



# Alaska Shorebird Group

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Annual Summary Compilation:  
New and Ongoing Studies or Initiatives  
Focused on Alaska Shorebirds

2025





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# Table of Contents

DEDICATION .....	4
INTERACTIVE MAP .....	5
EXECUTIVE SUMMARY .....	6
ANNUAL SUMMARIES.....	7
BIRD CONSERVATION REGION 1.....	7
No Annual Summaries were submitted for BCR1 .....	8
ANNUAL SUMMARIES.....	9
BIRD CONSERVATION REGION 2.....	9
#1 (BCR 2): Shorebirds for today and tomorrow/Ceñairet Maa-irpak Kingunemteñun-llu: culture- and place-based learning in Yup’ik schools and communities .....	10
#2 (BCRs 2-4): Multi-species fall migration tracking project.....	13
#3 (BCRs 2, 4, 5): Long-term monitoring of Black Oystercatchers in the Gulf of Alaska .....	17
ANNUAL SUMMARIES.....	19
BIRD CONSERVATION REGION 3.....	19
#4 (BCR 3): Program for Regional and International Shorebird Monitoring – acoustic surveys .....	20
#5 (BCR 3): Egg size and adult size variation through time at Utqiagvik, Alaska (2003-2024).....	23
#6 (BCR 3): Quantifying the nutrient content of arctic shorebird prey .....	28
#7 (BCR 3): Reproductive ecology of shorebirds at Utqiagvik, Alaska in 2025 .....	33
#8 (BCR 3): 2025 Utqiagvik Migratory Bird Festival.....	37
ANNUAL SUMMARIES.....	39
BIRD CONSERVATION REGION 4.....	39
#9 (BCR 4): Kachemak Bay shorebird monitoring project.....	40
#10 (BCR 4): Kachemak Bay Shorebird Festival .....	49
#11 (BCR 4): Assessing migratory connectivity and population structure in the Upland Sandpiper .....	54
#12 (BCR 4): Trends in boreal wetland birds and the value of citizen science in southcentral Alaska.....	57

#13 (BCR 4): Quantifying the multitude of environmental changes influencing the population dynamics of Hudsonian Godwits .....	62
#14 (BCR 4): Delineation of Surfbird ( <i>Calidris virgata</i> ) breeding sites in Alaska .....	65
#15 (BCRs 4, 5): Surfbird ( <i>Calidris virgata</i> ) movements, habitat use, threats, and population structure across Alaska .....	70
ANNUAL SUMMARIES .....	74
BIRD CONSERVATION REGION 5 .....	74
#16 (BCR 5): Assessing microplastic pollution in a key bird tourism region: impacts on shorebird health through dietary pathways .....	75
#17 (BCR 5): 35th Annual Copper River Delta Shorebird Festival and Western Hemisphere Shorebird Reserve Network (WHSRN) celebration.....	78
ANNUAL SUMMARIES .....	80
BIRD CONSERVATION REGIONS OUTSIDE OF ALASKA.....	80
#18 (North Dakota and South Dakota): Cumulative effects of agriculture and drought on migratory shorebird refueling.....	81
#19 (Louisiana): Retention, and behavioral and morphological effects of dorsally mounted transmitters in shorebirds .....	83
ANNUAL SUMMARIES .....	85
Alaska Shorebird Conservation Plan II Objectives Summary .....	85
PUBLICATIONS & ABSTRACTS.....	90
DATA RELEASES.....	98

## **DEDICATION**

The Alaska Shorebird Group suffered a sad loss this past summer when Dr. Shiloh Schulte died in a helicopter accident while conducting field work in Alaska. Shiloh is remembered as a pioneering biologist who helped with Arctic PRISM (Program for Regional and International Shorebird Monitoring) surveys and Whimbrel tracking in Alaska, as well as many shorebird projects on the East Coast and in Latin America.

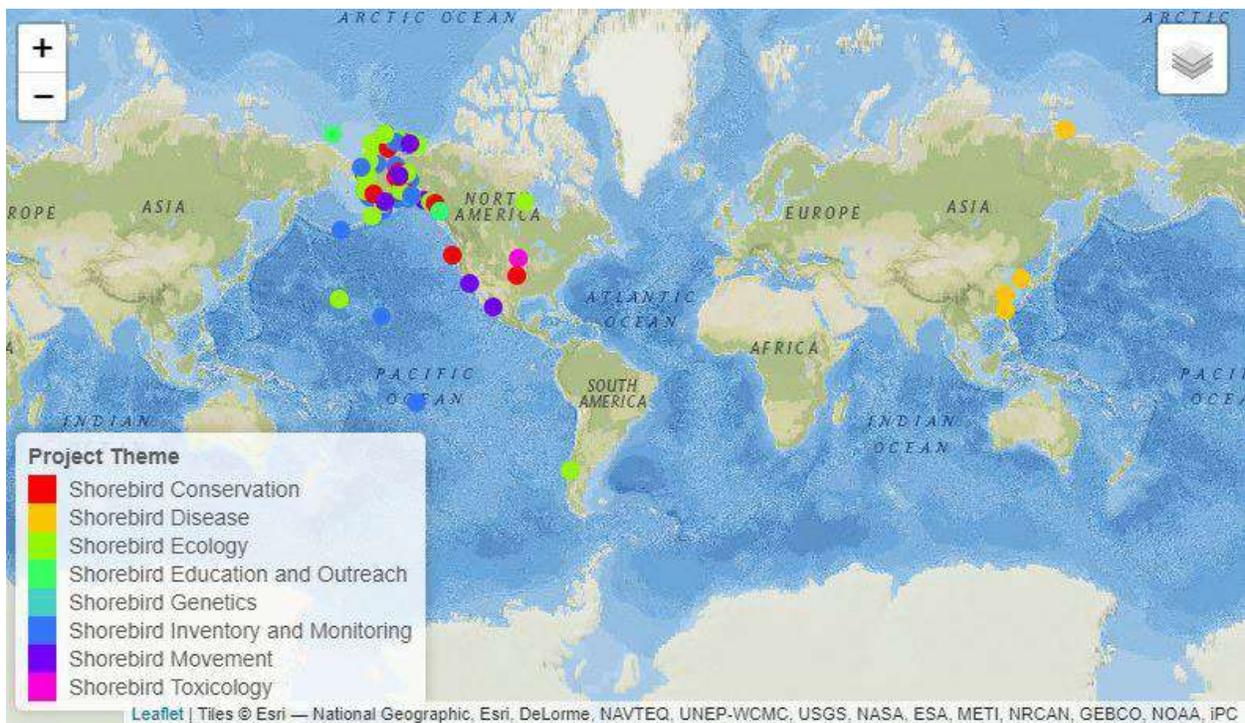
Shiloh first earned his BS in wildlife biology at the University of Vermont and his PhD at North Carolina State University studying American Oystercatchers. He was the coordinator of the American Oystercatcher Recovery program, a member of the Manomet Conservation Sciences team, and a member of the Alaska Shorebird Group Executive Committee. He was funny and kind, a wonderful science communicator, and a passionate conservationist. He was also an avid traveler, long-distance runner, held a black belt in Tae Kwon Do, and was a photographer. Many of his pictures have been used in our annual summaries. Shiloh leaves behind his wife and two daughters and will be dearly missed by our community.



## **INTERACTIVE MAP**

To visualize where projects have occurred since the Alaska Shorebird Group's inception in 1997, please check out the "ASG Leaflet Map". This interactive map allows for filtering projects by species and provides a baseline for identifying which species and topics have been researched in the past. This visualization also allows members to easily determine which Alaska Shorebird Plan objectives have been reached and where additional research may be needed, especially for Priority Species. Finally, this map is an excellent resource for graduate students, early-career professionals, and scientists who are new to the realm of Alaskan shorebirds.

[Alaska Shorebird Group Projects 1997-2025 Leaflet Map](#)



## **EXECUTIVE SUMMARY**

Welcome to the Alaska Shorebird Group (ASG) 2025 annual summary. This is the 26th annual summary to document new and ongoing studies and initiatives focused on Alaska shorebirds. This document includes annual summaries for 19 studies/initiatives and highlights 11 recent publications, 1 unpublished report, 1 news article, and 3 data releases.

The Alaska Shorebird Group continues to be a highly collaborative organization with a large membership of productive principal investigators, early-professionals, and students both within and outside of Alaska. This annual compilation is the only written record that acknowledges the shorebird projects occurring in Alaska and provides a valuable timeline of shorebird activities in the state.

Thank you to all the principal investigators, graduate students, research technicians, and amateur photographers that contributed to this report. This valuable research takes lots of long hours, tricky logistics, and dedication within Alaska and beyond. I am honored to be part of a group with such a strong passion for shorebird conservation and management, especially as we continue to face challenges regarding population declines of many Arctic and sub-Arctic breeding shorebirds.

Sarah Saalfeld

~Secretary, Alaska Shorebird Group (2025-2026)



## ANNUAL SUMMARIES

### BIRD CONSERVATION REGION 1

Aleutian and Bering Sea Islands-Includes portions of Western and Southwestern Alaska. Included in this region are the Aleutian Islands, that extend westward from the Alaskan mainland for 1,100 miles (1,800 km), and the Bering Sea islands (that include the Pribilofs, St. Matthew, Hall, St. Lawrence, and Little Diomedé). The Aleutian chain is volcanic in origin. The climate is maritime and wind is ever present. Sea ice does not extend to the Aleutians and permafrost is generally absent; however, sea ice is an important feature of the Bering Sea. Vegetation at higher elevations consists of dwarf shrub communities, mainly willow and crowberry. Meadows and marshes of herbs, sedges, and grasses are plentiful, and some islands have ericaceous bogs. Seabirds are a dominant component of this region's avifauna, and several species breed only in this region (e.g., Red-legged Kittiwake, Least Auklet, Whiskered Anklet). Southern Hemisphere procellariiforms occur regularly in the offshore waters of the southern Bering Sea and northern Gulf of Alaska during Alaskan summers. Although breeding diversity of passerines (mainly Lapland Longspur, Snow Bunting, and Gray-crowned Rosy-Finch), and shorebirds (e.g., Black Oystercatcher, Dunlin, Ruddy Turnstone, Rock Sandpiper) is low, numerous Old-World species are regular migrants and visitants. Some of these species regularly breed in the region (e.g., Common Ringed Plover, Wood Sandpiper, Eurasian Skylark). Rock Sandpipers have differentiated into three races among islands within the region and the only endemic Alaskan passerine (McKay's Bunting) is found here. Information derived from Boreal Partners in Flight Bird Conservation Areas | U.S. Geological Survey ([usgs.gov](https://usgs.gov)).

**No Annual Summaries were submitted for BCR1**

## ANNUAL SUMMARIES

### BIRD CONSERVATION REGION 2

Western Alaska-Includes portions of Western and Southwestern Alaska: This region consists of the coastal plain and mountains of western and southwestern mainland Alaska. Sub-regions include A) Subarctic Coastal Plain and Seward Peninsula, B) Ahklun and Kilbuck Mountains and Bristol Bay-Nushagak Lowlands, and C) Alaska Peninsula Mountains. Permafrost is continuous except in southern parts of the region. Sea cliffs are present as are mountains that exceed 3,300 feet (1,000 m) in elevation. Volcanic peaks up to 8,500 feet (2,600 m) are found along the Alaska Peninsula. Wet and mesic graminoid herbaceous communities dominate the lowlands and numerous ponds, lakes, and rivers dot the landscape. Tall shrub communities are found along rivers and streams and low shrub communities occupy uplands; forests of spruce and hardwoods penetrate the region on the eastern edge. High densities of breeding waterfowl and shorebirds are found on the coastal plain of the Yukon and Kuskokwim rivers. Intertidal areas here and lagoons of the north side of the Alaska Peninsula supports millions of shorebirds during migration (e.g., Dunlins, Western Sandpipers, Red Knots, Bar-tailed Godwits). The coast of the Alaska Peninsula supports high concentrations of wintering sea ducks that include the: Steller's Eider, Harlequin, Long-tailed Duck, Surf Scoter, and Black Scoter. Western Alaska includes a unique Beringian breeding avifaunal element (e.g., Black Turnstone, Bristle-thighed Curlew) and several Old-World species are regular breeders or migrants in this region (e.g., Sharp-tailed Sandpiper, Red-throated Pipit, White Wagtail). Passerine diversity is greatest in tall, riparian shrub habitats (e.g., Arctic Warbler, Gray-cheeked Thrush, Blackpoll Warbler) and raptors (e.g., Gyrfalcon, Rough-legged Hawk) nest along the riverine cliffs. Mainland sea cliffs contain nesting colonies of, largely, Black-legged Kittiwakes, Common Murres, and Pelagic Cormorants. Information derived from Boreal Partners in Flight Bird Conservation Areas | U.S. Geological Survey ([usgs.gov](https://usgs.gov)).



## **#1 (BCR 2): Shorebirds for today and tomorrow/Ceñairet Maa-irpak Kingunemteñun-llu: culture- and place-based learning in Yup'ik schools and communities**

*Study Species:* multiple species

*Study Location:* mostly Yukon-Kuskokwim Delta

*Principal Investigators:* Liliana Naves (Alaska Department of Fish and Game), Richard Lanctot (U.S. Fish and Wildlife Service), Jerilyn Kelly (Native American Fish and Wildlife Society), Jen Curl (Alaska Department of Fish and Game), Deb Lawton (Alaska Department of Fish and Game)

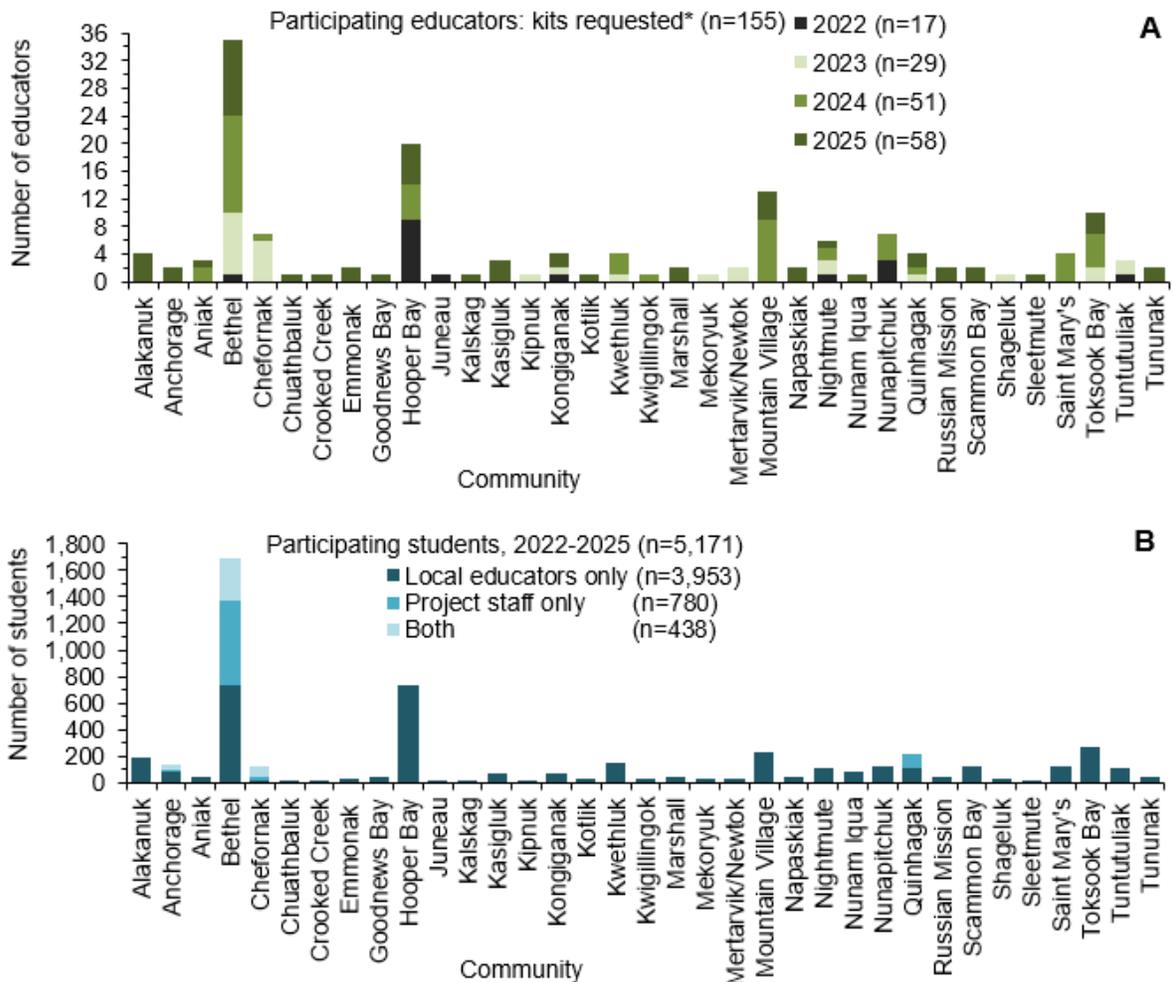
*Primary Contact:* Liliana Naves, Audubon Alaska, 750 W. 2nd Avenue, Suite 100 Anchorage, AK 99501, liliana.naves@audubon.org

### **Study Objectives**

- Support awareness of and stewardship about shorebird ecology and conservation.
- Support transmission of Indigenous knowledge and Yup'ik language.
- Support interest in learning and in nature.

### **Preliminary Results**

- Designed place- and culture-based outreach materials and activities that are focused on shorebirds, the Yup'ik culture, and the environments of the Y-K Delta.
- Developed collaboration with local educators and communities.
- Awareness of local socio-economic contexts is key to ensure that nature outreach and education programs are relevant among the many priorities and needs that communities in rural Alaska face.
- In 2022–2025, the shorebird outreach program reached 35 communities and about 5,200 students.
- Community meetings, management meetings, and local presentations engaged other audiences.



**Alaska Shorebird Conservation Plan II Objectives Reached:**

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.
- Promote shorebird education to youth via the Shorebird Sister Schools Program.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.
- Incorporate principles of good governance in research and outreach efforts.

**INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.

## #2 (BCRs 2-4): Multi-species fall migration tracking project

*Study Species:* Greater Yellowlegs, Lesser Yellowlegs, Short-billed Dowitcher, Long-billed Dowitcher, American Golden-Plover, Pacific Golden-Plover, Black-bellied Plover

*Study Locations:* Fort Yukon (66.56 N, 145.25 W), King Salmon (58.69 N, 156.66 W), Beluga (61.18 N, 151.04 W), Nome (64.84 N, 166.04 W), Utqiagvik (71.30 N, 156.66 W), Kotzebue (66.84 N, 162.55 W), Old Chevak (61.45 N, 165.90 W)

*Principal Investigators:* Rozy Bathrick (University of Massachusetts Amherst), Jim Johnson (US Fish and Wildlife Service), Dan Ruthrauff (Manomet Conservation Sciences), and Nathan Senner (University of Massachusetts Amherst)

*Primary Contact:* Rozy Bathrick, Organismic and Evolutionary Biology, University of Massachusetts Amherst, 61 Riverview Dr., Gill, MA 01354, rebathrick@umass.edu

### Study Objectives

- Track 7 species from 2 different breeding areas in Alaska.
- Identify distinct migration behavior and patterns.
- Describe differences in migratory routes, timing, and flyway.
- Discern the threats distinct groups are exposed.
- Conduct outreach and presentations in remote Alaska and Massachusetts.

### Preliminary Results

- Short-billed Dowitchers take different routes across the Gulf of Alaska and have different access to beneficial tailwind.
- Lesser Yellowlegs use distinct areas of the Prairie Pothole Region depending on their breeding location.

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.
- Determine migratory timing, routes, and site use of shorebirds.
- Identify and delineate potentially distinct populations of shorebirds breeding in Alaska.

#### **HABITAT MANAGEMENT AND PROTECTION:**

- Support land acquisitions, easements, restoration efforts, and conservation designations (e.g., the Western Hemisphere Shorebird Reserve Network, East Asian–Australasian Shorebird Reserve Network, Ramsar Convention on Wetlands, and Important Bird Areas Programs) for key shorebird sites.

- Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Incorporate principles of good governance in research and outreach efforts.

**INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.
- Coordinate and participate in international, national, and other regional shorebird conservation planning efforts (e.g., Pacific Americas Shorebird Conservation Strategy, Atlantic Flyway Shorebird Initiative).



*Chevak, Alaska*

*Photo: Rozy Bathrick*



*Aerial view*

*Photo: Rozy Bathrick*

## #3 (BCRs 2, 4, 5): Long-term monitoring of Black Oystercatchers in the Gulf of Alaska

*Study Species:* Black Oystercatcher

*Study Locations:* Kachemak Bay (59.60 N, 151.34 W), Katmai National Park and Preserve (58.59 N, 154.69 W), Kenai Fjords National Park (60.04 N, 149.81 W), and western Prince William Sound (61.60 N, 147.16 W)

*Principal Investigators:* Gulf Watch Alaska

*Primary Contact:* Heather Coletti, National Park Service, 240 W 5th Ave., Anchorage, AK 99501, Heather\_Coletti@nps.gov

### Study Objectives

- The Gulf Watch Alaska nearshore program monitors ecologically important species and key physical parameters in the nearshore marine environment. These species include sea ducks, sea otters, intertidal invertebrates, and Black Oystercatchers.
- Monitoring of Black Oystercatchers began in 2006 and has been done nearly yearly in three sampling blocks: Kachemak Bay (added later in 2018), Katmai National Park and Preserve, Kenai Fjords National Park, and western Prince William Sound.
- In each sampling block, surveys are conducted along four or five transects up to 20 km in length.
- We measure Black Oystercatcher nest density, productivity (number of eggs or chicks), float eggs to determine hatch date, and quantify chick diet.
- We quantify species composition and size distributions of prey fed to chicks by collecting and measuring all prey remains found near a nest, indicative of adults provisioning their offspring.

### Preliminary Results

- In 2025, we located a total of 21 nests in three of the four sampling blocks. Due to personnel and logistical constraints, Kenai Fjords was not sampled in 2025. Black oystercatcher nest density varied by sampling block (Katmai:  $0.21 \pm 0.08$  nests / km; Kachemak Bay:  $0.11 \pm 0.04$  nests/km; western Prince William Sound:  $0.08 \pm 0.03$  nests/km (mean  $\pm$  SE)).
- Productivity (number of eggs + chicks / nest) was highest ( $2.33 \pm 0.29$ ; mean  $\pm$  SE, n = 9) in Kachemak Bay and lowest ( $1.46 \pm 0.31$ ; n = 13) in Katmai with western Prince William Sound at  $1.5 \pm 0.87$ ; n = 4.
- We collected 785 prey items from 13 nests, representing 13 different taxa in Katmai. No prey were observed or collected in Prince William Sound or Kachemak Bay. This may reflect the timing of surveys. Prince William Sound and Kachemak Bay are sampled earlier in the breeding season when it is more likely that eggs are present as opposed to chicks. Kenai Fjords was not sampled in 2025.

- In Katmai, chick diet was dominated by *Lottia pelta* (27%), *Katharina tunicata* (25%), *L. persona* (19%) and *Mytilus trossulus* (15%): together they made up ~86% of the diet in 2025.
- Long-term monitoring of Black Oystercatchers provides an opportunity to understand how a top-level predator in the intertidal food web may respond to changes in a highly dynamic ecosystem.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**POPULATION INVENTORY AND MONITORING:**

- Conduct long-term population monitoring efforts (e.g., PRISM).

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.



*Black Oystercatcher chick*

*Photo: Laura McDuffie*

## ANNUAL SUMMARIES

### BIRD CONSERVATION REGION 3

Northern Alaska-Arctic Coastal Plain/Foothills: This region includes low-lying, coastal tundra and drier uplands of the Arctic Foothills of the Brooks Range. Sub-regions include A) Arctic Coastal Plain, and B) Arctic Foothills and north slope of the Brooks Range. It extends from the Alaska-Canada border at Demarcation Point westward, and southward, to the mouth of the Noatak River. Because of thick, continuous permafrost, surface water dominates the landscape (20-50% of the land surface on the coastal plain). Freezing and thawing form a patterned mosaic of polygonal ridges and ponds. Several rivers (e.g., Colville River) bisect the plain and flow into the Arctic Ocean. Barrow/Utqiagvik, lying near the Arctic Ocean, experiences 67 days of darkness in the winter and 84 days of continuous sunlight in the summer. The ocean surface, except for leads, is frozen 9 to 10 months a year, and the ice pack is never far from shore. Because of the wetness, waterfowl and shorebirds dominate the breeding avian community and passerines are scarce. The most abundant breeding birds on the coastal plain include: Northern Pintail, King Eider, Long-tailed Duck, American Golden-Plover, Semipalmated Sandpiper, Pectoral Sandpiper, Red-necked Phalarope, and Lapland Longspur. Few bird species winter in the region. Several Old-World species penetrate the region from the west (e.g., Arctic Warbler, Bluethroat), and species regularly breeding in the Canadian arctic penetrate from the east (e.g., White-rumped Sandpiper, Black Guillemot). Taiga passerines (e.g., Gray-cheeked Thrush, Yellow Warbler) reach the region along drainage systems from the Brooks Range and raptors nest commonly along major rivers (e.g., Gyrfalcon, Rough-legged Hawk). Information derived from Boreal Partners in Flight Bird Conservation Areas | U.S. Geological Survey ([usgs.gov](https://www.usgs.gov)).



## **#4 (BCR 3): Program for Regional and International Shorebird Monitoring – acoustic surveys**

*Study Species:* Pectoral Sandpiper, Semipalmated Sandpiper, Wilson's Snipe, Dunlin, American Golden-Plover, Black-bellied Plover, Long-billed Dowitcher, Red Phalarope, Red-necked Phalarope, Stilt Sandpiper, Bar-tailed Godwit, Western Sandpiper, and Least Sandpiper

*Study Location:* Utqiagvik (71.29058 W, 156.78872 N), Arctic National Wildlife Refuge (69.17216 W, 146.98077 N); Teshekpuk Lake Special Area (70.39231 W, 153.44915 N)

*Principal Investigators:* Morgan Ziegenhorn (Manomet Conservation Sciences and Universite de Moncton), Richard Lanctot (U.S. Fish and Wildlife Service), Stephen Brown (Manomet Conservation Sciences), Chris Latty (U.S. Fish and Wildlife Service), Sarah Saalfeld (U.S. Fish and Wildlife Service), Nicolas Lecomte (Universite de Moncton), Shiloh Schulte (Manomet Conservation Sciences), and Paul Smith (Environment and Climate Change Canada)

*Primary Contact:* Morgan Ziegenhorn, Manomet Conservation Sciences and Universite de Moncton, 10155 Coyote Ridge Court, Auburn CA 95602, maziiegenhorn36@gmail.com

### **Study Objectives**

- Detect and classify avian species in acoustic ARU (autonomous recording unit) data collected as part of PRISM (Program for Regional and International Shorebird Monitoring) surveys and at long-term plots in Utqiagvik in 2021-2025.
- Analyze acoustic ARU data from PRISM plots and compare shorebird presence and species distributions with data from visual PRISM surveys.
- Analyze acoustic ARU data from Utqiagvik to describe diel and seasonal calling patterns of Arctic shorebird species in relation to environmental factors and phenological data.
- Use acoustic ARU data to establish density estimates for target species (Semipalmated Sandpiper, Dunlin, Pectoral Sandpiper, Long-billed Dowitcher).

### **Preliminary Results**

- We processed all data collected on PRISM plots and in Utqiagvik from 2021-2025, resulting in detections of 12 species of shorebirds.
- We compared ARU-based and visual survey-based species' presence across all PRISM plots from the Arctic National Wildlife Refuge in 2022 and the Teshekpuk Lake Special Area in 2023. We found that generally ARUs detected more species than visual PRISM surveys, but that this was likely linked to the longer survey time (multiple months for ARUs vs 96 minutes for visual PRISM). We also found that there were some quiet and/or rare species (e.g., Semipalmated Plover) that were seen visually but not detected with ARUs.

- We are still analyzing Utqiagvik data and describing temporal patterns. So far, we are seeing that many species have a peak in calling during the breeding/pre-laying period, and that many species also exhibit diel calling patterns that change over the course of the season. We plan to continue investigating whether calling patterns change in relation to snow melt, phenology, and average daily temperature across the season.
- We are working with Dr. Alison Johnston at the University of St. Andrews on a method to estimate shorebird density using our acoustic ARU data. We conducted multiple experiments this summer in Utqiagvik in service of this goal. These experiments included establishing the detection radius of our ARUs for calls of target shorebird species and following shorebirds during the breeding/pre-laying stage to determine cue rate (i.e., how often an individual bird calls) during this phenological stage. Establishing cue rate and detection radius will be crucial in estimating species' densities using Dr. Johnston's method.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Develop habitat-based models to predict the abundance and distribution of shorebirds and assess the adaptability of shorebirds to habitat changes.

**POPULATION INVENTORY AND MONITORING:**

- Inventory alpine, boreal, and other poorly studied shorebird species.
- Conduct long-term population monitoring efforts (e.g., PRISM).
- Assess the utility of new technologies (e.g., Automated Recording Units, aerial drones, eBird) to determine shorebird presence and abundance.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Incorporate principles of good governance in research and outreach efforts.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).



*Waterfowl nest*

*Photo: Morgan Ziegenhorn*

## **#5 (BCR 3): Egg size and adult size variation through time at Utqiagvik, Alaska (2003-2024)**

*Study Species:* Dunlin, Pectoral Sandpiper, and Red Phalarope

*Study Location:* Utqiagvik, Alaska (71.29 N, 156.64 W)

*Principal Investigators:* Hunter Wells (Iowa State University), Richard Lanctot (U.S. Fish and Wildlife Service), Sarah Saalfeld (U.S. Fish and Wildlife Service), and Stephen Dinsmore (Iowa State University)

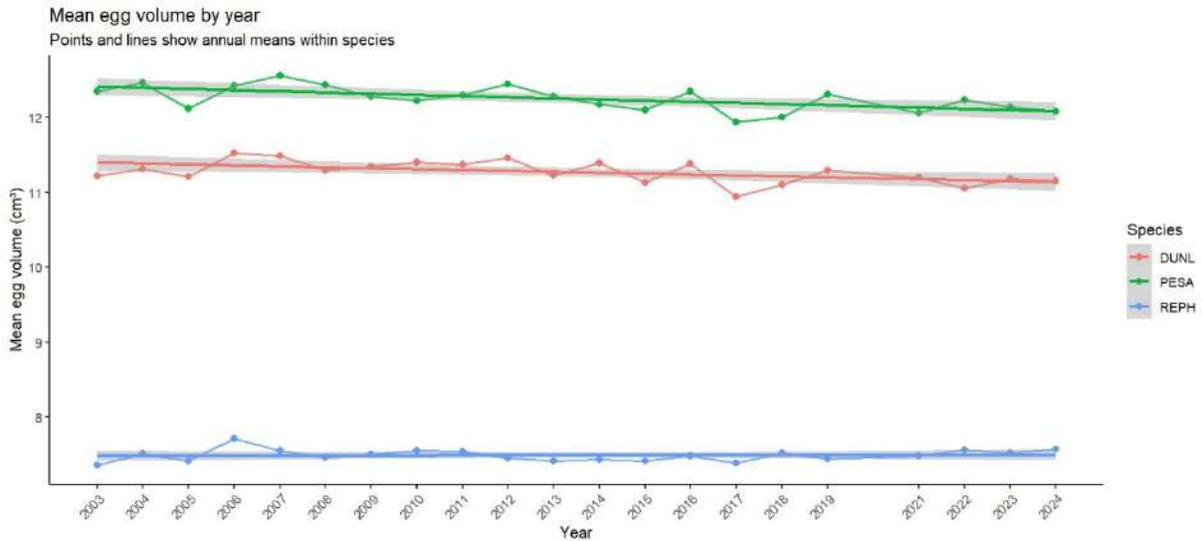
*Primary Contact:* Hunter Wells, Iowa State University, 2310 Pammel Dr., Science II Rm 039a, Ames, Iowa 50010, hwells@iastate.edu

### **Study Objectives**

- Quantify egg volume within and between years.
- Explore how changes in egg volume differ between species.
- Relate egg size variation to environmental conditions (temperature, snow cover, seasonality).
- Explore variation in morphological metrics (i.e. wing length, culmen length, etc.) within and between years.
- Explore how changes in morphological metrics differ between species.

### **Preliminary Results**

- Dunlin and Pectoral Sandpiper egg sizes seem to be significantly decreasing over the past two decades.
- Continuing to assess temperature, snow cover, and seasonality as exploratory variables that might explain egg size variation and/or shifts.
- Continuing to assess adult size objectives listed above.



***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.

**POPULATION INVENTORY AND MONITORING:**

- Conduct long-term population monitoring efforts (e.g., PRISM).

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).



*Successful capture*

*Photo: Eva Karkula*



*Nap time*

*Photo: Hunter Wells*



*Red Phalarope copulation*

*Photo: Hunter Wells*

## #6 (BCR 3): Quantifying the nutrient content of arctic shorebird prey

*Study Species:* Pectoral Sandpiper, Dunlin, and Red Phalarope

*Study Location:* Utqiagvik, Alaska (71.266 N, 156.630 W)

*Principal Investigators:* Julia Berliner (University of Texas Austin, Department of Integrative Biology), Richard Lanctot (U.S. Fish and Wildlife Service), Amanda Koltz (University of Texas Austin, Department of Integrative Biology)

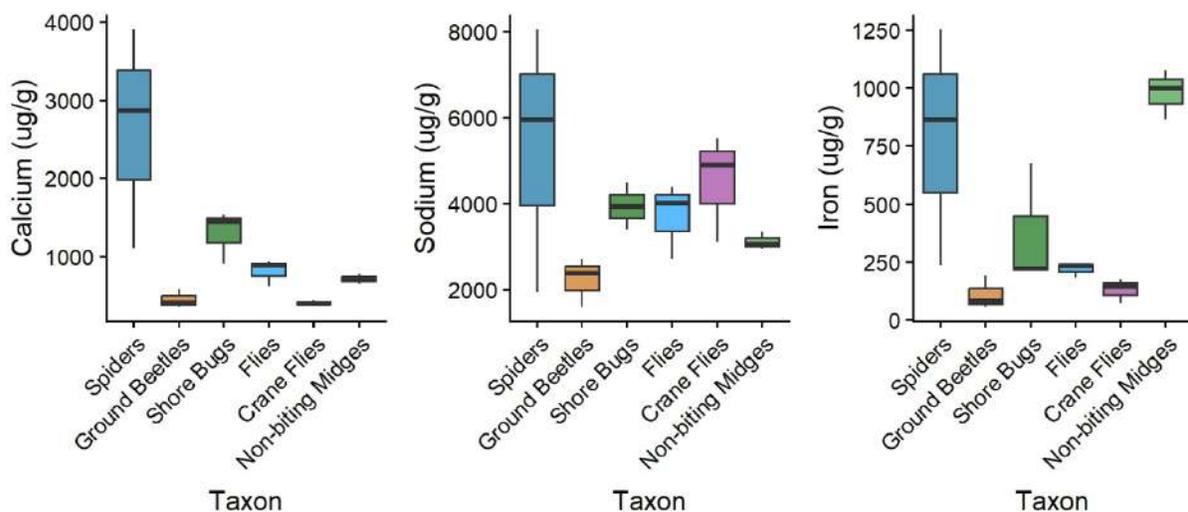
*Primary Contact:* Julia Berliner, University of Texas Austin Department of Integrative Biology, 1510 W North Loop Blvd, Apt 1021, Austin, TX 78756, julia.berliner@utexas.edu

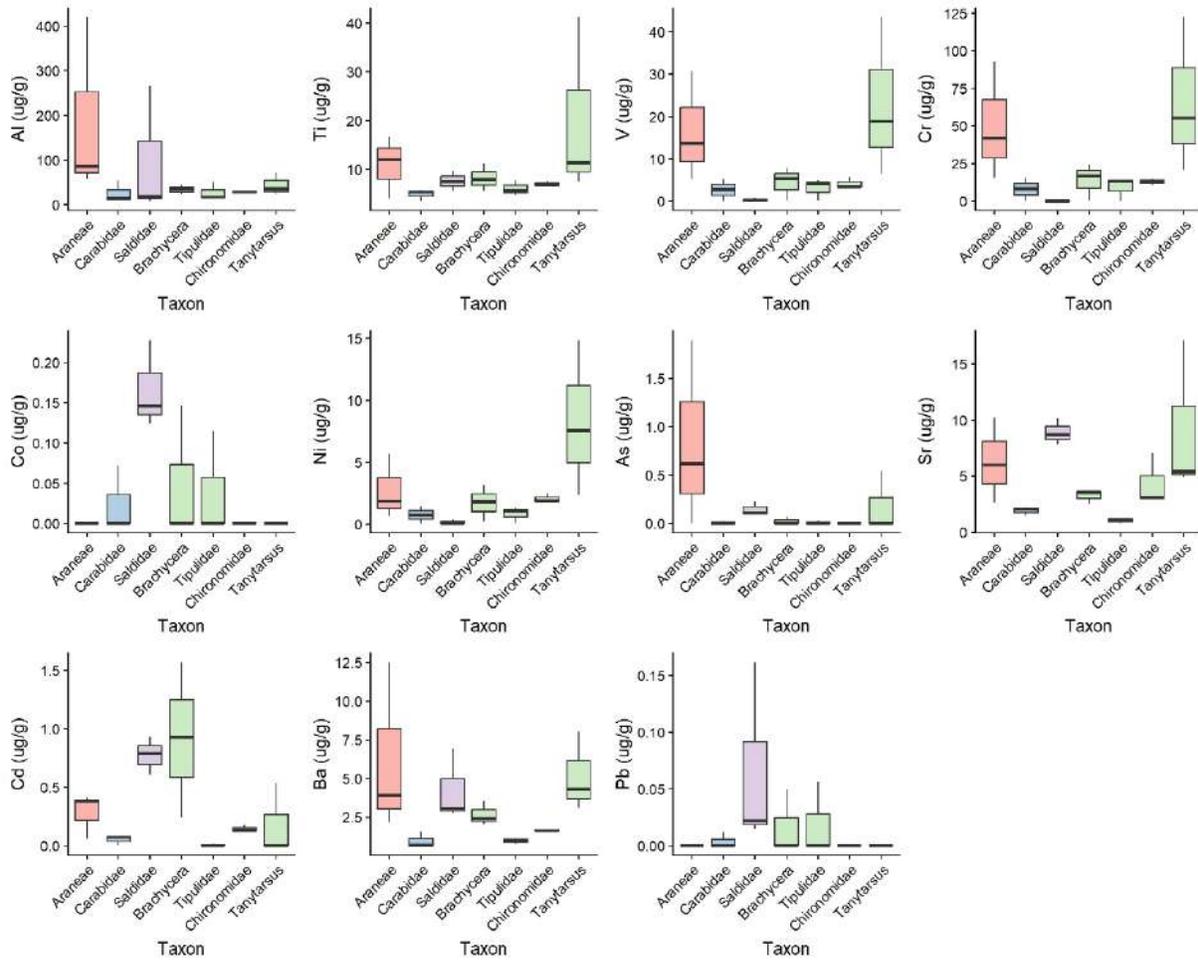
### Study Objectives

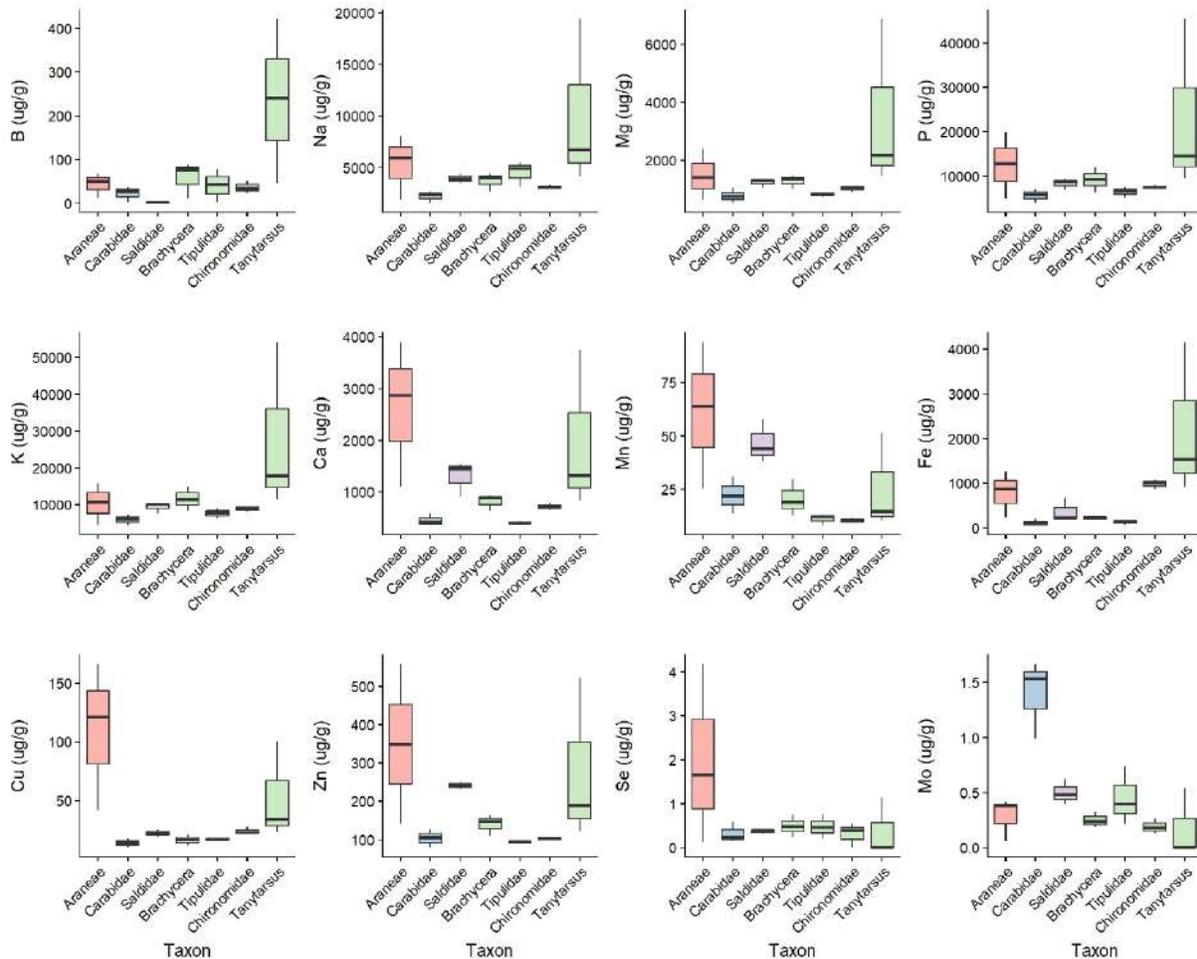
- Use DNA metabarcoding of shorebird fecal samples to identify important prey across species (Pectoral Sandpiper, Dunlin, and Red Phalarope) and across reproductive stages (pre-laying, laying, and incubating).
- Quantify the concentrations of micronutrients (for example, calcium, sodium, iron, etc.) and contaminants such as heavy metals of important arthropod prey for shorebirds.
- Examine the fatty acid profiles of important arthropod prey for shorebirds.
- Using my results and a long-term arthropod survey dataset, estimate how the nutrients available to Arctic-breeding shorebirds vary throughout the season and year-to-year.

### Preliminary Results

- The concentration of micronutrients and contaminants varies across seven common arctic arthropod groups.







**Alaska Shorebird Conservation Plan II Objectives Reached:**

**RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.
- Develop habitat-based models to predict the abundance and distribution of shorebirds and assess the adaptability of shorebirds to habitat changes.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).



*In the field*

*Photo: Julia Berliner*



*Shorebird nest*

*Photo: Julia Berliner*

## **#7 (BCR 3): Reproductive ecology of shorebirds at Utqiagvik, Alaska in 2025**

*Study Species:* Dunlin, American Golden-Plover, Semipalmated Sandpiper, Long-billed Dowitcher, Red Phalarope, Red-necked Phalarope, Baird's Sandpiper, Pectoral Sandpiper, Western Sandpiper, Buff-breasted Sandpiper, White-rumped Sandpiper, and Ruddy Turnstone

*Study Location:* Utqiagvik, Alaska (71.29 N, 156.64 W)

*Principal Investigators:* Richard Lanctot (U.S. Fish and Wildlife Service) and Sarah Saalfeld (U.S. Fish and Wildlife Service)

*Primary Contact:* Richard Lanctot, U.S. Fish and Wildlife Service, 1011 East Tudor Rd, MS 201, Anchorage, AK, 99503, richard\_lanctot@fws.gov

### **Study Objectives**

- Collect baseline data on temporal and spatial variability of shorebird diversity and abundance.
- Collect information on nest initiation and effort, replacement clutch laying, clutch and egg size, nest and chick survival, and other demographic traits of Arctic-breeding shorebirds.
- Establish a marked population of as many shorebird species as possible that will allow us to estimate adult survival, mate and site fidelity, and natal philopatry.
- Relate weather, food availability, and predator and prey abundances to shorebird productivity.
- Collaborate with others to support Arctic-wide data collection and graduate student work.

### **Preliminary Results**

- In 2025, we conducted the 23<sup>rd</sup> year of a long-term shorebird study at Utqiagvik, Alaska.
- We monitored 325 nests and captured and banded 148 adult shorebirds and 48 chicks to estimate nest and adult survival rates.
- We continue to collect annual data on timing of snow melt, lemming, and predator abundances.
- We continue to collect data for other Arctic-wide collaborations including the "Interaction Working Group" and a Bird Vocalization project which used automated recording units to assess shorebird abundance (see Ziegenhorn summary).
- We hosted the 3<sup>rd</sup> annual Arctic Shorebird Festival in Utqiagvik, Alaska.
- We tested the use of 3 GPS tags made by Druid Technologies for deployment on Dunlin working with Jun Hosoya of the Japanese Bird Banding Association.

- We tested the use of 3 GPS GSM tags made by Ornitella for deployment on Pectoral Sandpipers working with Steve Dinsmore of Iowa State University.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.
- Determine migratory timing, routes, and site use of shorebirds.
- Assess the effects of climate change on shorebird demography.

**POPULATION INVENTORY AND MONITORING:**

- Conduct long-term population monitoring efforts (e.g., PRISM).
- Assess the utility of new technologies (e.g., Automated Recording Units, aerial drones, eBird) to determine shorebird presence and abundance.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).



*Tundra birding*

*Photo: U.S. Fish and Wildlife Service volunteer*



*Crew photo*

*Photo: U.S. Fish and Wildlife Service volunteer*

## #8 (BCR 3): 2025 Utqiagvik Migratory Bird Festival

*Study Species:* Semipalmated Plover, Black-bellied Plover, American Golden-Plover, Bar-tailed Godwit, Whimbrel, Lesser Yellowlegs, Red-necked Phalarope, Red Phalarope, Long-billed Dowitcher, Stilt Sandpiper, Common Snipe, Ruddy Turnstone, Black Turnstone, Dunlin, Semipalmated Sandpiper, Western Sandpiper, Baird's Sandpiper, Pectoral Sandpiper, Buff-breasted Sandpiper, Tundra Swan, Greater White-fronted Goose, Lesser Snow Goose, Canada Goose, Black Brant, Mallard, Green-winged Teal, American Wigeon, Northern Pintail, Northern Shoveler, Greater Scaup, Lesser Scaup, Common Eider, King Eider, Spectacled Eider, Steller's Eider, Surf Scoter, Long-tailed Duck, and Red-breasted Merganser

*Study Location:* Utqiagvik, Alaska (71.2906 N, 156.7886 W)

*Principal Investigators:* Lindsay Hermanns (National Park Service), Lauren Cusimano (Audubon Alaska), Hunter Wells (Iowa State University), Rick Lanctot (U.S. Fish and Wildlife Service), and Arin Underwood (Alaska Department of Fish and Game)

*Primary Contact:* Lindsay Hermanns, National Park Service/Audubon, 142 High Street, Fayetteville, WV, 25840, lindsayfayeh@gmail.com

### Study Objectives

- To expand education and outreach to North Slope Borough communities focused on shorebird and migratory birds.
- To share Alaska Native experiences and knowledge regarding shorebirds in Alaska.

### Results

- We hosted the third successful collaborative festival in June 2025.

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.

#### **HABITAT MANAGEMENT AND PROTECTION:**

- Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.

#### **ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.

- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.
- Promote shorebird education to youth via the Shorebird Sister Schools Program.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.
- Incorporate principles of good governance in research and outreach efforts.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).
- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.
- Coordinate and participate in international, national, and other regional shorebird conservation planning efforts (e.g., Pacific Americas Shorebird Conservation Strategy, Atlantic Flyway Shorebird Initiative).

## ANNUAL SUMMARIES

### BIRD CONSERVATION REGION 4

Northwestern Interior Forest - Formerly Central Alaska with Cook Inlet included from Southcoastal Alaska: This region is an extensive (278,800 square-miles; 722,000 km<sup>2</sup>) patchwork of ecological types. Sub-regions include A) Interior Highlands and Ogilvie Mountains, B) Interior Forested Lowlands and Uplands, Interior Bottomlands, and Yukon Flats, C) Alaska Range, Wrangell Mountains, and Copper Plateau, and D) Cook Inlet. In the interior, winters are cold (average minimums -10 °F to -31 °F; -18 °C to -35 °C) and summers are warm (average maximum 63 °F to 72 °F; 17 °C to 22 °C). The Cook Inlet region has both maritime and continental influences and the state's most populous region, two-thirds of Alaska's population reside here, enjoys a mild year-round climate. A mosaic of vegetation communities arise from the interplay of elevation, permafrost, surface water, fire, and aspect. All forest types (needleleaf, deciduous, and mixed) are found in the region and are dominated by white spruce, black spruce, poplars, and paper birch. Tall shrub communities occur along rivers, drainages, and near treeline. Bogs, consisting of low shrubs and shrub-graminoid communities, are common in the lowlands. Alpine dwarf scrub communities are common in Interior Highlands and throughout mountainous regions; highest elevations are generally devoid of vegetation. Despite the varied ecoregions, many bird species are shared among the regions. Lowlands, bottomlands and flats harbor many species of migrating and breeding waterfowl (e.g., Northern Pintail, Northern Shoveler, Green-winged Teal) and swans. These ecoregions, combined with forested lowlands and uplands support breeding shorebirds such as Greater and Lesser Yellowlegs, Solitary and Spotted Sandpipers, and Common Snipe. American Golden-Plovers and Surf-birds are found in alpine habitats in Interior Highland and mountainous ecoregions. The unvegetated intertidal area of Cook Inlet has recently been identified, not only as a major spring stopover site for Western Sandpipers and Dunlins, but also as the primary wintering site for the nominate form of Rock Sandpiper (*C. p. ptilocnemis*). Significant numbers of Long- and Short-billed Dowitchers and Hudsonian Godwits stop in upper Cook Inlet during migration as do Wrangel Island Snow Geese during the spring. A suite of passerines inhabit forest, scrub, and graminoid communities in the region. Black-capped and Boreal Chickadees, Ruby-crowned Kinglets, Swainson's Thrushes, Yellow-rumped Warblers and Dark-eyed Juncos are common forest species. Tall shrub communities host White-crowned, American Tree, and Fox Sparrows, Wilson's and Yellow Warblers, Gray-cheeked Thrushes, and Common Redpolls, among others. At high elevations, Horned Lark and Lapland Longspur are common breeders. Information derived from Boreal Partners in Flight Bird Conservation Areas | U.S. Geological Survey (usgs.gov).



## **#9 (BCR 4): Kachemak Bay shorebird monitoring project**

*Study Species:* All shorebirds

*Study Location:* Kachemak Bay (59.73 N, 151.14 W), Anchor River (59.78 N, 151.85 W) and Kasilof River (60.39 N, 151.30 W).

*Principal Investigators:* George Matz (Kachemak Bay Birders), plus 72 volunteers in 2025 who participated in one or more monitoring sessions

*Primary Contact:* George Matz, Kachemak Bay Birders, 55495 Stuart Ave., Homer AK 99603, geomatz41@gmail.com

### **Study Objectives**

- The long-term objective for this citizen science project are to attain a better understanding of the status of shorebird populations in Kachemak Bay as well as the intertidal areas of the Anchor and Kasilof Rivers, particularly during spring migration. Also, volunteer participation provides local birders with more opportunities to observe and enjoy shorebirds.
- Secondary objectives are:
  - To contribute information that might be useful to others assessing shorebird populations across the entire Pacific Flyway.
  - To use the monitoring data to help protect shorebird populations and habitat on the western side of the Kenai Peninsula.

### **Preliminary Results**

- This year at six Kachemak Bay monitoring sites we observed 23 species of shorebirds and counted 25,516 individual shorebirds.
- At the mouth of the Anchor River, this year we saw 17 species of shorebirds and counted 766 individual shorebirds.
- At the mouth of the Kasilof River, this year we saw 18 species of shorebirds and counted 4,684 individual shorebirds.

Table 1. 2025 Kachemak Bay observations

SPECIES	April				May					Total
	12	17	22	27	2	7	12	17	22	
Semipalmated Plover	-	-	-	4	2	70	70	42	33	221
Pacific Golden Plover	-	-	-	-	-	4	-	-	1	5
Black-bellied Plover	-	2	14	16	48	25	1	3	5	114
Black Oystercatcher	-	-	2	6	4	-	-	-	-	12
Greater Yellowlegs	-	1	4	41	9	12	7	12	5	91
Lesser Yellowlegs	-	-	-	1	-	-	3	1	-	5
Yellowlegs sp.	-	-	-	-	-	-	-	-	2	2
Whimbrel	-	-	-	3	9	6	1	4	12	35
Hudsonian Godwit	-	-	-	-	-	-	-	2	-	2
Marbled Godwit	-	-	-	-	-	3	5	-	-	8
Wandering Tattler	-	-	-	-	-	-	-	35	4	39
Surfbird	-	-	-	14	45	67	-	-	-	126
Ruddy Turnstone	-	-	-	-	-	-	1	15	7	23
Black Turnstone	-	-	-	-	-	2	-	2	-	4
Western Sandpiper	-	-	-	11	306	5,463	2,765	10,780	166	19,491
Least Sandpiper	-	-	-	-	16	146	60	41	5	268
Semipalmated Sandpiper	-	-	-	-	-	-	-	13	1	14
LESA/WESA/SESA (peeps)	-	-	-	-	17	2,065	8	280	29	2,399
Sanderling	-	-	-	-	1	1	1	-	-	3
Pectoral Sandpiper	-	-	-	-	-	-	-	15	-	15
Dunlin	8	2	-	39	418	1,021	603	258	1	2,350
Rock Sandpiper	50	5	1	-	-	-	-	-	-	56
Short-billed Dowitcher	-	-	-	3	4	84	24	43	1	159
Long-billed Dowitcher	-	-	-	-	-	-	2	13	-	15
Dowitcher sp.	-	-	-	-	6	4	41	7	-	58
Wilson's Snipe	-	-	-	-	-	-	-	1	-	1
<b>Total</b>	<b>58</b>	<b>10</b>	<b>21</b>	<b>138</b>	<b>885</b>	<b>8,973</b>	<b>3,592</b>	<b>11,567</b>	<b>272</b>	<b>25,516</b>

Table 2. 2025 Anchor River observations

SPECIES	April				May				Total	
	12	17	22	27	2	7	12	17		22
Semipalmated Plover							10	5		15
Pacific Golden Plover					3		2			5
Black-bellied Plover				1	7	7	7			22
Greater Yellowlegs		1	2	17	18	10	4	10	6	68
Lesser Yellowlegs							1			1
Whimbrel			1	2	7	2	15	5	2	34
Hudsonian Godwit						7	1	1	1	10
Marbled Godwit							2			2
Wandering Tattler							1			1
Black Turnstone						1			1	2
Western Sandpiper					6	41	50	40	24	161
Least Sandpiper						8	2	10	1	21
Semipalmated Sandpiper							30	1		31
Pectoral Sandpiper								4	3	7
Dunlin				8	6	167	5	6	9	201
Red Knot							1			1
Short-billed Dowitcher						9	14	24	2	49
<b>Total</b>	-	1	3	28	73	252	145	195	69	766

Table 3. 2025 Kasilof River observations

SPECIES	April				May				Total	
	12	17	22	27	2	7	12	17		22
Black Oystercatcher						1				1
Black-bellied Plover		3	1	1	1	1	2			9
Pacific Golden Plover			1							1
Semipalmated Plover							1			1
Whimbrel				2	1		36		4	43
Bar-tailed Godwit							2		1	3
Hudsonian Godwit					1		4	1		6
Ruddy Turnstone									2	2
Surfbird									5	5
Dunlin			1		3	700	350	40	3	1,097
Pectoral Sandpiper							30	1		31
Semipalmated Sandpiper							1	20	2	23
Western Sandpiper					9	2,100	350	450	52	2,961
Short-billed Dowitcher					25	67	110	120	88	410
Long-billed Dowitcher							50	2		52
Wilson's Snipe			2	2	2		1	2	1	10
Greater Yellowlegs		1	1	1	4	1	2		1	11
Lesser Yellowlegs						2	5	6	5	18
<b>Total</b>	-	4	6	6	46	2,872	944	642	164	4,684

# Alaska Shorebird Group 2025

Table 4. 2009-2025 Kachemak Bay observations

Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average
Western Sandpiper	3,229	4,996	4,100	16,375	7,964	4,000	2,267	1,403	7,225	14,508	2,941	14,011	4,638	9,889	11,509	11,084	19,491	8,214
LESA/WESA/SESA (peeps)	104	803	3,336	844	5,305	987	306	6,269	360	404	922	1,826	1,149	1,504	530	806	2,399	1,638
Red-necked Phalarope	1,630	1,500	5,152	1,501	703	3,006	1,503	39	102	1,025	2,513	102	1,014	16	60	1	-	1,169
Dunlin	1,097	561	1,283	1,205	2,548	1,530	826	508	590	928	579	1,156	641	743	476	1,551	2,350	1,092
Surfbird	292	110	574	2,919	748	2,644	2,111	1,335	1,186	715	850	350	2,740	491	30	421	126	1,038
Least Sandpiper	136	245	219	103	128	195	168	245	102	164	66	634	407	350	404	127	268	233
Semipalmated Plover	194	203	197	142	92	251	273	270	246	322	204	205	174	189	195	135	221	207
Rock Sandpiper	90	405	482	6	4	6	6	4	47	12	3	597	688	4	217	506	56	184
Black-bellied Plover	179	315	282	354	221	114	210	107	80	135	106	82	132	61	199	145	114	167
Dowitcher sp.	99	82	57	76	344	49	65	17	14	139	176	55	128	130	6	67	58	92
Black Turnstone	81	373	121	71	21	56	352	55	122	92	22	6	52	16	2	1	4	85
Greater Yellowlegs	24	36	59	68	90	24	39	44	58	59	88	64	108	74	234	64	91	72
Short-billed Dowitcher	125	-	33	76	18	15	-	20	57	24	2	17	37	78	106	117	159	52
Whimbrel	10	22	27	28	65	26	28	43	51	25	27	204	153	17	24	21	35	47
Semipalmated Sandpiper	1	5	3	34	-	13	33	3	10	10	-	613	10	5	7	5	14	45
Wandering Tattler	13	56	30	18	62	39	39	58	58	55	28	5	43	12	22	8	39	34
Pacific Golden Plover	5	42	5	95	96	17	4	23	13	16	13	42	3	91	72	38	5	34
Pectoral Sandpiper	-	7	-	1	146	98	11	-	15	11	40	26	14	15	-	19	15	25
Long-billed Dowitcher	-	-	15	1	22	36	-	1	37	7	3	126	49	7	9	31	15	21
Black Oystercatcher	11	11	13	8	2	8	18	15	-	7	22	7	17	18	-	21	12	11
Marbled Godwit	3	12	1	7	-	8	5	5	11	29	4	6	4	14	5	3	8	7
Lesser Yellowlegs	-	26	3	15	9	4	11	1	5	13	-	2	1	-	7	3	5	6
Ruddy Turnstone	1	10	1	2	9	2	6	9	7	3	5	2	5	5	7	2	23	6
Black-bellied/Golden Plover	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79	-	-	5
Yellowlegs sp.	2	18	-	2	2	-	5	-	15	1	2	4	-	8	18	-	2	5
Red Knot	-	-	2	-	-	1	1	-	-	-	-	67	4	-	-	2	-	5
Hudsonian Godwit	18	-	2	-	3	3	-	-	1	3	1	6	8	8	-	9	2	4
Wilson's Snipe	1	5	1	1	-	-	-	-	-	-	3	10	6	12	-	4	1	3
Sanderling	-	1	8	8	-	2	-	-	-	1	1	3	-	-	-	-	3	2
Bar-tailed Godwit	3	-	-	4	6	-	-	1	1	1	-	-	-	2	4	-	-	1
American Golden-Plover	3	1	1	1	10	-	-	-	-	-	2	-	1	-	-	-	-	1
Baird's Sandpiper	1	-	-	6	-	-	-	1	-	-	-	-	-	-	-	-	-	0.5
Spotted Sandpiper	3	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	0.4
Bristle-thighed Curlew	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	0.3
Red Phalarope	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	0.3
Solitary Sandpiper	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	0.1
Killdeer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	0.1
<b>Total Individuals</b>	<b>7,355</b>	<b>9,845</b>	<b>16,007</b>	<b>23,972</b>	<b>18,623</b>	<b>13,139</b>	<b>8,287</b>	<b>10,477</b>	<b>10,413</b>	<b>18,709</b>	<b>8,623</b>	<b>20,229</b>	<b>12,226</b>	<b>13,761</b>	<b>14,223</b>	<b>15,191</b>	<b>25,516</b>	<b>14,506</b>
<b>Total Species</b>	<b>24</b>	<b>23</b>	<b>25</b>	<b>27</b>	<b>23</b>	<b>25</b>	<b>21</b>	<b>23</b>	<b>22</b>	<b>24</b>	<b>23</b>	<b>26</b>	<b>25</b>	<b>24</b>	<b>21</b>	<b>24</b>	<b>23</b>	<b>24</b>

Table 5. 2013-2025 Anchor River observations

SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average
Semipalmated Plover	14	13	17	10	28	50	7	9	13	16	49	16	15	20
American Golden-Plover	-	-	2	-	-	1	-	-	-	-	2	-	-	0.4
Pacific Golden Plover	10	1	8	7	16	32	21	30	6	10	4	16	5	13
Black-bellied Plover	40	48	40	16	19	16	10	19	18	20	59	30	22	27
Plover sp.	15	-	-	-	-	-	-	-	-	-	-	-	-	1
Black Oystercatcher	1	-	-	-	-	-	-	-	-	-	-	-	-	0.1
Greater Yellowlegs	44	39	42	50	54	64	51	62	124	108	184	74	68	74
Lesser Yellowlegs	20	20	2	1	7	5	-	1	-	5	1	2	1	5
Yellowlegs sp.	45	-	-	1	-	-	-	-	2	-	-	-	-	4
Spotted Sandpiper	-	-	6	5	1	2	2	9	5	8	6	2	-	4
Whimbrel	75	29	2	8	9	20	27	8	25	29	62	68	34	30
Bar-tailed Godwit	-	-	-	-	-	-	-	-	-	-	2	-	-	0.2
Hudsonian Godwit	1	-	-	2	-	3	-	1	1	3	-	1	10	2
Marbled Godwit	1	-	-	-	1	1	1	-	2	3	4	-	2.0	1
godwit sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	0.1
Wandering Tattler	1	1	5	-	-	5	1	-	-	3	-	-	1.0	1
Surfbird	-	-	1	-	-	-	-	-	2	-	1	-	-	0.3
Ruddy Turnstone	1	-	-	-	4	3	-	-	1	3	-	-	-	1
Black Turnstone	3	20	-	18	5	24	-	3	42	17	3	1	2	11
Western Sandpiper	606	135	204	13	219	799	80	1,322	484	436	835	586	161	452
Least Sandpiper	10	28	24	17	12	19	3	6	7	4	213	18	21	29
Semipalmated Sandpiper	8	6	3	5	8	8	1	-	15	5	5	2	31	7
LESA/WESA/SESA (peeps)	29	32	14	41	1,364	-	3	36	69	319	74	327	135	188
Sanderling	-	-	-	-	-	3	-	3	-	2	-	-	-	1
Pectoral Sandpiper	3	9	-	1	6	20	3	3	8	-	61	10	7	10
Dunlin	67	27	24	9	47	69	41	22	54	12	211	166	201	73
Rock Sandpiper	16	22	1	-	-	2	-	89	-	4	-	-	-	10
Red Knot	-	3	-	-	-	2	-	-	-	-	-	-	1	0.5
Short-billed Dowitcher	15	27	5	4	14	4	11	2	20	19	35	4	49	16
Long-billed Dowitcher	18	7	3	-	2	3	2	-	3	-	-	16	-	4
Dowitcher sp.	19	8	15	4	3	4	8	22	28	45	5	1	-	12
Wilson's Snipe	3	1	-	-	-	1	-	1	1	1	-	-	-	1
Red-necked Phalarope	-	5,000	400	-	-	2	1	-	-	-	-	-	-	416
<b>Total Individuals</b>	<b>1,065</b>	<b>5,476</b>	<b>818</b>	<b>212</b>	<b>1,819</b>	<b>1,162</b>	<b>273</b>	<b>1,648</b>	<b>930</b>	<b>1,073</b>	<b>1,816</b>	<b>1,340</b>	<b>766</b>	<b>1,415</b>
<b>Total Species</b>	<b>21</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>25</b>	<b>16</b>	<b>17</b>	<b>19</b>	<b>20</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>18</b>

Table 6. 2013-2025 Kasilof River observations

SPECIES	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average
Black Oystercatcher	-	-	-	-	-	-	-	-	-	-	2		1	0.2
Semipalmated Plover	6	3	10	5	5	32	7	22	7	4	5	3	1	8
Killdeer	-	-	-	-	1	-	-	-	1		1			0.2
American Golden-Plover	5	-	-	-	-	-	-	-	-	2				1
Pacific Golden Plover	1	2	7	8	1	1	8	3	4	11		1	1	4
Black-bellied Plover	59	19	40	70	64	80	38	26	11	11	77	44	9	42
Greater Yellowlegs	34	16	17	18	47	9	12	29	99	43	233	13	11	45
Lesser Yellowlegs	8	16	6	13	16	2	6	34	6	12	19	16	18	13
Bristle-thighed Curlew	-	-	-	-	-	-	-	-	-	-	-	1		0.1
Whimbrel	43	58	8	6	5	18	18	7	32	7	9	54	43	24
Bar-tailed Godwit	1	-	-	-	-	1	-	1	-	3	1	3	3	1
Hudsonian Godwit	25	8	12	21	14	10	6	30	10	15	11	7	6	13
Marbled Godwit	-	2	-	1	-	6	4	2	2	1	2	1		2
Godwit sp.									4					0.3
Surfbird	-	-	-	-	-	-	-	7	3			4	5	1
Ruddy Turnstone				2	1	-	-	2	-		1		2	1
Black Turnstone	-	-	-	-	-	1	-	-	-					0.1
Western Sandpiper	16,950	588	4,634	2,652	2,557	14,755	6,721	16,588	6,827	5,760	6,712	4,272	2,961	7,075
Least Sandpiper	209	5	-	2	4	41	4	3	45	23	13	1		27
Semipalmated Sandpiper	8	-	1	14	2	4	21	71	50		3	1	23	15
LESA/WESA/SESA							1	-	3			1		0.4
Sanderling	-	-	1	2	-	-	1	2	-		2			1
Pectoral Sandpiper	7	2	2	1	-	20	26	1	20	6	33	50	31	15
Dunlin	3,338	60	459	523	133	1,462	1,872	1,329	375	968	702	551	1,097	990
Rock Sandpiper	-	-	-	-	2	9	-	4	-			2		1
Baird's Sandpiper	1	-	-	1	-	-	-	-	-					0.2
Red Knot	-	-	2	5	-	-	1	4	-		1	3		1
Short-billed Dowitcher	620	174	195	378	158	429	122	310	277	200	224	117	410	278
Long-billed Dowitcher	42	-	-	-	-	4	-	2	12		2	2	52	9
Dowitcher sp.	3	-	-	-	-	-	-	-	21					2
Wilson's Snipe	3	3	4	5	4	4	7	6	11	7	6	4	10	6
Red-necked Phalarope	-	2	-	-	-	1	-	-	-	-	-			0.2
<b>Total Individuals</b>	<b>21,363</b>	<b>958</b>	<b>5,398</b>	<b>3,727</b>	<b>3,014</b>	<b>16,889</b>	<b>8,875</b>	<b>18,483</b>	<b>7,820</b>	<b>7,073</b>	<b>8,059</b>	<b>5,151</b>	<b>4,684</b>	<b>8,576</b>
<b>Total Species</b>	<b>19</b>	<b>15</b>	<b>15</b>	<b>19</b>	<b>16</b>	<b>20</b>	<b>17</b>	<b>22</b>	<b>18</b>	<b>16</b>	<b>21</b>	<b>21</b>	<b>18</b>	<b>18</b>

More specific data, such as counts by monitoring site and dates, are available at:

<https://kachemakbaybirders.org/blog/category/citizen-science/shorebird-monitoring/>

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Assess the effects of climate change on shorebird demography.

#### **POPULATION INVENTORY AND MONITORING:**

- Conduct long-term population monitoring efforts (e.g., PRISM).

**HABITAT MANAGEMENT AND PROTECTION:**

- Apply abundance and distribution information to identify key shorebird habitats and sites.
- Support land acquisitions, easements, restoration efforts, and conservation designations (e.g., the Western Hemisphere Shorebird Reserve Network, East Asian–Australasian Shorebird Reserve Network, Ramsar Convention on Wetlands, and Important Bird Areas Programs) for key shorebird sites.
- Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.
- Incorporate principles of good governance in research and outreach efforts.

**INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council’s Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.



*2025 shorebird monitoring at Kachemak Bay*

*Photo: George Matz*



*2025 shorebird monitoring at Kachemak Bay*

*Photo: George Matz*

## **#10 (BCR 4): Kachemak Bay Shorebird Festival**

*Study Species:* All shorebirds - bird of the year was the Surfbird

*Study Location:* Kachemak Bay Area (lots of water tours), Homer Spit, Beluga Slough Trail, Mud Bay (bottom of the Homer Spit)

*Principal Investigators:* Lora Haller (U.S. Fish and Wildlife Service, Alaska Maritime National Wildlife Refuge), Marcy Melville (Friends of AK National Wildlife Refuges), and many more

*Primary Contact:* Lora Haller, U.S. Fish and Wildlife Service, Alaska Maritime National Wildlife Refuge, 95 Sterling Hwy, Homer, AK 99603, lora\_haller@fws.gov

### **Study Objectives**

- The festival provides residents and visitors from around the globe with opportunities to watch wildlife and learn about shorebirds and their habitat needs. The festival is an example of "banking on wildlife" and demonstrates that wildlife habitat conservation can bring economic benefits to nearby communities. The Kachemak Bay Shorebird Festival has extended the visitor shoulder season in Homer and moved the traditional start of the season from Memorial Day to the beginning of May. The festival also provides opportunities for school children to learn about shorebirds and migration. Festival events occur around the Homer area, Kachemak Bay, and on public and private lands. The festival was started by local concerned citizens observing the local shorebirds and seeing the development of important areas. The festival helps people be aware of the birds and the habitats they depend on. Around 800-1,000 participate in the festival annually and 2026 will be the 34th year of the festival. For at least 20 years, approximately 50+ kids participate in becoming Junior and Teen Birders by participating in birding activities and earning awards. Many of the talks during the festival provide some of the latest shorebird information from scientists and experts. In 2025, the festival started to assist in raising funds for shorebird research. The festival through participants assisted in providing funds for surfbird tagging and aided researchers in local info on the population that hangs out in the area. Through the word of mouth and digital communication, birders and photographers came together to help the researchers know where the surfbirds hang out to allow the research to capture them for tagging.

### **Preliminary Results**

- Spread information and awareness of shorebirds and their habitats to visitors.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.

**HABITAT MANAGEMENT AND PROTECTION:**

- Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.
- Support land acquisitions, easements, restoration efforts, and conservation designations (e.g., the Western Hemisphere Shorebird Reserve Network, East Asian–Australasian Shorebird Reserve Network, Ramsar Convention on Wetlands, and Important Bird Areas Programs) for key shorebird sites.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.



*Shorebird volunteers at Mud Bay viewing station*

*Photo: Lora Haller*



*Shorebird walk*

*Photo: Sabine Simmons*



*Shorebird walk*

*Photo: Sabine Simmons*

## #11 (BCR 4): Assessing migratory connectivity and population structure in the Upland Sandpiper

*Study Species:* Upland Sandpiper

*Study Location:* Sites across the Upland Sandpiper's North American breeding range: Delta Junction, Alaska (64.040 N, 145.734 W); Whitehorse, Yukon (60.842 N, 135.813 W); South Allan, Saskatchewan (51.765 N, 106.054 W); Saint-Marc-des-Carières, Quebec (46.653 N, 72.035 W); Utopia, New Brunswick (45.167 N, 66.716 W); and Deblois, Maine (44.723 N, 68.098 W)

*Principal Investigators:* Sydney-Marie Jones (University of Saskatchewan), Andres Rosales (University of Saskatchewan), Kirsty Gurney (Environment and Climate Change Canada), Ann McKellar (Environment and Climate Change Canada), Margaret Eng (Environment and Climate Change Canada), Jim Johnson (US Fish and Wildlife Service), Callie Gesmundo (US Fish and Wildlife Service), Zak Pohlen (US Fish and Wildlife Service), Pam Sinclair (Canadian Wildlife Service), Christian Friis (Canadian Wildlife Service), Yves Aubrey (Canadian Wildlife Service), Julie Paquet (Canadian Wildlife Service), Chris DeSorbo (Biodiversity Research Institute), and Kevin Regan (Biodiversity Research Institute)

*Primary Contact:* Sydney-Marie Jones, University of Saskatchewan, 112 Science Place, Saskatoon, SK Canada, S7N 5E2, [sydneymarie.jones@usask.ca](mailto:sydneymarie.jones@usask.ca)

### Study Objectives

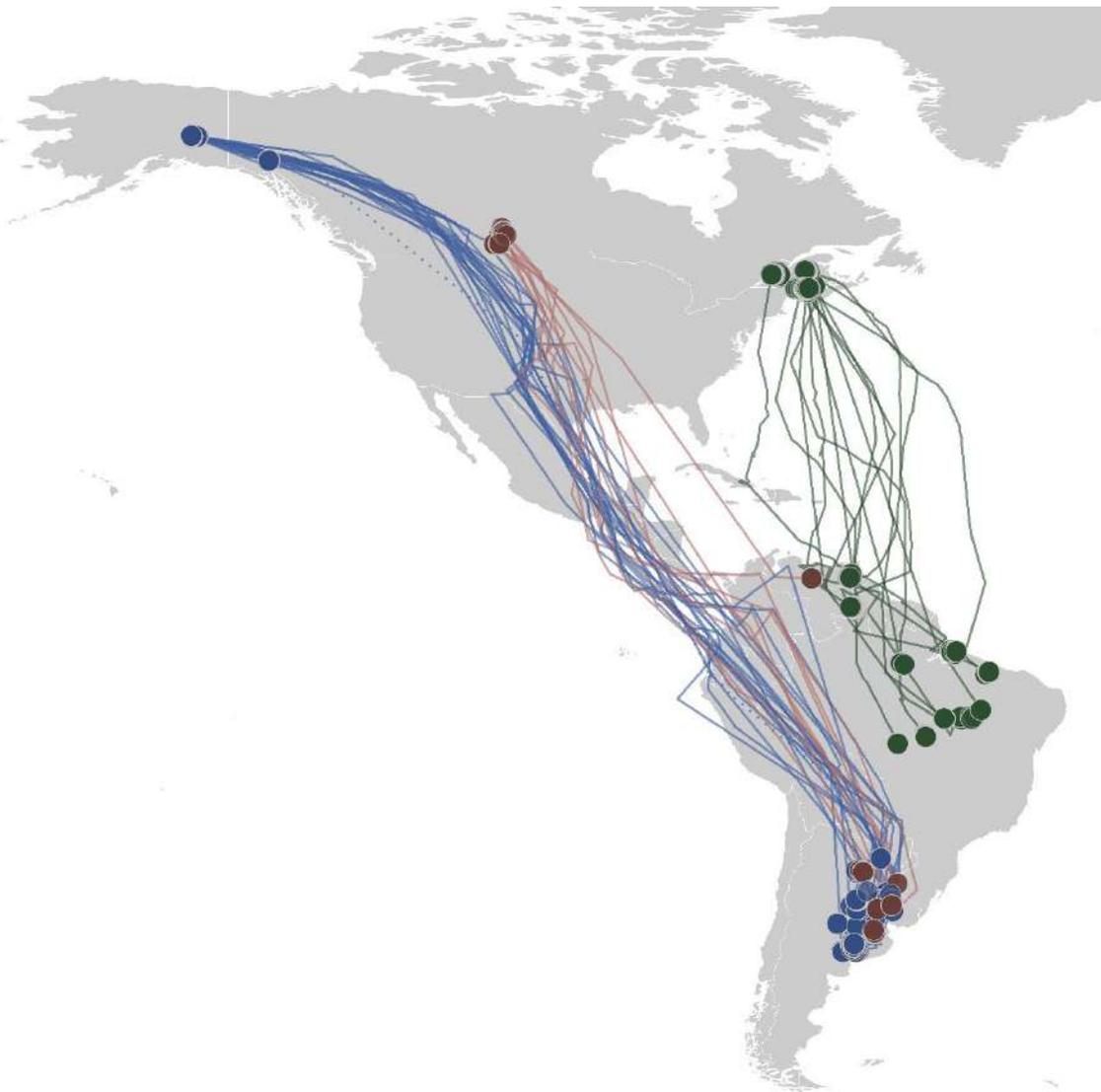
- Assess the strength of connection between breeding and nonbreeding populations of Upland Sandpiper.
- Identify geographic variation in migratory routes and timing, stopover sites, and nonbreeding areas.
- Assess genetic population structure across the Upland Sandpiper's breeding range.

### Results

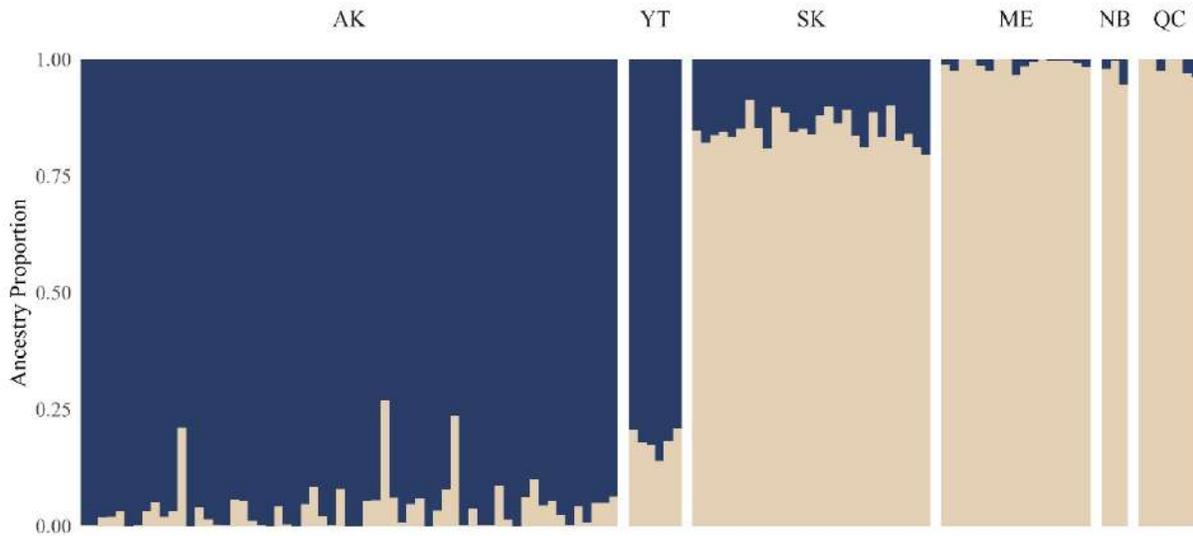
- From 2020-2024, we collected blood samples from 124 adults and deployed satellite transmitters (either Argos Doppler transmitters [2 g; Lotek Wireless Inc.] or PinPoint Argos GPS 75 transmitters [4g; Lotek Wireless Inc.]) on 84 breeding adults. Forty-two transmitters provided data for full southbound migrations, and 121 samples were used for further genetic analysis.
- Adults from western (Alaska, Yukon) and central (Saskatchewan) populations primarily migrated along the Midcontinent Flyway to nonbreeding areas in Argentina and Uruguay, making southbound stopovers of up to one month in the central U.S. Great Plains and Andes and shorter northbound stopovers along the Texas Coastal Plain.
- Adults from eastern (New Brunswick, Quebec, Maine) populations migrated over the Atlantic Ocean to distinct nonbreeding areas in eastern Venezuela, Guyana, and

central Brazil, with southbound stopovers in northern South America and northbound stopovers in the eastern United States.

- Breeding site fidelity was high: 96% (25 of 26) of individuals returned to within 8 km of the previous year's location (median=1.7 km).
- Genetic analysis revealed subtle but significant structure between western-breeding individuals and those breeding from Saskatchewan-eastward.
- Combined tracking and genetic data indicate migratory isolation of an eastern population and genetic differentiation of a disjunct western population.



*Southbound migratory routes of 42 Upland Sandpipers captured on breeding grounds from 2020-2024.*



*Ancestry proportions of Upland Sandpipers estimated using STRUCTURE genetic clustering. Each vertical bar represents one individual, grouped by breeding population. The analysis indicates two main genetic groups (K=2) across the breeding range, indicated by color.*

### **Alaska Shorebird Conservation Plan II Objectives Reached:**

#### **RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Identify and delineate potentially distinct populations of shorebirds breeding in Alaska.

#### **HABITAT MANAGEMENT AND PROTECTION:**

- Apply abundance and distribution information to identify key shorebird habitats and sites.
- Support land acquisitions, easements, restoration efforts, and conservation designations (e.g., the Western Hemisphere Shorebird Reserve Network, East Asian–Australasian Shorebird Reserve Network, Ramsar Convention on Wetlands, and Important Bird Areas Programs) for key shorebird sites.

#### **INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council’s Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.

## **#12 (BCR 4): Trends in boreal wetland birds and the value of citizen science in southcentral Alaska**

*Study Species:* Lesser Yellowlegs, Greater Yellowlegs, Solitary Sandpiper, Common Loon, Red-throated Loon, Pacific Loon, Rusty Blackbird, Olive-sided Flycatcher, Red-necked Grebe, Horned Grebe, Tree Swallow, and Violet-green Swallow

*Study Location:* Anchorage (61.0973 N, 149.8791 W), Joint Base Elmendorf-Richardson (61.2891 N, 149.7377 W), and the Matanuska-Susitna Valley (61.4863 N, 149.2504 W)

*Principal Investigators:* Arin Underwood (Alaska Department of Fish and Game), Katie Christie (Alaska Department of Fish and Game)

*Primary Contact:* Arin Underwood, Alaska Department of Fish & Game, 333 Raspberry Road, Anchorage, AK, 99518, arin.underwood@alaska.gov

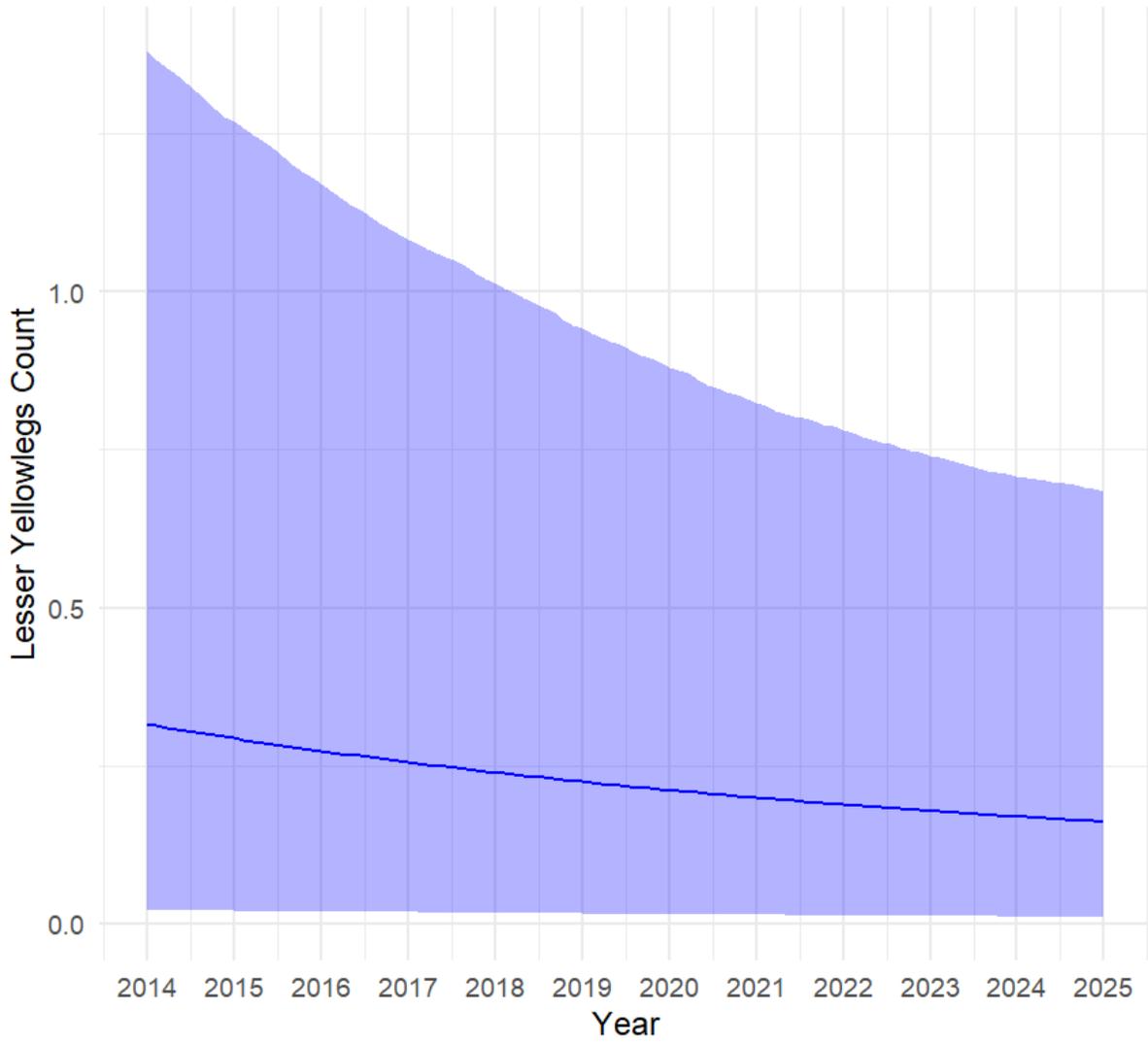
### **Study Objectives**

- Continue to coordinate the citizen science surveys of 50-60 wetlands per year in southcentral Alaska. Observers follow standardized protocols and visit wetlands 4 times during the breeding season.
- Use historical survey data from 2014-2025 to obtain abundance trends with parameters of survey distance and time, wetland area, distance to coast, highway presence, urban or rural, and habitat type.
- Obtain detection probability for study sites for a second year.
- Use social science surveys to explore how citizen science can be used beyond data collection as a tool for outreach and education.

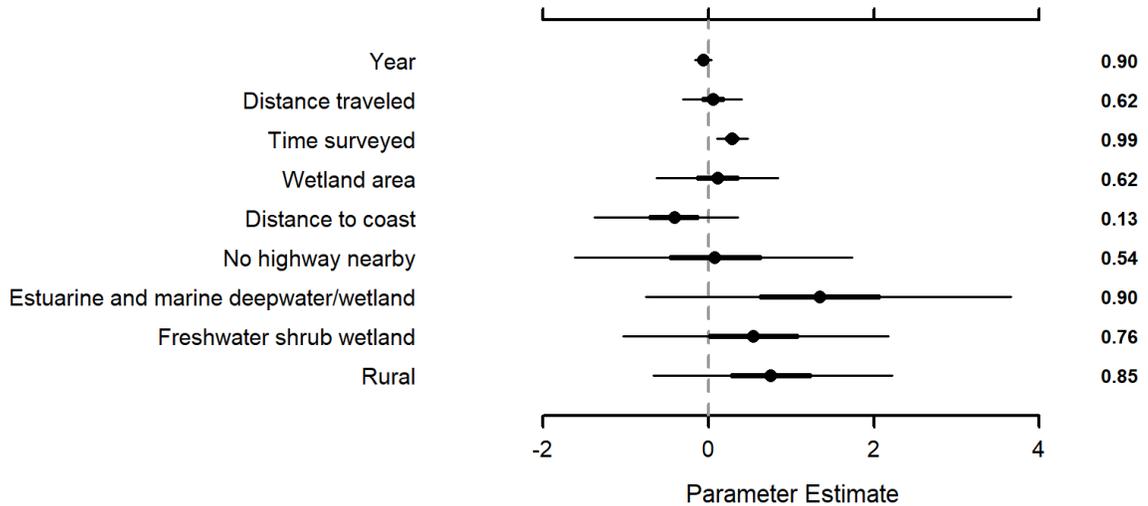
### **Preliminary Results**

- Citizen scientists successfully surveyed 53 target wetlands across Anchorage and the Mat-Su valley for bird species of conservation concern. A total of 33 citizen scientists participated in the program this spring.
- The Alaska Department of Fish and Game crew surveyed an additional 5 wetland sites and performed a second season of double observer surveys which showed similar detection probability from year to year.
- Preliminary results show a 90% chance that Lesser Yellowlegs abundance has decreased from 2014-2025 in the study area for the last week of May.
- A social science survey follow up was sent to volunteers who took the survey as prospective volunteers, to evaluate how their perspective/answers may have adjusted after volunteering with the program. Both volunteers reported an increase in conservation actions taken as well as confidence in sharing information about birds with others. Long-term volunteers report an increased confidence using eBird.

Lesser Yellowlegs abundance trend:



Parameter estimates for Lesser Yellowlegs abundance:



***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Conduct breeding ecology studies on species occupying alpine, boreal, or other rare or difficult-to-access habitats.

**POPULATION INVENTORY AND MONITORING:**

- Inventory alpine, boreal, and other poorly studied shorebird species.
- Conduct long-term population monitoring efforts (e.g., PRISM).

**HABITAT MANAGEMENT AND PROTECTION:**

- Apply abundance and distribution information to identify key shorebird habitats and sites.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.



*Looking for Lesser Yellowlegs at the Coastal Wildlife Refuge*

*Photo: Arin Underwood*



*Lesser Yellowlegs at the Coastal Wildlife Refuge*

*Photo: Arin Underwood*

## **#13 (BCR 4): Quantifying the multitude of environmental changes influencing the population dynamics of Hudsonian Godwits**

*Study Species:* Hudsonian Godwit

*Study Location:* Beluga (61.21 N, 151.03 W)

*Principal Investigators:* Nathan Senner (University of Massachusetts Amherst) and Feipeng Huang (University of Massachusetts Amherst)

*Primary Contact:* Nathan Senner, Department of Environmental Conservation, University of Massachusetts Amherst, 160 Holdsworth Way, Amherst, MA 01003, nsenner@umass.edu

### **Study Objectives**

- Understand large-scale shifts in migratory timing and changes in migratory strategy of godwits breeding in Beluga.
- Quantify the degree to which trade-offs incurred during migration influence reproductive timing and success.
- Understand how godwit chicks respond to environmental variation and a dynamic landscape of predation risk.

### **Preliminary Results**

- Deployed 27 geolocators and retrieved 16.
- Monitored 30 nests; 27 hatched and 3 were depredated.
- Banded 83 chicks and tracked 33; 4 broods had chicks survive to fledging.
- Camera traps recorded occurrences of coyotes, American black bears, brown bears, and Sandhill Cranes.
- Monitored invertebrate phenology.
- Characterized habitat at nest sites.
- Designed and ran a “Migrate Like a Godwit” activity for K-12 students at Tebughna School.

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **RESEARCH:**

- Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.
- Determine migratory timing, routes, and site use of shorebirds.
- Assess the effects of climate change on shorebird demography.
- Conduct breeding ecology studies on species occupying alpine, boreal, or other rare or difficult-to-access habitats.

**POPULATION INVENTORY AND MONITORING:**

- Conduct long-term population monitoring efforts (e.g., PRISM).

**HABITAT MANAGEMENT AND PROTECTION:**

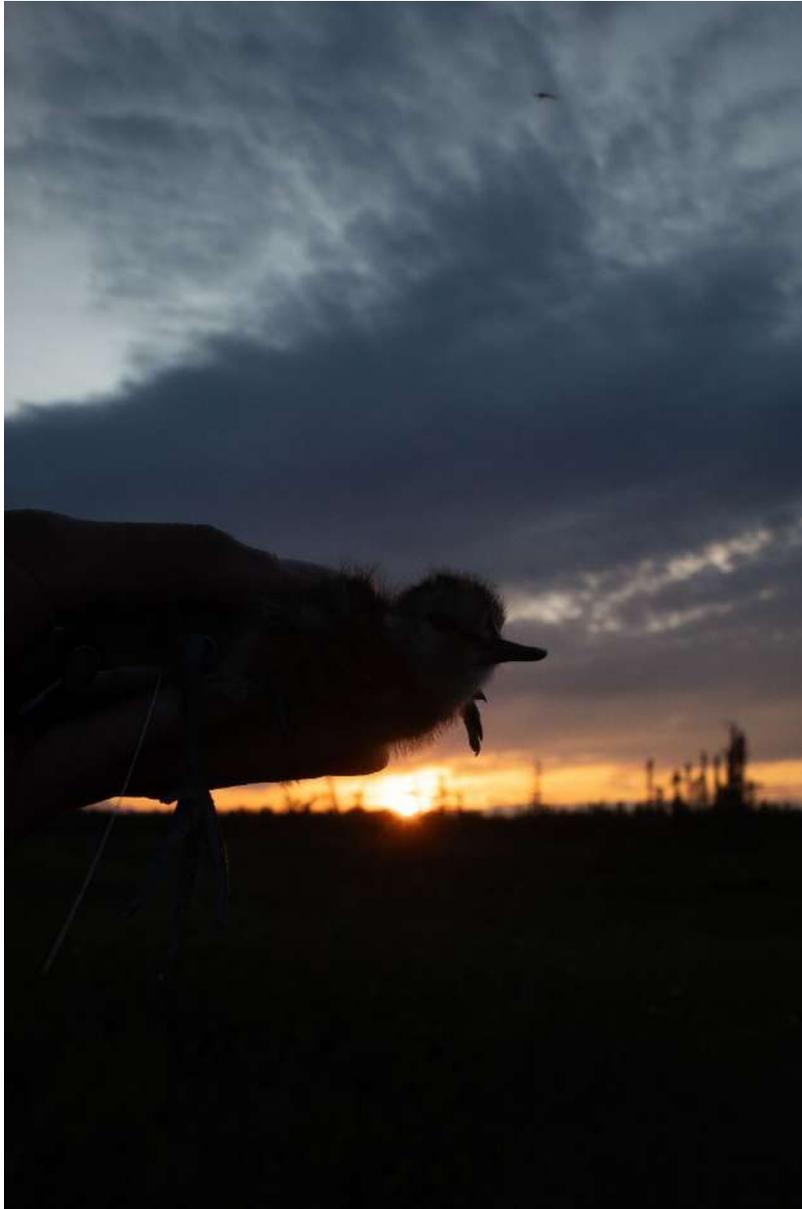
- Model the potential effects of climate change on shorebird habitats and identify future potential regions of habitat refugia.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).
- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.



*Hudsonian Godwit chick*

*Photo: Feipeng Huang*

## **#14 (BCR 4): Delineation of Surfbird (*Calidris virgata*) breeding sites in Alaska**

*Study Species:* Surfbird

*Study Location:* Steese National Conservation Area, around Eagle Summit (65.49667 N, 145.44359 W)

*Principal Investigators:* Sam Simon (University of Alaska Fairbanks), Shawn Crimmins (Purdue University), Rick Lanctot (US Fish and Wildlife Service), and Claire Montgomerie (Bureau of Land Management - Eastern Interior Field Office)

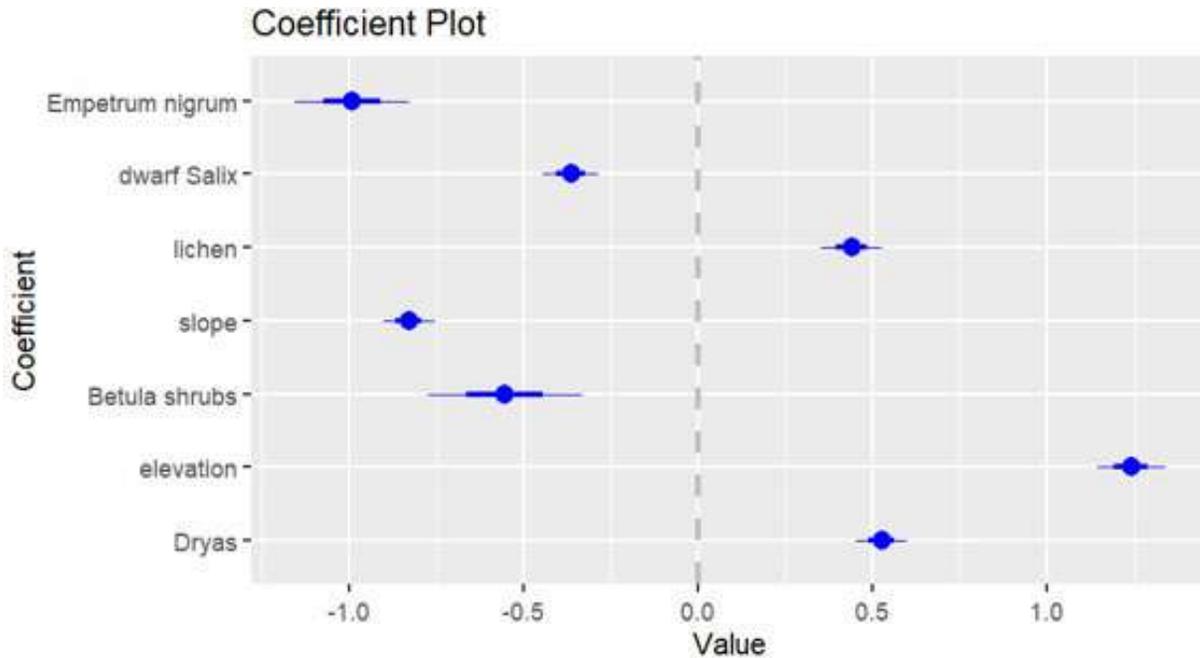
*Primary Contact:* Sam Simon, University of Alaska Fairbanks, 705 Oconnor Rd, Apt 2, Fairbanks AK 99701, srsimon@alaska.edu

### **Study Objectives**

- Create a resource selection function (RSF) to predict good Surfbird habitat in the Steese National Conservation Area.
- Create a statewide distribution model for Surfbirds to be used in planning future projects with this species and to determine how much of the available breeding range occurs on protected land.
- Contribute morphometric, genetic, and movement data to the range-wide Surfbird study.

### **Preliminary Results**

- Using the statewide foliar cover layer from Alaska Center for Conservation Science, we can quantitatively show a preference for high-elevation ridgelines and high *Dryas* and lichen cover. Conversely, dwarf *Betula* (birch) and *Salix* (willow) seem to be too tall, and Surfbirds avoid areas dominated by these plants.



***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Conduct breeding ecology studies on species occupying alpine, boreal, or other rare or difficult-to-access habitats.
- Identify and delineate potentially distinct populations of shorebirds breeding in Alaska.
- Develop habitat-based models to predict the abundance and distribution of shorebirds and assess the adaptability of shorebirds to habitat changes.

**POPULATION INVENTORY AND MONITORING:**

- Inventory alpine, boreal, and other poorly studied shorebird species.

**HABITAT MANAGEMENT AND PROTECTION:**

- Apply abundance and distribution information to identify key shorebird habitats and sites.
- Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.
- Model the potential effects of climate change on shorebird habitats and identify future potential regions of habitat refugia.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Develop shorebird-related outreach and media materials.

- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Coordinate and participate in international, national, and other regional shorebird conservation planning efforts (e.g., Pacific Americas Shorebird Conservation Strategy, Atlantic Flyway Shorebird Initiative).



*Looking for Surfbirds*

*Photo: Sam Simon*



*Surfbird in hand*

*Photo: Sam Simon*

## **#15 (BCRs 4, 5): Surfbird (*Calidris virgata*) movements, habitat use, threats, and population structure across Alaska**

*Study Species:* Surfbird

*Study Location:* Homer, Alaska (59.6481 N, 151.5299 W)

*Principal Investigators:* Richard Lanctot (U.S. Fish and Wildlife Service), Sarah Saalfeld (U.S. Fish and Wildlife Service), Sam Simon (University of Alaska Fairbanks), Addie Willsrud (Calypso Farm and Ecology Center), and the Kachemak Bay Birders

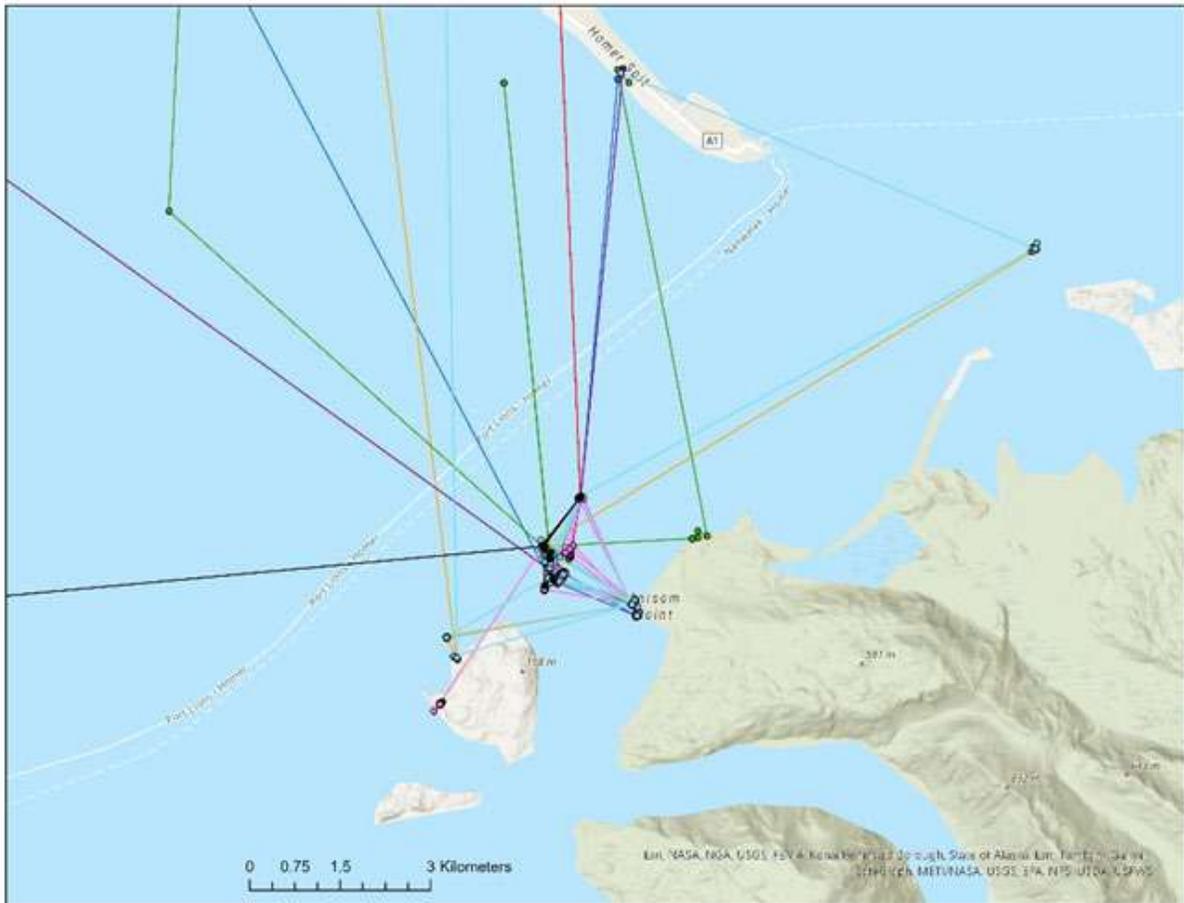
*Primary Contact:* Richard Lanctot, U.S. Fish and Wildlife Service, 1011 East Tudor Road, MS 201, Anchorage, AK 99503, richard\_lanctot@fws.gov

### **Study Objectives**

- Using satellite equipped birds, document home range, local movements, habitat use, and potential threats to Surfbirds at important migration sites.
- Determine important nonbreeding, migration, and breeding sites, as well as determine the degree of connectivity among unique populations of Surfbirds by using tracking data collected from birds tagged across their range.

### **Preliminary Results**

- 8 Surfbirds were tagged at Homer, Alaska during spring migration and followed to breeding areas throughout Alaska and then south to nonbreeding areas.
- Local movements of 8 Surfbirds near the Homer Spit were determined.





***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.
- Identify and delineate potentially distinct populations of shorebirds breeding in Alaska.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

**INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council’s Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere

(e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.



*Surfbird with tracking device*

*Photo: David Bailey*

## ANNUAL SUMMARIES

### BIRD CONSERVATION REGION 5

Northwest Pacific Rainforest- Formerly Southcentral and Southeastern Alaska: The coastal rainforest stretches from extreme southern Alaska to the western Gulf of Alaska and is characterized by heavy precipitation and mild temperatures typical of a maritime climate. Sub-regions include A) Coastal Hemlock-Spruce Forests, and B) Pacific Coastal Mountains. The regions stark, rugged features are a result of intense glaciation during the Pleistocene and nearly all adjacent land area remains glaciated. Much of the terrain is steep sloped from sea level up to 3,300 feet (1,000 m), but large floodplains, alluvial fans, outwash plains, and river deltas also occur here. The region is dominated by needleleaf forests of Western Hemlock and Sitka Spruce; other needleleaf species also occur in coastal forests. Broadleaf forests are found along large mainland river drainages. Several other communities are present in this region and include tall, low, and dwarf scrub; tall and low scrub bogs and swamps; and wet graminoid and forb herbaceous communities. The Copper and Stikine River deltas and the Yakutat forelands are major stopover sites for migrating shorebirds, especially Western Sandpipers and Dunlins. Black Oystercatchers, Rock Sandpipers, Black Turnstones, and Surfbirds are common wintering species. Nearshore marine areas support many breeding and wintering sea ducks (e.g., Surf Scoter, Harlequin Duck) and seabirds (e.g., Black-legged Kittiwakes, murre, murrelets). Coastal forests support a host of resident and breeding passerines (e.g., Chestnut-backed Chickadee, Winter Wren, Brown Creeper, Ruby and Golden-crowned Kinglets, Red-breasted Sapsucker), raptors (Bald Eagle, Northern Goshawk, Northern Saw-whet Owl), and seabirds (Marbled Murrelet). Information derived from Boreal Partners in Flight Bird Conservation Areas | U.S. Geological Survey ([usgs.gov](https://www.usgs.gov))



## **#16 (BCR 5): Assessing microplastic pollution in a key bird tourism region: impacts on shorebird health through dietary pathways**

*Study Species:* Short-billed Dowitcher, Dunlin, Least Sandpiper, and Western Sandpiper

*Study Location:* Yakutat (59.44308 N, 139.56865 W), Malaspina Forelands - Esker Stream Area (59.87880 N, 139.77443 W)

*Principal Investigators:* Kyle Cutting (Wrangell-St. Elias National Park & Preserve), Richard Lanctot (U. S. Fish and Wildlife Service), and Tham Hoang (Auburn University)

*Primary Contact:* Kyle Cutting, Wildlife Biologist, Wrangell-St. Elias National Park & Preserve, PO Box 439/Mile 106.8 Richardson Highway, Copper Center AK 99573, [kyle\\_cutting@nps.gov](mailto:kyle_cutting@nps.gov)

### **Study Objectives**

- Determine concentrations and types of microplastics in both shorebird tissue (feces and blood) and prey items on coastal spring staging areas.

### **Preliminary Results**

- We completed a shorebird survey and capture at the Yakutat forelands from May 3, 2025 – May 8, 2025. We captured thirty-two individual shorebirds of six species. Short-billed Dowitcher was most frequently caught (43%), followed by Dunlin (18%), Pectoral Sandpiper (18%), Least Sandpiper (10%) Long-billed Dowitcher (6%), and Wilson's Snipe (6%).
- We also completed a shorebird survey and fecal sample collection around Esker Stream area on the remote Malaspina forelands from May 9, 2025 – May 13, 2025. Fecal samples were collected from different tidal habitat types including upper, mid and lower tidal zones, freshwater streambanks and uplands. Fifty-one fecal samples were collected from shorebirds around the Esker Stream area. Samples were taken from groups of: 1) Least Sandpipers and Western Sandpipers foraging in the upper tidal zone, 2) Pectoral Sandpipers on a freshwater mudflat, and 3) Western Sandpipers, Least Sandpipers, Dunlin, and Semipalmated Plovers foraging in the low and mid-tidal zones.
- Feces and substrate samples were sent to Dr. Tham Hoang's lab at Auburn University to be analyzed using FTIR technology to determine micro-plastic concentration, color, type, and size. Results are pending.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Identify effects associated with energy production, mining, disturbance, and other anthropogenic activities on shorebirds.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.

**INTERNATIONAL COLLABORATIONS:**

- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.



*Field crew setting up a whoosh net to capture shorebirds on the rising tide, May 2025,  
Yakutat, AK*

*Photo: Kyle Cutting*

## **#17 (BCR 5): 35th Annual Copper River Delta Shorebird Festival and Western Hemisphere Shorebird Reserve Network (WHSRN) celebration**

*Study Species:* Western Sandpiper, Dunlin, Least Sandpiper, Pectoral Sandpiper, Short-billed Dowitcher, Whimbrel

*Study Location:* Cordova, Alaska

*Principal Investigators:* Cathy Renfeldt (Cordova Chamber of Commerce), Ceylon Miner (Cordova Chamber of Commerce), and Teal Hansen (Cultural Coordinator for the Native Village of Eyak)

*Primary Contact:* Cathy Renfeldt, Cordova Chamber of Commerce, (907) 424-7260, [executivedirector@cordovachamber.com](mailto:executivedirector@cordovachamber.com)

### **Study Objectives**

- Educate public about shorebird conservation and promote ecotourism related to important shorebird areas.

### **Preliminary Results**

- Field trips, talks/presentations, art workshops, and ID workshops.
- Celebration of the 35th anniversary of the Copper River Delta Shorebird festival and designation as a Site of Hemispheric Importance in the Western Hemisphere Shorebird Reserve Network.

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Develop shorebird-related outreach and media materials.
- Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.
- Identify and support ways to involve citizen scientists in shorebird monitoring programs.
- Incorporate principles of good governance in research and outreach efforts.

### Project comments:

In early May, hundreds gathered in Cordova, Alaska, to honor one of the most important migratory shorebird sites in the Western Hemisphere, the Copper River Delta. As many as 5 to 8 million shorebirds (primarily Western Sandpipers and Pacific Dunlin) rest and feed here during spring migration. The Copper River Delta Shorebird Festival provides the ideal opportunity for bird watchers to be a part of this epic migration. People from around the world have come to witness the spectacle of migration and learn more about these amazing birds.

This year, organizers and participants celebrated 35 years since the Copper River Delta was designated a Site of Hemispheric Importance in the Western Hemisphere Shorebird Reserve Network. This designation was the first for Alaska and among the earliest in the network's history. During a special festival ceremony, Julia Salazar, Salt and Shorebird Specialist for the WHSRN Executive Office, presented commemorative certificates to long-time site partners: the U.S. Forest Service Chugach Forest, City of Cordova, Alaska Department of Fish and Game, and Native Village of Eyak.

This year's festival was held May 1-4, 2025. Organizers led field trips to Hartney Bay and Alaganik Slough, art workshops, a "Bay to Bay in May" run, and a community artisan market. A variety of other community events also took place over the course of the weekend for visiting and local birders. Drs. Natalia Martinez-Curci and Jonathan Vargas were the keynote speakers featured at this year's festival (Cornell University's Coastal Solution Fellows). Both lectures drew a large number of attendees, which included birders of all ages. Additionally, local Cordova artist Teal Hansen was the featured artist. The 2025 shorebird festival was once again an international success.

[www.coppershorebird.com](http://www.coppershorebird.com)

## **ANNUAL SUMMARIES**

### **BIRD CONSERVATION REGIONS OUTSIDE OF ALASKA**



## **#18 (North Dakota and South Dakota): Cumulative effects of agriculture and drought on migratory shorebird refueling**

*Study Species:* Lesser Yellowlegs (primary), Willet, Killdeer, Greater Yellowlegs, Marbled Godwit, Wilson's Phalarope, American Avocet, Semipalmated Sandpiper, Least Sandpiper, Pectoral Sandpiper, Short-billed Dowitcher, and Long-billed Dowitcher

*Study Location:* North Dakota and northeastern South Dakota

*Principal Investigators:* Dr. Courtney Conway (U.S. Geological Survey, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho), Dr. Katie Christie (Alaska Department of Fish and Game), Dr. Christy Morrissey (University of Saskatchewan), Dr. Ryan Long (University of Idaho)

*Primary Contact:* Shelby McCahon, University of Idaho, 875 Perimeter Drive MS 1141, University of Idaho, Moscow, ID 83844-1141, smccahon2@alaska.edu

### **Study Objectives**

- Quantify neonicotinoid insecticide concentrations in shorebird plasma and in wetlands used by Lesser Yellowlegs and other shorebirds in the Prairie Pothole Region.
- Assess the direct and indirect effects of agricultural practices, neonicotinoid insecticides, and drought on shorebird body condition.
- Identify predictors of shorebird prey availability during spring and fall migration.
- Evaluate impacts of agricultural practices on macroinvertebrate biomass and diversity.
- Identify predictors of neonicotinoid detections in water, macroinvertebrate, and shorebird plasma samples during spring and fall migration.
- Compare shorebird foraging efficiency (e.g., search effort and foraging rates) among wetlands with varying levels of cropland cover.

### **Results**

- Surrounding cropland cover around wetlands was directly associated with reductions in macroinvertebrate biomass, shorebird fattening (measured from plasma metabolites), and shorebird uric acid levels in 2023.
- Shorebirds with neonicotinoid detections in their plasma had lower refueling rates in 2023.
- Shorebirds captured during drought conditions had lower fat levels and fewer neonicotinoid detections in their plasma across the full study period (2021-2023).
- Neonicotinoid detection probability in water was higher in wetlands closer to cropland.
- Pesticide detection probability in macroinvertebrates was lower in wetlands with greater precipitation amounts during the week prior to data collection.

- Neonicotinoid detection probability in shorebird plasma was higher in wetlands closer to cropland (all species combined), higher in spring 2022 when there was a late snowmelt event (all species combined), marginally higher in wetlands with more surrounding cropland cover (Lesser Yellowlegs only), and lower as Julian day progressed (Lesser Yellowlegs only).
- Macroinvertebrate biomass was directly influenced by surrounding cropland cover, wetland permanence, water quality (i.e., conductivity), and season.

***Alaska Shorebird Conservation Plan II Objectives Reached:***

**RESEARCH:**

- Identify effects associated with energy production, mining, disturbance, and other anthropogenic activities on shorebirds.

**ENVIRONMENTAL EDUCATION AND PUBLIC OUTREACH:**

- Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.
- Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

**INTERNATIONAL COLLABORATIONS:**

- Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).
- Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.
- Coordinate and participate in international, national, and other regional shorebird conservation planning efforts (e.g., Pacific Americas Shorebird Conservation Strategy, Atlantic Flyway Shorebird Initiative).

## **#19 (Louisiana): Retention, and behavioral and morphological effects of dorsally mounted transmitters in shorebirds**

*Study Species:* Red Phalarope, Dunlin, and Ruff

*Study Location:* Pinola Aviary (32.5130 N, 93.7515 W)

*Principal Investigators:* Richard Lanctot (U.S. Fish and Wildlife Service), Sarah Saalfeld (U.S. Fish and Wildlife Service), Steve Dinsmore (Iowa State University), Paul Dickson (Pinola Conservancy), and Jacob Kraemer (Pinola Conservancy)

*Primary Contact:* Richard Lanctot, U.S. Fish and Wildlife Service, 1011 East Tudor Road, MS 201, Anchorage, AK 99503, richard\_lanctot@fws.gov

### **Study Objectives**

- Determine the retention time for two types of tag attachment methods (leg-loop and body harness) using three types of attachment materials (stretch magic, strepa, and 3D harness) and two different tags in three different species of shorebirds (Red Phalarope, Dunlin, and Ruff).
- Assess the effect of tags on the behavior, external body condition, and survival of individual birds.
- Assess the ability of Druid and CTT blu-morph tags to maintain battery power given the potential for feathers to cover the solar panels on the tags.

### **Preliminary Results**

- Druid and CTT blu-morph tags were attached to Red Phalarope, Dunlin, and Ruff using different tag attachment methods and attachment materials.
- Bird behavior was monitored before and after tag attachment (on-going).
- Bird body condition was assessed after tag attachment (on-going).
- Tag battery condition was assessed (on-going).

### ***Alaska Shorebird Conservation Plan II Objectives Reached:***

#### **RESEARCH:**

- Determine migratory timing, routes, and site use of shorebirds.



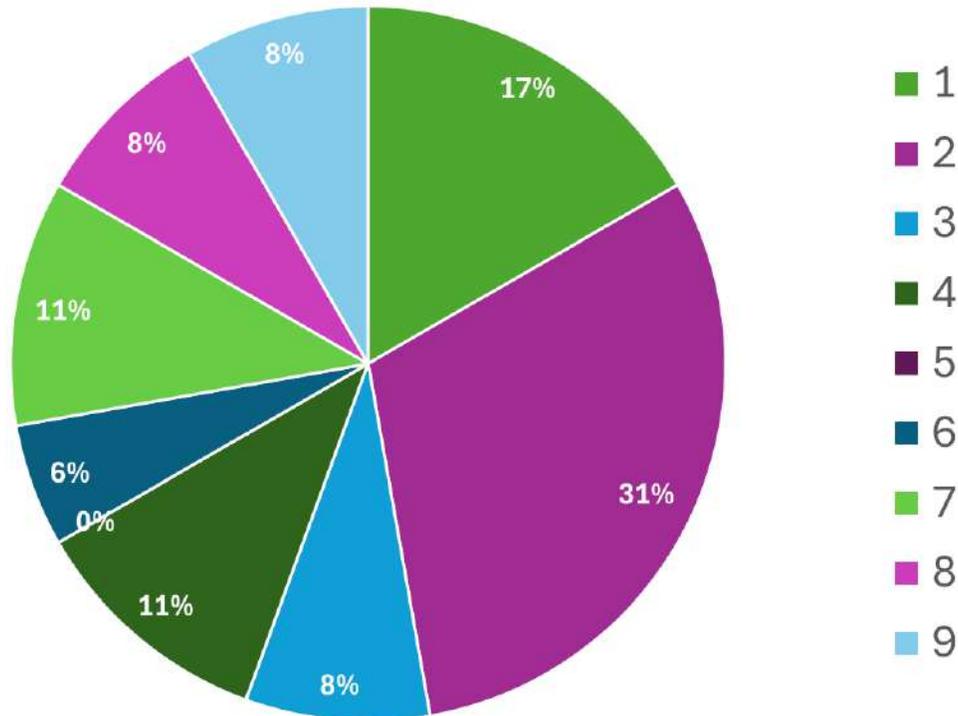
*Red Phalarope at Pinola Aviary*

*Photo: Jacob Kraemer*

## ANNUAL SUMMARIES

### Alaska Shorebird Conservation Plan II Objectives Summary

#### RESEARCH



1= Identify and determine the magnitude of factors limiting shorebird populations during breeding and nonbreeding periods of the annual cycle.

2=Determine migratory timing, routes, and site use of shorebirds.

3=Assess the effects of climate change on shorebird demography.

4=Conduct breeding ecology studies on species occupying alpine, boreal, or other rare or difficult-to-access habitats.

5=Obtain better estimates of illegal and legal harvest levels for Alaska-breeding shorebirds within Alaska and when outside Alaska.

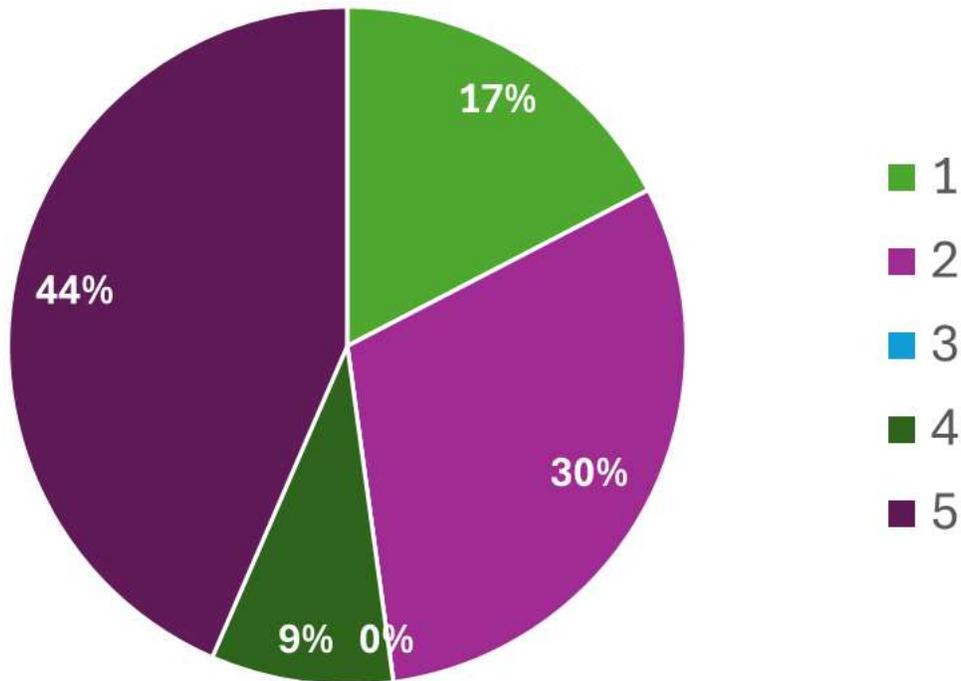
6= Identify effects associated with energy production, mining, disturbance, and other anthropogenic activities on shorebirds.

7=Identify and delineate potentially distinct populations of shorebirds breeding in Alaska.

8=Develop habitat-based models to predict the abundance and distribution of shorebirds and assess the adaptability of shorebirds to habitat changes.

9=Not applicable

## POPULATION INVENTORY AND MONITORING



1=Inventory alpine, boreal, and other poorly studied shorebird species.

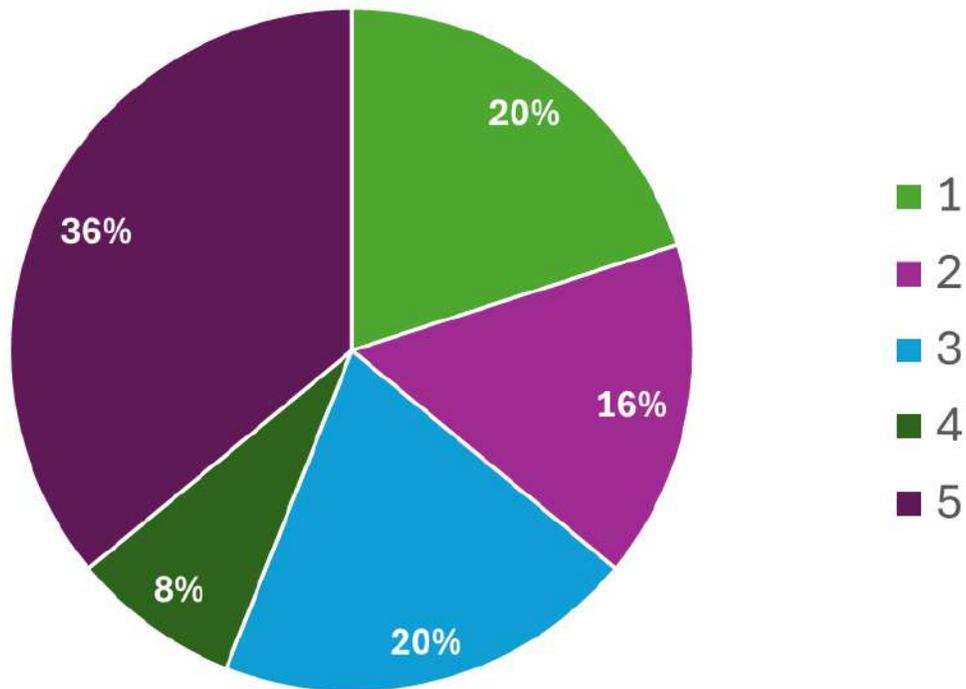
2=Conduct long-term population monitoring efforts (e.g., PRISM).

3=Evaluate the efficacy of existing programs (e.g., the Alaska Landbird Monitoring Survey [ALMS], Breeding Bird Survey [BBS] program) to monitor shorebird populations.

4=Assess the utility of new technologies (e.g., Automated Recording Units, aerial drones, eBird) to determine shorebird presence and abundance.

5=Not applicable

## HABITAT MANAGEMENT AND PROTECTION



1=Apply abundance and distribution information to identify key shorebird habitats and sites.

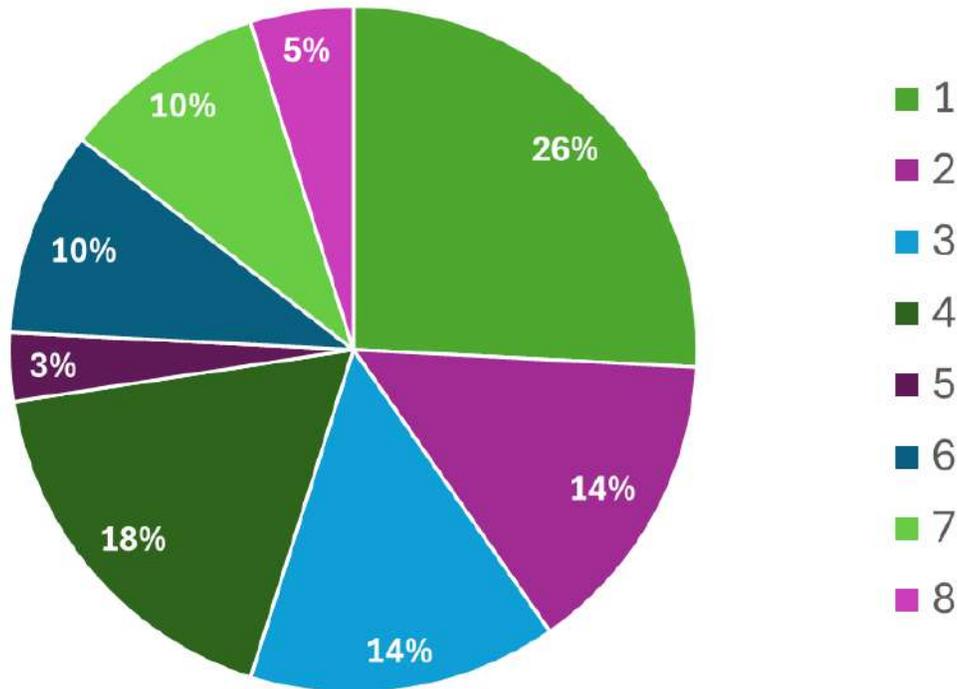
2=Support land acquisitions, easements, restoration efforts, and conservation designations (e.g., the Western Hemisphere Shorebird Reserve Network, East Asian– Australasian Shorebird Reserve Network, Ramsar Convention on Wetlands, and Important Bird Areas Programs) for key shorebird sites.

3=Minimize loss and degradation of critical shorebird habitats by participating in natural resource planning and management.

4=Model the potential effects of climate change on shorebird habitats and identify future potential regions of habitat refugia.

5=Not applicable

## ENVIRONMENTAL PROTECTION AND PUBLIC OUTREACH



1= Raise the profile of shorebirds through public presentations, media outreach, support of shorebird festivals, and collaboration with education programs.

2= Develop shorebird-related outreach and media materials.

3= Host workshops and outreach events to engage the diverse communities of Alaska in shorebird conservation.

4= Encourage the synthesis and reporting of results of Alaskan shorebird studies to scientific and general audiences.

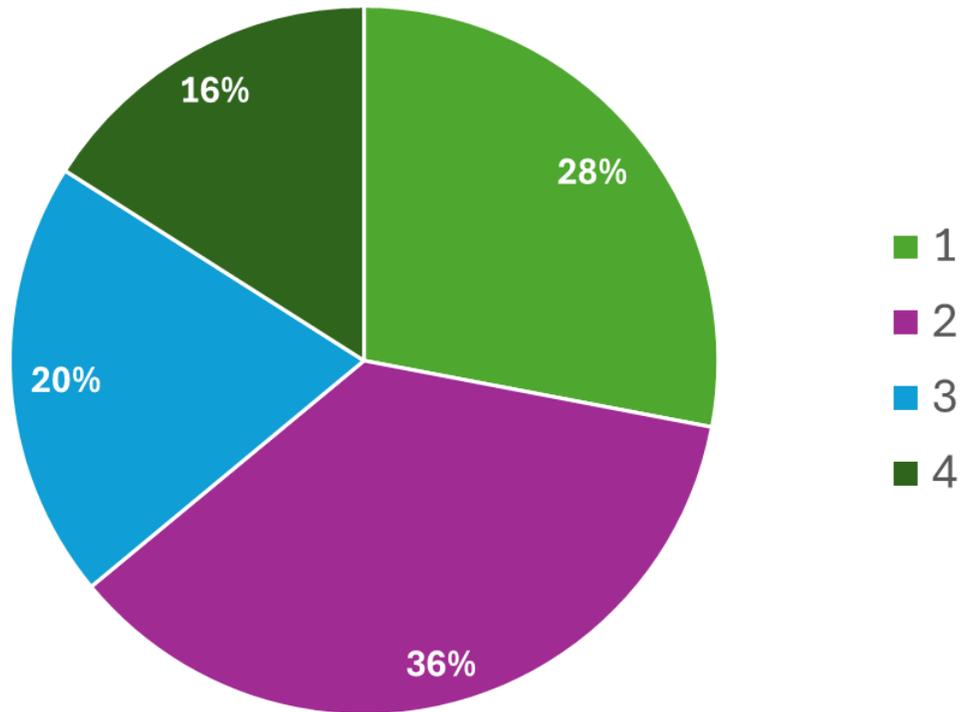
5= Promote shorebird education to youth via the Shorebird Sister Schools Program.

6= Identify and support ways to involve citizen scientists in shorebird monitoring programs.

7= Incorporate principles of good governance in research and outreach efforts.

8= Not applicable

## INTERNATIONAL COLLABORATIONS



1=Foster and participate in cooperative research and monitoring efforts throughout species' ranges (e.g., Arctic Shorebird Demographics Network, PRISM, Migratory Shorebird Project, and Arctic Birds Breeding Conditions Survey).

2=Participate in partnerships to conserve migratory shorebirds and their habitats in the circumpolar Arctic (e.g., the Arctic Council's Conservation of Arctic Flora and Fauna working group and initiatives therein), North America (e.g., landscape conservation cooperatives, joint ventures, flyway councils), Western Hemisphere (e.g., Western Hemisphere Shorebird Reserve Network, Western Hemisphere Shorebird Group), Asia (e.g., East Asian-Australasian Flyway Partnership), and other partnerships as they arise.

3=Coordinate and participate in international, national, and other regional shorebird conservation planning efforts (e.g., Pacific Americas Shorebird Conservation Strategy, Atlantic Flyway Shorebird Initiative).

4=Not applicable

## **PUBLICATIONS & ABSTRACTS**

Bathrick, R.E., J.A. Johnson, D.R. Ruthrauff, R. Snyder, M. Stager, and N.R. Senner. 2024. Migratory strategies across an ecological barrier: is the answer blowing in the wind? *Movement Ecology* 12: 70. <https://link.springer.com/article/10.1186/s40462-024-00509-2>

**Background** Ecological barriers can shape the movement strategies of migratory animals that navigate around or across them, creating migratory divides. Wind plays a large role in facilitating aerial migrations and can temporally or spatially change the challenge posed by an ecological barrier, with beneficial winds potentially converting a barrier into a corridor. Here, we explore the role wind plays in shaping initial southbound migration strategy among individuals breeding at two sites along an ecological barrier.

**Methods** Using GPS satellite transmitters, we tracked the southbound migrations of Short-billed Dowitchers (*Limnodromus griseus caurinus*) from two breeding sites in Alaska to nonbreeding sites in coastal Mexico. The breeding sites were positioned in distinct regions along an ecological barrier – the Gulf of Alaska. We investigated potential differences in migratory timing, wind availability, and tailwind support en route across the Gulf of Alaska between individuals breeding at the two sites.

**Results** Route choice and arrival timing to wintering sites differed markedly between the two breeding sites: individuals departing from the more westerly site left at the same time as those from further east but crossed the Gulf of Alaska farther west and arrived along the Pacific coast of Mexico an average of 19 days earlier than their counterparts. Dowitchers from both sites departed with slight tailwinds, but once aloft over the Gulf of Alaska, birds from the more westerly site had up to twelve times more tailwind assistance than birds from the more easterly one.

**Conclusions** The distinct migration strategies and degree of wind assistance experienced by birds at these two breeding sites demonstrates how differences in wind availability along migratory routes can form the basis for intraspecific variation in migration strategies with potential carryover effects. Future changes in wind regimes may therefore interact with changes in habitat availability to influence migration patterns and migratory bird conservation.

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Davis, K.L., R.B. Lanctot, S.T. Saalfeld, and E.F. Zipkin. 2025. Evaluating environmental drivers and synchrony of Arctic shorebird demographic rates to inform conservation management. *Ecological Applications* 35: e70049. <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/eap.70049>

Many Arctic-breeding shorebirds are assumed to be declining, yet obtaining reliable estimates of species' demographic rates and trends is difficult because of challenges

collecting data in remote breeding regions and throughout the annual cycle. For many vulnerable species, data limitations impede efforts to determine appropriate management actions in the face of ongoing environmental change. Integrated population models (IPMs) offer an approach to maximize the utility of available data by providing a framework for estimating demographic rates and environmental drivers of population change, while also accounting for sources of uncertainty. Here, we used an IPM to estimate demographic rates, synchrony, and population trends of Arctic-breeding shorebirds within the context of climatic and management-related changes. We estimated species-specific breeding population sizes, adult survival rates, number of adults gained into the breeding population through recruitment (i.e., the sum of immigration and reproduction), as well as the effects of environmental drivers on demographic traits for three shorebird species nesting near Utqiagvik, Alaska, over an 18-year study period (2005–2022). We found that the annual number of adults recruiting into the breeding population was important for maintaining local populations, and that local environmental factors and management regimes had strong effects on demographic rates. The timing of snowmelt had a notable effect on (1) fecundity, (2) the number of adults recruited for two of the three species, and (3) adult survival during the following year for one species. Predator removal increased fecundity of all three species but had limited effects on subsequent local population sizes. The Pacific Decadal Oscillation, a broad-scale climate metric, affected adult survival differently across species, with a positive and negative effect for one species each, and a negligible effect for the other. Unlike adult recruitment and fecundity that varied synchronously among species, annual adult survival varied asynchronously. Our results suggest that differences in survival were likely related to conditions experienced during nonbreeding periods arising from dissimilar migratory routes, stopover sites, and nonbreeding season ranges. Future work should focus on incorporating additional environmental factors on the nonbreeding grounds to determine when and where these species could benefit most from management interventions.

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English, W.B., B. Lagassé, S. Brown, M. Boldenow, J. Burger, B. Casler, A.D. Dey, S. Feigin, S. Freeman, H.R. Gates, K.E. Iaquinto, S. Koch, J.F. Lamarre, R.B. Lanctot, C. Latty, V. Loverti, L. McKinnon, D. Newstead, L. Niles, E. Nol, D. Payer, R. Porter, J. Rausch, S.T. Saalfeld, F. Sanders, N.R. Senner, S. Schulte, K. Sowl, B. Winn, L. Wright, M.B. Wunder, and P.A. Smith. 2025. The influence of migration timing and local conditions on reproductive timing in Arctic-breeding birds. *Ecology and Evolution* 15: e70610.  
<https://onlinelibrary.wiley.com/doi/10.1002/ece3.70610?msockid=1202f1085adf6f9e0cafe7785bff6e58>

For birds breeding in the Arctic, nest success is affected by the timing of nest initiation, which is partially determined by local conditions such as snow cover. However, conditions during the non-breeding season can carry over to affect the timing of breeding. We used tracking and breeding data from 248 individuals of 8 species and subspecies of Arctic-breeding shorebirds to estimate how the timing of nest initiation is related to local

conditions like snowmelt phenology versus prior conditions, measured by the timing and speed of migration. Using path analysis, our global model showed that local and prior conditions have similar effect sizes (Standardised Path Coefficients  $\pm$  SE of  $0.44 \pm 0.07$  and  $0.43 \pm 0.07$  for snowmelt and arrival timing, respectively), suggesting that both influence the timing of breeding and therefore potentially reproductive output. However, the importance of each variable varied across species. Individuals that arrived later to the breeding grounds did not leave the wintering grounds later, but instead took longer to migrate, potentially reflecting differences in flight speed or time spent at stopover sites. We hypothesise that this may be due to reduced habitat quality at some stopover sites or an inability to adjust their departure timing or migration speed to match the advancing spring phenology in the North. Individuals that migrated longer distances also arrived and nested later. Our results highlight the benefits and potential conservation implications of using a full annual cycle approach to assess the factors influencing reproductive timing of birds.

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Lamarre, J.-F., G. Gauthier, R.B. Lanctot, S.T. Saalfeld, O.P. Love, E.T. Reed, O.W. Johnson, J. Liebezeit, R. McGuire, M. Russell, E. Nol, L. Koloski, F. Sanders, L. McKinnon, P.A. Smith, S.A. Flemming, S.C. Brown, N. Lecomte, M.-A. Giroux, S. Bauer, T. Emmenegger, J. Bêty. 2026. Low migratory connectivity and use of multiple nonbreeding sites in American Golden-Plovers breeding across the Nearctic tundra. *Diversity and Distributions* 32: e70126. <https://www.jstor.org/stable/48858364?seq=1>

**Aim:** Many populations of migratory birds are currently declining. Understanding space use throughout the entire annual cycle, as well as migratory connectivity (i.e., geographic linkage of individuals and populations across different stages of the annual cycle), can improve our ability to identify factors driving population declines and influencing extinction risk. The main objectives of our study were to (i) document the space use and phenology of migration during the non-breeding period and (ii) quantify the degree of migratory connectivity across the range of the American Golden-Plover (*Pluvialis dominica*) breeding across the North American Arctic.

**Location:** American Golden-Plovers that breed across their entire breeding range (northern North America) and migrate up to their main wintering site located in South America.

**Methods:** We used archival light-level geolocators to track the migration. We quantified migratory connectivity based on the non-breeding range spread of all individuals and the breeding population spread. We used Mantel tests to evaluate whether the relative spatial configuration of the sampled breeding area was preserved on the non-breeding ground.

**Results:** We identified 13 and 7 stopover sites used during the fall (post-breeding, southbound) and spring (pre-breeding, northbound) migrations, respectively, and one main site used during the wintering period. We highlight stopover sites that were previously unknown and show the transatlantic and transpacific routes used by plovers during migration. We found that individuals breeding in proximity tended to be closer to each other during brief and highly limited portions of the non-breeding period. Broadly,

individuals from different breeding populations were well mixed during the wintering period and throughout most of the spring and fall migrations.

**Main Conclusions:** Overall, the migratory connectivity of American Golden-Plovers is relatively low for most of the nonbreeding period, suggesting that breeding populations separated by large distances should be similarly affected by disturbances and changes encountered at some migratory stopovers and in the wintering area.

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Naves L.C., R.B. Lanctot, J. Kelly, J. Curl, D. Lawton. 2025. Outreach and communication for migratory bird conservation in the Yukon-Kuskokwim Delta, Alaska. U.S. Fish and Wildlife Service grant F20AP00037. Final Performance report October 2019–May 2025. Alaska Department of Fish and Game, Division of Subsistence, Anchorage.

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Pleznac, C. 2025. Kachemak Bay Birders kicks off 17th year of shorebird monitoring project. Homer News. Available at: <https://www.homernews.com/news/kachemak-bay-birders-kicks-off-17th-year-of-shorebird-monitoring-project/>

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Puleo, L., F. Huang, M. Stager, and N.R. Senner. 2025. Flexibility in the face of climate change? A rapid and dramatic shift towards later spring migration in Hudsonian Godwits (*Limosa haemastica*). Proceedings of the Royal Society B 292: 20250982. <https://royalsocietypublishing.org/rspb/article-abstract/292/2051/20250982/234635/Flexibility-in-the-face-of-climate-change-A-rapid?redirectedFrom=fulltext>

With rapid environmental change, shifts in migration timing are vitally important for population stability in migratory species and have been widely documented. However, little remains known about how migrants make these shifts and what factors influence the utilization of these strategies, limiting assessments of their vulnerability to climate change. Hudsonian godwits (*Limosa haemastica*) are extreme long-distance migratory shorebirds that (i) have previously advanced their population-level migration timing and (ii) are sexually dimorphic. We combined over a decade of tracking data from one breeding population with a historical predictive model to assess ongoing shifts in migration timing and investigate potential sex-specific migration strategies. We found that irrespective of sex, godwit departure and arrival timing shifted 6 days later from 2010 to 2023. The population maintained an average migratory duration of 24 days and drove shifts in arrival timing entirely by changing their non-breeding-ground departure. Yet, we also found godwits arrived later than predicted by the historical model, indicating that conditions on the non-breeding grounds may constrain their ability to respond to changes on the breeding grounds. These results emphasize the need for a more holistic approach to assessing the vulnerability of migratory species and the adaptiveness of changes in migration timing.

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Rodkey, T.L., B.M. Ballard, T.L. Tibbitts, and R.B. Lanctot. 2024. Sod farms drive habitat selection of a migratory grassland shorebird during a critical stopover period. *Scientific Reports* 14:20973. <https://doi.org/10.1038/s41598-024-71216-6>

Migratory shorebirds are one of the fastest declining groups of North American avifauna. Yet, relatively little is known about how these species select habitat during migration. We explored the habitat selection of Buff-breasted Sandpipers (*Calidris subruficollis*) during spring and fall migration through the Texas Coastal Plain, a major stopover region for this species. Using tracking data from 118 birds compiled over 4 years, we found Buff-breasted Sandpipers selected intensively managed crops such as sod and short-stature crop fields, but generally avoided rangeland and areas near trees and shrubs. This work supports prior studies that also indicate the importance of short-stature vegetation for this species. Use of sod and corn varied by season, with birds preferring sod in spring, and avoiding corn when it is tall, but selecting for corn in fall after harvest. This dependence on cropland in the Texas Coastal Plain is contrary to habitat use observed in other parts of their non-breeding range, where rangelands are used extensively. The species' almost complete reliance on a highly specialized crop, sod, at this critical stopover site raises concerns about potential exposure to contaminants as well as questions about whether current management practices are providing suitable conditions for migratory grassland birds.

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Saalfeld, S.T., E.L. Weiser, S.C. Brown, C.J. Latty, S. Schulte, and R.B. Lanctot. 2025. Reducing bias in shorebird nest survival rates across a large Arctic landscape. *Ibis* 168: 25-41. <https://onlinelibrary.wiley.com/doi/full/10.1111/ibi.13441?msocid=1202f1085adf6f9e0cafe7785bff6e58>

Reproductive success is a key demographic parameter that can have profound impacts on a species' population trend. Indeed, poor reproductive success has been suggested as a contributing factor to the declines observed in many species of birds, including Arctic-breeding shorebirds. However, the available information on Arctic-breeding shorebird nest survival is restricted to a limited number of non-random locations where proximity to human settlements and traditional invasive monitoring techniques may artificially alter nest predation rates and, thus, bias results. To accurately assess reproductive success, unbiased estimates are needed. In this study, we monitored 96 shorebird nests (six species) at 41 randomly selected sites across a large Arctic landscape (1219 km<sup>2</sup> area of the Arctic National Wildlife Refuge) using minimally invasive techniques (i.e. single nest visits, temperature loggers and cameras) in 2019 and 2022. Overall, daily survival was 0.975 (95% CI: 0.955–0.987), which translates to a 53% (95% CI: 32–72%) probability of a shorebird nest surviving the median (25 days) incubation period for the studied species. Camera footage indicated Arctic Foxes *Vulpes lagopus* were the primary nest predator (85% of identified predation events), but Parasitic Jaegers *Stercorarius parasiticus* and Sandhill Cranes *Grus canadensis* also contributed to nest loss. In both years, greater nest failure occurred in the northwest and northcentral regions of our study area, potentially

the result of greater shorebird abundance and density-dependent predation rates. Nest survival rates obtained in this study were the same as those obtained in a previous large geographical study that monitored shorebird nests across numerous small, non-randomly selected, high-density shorebird field sites that employed intensive human monitoring techniques. However, site-specific and annual differences in predator and shorebird species and densities make direct comparisons to previous studies difficult. Continued monitoring using methods that minimize bias and are consistent across time are needed to accurately measure true changes in nest survival rates that may occur under a changing climate and with increased human development.

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Weiser, E.L, R.B. Lanctot, D.R. Ruthrauff, S.T. Saalfeld, T.L. Tibbitts, J.M. Abad-Gómez, J. Aldabe, J. Bosi de Almeida, J.A. Alves, G.Q.A. Anderson, P.F. Battley, H. Belting, J. Bêty, K. Bianchini, M.A. Bishop, R.A. Bom, K. Bowgen, G.S. Brown, S.C. Brown, L. Bugoni, N.H.K. Burton, D.R. Bybee, C. Carneiro, G. Castresana, Y-C. Chan, C-Y. Choi, K.S. Christie, N.A. Clark, J.R. Conklin, M. Cruz-López, S.J. Dinsmore, S.G. Dodd, D.C. Douglas, L.J. Eberhart-Hertel, W.B. English, H.T. Ewing, F.A. Faria, S.E. Franks, R.A. Fuller, R.E. Gill, Jr., M-A. Giroux, C.L. Gratto-Trevor, D.J. Green, R.E. Green, R.M.W. Green, T.G. Gunnarsson, J.S. Gutiérrez, A-L. Harrison, C.A. Hartman, C.J. Hassel, S.A. Hoepfner, J.C.E.W. Hooijmeijer, J.A. Johnson, O.W. Johnson, B. Kempenaers, M. Klaassen, E.M.A. Kok, J. Krietsch, C. Küpper, A.Y. Kwarteng, E. Kwon, J-F. Lamarre, C.J. Latty, N. Lecomte, A.H.J. Loonstra, Z. Ma, L. Mander, C. Marlow, P.P. Marra, J.A. Masero, L.A. McDuffie, R.L. McGuire, J. Melter, D.S. Melville, V. Méndez, T.J. Michels, C.A. Morrissey, T. Mu, D.J. Newstead, G.W. Page, A.K. Pierce, T. Piersma, M. Repenning, B.H. Robinson, A.D. Rocha, D.I. Rogers, A.L. Scarpignato, S. Schulte, E.S. Scragg, N.R. Senner, P.A. Smith, A.R. Taylor, R.C. Taylor, B. Þórisson, M. Valcu, M.A. Verhoeven, L. Ware, N. Warnock, M.F. Weber, L.J. Wright, and M.B. Wunder. 2025. Power source, data retrieval method, and attachment type affect success of dorsally mounted tracking tags in 37 species of shorebirds. *Journal of Avian Biology* 2025: e03487.

<https://nsojournals.onlinelibrary.wiley.com/doi/10.1002/jav.03487>

Animal-borne trackers are commonly used to study bird movements, including in long-distance migrants such as shorebirds. Selecting a tracker and attachment method can be daunting, and methodological advancements often have been made by trial and error and conveyed by word of mouth. We synthesized tracking outcomes across 2745 dorsally mounted trackers on 37 shorebird species around the world. We evaluated how attachment method, power source, data retrieval method, relative tracker mass, and biological traits affected success, where success was defined as whether or not each tag deployment reached its expected tracking duration (i.e. all aspects succeeded for the intended duration of the study: attachment, tracking, data acquisition, and bird survival). We conducted separate analyses for tag deployments with remote data retrieval ('remote-upload tag deployments') and those that archived data and had to be recovered ('archival tag deployments'). Among remote-upload tag deployments, those that were a lighter mass

relative to the bird, were beyond their first year of production, transmitted data via satellite, or were attached with a leg-loop harness were most often successful at reaching their expected tracking duration. Archival tag deployments were most successful when applied at breeding areas, or when applied to males in any season. Remote-upload tag deployments with solar power, satellite data retrieval, or leg-loop harnesses continued tracking for longer than those with battery power, other types of data retrieval, or glue attachments. However, the majority of tag deployments failed to reach their expected tracking duration (71% of remote-upload, 83% of archival), which could have been due to tracker failure, attachment failure, or bird mortality. Our findings highlight that many tag deployments may fail to meet the goals of a study if tracking duration is crucial. Using our results, we provide guidelines for selecting a tracker and attachment to improve success at meeting study goals.

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Ziegenhorn, M.A., R.B. Lanctot, S.C. Brown, M. Brengle, S. Schulte, S.T. Saalfeld, C.J. Latty, P.A. Smith, and N. Lecomte. 2025. ArcticSoundsNET: BirdNET embeddings facilitate improved bioacoustic classification of Arctic species. *Ecological Informatics* 90: 103270.  
<https://www.sciencedirect.com/science/article/pii/S1574954125002791>

In recent years, deep learning has become a popular solution for processing large ecological monitoring datasets. This rise in use has resulted in global classification models for a variety of data types and taxa, such as BirdNET, which classifies vocalizations of more than 6000 avian species from acoustic data. These global models can be useful pre-trained models for transfer learning, allowing researchers to more easily develop classifiers specialized to their datasets. However, the development of such models hinges on the availability of comprehensive, high-quality training data, which can be difficult to acquire, produce, and use. We present a novel pipeline for creating training data from a large and unlabeled dataset with minimal human oversight. We used this pipeline and BirdNET as our base model to develop a transfer-learning-based model, ArcticSoundsNET, using acoustic monitoring data from 205 sites across Alaska's Arctic Coastal Plain. We compared performance of ArcticSoundsNET with that of BirdNET to evaluate the effectiveness of our pipeline and success of the new model. We found that the ability of ArcticSoundsNET to detect and classify avian vocalizations in our data greatly exceeded that of BirdNET (AUC ROC = 0.888 for ArcticSoundsNET, AUC ROC = 0.593 for BirdNET). Importantly, our method for developing a training dataset is widely applicable for ecologists who do not have large amounts of labeled data, facilitating the creation of task-specific classification models. Developing such models is an essential step in using large acoustic datasets to support ecological conservation of critical species and habitats.

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Ziegenhorn, M.A., R.B. Lanctot, S.C. Brown, S.T. Saalfeld, P.A. Smith, and N. Lecomte. 2025. Source amplitude increases with body-mass across avian genera. *Ibis* 168: 127-139.

<https://onlinelibrary.wiley.com/doi/10.1111/ibi.13447?msockid=1202f1085adf6f9e0cafe7785bff6e58>

Amplitude, or intensity, of sound is a fundamental characteristic of acoustic communication, with relevance in many scientific fields. The amplitude of an animal's acoustic signal at its source ('source amplitude') may be particularly relevant in the field of acoustic allometry, where relationships between species' physical and acoustic features (e.g. dominant frequency) have been well-established across taxa. However, despite their potential scientific value, records and studies of source amplitude remain remarkably scarce for avian species. Here we present novel estimates of source amplitude (range and median) for 17 species of Arctic-breeding birds, derived from measurements made in Utqiagvik, Alaska, during June 2024. We found a strong positive correlation between body-mass and source amplitude in these data via Markov chain Monte Carlo multivariate generalized linear mixed models (MCMCglms). This relationship was influenced by both phylogenetic and individual identity. In contrast, effects from environmental factors and measurement characteristics were minimal. Our work represents one of few studies that explicitly model an interspecific relationship between source amplitude and body mass across avian genera. We hope that this study will spur further investigations into avian source amplitude and its relationship to morphological and life-history features for species in the Arctic and elsewhere.

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Ziegenhorn, M.A., R.B. Lanctot, S.C. Brown, S. Schulte, S.T. Saalfeld, C.J. Latty, and N. Lecomte. 2025. Comparing acoustic and visual monitoring methods for assessing biodiversity and distributions of Arctic-breeding shorebirds. *Journal of Applied Ecology* 63: e70300. <https://besjournals.onlinelibrary.wiley.com/doi/10.1111/1365-2664.70300>

1. The rapid decline of global bird populations demands effective and efficient monitoring approaches, particularly for shorebirds, which are experiencing significant declines in abundance.
2. Most shorebird monitoring programmes rely on visual surveys, but such surveys face significant challenges in remote locations such as the Arctic where high costs and logistical constraints limit survey effort and duration.
3. We compared data collected from visual area search surveys and acoustic autonomous recording units (ARUs) for monitoring shorebird species in two large regions of Alaska's Arctic Coastal Plain in 2022–2023. We deployed ARUs at 130 sites (55 sites in Arctic National Wildlife Refuge [ANWR]; 75 in Teshekpuk Lake Special Area [TLSA]) where visual surveys were also conducted and examined differences in species richness, encounter rates and predicted distributions for 15 shorebird species.
4. ARU surveys resulted in 50% higher species richness than visual surveys in ANWR and 33% higher at TLSA. Species accumulation curves demonstrated that ARUs required fewer plots to detect the maximum number of species. ARU data enabled species distribution

modelling for additional species compared to visual data due to higher encounter rates, resulting in differences in predicted high-use areas.

5. Visual encounter rates were slightly higher for phalaropes than with ARUs in both regions. Additionally, several rare species were detected in the visual surveys but not in the ARU surveys (e.g. Wilson's Snipe, Western Sandpipers).

6. *Synthesis and applications.* Our findings demonstrate that ARUs can effectively monitor shorebird species presence, offering advantages in temporal coverage and synchronous data collection across large spatial extents. This may be particularly important in remote regions where traditional monitoring approaches are challenging to implement and sustain.

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## **DATA RELEASES**

Brown, S.C., J.E. Lyons, S.T. Saalfeld, S. Schulte, C.J. Latty, M. McGarvey, L.R. Kidd, K.L.K. Carr, and R.B. Lanctot. 2025. Breeding shorebird surveys on the Arctic National Wildlife Refuge, Alaska (2019-2022): U.S. Geological Survey data release, <https://doi.org/10.5066/P13XTDKY>

This dataset contains results from long-term monitoring of breeding shorebirds on the Coastal Plain (1002 Area) of the Arctic National Wildlife Refuge, Alaska. Surveys were conducted during 2019–2022 using the Arctic PRISM (Program for Regional and International Shorebird Monitoring) protocol. The sampling design employed stratified random selection of 16-ha plots across four habitat strata (wetland, moist, riparian, upland), and field methods included rapid area searches by trained observers. The datasets includes plot-level detections, behavioral indicators of breeding status, and habitat classifications to support the estimation of contemporary population sizes for 16 species and assessment of long-term population trends for 13 species present in Brown et al. (2007, *The Condor*, 109:1–14). Potential users of these data are encouraged to first contact the data authors to discuss intended use and how these data may or may not be applicable.

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Rodkey, T. 2024. Data and code from Rodkey et al. (2024): “Sod farms drive habitat selection of a migratory grassland shorebird during a critical stopover period” [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.12821771>

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sod and corn varied by season, with birds preferring sod in spring, and avoiding corn when it is tall, but selecting for corn in fall after harvest. This dependence on cropland in the Texas Coastal Plain is contrary to habitat use observed in other parts of their non-breeding range, where rangelands are used extensively. The species' almost complete reliance on a highly specialized crop, sod, at this critical stopover site raises concerns about potential exposure to contaminants as well as questions about whether current management practices are providing suitable conditions for migratory grassland birds.

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U.S. Geological Survey - Alaska Science Center, National Park Service - Southwest Alaska Inventory and Monitoring Network, University of Alaska Fairbanks - College of Fisheries and Ocean Sciences, 2017. Black Oystercatcher nest and diet data from Kachemak Bay, Katmai National Park and Preserve, Kenai Fjords National Park, and Prince William Sound (ver 4.0, September 2025): U.S. Geological Survey data release, <https://doi.org/10.5066/F7WH2N5Q>

These data are part of the Gulf Watch Alaska (GWA) long-term monitoring program, nearshore monitoring component. The dataset is comprised of six comma separated values (.csv) file exported from a relational database. The data consist of: 1) transect summary, 2) nest details, 3) egg float and stage data, 4) chicks diets, 5) chick diet taxonomy, and 6) Gulf Watch Alaska contributors.

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