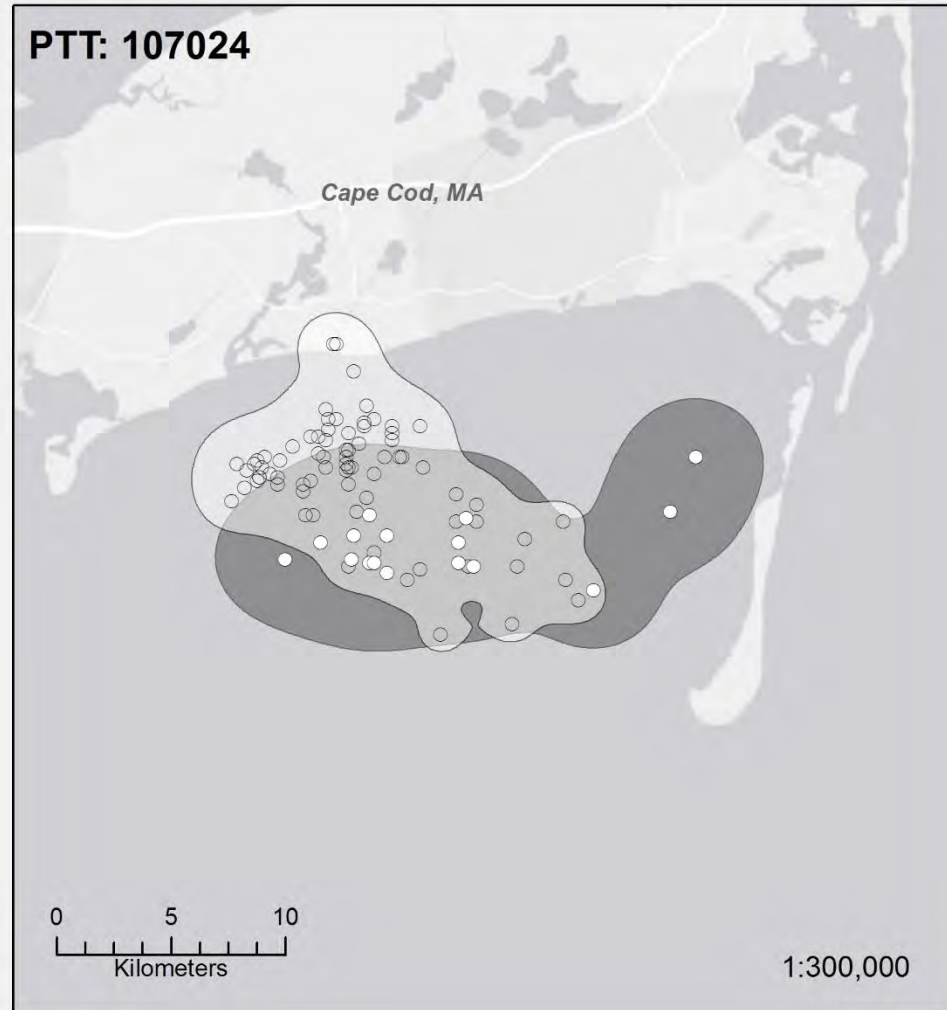
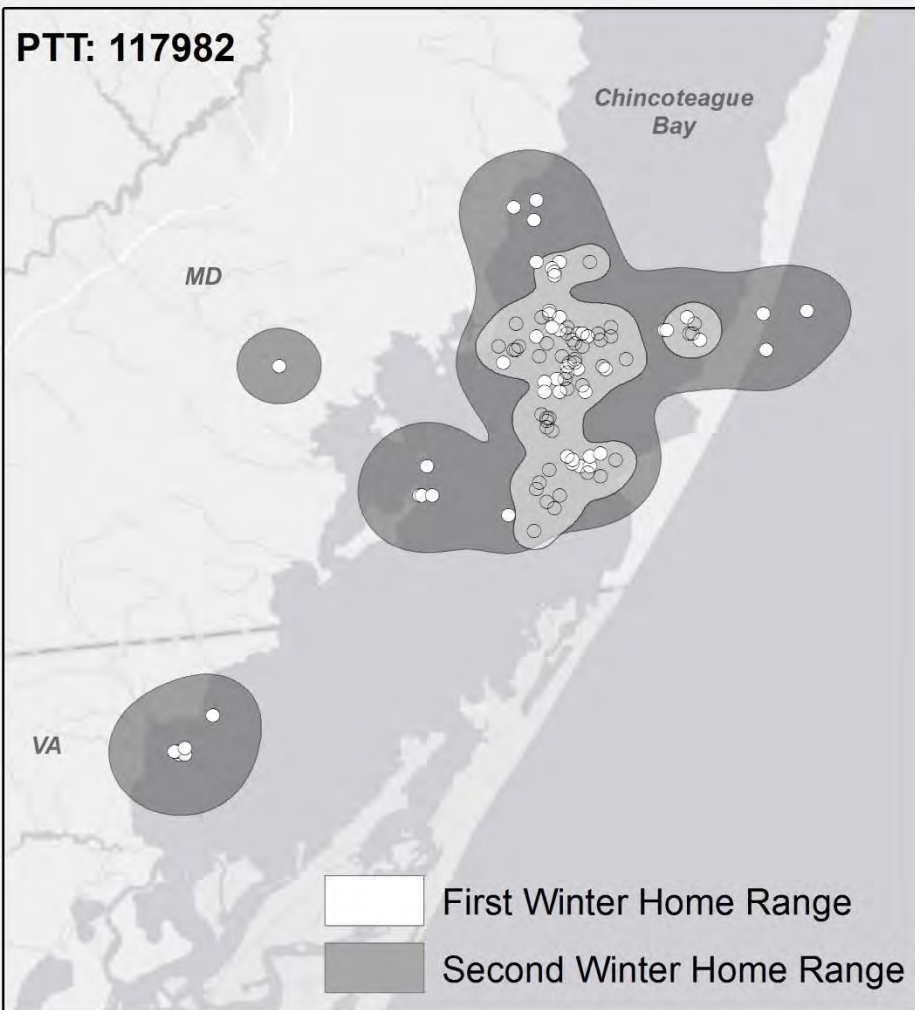




**-Pair members
winter in
different areas**

**-Females
migrated further
south than males**

—Exhibit Winter Site Fidelity



Story of Walker Lake, Nevada

April 1998







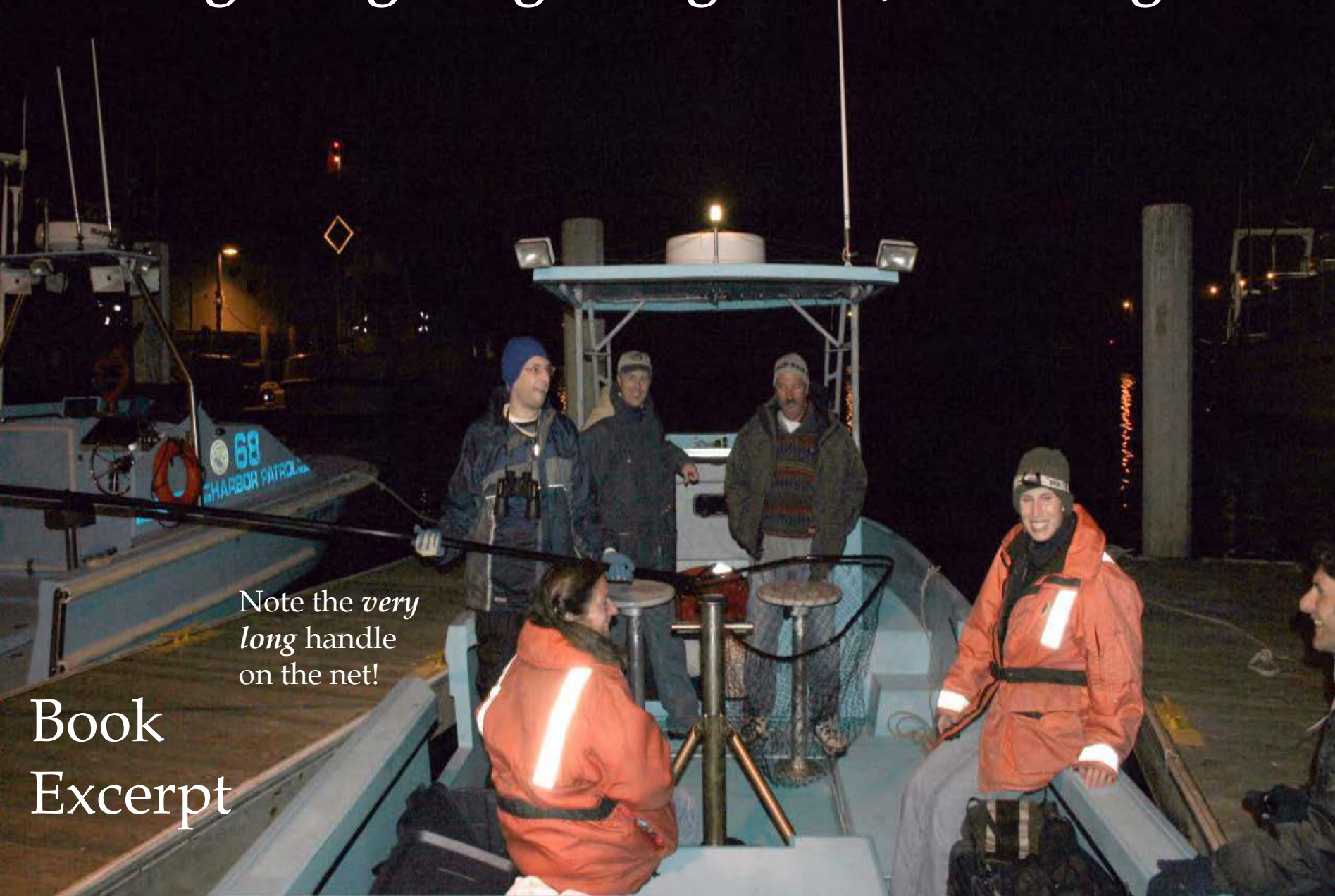
Tui Chub

**Lahontan
Cutthroat Trout**



Lahontan Cutthroat Trout. Photo credit: Nevada Department of Wildlife

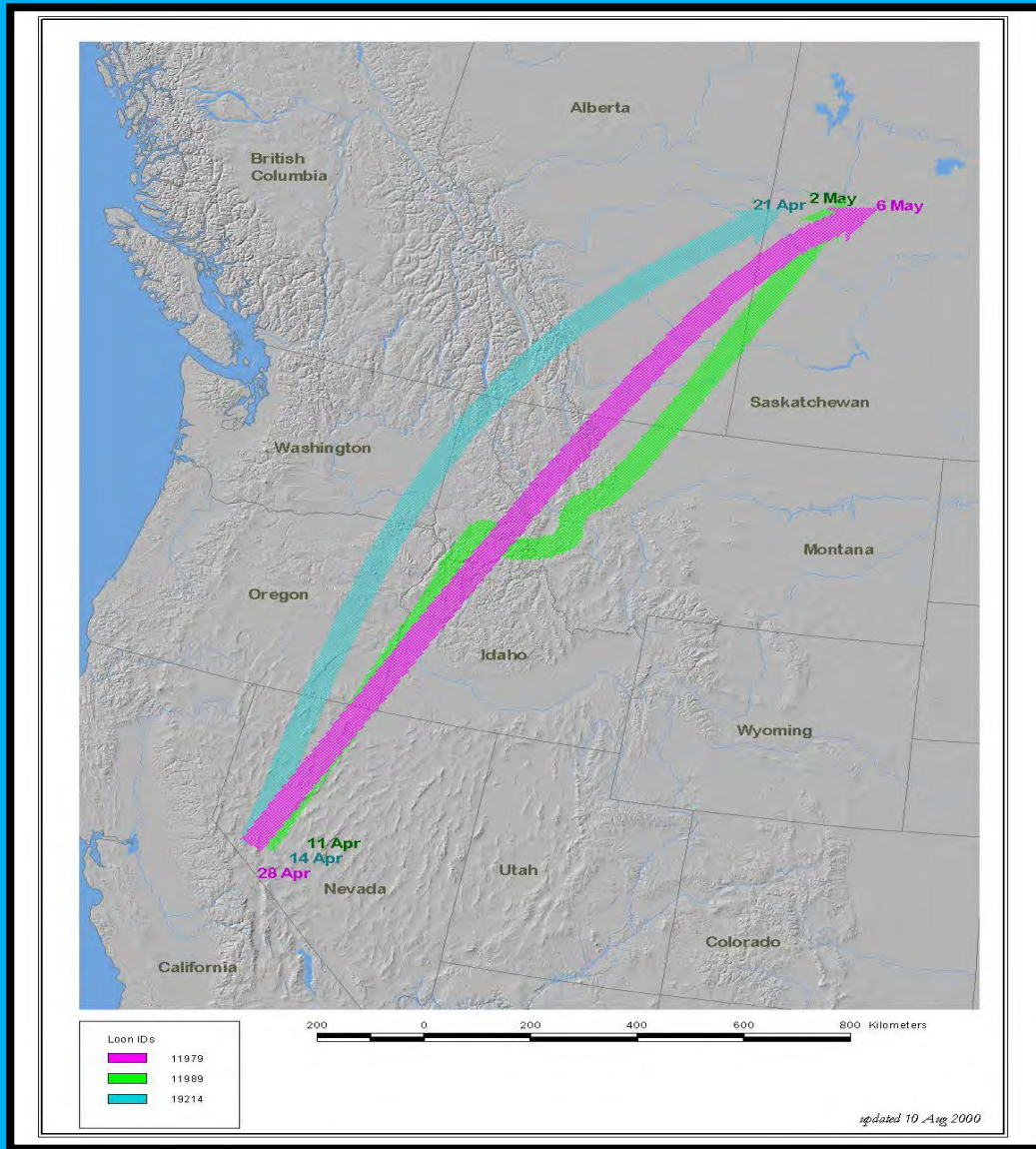
Night Lighting – Migration, Challenges?



Note the *very*
long handle
on the net!

Book
Excerpt

Flew to Saskatchewan



End of story?

Not quite, 12
years later.....

We caught > 100 loons in the Gulf of Mexico (2011-2017)
-implanted satellite transmitters in two of them, March 2011



SPRING MIGRATION

Arrives at Breeding Lake,
North-east Saskatchewan,
Day 52

Total Trip: 2,309 miles

Stays 6 days around
Lake Winnipeg, Manitoba,
Departs Day 48

Stays 15 days
Lake Michigan,
Departs Day 41

Stays 10 days in TN,
Departs Day 23

Departs Day 13

COLO 104910

2011/05/17 to ???

2011/05/16

2011/05/15

2011/05/13

2011/05/09 to 05/11

2011/05/08

2011/04/23 to 5/18

2011/04/22

2011/04/12 to 4/21

2011/04/11

2011/03/29 to 4/10

Empire, Louisiana

Nassau

Hudson Bay

Canadian Shield

Rocky Mountains

United States

Appalachian Mountains

Washington D.C.

Gulf of California

Chihuahuan Desert

SPRING MIGRATION

**One-way:
2,776 Miles**

2011/06/13 to 06/27

2011/06/09

2011/06/08

2011/06/03

2011/06/02

Lake Winnipeg, MT

2-3 days

Remains Lake Huron,
10 days

2011/05/23

2011/06/02

2011/05/21

2011/05/09

Remains Lake Erie,
12 days

Patuxent River, Chesapeake Bay, MD
Remains 9 days

2011/05/08 to 05/17

Buckhorn Reservoir, NC

2011/05/07

Remains 20 days in Gulf of
Mexico off MS coast

Remains 17 days after surgery
in Barataria Bay, LA

2011/04/16 to 5/6

2011/03/29 to 4/16

Empire, Louisiana



Alberta

Saskatchewan

Wollaston Lake

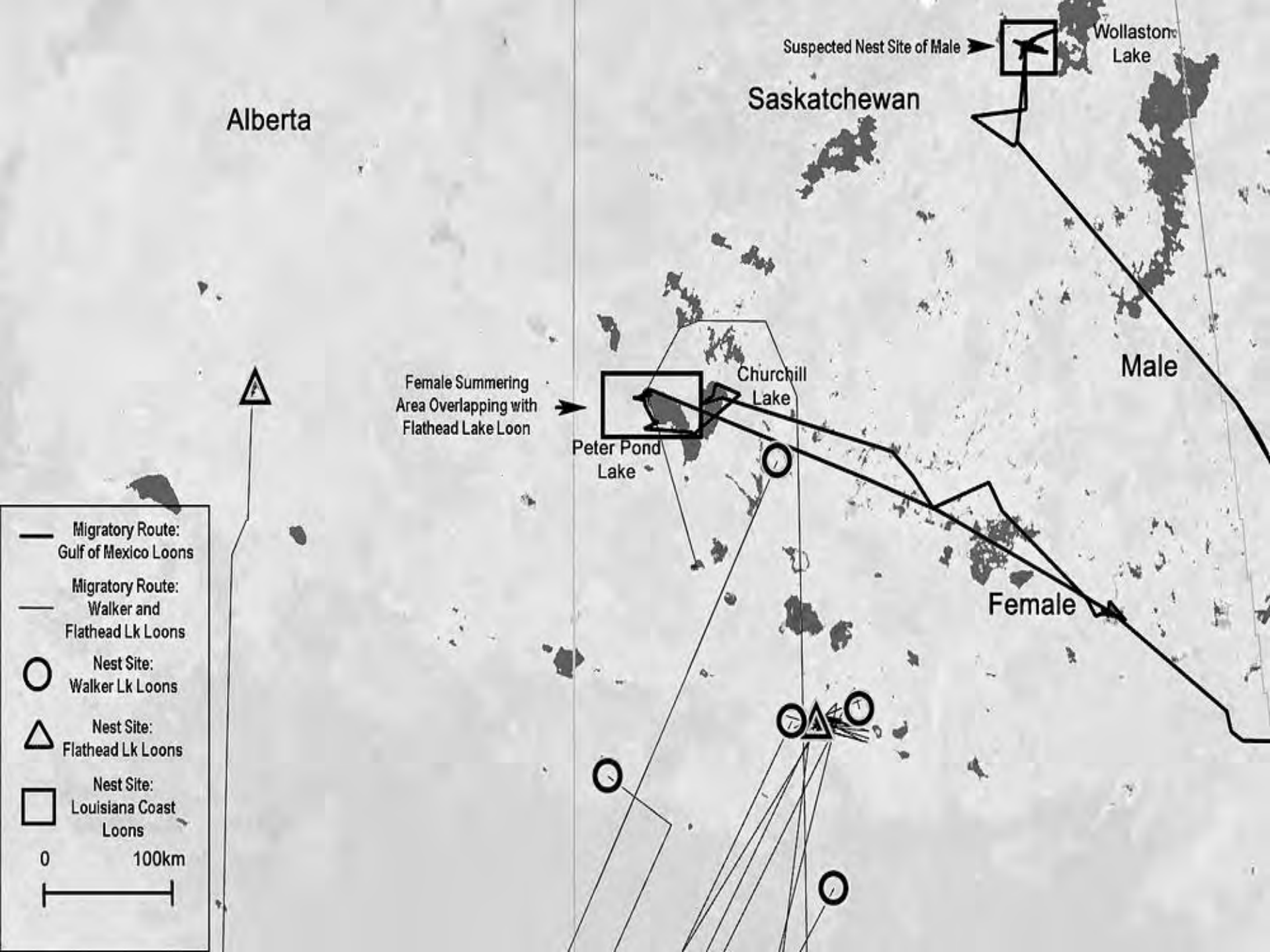
Male

Female

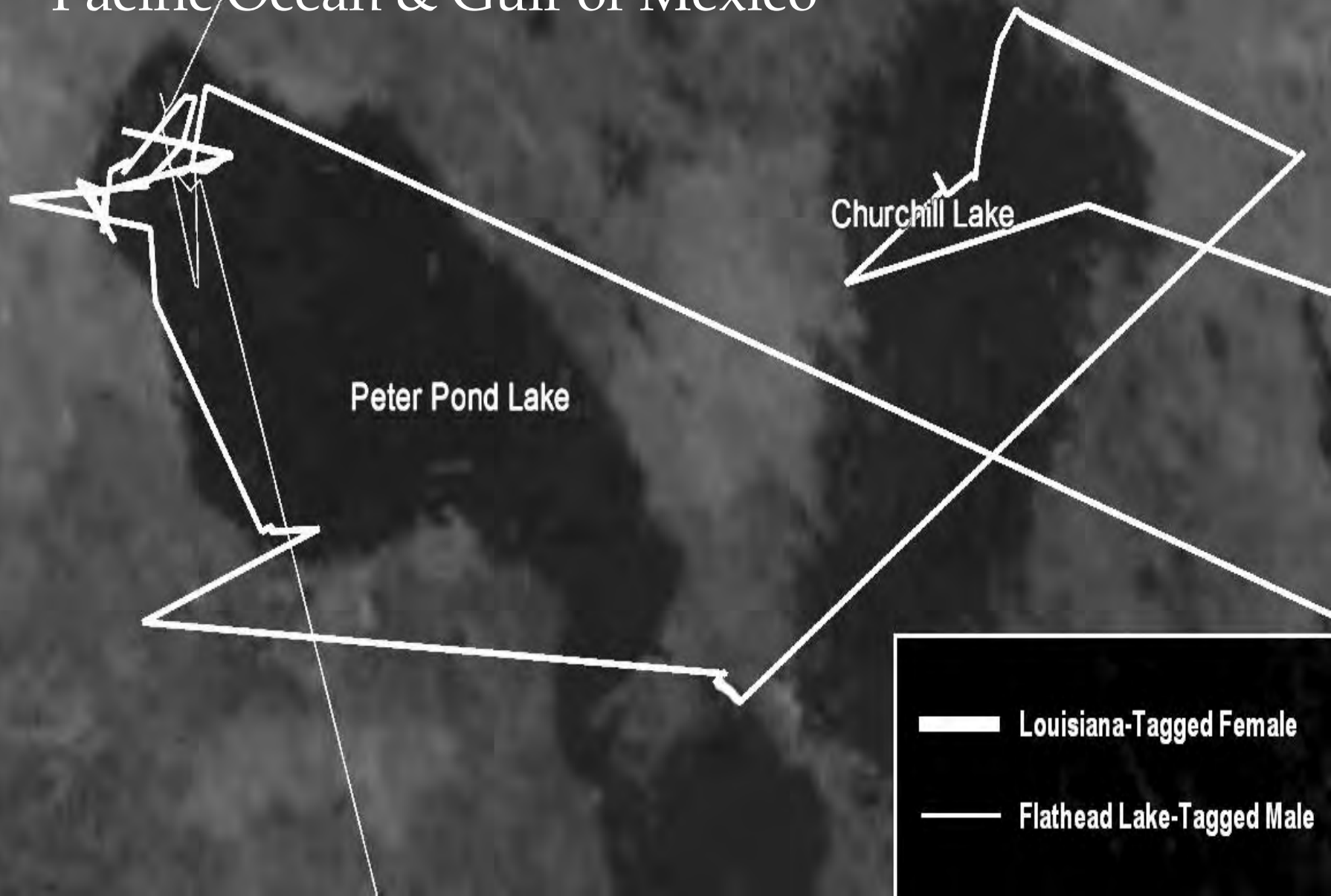
Female Summering
Area Overlapping with
Flathead Lake Loon

Churchill
Lake

Peter Pond
Lake



1. Breeding loons in Saskatchewan winter in Pacific Ocean & Gulf of Mexico



Acknowledgements



Lucy Vlietstra



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Mike Chickering



Dave Evers



Darwin Long



Jay Mager

52 Biologists



248 Volunteers



*Thank you for tuning in... .. and to the
Loon, for its inspiration*

PHOTO CREDITS:

- Dan Poleschook
- Ginger Poleschook
- Darwin Long, IV
- Courtesy of BioDiversity

My website

www.jamesparuk.com