



Red Knots in South Carolina

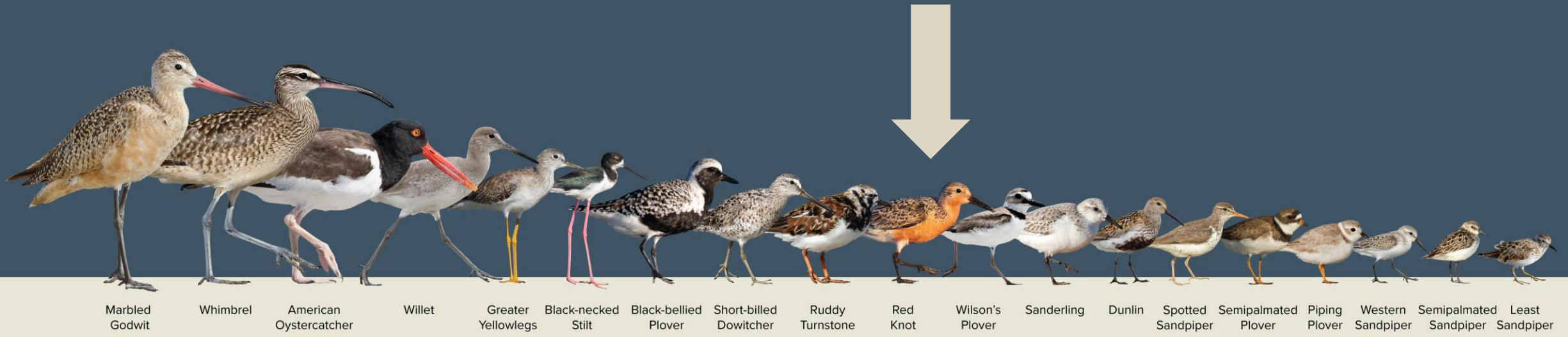
Research & Revelations



Felicia Sanders, Mary-Catherine Martin, Janet Thibault, Camille Duquet

South Carolina Department of Natural Resources

Wildlife & Freshwater Fisheries- Coastal Bird Program



Graphic by Kaitlyn Hackathorn/SCDNR

Red Knot

Calidris canutus

- Medium size shorebird
- Namesake from breeding plumage



Photo credit: James Richards



Photo credit: Andrea Dobrescu

Red Knot Nesting Habitat

- *Rufa* - Central Canadian Arctic
- June 10 – end July/beginning August
- 44 days (28 to 65)

Rufa Red Knot Migration

- 4 wintering areas
- 19,000 mi annually
- Observed 13 years – 242,350 miles – farther than earth to moon!
- Northern migration - stage in Delaware Bay, USA
- Numerous threats



Rufa Red Knot

- 2014 United States threatened
- 2020 Canada endangered
- Declines
 - South America, southern tip
 - 75%
 - (1980 and 1990s) to (2018–2020)
 - Delaware Bay, New Jersey, USA
 - 70%
 - (1981 – 1983) to (2005 – 2014)



Threats

- Reduced food from increased harvests of horseshoe crabs in Delaware Bay
- Low weight - lower survival and breeding rates



Kiawah and Seabrook Islands South Carolina

- Stop over site on northward migration
- Large flocks - 100s to 1000s
- February-May
- Passage population of 17,247 knots
~ 27% of the total population
 - Average stopover duration - 47 days
 - All wintering populations

Pelton, Mary Margaret, Sara R. Padula, Julian Garcia-Walther, Mark Andrews, Robert Mercer, Ron Porter, Felicia Sanders, Janet Thibault, Nathan Senner, Jennifer A. Linscott. 2022. Kiawah and Seabrook islands are a critical site for the rufa Red Knot. Wader Study 129: 105 – 118.



Photo - Fletcher Smith

Abundant Food

- Clams
- Horseshoe crab eggs





Video credit: Fletcher Smith

Spring Migration

Physiological Changes

- Double their weight
- Grow new flight feathers & plumage



Photo by John Albert



Photo by Christy Hand/SCDNR



Aerial Surveys

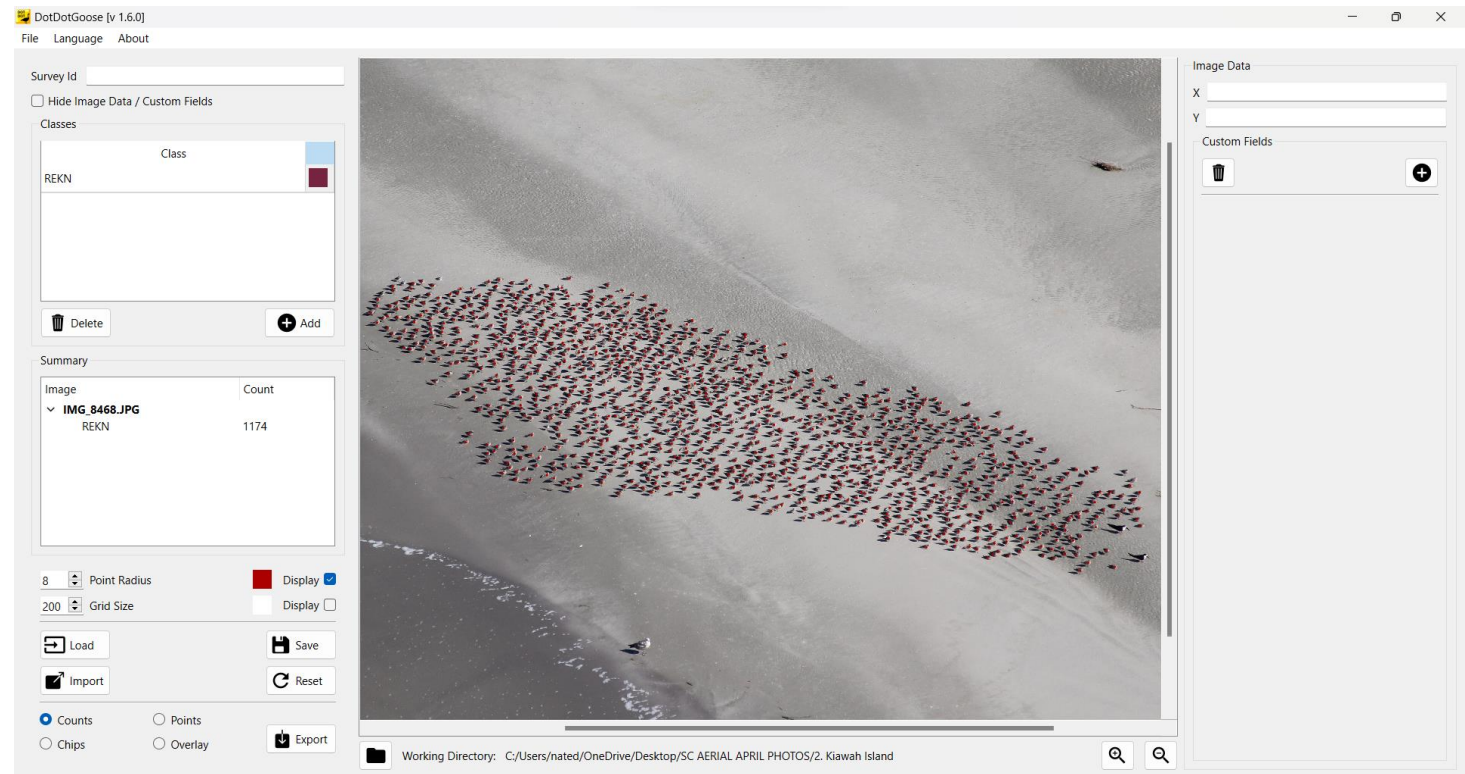
2 surveys conducted: April 21st & May 8th



Photo by Janet Thibault / SCDNR

2023 Georgia and South Carolina Survey Results

- April 20, 21 – 10,324
- May 8 - 13,235



Importance of Southeast as Spring Stopover

Northern migration

- Direct towards Arctic
- Through Delaware Bay
- Another route?





Photos – Ed Konrad

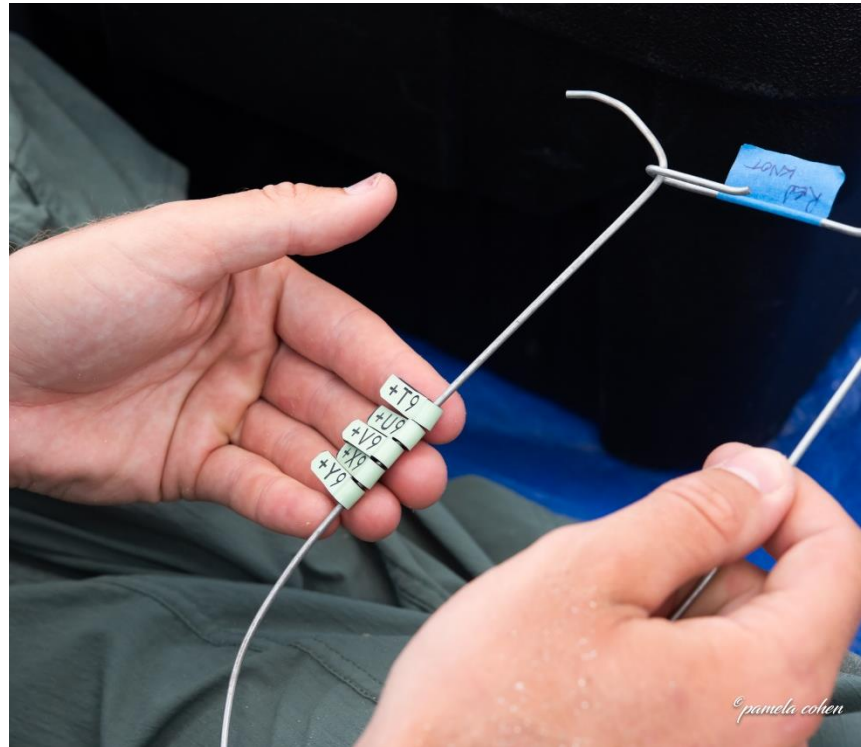
Red Knot Capture

Banding

- Morphometric data
- Flags/bands placed



Photo by Adam Wolf/ Kiawah Island Conservancy

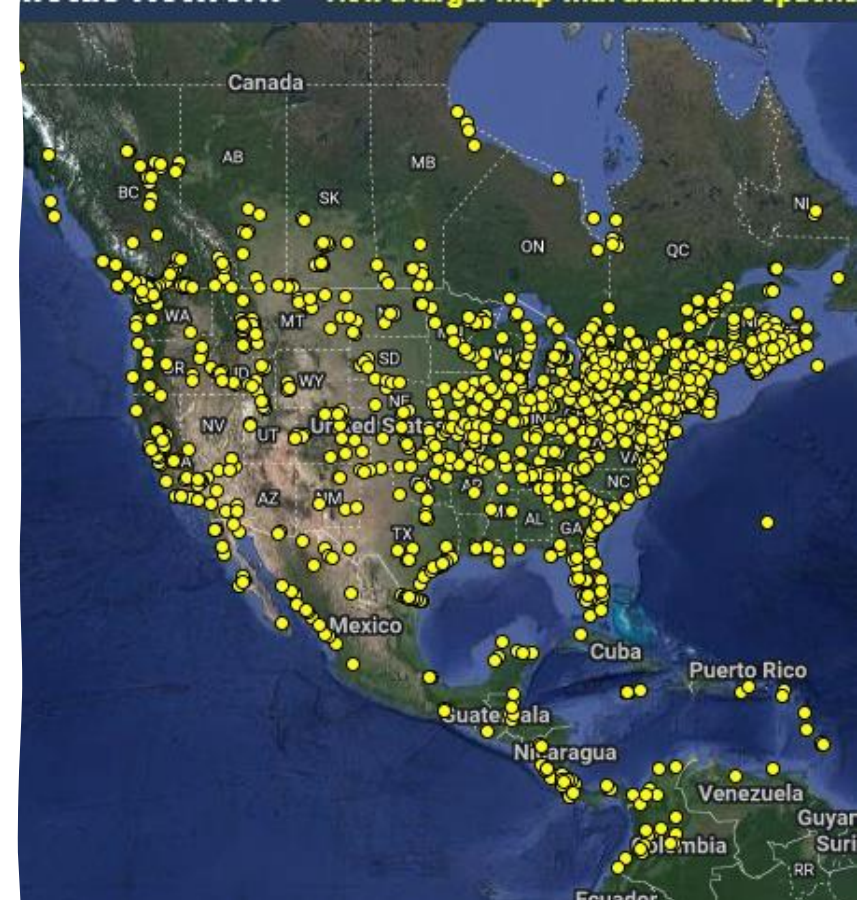


patricia cohen



Photos by Adam Wolf/ Kiawah Island Conservancy



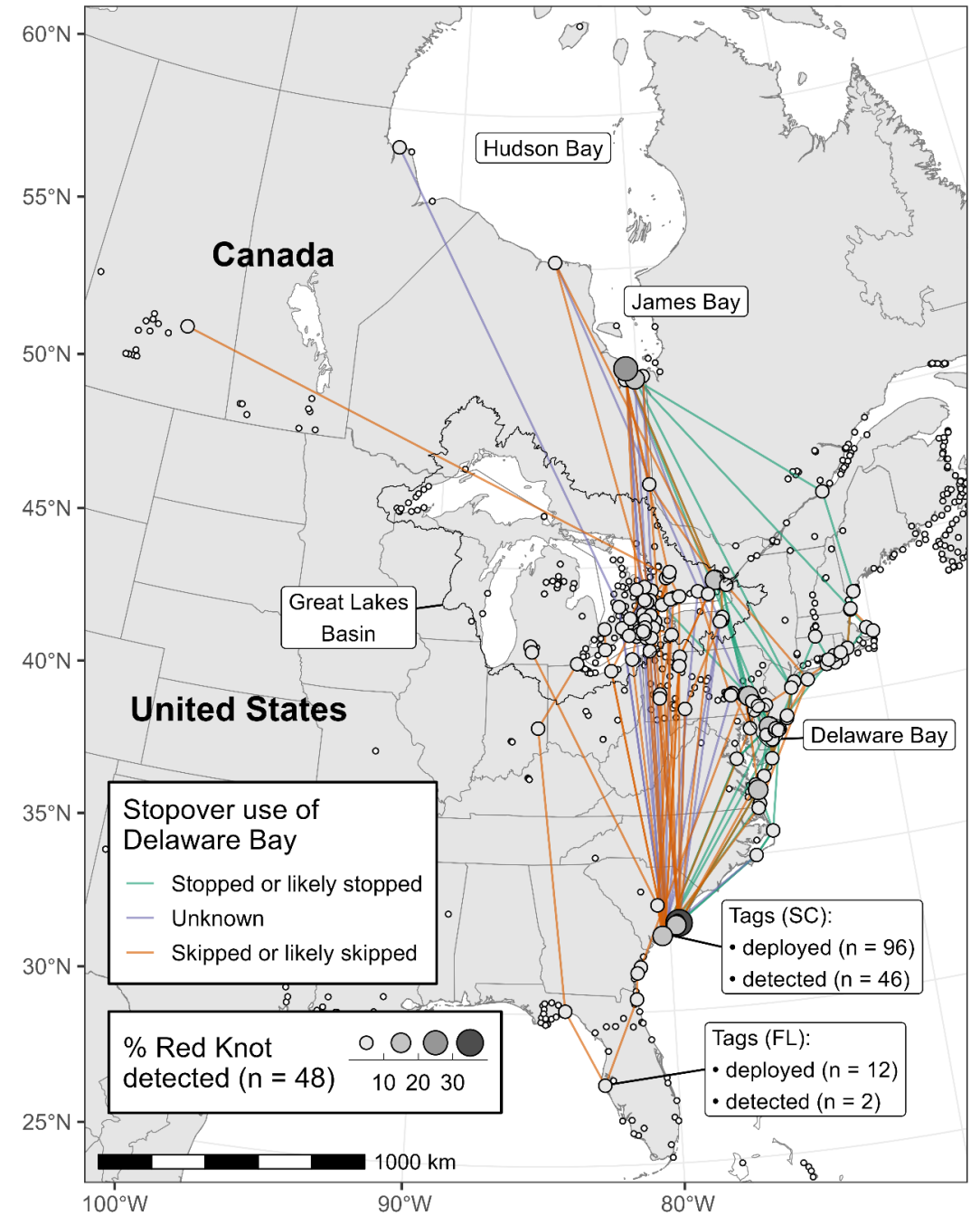
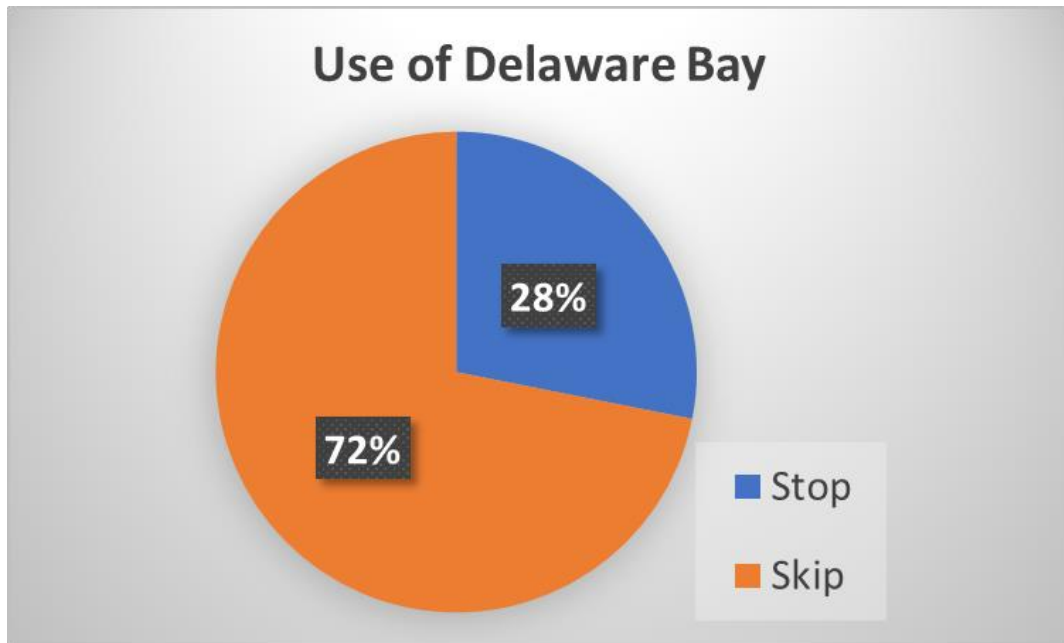


Motus Wildlife Tracking System

- Nanotags - digitally-encoded radio transmitters
- Detected by automated radio telemetry stations (Motus Towers)



Nanotag Results



Smith AD, Sanders FJ, Lefevre KL, Thibault JM, Kalasz KS, Handmaker MC, Smith FM, Keyes TS.
Spring migration patterns of red knots in the Southeast United States disentangled using automated telemetry.

Sunbird Solar Argos Satellite Transmitters

- Breeding sites
- Migration routes
- Local movement

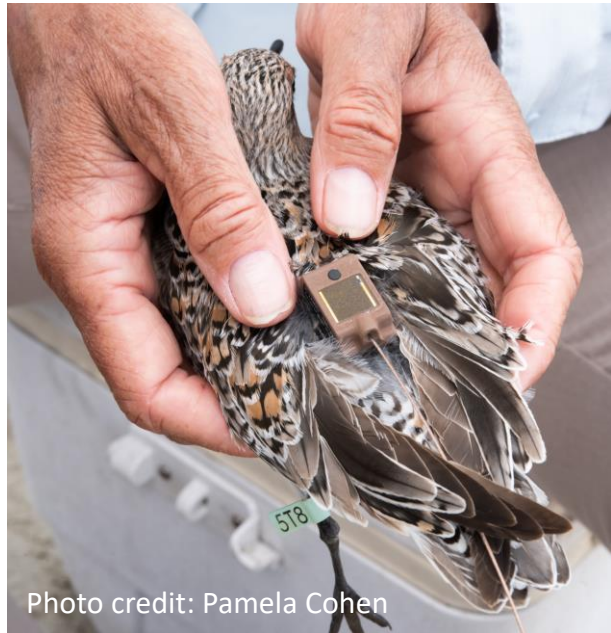
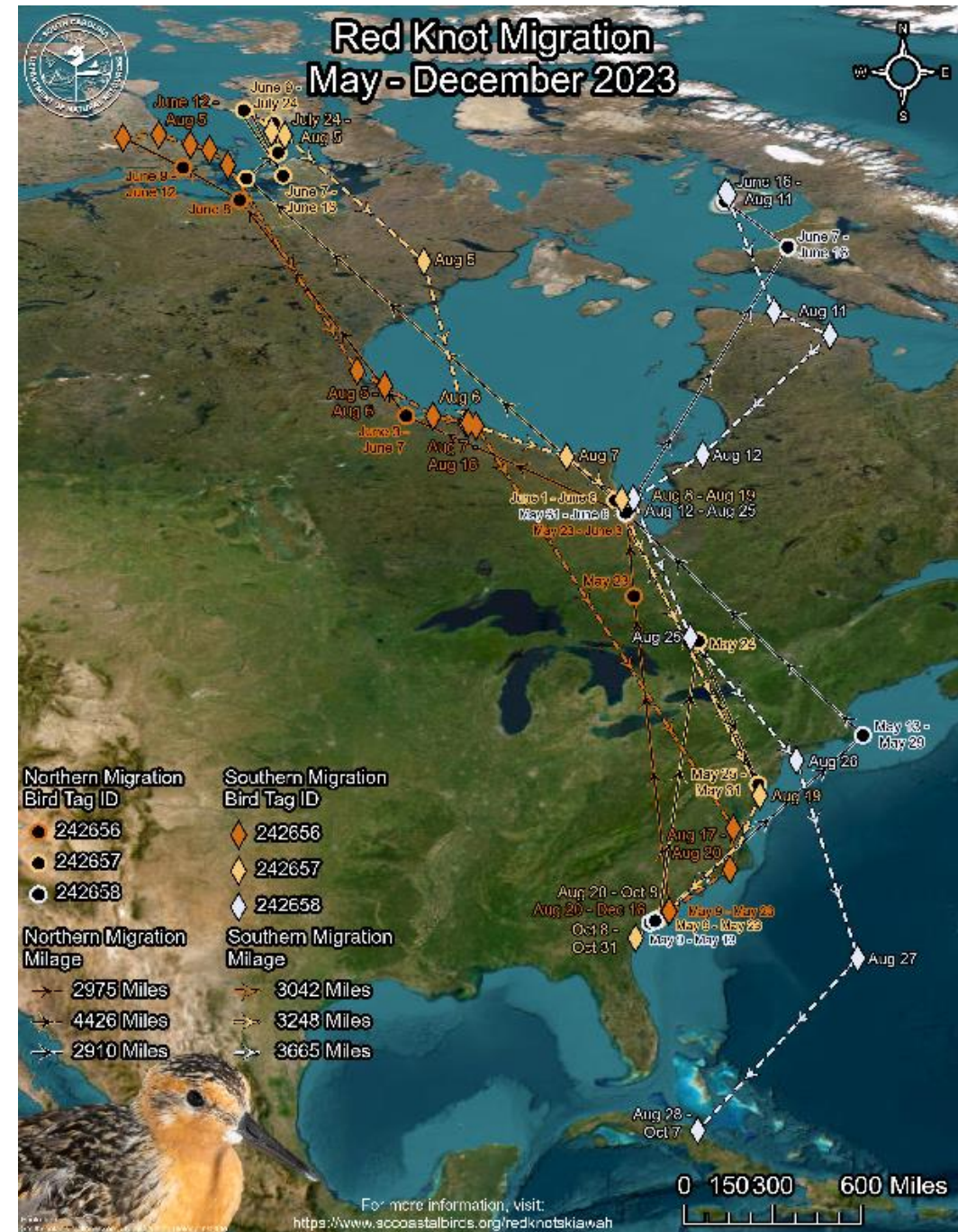
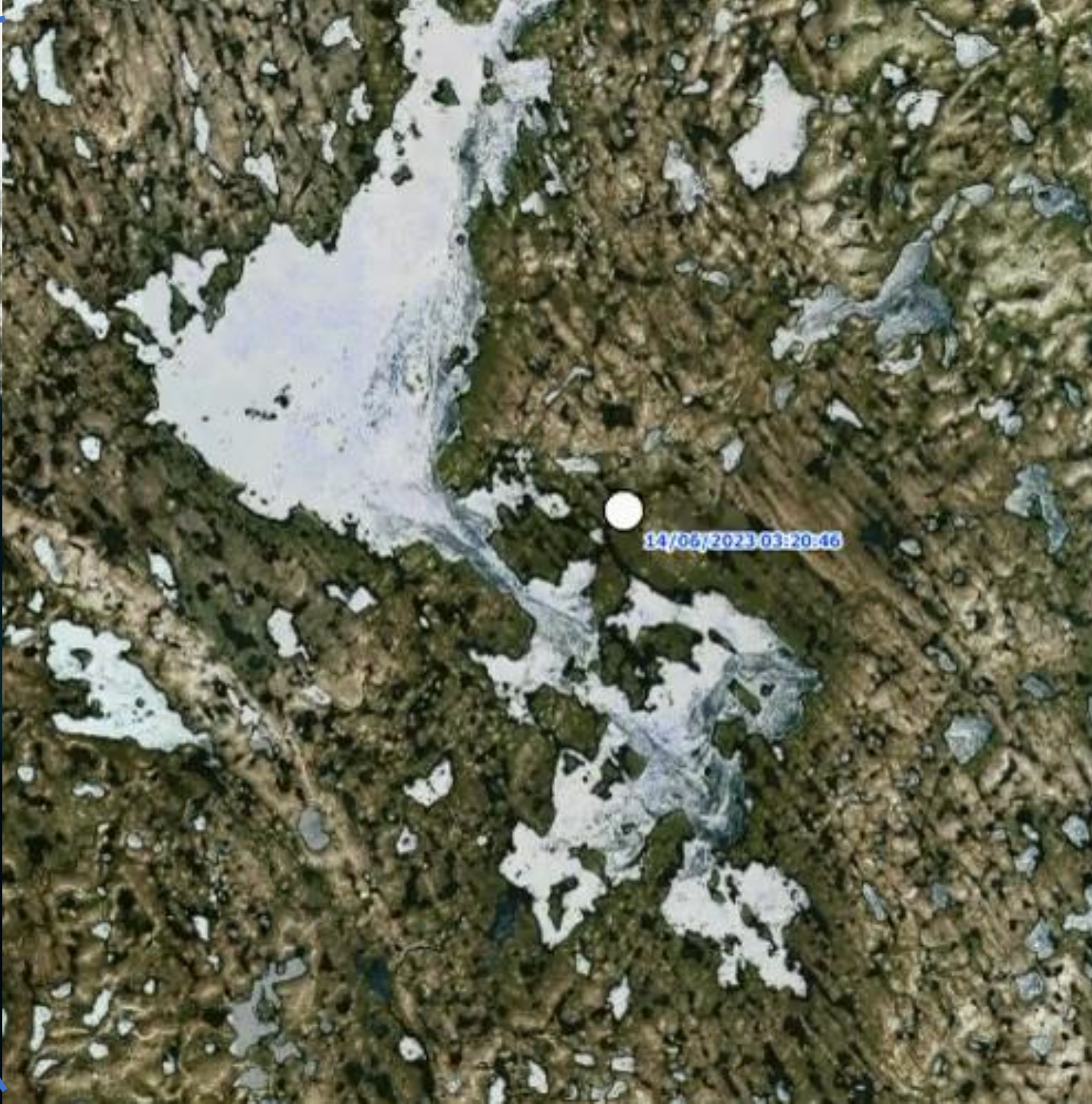
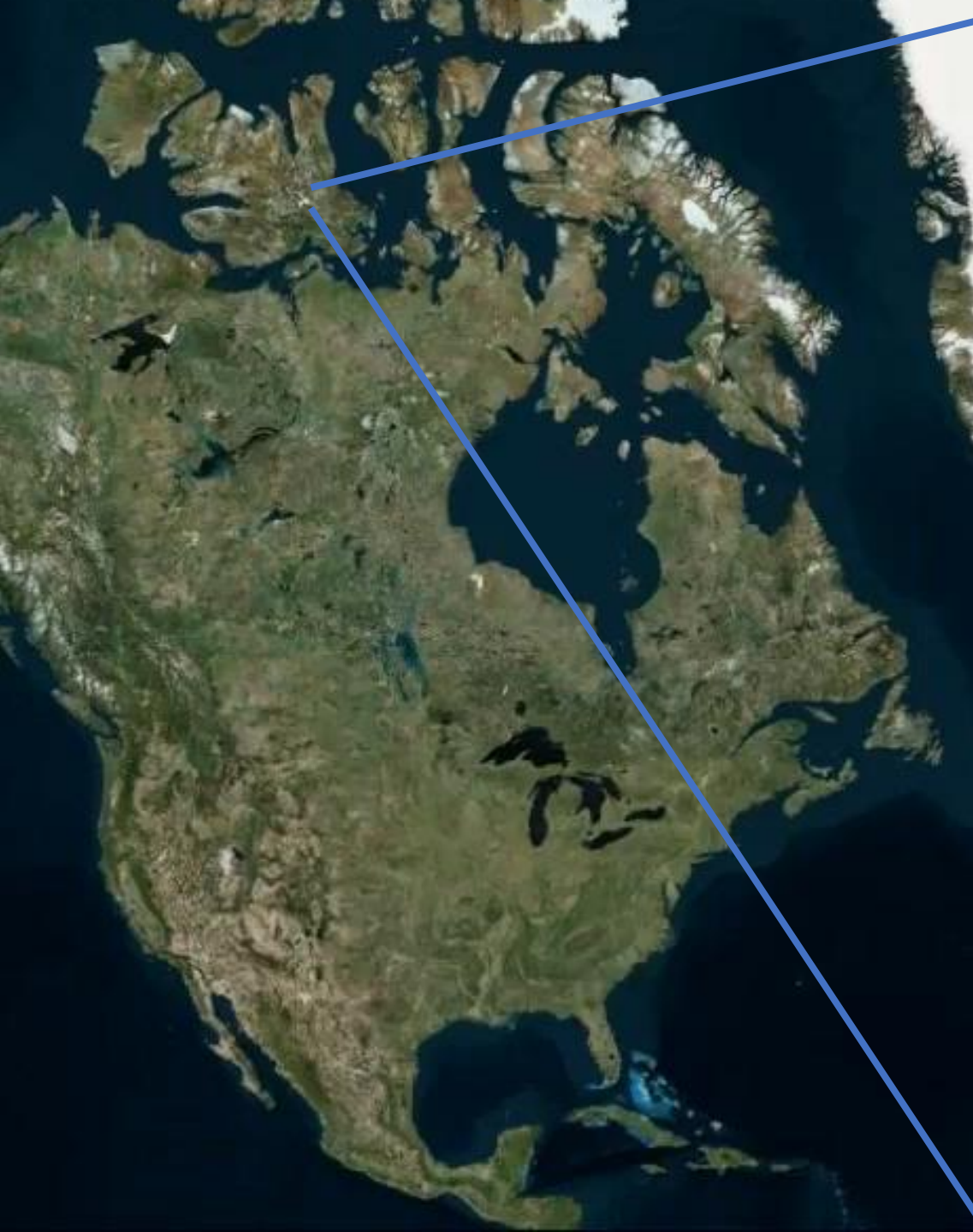
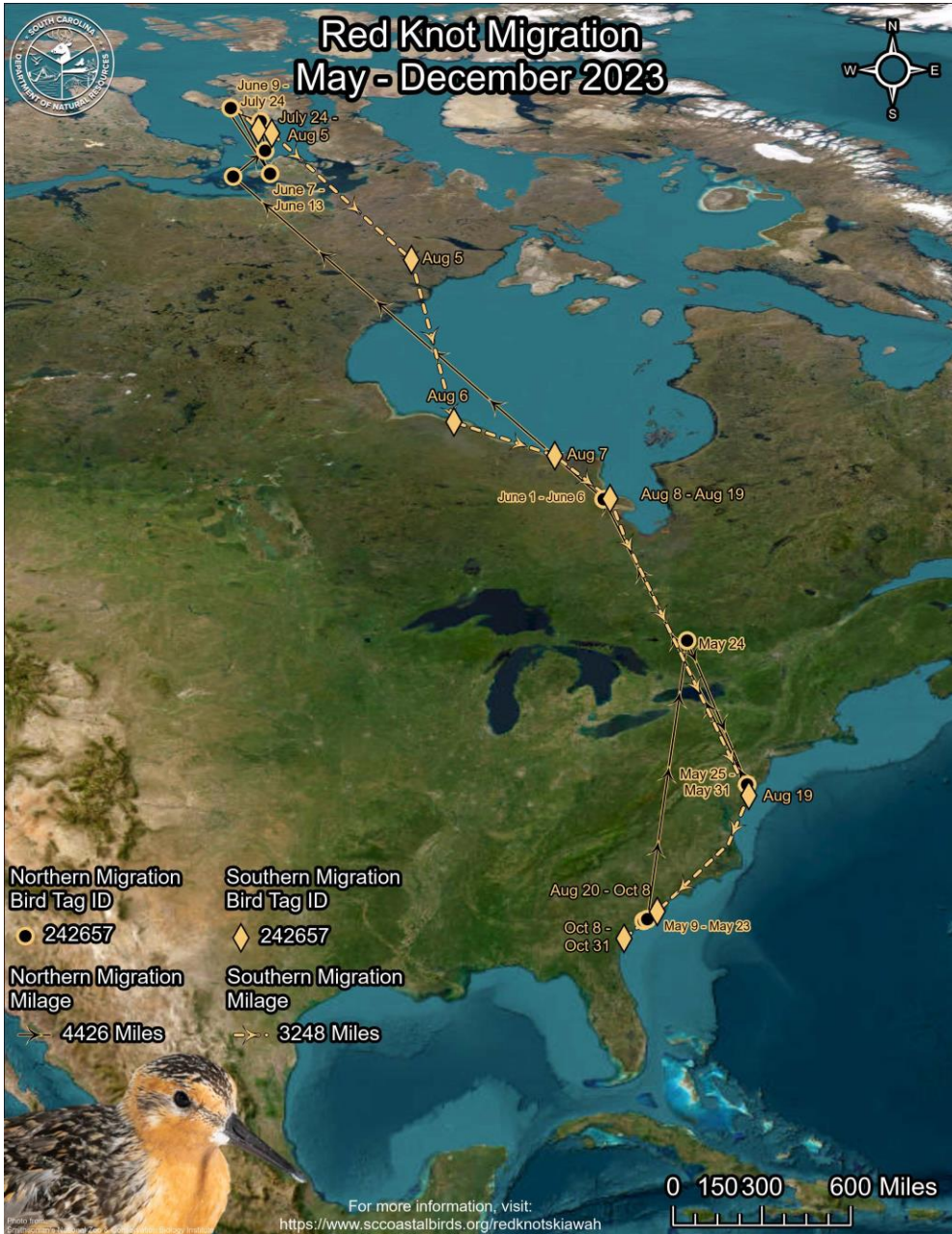


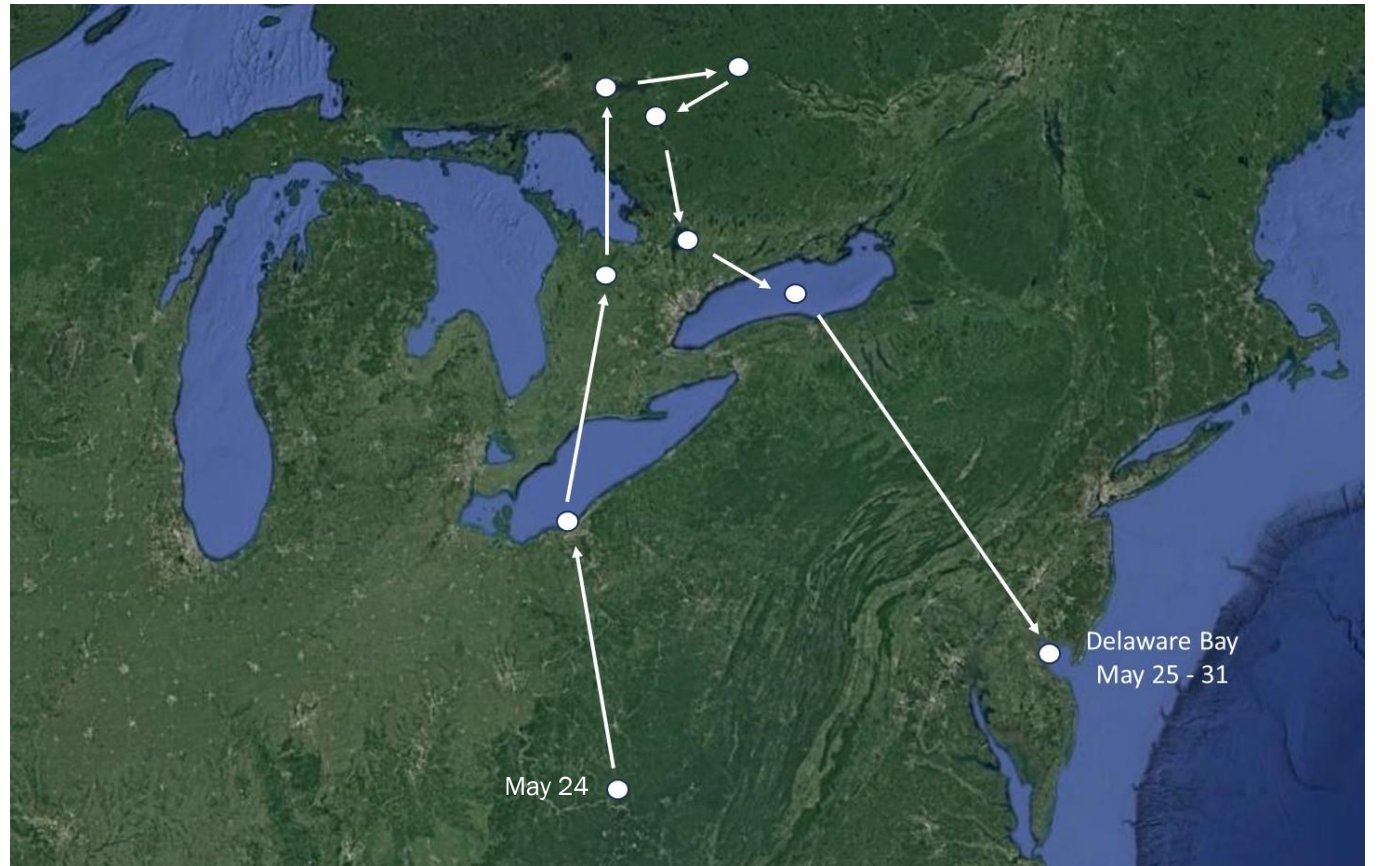
Photo credit: Pamela Cohen

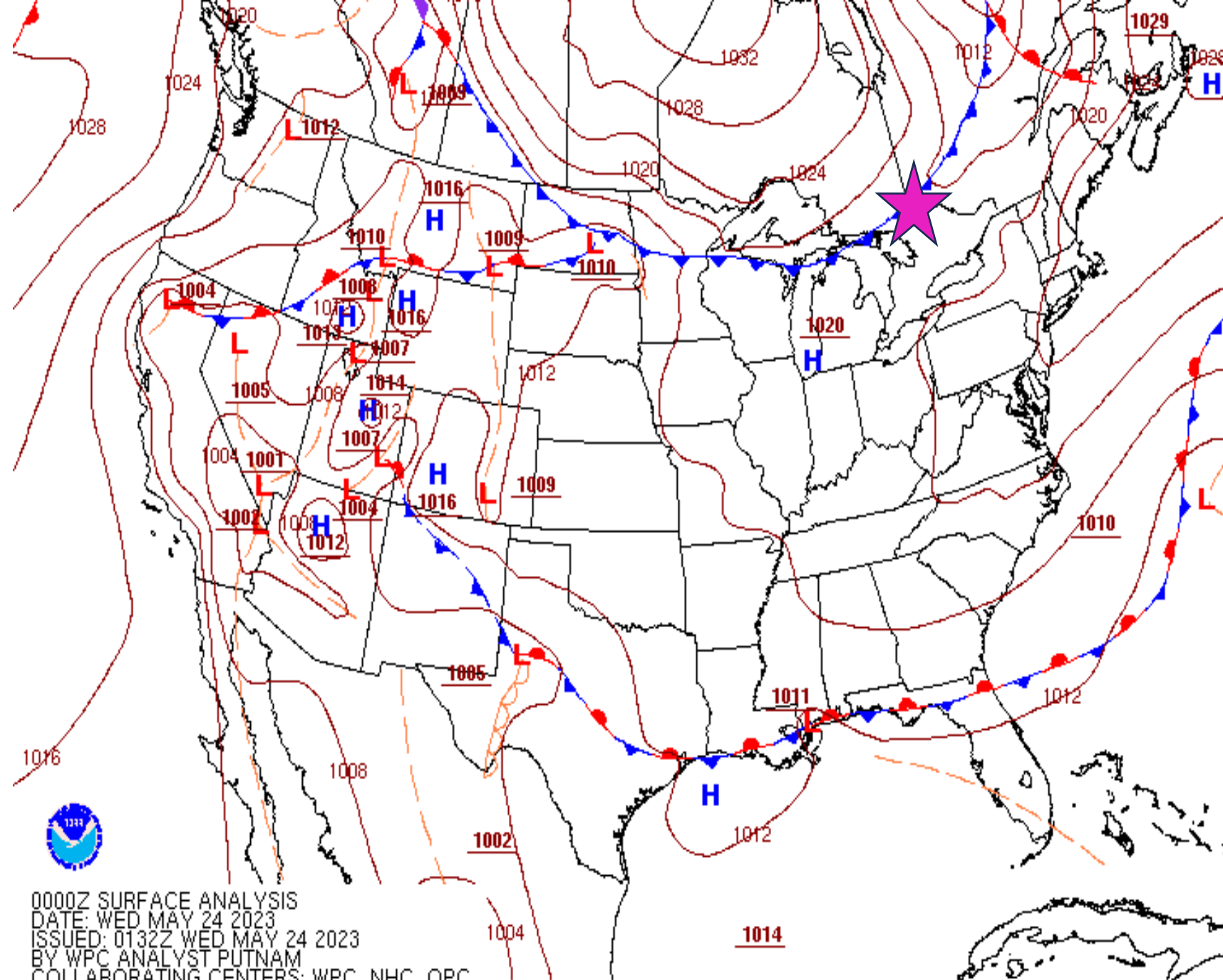






Migration Anomaly!





0000Z SURFACE ANALYSIS
DATE: WED MAY 24 2023
ISSUED: 0132Z WED MAY 24 2023
BY WPC ANALYST PUTNAM
COLLABORATING CENTERS: WPC, NHC, OPC



Reducing Human Disturbance

- Education
- Volunteers
- Partners



Sea Islands Shorebird Festival



- 2 days
- 9 organizations
- 11 field trips
- 1 boat trip
- 3 speaking events
- FeatherFest
- Total Festival Participation: ~523 attendees



Photos by Adam Wolf/Kiawah Island Conservancy

Acknowledgements

- All the volunteers!
- Seabrook Island Birders: especially Mark Andrews, Bob Mercer, Ed and Aija Konrad,
- Nathaniel Watkins & Aubrey Anthony
- Georgia Department of Natural Resources: Tim Keyes, Fletcher Smith
- Manomet: Abby Sterling and Allie Hayser
- American Bird Conservancy: Adam Smith
- Town of Kiawah: Aaron Given
- Kiawah Island Shorebird Steward: Bette Popillo, Rick Popillo, Pamela Cohen
- Beachwalker County Park: Charlie Vance
- Kiawah Island Conservancy: Adam Wolf, Katie Warner
- US Fish & Wildlife Service: Melissa Chaplin
- South Carolina Audubon: Allyssa Zebrowski
- SCDNR staff: Kaitlyn Hackathorn, Graham Wagner, Megan James, Joe Lemeris, Tanner Harrington, Owen Barker

