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## Conference Sponsors

Lake Michigan Sponsorship Level: \$5000

**Detroit  
Zoological  
Society**



Lake Ontario Sponsorship Level: \$1000+



**Audubon**

Lake St. Clair Sponsorship Level: \$500



## Conference Vendors



*Spinner's End*

*Hand Forged Jewelry*

## Welcome from the President

Welcome to our 49<sup>th</sup> Annual Meeting!

I am excited for the Waterbird Society to get back to the Great Lakes area. But first a huge thank you to Rachael Pierce, lead of the Local Organizing Committee, for putting together such a great meeting. Having organized a meeting in Florida, I know firsthand how much work is involved in hosting a conference. Despite many challenges during these uncertain times, Rachael and the Local Organizing Committee have managed to put together a great meeting at a beautiful location.

I also want to thank, Nellie Tsipoura, our President-Elect and this year's Program Chair. Again, as a former Program Chair, I know how difficult it is to juggle presentations, posters, symposia, plenary speakers and workshops to create a program. Frequently it felt like putting a square peg into a round hole which is to say it is not an easy role. Fortunately, this year's program is in great hands as you will see during the conference.

I also want to thank all of you for attending this year's meeting, especially our colleagues here in the U.S. I know that recent layoffs, budget cuts and disappearing grants have affected many of us here and in some cases abroad. But I am optimistic that science and conservation will continue to prevail. The large presence of researchers, managers, educators, and conservationists at this meeting is proof of that. You can rest assured that the Waterbird Society will continue to march on with our activities. The Society is financially stable; we have great endowments graciously provided by Dr. James Kushlan and Dr. Ian Nisbet, and best of all we have a great group of Council members and Committee Chairs. These folks are the lifeblood of the Society and responsible for our success. If you see them this week, please be sure to thank them for their service. And if you are interested in being more involved with the Waterbird Society don't hesitate to come talk to us. We are always looking for fresh new faces to join our Council and committees.

I am looking forward to seeing you all here at the Cherry Capital of the World! Enjoy yourselves in Traverse City and I hope you can make it out to see some of the beautiful scenery in the surrounding areas.

Warm greetings,

**Ricardo Zambrano**  
**Waterbird Society President 2024-2025**

## Welcome from the Planning Committee

On behalf of the Planning Committee, we warmly welcome you to the 49th Annual Waterbird Conference!

This year's gathering has not been easy to bring together. We are living through challenging and uncertain times—navigating political divisions, loss of funding, barriers to international collaboration, and limits on participation from many of our partners and students. We are also witnessing broader social unrest, the dismantling of important DEI efforts, and an atmosphere that can feel unsettling. And yet, we are here. We have crossed the finish line. We have come together in one space to reconnect with old friends, to meet new colleagues, to share knowledge, and to advance the conservation work that drives us all.

We would also like to express our sincere gratitude to our conference sponsors (The Detroit Zoological Society, MI Department of Natural Resources, The Mississippi Flyway Council, The National Audubon Society, and Michigan SeaGrant). Their generosity and commitment have made this gathering possible, and we are deeply thankful for their support in sustaining this community and its work.

There could be no better setting for this than Traverse City. This region offers a wealth of natural beauty and an incredible diversity of habitats and waterbirds. It is a magical place, nestled on the shores of Lake Michigan, especially now—peak fall color season in northern Michigan. We encourage you to step outside during your time here: wander the town, take a hike, seek out fall migrants, or simply take in the brilliance of the changing leaves. Few places capture the splendor of the season so completely.

We are grateful for your presence, your resilience, and your commitment to conservation. Thank you for being part of this community. Welcome—and let's make this conference a meaningful and memorable one together.

Rachael Pierce  
Chair of the 49th Annual Waterbird Conference Planning Committee

## Welcome from the Scientific Program Chair

Welcome everybody to Traverse City, Michigan. This is the first time we have met in the mid-West since 2002, and a good opportunity to focus on Great Lakes waterbirds!

Our scientific program will kick off with a Tuesday morning plenary by Francie Cuthbert, Distinguished Teaching Professor Emerita, Department of Fisheries, Wildlife and Conservation Biology, University of Minnesota, St. Paul, the recipient of the Kai Curry Lindahl award in 2025. Her presentation will explore lessons and challenges from 50 years studying colonial waterbirds and Piping Plovers in the Great Lakes. Wednesday morning Chip Weseloh, also a recipient of the Kai Curry Lindahl award, will present the plenary on his 60 Years of Bird Colonies and Boats. He has been studying 13 species of colonial waterbirds that nest in the Great Lakes since the 70s and continues to this day, even after retiring from the Canadian Wildlife Service. Finally, David Duffy, Gerrit Parmele Wilder Professor Emeritus, School of Life Sciences, University of Hawaii, and recipient of the Robert Cushman Murphy award will present the plenary on the last day of the meeting on his research examining how bird droppings deposited on a few small arid islands off of Peru helped to shape world history extending from Rapa Nui, to European and American agriculture and industrialization, to climate studies, and even to our DNA.

The scientific program includes two or three concurrent scientific sessions on Tuesday, Wednesday, and Thursday, and a poster session on Tuesday evening. Several symposia are part of the program: Great Lakes Colonial Waterbirds, Rail-y Great Partnerships, Inland Common Terns, and Piping Plovers. Symposium organizers have worked to bring experts together to tell compelling stories about the biology of these waterbird species, along with monitoring and management, and conservation efforts to support them. All sessions will be mostly in-person, but given some difficulties in traveling to the meeting, some presenters will be giving their talks virtually.

In addition to a full schedule of oral and poster presentations, Amanda Hackney will present a workshop on Tuesday afternoon during which the attendees will learn how to use the appropriate ESRI apps (Field Maps, Quick Capture, and Survey123) to collect field data, the types of GPS units on the market, and how accuracy can affect data collection.

We also encourage everyone to attend the Waterbird Society Business meeting on Thursday afternoon, after the last presentations, to learn more about the Society and how you can get involved. I am looking forward to a good meeting, and fun times with colleagues and friends old and new! A special thanks to the local committee, and especially Rachael Pierce for all their efforts in putting this meeting together despite the difficult logistics and constraints!

**Nellie Tsipoura,**  
**Scientific Program Chair and President-elect, Waterbird Society**

## Conference Planning Committee Members

Aimee Baier	Sault Tribe of Chippewa Indians
Vince Cavalieri	National Park Service
Francie Cuthbert	University of Minnesota
Karen Cleveland	MI Department of Natural Resources
Susan Elbin	Retired
Tony Henehan	MI Department of Natural Resources
Kylie McElrath	Great Lakes Audubon
Sherry Mackinnon	MI Department of Natural Resources
MaryEllen Newport	Interlochen Arts Academy
Sarah Saunders	National Audubon Society
Nancy Seefelt	Central Michigan University

## About the Waterbird Society

### Our Mission

The Waterbird Society is an international scientific, not-for-profit organization whose mission is to foster the study, management, and conservation of the world's aquatic birds. The Society's primary goals are to: (1) promote the basic and applied research on waterbirds and their habitats, (2) foster science-based waterbird conservation globally, and (3) enhance communication and education at all levels – among professionals, policy makers, and citizens. To accomplish these goals, the Society publishes and international peer-reviewed journal, hosts scientific meetings, provides grants and awards, and facilitates other activities.

### Our History

The Society was established in 1976 following the North American Wading Bird Conference held in Charleston, South Carolina, USA, and was named the Colonial Waterbird Group. The organization changed its name to the Colonial Waterbird Society in 1986. In 1999, the organization became the Waterbird Society to reflect an expanded interest in all aquatic birds.

### Waterbird Society Council

#### Officers

Ricardo Zambrano - *President*  
Kate Goodenough - *Secretary*

Nellie Tsipoura – *Vice President*  
Christine Custer - *Treasurer*

#### Elected Council Members

Jose Ramirez-Garofalo  
I. Kaan Özgüncil  
Diego F. Cisneros-Heredia  
Yat-tung Yu

Ariam Jiménez  
Jeff Costa  
Alison Kocek  
Ann McKellar

Ruth Boettcher  
Iain Stenhouse  
Sabir Muzaffar

#### Past Presidents

Patricia Szczys (2022-2023)  
Dave Moore (2020-2021)  
Clay Green (2018-2019)

## Birding Traverse City

### **Favorite Locations:**

- Grand Traverse Nature Reserve – Boardman Nature Center (1450 Cass Road)
- Boardman Lake and River – Logan’s Landing (off airport road, east of Cass Road)
- Grand Traverse Commons trails
- Brown Bridge Quiet Area – southeast of Traverse City
- Old Mission County Park – end of M-37 at north end of Old Mission Peninsula
- Sleeping Bear Dunes National Lakeshore – many locations!

For a list of all Traverse City birding hotspots click the following pdf link:

[Grand Traverse Audubon Guide to Traverse City Birding Hotspots](#)

## Ideas for Exploring Traverse City and the Surrounding Areas

**Steelhead Fishing.** September and October are prime Steelhead Fishing months. Catch your limit in nearby rivers without even having to step onto a boat! Book a guide or go on your own.

**M-22 Scenic Driving Tour.** M-22 is a 116-mi stretch of highway that winds along the Lake Michigan shoreline and through the scenic countryside. You can drive the entire length in just under three hours, or spend the entire day exploring small coastal towns, searching for Petoskey stones, visiting the white sand beaches, and enjoying the Fall colors.

**Winery Tours.** The Traverse City region has more than 50 wineries. Many people love to visit the Leelanau Peninsula Wine Trail or the Wineries of Old Mission Peninsula. Take your own self-guided tour or let someone else drive by booking one of the many tours offered.

**Traverse City Ale Trail.** This is a fun way to experience the regions thriving craft beer scene. There are 8 breweries on the ale trail. You can pick up your free Traverse City Ale Trail Passport at any of the participating breweries. Explore on your own or take a bus!

**Mackinac Island (Full Day or Overnight).** Visit this “no-cars-allowed” island and take a step back in time! View the Mackinaw Bridge (AKA the “Mighty Mac”) up close, eat at wonderful restaurants, enjoy amazing hiking and kayaking opportunities, take a carriage ride. This unique destination is just a short ferry ride from Mackinaw City across the Straits to the Island.

**Kayak or Canoe Trip.** There’s no better way to appreciate the Fall colors that floating down a river. Book a trip with a local vendor to paddle the Boardman River, the Platte River, or Grand Traverse Bay.

**Visit a historic lighthouse.** Mission Point Lighthouse is located on the northern point of Old Mission Peninsula and Grand Traverse Lighthouse is located at Leelanau State Park on the north end of the Leelanau Peninsula north of Northport.

**Grand Traverse Commons.** Located on the grounds of the old Traverse City State Hospital, this location now offers shopping and dining, hiking trails and an arboretum.

**Dennos Museum.** Located near the venue within Traverse City Limits, this museum holds one of the largest collections of Inuit art from the Canadian Arctic. Additional museum features often highlight music and science.

**TART (Traverse Area Recreation and Transportation Trails).** A system of paved and dirt trails that wind throughout the local area open for walking, hiking, biking and skating.

**Fishtown.** Located in Leland north of the Sleeping Bear Dunes National Lakeshore, this historic location is still a working commercial fishery. The area features shopping, dining and historic locations to explore.

## Program at a Glance

Meals/Catering   Symposia   Social Activities   Regular Sessions   Workshop

<b>Monday, September 29th</b>		
7:30 am – 8:00 pm	Breakfast for Council Members	Boardman
8:00 am – 4:00 pm	Council Meeting	Boardman
9:00 am – 4:00 pm	Waterbird Round Table	Courtyard I&II
6:00 pm – 8:00 pm	Welcome Reception	Top of the Park

<b>Tuesday, September 30<sup>th</sup></b>		
8:00 am – 8:30 am	Announcements	Grandview Ballroom
8:30 am – 9:30 am	Plenary Speaker, Dr. Francie Cuthbert	Grandview Ballroom
9:30 am – 10:00 am	Break	The Gallery
10:00 am – 12:00 pm	Rail Symposium	Park
10:00 am – 12:00 pm	Great Lakes Colonials Symposium	Front
10:00 am – 12:00 pm	Breeding Biology	State
12:00 pm – 1:00 pm	Onsite Buffet Lunch	Grandview Ballroom
12:00 pm – 1:00 pm	Student Mentoring Lunch	Top of the Park
1:00 pm – 3:00 pm	Rail Symposium	Park
1:00 pm – 3:00 pm	Great Lakes Colonials Symposium	Front
1:00 pm – 3:00 pm	GIS Workshop	State
3:00 pm – 3:30 pm	Break	
3:30 pm – 5:00 pm	Rail Symposium	Park
3:30 pm – 5:00 pm	GIS Workshop	State
3:30 pm – 5:00 pm	Population Biology	Front
6:00 pm – 8:00 pm	Poster Session	Grandview Ballroom

Meals/Catering   Symposia   Social Activities   Regular Sessions

<b>Wednesday, October 1st</b>		
8:00 am – 8:30 am	Announcements	Grandview Ballroom
8:30 am – 9:30 am	Plenary Speaker, Dr. D.W.Chip Wesloh	Grandview Ballroom
9:30 am – 10:00 am	Break	The Gallery
10:00 am – 12:00 pm	Common Tern Symposium	Front
10:00 am – 12:00 pm	Habitats and Distribution	State
12:00 pm – 1:00 pm	Onsite Buffet Lunch	Grandview Ballroom
1:00 pm – 3:00 pm	Common Tern Symposium	Front
1:00 pm – 3:00 pm	Habitats and Distribution	State
1:00 pm – 3:00 pm	Conservation and Restoration	Park
3:00 pm – 3:30 pm	Break	The Gallery
3:30 pm – 5:30 pm	Common Tern Symposium	Front
6:00 pm – 8:00 pm	Student Social	Rarebird Brewing

<b>Thursday, October 2nd</b>		
8:00 am – 8:30 am	Announcements	Grandview Ballroom
8:30 am – 9:30 am	Plenary Speaker, Dr. David Duffy	Grandview Ballroom
9:30 am – 10:00 am	Break	The Gallery
10:00 am – 12:00 pm	Piping Plover Symposium	Front
10:00 am – 12:00 pm	Movement, Migration, and Behavior	State
12:00 pm – 1:00 pm	Onsite Buffet Lunch	Grandview Ballroom
1:00 pm – 3:00 pm	Piping Plover Symposium	Front
1:00 pm – 3:00 pm	Movement, Migration, and Behavior	State
1:00 pm – 3:00 pm	Contaminants and Disease	Park
3:00 pm – 3:30 pm	Break	The Gallery
3:30 pm – 4:30 pm	Piping Plover Symposium	Front
4:30 pm – 5:30 pm	Business Meeting	State
6:30 pm – 10:00 pm	Banquet	Grandview Ballroom

**Friday, October 3rd**

7:00 am – 5:00 pm	Sleeping Bear Dunes Field Trip
7:00 am Friday - 12:00 pm Saturday	Overnight Field Trip to Whitefish Point

## Plenary Speakers



### **Dr. Francie Cuthbert**

*Tuesday, September 30<sup>th</sup>, 8:30 am – 9:30 am*

#### **Management of Colonial Waterbirds and Piping Plovers: Magnificent Treasures in the North American Great Lakes**

This presentation will explore lessons and challenges from 50 years studying colonial waterbirds and Piping Plovers in the Great Lakes. My career began in the 1970s with my MS research on the behavior of Ring-billed Gulls. I then transitioned to Caspian Tern inter-colony movement for a PhD. While engaged in these studies, I became intrigued by small declining populations-why they were small, and can their numbers be increased? This led to research on Piping Plovers and Common Terns. Soon after, Double-crested Cormorants entered the Great Lakes as a new breeding species and the peaceful world of waterbirds, and their typically isolated and idyllic colonies became sites of conflict and death. This was a very disturbing time for those of us who saw cormorants as a natural part of the waterbird community and witnessed the management issues created at mixed species

colony sites when intensive cormorant management was implemented. To address concerns about increasing numbers of cormorants and declining numbers of other colonial species, I coordinated, along with my Canadian colleague, Chip Weseloh, the binational Great Lakes Colonial Waterbird Survey. As we completed the 4th decadal census in 2010, it became clear that estimating population size once every 10 years was too infrequent to detect and react to important changes in a timely fashion. With another colleague, Linda Wires, we tested a strategy to census "72 Priority Sites" out of over 400 nesting sites and confirmed this method as reliable of most waterbird trends. We also incorporated aerial photography, which both reduced cost and disturbance and increased precision. While the waterbird work was going on, I became passionate about the effort to recover the nearly extirpated population of Piping Plovers in the Great Lakes. This major effort is ongoing and will also be summarized in this Plenary as well as in a special plover symposium on Thursday.

Francesca J Cuthbert is a Distinguished Teaching Professor Emerita in the Department of Fisheries, Wildlife and Conservation Biology at the University of Minnesota-Twin Cities. She is also a Visiting Professor at the University of Michigan Biological Station where she taught Biology of Birds for 25 summers and is continuing her Piping Plovers research. Francie received her PhD from the University of Minnesota, a MS from Northern Illinois University and a BS from the University of Michigan. She has studied waterbirds in the North American Great Lakes for more than 50 years. For her research and conservation efforts she has received the Minnesota Chapter of The Wildlife Society Award, the T.S. Roberts Award from the Minnesota Ornithologists' Union, a U.S. Fish and Wildlife Service Recovery Champion Award, the Ralph Schreiber Conservation Award from the American Ornithological Society and the Kai Curry Lindahl Conservation Award from the Waterbird Society. She has published more than 100 peer-reviewed articles and many reports on various topics of avian ecology, conservation and management. Her research has been supported by more than 60 grants from federal and state agencies and non-profit organizations. And during her career, she has advised 50 graduate students on avian biology. She is a member of the Waterbird Council of the Americas, Fellow of the American Ornithological Society and past-president of the Waterbird Society.

**Dr. D.W. Chip Wesloh**

*Wednesday, October 1st, 8:30 am – 9:30 am*

### **60 Years of Bird Colonies and Boats - My Career.**

My career started in 3<sup>rd</sup> year undergrad (1965) at Gustavus Adolphus College, in St. Peter, MN, when my ecology prof happened to mention that in Great Blue Heron colonies, adults nest in the same tree and same nest in successive years. This meant that in raising their young, they pooped in the same spot year after year... and all that poop greatly affected the vegetation beneath their nest trees. That remark led to a class project, which two years later evolved into my MSc (at Michigan Technological University in the Michigan UP). Observations on that heron colony led to my PhD (at the University of Calgary, in Alberta) where I had wanted to study local movements of herons. However, the professor there (Dr. M.T. Myres) didn't care about herons but if I would switch to the urban ecology of gulls, he'd take me on. As I was finishing that fieldwork in 1972, I had a phone call and an offer from Bill (W.W.H.) Gunn for a "pre" Post-Doc to document local movements of gulls at a newly proposed airport near Toronto at Pickering. These two gull studies, and a stint at the Provincial Museum of Alberta, led to a 35-year working career and a 13-year (and counting) Emeritus career with the Canadian Wildlife Service in Burlington and Toronto on the Laurentian Great Lakes. On the Great Lakes, starting in 1978, I was tasked with ensuring annual collections of Herring Gull eggs, and reporting on contaminant trends, from 15 Canadian and US sites; I was also to search for any potential biological effects of contaminants. I have been fortunate to be able to study, in at least some capacity, all 13 species of colonial waterbirds that nest there, and some that only migrate through.



I have probably been to, or at least seen, every waterbird colony on the Canadian side of The Lakes. I have been to the gull-cormorant colony at Snake Island, off Kingston, over 300 times including many overnight stays in an elevated blind. I will discuss the trials, tribulations and some of the results of my years of monitoring and research (and I have often been told that they are not the same!). Perhaps the most serious of those trials involved my near career-ending challenge of 1984, when my position and the entire Herring Gull Egg Monitoring Program was cut from CWS' budget. I have enjoyed collaborating and publishing with over 100 colleagues from academia, government, private industry, naturalist clubs and the public, most notably: in the Gret Lakes, Dave Moore, Hans Blokpoel, Jim Ludwig, Pierre Mineau, Craig Hebert, Laird Shutt, Lee Harper, Irene Mazzocchi and the Great Lakes Area Working Group for Colonial Waterbirds on the Great Lakes ("GLAWGCW"), and in New York City with Susan Elbin and Nellie Tsipoura, where I have learned the Harbour is almost like a marine extension of the Great Lakes. As a strong advocate for local naturalists and birders --- after all, they saved my job in 1984--- my wife, Linda, and I, were part of the Organizational Committee that formed the Ontario Field Ornithologists (aka OFO!) in 1983 as well as being their first editors of "*Ontario Birds*", and I have continued in that capacity for 22 years. Somewhere in there, we've had time to raise our three sons and 25 foster kids. Examples of the motivation and inspiration that always keeps me going will be provided by snippets from the appropriate Rock & Roll and Country songs of the day!



**Dr. David Duffy**

*Thursday, October 2<sup>nd</sup>, 8:30 am – 9:30 am*

**The Tau of Poo: How bird droppings deposited on a few small islands off Peru helped to shape world history**

This presentation ties my interest in seabirds to the wider world around us, examining how bird droppings deposited on a few small arid islands off of Peru helped to shape world history extending from Rapa Nui, to European and American agriculture and industrialization, to climate studies, and even to our DNA, with appearances by Alexander Von Humboldt, Nobel Laureate Fritz Haber, and Kon Tiki.

I spent my teen and undergraduate summers on 17-acre Great Gull Island, at the mouth of Long Island Sound, as part of a citizen's research project involving thousands of terns. My mentor was Dr. Helen Hays of the American Museum of Natural History, from whom I learned how to do field work and to manage people and the logistics of working on a small, waterless island. At Harvard I was part of a small group interested in ornithology. Dr Raymond

Paynter at the Museum of Comparative Zoology took a few of us on field trips to Colombia and Yucatan, inspiring me to a career venturing to distant places. At Princeton for graduate studies, I benefited from the mentorship of three great but very different ecologists, Henry Horn, Bob May, and John Terborgh. They left me free to pursue my dissertation on Peruvian guano birds. I spent six months "alone" on an island with three Quechua Indians from the highlands; they taught me an invaluable series of curse words but also about the birds.

Over the last 50 years I have become an ecological jack of all trades working on old growth forest in the Smokies, Lyme disease ecology on Long Island, seabirds and biodiversity in Alaska, penguin competition with commercial fisheries in southern Africa, El Niño and seabirds, the seabirds of Rapa Nui (Easter Island), Ecuadorian traditional medicine, nesting of Blue-footed Boobies in Galapagos, avian disease in Galapagos and Hawaii, and feral cats. Most field researchers gravitate in time to administration as their knees deteriorate or they grow families. In my case I was dragged into admin at the Darwin Station in Galapagos just six months after leaving Princeton. I became the interim director. Grad school just does not prepare one for this. I had to repair relations with the Ecuadorian Galapagos Park Service as the station was broke and Ecuador was withholding lots of money. Detente initially involved drinking large quantities of beer and listening. The park director Miguel Cifuentes became my mentor, a friend, and role model of how a leader stands up for his people and the land. The Darwin Station got back on track financially and we could meet payroll and hire scientists.

I love research but I am very good at admin, perhaps because I don't like it. After Galapagos I went on to lead teams studying Alaskan biodiversity, how seabirds recovered from the Exxon Valdez oil spill, seabird ecology in the Benguela upwelling ecosystem, and most recently a quarter century in Hawaii raising over \$250 million to put teams into the field to try to slow the destruction of the Hawaiian aina (land). I have always been a congenital optimist and this has endured. I have been lucky in what I chose to do, where, and with whom. I have been lucky to have a marvelous collection of friends who cheered and laughed with me and occasionally made sure I didn't get too full of myself. I have never lost my sense of wonder, be it small new research finding, or a killer whale passing under our boat and looking up at me or being in the presence of giant trees. Most recently it has been the wonder of watching my grandkids vacuuming up new words and experiencing their own sense of wonder about just about everything.

## Symposia, Round Tables, & Workshops

### Round Table: Updating the Waterbird Conservation Plan

**Session Time & Location:** Monday, September 29; 9-4:00 Courtyard I&II

The primary purpose of this roundtable is to establish a clear process for updating the 2002 Waterbird Conservation Plan. Participants will review the status of waterbird populations in North America, examining conservation challenges, threats, habitat requirements, and key information gaps across their annual cycles.

The roundtable has three main goals:

1. To provide an overview of the original 2002 plan and assess whether its format and content remain relevant.
2. To identify and prioritize key species, threats, and conservation actions-using breakout groups to guide focused discussion.
3. To outline concrete next steps, including a timeline and structured approach for completing the update.

### Symposium: Great Lakes Colonial Waterbirds: Monitoring, Research and Management

**Session Time & Location:** Tuesday, September 30; 10 AM – 3 PM; Front

The intention of this symposium is to bring together researchers, resource managers, and conservation professionals from the United States and Canada to share the latest science and management strategies related to colonial waterbirds in the Great Lakes region. Through a binational lens, the symposium explores historical context, current monitoring and management efforts, and future conservation challenges and opportunities. By highlighting new survey data, long-term trends, emerging threats such as disease and climate change, and innovative management practices, this symposium aims to advance coordinated, science-based approaches for sustaining colonial waterbird populations and their habitats.

### Symposium: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation

**Session Time & Location:** Tuesday, September 30; 10 AM – 5 PM; Park

This symposium will provide a forum for bringing together secretive marshbird researchers and conservation professionals to learn from each other, connect local and regional efforts, and link conservation science and actions occurring throughout the full marshbird range. We intend to present case studies that have implemented philosophies promoted in translational ecology, co-production, and other frameworks that outline the inclusion of resource managers, resource users, and decision makers in all steps of a research or conservation project. Each case study will highlight the importance of stakeholder buy-in, decision-framing, planning, and/or communication in partnership building in addition to research, monitoring and management activities. By bringing together professionals from across the continent, we aim to increase understanding of how different groups have organized to conduct effective partnerships across the range of North American marsh birds. Additionally, we hope to highlight and discuss the challenges marshbird partnerships have faced, and how these challenges are being addressed or overcome.

### **Workshop: Collecting Field Data Using GPS-based Apps**

**Session Time & Location:** Tuesday, September 30; 1 PM – 5 PM; State

This workshop introduces participants to a range of options for field data collection and the use of GPS technology to support different needs. It will provide an overview of three ESRI applications—Field Maps, QuickCapture, and Survey123—highlighting their key differences and explaining when each is most appropriate. The session will also examine the types of GPS units available on the market and explore how accuracy impacts data collection. A live demonstration will show how to design a Survey123 form tailored to various requirements, followed by a hands-on data collection exercise. Participants will learn how to locate submitted data and export it for future use. The workshop will conclude with a Q&A session, offering attendees the opportunity to address questions specific to their own projects. Designed for beginners and beyond, the material does not require extensive experience with ArcPro or desktop GIS.

### **Symposium: Setting Conservation-based Management Goals for Inland Breeding Common Terns in North America: Declines, Threats, Solutions, and Priorities**

**Session Time & Location:** Wednesday, October 1; 10 AM – 5:30 PM; Front

Common Tern breeding populations in inland North America have declined throughout their regional strongholds since the 1960s. These trends have intensified in recent years (e.g. 40% loss in the Great Lakes since 2010, 75% loss in 20 years across the large lakes of Manitoba, declines across boreal Canada) making coordinated conservation initiatives for these populations critical. Additionally, research has demonstrated that this is a large interconnected meta-population that requires broad-scale coordination to the extent possible. The Waterbirds Annual Meeting in Sept 2025 at Traverse City, MI is ideally located in the middle of the inland breeding range to be a convenient meeting place for managers and scientists working on inland breeding Common Tern to address these needs. The goals of this symposium/roundtable are to (i) communicate the latest information on status of Common Terns across inland North America, (ii) present and discuss the main threats to inland Common Tern populations and solutions that have worked, (iii) to compile these ideas in a conservation and management recommendations document to be published in a journal (Waterbirds?) that would include co-authorship of attendees and guide future coordinated initiatives, and (iv) to establish a working group going forward to coordinate initiatives for Common Tern recovery throughout the region.

### **Symposium: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond**

**Session Time & Location:** Thursday, October 2; 10 AM – 4:30 PM; Front

Piping Plovers represent one of North America's most intensively managed and closely monitored endangered shorebird species. In the Great Lakes region, recovery efforts have relied on close collaboration among agencies, researchers, landowners, and conservation practitioners - often across jurisdictional and geographic boundaries. Yet the challenges facing Piping Plovers extend far beyond the Great Lakes, from Atlantic Coast beaches to the Prairie Pothole Region of the Northern Great Plains, requiring coordinated management and creative problem-solving at a broad scale. This symposium will highlight recent advances in Piping Plover science, conservation, and management. Presentations will focus on population dynamics, habitat modeling, predator management, threat mitigation (including climate-driven changes) and lessons learned from successful partnerships. Speakers will share insights from the Great Lakes and other regions, offering perspectives on the evolving challenges - and opportunities - for supporting the long-term viability of Piping Plover populations.

## Field Trips

### Field Trip 1: Sleeping Bear Dunes National Lakeshore, Empire, MI

Sleeping Bear Dunes is renowned for its towering sand dunes, stunning Lake Michigan shoreline, and diverse landscapes. During this field trip, we will spend the day birding a wide variety of habitat types (dunes, lakes, streams, hardwood forests, and cedar swamps), driving the scenic drive, hiking a sand dune (and running back down!), and soaking in panoramic views of Lake Michigan.



**When:** October 3, 2025

**Start Time:** 7:00 am in hotel lobby **End Time:** 5:00pm

**Cost:** \$60

**Itinerary:** Walk and bird the shoreline of Sleeping Bear Bay; drive the scenic drive stopping at various locations for sight-seeing of geologic features of Sleeping Bear Dunes and scenic overlooks; lunch break at Dune Climb picnic area; visit to Platte Bay to search for migrating waterbirds.



### Field Trip 2: Whitefish Point Bird Observatory, Paradise, MI (Upper Peninsula)

Identified as an IBA, the geography of Whitefish Point funnels thousands of birds through the Great Lakes during migration. Over 340 species have been seen at the point including massive numbers of waterbirds that are counted every spring and fall. Common species include a wide diversity of dabbling and diving ducks, common loon, red-necked grebe and gulls and terns. Rare species include jaegers, Sabine's gull, red-throated loon and potentially some late shorebirds. Exploring the boreal forest in the greater Whitefish Point area provides opportunities for encounters with species like Spruce and Sharp-tailed Grouse, Black-backed

Woodpecker, and Red Crossbill. This trip will also include an owl banding demonstration in the evening at one of North America's premier owl banding labs that regularly gets Northern Saw-whet and Long-eared Owls. **THIS IS AN OVERNIGHT TRIP!!**

**When:** Friday, October 3 - Saturday, October 4, 2025

**Start Time:** 5:30 am in hotel lobby **End Time:** Saturday @ 2:00 pm

**Cost:** \$100

**Itinerary:** Walk and bird the adjacent woods and trails for passerines and boreal specialties such as Spruce Grouse and Black-backed Woodpecker; attend and witness both early morning and evening waterbird flights; meet with owl banders documenting owl migration for demonstration.

## Detailed Science Program

Front	State	Park
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Tuesday, September 30th Session 1			
Start Time	Rail-y Great Partnerships Symposium; Moderator: Nathan Michael	Breeding Biology; Moderator: Indra Acharja	Great Lakes Colonial Waterbirds Symposium; Moderator: Chip Wesloh
10:00 AM	[112] Nathan Michael <i>Advancing Marshbird Conservation Through Partnerships in the Midwest and Great Lakes</i>		[02] Dave Moore <i>Population trends of colonial waterbirds in the Canadian waters of the Great Lakes</i>
10:20 AM	[30] Doug Tozer <i>Marshbird science and conservation at Birds Canada: collaborative partnerships are key</i>	[46] Jay van Pelt <i>50 ways to leave your lover; results of invasive monitoring in Leach's Storm-Petrel</i>	[70] Sumner Matteson <i>Changes in the Status and Distribution of Colonial Waterbird Breeding Populations, Western Lake Superior, 1974-2024</i>
10:40 AM	[59] Stephanie Beilke <i>Collaboration Drives Success in the Calumet Marsh Bird Monitoring Program</i>	[82] Rostam Mirzadi <i>Nest survival for five species of colonial waterbirds on the Texas coast</i>	[110] Laura Kearns <i>30 Years of Colonial Waterbird Monitoring and Management in Ohio</i>
11:00 AM	[34] Nate Stott <i>Linking wetland bird conservation with water quality benefits of wetland restoration in Ohio's Lake Erie watershed</i>	[59] Kim Abplanalp <i>Adapting to Changes on the Maryland Tern Raft- What Next?</i>	[128] Keith Grasman <i>Colonial Waterbirds as Sentinel Species for Long-Term Monitoring of Population, Reproductive, and Immune Effects at Contaminated Great Lakes Sites in Michigan</i>
11:20 AM	[37] Rachel Mansfield <i>Joining Forces: Integrating Acoustic Recording to Improve Marsh Bird Monitoring</i>	[10] Indra Acharja <i>Variation in breeding timing influences reproductive success and population dynamics in the critically endangered white-bellied heron <i>Ardea insignis</i>.</i>	[13] Sarah Slayton <i>Mapping the Urban Black-crowned Night Heron: Uncovering the Hidden Movements of North America's Stealthiest Wading Bird</i>
11:40 AM	[25] Jennifer Fuller <i>Comparing the effectiveness of autonomous recording units (ARUs) and call-broadcast surveys for marsh bird detections and occupancy in the Great Lakes region</i>	[134] Pat Baird <i>Diatoms are the keystone group affecting trophic webs in the marine ecosystem</i>	[60] Preeti Dave <i>The summer Caspian terns fell silent on the Great Lakes: Impacts of Avian Influenza</i>

Front	State	Park
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Tuesday, September 30th Session 2			
Start Time	Rail-y Great Partnerships Symposium; Moderator: Nathan Michael	GPS Field Data Apps Workshop; Workshop Leader: Amanda Hackney	Great Lakes Colonial Waterbirds Symposium; Moderator: Chip Wesloh
1:00 PM	<b>[57] Greg Shriver</b> <i>The Saltmarsh Habitat Avian Research Program: 15 Years of communication-driven partnerships for tidal marsh bird conservation</i>	Workshop	<b>[115] Chip Weseloh</b> <i>Roof-nesting by Common Terns and Ring-billed Gulls (and 100% exclusion of the latter) in Toronto, Ontario</i>
1:20 PM	<b>[58] Dustin Brewer</b> <i>Creating and leveraging information to conserve habitat of a secretive and data deficient species</i>	Workshop	<b>[111] Jean Parke</b> <i>Common Tern (Sterna hirundo) Colony Protection Using Integrated Wildlife Damage Management</i>
1:40 PM	<b>[55] Ryan McGinty</b> <i>Wetland Occupancy of Breeding Secretive Marsh Birds is Associated with the Frequency of Recent Moist-soil Management Practices</i>	Workshop	<b>[50] Andrea Chreston</b> <i>Adaptive non-lethal Double-crested Cormorant Management in Toronto, Ontario</i>
2:00 PM	<b>[140] Mike Green</b> <i>The Western Yellow Rail Working Group leverages diverse expertise and resources to advance conservation</i>	Workshop	<b>[93] Kylie McElrath</b> <i>Michigan's Black Terns: From Science to Action for a Species in Decline</i>
2:20 PM	<b>[139] Laurie Hall</b> <i>Collaborative science of the Western Yellow Rail Working Group helps advance conservation throughout the annual cycle</i>	Workshop	<b>[123] James Ludwig</b> <i>The presence of supernormal clutches among Great Lakes Waterbirds 2019-2024</i>
2:40 PM	<b>[138] Julian Wood</b> <i>Raily-ing around a unified protocol: A Multi-agency Approach to Monitoring in San Francisco Bay</i>	Workshop	<b>[133] Chip Weseloh</b> <i>Unidentified and under-addressed issues for Colonial Waterbirds on the Great Lakes, 2025</i>

Front	State	Park
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Tuesday, September 30th Session 3			
Start Time	Rail-y Great Partnerships Symposium; Moderator: Nathan Michael	GPS Field Data Apps Workshop; Workshop Leader: Amanda Hackney	Population Biology; Moderator: Patty Szczys
3:30 PM	<p><b>[107] Maureen Correll</b>  <i>Collaborative conservation of the elusive Eastern Black Rail through the Atlantic Coast Joint Venture</i></p>	<p><i>Workshop</i></p>	<p><b>[33] Ramya Shree</b>  <i>Distribution of threatened shorebirds and their relationship with the environmental gradients at Muttukadu backwaters - a critical wintering site along Central Asian flyway</i></p>
3:50 PM	<p><b>[124] Abby Blake-Bradshaw</b>  <i>Using Autonomous Recording Units to monitor Eastern Black Rails (<i>Laterallus jamaicensis jamaicensis</i>)</i></p>	<p><i>Workshop</i></p>	<p><b>[26] Nadeem Munawar</b>  <i>Population Density of Black Francolin (<i>Francolinus Francolinus L.</i>) in Kala Chitta Ranges, Pakistan</i></p>
4:10 PM	<p><b>[22] Auriel Fournier</b>  <i>Working together to understand the King Rails of southeastern Arkansas: migration status and nesting ecology</i></p>	<p><i>Workshop</i></p>	<p><b>[55] Patty Szczys</b>  <i>Genetic Structure of Aleutian Terns (<i>Onychoprion aleuticus</i>) in Alaska: Insights into Diversity and Population Connectivity</i></p>
4:30 PM	<p><b>[113] Michelle Stantial</b>  <i>Co-Production of an Adaptive Management Framework for Prescribed Fire to Benefit Wildlife in Marsh Ecosystems of the Gulf of Mexico</i></p>	<p><i>Workshop</i></p>	<p><b>[73] David Essian</b>  <i>Land loss results in island-level but not population-level declines in waterbird nest abundance over 16 years (2006-2021) on the lower coast of Texas</i></p>
4:50 PM	<p><i>Rail Symposium Wrap Up Discussion</i></p>	<p><i>Workshop</i></p>	<p><b>[87] Gemma Clucas</b>  <i>An update from Project Poop: Black Skimmer chick diets along the Atlantic Coast as revealed by fecal DNA metabarcoding</i></p>

Front	State	Park
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Wednesday, October 1st Session 1			
Start Time	Inland Common Tern Symposium; Moderator: Jennifer Arnold	Habitats and Distributions; Moderator: Jennalie Lutes	
10:00 AM	<p><b>[141] Jennifer Arnold</b>  <i>Where are we now? Decades of research in inland North America has determined status, addressed knowledge gaps, and derived management tools for Common Tern conservation</i></p>	<p><b>[63] Camille Alvino</b>  <i>Ecological impacts of shoreline stabilization and climate drivers on migratory shorebirds on Virginia's northern barrier islands</i></p>	
10:20 AM	<p><b>[101] Dave Moore</b>  <i>Population status and trends, current threats and conservation management of Common Terns in Ontario</i></p>	<p><b>[118] Joshua Driscoll</b>  <i>ARU Surveys of the Boston Harbor Islands</i></p>	
10:40 AM	<p><b>[114] Francie Cuthbert</b>  <i>Common Terns in the U.S. Great Lakes: Population Status, Threats and Management Challenges</i></p>	<p><b>[129] Iain Stenhouse</b>  <i>Digital aerial surveys for marine birds in the Gulf of Maine</i></p>	
11:00 AM	<p><b>[32] Ann McKellar</b>  <i>Common Terns on the large lakes of Manitoba and the Western Boreal Forest: status, threats, and conservation initiatives</i></p>	<p><b>[122] Marissa Lamb</b>  <i>Factors influencing nest-site selection of colonial wading birds on Texas rookery islands</i></p>	
11:20 AM	<p><b>[52] Annie Bracey</b>  <i>Moving on Up: Fostering collaborative research to address large-scale challenges for inland breeding Common Terns</i></p>	<p><b>[95] Jennalie Lutes</b>  <i>Evaluating Prey Availability And Diversity In Off-Lake Foraging Wetlands For Lake Okeechobee Wading Birds</i></p>	
11:40 AM	<p><b>[65] Stephen Oswald</b>  <i>Past, Present and Future Impacts of Flooding and Climate Change for Inland Breeding Common Terns</i></p>	<p><b>[74] Katrina Fernald</b>  <i>Freshwater Wetland Characteristics Influencing Whooping Crane Use</i></p>	

Front	State	Park
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Wednesday, October 1st Session 2			
Start Time	Inland Common Tern Symposium; Moderator: Jennifer Arnold	Habitats and Distributions; Moderator: Jennalie Lutes	Conservation & Restoration; Moderator: Ariam Jimenez
1:00 PM	<b>[54] Kyla Ebersole</b> <i>Using Novel Technology for Management and Monitoring of Common Tern Colonies</i>	<b>[75] Amy Kopec</b> <i>Nesting Habitat Characteristics of a Novel Black-necked Stilt Population in Wisconsin</i>	<b>[58] David Brinker</b> <i>Restoring micro-beaches as an adaptive management practice to recover Common Tern breeding populations in coastal Maryland</i>
1:20 PM	<b>[62] Nancy Seefelt</b> <i>Management Strategies for Predators of Common Terns</i>	<b>[136] Leah Moran</b> <i>Ecological Drivers Behind Secretive Marshbird Detection, Availability, and Abundance within Southeastern Louisiana</i>	<b>[92] Amanda Hackney</b> <i>Building the perfect island: how island site characteristics influence American Oystercatcher productivity in West Galveston Bay, Texas, USA</i>
1:40 PM	<b>[91] Andrea Chreston</b> <i>Manmade Structures, Artificial Islands, and Semi-Natural Islands as Common Tern Breeding Habitat</i>	<b>[6] Elizabeth Beilke</b> <i>Vegetation structure predicts breeding Black Rail occupancy in coastal high marshes</i>	<b>[96] Kristin Taylor</b> <i>Unexpected use of artificial nesting platforms by Brown Pelicans in South Florida</i>
2:00 PM	<i>Common Tern Working Session</i>	<b>[18] Vasco De Sousa Mend</b> <i>Prioritising Iberian Wetlands for the Conservation of Migratory Waterbirds through Network Analysis</i>	<b>[78] Matti Bradshaw</b> <i>The Economic Value of a Whooping Crane</i>
2:20 PM	<i>Common Tern Working Session</i>	<b>[80] Katharine Goodenough</b> <i>Uncovering the hemispheric foot print of the Royal Tern <i>Thalasseus maximus</i>: A combined study of GPS telemetry tracking and mark-recapture efforts in North Carolina</i>	<b>[85] David Essian</b> <i>Multidecadal island erosion and relative sea level rise causing significant habitat loss at waterbird colony islands in Texas</i>
2:40 PM	<i>Common Tern Working Session</i>	<b>[76] Scott Hedberg</b> <i>Conservation Challenges for Common Loons in Michigan: Human Disturbance, Climate Change, and Contaminant Exposure</i>	<b>[68] Ariam Jimenez</b> <i>Shouting from the rooftops: Testing the expected decline in Least Tern rooftop breeding colonies in Florida</i>

Front	State	Park
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Wednesday, October 1st Session 3			
Start Time	Inland Common Tern Symposium; Moderator: Jennifer Arnold	Room Free	Conservation & Restoration; Moderator:
3:30 PM	<i>Common Tern Working Session</i>		
3:50 PM	<i>Common Tern Working Session</i>		<b>Roger Labine</b>
4:10 PM	<i>Common Tern Working Session</i>		<i>Manoomin: Wild Rice</i>
4:30 PM	<i>Common Tern Working Session</i>		<i>Teachings, Traditions, and</i>
4:50 PM	<i>Common Tern Working Session</i>		<i>Conservation</i>
5:10 PM	<i>Common Tern Working Session</i>		
5:30 PM	<i>Common Tern Working Session</i>		

Front	State	Park
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Thursday, October 2nd Session 1			
Start Time	Piping Plover Symposium; Moderator: Vince Cavalieri	Movement & Behavior; Moderator: Juliet Lamb	Room Free
10:00 AM	<b>[120] Francie Cuthbert</b> <i>150 years of Piping Plovers in Michigan: what does history tell us about the Great Lakes population today?</i>	<b>[24] Aliya Caldwell</b> <i>Drivers of foraging movement variation and the role of movement flexibility in mediating diet and reproduction in a central place foraging seabird</i>	
10:20 AM	<b>[29] Sarah Saunders</b> <i>Putting Science into Action: The Recovery of Great Lakes Piping Plovers</i>	<b>[47] John Anderson</b> <i>Bay Watch: Differential habitat utilization in breeding Herring Gulls</i>	
10:40 AM	<b>[104] Vince Cavalieri</b> <i>Piping Plover Management at Sleeping Bear Dunes National Lakeshore</i>	<b>[38] Christopher Gulick</b> <i>How important are rare irruptive breeding events for a population of nomadic wading birds?</i>	
11:00 AM	<b>[137] Kennedy Sullivan</b> <i>Ten years of lessons learned recovering and managing New York state Piping Plovers along eastern Lake Ontario</i>	<b>[12] Ke Zhang</b> <i>Movement ecology of Tricolored Herons shows mixed migration strategies</i>	
11:20 AM	<b>[64] Sarah Ramirez</b> <i>Linking environmental disturbance dynamics to nesting habitat for Great Lakes piping plovers</i>	<b>[66] Juliet Lamb</b> <i>Fine-scale habitat use and activity budgets of wintering Northern Gannets in an anthropogenic seascape</i>	
11:40 AM	<b>[21] Nathan Cooper</b> <i>Non-lethal Control of Merlins to Protect Great Lakes Piping Plovers</i>	<b>[84] Alexander Sharp</b> <i>Movements and habitat use of nesting Black Skimmers on the Texas Coast</i>	

Front	State	Park
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Thursday, October 2nd Session 2			
	<b>Piping Plover Symposium; Moderator: Vince Cavalieri</b>	<b>Movement &amp; Behavior; Moderator: Aliya Caldwell</b>	<b>Contaminants &amp; Disease; Moderator: Bill Bowerman</b>
1:00 PM	<b>[57] Riley Waterman</b> <i>Daytime Flies and Night Time Plovers</i>	<b>[108] Sium Masud Mirza</b> <i>Insights on River Lapwing from Bhutan</i>	<b>[135] Peggy Shrum</b> <i>Sources of Mortality in Michigan Bald Eagles 2018-2024, and the Impact of the 2022 Highly Pathogenic Avian Influenza Virus Event</i>
1:20 PM	<b>[43] Molly Picillo</b> <i>Captive Rearing Sustains the Great Lake Piping Plover Population</i>	<b>[53] Katharine Goodenough</b> <i>Tradeoffs used during reproduction by the American Oystercatcher <i>Haematopus palliatus</i> in North Carolina</i>	<b>[132] William Bowerman</b> <i>Bird flu, eagle impacts, one health, and the threat of a new pandemic</i>
1:40 PM	<b>[89] Todd Pover</b> <i>A Habitat Restoration to Benefit Piping Plovers at Barnegat Light, New Jersey</i>	<b>[83] Jordan Giese</b> <i>Factors Influencing Movements and Habitat Selection of Colonial Waterbirds Along the Western Gulf Coast</i>	<b>[36] Haysie Maurer</b> <i>Viruses and Visitors: Monitoring for Highly Pathogenic Avian Influenza in Acadia National Park and accompanying public communications</i>
2:00 PM	<b>[27] Christina Davis</b> <i>Experimental Exclosure Modifications to Reduce Adult Mortality to Piping Plovers (<i>Charadrius melodus</i>) in New Jersey</i>	<b>[90] Elizabeth Craig</b> <i>Evaluating effects of attaching GPS tags using leg-loop harnesses on Common and Roseate Terns in the Northwest Atlantic</i>	<b>[49] David Kerstetter</b> <i>Toxoplasma in avian reservoirs of coastal southeast Florida</i>
2:20 PM	<b>[20] Michelle Stantial</b> <i>Rethinking Predator Management in a Declining Shorebird</i>	<b>[16] Jonathan Bagarinao</b> <i>Effects of Anthropogenic Disturbances and Feeding Niche Reduction on the Behavior of Bird Populations at Olango Island Wildlife Sanctuary</i>	<b>[94] Alexia Hilber</b> <i>Using Historical Parasite Surveys to Infer Cryptic Repercussions of Invasive Mollusk on White Ibis (<i>Eudocimus albus</i>) Parasite Community</i>
2:40 PM	<b>[67] Christy N Wails</b> <i>Habitat availability is a key demographic driver of an Atlantic coast Piping Plover (<i>Charadrius melodus</i>) population</i>		<b>[121] K.M. Aarif</b> <i>Rising heavy metal loads in coastal zones in southwestern India pose a threat to shorebirds and other coastal biota</i>

Front	State	Park
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Thursday, October 2nd Session 3		
	<b>Piping Plover Symposium; Moderator: Vince Cavalieri</b>	
3:30 PM	<b>[39] Rose Swift</b> <i>Understanding connectivity and its consequences for Piping Plovers in the northern Great Plains</i>	
3:50 PM	<b>[35] Chelsea Sweeney</b> <i>Storm-induced habitat loss reduces abundance and stopover duration of southbound Piping Plover migration, but not body condition, at a key staging site</i>	
4:10 PM	<b>[11] Raya Pruner</b> <i>Weathering the storm: survival of Gulf Coast plovers amid hurricanes and harmful algal blooms</i>	
4:30 PM		<i>Business Meeting</i>
4:50 PM		<i>Business Meeting</i>
5:10 PM		<i>Business Meeting</i>
5:30 PM		<i>Business Meeting</i>

# **Presentation Abstracts**

Organized by Abstract ID  
See Detailed Agenda for Presentation Key

## Wetland Occupancy of Breeding Secretive Marsh Birds is Associated with the Frequency of Recent Moist-soil Management Practices

Ryan McGinty<sup>1</sup>, Kristen Malone, Arianne Messerman<sup>3</sup>, Jacob Straub<sup>4</sup>, Lisa Webb<sup>5</sup>

**Abstract ID:** 5

### **Abstract Summary :**

Secretive marsh bird populations are declining in the contiguous United States, largely due to historic wetland loss. Thus, science-based management of remaining wetlands is imperative to maintain and enhance secretive marsh bird habitat throughout their range. Wetlands throughout the midwestern United States often undergo intensive management regimes. A common example is moist-soil management which was designed to benefit waterfowl, but its effects on secretive marsh birds are not well understood. The objective of our study is to evaluate how habitat characteristics and management practices at publicly managed wetlands are associated with secretive marsh bird occupancy during the breeding season. We conducted call broadcast surveys at 14 publicly managed properties throughout Missouri for two species of breeding secretive marsh birds, King Rail (*Rallus elegans*) and Least Bittern (*Ixobrychus exilis*). Detections of King Rail were exceptionally rare; we detected them at only 4 survey points across 3 wetland properties, suggesting this species is uncommon throughout the study area. We focused further analysis on Least Bittern and found their occupancy was greatest at pools that were not managed with annual water level drawdowns when compared to pools drawn down annually ( $\beta = 1.945$ , 85% CI = 0.436 – 3.552). Additionally, Least Bittern occupancy was positively associated with infrequent (1-3 times in 5 years) disturbance, i.e., disking ( $\beta = 3.185$ , 85% CI = 1.200 – 5.465) and mowing ( $\beta = 2.022$ , 85% CI = 0.362 – 3.843) when compared to annual disturbances. Our results indicate wetland management practices common throughout the midwestern United States, such as annual drawdowns and disturbances, may negatively affect occupancy of breeding secretive marsh birds.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Vegetation structure predicts breeding Black Rail occupancy in coastal high marshes

Elizabeth Beilke<sup>1</sup>, Pierce Adams<sup>2</sup>, Matthew Butler<sup>3</sup>, Warren Conway<sup>4</sup>, James Cox<sup>5</sup>, Erik Johnson<sup>6</sup>, Heather Levy<sup>7</sup>, Jonathon Lueck<sup>8</sup>, Jena Moon<sup>9</sup>, Mark Woodrey<sup>10</sup>, Auriel Fournier<sup>11</sup>

**Abstract ID :** 6

### **Abstract Summary :**

The federally threatened Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) is a rare, cryptic, and understudied species, necessitating research on its habitat associations to inform conservation and management decisions. To improve our understanding of Black Rail occupancy in coastal high marshes, we conducted 2,524 call-broadcast surveys at 281 points across 25 sites in coastal Texas, Louisiana, and Florida. Surveys occurred in or adjacent to high marsh habitat during the Black Rail breeding seasons (March–July) of 2022–2023 and were paired with annual vegetation surveys. We used stacked single-season occupancy models to assess relationships among Black Rail occupancy, detection covariates, and site-specific vegetation characteristics. Black Rails occupied 34% of our sites, with a predicted detectability of 43%. Black Rail occupancy was more likely than not when sites had < 45% mean ground-level stem cover, >74% mean herbaceous canopy cover, >4 cm of variation in surface organic layer depth, >4 unique vegetation species, >13% variation in ground-level stem cover, mean visual obstruction height of < 63 cm, and < 26 cm of variation in visual obstruction height. Detection probability was greatest when there was little to no wind, when it was warmer, and closer to a new moon than to a full moon. We found no evidence of regional variation in habitat associations, suggesting consistent habitat structural requirements across Gulf Coast high marshes, despite differences in plant species composition. These findings enhance our understanding of Black Rail habitat associations and detectability, providing a foundation for improved monitoring and conservation efforts.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## The Saltmarsh Habitat Avian Research Program: 15 Years of communication-driven partnerships for tidal marsh bird conservation

Greg Shriver<sup>1</sup>, Jonathan Cohen<sup>2</sup>, Mo Correll, Chris Elphick<sup>4</sup>, Frank Gigliotti<sup>5</sup>, Adrienne Kovach<sup>6</sup>, Brian Olsen<sup>7</sup>, Katharine Ruskin<sup>8</sup>, Elizabeth Tymkiw<sup>9</sup>

**Abstract ID :** 7

### **Abstract Summary :**

In 2010, ornithologists, conservation biologists, and agency partners convened to envision a regional monitoring and conservation program for tidal marsh birds in the northeastern U.S. That vision became the Saltmarsh Habitat and Avian Research Program (SHARP; [www.tidalmarshbirds.org](http://www.tidalmarshbirds.org)) a multi-institutional collaboration uniting state and federal agencies, universities, NGO's, and other stakeholders. Over the past 15 years, SHARP has developed and implemented standardized protocols to monitor bird and vegetation communities across tidal marshes with a focus on five key species: clapper rail (*Rallus crepitans*), willet (*Tringa semipalmata*), Nelson's sparrow (*Ammospiza nelsoni*), saltmarsh sparrow (*A. caudacuta*), and seaside sparrow (*A. maritima*). SHARP's region-wide probabilistic sampling design and centralized data management have enabled partners to engage at multiple scales-from local to regional. Findings from SHARP have yielded the first robust population estimates and trends for these species. From the late 1990's to 2011, saltmarsh sparrow populations declined by 9% annually and clapper rails and Nelson's sparrows declined by 4% annually. More recent population trend estimates indicated the clapper rail population trends continued to decline at this rate through 2022, likely driven by habitat loss, tidal restrictions, and increased predation pressure from adjacent uplands. A cornerstone of SHARP's success has been sustained and transparent communication. Weekly conference calls (~750 since 2010) and annual "All Hands" meetings facilitate ongoing information exchange, adaptive planning, and the integration of new research into management and monitoring. We also emphasize and cultivate cross-institutional mentoring of graduate students and postdoctoral researchers that is the foundational of SHARP's productivity. These efforts have fostered stakeholder buy-in and maintained momentum across shifting conservation priorities and funding landscapes. Continued investment in habitat protection and restoration, informed by coordinated long-term monitoring and supported by effective communication, is essential to halt and reverse declines in clapper rails and other tidal marsh specialists.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation, Park, 30 Sep, 2025 10:00 AM

## Creating and leveraging information to conserve habitat of a secretive and data deficient species

Dustin Brewer<sup>1</sup>, Elisabeth Webb<sup>2</sup>, Anne Mini<sup>3</sup>, S. Keith McKnight<sup>4</sup>

**Abstract ID : 8**

### **Abstract Summary :**

Collaborative approaches can maximize effectiveness of conservation efforts, particularly when focal species are cryptic and/or data deficient. The King Rail (*Rallus elegans*), a secretive marsh bird of conservation concern, is a species which may benefit from an ongoing cooperation among a diverse team of contributors. This case study overviews steps involved in an initiative to identify and conserve King Rail habitat in the Mississippi Alluvial Valley. Biologists from state, federal, and non-governmental organizations provided expert knowledge that was coupled with information from a literature review to predict King Rail habitat using a Bayesian Network model. Ongoing efforts aim to validate the habitat model using satellite telemetry data and to translate knowledge into the preservation, acquisition, and/or enhancement of King Rail habitat. These efforts have required coordination among a team of conservation scientists and practitioners who will ideally interact via a listserv and workshops being organized by partners of the Lower Mississippi Valley Joint Venture. Insights from the implementation of the various steps of this initiative may be helpful for those interested in establishing similar partnerships meant to benefit water birds.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Collaboration Drives Success in the Calumet Marsh Bird Monitoring Program

Stephanie Beilke<sup>1</sup>, Nathan Michael<sup>2</sup>

**Abstract ID : 9**

**Abstract Summary :**

Effective conservation of wetland bird populations requires not only robust ecological data but also inclusive, adaptive management frameworks. Audubon Great Lakes' Calumet Marsh Bird Program demonstrates how deeply integrated partnerships can drive conservation success across ecological and institutional scales. This presentation examines how multi-sector collaboration-land management agencies, non-profit organizations, academic institutions, and community scientists-has been embedded throughout the program's lifecycle.

Partners contribute to the co-design of monitoring protocols, site selection, data collection, and the interpretation of results, culminating in shared decision-making for habitat management. This model enhances the scientific rigor of monitoring efforts while ensuring that management actions are relevant and broadly supported. We present evidence of increased stakeholder engagement and enhanced opportunities for partnering on grant opportunities and habitat management highlighting the program as a model for collaborative conservation. Implications for scaling this approach to other regional monitoring initiatives will also be discussed.

**Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Variation in breeding timing influences reproductive success and population dynamics in the critically endangered, white-bellied heron *Ardea insignis*

Indra Acharja<sup>1</sup>, Clay Green<sup>2</sup>, Thinley Phuntscho<sup>3</sup>, Yuji Okahisa<sup>4</sup>, Tshering Tobgay<sup>5</sup>

**Abstract ID :** 10

### **Abstract Summary :**

Understanding the ecological and demographic drivers of reproductive success is critical for conserving the Critically Endangered White-bellied Heron, which persists in fragmented populations across Bhutan, northeast India, and Myanmar. We investigated the species' breeding phenology and reproductive performance from 2016 to 2025, focusing on the relationship between laying date, reproductive outcomes, and demographic factors. First egg-laying dates varied widely across years, though annual differences were not statistically significant. Earlier-laying pairs exhibited trends toward larger clutch sizes, more hatchlings, and higher fledging success, with a significant negative correlation between laying date and hatchling production. However, pair experience did not significantly influence reproductive output. Variance partitioning identified pair identity as the primary driver of laying date variability, explaining 72.4% of the variance, while the remaining 27.6% likely reflects annual environmental variation or within-pair stochasticity. These findings underscore the importance of intrinsic pair quality over extrinsic site characteristics. Re-nesting attempts were observed in cases of early first clutch failure but were consistently unsuccessful. While earlier breeding has reproductive advantages, the recent integrated population model and population viability assessment suggest juvenile survival as the primary demographic bottleneck. The observed phenological patterns, coupled with unstable fecundity, high juvenile mortality, and increasing environmental pressures, suggest the population may be approaching an extinction risk. We recommend management actions that prioritize the protection of early breeders and high-quality breeding sites. It is crucial to minimize human disturbances during critical early breeding periods and to implement strategies that enhance juvenile survival. Our study provides actionable insights to support adaptive management and long-term conservation efforts. These efforts are aimed at stabilizing and ultimately recovering the population of the White-bellied Heron and can also be applied to other threatened species, particularly during times of increasing ecological and environmental variability due to climate change.

**Session Details:** General Session: Breeding Biology, State, 30 Sep, 2025 10:00 AM

## Weathering the storm: survival of Gulf Coast plovers amid hurricanes and harmful algal blooms

Abby Powell<sup>1</sup>, Molly Tuma<sup>2</sup>, Raya Pruner<sup>3</sup> \*

**Abstract ID :** 11

### **Abstract Summary :**

Along the northern Gulf of Mexico, Florida's panhandle supports three plover species that share habitats but are temporally segregated. Snowy Plovers are year-round residents, Wilson's Plovers are present during the breeding season, while Piping Plovers are only present during the non-breeding season. This region also experiences catastrophic environmental events, including hurricanes and harmful algal blooms (HABs); both are predicted to become more frequent and severe because of climate change. We estimated annual survival based on band resightings. Because hurricanes are most frequent in late summer and early autumn and HABs in autumn and winter, we predicted that resident Snowy Plovers and wintering Piping Plovers would be impacted more severely than Wilson's Plovers. While hurricanes may cause displacement and mortality, they can also improve nesting habitat in the following years, thus having a carry-over effect.

HABs occurred in the region in 2015, 2018, and 2021; the most severe and long-lasting bloom lasted from September 2015 to January 2016. A category 5 hurricane, Michael, impacted the region in October 2018. Annual survival for resident Snowy Plovers was lowest in 2015 and 2018, corresponding with two HABs and hurricane Michael; survival of overwintering Piping Plovers was also lowest in 2018. In contrast, the survival of breeding-season Wilson's Plovers was highest in 2019 following the changes in nesting habitat caused by Hurricane Michael; the species was absent during both catastrophic events in 2018. These findings highlight the complex interactions between extreme environmental events and species-specific responses shaped by movement patterns and temporal habitat use.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Movement ecology of Tricolored Herons shows mixed migration strategies

Ke Zhang<sup>1</sup>, Christopher Gulick<sup>2</sup>, Abby Powell<sup>3</sup>

**Abstract ID :** 12

### **Abstract Summary :**

The tricolored heron (*Egretta tricolor*) is a common wading bird that breeds along the Atlantic and Gulf Coasts of North America, yet details of its spatial and temporal movement patterns are not well understood. To better understand its full annual cycle, we used satellite telemetry to track 44 individuals (22 juveniles, 22 adults) tagged at breeding colonies in coastal Alabama between 2020 and 2022. After the breeding season, six juveniles (27%) remained as residents, while 16 (73%) migrated. Among adults, seven (32%) were residents and 15 (68%) were migrants. Four juvenile and 11 adult migrants crossed the Gulf to winter in Central American countries. Among Gulf-crossing migrants, 91% of adults departed directly from coastal Alabama, while 75% of juveniles stopped first at Louisiana estuaries- highlighting Louisiana as an important stopover site, especially for young birds.

Juveniles left colonies in a synchronized window in late July, whereas adults exhibited a broader departure period from June to September. Despite differences in departure from the colonies, both age groups crossed the Gulf between October and November. Most birds that successfully crossed the Gulf first arrived in the northern Yucatán Peninsula, Mexico, as a stopover. Six individuals departed within a week to continue south to Belize, Guatemala, Honduras, Nicaragua, and Costa Rica. The northern Yucatán also served as a stopover for return migration, though only two tracked individuals made the round trip. The findings offer critical insights into the species' movement ecology and highlight important used areas that may guide future conservation strategies.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Mapping the Urban Black-crowned Night Heron: Uncovering the Hidden Movements of North America's Stealthiest Wading Bird

Sarah Slayton <sup>1</sup>

University Of Illinois At Urbana-Champaign

**Abstract ID : 13**

### **Abstract Summary :**

Despite being the most widely distributed colonial wading bird in the world, Black-crowned Night Herons (*Nycticorax nycticorax*; BCNH) face substantial population declines and have been listed as a special-status species in 11 U.S. states. Amidst widespread loss or conversion of their preferred wetland habitat, this species has shown remarkable flexibility in its breeding habitat selection and established colonies in a variety of anthropogenic settings. In Illinois, where the species is state-endangered, the last major BCNH rookery is located at the Lincoln Park Zoo near downtown Chicago. Although nesting in an urban center is inherently risky, this colony appears to be thriving. However, little research has been conducted on how these birds acquire resources and use city habitats to cope with the environmental pressures posed by urban living. BCNH's cryptic nature and nocturnal lifestyle have made them challenging to study solely using traditional field methods, making them ideal species to study using advanced tracking technologies. Our team studied the movements and habitat use of individual BCNH during the breeding season in Chicago using GPS/GSM satellite transmitters. These trackers have shown that BCNH forage in a wide variety of natural and highly modified waterbodies and revealed unexpected patterns in behavior between breeding and non-breeding birds in terms of their home range size, habitat use, and activity patterns. Understanding the behavior of declining species within urban landscapes can both improve our understanding of the species ecology and behavior and provide valuable information to inform conservation efforts.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Effects of Anthropogenic Disturbances and Feeding Niche Reduction on the Behavior of Bird Populations at Olango Island Wildlife Sanctuary

Jonathan Bagarinao<sup>1</sup>, Florence Evacitas<sup>2</sup>

Abstract ID : 16

### Abstract Summary :

Presence of human activities in intertidal areas could impact migratory shorebird species by affecting their ability to acquire sufficient food which is particularly important during migration. Therefore, it is crucial to evaluate these impacts to develop management strategies that are compatible with conservation goals and promote sustainable use. Here, I examined the effects of four different factors (i.e., anthropogenic disturbance, tidal fluctuations, group positioning, and count density) that were considered to have an effect on the behavioral patterns of the focal shorebirds species. Anthropogenic disturbances were found to significantly reduce feeding efficiency of little egret (*Egretta garzetta*), Eurasian curlew (*Numenius arquata*), and bar-tailed godwit (*Limosa lapponica*) ( $\chi^2 = 110.11$ ,  $p = 2.2 \times 10^{-16}$ ). These activities led to increased vigilance ( $Z = -1.29$ ,  $p = 2.93 \times 10^{-1}$ ) and decreased foraging time ( $Z = 3.528$ ,  $p = 0.0006$ ), indicating heightened stress and limited foraging opportunities for the birds. Tidal fluctuations played a significant role in prey availability, with shorebirds adjusting their foraging locations based on tidal levels. Low tide periods offered broader feeding spaces, facilitating the exploitation of diverse prey items, whereas high tide periods restricted feeding grounds, reducing foraging opportunities. Bird density and group positioning within living groups influenced foraging behaviors and vigilance levels. Increased competition for resources led to altered foraging behaviors and aggressive interactions among conspecifics. Central individuals within living groups had higher foraging success than peripheral individuals ( $W = 8137$ ,  $p = 5.833 \times 10^{-7}$ ), reflecting a trade-off between foraging efficiency and predation risk. Additionally, peripheral individuals exhibited increased vigilance during disturbances. The Multivariate Adaptive Regression Spline (MARS) models highlighted the significance of anthropogenic disturbances, specifically birdwatching and gleaning, as major predictors of reduced feeding efficiency in Olango Island Wildlife Sanctuary (OIWS), explaining 91% and 88% of the observed variability in feeding frequency and feeding duration, respectively.

### Session Details:

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Prioritising Iberian Wetlands for the Conservation of Migratory Waterbirds through Network Analysis

Vasco De Sousa Mendes<sup>1</sup>, Carlos Godinho<sup>2</sup>, Pedro Salgueiro<sup>3</sup>

**Abstract ID:** 18

### **Abstract Summary:**

Without adequate protection, wetlands used by migratory waterbirds as stopover sites risk degradation or loss, which can restrict a species' ability to adapt to environmental change and reduce the functional connectivity between breeding and non-breeding grounds. To address this problem, we developed a workflow that uses spatial network analysis, informed by citizen science data, to assess stopover site importance. Applied to the Iberian Peninsula, this approach determined the relative importance of wetlands for the post-nuptial migration of 17 waterbird species, both at the species and group level. Our results align with existing research, while also highlighting sites where current protection may be insufficient. However, the reliability of the workflow is influenced by species-dependent, temporal, and spatial parameters, which require careful consideration to ensure robust and ecologically meaningful assessments. Despite these limitations, the workflow's adaptability and replicability enable its application in other geographical regions for which data is available, making it a valuable tool for prioritizing wetland protection to support migratory waterbird species conservation worldwide.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Rethinking Predator Management in a Declining Shorebird

Michelle Stantial<sup>1</sup>, Jonathan Cohen<sup>2</sup>, Abby Darrah<sup>3</sup>, Brooke Maslo<sup>4</sup>

**Abstract ID :** 20

### **Abstract Summary :**

Understanding how populations respond to management is key to evaluating conservation outcomes. For declining populations, these metrics can reveal whether current strategies are supporting recovery or simply maintaining the status quo. We studied adult survival and dispersal rates for the New Jersey population of piping plovers, which has failed to increase despite regional population growth, using mark-recapture data from 2012–2019. We found that adult survival between 2012 and 2019 ranged from 0.62 [95% CI = 0.48, 0.74] to 0.85 [0.74, 0.92] for females and 0.65 [0.51, 0.78] to 0.89 [0.80, 0.94] for males. Juvenile survival ranged from 0.40 [0.30, 0.51] to 0.70 [0.57, 0.80]. Lower survival estimates for abandoned nests suggest that abandonment often reflects the loss of an attending adult, with males more frequently lost than females. Abandoned nests were associated with lower adult survival, particularly for males, suggesting that abandonment often followed the loss of an attending adult. Although exclosures increased nest success by 62% over a 34-day period, they also made nests 4.7 times more likely to be abandoned-likely as a result of adult mortality. Further, we found that females that abandoned their first nesting attempt of the season dispersed 10 times farther than males and females whose first nest attempts were lost predation or flooding. Dispersal distances of males and females that lost their last nest attempts of the season to predation and flooding (females, 14.28 km [95% CI = 8.26, 20.54]; males, 1.43 [-4.04, 7.58]) were less than dispersal distances for individuals of both sexes that abandoned their last nesting attempt of the season (females, 21.78 [-3.02, 46.19]; males, 35.90 [9.09, 61.70]). Our results corroborate previous studies documenting adverse impacts of exclosure use on adult survival. Importantly, surviving mates (particularly females) emigrate from the breeding site, exacerbating the effect of mortality on local population viability. Our findings suggest that rather than abandoning predator exclosures, managers should use them more strategically-balancing their benefits with potential survival and dispersal costs. Incorporating decision-support tools can help identify when and where exclosures are most likely to support population recovery without unintended harm.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025  
10:00 AM

## Non-lethal Control of Merlins to Protect Great Lakes Piping Plovers

Nathan Cooper <sup>1</sup>, Fernando López <sup>2</sup>

**Abstract ID :** 21

### **Abstract Summary :**

Conflicts between native predators and endangered species present complex challenges for conservation. The Merlin (*Falco columbarius*) has recently expanded its breeding distribution into the Great Lakes Region, increasing predation pressure on the endangered Piping Plover (*Charadrius melodus*). Over three breeding seasons, we captured and tracked 49 Merlins in the Great Lakes to examine their space use and diet, and translocated 33 individuals to evaluate translocation as a non-lethal Merlin control strategy. We translocated Merlins 101–404 km and found that 42% did not return within the same season, with younger individuals and females significantly less likely to return. Range residency behavior was identified in 32 Merlins. Core area (50%) averaged  $5.33 \pm 1.28 \text{ km}^2$  and home range (99%)  $46.28 \pm 10.33 \text{ km}^2$ ; males and translocated individuals used significantly larger areas. Within home ranges, forest cover was significantly higher than other land cover types. Tracking data also revealed partial migratory behavior, with movements reaching the Caribbean and northern South America, while some individuals remained resident year-round. Our findings suggest that targeted non-lethal translocation can reduce local predation risk and should be integrated with complementary strategies. Moreover, understanding spatial behavior, diet, and habitat preferences is essential for effective predator management.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025  
10:00 AM

## Working together to understand the King Rails of southeastern Arkansas: migration status and nesting ecology

Auriel Fournier<sup>1</sup>, Jess Novobilsky<sup>2</sup>, Anne Puchalsky<sup>3</sup>, Jason McCallie<sup>4</sup>, Karen Rowe<sup>5</sup>, Caleb Roberts<sup>6</sup>

**Abstract ID :** 22

### **Abstract Summary :**

King Rails are a state listed marsh birds in most states, other than gulf coast states, within the Mississippi Flyway. King Rail populations are experiencing multiple decade long declines, especially in the Midwest and Great Lakes where all individuals are migratory. King Rails have a split migration strategy where some individuals migrate, and some are fully resident along the Gulf Coast. Our work has been a close collaboration between the Arkansas Game and Fish Commission, the USGS Arkansas Cooperative Fish and Wildlife Research Unit and Forbes Biological Station to understand the migration status and nesting ecology of King Rails in southeastern Arkansas at a site where they are thriving, with the goal of applying what we learn to expand the abundance and distribution of King Rails across the Mississippi Alluvial Valley. To date we have shown that most adult King Rails in southeastern Arkansas are year around residents, and that King Rails are selecting nest sites based on vegetation structure. Ongoing work seeks to assess drivers of nest success, and understand the dispersal and migration patterns of juvenile King Rails. This talk will present our results to date, as well as the collaborative process we have undertaken.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Drivers of foraging movement variation and the role of movement flexibility in mediating diet and reproduction in a central place foraging seabird

Aliya Caldwell<sup>1</sup>, Elizabeth Craig<sup>2</sup>, Nathan Furey<sup>3</sup>

Abstract ID : 24

### Abstract Summary :

A seabird's ability to efficiently find prey directly affects reproduction, and population declines are frequently linked to forage fish depletion. Reduced forage fish availability often limits seabird provisioning and reproduction, but impacts to foraging movements are less clear, as are effects of movement flexibility on provisioning and reproduction when prey availability is reduced. Our study explores drivers of foraging movement variation and the role of movement in mediating provisioning and reproduction in central place foraging Common Terns (*Sterna hirundo*). Across four consecutive breeding seasons, we collected movement (GPS), provisioning, and reproductive data from Common Terns nesting in the Gulf of Maine (GOM). In years of low prey abundance and low chick survival on the colony, birds increased foraging trip durations by up to 87% and foraging ranges by up to 52%. Range expansions were driven by increased use of waters in Stellwagen Bank, an ocean ridge rich in forage fishes and encompassed within the GOM's only national marine sanctuary. Our results suggest that Common Tern foraging movements are flexible in response to forage fish availability, but that increased foraging movement effort in years of reduced prey availability may be insufficient to maintain provisioning and reproductive output. In regions like the GOM, where ocean warming continues to induce shifts in forage fish populations, additional prey protections will be critical to central place foraging seabirds, else breeding seasons marked by increased foraging movement effort with little resulting reproductive output may become increasingly frequent and if sustained, threaten population persistence.

### Session Details:

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Comparing the effectiveness of autonomous recording units (ARUs) and call-broadcast surveys for marsh bird detections and occupancy in the Great Lakes region

Jennifer Fuller <sup>1</sup>, Sam Schurkamp <sup>2</sup>, Sarah Saunders <sup>3</sup>, Stephanie Beilke <sup>4</sup>

**Abstract ID :** 25

### **Abstract Summary :**

Many marsh bird species face severe decline due to extensive wetland loss and degradation, highlighting the need to identify high-priority conservation areas and assess restoration success. However, their secretive nature and inaccessible habitats make monitoring difficult, and call-broadcast methods may not capture all species. Autonomous recording units (ARUs) and deep neural network (DNN) sound recognition (e.g., BirdNET) offer a promising supplement. Our study evaluates ARU effectiveness in detecting marsh birds and estimating occupancy compared to call-broadcast point counts at wetland sites undergoing restoration across four Great Lakes states. This work encompasses two projects planned and conducted in collaboration with the National Fish and Wildlife Foundation (NFWF) and Indiana DNR (IN DNR). We analyzed 68 ARU deployments (Song Meter Mini, Wildlife Acoustics) at 18 sites over one to two seasons (2022–2024). Each ARU was geographically paired with concurrent call-broadcast counts following the Conway protocol, with three surveys per season. ARUs recorded daily for 46 days, from 30 minutes before sunrise to three hours after, at 44,100 Hz. ARU deployments and call-broadcast counts were conducted by Audubon Great Lakes staff, volunteer community scientists, and partners including Indiana DNR, Indiana Audubon, Loyola University Chicago and others. Recordings were classified using BirdNET Analyzer with default settings, focusing on 16 marsh bird species. To align with call-broadcast surveys and maximize detection, we filtered recordings from the five days with the highest median confidence within each survey window, totaling 15 days per point per species. Detections were validated using classifier-guided listening method. We calculated species richness and occupancy estimates from validated ARU detections and call-broadcast counts to compare both methods. Our findings show that ARUs improve detections of secretive marsh birds, leading to more robust data that can inform subsequent management actions to support healthy wetlands and marsh bird populations.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Population Density of Black Francolin (*Francolinus francolinus* L.) in Kala Chitta Ranges, Pakistan

Nadeem Munawar<sup>1</sup>, Tariq Mahmood, Zarish Yaqub<sup>3</sup>

**Abstract ID :** 26

### **Abstract Summary :**

Black francolin or Black partridge (*Francolinus francolinus* L.) is a ground dwelling bird found across Eurasia, including Pakistan. The species has been described as common or Least Concern in IUCN Red List of Threatened Species (2018) and have gained significant attention because serve as crucial indicators of environmental health. The black francolins are closely associated with water and wet areas, especially in arid or semi-arid regions. This study was conducted to investigate the population density of black francolin in three habitat types, i.e., wild area with wetland, purely wild habitat and wild area with cropland of Kala Chitta hills of Pothwar region, Pakistan. Observations were taken by direct sighting using "Visual Encounter Method (VEM)". The observations were taken along three fixed transects, having a length of 300 m and width varying from 20 to 50 m were laid down at each site to record the birds on or near the line. The results revealed that the most preferable habitat was the wild area associated with wetland by the bird having the highest density of 0.07 birds/ha. These wetlands, particularly bush-covered areas, provide better protection for nests, leading to higher survival rates. The bird strongly preferred wetlands and associated natural vegetation habitat comprise of low elevated hills with scattered vegetation's like *Albizia lebbeck*, *Dodonaea viscosa*, *Adiantum incisum*, *Parthenium hysterophorous*, and *Cymbopogon jwarancuse* which provide essential resources for foraging, nesting, and shelter. These findings suggest black francolins prefer nesting in wetland areas in bushes, likely due to better protection and favorable conditions which clearly highlights the importance of wetlands in maintaining population stability of this bird species. Such favorable conditions provide protection from predators, ensure nest stability, and offer abundant materials for nest construction. The conservation efforts should be focused on preserving and managing these wetland areas because of their importance to black francolins and other species. Additionally, human activities including bird translocations may influence genetic diversity, highlighting the need for conservation efforts.

### **Session Details:**

General Session: Population Biology, Front, 30 Sep, 2025 03:00 PM

## Experimental Exclosure Modifications to Reduce Adult Mortality to Piping Plovers (*Charadriusmelodus*) in New Jersey

Christina Davis<sup>1</sup>, Emily Heiser<sup>2</sup>, Alfred Breed<sup>3</sup>

**Abstract ID :** 27

### **Abstract Summary :**

In New Jersey, exclosures (wire structures with netting on the top) have been used since the mid-1990s to protect Piping Plover nests from predators. Historically, exclosed nests had a higher hatch rate than unexclosed nests. In recent years, however, adult mortality from predators increased for pairs associated with exclosures, undermining the benefits of the increased hatch rates. This prompted species managers to seek modifications to reduce this risk factor to breeding adults while still providing protection to the nest. A review of trail camera footage from multiple years identified the strategies predators were using to hunt adults and allowed managers to pinpoint the vulnerable elements of the exclosure. Modifications included those to the top of the exclosure (spikes to better prevent perching by avian predators), the shape of the exclosure (from circular to triangular with wings to help prevent ground mammalian predators from trapping adults as readily) and the perimeter of the exclosure (adding a skirt to discourage digging under the exclosure). The modified exclosure design was implemented on an experimental basis in 2024 and 2025 with promising results as no adult mortalities have yet been associated with this type of exclosure. The NJ Fish and Wildlife plans to continue to deploy this design to further test its effectiveness and recognize that further modifications may be necessary as predators adapt. A manual detailing how to build the modified exclosure is available from the authors upon request.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Putting Science into Action: The Recovery of Great Lakes Piping Plovers

Sarah Saunders<sup>1</sup>, Francie Cuthbert<sup>2</sup>, Stephanie Schubel<sup>3</sup>, Alice Van Zoeren<sup>4</sup>

**Abstract ID :** 29

### **Abstract Summary :**

The Great Lakes Piping Plover, a federally endangered shorebird, has made a remarkable comeback from the brink of extinction thanks to decades of dedicated conservation efforts. Once reduced to just 12 breeding pairs in the 1980s, this population has now exceeded 80 pairs, with record-breaking breeding seasons in recent years. This success is a testament to the power of science-driven conservation and the collaboration of researchers, land managers, and community volunteers on the Great Lakes Piping Plover Conservation Team. In this talk, I will highlight the key strategies that have fueled this recovery, including nest monitoring and protection, predator management, annual banding, captive-rearing, and education and outreach. I will also showcase how long-term banding data have further strengthened these strategies, contributing to population growth. Despite these gains, challenges remain, including increasing threats from climate change and human disturbance. Yet the resilience of the population and the dedication of the Conservation Team offer hope for continued success. The recovery of the Great Lakes Piping Plover serves as an inspiring example of how rigorous science, partnerships, and community engagement can drive meaningful conservation outcomes.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Marshbird science and conservation at Birds Canada: collaborative partnerships are key

Doug Tozer<sup>1</sup>

**Abstract ID :** 30

### **Abstract Summary :**

Birds Canada is the country's only national organization dedicated to bird conservation. We started monitoring marshbirds in the mid-1990s in the Great Lakes with the Marsh Monitoring Program (MMP), one of our 40+ volunteer science programs. The MMP now operates annually across five developed regions of southern Canada: British Columbia, Prairies, Great Lakes, Québec, and the Maritimes. Using data from the MMP and other sources, our waterbirds and wetlands department, mostly through our Long Point Waterfowl and Wetlands Research Program, addresses emerging science needs of wetlands stakeholders. Key to our success is forming collaborative partnerships with the end-users of our science products by including co-producers from start to finish. In this presentation, I briefly describe a number of different collaborative marshbird science and conservation projects at Birds Canada that involve partnerships with non-government organizations, Indigenous communities, federal and provincial wildlife agencies, and universities. The science products produced by these collaborative projects are beneficial for the conservation of marshbirds because they 1) demonstrate the effectiveness of wetland restoration or invasive plant control, 2) prioritize the best wetlands for protection or the worst wetlands for restoration, or 3) quantify un- tested assumptions used to justify control of non-native competitors. Our approach and case examples should be of interest to others applying translational ecology and co-production frameworks to enhance the effectiveness of marshbird conservation.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Common Terns on the large lakes of Manitoba and the Western Boreal Forest: status, threats, and conservation initiatives

Ann McKellar<sup>1</sup>, Jeffrey Wells<sup>2</sup>, Janet Ng<sup>3</sup>

**Abstract ID :** 32

### **Abstract Summary :**

The large lakes of southern Manitoba (lakes Winnipeg, Winnipegosis, and Manitoba) support nationally important breeding populations of Common Terns that are regularly monitored by Environment and Climate Change Canada. The vast Western Boreal Forest (WBF), on the other hand, overlaps the northern range of the Common Tern in northern Manitoba, Saskatchewan, and Alberta, and parts of central Northwest Territories, and contains a largely unknown portion of the species' population. In southern Manitoba, Common Terns have declined precipitously since the 1990s, with an estimated loss of ~15,000 pairs in 20 years, resulting in an estimated 5,300 breeding pairs in 2017. This population of Common Terns nest on rocky or sand islands on large lakes, where water level manipulations and flooding, eutrophication, displacement by gulls, predation by Bald Eagles, and climate change are all threats. Abundance, trends, and threats to Common Terns in the WBF are poorly known, but breeders there tend to nest on small rocky islets on smaller lakes and occasionally large rivers. Given the vast size of this region and its high numbers of lakes and rivers, it is possible that the WBF supports a significant portion of the North American Common Tern population, but this region is under-surveyed. It is also possible that the WBF provides suitable alternative breeding habitat where birds can disperse when conditions in the south are poor (e.g. flooding in southern Manitoba), as is seen in some waterfowl. Increased research and monitoring across the WBF is a key future priority. New initiatives involving protection, restoration, management, and monitoring of Common Tern colonies in collaboration with Indigenous governments and organizations in Manitoba aim to help restore populations and will begin a process of knowledge sharing to understand more about the distribution of Common Terns in parts of the WBF.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

**Distribution of threatened shorebirds and their relationship with the environmental gradients at Muttukadu backwaters - a critical wintering site along Central Asian flyway**

Ramya Shree N<sup>1</sup>

Queen Mary's College, Chennai- 600 004, Tamil Nadu, India.

**Abstract ID : 33**

**Abstract Summary :**

Shorebirds are one of the critical species in the coastal wetlands and their populations are declining in both breeding and wintering sites due to innumerable reasons. This study highlights the integrated assessments on the relationship between with the distribution of threatened shorebirds and the environmental gradients at Muttukadu Backwaters – India, an important wintering site along the Central Asian Flyway. Direct visual count method was performed for the period from July 2021 to May 2025 to assess the abundance of three globally threatened wintering shorebirds namely Black Tailed Godwit (BTG), Eurasian Curlew (EC) and Curlew Sandpiper (CS) in the study site. The environmental parameters (Surface water temperature, Salinity, Water depth, Dissolved Oxygen) of shorebird abundance were analyzed for the sampling period. Using generalized additive modelling (GAM), the role of environmental variables in influencing the shorebird abundance was analyzed throughout the sampling periods. The GAM analysis also revealed the effects of environmental parameters on the abundance of threatened shorebirds. Understanding the local population of threatened shorebirds will provide valuable insights into the factors influencing the population dynamics and enable early deduction of changes before they affect the global population. Hence, this research emphasizes the importance of long-term monitoring of shorebirds in the study site.

**Session Details:**

General Session: Population Biology, Front, 30 Sep, 2025 03:00 PM

## Linking wetland bird conservation with water quality benefits of wetland restoration in Ohio's Lake Erie watershed

Nate Stott <sup>1</sup>, Nathan Michael <sup>2</sup>, Stephanie Beilke <sup>3</sup>, Brendan Shirkey <sup>4</sup>, Laura Kearns <sup>5</sup>, Robert Gates <sup>6</sup>

**Abstract ID :** 34

### **Abstract Summary :**

Over 90% of historical wetlands have been lost in Ohio's Lake Erie Watershed, primarily due to agriculture. Excess nutrient (primarily N and P) flow from inland sources caused a toxic blue green algae bloom which in turn caused citizens of Toledo, OH to lose potable water for 3 days in summer 2014. This event prompted Ohio to create the H2Ohio program which aims to improve water quality within Lake Erie, largely through wetland enhancement and restoration. Nutrient fluxes and retention rates are currently monitored by the Lake Erie Aquatic Research Network Wetland Monitoring Program (LEARN WMP) to measure the water quality benefits of the H2Ohio program. Restoring wetlands to meet water quality objectives also provides wildlife benefits, but concurrent evaluations of wildlife response are not funded by the H2Ohio program. With Federal Aid in Wildlife Restoration Program funding through the Ohio Division of Wildlife, we formed a team of researchers from Ohio State University, Audubon Great Lakes, Winous Point Marsh Conservancy, and Ohio Division of Wildlife to evaluate the benefits of habitat restoration for wetland birds from the H2Ohio program. Our primary objective is to compare wetland bird communities between restoration projects designed to improve water quality with restorations designed primarily to produce wildlife benefits. With co-equal importance and through collaborating with LEARN WMP, we also aim to understand trade-offs between water quality improvement and wetland bird diversity and abundance. Our sampling frame also supports work conducted by nutrient chemistry and watershed scientists at OSU and testing of large-scale Autonomous Recording Units deployed to survey secretive marsh birds by Wright State University ecologists. With AGL we are also developing a plan to communicate results of this study to highlight the benefits of wetland restoration for wildlife and water quality and raise awareness about wetland birds among managers, private landowners, and other stakeholders. We present a summary of results from the first 2 of 4 project years to demonstrate how we plan to fulfill the goals of this project.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Storm-induced habitat loss reduces abundance and stopover duration of southbound Piping Plover migration, but not body condition, at a key staging site

Chelsea Sweeney<sup>1</sup>, Camille Alvino<sup>2</sup>, Katie Oliver<sup>3</sup>, Christy N Wails<sup>4</sup>, Sidney Maddock<sup>5</sup>, Daniel Catlin<sup>6</sup>, James Fraser<sup>7</sup>, Sarah Karpanty<sup>8</sup>

Abstract ID : 35

### Abstract Summary :

Migratory shorebirds balance time, energy, and risk during migration by resting and refueling at dynamic coastal stopover and staging sites. Alteration or loss of important coastal sites, whether through development or climate-driven disturbances such as sea level rise or hurricanes, could force shorebirds to alter their migratory behaviors or face physiological consequences. We examined how Hurricane Dorian, which altered Ocracoke Island, North Carolina, in September 2019, affected the migration ecology of the federally threatened Piping Plover (*Charadrius melodus*). South Point on Ocracoke Island serves as a critical fall staging site for Atlantic Coast plovers, historically hosting up to 15% of the population. Using mark-recapture methods, count surveys, and remote sensing data from July–October 2016–2023, we assessed how habitat changes influenced plover passage and peak abundance, stopover duration, arrival timing, and body condition. Following Hurricane Dorian, wet sand foraging habitat area decreased by ~39%, and total survey area declined by 25%, with some areas recovered three years post-storm. Passage population size dropped significantly from  $\sim 505.3 \pm 89.3$  (mean  $\pm$  SD) plovers pre-storm to  $349.7 \pm 71.5$  post-storm. Peak migration population size also declined post-storm, and density at peak migration decreased from 2.76 to 1.37 plovers/ha of wet sand. The date by which 50% of the annual passage population arrived on site shifted later in the season, post-storm; however, arrival dates of 25% and 95% of the annual passage population did not differ. Plovers stopped for a significantly shorter time after the hurricane, averaging  $19.8 \pm 2.2$  days post-storm compared to  $30.7 \pm 6.0$  days pre-storm. Adult plover body mass did not significantly differ between pre- and post-storm years, suggesting plovers made behavioral shifts by reducing their use of South Point rather than staying and experiencing physiological consequences. Our findings suggest plovers are spatially and temporally flexible during migration, and that hurricane-induced habitat change at this staging site reduced its importance to Atlantic Coast plovers. Increasingly frequent storm events may influence the functional role of key staging sites, with potential implications for population connectivity and conservation.

### Session Details:

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## **Viruses and Visitors: Monitoring for Highly Pathogenic Avian Influenza in Acadia National Park and accompanying public communications.**

Haysie Maurer<sup>1</sup>

College Of The Atlantic Island Research Center

**Abstract ID :** 36

### **Abstract Summary :**

Highly Pathogenic Avian Influenza (HPAI), A (H5N1) virus clade 2.3.4.4b has been present in the Gulf of Maine since 2022 and disproportionately affects seabirds. Acadia National Park comprises over 120 offshore islands, at least 13 of which are occupied by seabird nesting colonies. The park welcomes millions of visitors a year, making public communications regarding HPAI important for public health and safety. Research done in partnership with Acadia provides a unique opportunity to educate the public about the disease from the perspective of scientists studying in the park. We monitored for active and past HPAI infection in herring gulls (*Larus argentatus*) and great black-backed gulls (*Larus marinus*) on islands in and around Acadia National Park. Oral and cloacal swabs and blood samples were obtained from adult gulls in the summers of 2024 and 2025. 2024 results yielded 0 positive cases of HPAI. We await results from 2025. This research not only informs the management of park islands, but can also provide an effective way to educate the public about scary viruses and seabird ecology in a form that is approachable, helpful, and solutions-based.

### **Session Details:**

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## Joining Forces: Integrating Acoustic Recording to Improve Marsh Bird Monitoring

Rachel Mansfield<sup>1</sup>, Volker Bahn<sup>2</sup>

**Abstract ID :** 37

### **Abstract Summary :**

Wetland loss across North America has resulted in alarming declines in many wetland bird populations. Secretive Marsh Birds are a difficult suite of species to monitor with traditional survey methods, but timely conservation depends on accurate population data. The goal of my research is two-fold: (1) to improve detection probability of secretive marsh birds by integrating autonomous recording units (ARUs) with human-conducted surveys and developing an optimal joint survey protocol, and (2) to use these improved inventory data to better understand relationships between wetland bird occurrence, habitat characteristics, and wetland restoration. As part of a highly collaborative effort involving Wright State University, Winous Point Marsh Conservancy, Ohio State University, and Audubon Great Lakes, we deployed 79 autonomous recording units (ARUs) across Ohio wetlands. These ARUs were paired with traditional human-conducted point counts to compare detection rates and evaluate design trade-offs in monitoring approaches. An additional 16 ARUs were deployed in Michigan by regional partners to increase our geographic coverage. We are integrating ARU-based detections with human-conducted point count detections to obtain an estimate of relative abundance for species with sufficient detection rates. These estimates will be used to evaluate associations with habitat-level wetland characteristics. This large-scale, data-rich monitoring project is possible only because of the combination of field research, land management and data science expertise, technological innovation, and the shared commitment to leverage our resources to achieve common goals, strengthening our capacity to contribute to marsh bird conservation.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## How important are rare irruptive breeding events for a population of nomadic wading birds?

Christopher Gulick<sup>1</sup>, Ke Zhang<sup>2</sup>, Abby Powell<sup>3</sup>

**Abstract ID :** 38

### **Abstract Summary :**

White ibises (*Eudocimus albus*) are irruptively nomadic waterbirds that range widely across the Southeastern United States and are considered indicators of wetland function. Despite their ecological importance, no studies have previously estimated post-fledging survival or constructed demography-based population models for this species, largely due to their broad and unpredictable movements. We asked whether rare irruptive breeding events could increase population stability. To investigate, we tracked white ibises tagged with Argos transmitters at coastal Alabama breeding colonies during the summers of 2020–2022. Individuals were monitored through mid-2024, with movements spanning seven states and Cuba. We fit known-fate survival models using AIC-based model selection, identifying a two-class age structure (hatch-year vs. after-hatch-year) as the most parsimonious. We then constructed stochastic, stage-based Leslie matrix models with three stages, juvenile (HY), subadult (age 1), and adult (age 2+), with deterministic annual transitions. We simulated survival and fecundity across 10,000 iterations using distributions from model results and literature. We modeled irruptive scenarios by increasing survival and fecundity every 5, 7, or 10 years. Annual survival was 0.24 (SE: 0.11) for juveniles and 0.79 (SE: 0.05) for AHY birds. Mean  $\lambda$  was 0.91 (SD: 0.14) without irruptions and 0.93 (SD: 0.15) with them. Stable populations ( $\lambda \geq 1$ ) occurred in 26% of non-irruptive and 32% of irruptive simulations. While modest, this suggests infrequent boom years may disproportionately influence long-term persistence. A broadly distributed and connected wetland network may help sustain ibis populations by enabling access to rare but productive breeding habitats.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Understanding connectivity and its consequences for Piping Plovers in the northern Great Plains

Rose Swift<sup>1</sup>, Michael Anteau<sup>2</sup>, Kristen Ellis<sup>3</sup>, Garrett MacDonald<sup>4</sup>, Megan Ring<sup>5</sup>, Mark Sherfy<sup>6</sup>,  
Dustin Toy<sup>7</sup>, David Koons<sup>8</sup>

**Abstract ID :** 39

### **Abstract Summary :**

Species that are spatially distributed among patches of suitable habitat are often assumed to meet the criteria of a metapopulation. Metapopulation dynamics are determined not only by within-patch birth and death processes but also by between-patch dispersal movements of individuals that are infrequent, but critical to maintaining population viability across space and time. The degree to which the northern Great Plains piping plover (*Charadrius melodus*) breeding population functions as a metapopulation depends, in part, on the connectivity amongst patchily distributed breeding areas. Here, we examined annual hatch-year and adult survival, natal and breeding dispersal probabilities, and population viability. Using Bayesian multievent models with over 2,000 individuals at two spatial scales from 2014-2019, we found that both natal and breeding dispersal probabilities were high and unbalanced in opposite directions at both spatial scales examined, suggesting high connectivity within this region in contrast to metapopulation dynamics. Annual survival rates did not vary geographically, but did vary with age, and were similar to previous species-specific estimates. When incorporating dispersal estimates into customized metapopulation-structured population viability analyses, we found increased extinction probabilities throughout the population and within each major management region compared the most recent assessment regardless of modeled intensive management efforts to improve fecundity. Our results contradict the paradigm that northern Great Plains piping plovers are structured as a metapopulation, and instead suggest a patchily distributed, likely panmictic, population, which has important implications for the conservation and management of this listed species.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Captive Rearing Sustains the Great Lake Piping Plover Population

Molly Picillo <sup>1</sup>, Alison Kocek <sup>2</sup>, Francie Cuthbert <sup>3</sup>, Stephanie Schubel <sup>4</sup>, Alice Van Zoeren <sup>5</sup>, Bonnie Van Dam <sup>6</sup>, Jillian Farkas <sup>7</sup>, Jonathan Cohen <sup>8</sup>

**Abstract ID :** 43

### **Abstract Summary :**

Since 1992, captive rearing has been used as a conservation measure to augment the endangered Great Lakes piping plover (*Charadrius melodus*) population. To measure the success of these conservation efforts, we assessed the impact of captive rearing by developing an integrated population model. In our model we utilized survival and productivity data for Great Lakes piping plover from 2015-2021. During that time there was an average of 72 breeding pairs per year with a range of 64-76 pairs and the population appeared to be in decline. We projected an abundance of 25 pairs in 100 years if the number of annual captive releases remains at current levels (~16 releases). If captive rearing ceased, we projected that the population would reach quasi-extinction ( $\leq 15$  pairs) in less than 60 years. Given that current rates of captive rearing result in a continued decline assuming birth and survival rates measured 2015-2021, we would need to release approximately 60 captive reared plovers per year to see an increase in the population. Based on this, captive rearing alone is not enough to achieve the Great Lakes piping plover recovery goal of 150 pairs; however, the strategy is likely to prevent extinction in the long term.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## 50 ways to leave your lover; results of invasive monitoring in Leach's Storm-Petrel

Jay Van Pelt<sup>1</sup>

Alice Eno Field Research Station, College of the Atlantic

**Abstract ID :** 46

### **Abstract Summary :**

Leach's Storm-Petrels (*Hydrobates leucorhous*) nest in burrows on offshore islands, are strictly nocturnal while attending the nesting colony, and are pelagic outside of the reproductive season. This makes them difficult to study, and most methods of monitoring individuals require direct disturbance to the nesting burrow. Traditional monitoring includes reaching into burrows ("grubbing") or a "stick test", where twigs are placed across the entrance of a burrow to infer activity and incubation changeover. Additional methods include remote cameras and the use of artificial or modified nesting burrows that allow access directly into the nest chamber. Each of these methods vary in terms of efficacy and invasiveness. Understanding the impact of monitoring is important since Leach's Storm-Petrel populations are declining globally. On Great Duck Island, Maine (44°10'N, and 68°15'W), burrows have been monitored intermittently by grubbing and stick tests since 1984. Preliminary results suggest that investigator disturbance increases cross-year abandonment rates in established nesting pairs. This study will report the results of the last five years of monitoring and review recent literature to measure the effect that invasive monitoring techniques have on reproductive success and site fidelity between years.

### **Session Details:**

General Session: Breeding Biology, State, 30 Sep, 2025 10:00 AM

## Bay Watch: Differential habitat utilization in breeding Herring Gulls

John Anderson<sup>1</sup>  
College Of The Atlantic

**Abstract ID :** 47

### **Abstract Summary :**

Ecological studies often focus on the "central tendency" of data, distinguishing between "significant" and "insignificant" differences. While this is a valid technique, it may hide the variance contained in individual variances. A total of 15 Herring Gulls (*Larus smithsonianus*) were tagged at 4 different breeding colonies in coastal Maine, USA between May 2023 and June of 2025, using Cellular Tracking Technologies Solar-powered LTE Telemetry Unit CTT<sup>®</sup>-ES420 Series GPS units. Each nesting island lies at or near the mouth of a particular bay system in eastern Maine. Tagging locations were selected to provide coverage of birds likely to frequent Acadia National Park (44.3386° N, 68.2733° W). Gulls were captured on or next to their nests using box or bow traps, and were assumed to be breeding at the time of trapping. Gulls from each colony exhibited highly constrained primary foraging areas within bays immediately to the North of each colony, with little overlap in regions used. Foraging behavior was inferred from accelerometer data from tags and subsequent evaluation of habitats used. Birds varied widely in terms of foraging strategies, with some individuals apparently following lobster boats, others frequenting transfer stations on the shore, and others spending much of their off- island time in intertidal regions within one of several bays. Birds also utilized fresh- water sources, including lakes and ponds and stream outlets for drinking and bathing. Sample sizes in this study are small and variance is large. I argue that both factors are features of seabird research and must be treated as such.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Toxoplasma in avian reservoirs of coastal southeast Florida

David Kerstetter <sup>1</sup>, Eben Gering <sup>2</sup>

**Abstract ID :** 49

### **Abstract Summary :**

*Toxoplasma gondii* is a zoonotic parasite that significantly impacts human and wildlife health. While *T. gondii* is best known for infecting mammals (esp. felines and rodents), avian hosts also contribute to global transmission dynamics. Florida is an avian biodiversity hotspot along two migratory flyways and therefore presents unique opportunities to detect novel and/or virulent genotypes that may present health risks to humans. These risks are increasing with environmental factors (e.g., urbanization) that facilitate pathogen transmission between feral and domesticated animals, and susceptible human populations. Recent evidence suggests that waterbirds in particular may be a more substantial reservoir for *T. gondii* than previously thought. We collected tissue samples from >100 waterbirds and terrestrial birds from carcasses provided by conservation facilities. We isolated and characterized DNA from heart, pectoral muscle, liver, and brain samples, then used this material for polymerase chain reaction (PCR) tests that detect *T. gondii* DNA in infected tissues. We also conducted piloting molecular work to characterize locally circulating *T. gondii* strains using public resources including ToxoDB (a genomic database). Host variables (e.g., diet, habitat preference, phylogeny) and geographic factors (e.g., mainland urban vs. island) were also analyzed. Our preliminary results provide valuable insight into the prevalence and distribution of *T. gondii* in South Florida's wildlife, as well as predictions for how changing land use and climate change may impact pathogen reservoirs in waterbirds.

### **Session Details:**

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## Adaptive non-lethal Double-crested Cormorant Management in Toronto, Ontario

Andrea Chreston<sup>1</sup>

Toronto And Region Conservation Authority

**Abstract ID :** 50

### **Abstract Summary :**

Toronto and Region Conservation Authority manages Double-crested Cormorants at two sites on the Lake Ontario waterfront in Toronto, Canada, using an integrated suite of non-lethal deterrent techniques to discourage tree nesting and promote ground nesting. Deterrent techniques are implemented consistently through the spring and include a variety of visual and audio tools. Immature nest removals occur concurrently using poling and flossing techniques. Successful management has resulted in 90% ground nesting (2024) compared to 85% tree nesting (2009). The overall nesting population increased from 7,564 (2009) to a peak of 14,515 (2018) and declined to 7,739 (2024). An artificial nesting structure now provides alternate tree nesting habitat and held 150 nests in 2024. Cormorants started nesting at Toronto Island Park in 2022 where the goal is to prevent nesting. Colonization has been rapid and across a large area, requiring increasing effort and creativity to restrict the impact area. Bald Eagles began co-nesting at Toronto Island Park in 2024 which complicated cormorant management actions: a 100m buffer zone was established around the nest where human presence was prohibited and no management actions were implemented. This resulted in concentrated cormorant nesting within the buffer zone. All nests were removed prior to spring 2025. Based on eagle tolerance in 2024 and pre-nesting habituation techniques, the buffer zone was reduced to 50m, however, cormorant pressure was high and the population increased to 4,500 nests (+255% from 2024). New non-lethal approaches and increased effort are being considered for 2026. All four hatched eaglets have fledged.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Moving on Up: Fostering collaborative research to address large-scale challenges for inland breeding Common Terns

Annie Bracey<sup>1</sup>, Fred Strand<sup>2</sup>, Jane Reed<sup>3</sup>, Gaea Crozier<sup>4</sup>, Sumner Matteson<sup>5</sup>, Todd Arnold<sup>6</sup>, Francie Cuthbert<sup>7</sup>

**Abstract ID :** 52

### **Abstract Summary :**

Understanding movement patterns and behaviors of birds can help inform conservation actions for species at risk. Despite being one of the most well-studied waterbird species, key gaps in knowledge remain for common terns (*Sterna hirundo*) breeding at inland lakes in North America. This includes understanding regional population dynamics and identifying non-breeding season threats, both of which require a broad collaborative effort, including coordinated data collection and management. For species that disperse among colonies and exhibit deferred recruitment, identifying demographic parameters that influence population change requires long-term monitoring efforts at multiple colony locations, plus abundance estimates for the population of nonbreeders. We will describe a multistate live-encounter integrated population model that we developed to explore population dynamics of two common tern colonies located in western Lake Superior using 41 years of banding, recapture, and nest monitoring data (1984 – 2025). We will also describe a web-based data sharing resource that we developed to facilitate long-term monitoring and management goals in western Lake Superior and outline future research needs for assessing risk during the non-breeding season. We will describe how collaborative research has advanced our knowledge of non-breeding season movements for this population and highlight how incorporating additional long-term monitoring data collected at persistent breeding colonies across inland lakes would increase accuracy of survival estimates, aid in identifying factors that influence colony stability, and help determine the likelihood of regional persistence.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Tradeoffs used during reproduction by the American Oystercatcher *Haematopus palliatus* in North Carolina

Katharine Goodenough<sup>1</sup>  
Larid Research And Conservation

Abstract ID : 53

### Abstract Summary :

Reproductive activities place constraints upon how birds may create tradeoffs to mitigate responses to reproductive threat, but individuals have options on how they balance energetic needs and perceived threats to reproduction. Some individuals may alter aspects of their foraging, e.g. distances traveled, duration of foraging, or in some cases altering foraging locations and the food consumed. There may also be sex-related differences in the rate of nest and chick attendance, e.g., one sex spending more time defending territories or provisioning offspring more often than their partner. While we know quite a bit about American Oystercatcher (*Haematopus palliatus*; hereafter AMOY) life history strategies thanks to more than 30 years of active management and conservation, there remain knowledge gaps regarding tradeoff strategies that AMOY use. For this research, we used a combination of GPS telemetry, annual productivity monitoring, and linear mixed effects models to assess extrinsic factors that may influence reproductive success for North Carolina AMOY populations. A suite of extrinsic factors was found to influence tradeoff strategies which include foraging ground adjacency, tidal cycle, diurnal cycle, day length, and moon phase for nocturnal movements. Results suggest that reproductive stage has an important influence upon individual foraging strategies with non-breeding birds having a larger mean foraging distance and duration of time spent foraging. Nocturnal foraging was an important aspect of how AMOY balanced their energy budgets with individuals using the nocturnal period (2100-0400) to forage similar to diurnal foraging episodes. Mean nocturnal foraging distances were greater during the new moon and during the late stages of a waning moon and early stages of a waxing moon (30% illumination or less). Our results also suggest that having food resources adjacent to the nesting territory is beneficial by allowing adults to provide protection to nests or chicks by reducing the amount of time a parent is away from the nesting territory.

### Session Details:

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Using Novel Technology for Management and Monitoring of Common Tern Colonies

Kyla Ebersole<sup>1</sup>, Michael Barker<sup>2</sup>, Stephen Oswald<sup>3</sup>, Jennifer Arnold<sup>4</sup>

**Abstract ID :** 54

### **Abstract Summary :**

Technological advances offer considerable opportunities for monitoring and management of Common Terns. Here, we discuss three different technologies. Sound: Extracting data from sound recordings has many potential applications for Common Terns, such as studying social interactions, breeding metrics, predation, and colony failure. Common Terns are especially suited to this type of data collection due to their wide variety of vocalizations, or call types, which correspond to different behaviors. Using a method to isolate target calls from background colony noise and using an automated custom classifier through BirdNet to count these calls, the process of collecting this data has been made faster and more efficient. We discuss this novel method and the promise sound recordings show to address a multitude of research questions, with possible customization for different purposes. Drones: Since 2022, drone surveillance has been used to monitor Common and Caspian Tern colonies, providing a less invasive alternative to traditional methods that may disturb nesting birds. Early challenges were mitigated by refining timing and methodology. Weekly drone flights beginning in June, particularly between 0600–0700 hrs, yielded the most accurate counts, capturing peak nesting activity and leveraging shadows for better bird identification. This method proved especially valuable during an Avian Influenza outbreak, helping distinguish live from dead birds. Point-counting software enhanced accuracy in estimating adult populations early in the season, and both adults and juveniles later on. Cameras: Cameras recording motion-sensitive pictures, time-lapse imagery, or video surveillance at waterbird breeding colonies have become a popular tool to document reproductive challenges and inform management. We describe deployment of cameras and trail cameras at Common Tern colonies in the Great Lakes and Manitoba to detect predators, flooding, human disturbance, and undertake research on sleep, diet, and behavior. We summarize how the key considerations of battery life, memory storage, resolution, image frequency, data retrieval and processing, and cost depend on the goal or research question. Thus, we provide a roadmap for using cameras for management, monitoring and research at Common Tern colonies.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Genetic Structure of Aleutian Terns (*Onychoprion aleuticus*) in Alaska: Insights into Diversity and Population Connectivity

Patty Szczys<sup>1</sup>

Eastern Connecticut State University

Abstract ID : 55

### Abstract Summary :

The Aleutian Tern (*Onychoprion aleuticus*) is a rare, migratory seabird with a restricted breeding range in coastal Alaska and the Russian Far East.

Population trends are difficult to document due to low site fidelity, high inter-colony movement, variable breeding attendance, and logistical challenge of accessing suitable breeding habitats across vast landscapes. Understanding the species' genetic structure is critical for interpreting regional patterns of decline and informing conservation efforts. We conducted the first assessment of genetic diversity and structure using 18 polymorphic microsatellite loci adapted for Aleutian Tern. DNA was obtained from feathers and tissue collected at five breeding sites: Nome, Kodiak Island, Lily Pond, Black Sand Spit, and Yakutat. Mitochondrial cytochrome-b gene was sequenced for 12 individuals from Yakutat. Genetic diversity was moderate to high across all sites ( $N_a = 4.1 - 6.3$ ;  $H_e = 0.45 - 0.61$ ), with observed heterozygosity comparable to or higher than that reported for other tern species. Genetic differentiation was detected among regional sites, rejecting the hypothesis of a single panmictic population. Two genetic clusters were detected, though they were not fully aligned with sampling location, suggesting potential cryptic structure or historical gene flow. Mitochondrial sequencing revealed low haplotype diversity (3 haplotypes, 2 SNPs across 489 bp), underscoring the need for assessment of individuals representing all regions. This study provides foundational insights into the population structure and genetic diversity of Aleutian Terns in Alaska. While geopolitical challenges precluded sampling in Russia that would provide a species-wide assessment, our findings emphasize the importance of continued tissue collection and genetic monitoring. The microsatellite panel developed and reported here enables long-term tracking of genetic diversity as new tissues are collected and will support future conservation assessments for this declining species.

### Session Details:

General Session: Population Biology, Front, 30 Sep, 2025 03:00 PM

## Daytime Flies and Night Time Plovers

Jason Garvon<sup>1</sup>, Riley Waterman<sup>2</sup> \*

**Abstract ID :** 57

### **Abstract Summary :**

Successful recovery of the Great Lakes Piping Plover population is dependent on many factors, including intense monitoring of nesting activities. Yet, despite herculean efforts in some cases, adults and chicks are lost, especially when monitors are not present or disturbance is high. To better understand daily activity of Piping Plovers we observed and compared time dedicated predetermined behaviors during day and night by recording with night vision capable cameras.

Overall, plovers spent more time on predator defense during the day, and more time feeding at night, yet pecked at the substrate in similar amounts during both day and night. Our results underscored the importance of conservation efforts to focus on reducing disturbance during nighttime which is an issue along some Lake Superior nesting sites where "Yoopperlites" are found. Since completing the initial study, and observing increase tourism during successive years, we initiated a 3-week mini study during July 2025 where we deployed motion activated cameras at regular (400m) intervals along the Vermilion Point Preserve to estimate levels of disturbance at night and during the day. Preliminary results will be shared in addition to discussion of the original data from our research.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Restoring micro-beaches as an adaptive management practice to recover Common Tern breeding populations in coastal Maryland.

David Brinker<sup>1</sup>, Kim Abplanalp<sup>2</sup>, Roman Jesien<sup>3</sup>

**Abstract ID :** 58

### **Abstract Summary :**

Sea level rise and habitat loss due to erosion threaten colonial nesting waterbirds along the mid-Atlantic coast. From the late 1980s to now, Maryland's population of Common Terns (*Sterna hirundo*) has decreased from approximately 8,100 breeding pairs to fewer than 500. An artificial island launched in 2021 has successfully retained breeding terns in Maryland's Coastal Bays, while habitat restoration efforts are planned and implemented. In 2024, a former colony site, Reedy Island, was restored using crushed clam shell to elevate a salt marsh micro- beach above storm-driven spring tidal flood levels. By 2025, Common Terns established a nesting colony on the restored beach. Reedy Island is located 24 km to the north-northeast of the tern raft, and this restored site attracted nesting adults from previous seasons on the tern raft, as well as terns born on the raft in 2022 and 2023. Terns from other regional colonies also settled at Reedy Island as breeders.

This beach restoration and its role in increasing breeding habitat will be discussed as part of an adaptive management approach to sea level rise. The regulatory challenges of expanding micro-beach restoration to aid in the continued recovery of the coastal Maryland breeding segment will also be reviewed.

### **Session Details:**

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## Adapting to Changes on the Maryland Tern Raft- What Next?

Kim Abplanalp<sup>1</sup>, David Brinker<sup>2</sup>, Roman Jesien<sup>3</sup>

**Abstract ID :** 59

### **Abstract Summary :**

Now in its fifth season, management continues to focus on responses related to changes occurring on the Maryland Tern Raft. The Common Tern (*Sterna hirundo*) breeding colony has matured, and nest initiation has advanced by a full 21 days. The colony is reaching its carrying capacity, with approximately 300-349 nests established each season from 2023 to 2025. Return rates of breeding adults to the site are significant and have varied between 53 and 89 percent, with an average of 72% for all years. Recruitment of breeding adults from chicks produced on the raft in previous summers has steadily increased since 2022 to 60 in 2025 and is expected to continue growing. In 2025, a second state-listed endangered species, the Royal Tern (*Thalasseus maximus*), bred on the raft for the first time. Thirty-one pairs fledged 10 chicks, the highest number fledged in Maryland over the past five years. To minimize potential disturbance from the Royal Tern colony, we built a temporary mesh fence to protect the Common Tern eggs and chicks from the Royal Terns. A future concern is that if Royal Terns return to the raft in 2026, there might be increased direct conflicts between these two nearly overlapping, state-listed endangered species and their critical nesting habitat requirements.

### **Session Details:**

General Session: Breeding Biology, State, 30 Sep, 2025 10:00 AM

## The summer Caspian Terns fell silent on the Great Lakes: Impacts of Avian Influenza

Preeti Dave<sup>1</sup>, Jolene Giacinti<sup>2</sup>, Trevor Thompson<sup>3</sup>, Cynthia Pekarik<sup>4</sup>

**Abstract ID :** 60

### **Abstract Summary :**

Avian influenza (AI) is an infectious disease affecting birds, caused by Influenza A Viruses, which can be highly transmissible among bird species. Although LPAI (low pathogenicity) and HPAI (high pathogenicity) classifications are based on disease outcomes in poultry, HPAI has been associated with high morbidity and mortality in wild birds. Since 2021, following the incursion of HPAI H5N1 to Canada and near-global spread of these viruses, 4,732 wild birds in Canada have tested HPAI-positive and it is estimated over 48,000 have died from infection. Currently, we continue to observe mortality within wild animals, especially seabirds. Since May 2025, there have been mass die-offs of Caspian terns (*Hydroprogne caspia*, CATE) across the Great Lakes Region. In Hamilton Harbour and Presqu'ile Provincial Park, there was an estimated 89% and 47% population loss following AI infection. Further CATE deaths were observed in the United States, at Buffalo Harbor (80% loss) and Little Galloo island (26% loss). Gravel Island had minimal population loss (2%), which may be explained by acquired immunity from a devastating HPAI event from 2022.

In all CATE colonies, samples tested H5 positive, and the CATE on Buffalo Harbor were confirmed H5N1 positive. Overall, the reports indicate the devastating impacts of this virus on CATE, whose population has been drastically affected during their peak nesting months. This case report underscores the need for AIV surveillance in wildlife, coordinated mortality assessment, and cross-border communication to detect and respond to the spread of the virus in a timely manner.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Management Strategies for Predators of Common Terns

Nancy Seefelt<sup>1</sup>, Jennifer Arnold<sup>2</sup>, Donald Tyerman<sup>3</sup>, Lee Harper<sup>4</sup>

**Abstract ID :** 62

### **Abstract Summary :**

Managing predators in Common Tern colonies is a constant battle. The variety of avian and mammalian predators creates challenges for managers, and many methods require a significant commitment of resources and frequent colony visits. Lethal predator methods include trapping and shooting under required state and federal permits; these methods can be controversial and cause for public concern. Non-lethal control methods include exclusion grids, noose traps, and electric fencing, among others. At Presqu'ile Provincial Park, hard-walled, predator exclusion grids have prevented night-herons, gulls and other predators from accessing tern breeding areas. These grids combine polywire overhead lines, electrification, chick refuges, and lighting to protect nests. This has increased colony productivity from effectively zero to >2 chicks fledged per nest, and the colony has grown from 62 pairs in 2012 to over 300 pairs in 2025. At other locations in northern Lake Michigan, terns have nested are more vegetated sites that provide natural protection from night-herons and other avian predators. Management options are limited at these remote sites, but observations at these locations have informed vegetation management options at more accessible locations, including a large colony at the St. Ignace Coast Guard Station in the Straits of Mackinac. The additional use of a sound blanket has improved reproductive success at this site. As with all management, success is never guaranteed. However, using a variety of methods, monitoring with cameras, learning the pattern of predator attack, and having adaptive strategies can help mitigate predation risk and foster colony success.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Ecological impacts of shoreline stabilization and climate drivers on migratory shorebirds on Virginia's northern barrier islands

Camille Alvino<sup>1</sup>, Sarah Karpanty<sup>2</sup>, Chelsea Sweeney<sup>3</sup>, Mikayla Call<sup>4</sup>, Kristy Lapenta<sup>5</sup>, Aylett Lipford<sup>6</sup>

**Abstract ID :** 63

### **Abstract Summary :**

NASA's Wallops Flight Facility on Wallops Island, Virginia, is home to critical infrastructure of national significance as well as imperiled migratory and nesting shorebirds. Both natural and human-made resources on Wallops and the larger Virginia barrier island system are heavily impacted by climate-driven forces, making future stabilization actions on Wallops necessary to maintain the infrastructure. Thus, it is crucial to understand the impacts of stabilization efforts on imperiled shorebirds relative to climate-driven geomorphological changes. The state and federally threatened red knot (*Calidris canutus rufa*) and the black-bellied plover (*Pluvialis squatarola*), a Virginia Tier IV species of greatest conservation need, use Virginia's barrier islands during migration, and the federally threatened piping plover (*Charadrius melodus*) uses these islands for migration and nesting. To inform future adaptive management efforts, sampling of these shorebirds and their prey was conducted at Wallops Island, which has undergone beach stabilization actions, and at surrounding non-stabilized sites, from April to October 2024-2025. We observed red knots, piping plovers, and black-bellied plovers, along with a diverse suite of other migratory shorebirds, on all islands, with the highest numbers of red knots on Gargatha beach and the northern section of Wallops Island. We found diverse benthic and terrestrial invertebrate prey across all islands, with the highest benthic prey densities and shorebird abundances on peat banks, similar to our prior work in this system during Spring migration. We found the highest densities of terrestrial invertebrates in interior pools, including the 'borrow pond', the borrow site of the most recent renourishment phase on Wallops Island. These data serve as a baseline from which to monitor responses of additional shoreline stabilization efforts at Wallops Island and offer a snapshot of bird and prey responses since the last stabilization effort in 2021 on these focal shorebirds and their prey.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Linking environmental disturbance dynamics to nesting habitat for Great Lakes piping plovers

Sarah Ramirez<sup>1</sup>, Kristen Ellis<sup>2</sup>, Francie Cuthbert<sup>3</sup>, Stephanie Schubel<sup>4</sup>, Michael Anteau<sup>5</sup>, Rose Swift<sup>6</sup>, Garrett MacDonald<sup>7</sup>, Mark Sherfy<sup>8</sup>, Jillian Farkas<sup>9</sup>, Vince Cavalieri<sup>10</sup>

**Abstract ID :** 64

### **Abstract Summary :**

Understanding the drivers of suitable nesting habitat for federally endangered piping plovers (*Charadrius melodus*) in the Great Lakes is critical for recovery planning and management in a dynamic environment. We developed spatially explicit nesting habitat models that integrate a baseline set of landscape predictors with context-dependent effects between seasonal ice cover and wave intensity. These dynamic processes can create and maintain shoreline habitats used by piping plovers for breeding through ice scour, distribution of sediment, and impacts on vegetation succession. Using past and current environmental conditions, informed by a long-term nesting dataset across the U.S. Great Lakes (2010-2023), we used an inhomogeneous Poisson point process model to evaluate landscape features and disturbance processes associated with suitable piping plover nesting habitats. Nesting intensity was consistently associated with sparsely vegetated sites further from roads and with less human development. Additionally, the influence of wave action on habitat suitability was dependent on ice cover concentration, consistent with the prediction that mixed disturbance regimes maintain open, sparsely vegetated substrates preferred by piping plovers for nesting. Our results highlight that incorporating climate-linked disturbance interactions can improve habitat suitability predictions for species that are reliant on dynamic habitats. Further, our findings can be used by land managers as a spatial decision-support tool for prioritizing habitat restoration and management activities under changing climate and ice conditions.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Past, Present and Future Impacts of Flooding and Climate Change for Inland Breeding Common Terns

Stephen Oswald<sup>1</sup>, Nancy Seefelt<sup>2</sup>, Ann McKellar<sup>3</sup>, Jennifer Arnold<sup>4</sup>, Paul Curtis<sup>5</sup>

**Abstract ID :** 65

### **Abstract Summary :**

We provide three case studies of the consequences of flooding and climate change for breeding Common Terns (*Sterna hirundo*) in inland North America. (1) Using a 45-year study of Common Terns nesting at Oneida Lake, New York, we describe the challenges caused by habitat availability and competition for nesting with other waterbirds and how these have intensified concomitant with climate change. Nesting numbers and productivity have declined as breeding islands have eroded and nests are regularly flooded during summer storms. Using Oneida as a parallel for other low-lying inland breeding islands, we describe the interplay between habitat loss, seasonal flooding, species interactions, predation and human activities that will shape management needs for Common Terns under forecast climatic change. (Stephen Oswald, Jennifer Arnold, Paul Curtis)(2) Water level fluctuations are natural in the Laurentian Great Lakes. However, climate change has caused more extreme water level changes that occur at a more rapid rate, as compared to historical observations. This, combined with more extreme storms, has put Common Terns nesting on low lying islands at greater risk for reproductive failure. Our work has documented colony washouts and mortality events linked to storm and wave action. As terns are attracted to these natural islands, especially in remote locations, it is difficult to determine population-level impacts and to protect terns at these vulnerable sites. (Nancy Seefelt)(3) The large lakes of southern Manitoba (lakes Winnipeg, Winnipegosis, and Manitoba) support nationally significant populations of breeding Common Terns, but water level regulation for flood management and hydroelectric activity puts these populations at risk. We provide evidence that higher water levels are associated with fewer breeding pairs, and argue that water level stabilization for hydroelectric activity is negatively impacting the habitat quality of nesting islands, possibly contributing to the population declines observed in this region. The role of the boreal forest in supporting breeding populations during high-water years remains unknown.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Fine-scale habitat use and activity budgets of wintering Northern Gannets in an anthropogenic seascape

Juliet Lamb<sup>1</sup>, Jeffrey Wagenhauser<sup>2</sup>, Carl Lobue<sup>3</sup>

**Abstract ID :** 66

### **Abstract Summary :**

Novel uses of marine seascapes, such as development of offshore wind energy, have the potential to affect the distribution and habitat use of marine wildlife including seabirds. To measure and mitigate such effects, it is necessary to understand not only where individuals occur, but how they use habitat under baseline conditions. Movements of seabirds are often under-studied during the non-breeding period, when they are not tied to terrestrial breeding sites. We used GPS transmitters to track Northern Gannets wintering in the New York Bight, which contains the first offshore wind energy developments along the U.S. Atlantic Coast, to determine fine-scale habitat use during the non-breeding period. We found that gannets preferentially foraged close to shore during daylight hours and used offshore areas including planned wind energy lease areas primarily for nocturnal roosting. Commuting flights between these areas peaked around dawn and could be a time of elevated risk as individuals fly to and from foraging areas. We also found that individuals spent more time in commuting flight early in the winter and more time foraging and resting in late winter/early spring. Finally, we identified a northward migration corridor that passed through several wind energy lease areas in early spring, with migratory flights peaking in late morning. Overall, while our results suggest that offshore wind energy development in the study area will cause limited displacement from foraging habitats for gannets, we highlight several locations and periods of elevated risk that could be targets for monitoring and mitigation.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Habitat availability is a key demographic driver of an Atlantic coast Piping Plover (*Charadrius melodus*) population

Christy N Wails<sup>1</sup>, Samantha Robinson<sup>2</sup>, Camille Alvino<sup>3</sup>, Henrietta Bellman<sup>4</sup>, Audrey DeRose-Wilson<sup>5</sup>, Sharon Dorsey<sup>6</sup>, Kelsi Hunt<sup>7</sup>, Katie Oliver<sup>8</sup>, Chelsea Sweeney<sup>9</sup>, Hope VanDerwater<sup>10</sup>, Sarah Karpanty<sup>11</sup>

**Abstract ID :** 67

### **Abstract Summary :**

Population regulation often stems from density-dependent changes in vital rates, but disturbance-driven habitat creation can relax these constraints and alter demographic trends. We evaluated the demographic drivers in a breeding population of Piping Plovers (*Charadrius melodus*) on Fire Island, New York following habitat creation by and after Hurricane Sandy. In conjunction with local land managers, we monitored this population from 2013 – 2023. We banded unmarked individuals, recorded nest locations, monitored nests and broods, and collected resighting records. Using an integrated population model incorporating nest survival, brood survival, adult survival, and immigration, we estimated the relative contributions of adult residents, natal recruits, and immigrants to population growth, explored drivers of vital rates, and simulated a range of population growth responses under four hypothetical scenarios. Our IPM predicted that the breeding population increased from 57 individuals in 2013 to 296 in 2023, with a mean annual growth rate of 18% ( $\lambda = 1.18$ ). Immigration rates (0.23 – 0.56 immigrants per adult resident) and reproductive output (0.37 – 2.26 fledges/pair) varied among years, with immigration showing the strongest correlation with annual population growth ( $r = 0.59$ ). Adult true survival was high throughout the study ( $S = 0.67$ ), as was breeding site fidelity in after-second-year birds ( $F = 0.93$ ). Habitat use analyses indicated that immigrants and natal recruits settled in overwash habitats at higher rates than expected. Population simulations indicated that sustained high levels of immigration or reproductive output could maintain population growth. Our findings highlight the critical roles of habitat availability and immigration in post-disturbance population dynamics of a threatened shorebird, emphasizing the need to maintain and periodically create early successional habitats.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Shouting from the rooftops: Testing the expected decline in Least Tern rooftop breeding colonies in Florida.

Ariam Jimenez<sup>1</sup>, Meaghan Evans<sup>2</sup>, Ricardo Zambrano<sup>3</sup>, Elizabeth Forsys<sup>4</sup>, Janell Brush<sup>5</sup>

**Abstract ID :** 68

### **Abstract Summary :**

Six species of beach-nesting birds have adapted well to using gravel rooftops as an alternative nesting habitat in Florida. Roof-nesting individuals are arguably less vulnerable to disturbance and predation, and their contribution to the population is equal to or greater than that of individuals nesting in their natural habitats. However, the availability of suitable rooftops may be decreasing, and their loss could be critical for Least Terns - the most common and abundant rooftop-nester in Florida. We analyzed historical data (1998–2000 and 2010) alongside current data (2015–2024) to determine whether Least Tern rooftop colonies are declining and to assess regional differences in this trend. Additionally, we predicted that the species would exhibit greater site fidelity, measured as colony turnover rate, during periods of limited rooftop availability and in regions with low availability of suitable ground-nesting habitat. The number of Least Tern rooftop nesting colonies in Florida has declined by about three rooftops each year ( $F = 59.17$ ,  $d.f. = 12$ ,  $P < 0.001$ ). The colonies in 2024 numbered 43% of those recorded 25 years earlier. The decline in Least Tern nesting colonies primarily occurred in regions in Florida with historically more abundant gravel rooftops, such as the Northwest, Northeast, and Southeast. The current turnover rate suggests higher site fidelity than what was observed in 1998–2000 (25% and 35%, respectively). The turnover rate was notably low in the South region, which is characterized by its limited availability of suitable ground-nesting habitat for the Least Tern. Our models indicate that most of the Least Tern rooftop nesting colonies will be lost within 10–20 years, adding more challenges to the recovery of the Least Tern population in Florida.

Suitable gravel rooftops are critical to the Least Tern population recovery in Florida. Creative solutions to augment or mitigate the loss of suitable rooftops will be necessary to meet the species recovery goals.

### **Session Details:**

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## Changes in the Status and Distribution of Colonial Waterbird Breeding Populations, Western Lake Superior, 1974-2024

Sumner Matteson<sup>1</sup>, Fred Strand<sup>2</sup>, Julie Van Stappen<sup>3</sup>, Margaret Burkman<sup>4</sup>, Annie Bracey<sup>5</sup>, Elouise Lozinski<sup>6</sup>

**Abstract ID :** 70

### **Abstract Summary :**

Every five years during 1974-2024, we surveyed populations of the American Herring Gull (*Larus smithsonianus*)/Herring Gull (*Larus argentatus*), Ring-billed Gull (*Larus delawarensis*), Common Tern (*Sterna hirundo*), Black Tern (*Chlidonias niger*), Great Blue Heron (*Ardea herodias*), and the Double-crested Cormorant (*Nannopterum auritum*) along the entire western Lake Superior shore from the Michigan/Wisconsin border in the east to the St. Louis River estuary in the west, including all 22 Apostle Islands. Government, university, and tribal partners documented nesting locations and size of colonies and determined population trends. Special management efforts at two Common Tern colony sites provided stable nesting habitat, maintained long-term population stability, and led to colony interchange. The Common Tern is a species of Greatest Conservation Need in Wisconsin and Minnesota. Population declines and changes in distribution are discussed for all six species, with only the Ring-billed Gull notably increasing in population size. The Black Tern no longer occurs as a breeding bird, and there has been a 99% decline in the Great Blue Heron breeding population. The number of cormorant colony sites has declined to one at Gull Island. Herring Gulls have declined nearly 63% since 1994 and the number of breeding sites reduced by two-thirds. Over the 50-year period, the only species to remain stable in number—a modest 2.8% increase—is the Common Tern, with annual management efforts contributing to population stability at two colony sites approximately 113 km apart. - Sumner Matteson, Frederick Strand, Julie Van Stappen, Margaret Burkman, Annie Bracey, and Elouise Lozinski

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 A

## Land loss results in island-level but not population-level declines in waterbird nest abundance over 16 years (2006-2021) on the lower coast of Texas

David Essian<sup>1</sup>, Liam Wolff<sup>2</sup>, Jessica Magolan<sup>3</sup>, James Gibeaut<sup>4</sup>, David Newstead<sup>5</sup>, Dale Gawlik<sup>6</sup>

**Abstract ID :** 73

### **Abstract Summary :**

Waterbird colony islands on Texas's coast have lost habitat at a rate of 2-3% per year, causing many small islands to become unsuitable for nesting. Habitat loss has clearly limited waterbird abundance on some islands, but there are many islands with nesting habitat (> 300 on the Texas coast) so the population-level effects are unclear. To better understand the effect of nesting habitat loss on waterbird populations at multiple scales, we applied hierarchical models to long-term nest surveys (2005-2021) of five waterbird species. Our models estimated the effect of 1) total habitat area (ha) on island occupancy, and 2) rate of habitat loss on island-level trends in nest abundance. From these models, we derived estimates of the annual occupancy rate and a population index (number of nesting pairs) across a network of 183 islands in the Corpus Christi Bay and Laguna Madre systems. Although several islands became submerged during our study period, our species did not occupy fewer islands over time, nor did the population index decrease. However, the mean island-level abundance trend was negative, suggesting that island-level declines in nest abundance are widespread. These results suggest that the colonization of new islands kept pace with abandonment caused by habitat loss, and that increasing trends in nesting pairs at a few islands compensated for losses at most islands. We caution that because our results apply to only a portion of the Texas coast for the years studied, we have no basis to suggest that these patterns apply more broadly.

### **Session Details:**

General Session: Population Biology, Front, 30 Sep, 2025 03:00 PM

## Freshwater Wetland Characteristics Influencing Whooping Crane Use

Katrina Fernald<sup>1</sup>, Andrew Caven<sup>2</sup>, Carter Crouch<sup>3</sup>, Matti Bradshaw<sup>4</sup>, Matthew Butler<sup>5</sup>,  
Dorn Moore<sup>6</sup>, Sundas Rehman<sup>7</sup>, Aaron Pearse<sup>8</sup>, David Brandt<sup>9</sup>

**Abstract ID :** 74

### **Abstract Summary :**

The Aransas-Wood Buffalo population of Whooping Cranes (*Grus americana*) winters primarily in saltmarsh along the Texas coast, but little is known about the characteristics of nearby freshwater wetlands they use for foraging habitat and dietary water. In 2023 and 2024 we collected site-level and landscape-level data at freshwater wetlands across 5 properties in the Coastal Bend region of South Texas. We selected 35 used and 35 unused wetlands based on transmitter data from winters 2019-20 and 2020-21. Vegetation in wetlands used by Whooping Cranes averaged 24.8 cm tall, significantly shorter than vegetation at unused wetlands (52.5 cm,  $p < 0.001$ ). Woodland habitats made up 28.0% of the landscape within 250 meters of used wetlands and 49.7% around unused wetlands ( $p = 0.005$ ). We found no difference in the percentage of coastal prairie or salty prairie in the landscape around used and unused wetlands, indicating that woody plant cover could be a significant driver of Whooping Crane use. Used wetlands also had significantly deeper water, larger wetted width, and greater soil components of organic matter and clay, all indicators of wetland status and frequent flooding. These results confirm that management of woody plant encroachment and water resources is important for managing and improving Whooping Crane habitat. The characteristics of used wetlands can be applied to identifying potential future habitat as this population of Whooping Cranes expands into new territories.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Nesting Habitat Characteristics of a Novel Black-necked Stilt Population in Wisconsin

Amy Kopec<sup>1</sup>, Ella Follman<sup>2</sup>, Sumner Matteson<sup>3</sup>, Marie Perkins<sup>4</sup>, Daryl Christensen<sup>5</sup>

**Abstract ID :** 75

### **Abstract Summary :**

While many North American shorebird populations have declined in recent decades, the Black-necked Stilt (*Himantopus mexicanus*, BNST) appears to be increasing its range and maintaining a steady population size. In 1999, the first BNST nest was reported in the state of Wisconsin. In 2019, researchers began seasonal monitoring of nesting BNST at Horicon National Wildlife Refuge (NWR).

BNST are a semi-colonial species of shorebird that nest on the ground in vegetated wetlands, including Luehring Lake, a 207-hectare impoundment within Horicon NWR. Nests are generally close to shallow water, allowing birds to forage for aquatic invertebrates nearby, but increasing flooding risk. Nest surveys in Luehring Lake mapped the locations of adults, nests, and chicks and included observations on surrounding vegetation and water depth. Eleven breeding pairs were observed in Luehring Lake in 2019 and the pair number peaked at 26 in 2022. Eighteen pairs were observed in 2025; including likely renests, there were a total of 25 nests observed. Of those nests, 8 hatched at least one chick. Six chicks survived to 28 days and were considered fledged. NAIP aerial photos were used with known nest locations to calculate the ground cover surrounding nests within 50-meter and 10-meter buffers. From 2019-2023, mean ( $\pm$ SD) ground cover within a 50-meter buffer consisted of  $50.4 \pm 24.4\%$  open water, while  $45.0 \pm 22.9\%$  was "short", i.e. low-lying vegetation. Taller vegetation, mainly cattails, comprised only  $4.3 \pm 7.3\%$  of ground cover. Within a 10-meter buffer (from 2019-2023), the amount of open water decreased ( $36.3 \pm 29.8\%$ ) while short vegetation increased ( $60.2 \pm 28.7\%$ ). This preliminary data suggests that BNST nest in areas of short vegetation and open water, not areas of dense, tall vegetation. The proximity of BNST nests in relation to each other was also calculated. On average from 2019-2023, nests in Luehring Lake were  $82.1\text{m} (\pm 96.4\text{m})$  from other nests. Further analysis will include other habitat characteristics such as viewshed and food availability, with the intent of analyzing nest site selection. This information may aid Horicon NWR in maintaining this novel population.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Conservation Challenges for Common Loons in Michigan: Human Disturbance, Climate Change, and Contaminant Exposure

Scott Hedberg<sup>1</sup>

Michigan Loon Preservation Association

Abstract ID : 76

### Abstract Summary :

Common Loons (*Gavia immer*) were once abundant across Michigan, but by the early 1900s populations had declined sharply, particularly in the southern Lower Peninsula. The first statewide surveys in the 1980s documented near-extirpation from that region, and current estimates suggest only 500–750 territorial pairs remain, now confined to the northern two-thirds of the state. Although many suitable lakes remain unoccupied, human disturbance, shoreline development, recreational boating, and watercraft use have restricted recovery, prompting the loon's designation as a "Threatened Species" in Michigan. Emerging stressors further compound these challenges: climate change alters precipitation patterns, water levels, and water quality; reduced chick survival has been observed regionally in Wisconsin and across the Canadian Great Lakes, where mercury contamination contributes to long-term declines; and preventable threats such as boat strikes, lead tackle ingestion, and fishing line entanglement continue to depress productivity. Studies from Ontario and the Adirondacks demonstrate strong links between methylmercury exposure and reduced reproductive success. Additionally, acid rain diminishes prey fish populations, further limiting food availability. Lead tackle ingestion alone accounts for an estimated 10–50% of annual loon mortality. Across the Midwest, loon populations have shown an overall decline since 2010. Together, these pressures highlight the need for continued monitoring, conservation action, and mitigation of human-driven stressors to ensure the persistence of loons in Michigan into the future.

### Session Details:

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## The Economic Value of a Whooping Crane

Matti Bradshaw<sup>1</sup>, Stephanie Schmidt<sup>2</sup>, Andrew Caven<sup>3</sup>, Carter Crouch<sup>4</sup>, Paityn Macko<sup>5</sup>, Katrina Fernald<sup>6</sup>

**Abstract ID :** 78

### **Abstract Summary :**

The Whooping Crane (*Grus americana*) is the rarest species of crane in the world and is thought to be of economic importance to the local communities in which they reside. Estimates related to the ecotourism benefit of Whooping Cranes in the Aransas-Wood Buffalo Population (AWBP) and conservation costs associated with recovery are limited. To estimate the economic value generated by Whooping Cranes, we administered economic surveys to the public at common ecotourism sites near Rockport, TX. The surveys included questions related to how much visitors spend on hotel/lodging, meals, gasoline/fuel, shopping, entertainment, other ecotourism costs, and any other expenses not specified. Participants were asked to pick the appropriate range of values for these expenditures, including \$0, \$1-\$50, \$51-\$100, \$101-\$150, and \$150+. Participants reported that on average their per person daily spending was around \$177.32. Vehicle counts were also conducted at a site where Whooping Cranes are often viewed from the road and were  $\geq 30$  minutes. In total, we surveyed for around 24 hours and determined that about 44 vehicles passed by per hour on average. In addition to estimating the economic value associated with Whooping Cranes, we also estimated the investment that conservation partners are placing into the management and protection of this population. To do this, we contacted partners and compiled reports related to the amount of time and funding these organizations placed in Whooping Crane conservation and determined that the amount of conservation dollars contributed to a single Whooping Crane throughout its lifetime is about \$294,205.69.

### **Session Details:**

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## Uncovering the hemispheric foot print of the Royal Tern *Thalasseus maximus*: A combined study of GPS telemetry tracking and mark- recapture efforts in North Carolina

Katharine Goodenough<sup>1</sup>, Lindsay Addison<sup>2</sup>

**Abstract ID :** 80

### **Abstract Summary :**

The mission of Audubon's Migratory Bird Initiative is to secure the future of migratory birds in the Western Hemisphere. An important aspect of this initiative is having data that provide information on non-breeding locations of migratory species to better understand connectivity across populations. Since the mid-1970s, Royal Tern chicks have been banded annually in North Carolina. While mark-recapture efforts have provided information on wintering grounds, the timing and migration routes have not been documented. In 2024, Larid Research and Conservation and Audubon North Carolina began a project to study nesting Royal Tern movements in the Lower Cape Fear River of North Carolina. In 2025, we expanded our activities to include Sandwich Tern (*T. sandvicensis*) movement tracking. Our research goal is to use a combination of mark-recapture and GPS technology to identify critical migration stop-over areas and winter locations. Initial results of our pilot project for 2024 resulted with six Royal Terns providing information on migratory routes and timing of migration. This is the first detailed documentation of migratory route and wintering grounds for Royal Terns nesting in North America. The movement data suggests a diverse migration strategy with individuals wintering in SE Florida, the Florida Keys, the Dominican Republic, Panama, and Columbia. The common thread between these terns, besides their use of breeding locations in North Carolina, is that during the non-breeding period each tern depended on natural areas and sanctuaries throughout the Americas that are supported by Audubon and partners. This project is beginning to reveal the hemispheric footprint of these terns and provide supporting evidence that Audubon partnerships are benefiting birds on a hemispheric scale and moving conservation towards Audubon's hemispheric approach to bird conservation by giving us a better understanding of what locations are important for terns on both sides of their migration journeys.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Nest survival for five species of colonial waterbirds on the Texas coast

Rostam Mirzadi<sup>1</sup>, Dale Gawlik<sup>2</sup>, Liam Wolff<sup>3</sup>

**Abstract ID :** 82

### **Abstract Summary :**

Islands along the Texas coast provide breeding habitat for > 26 species of colonially nesting waterbirds, including 5 species of special management concern. However, factors affecting nest survival and productivity are largely unknown. During the 2022-2025 breeding seasons, we used a quadcopter drone to monitor 3,348 nests of five species of colonial-nesting waterbird species at 26 breeding colonies on the Texas coast to determine which colony, nest site, and landscape variables affect nest survival and productivity. Logistic exposure models indicated Tricolored Heron (*Egretta tricolor*) had the greatest overall survival (mean, 95% CI, n) (85.4%, 83.0–87.4%, 547 nests), followed by Caspian Tern (*Hydroprogne caspia*, 82.8%, 79.8%–85.4%, 477 nests), Great Egret (*Ardea alba*, 81.4%, 78.6–83.9%, 587 nests), Reddish Egret (*Egretta rufescens*, 74.5%, 70.4–78.1%, 358 nests), and Black Skimmer (*Rynchops niger*, 56.4%, 54.2–58.5%, 1,380 nests). parameters affecting nest survival and productivity varied among species, but nest age, nest timing, and colony density affected most species. Older nests had higher nest survival for Great Egret, Reddish Egret, Black Skimmer and Caspian Tern. Early nest initiation date increased survival for the Great Egret, Tricolored Heron, and Caspian Tern. High nest density increased nest survival for the Reddish Egret and Caspian Tern. These estimates of productivity provide a baseline understanding of the breeding biology of these species across the Texas coast and will support conservation efforts and prioritizing colony islands for rehabilitation.

### **Session Details:**

General Session: Breeding Biology, State, 30 Sep, 2025 10:00 AM

## Factors Influencing Movements and Habitat Selection of Colonial Waterbirds Along the Western Gulf Coast

Jordan Giese<sup>1</sup>

Caesar Kleberg Wildlife Research Institute, Texas A&M University Kingsville

**Abstract ID :** 83

### **Abstract Summary :**

The Texas coast is home to >300 islands that provide crucial nesting habitat for colonial waterbirds. Due to erosion from sea level rise, storm surges, and shipping traffic, there is a growing need to develop a data-driven tool to prioritize island restoration projects where the potential for enhancing waterbird populations is high. Identification of high-priority areas requires examination of foraging habitat availability adjacent to colony islands. Our objective was to describe breeding season space use and habitat selection of three colonial waterbird species nesting along the Texas coast. We captured and placed GPS backpacks on Great Egrets (*Ardea alba*), Reddish Egrets (*Egretta rufescens*), and Tricolored Herons (*Egretta tricolor*) during the spring, 2023-2025. For each individual, we calculated home range size and distance between colony and core foraging area. We also built integrated step-selection functions to evaluate environmental predictors of habitat selection. Foraging range sizes and foraging distances varied significantly across Texas' six bay systems, with individuals of southern colonies having larger core foraging areas and traveling shorter distances between colonies and foraging areas. Great Egrets and Tricolored Herons traveled greater distances to foraging areas than Reddish Egrets and selected estuarine and palustrine emergent wetlands. Reddish Egrets foraged closer to colonies and selected open tidal flats and shorelines within bays. Colony island restoration decisions will likely occur within bay systems as dredge material becomes locally available. Our findings will contribute to a prioritization tool identifies restoration areas within bays that maximize colony persistence, waterbird productivity, and access to foraging habitat, while minimizing project costs.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Movements and habitat use of nesting Black Skimmers on the Texas Coast

Alexander Sharp<sup>1</sup>, David Newstead<sup>2</sup>, Brooke Hill<sup>3</sup>, Justin LeClaire<sup>4</sup>, Mattityahu Baron<sup>5</sup>

**Abstract ID :** 84

### **Abstract Summary :**

In Texas, the nesting of colonial waterbirds are mostly aggregated on islands within each major bay system, and species that use these islands are limited to foraging within a specific radius surrounding the island. As such, availability of wetland habitat surrounding a colony directly contributes its overall productivity. Population decreases of Black Skimmer (*Rynchops niger*) have been documented in much of its United States range, likely driven by pressures experienced during the nesting period that result in low reproductive output. A lack of study on movements of individual birds from these colonies limits our understanding of where and when nesting birds forage, what wetland habitats are used, and whether individuals reuse colonies and foraging sites between nesting attempts. In this study, we quantified movements of 47 GPS-tagged Skimmers that nested in colonies within each major bay system of the Texas Gulf coast. Nesting Skimmers primarily foraged in estuarine subtidal and intertidal wetlands within 18km from the colony. Nesting movements confirm that Skimmers are primarily nocturnal and/or crepuscular foragers on the Texas Coast, making approximately 5 foraging departures from the colony per day lasting an average of 70 minutes, mainly before sunrise and around sunset. Lastly, Skimmers displayed high site fidelity at the bay-system and home range levels both within a nesting season and between consecutive seasons. The results of this study will assist in conservation of this species on the entire Gulf coast of Texas by establishing links between important colony sites and foraging habitat used by individuals within them.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Multidecadal island erosion and relative sea level rise causing significant habitat loss at waterbird colony islands in Texas

Liam Wolff<sup>1</sup>, David Essian<sup>2</sup>, Jessica Magolan<sup>3</sup>, James Gibeaut<sup>4</sup>, David Newstead<sup>5</sup>, Dale Gawlik<sup>6</sup>

**Abstract ID :** 85

### **Abstract Summary :**

The Texas, USA, coast supports roughly 250,000 nesting colonial waterbirds on over 300 colony islands annually, of which 77% are anthropogenic created from dredge material. Resource managers invest millions of dollars annually in management and rehabilitation of colony islands to offset habitat loss driven by erosion, subsidence, and sea level rise, but with little information on rates of loss, managers cannot assess how processes of island loss affect regional bird populations. To quantify the rate of habitat loss for waterbirds, we delineated nesting substrates (vegetated and unvegetated) on 221 colony islands on four of Texas' estuarine systems (Aransas Bay, Corpus Christi, and the Upper and Lower Laguna Madre) from National Agriculture Imagery Program and Texas Orthoimagery Program imagery in three decades (1995/1996, 2008/2009, 2012, and 2018). Total areal extent of unvegetated habitat decreased by 4.0 km<sup>2</sup> (61%) and areal extent of vegetated habitat decreased by 0.3 km<sup>2</sup> (4%) for a total loss of 31% of nesting habitat from 1995 - 2018. Most (86%) of the colony islands lost unvegetated nesting habitat (median rate -3.0%/year, IQR = 2.0%) and 77% lost vegetated nesting habitat (median rate -1.9%/year, IQR = 2.7%) while 14% became submerged. We modeled the effects of bio-geo-physical island traits on rates of island area change with a generalized linear mixed model and found that small islands with low percent cover eroded fastest followed by moderately large islands with high percent cover. These results provide crucial context for managers faced with decisions on island management and rehabilitation prioritization.

### **Session Details:**

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## **An update from Project Poop: Black Skimmer chick diets along the Atlantic Coast as revealed by fecal DNA metabarcoding**

**Gemma Clucas**<sup>1</sup>, Lindsay Addison<sup>2</sup>, Christina Davis<sup>3</sup>, Katharine Goodenough<sup>4</sup>, Sarah Karpanty<sup>5</sup>, Collin Stempien<sup>6</sup>, Janet Thibault<sup>7</sup>, Chelsea Sweeney<sup>8</sup>, Linda Welch<sup>9</sup>, Ruth Boettcher<sup>10</sup>

**Abstract ID :** 87

### **Abstract Summary :**

A 2023 survey by two of the Atlantic Marine Bird Cooperative's working groups revealed a significant gap in seabird diet monitoring along the Atlantic coast, primarily due to a lack of capacity to conduct traditional field observations of chick feedings. Fecal DNA metabarcoding offers a less intensive method to collect diet information from seabirds, since fecal samples can be collected relatively quickly from flightless chicks. Through Project Poop, launched in 2024, we have been collecting fecal samples from more than 30 seabird colonies up and down the East Coast, focusing on Black Skimmers and Common Terns as dietary generalists. Here, we present findings from 444 Black Skimmer chick samples collected during the 2024 breeding season. We analyze regional dietary variation across 12 colonies covering seven states from New York to Mississippi. By integrating Project Poop data with productivity metrics, we aim to assess how diet may impact breeding success and monitor climate change impacts on seabird prey availability along the Atlantic Coast.

### **Session Details:**

General Session: Population Biology, Front, 30 Sep, 2025 03:00 PM

## A Habitat Restoration to Benefit Piping Plovers at Barnegat Light, New Jersey

Todd Pover<sup>1</sup>

Conserve Wildlife Foundation Of New Jersey

**Abstract ID :** 89

### **Abstract Summary :**

New Jersey's piping plover population has remained flat over the nearly four decades since the Atlantic coast population of the species was federally listed in 1986. More recently, the state's population has markedly declined despite ongoing intensive management of the species. There are a number of causes for this lack of long-term recovery, chief among them is a scarcity of highly suitable habitat, especially sites where human recreational disturbance and municipal beach activities are limited. With this in mind, a diverse group of the state's piping plover experts, representing state and federal agencies, a university, and a non-governmental organization, partnered to plan, implement, and maintain a 40 acre habitat restoration at a former highly suitable nesting site where conditions had declined and only one pair of nesting piping plovers remained. This presentation will function as a case study of how a highly successful habitat restoration was achieved. It will present biological and conservation outcomes, but the ultimate focus will be on lessons learned and practical advice for others planning or hoping to plan habitat restoration to benefit piping plovers and other beach nesting birds.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Evaluating effects of attaching GPS tags using leg-loop harnesses on Common and Roseate Terns in the Northwest Atlantic

Elizabeth Craig<sup>1</sup>, Don Lyons<sup>2</sup>, Keenan Yakola<sup>3</sup>, Aliya Caldwell<sup>4</sup>, Nathan Furey<sup>5</sup>, Bette Kupferberg<sup>6</sup>, Grace Guo<sup>7</sup>, Gemma Clucas<sup>8</sup>, Peter Paton<sup>9</sup>, Juliet Lamb<sup>10</sup>

**Abstract ID :** 90

### **Abstract Summary :**

During the 2023, 2024, and 2025 breeding seasons, we deployed GPS tags (Pathtrack nano- and picoFix GEO+RF) with leg-loop harness attachments (~3g including harness material) on Roseate Terns (*Sterna dougallii*; N=80) and Common Terns (*S. hirundo*; N=180) at breeding colonies in New York, New Hampshire and Maine. We assessed potential tag effects by comparing reproductive success and provisioning behavior between tagged terns, handled control birds and the unhandled population. We found no consistent differences in provisioning rates (prey deliveries per hour) or productivity rates (chicks fledged per nest) between tagged and control nests in either Common or Roseate terns, with a few exceptions specific to site and year. Ongoing analyses include investigations of return rates of tagged, control, and unhandled birds at breeding colonies and adjacent stop-over locations in the region.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## Manmade Structures, Artificial Islands, and Semi-Natural Islands as Common Tern Breeding Habitat

Andrea Chreston<sup>1</sup>, Lee Harper<sup>2</sup>, Brad Semel<sup>3</sup>, Jan Van Der Winden<sup>4</sup>, Taylor Bozman<sup>5</sup>

**Abstract ID :** 91

### **Abstract Summary :**

Artificial nesting structures, islands, and manmade structures provide important nesting habitat for breeding Common Terns around the world. In Illinois, USA, the floating platforms at Naval Station Great Lakes support the only breeding Common Terns in the state. Reproductive success has varied and adaptive responses including owl translocations, mammal trapping, and predator-proof anchoring have produced intermittent success. Continued refinement of habitat design, protective infrastructure, predator abatement, and contaminant mitigation underscores the need for sustained adaptive management. Along the St. Lawrence River in New York, US, Common Terns nest on navigation cells and elevated nesting platforms, each requiring intensive management actions (gravel, chick shelters, fencing, vegetation removal, and predator/competing species management), cooperation among government agencies, and support from the New York Power Authority. Annual productivity is 600-1,100 nests and is highest in the absence of predators. In Toronto, Canada, Common Terns nest on floating platforms in sheltered wetlands and embayments. The rafts include mammalian predator protection measures to prevent mink and raccoon access, gravel, and chick shelters. The raft design has been adapted overtime in response to new predator threats and changing conditions. Annual success varies based on predator activity. Inland freshwater wetlands support 50% of the Common Tern population in the Netherlands, where nesting primarily occurs on created features – both intentional (islands) and accidental (rooftops) ranging in size from 0.01 to 150 ha. Drawbacks at suitable nesting sites include vegetation succession, recreation, predation, and inter- species competition. Proposed solutions are salt, restoration, and a willingness to start over.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Building the perfect island: how island site characteristics influence American Oystercatcher productivity in West Galveston Bay, Texas, USA

Amanda Hackney<sup>1</sup>

Abstract ID : 92

### Abstract Summary :

American Oystercatcher (*Haematopus palliatus*) (AMOY) face increasing threats to nesting habitat in Galveston Bay due to sea level rise, increased erosion rates, and damage from tropical storms. This study seeks to determine what habitat variables affect the productivity of AMOY in Texas' West Galveston Bay system. The Gulf Coast Bird Observatory (GCBO) collects annual detailed monitoring data of AMOY in the area during breeding season and this project utilized nest outcome data from 2018, 2020, and 2022 for analysis (N=132 nests). All islands in the study area (both with and without recorded AMOY nesting) were examined over the three years (N=50 sites). National Agriculture Inventory Program (NAIP) infrared orthoimagery was reclassified using GIS to obtain island area and habitat data. GIS generated variables included total island area, percent vegetation cover, distance to mainland/ intertidal reef/ boat ramp, among others. The data from ArcGIS Pro was then imported into Stata (version 19.5 BE) and a Poisson linear regression was run. Two models were tested, one examining the number of nests that survived to hatching and the second total number of chicks fledged per island per year. Preliminary results suggest that percentage of bare ground habitat, presence of a laughing gull colony, and distance to intertidal reef are significant variables in the models. By understanding habitat parameters that attract birds and result in higher breeding success, managers can replicate these conditions in other areas. There will be increased construction in the study area in the coming decades due to the Texas Coastal Spine Project system of storm barriers. Hopefully future restorations can incorporate these findings to build new islands with improved success rates for waterbird nesting.

### Session Details:

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## Michigan's Black Terns: From Science to Action for a Species in Decline

Kylie McElrath<sup>1</sup>, Stephanie Beilke<sup>2</sup>, Jennifer Fuller<sup>3</sup>, Andrew Hinickle<sup>4</sup>, Kathryn Bernard<sup>5</sup>

**Abstract ID :** 93

### **Abstract Summary :**

The Black Tern (*Chlidonias niger*) is a threatened or endangered species in all Great Lakes states, with populations experiencing long-term declines. Michigan is home to some of the largest remaining breeding colonies in the region, making it a critical stronghold for the species' recovery. In recent years, Audubon Great Lakes and partners have conducted extensive surveys to better understand Michigan's Black Tern populations, their habitat needs, and the pressures they face. These efforts culminated in the development of the Michigan Black Tern Conservation Action Plan—a science-based, collaborative guide to protection and restoration of this vital population. The plan outlines conservation priorities across the state, provides site-specific habitat management recommendations, and identifies strategies for adaptive monitoring and community engagement. With the plan now complete, Audubon Great Lakes and partners are turning toward implementation, focusing on targeted habitat enhancement, continued monitoring, and expanded partnerships. This session will highlight key findings from monitoring efforts, share the plan's priority actions, and explore next steps for implementation. Attendees will be invited to help identify opportunities for collaboration, ensuring that the next phase of this work is as inclusive and impactful as the process that brought the plan to life.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Using Historical Parasite Surveys to Infer Cryptic Repercussions of Invasive Mollusk on White Ibis (*Eudocimus albus*) Parasite Community

Alexia Hilber<sup>1</sup>, David Kerstetter<sup>2</sup>, Christopher Blonar<sup>3</sup>

Abstract ID : 94

### Abstract Summary :

Between 2014-2025, 28 white ibis (*Eudocimus albus*) carcasses were collected from avian rehabilitation centers across south Florida and were dissected for gastrointestinal parasites. The parasite community of *E. albus* today was compared with the historical record to assess potential community changes. Per prior reports, the most dominant digenean parasite within *E. albus* across Florida in the early 1970s was *Stomylotrema vicarium*, infecting 68% of these birds, with a mean of 52 (range: 1-243) individuals per infected host. In comparison, only one individual *Stomylotrema* sp. in our 11-year survey has been recovered (3.6% prevalence), in this case from a juvenile killed by a vehicle strike. *Stomylotrema* sp. life cycles include a cercaria cyst infecting apple snails (*Pomacea* spp.), metacercaria within beetles (Coleoptera) and typical bugs (Heteroptera), and adults among insectivorous birds. The comparison between both studies can assist in understanding ecosystem wide changes over time. In this case, this long-term survey has revealed cryptic effects of invasive species that are brought to light. Starting in 1989, invasive apple snails (*Pomacea* spp.) from South America, brought into the United States via aquaria, have effectively outcompeted and replaced Florida's native apple snail (*Pomacea paludosa*). As mollusks are essential intermediate hosts for digenean parasites, large changes in final host parasite communities may reflect the replacement of native species with their exotic congeners. These results aid in the understanding of the role of parasites in their environment and encourage the usage of wading bird parasite surveys to indicate aquatic and estuarine ecosystem health.

### Session Details:

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## Evaluating Prey Availability And Diversity In Off-Lake Foraging Wetlands For Lake Okeechobee Wading Birds.

Jennalie Lutes<sup>1</sup>, Michelle Petersen<sup>2</sup>

**Abstract ID :** 95

### **Abstract Summary :**

Over the past century, extensive hydrologic modifications have led to declining habitat quality and reductions in wildlife populations, including wading birds. Wading birds are food-limited predators that rely on fish and aquatic macroinvertebrates to support nesting, making them sensitive to changes in wetland hydrology and prey availability. Lake Okeechobee, a shallow eutrophic lake, supports approximately 10% of the South Florida nesting wading bird population, despite it containing < 2% of the regional nesting habitat. Birds nesting on the lake frequently forage off-lake in both natural and anthropogenic wetlands and travel up to 30 km, with foraging flight distance correlated to the lake water depth which influences foraging habitat availability. Although the use of natural wetlands on the Lake for foraging has been well studied, prey availability in surrounding natural and anthropogenic wetlands remains largely unstudied. This study aims to characterize prey community composition, diversity, and abundance in off-lake wetlands around Lake Okeechobee during the breeding season. In 2024, standardized throw-trap sampling was conducted across multiple sites around the Lake to characterize aquatic prey availability. Samples were analyzed to quantify species diversity, biomass, and density per square meter. Results showed no significant difference in species diversity or abundance between sampling regions. This could be the result of high water levels in 2024 increasing hydrologic connectivity across regions that does not occur in low water years. While results suggest similar foraging value across habitat types during high-water years, additional sampling across multiple years and hydrologic conditions is necessary to understand temporal and spatial variation in prey availability in natural and anthropogenic foraging habitat surrounding Lake Okeechobee. This will support landscape-scale management, research, and restoration efforts in the Greater Everglades ecosystem.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Unexpected use of artificial nesting platforms by Brown Pelicans in South Florida

Ricardo Zambrano<sup>1</sup>, Kristin Taylor<sup>2</sup>

Abstract ID : 96

### Abstract Summary :

Historic and large-scale changes in the hydrology of the everglades ecosystem in Florida caused the federally Threatened Wood Stork (*Mycteria americana*) breeding population to fragment into smaller colonies and spread north along the southeastern United States. While some states have experienced an increase in Wood Stork (WOST) breeding populations, multiple areas in Florida have seen decreases. The use of artificial nesting habitat by seabirds and shorebirds has been common since the 1950s but not as common for wading birds. Artificial nesting platforms for WOST were first used in Georgia to increase nesting habitat to aid in their recovery. The Florida Fish and Wildlife Conservation Commission has similarly used adaptive management of imperiled seabird and wading bird nesting sites. The loss of WOST nesting substrate due to hurricanes and erosion at the Bird Island Critical Wildlife Area in Martin County was the impetus for installing artificial nesting platforms on the island as a means of increasing nest numbers. Unexpectedly, the platforms were not utilized by WOST but were successfully used by Brown Pelicans (*Pelecanus occidentalis*) for nesting. This is the first known use of artificial structures for nesting by Brown Pelicans. Future efforts will continue to test and provide artificial nesting habitat for declining species of seabirds and wading birds at sites with limited or decreasing nesting substrate where more natural restoration options are limited.

### Session Details:

General Session: Conservation and Restoration, Park, 01 Oct, 2025 01:00 PM

## Population status and trends, current threats and conservation management of Common Terns in Ontario

Dave Moore <sup>1</sup>

**Abstract ID :** 101

### **Abstract Summary :**

The Canadian Wildlife Service (CWS) has monitored Common Tern (COTE) populations in the Canadian waters of the Great Lakes and connecting channels, at ~10-year intervals, since the mid-1970s. Over that period, numbers have declined from 9,543 nests during 1976-80 to 3,400 nests during 2022-24 (-64%). COTE distribution, abundance and population dynamics in Canada's boreal region are poorly understood. In 2011-12 and 2024-25, CWS conducted aerial surveys of three large, non-overlapping areas in the boreal region of northwestern Ontario; the survey design was based on a random selection of lakes, weighted toward the largest available lakes. A conservative estimate of abundance, based on counts from sample lakes, was 3,540 adults. Thus, COTEs breeding in the boreal forest represent a significant component of the regional breeding population. COTE breeding distribution in the boreal region was patchy; terns exhibited a strong affinity for the largest available lakes. Drivers of declines, threats during breeding, and conservation action are mainly understood for / focused on colonies in the Great Lakes. Current threats include: loss and degradation of breeding habitat, displacement or nest predation by co-nesting species, relatively low productivity, increased predation risk (e.g. post-DDT era recovery of raptor species; mammalian predators in urban areas) and negative effects of a changing climate (water level rise, increased frequency and severity of storms). Conservation management at colonies has occurred mainly on Lake Ontario and has been effective at stabilizing nest numbers there. Activities include: creation (islands, nest rafts) or rehabilitation (vegetation control, addition of nest substrate) of breeding habitat, translocation of colonies using social attraction (where nesting represents a conflict) and predator / co-nester exclusion. The effectiveness of conservation techniques and learned best practices will be discussed.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

## Population trends of colonial waterbirds in the Canadian waters of the Great Lakes

Dave Moore <sup>1</sup>

**Abstract ID :** 102

### **Abstract Summary :**

Fish-eating, colonial-nesting birds are a critical component, and indicator of ecosystem health, of the world's largest freshwater system. The Canadian Wildlife Service and partners have monitored populations of colonial waterbirds in the Canadian waters of the Great Lakes and connecting channels, at roughly 10-year intervals, since the mid-1970s (Great Lakes Binational Colonial Waterbird Survey). The objectives of this presentation are: (i) to describe changes in survey methodology (from a census to a sampling framework) for the most recent (5th) iteration of the survey (2022-24) and (ii) report on 15-year population trends of nine species since the last survey effort (2007-09). Four species continued a long-term decline: Herring Gull (-40% since 2009; currently, an estimated 20,020 nests), Ring-billed Gull (-70%; 96,060 nests), Common Tern (-39%; 3,400 nests) and Great Blue Heron (-43%; 538 nests). Two species with long-term, stable populations experienced declines over the past 15 years: Black-crowned Night-Heron (-64%; 924 nests) and Caspian Tern (-37%; 2,469 nests). Double-crested Cormorants experienced decelerated growth (+9%; 65,743 nests); a large increase in nests on the lower Great Lakes was mainly offset by large declines on the upper lakes. Finally, both Great Egrets (+78%; 565 nests) and American White Pelicans (31 nests at one colony, 2007-09; 774 nests at six colonies, 2022-24) experienced rapid population growth and range expansions. Population trends will be discussed in the context of drivers, current threats and strategies for conserving these birds into the future.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Piping Plover Management at Sleeping Bear Dunes National Lakeshore

Vince Cavalieri<sup>1</sup>  
National Park Service

**Abstract ID :** 104

### **Abstract Summary :**

Sleeping Bear Dunes National Lakeshore (SLBE) is the summer home for about 40% of the entire Great Lakes piping plover population. This was not always the case, as up until the mid 1990s the population stronghold was found farther north and few piping plover bred at SLBE. In this talk I will examine the population shift to SLBE, management responses by the National Park Service and partner organizations, what has worked and what hasn't, and look to the future. I will examine changes in monitoring techniques, predator management protocols, beach closure guidance and regulations, changes in our captive rearing program, funding, and monitoring intensity. Where possible I will attempt to draw conclusions from the data to make inferences on the level of success of plover management. Finally, I will discuss the next decade of plover management at the park and in the Great Lakes as well as research needs.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Collaborative conservation of the elusive Eastern Black Rail through the Atlantic Coast Joint Venture

Mo Correll<sup>1</sup>, Craig Faulhaber<sup>2</sup>, Aimee Weldon<sup>3</sup>, Kirsten Luke<sup>4</sup>, Pamela Loring<sup>5</sup>

**Abstract ID :** 107

### **Abstract Summary :**

The Atlantic Coast Joint Venture is a regional partnership for bird conservation that extends from Maine to Puerto Rico and the Virgin Islands, guided by a Management Board composed of State and Federal agencies and non-governmental organizations. Since 2016, the ACJV has focused on coastal marshes, with the elusive Eastern Black Rail as one of its flagship species. ACJV staff work towards the conservation of Black Rails through planning, coordination, fund recruitment, and science support, with partners helping to identify and prioritize work by ACJV staff within this general framework. As a result of these efforts, the ACJV has developed a Black Rail Conservation Plan, which provides a partner-driven, unified direction. ACJV staff also provide a venue for information exchange through several State-level working groups. We have helped partners successfully recruit competitive funds for habitat restoration, monitoring, and research. Finally, ACJV staff work with partners to identify and meet their science needs, including development of national monitoring protocols, assistance with data analysis, online-mapping tools, and State-level prioritization documents. Adopting a focused approach and significant partner input at all stages enables ACJV staff to prioritize and direct capacity where it is needed most to conserve this understudied, threatened marsh bird.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Insights on River Lapwing from Bhutan

Sium Masud Mirza<sup>1</sup>

College Of Natural Resources, Royal University Of Bhutan

**Abstract ID :** 108

### **Abstract Summary :**

The River Lapwing is experiencing population decline and has recently been categorized under near threatened. This study examined the habitat preferences and foraging patterns of River Lapwing in the Punatsangchhu River in Bhutan. A systematic line transect method covering 123 km, incorporating 42 sampling stations, was deployed to observe foraging technique and foraging success of River Lapwing. In addition, habitat parameters, water parameters, and macroinvertebrates were recorded to observe their relationship to River Lapwing occurrence. The present study results indicated that the River Lapwing occurrence correlated with higher macroinvertebrate diversity ( $H' = 1.93$ ) compared to those where the River Lapwing did not occur. Sandbars were the primary foraging ground for River Lapwings, and a moderate positive relationship was observed between the sandbar used by the River Lapwing and the occurrence of the River Lapwing ( $r = 0.44$ ,  $p = 0.00$ ). However, human disturbance along the river and the occurrence of River Lapwing ( $r = -0.34$ ,  $p = 0.00$ ) had a moderate negative relationship. Among the five foraging techniques used by River Lapwing across the study area, walk-halt-peck (37.96%) was the highest, followed by walk-halt-probe (30.56%). Moreover, the River Lapwing foraging success was more than half ( $62.96 \pm 9.53\%$ ) of the total attempts. Thus, River Lapwing occurrence was positively associated with higher macroinvertebrate diversity and the availability of sandbars along the river, while human disturbance negatively impacted their occurrence.

### **Session Details:**

General Session: Movement, Migration, and Behavior, State, 02 Oct, 2025 10:00 AM

## 30 Years of Colonial Waterbird Monitoring and Management in Ohio

Laura Kearns<sup>1</sup>  
Ohio Division Of Wildlife

**Abstract ID :** 110

### **Abstract Summary :**

Laura Kearns The Ohio Division of Wildlife and partners have been actively managing multiple colonial waterbird colonies over the past 30 years, namely, of the state-endangered Common Tern (*Sterna hirundo*) and mixed breeding colonies that require Double-crested Cormorant (*Nannopterum auritum*) management. The two remaining Common Tern colonies were shifted to artificial nesting platforms in 1995, and those colonies have been consistently maintained since then. These colonies have been successfully maintained, with some years better than others, despite the need to shift colony locations periodically and with continued threats of great horned owl and other predators. In addition, two mixed waterbird breeding colonies on the Lake Erie Islands have persisted over the 30-year time frame, with double-crested cormorant management occurring for approximately 20 years. One mixed waterbird colony on the Lake Erie Islands has disappeared, while at the same time, other inland cormorant colonies, often with other colonial waterbird species, including state-threatened Black-crowned Night Herons (*Nycticorax nycticorax*), have appeared on the landscape in locations near Cincinnati, Columbus, Lorain, and Youngstown, Ohio. One of the Lake Erie Island colonies also hosted breeding American White Pelicans for the first time in the state's history in 2023 and 2024. This talk provides an overview of the population trends of colonial waterbirds at these colonies and statewide, and insights regarding the management of common tern colonies and double-crested cormorants in Ohio.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Common Tern (*Sterna hirundo*) Colony Protection Using Integrated Wildlife Damage Management

Jean Parke<sup>1</sup>

USDA APHIS Wildlife Services

**Abstract ID :** 111

### **Abstract Summary :**

The Common Tern (*Sterna hirundo*) is a circumpolar shorebird species which is currently listed as state-threatened in Michigan. Habitat loss combined with fluctuating Great Lakes water levels has reduced the availability of suitable natural nesting sites, forcing many of these birds to utilize artificial sites. These artificial sites often come with increased predation risk, as they are generally attached to the mainland. The largest breeding colony in the Great Lakes region is located on a U.S. Coast Guard (USCG) pier in St. Ignace, Michigan. USDA APHIS Wildlife Services (WS) is leading efforts to monitor, protect, and improve habitat at the USCG pier with a goal of contributing towards the recovery of the Common Tern population in this region. WS uses an Integrated Wildlife Damage Management program to achieve this goal including habitat modification, predator exclusion, and deterring competing Ring-billed Gulls (*Larus delawarensis*) using nest destruction and auditory harassment. WS Integrated Wildlife Damage Management program has resulted in successful Common Tern breeding success at the USCG pier during the 2024-2025 breeding seasons.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Advancing Marshbird Conservation Through Partnerships in the Midwest and Great Lakes

Nathan Michael<sup>1</sup>, Rachael Pierce<sup>2</sup>, Stephanie Beilke<sup>3</sup>, Michael Monfils<sup>4</sup>

**Abstract ID :** 112

### **Abstract Summary :**

Concern for secretive marshbirds has increased across the Midwest and Great Lakes regions over the past few decades. These cryptic species have declined in large part due to the significant loss of the wetland habitats once widespread across the region. The secretive nature of marshbirds and the complex dynamics surrounding wetland management and conservation in the region have led to substantial knowledge gaps of life history traits, challenges in understanding responses to habitat management, and difficulty in mobilizing on-the-ground restoration. In 2012, the Midwest Marsh Bird Working Group, convened partners to collaborate on secretive marshbird monitoring efforts across the Midwest and Great Lakes regions. Since then, the working group has grown to include biologists and land managers from government agencies, NGOs, and research organizations, and has expanded its scope to include research and conservation actions. In 2023, key partners from the Upper Mississippi / Great Lakes Joint Venture assembled a Technical Steering Committee representing 11 organizations. The Steering Committee's goal was to develop a framework to translate information from state and regional monitoring and research efforts into habitat restoration and management recommendations. This framework provides a hierarchical approach for collaborative partnerships to advance marsh bird conservation in the Midwest and Great Lakes. It supports strategic communication, delivers science-based technical assistance, and promotes adaptive management to ensure effective conservation efforts. To date, the technical team has initiated the following projects identified in the framework: 1) a literature synthesis of existing marshbird research, 2) focus groups to identify the information needs of decision makers and land managers in advancing marshbird conservation and understand barriers impeding implementation conservation actions, and 3) the development of a communications plan to share and uplift our monitoring, research, and products. As the Midwest Marshbird Working Group adopts a more collaborative conservation delivery network approach, there have been many lessons learned as we continue to develop and strengthen partnerships, translate regional goals into local efforts, and advance work across the region.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Co-Production of an Adaptive Management Framework for Prescribed Fire to Benefit Wildlife in Marsh Ecosystems of the Gulf of Mexico

Michelle Stantial<sup>1</sup>, Abigail Lawson<sup>2</sup>, Auriel Fournier<sup>3</sup>, Chelsea Kross<sup>4</sup>, Mark Woodrey<sup>5</sup>, Jim Lyons<sup>6</sup>

**Abstract ID :** 113

### **Abstract Summary :**

Prescribed fire is used in coastal marshes along the Gulf of Mexico to enhance marsh ecosystems and benefit wildlife species of conservation and management concern. However, the specific habitat requirements for focal species such as Black Rail and Mottled Duck are not well known. In addition, prescribed fire management practices that will result in optimal habitat conditions are not well understood. Working with land managers and wildlife scientists from around the Gulf of Mexico, we co-produced an adaptive management framework to collectively learn about the effectiveness of prescribed fire and the benefits for Black Rails and Mottled Ducks. Our adaptive management framework is guided by management-relevant hypotheses and the value of information to managers. Our team of managers and marsh bird ecologists first identified nine different hypotheses and we calculated the value of information related to each. The value of information was greatest for reducing uncertainty about optimal fire return interval. We then used participatory model building workshops to create a Bayesian Decision Network (BDN) of fire return intervals in high marsh ecosystems and parameterized the model with expert judgment. With coordinated applications of prescribed fire and standardized monitoring of wildlife and habitat responses, we will regularly update the BDN and build evidence of effective fire return intervals. Over time, the model will increasingly reflect empirical data more than expert judgment. Our results demonstrate how co-production of management science can advance scientific understanding and contribute to decision making.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Common Terns in the U.S. Great Lakes: Population Status, Threats and Management Challenges

Francie Cuthbert<sup>1</sup>, Linda Wires<sup>2</sup>

**Abstract ID :** 114

### **Abstract Summary :**

Ten regularly occurring colonial waterbirds, including Common Terns (COTE), were censused at approximately 10-year intervals in the U.S. Great Lakes from the late 1970s-2010 to collect data on distribution and abundance. This effort, funded by U.S. Fish and Wildlife Service, is referred to as the "Decadal Survey" and resulted in only 4 data points for each species. More frequent estimates were clearly needed to track population trends. The most recent census for which data are available for COTE nesting in the U.S. Great Lakes was in 2018. This presentation reports on the location and number of pairs estimated from all Common Tern colony sites in the Decadal Survey database. A total of 68 sites were visited to monitor COTE nesting status. Of these, 42 (62%) were active, and supported an estimated 4,762 pairs. Numbers in 2018 increased since the previous census in 2007-2010, when a total of 4,201 nesting pairs were reported at 51 sites. Most COTEs nest in New York (54%) and Michigan (36%) but terns also nest in Wisconsin, Ohio and Illinois. Tracking population numbers at U.S. sites is challenging because COTEs use natural shoals vulnerable to water level changes or artificial sites that attract predators and co-nesting gulls. Frequent regular censuses are needed over a period of years to understand COTE status in U.S. waters, particularly in Michigan. Intensive monitoring using sound blankets to discourage gulls, electric fencing to exclude predators, real-time cameras to alert managers to threats, and collaborative mixed expert teams have contributed to breeding success.

### **Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

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## Roof-nesting by Common Terns and Ring-billed Gulls (and 100% exclusion of the latter) in Toronto, Ontario

Chip Weseloh<sup>1</sup>

Canadian Wildlife Service – Toronto, Ontario

**Abstract ID :** 115

### **Abstract Summary :**

We conducted an intensive breeding assessment of Ring-billed Gulls (*Larus delawarensis*, RBGUs) nesting on an angled Green Roof of the Toronto Transit Commission (TTC) Barns in 2023 and of Common Terns (*Sterna hirundo*, COTEs) nesting on a flat gravel roof of a water treatment plant in 2024 in Toronto, Ontario. Both sites were within 0.5 km of Lake Ontario and 16.5 km apart. We monitored the absence of gulls on their roof in 2024 and 2025 after the entire roof was covered with elevated netting, which was 100% effective. No efforts were made to prevent the terns from nesting on their roof. In 2023, we counted 5,500 RBGU nests and in 2024 we counted 222 COTE nests at peak nest initiation. Egg-laying was initiated on 18 April 2023 (RBGUs) and 11 May 2024 (COTEs), respectively. Average clutch sizes were 2.70 (RBGU) and 2.83 (COTE)(n= 20 and 29). Hatching success for the COTEs was 61-67%; All unhatched RBGU eggs were collected under permit in mid-May. All the roof edges at the TTC site were bound by parapets (elevated edges ~30 cm high), which blocked the young gulls from jumping from the roof. At the WTP, at least one edge of all roof segments was unbounded, i.e., young flightless terns could walk or flee to that roof edge and jump off, which some did, after which we modified our surveys. At the TTC, employees complained of gulls defecating on their cars and many were fearful of the gulls and some carried umbrellas in walking from the parking lot to their building. The tern study will continue in 2026.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## ARU Surveys of the Boston Harbor Islands

Joshua Driscoll<sup>1</sup>, Seabird McKeon<sup>2</sup>, Sebastian Jones<sup>3</sup>

**Abstract ID :** 118

### **Abstract Summary :**

Procellariiforms are one of the most imperiled groups of birds globally and many populations lack sufficient information for protection due to remote breeding locations and cryptic behavior. The Manx Shearwater (*Puffinus puffinus*), a nocturnally nesting procellariiform, is distributed across the Northern Atlantic and has two known breeding locations in North America on Middle Lawn Island, Newfoundland and Matinicus Rock, ME. However, the first North American breeding record of the species was a single pair recorded in Massachusetts in 1973. Increased abundance in the Boston Harbor region of Massachusetts during known breeding periods suggested that formal surveys could be fruitful. We sampled four islands in the Boston Harbor with ARUs for Manx Shearwater and present the results here. Identification of these birds breeding in the Boston Harbor Islands National and State Park would be the only colony on the continent within 10 miles of a major metropolitan area and would represent a meaningful conservation and communication opportunity. This initiative could support further action on local and federal levels for ground nesting seabirds and marine ecosystems, both of which are largely imperiled and are of great significance for a wealth of avian species and the Commonwealth of Massachusetts.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## 150 years of Piping Plovers in Michigan: what does history tell us about the Great Lakes population today?

Francie Cuthbert<sup>1</sup>, Stephanie Schubel<sup>2</sup>, Alice Van Zoeren<sup>3</sup>, Erin Roche<sup>4</sup>

**Abstract ID :** 120

### **Abstract Summary :**

Forty years ago, Piping Plovers were close to extinction in the Great Lakes. Only 12-17 pairs were known to nest in Michigan and the population was listed as Endangered in 1985. By the summer of 2025, the number of pairs increased to 88 and plovers were nesting on all 5 Great Lakes and in 4 states and the province of Ontario. How did this change in numbers happen and is it possible for this population to recover to the point of delisting at 150 pairs? This presentation will provide a brief overview of the efforts to increase nesting numbers and the lessons learned along the way. Focus will be on what is known about the pre-listing history of plovers in the Great Lakes which is marked by many challenges (e.g. market hunting; scientific collecting; designation of shoreline to public recreation; development of habitat for second homes; increase in predators). New and current concerns will also be summarized. Despite multiple new serious threats (e.g. climate change; disease; long-term funding), significant hope exists for the future of this still small and vulnerable group of birds.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Rising heavy metal loads in coastal zones in southwestern India pose a threat to shorebirds and other coastal biota

K.M. Aarif<sup>1</sup>, K.A. Rubeena<sup>2</sup>, Aymen Nefla<sup>3</sup>, Sabir Bin Muzaffar<sup>4</sup>

**Abstract ID :** 121

### **Abstract Summary :**

Heavy metal contamination in Indian wetlands is increasing due to expanding industrial, agricultural, and urban activities. Shorebirds, which feed at higher trophic levels, are particularly at risk from such pollution. We studied concentrations of six heavy metals-zinc, copper, cobalt, chromium, lead, and cadmium-in 22 commonly found migratory shorebird species. We analyzed 220 droppings, 55 prey samples, and 90 sediment samples across various habitats, including mudflats, mangroves, and sandy beaches, between 2019 and 2021. Additionally, 10 biofilm samples from mudflats and mangroves were examined. The sediment samples showed relatively low metal concentrations (e.g., Zn: 9.11–40.91 mg/kg; Cd: 0.56–4.35 mg/kg). In contrast, invertebrate prey species exhibited significantly higher levels (e.g., Zn: 84.72–224.74 mg/kg; Pb: 18.95–157.29 mg/kg). Shorebird droppings also reflected elevated metal content (e.g., Cr: 52.3–68.21 mg/kg; Co: 36.34–55.68 mg/kg), indicating bioaccumulation through the food chain. Notably, biofilm samples contained high levels of chromium, lead, and cadmium (22.64, 28.09, and 18.46 mg/kg respectively), posing a potential threat to shorebirds that feed on them. The findings suggest a clear pattern of increasing heavy metal concentration from sediments to prey to birds, likely due to trophic transfer. This accumulation could impair physiological functions in both invertebrates and birds. The study highlights the urgent need to trace pollution sources and implement measures to reduce heavy metal discharge into wetland ecosystems.

### **Session Details:**

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## Factors influencing nest-site selection of colonial wading birds on Texas rookery islands

Marissa Lamb<sup>1</sup>

Harte Research Institute, Texas A&M University Corpus Christi, TX

Abstract ID : 122

### Abstract Summary :

Seventy-seven percent of colonial waterbirds on the Texas Gulf coast nest on anthropogenic rookery islands. Studies in other Gulf regions suggest that nest site selection is affected by vegetation, topography, and social dynamics. However, along the Texas coast, there are few studies on the relative influence of these microhabitat traits within islands, limiting effective restoration and management. We surveyed five rookery islands in the Laguna Madre, Texas, using high-resolution UAV imagery to quantify predictors of nest site selection for three species of wading birds (Reddish Egret, Great Egret, and Tricolored Heron). Microhabitat variables elevation (m), distance to waterline (m), vegetated area (m<sup>2</sup>), and the number of occupied bordering cells were extracted from 1-m<sup>2</sup> grid cells. We fit resource selection functions including both linear and quadratic terms to account for nonlinearity. Results of model selection showed that the global model was most supported, indicating that all predictors influence nest site selection. Model estimates indicated a threshold of preferred elevations at intermediate heights (0.8–3.3 m). Estimates also showed that birds preferred nest sites with 2-4 occupied bordering cells, suggesting that a few nearby nests had a positive effect, but overcrowding can also impact selection. The likelihood of nest selection also declined with distance to waterline and increased with area of vegetation. Results highlight that target species prefer moderately elevated, well-vegetated areas with limited nests in proximity. Further analysis will determine the importance of maintaining elevation and vegetation structure on rookery islands to support sustainable breeding colonies along the Texas coast.

### Session Details:

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## The presence of supernormal clutches among Great Lakes Waterbirds 2019 – 2024.

Michael Gilbertson<sup>1</sup>, James Ludwig<sup>2</sup>

**Abstract ID :** 123

### **Abstract Summary :**

Nests of four species of waterbirds, herring and ring-billed gulls, double-crested cormorants and Caspian terns, were observed with supernormal clutches (SNCs) between 2019 and 2024 in Great Lakes colonies on all five Great Lakes. SNCs occurred in areas of concern with known and persisting legacy contamination as well as areas believed to be 'clean'. For three waterbirds, the increase in the frequency of SNCs was between 20 and 30-fold higher than historic reports of clutches from the 1964-1986 period. Historically, investigators have attributed SNCs to excessive legacy chemical contaminants including DDT and dioxin-like substances or female-dominated populations. Targeted research is required to determine the cause or causes of SNCs and their significance to avian population dynamics. If exotic chemicals are the cause, do these follow a U-shaped exposure curve typical of endocrine disruptor chemicals and correlate to declines of legacy chemicals? Or are these caused by newly discharged chemicals or novel mixtures that act like hormones during embryogenesis to create sexually-altered birds.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Using Autonomous Recording Units to monitor Eastern Black Rails (*Laterallus jamaicensis jamaicensis*)

Abby Blake-Bradshaw<sup>1</sup>  
Illinois Natural History Survey,

Abstract ID : 124

### Abstract Summary :

Marsh birds are notoriously difficult to detect, and current monitoring methods often rely on labor-intensive techniques including call-broadcast point count surveys. As such, there is growing interest in using autonomous recording units (ARUs) to supplement secretive marsh surveys and improve monitoring protocols. The Eastern Black Rail (*Laterallus jamaicensis jamaicensis*; hereafter 'Black Rail') was federally listed in 2020. To improve monitoring efforts going forward, we evaluated the utility of sampling wetlands for Black Rail using ARUs across their geographic range including Colorado, Florida, South Carolina and Texas. We collected continuous acoustic data from March–July of 2022 – 2023. Our first objective was to develop region-specific probabilistic confidence score thresholds for the BirdNET algorithm V.2.4 to quickly process acoustic files and identify potential Black Rail detections. As expected, the precision (i.e., how often detections are correct) of the BirdNET model varied across datasets, with the greatest precision found in TX (0.87) and closely followed by CO (0.80). The Florida dataset had the lowest precision (0.59), indicating that there were more false positives in this dataset compared to TX and CO. After filtering out detections below 90% probability, BirdNET identified 237,261 Black Rail detections in CO (N = 5,521 hours), 242,161 detections in FL (N = 5,337 hours), and 70,406 detections in TX (N = 1,442 hours). Our second objective was to evaluate the influence of time of year and time of day on Black Rail detections and how this varied across their range. Seasonal detection rates differed regionally, peaking early during monitoring in FL on March 11th, on May 10th in Texas, and June 5th in CO. Although hourly calling rates differed regionally, most detections occurred between 2100 and 0400 in all locations. After accounting for uneven acoustic file lengths, call rates tended to be greater in CO than FL or TX, especially in the evening 2100–2300. For instance, average call rates of 12.9 calls/hour in CO at 2300 were 4.7 and 3.0 times greater than call rates in FL and TX respectively. We will discuss these results in the context of Black Rail monitoring needs going forward.

### Session Details:

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Colonial Waterbirds as Sentinel Species for Long-Term Monitoring of Population, Reproductive, and Immune Effects at Contaminated Great Lakes Sites in Michigan

Keith Grasman<sup>1</sup>, Braden DeWeerd<sup>2</sup>, Christy Martin<sup>3</sup>, Abigail Vanden Heuvel<sup>4</sup>, Mandy Annis<sup>5</sup>, Amanda Curtis<sup>6</sup>, Lisa Williams<sup>7</sup>

**Abstract ID :** 128

### **Abstract Summary :**

Colonial waterbirds are excellent sentinel species for assessing and monitoring effects of organic pollutants, including legacy contaminants and chemicals of emerging concern (CECs). This program monitored effects in waterbirds in the Saginaw River and Bay and River Raisin Areas of Concern (AOCs) and in Grand Traverse Bay from 2010-24. Herring gull eggs in both AOCs had high dioxin equivalents (TEQs) from planar polychlorinated biphenyls (PCBs). Eggs from Grand Traverse Bay had elevated TEQs from dibenzo-p-dioxins and dibenzofurans. Reference sites were in the lower St. Marys River (herring gulls and Caspian terns), eastern Lake Superior (terns), and eastern Lake Huron (black-crowned night herons). Risk ratios for embryonic nonviability (infertility and mortality) in gulls were 1.9-3.4X higher than reference in both AOCs and Grand Traverse Bay. Productivity of 4-week-old tern chicks in Saginaw Bay was 40% lower than reference. In the River Raisin AOC, productivity of 4-week gull chicks was poor in 9 of 14 years. Breeding Caspian terns declined 42% in Saginaw Bay. Nesting herring gulls decreased >95% in the River Raisin AOC. The mean phytohemagglutinin skin response (T cell-mediated immunity) was suppressed 51-56% in gull chicks in both AOCs and Grand Traverse Bay, and 48-50% in terns and 33% in herons in Saginaw Bay. Antibody responses in gull chicks in the River Raisin AOC and Grand Traverse Bay were 1.3-1.6X lower than reference. Effects did not improve with time. Plasma PCB concentrations remained elevated in both AOCs. Per- and polyfluoroalkyl substances (PFAS) and brominated CECs were elevated at most sites.

### **Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Digital aerial surveys for marine birds in the Gulf of Maine

Iain Stenhouse<sup>1</sup>, Megan Ferguson<sup>2</sup>, Evan Adams<sup>3</sup>, Mary McElroy<sup>4</sup>, Andrew Gilbert<sup>5</sup>, Kate Williams<sup>6</sup>

**Abstract ID :** 129

### **Abstract Summary :**

Data on marine bird abundance and distributions offshore is critically needed in the Gulf of Maine to inform marine spatial planning in the region. The Bureau of Ocean Energy Management and Diamond Offshore Wind funded four seasonal baseline survey across a 6,673 km<sup>2</sup> area of the Gulf of Maine in 2023–24. Surveys were centered on the Maine Research Array and used digital aerial videography to capture observations of wildlife and abiotic objects, such as fishing buoys. Surveys were flown at ~400 m altitude at a ground speed of 220 km/hr and captured digital imagery at ~1.5 cm ground sample distance resolution. A total of 7,659 birds of 33 species were recorded, an identification rate to species of 94%. Of these, 68% of birds, mostly murre, were observed in a single (winter) survey. We developed single-season density surface models for species in which there were at least 30 sightings in a season, and for all birds combined. We estimated availability probabilities for the few diving species (auks) for which that information was available. Overall, marine bird abundance and distributions varied widely by season. Birds were well distributed throughout the survey area in all seasons, with higher densities closer to shore and colonies in spring and summer, and offshore in autumn and winter. Although spanning only one year, these surveys provide baseline data highlighting areas of ecological sensitivity and may be used to inform spatial planning and management. Survey data is available via an online mapping tool and publicly accessible databases.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Bird flu, eagle impacts, one health, and the threat of a new pandemic

William Bowerman<sup>1</sup>, Peggy Shrum<sup>2</sup>, Julie Melotti<sup>3</sup>, Michael Wierda<sup>4</sup>, David Best<sup>5</sup>

**Abstract ID :** 132

### **Abstract Summary :**

Breeding bald eagles (*Haliaeetus leucocephalus*) have been monitored in Michigan since 1961 and is one of the longest studies of sea eagles in the world. Long-term studies are essential for understanding environmental perturbations including the impact of environmental pollutants, climate change, and zoonotic diseases. Since 2021, the H5 and H7 strains of highly pathogenic avian influenza (HPAI) have negatively impacted bird populations globally. In the Laurentian Great Lakes, some regions experienced declines of nesting pairs of bald eagles up to 68% from HPAI. In Michigan, a weight of evidence approach to analyze a population-level additive mortality event to nesting bald eagles was utilized. Factors considered included disease occurrence, population measures (productivity, success, some degree of activity), density dependence, prey availability, weather, and environmental contaminants. Productivity declined from the healthy level of 1.0 pre-HPAI to 0.72 young per occupied nest in 2022. A 32-year (1986-2017) necropsy study was used to determine background primary cause of death (COD) for the population. A significant increase in disease as a COD from 7.1% to 41.7% was observed in 2022, with 89% testing positive for HPAI. While all age classes were impacted, 67% were adults. In comparing 2023 survey data to 2022 estimated population (since HPAI effects were observed during the 2022 breeding season), observed a  $40 \pm 1.8\%$  decline in breeding pairs from 1,085 to 651 (642-670). The healthy pre-HPAI population that included non-breeding adults (floaters) was also impacted based on the finding that 430 (408-452) breeding areas were still unoccupied in 2024. The long-term impact of this singular event on the recovery of this population is still being analyzed. This event demonstrates the value of long-term avian population studies to understanding environmental perturbations in a One Health context. Lessons learned from discussions with wildlife and public health officials in 14 countries on 5 continents related to HPAI will be shared.

### **Session Details:**

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## **Unidentified and under-addressed issues for Colonial Waterbirds on the Great Lakes, 2025**

Weseloh, D.V. Chip, Dave J. Moore, Susan B. Elbin and Rachael Pierce

**Abstract ID : 133**

This session will address gaps in coverage from the symposium on colonial waterbirds of the Great Lakes. While abstracts were submitted for at least six of the 13 breeding colonial species, no contributions were received for the comparable number of migrant species. Consequently, notable taxa such as Forster's Terns, Bonaparte's and Little Gulls, American White Pelicans, several heron species, and Lesser and Great Black-backed Gulls have received little or no attention. For instance, recent observations in Toronto recorded 30–40 Lesser Black-backed Gulls daily this spring, raising questions about broader regional patterns and possible population shifts. In addition, time constraints limited discussion of key issues, including management of Double-crested Cormorants. This concluding session is intended both as a synthesis of symposium presentations and as an open forum for participants to raise outstanding topics, share observations, and highlight underrepresented species and issues. Active audience participation is encouraged.

**Session Details:**

Symposia: Colonial Waterbirds of the Great Lakes, Front, 30 Sep, 2025 10:00 AM

## Diatoms – the keystone group affecting trophic webs in the marine ecosystem

Pat Baird <sup>1</sup>

Simon Fraser University & Kahiltna Research Group

**Abstract ID :** 134

### **Abstract Summary :**

High latitudes - the Arctic in the Northern Hemisphere– are where shorebirds & seabirds breed. Temperate estuarine mudflats are staging sites for shorebirds. These two habitats have much in common, and both habitats are similarly affected by climate change. What ties these two habitats and bird groups together lives at the bottom of the food web – the microphytoplankton diatom. Diatoms in concert with the planet at this stage in its evolution are the life force around which the world as we know it revolves. A similar cascade of events plays out each spring in both the arctic and temperate estuaries which drives the success of both seabirds and shorebirds. Changes in the amount of arctic pack ice, and in amount of snow melt in river freshets in the spring, driven by climate change, have begun to affect both of these groups. Diatoms play a critical role in both habitats. Old paradigms need to shift and refocus not just on prey obtainable by seabirds and shorebirds to provide enough energy to breed or migrate. New paradigms need to focus on this small phytoplankton at the bottom of both food webs. Diatoms provide not just energy for fuel but more importantly, they also provide vital nutrients that neither group, nor their prey, can obtain elsewhere. These nutrients are essential for reproduction and for migration, and ultimately for the health of both seabird and shorebird populations worldwide.

### **Session Details:**

General Session: Breeding Biology, State, 30 Sep, 2025 10:00 AM

## Sources of Mortality in Michigan Bald Eagles 2018-2024, and the Impact of the 2022 Highly Pathogenic Avian Influenza Virus Event

Peggy Shrum<sup>1</sup>, William Bowerman<sup>2</sup>, Julie Melotti<sup>3</sup>, Tom Cooley<sup>4</sup>, Roger Maes<sup>5</sup>, Annabelle Wise<sup>6</sup>,  
Danielle Thompson<sup>7</sup>

**Abstract ID :** 135

### **Abstract Summary :**

The Bald Eagle (*Haliaeetus leucocephalus*) is an iconic North American bird of prey with a dynamic population history and a rich cultural and national significance. Tracking and mitigating historic mortality sources and prompt detection of emergent threats is essential for the conservation of the species. In the state of Michigan, USA, bald eagle carcasses have been collected and necropsied to determine cause of death (hereafter, COD) since approximately 1961. These data comprise one of the longest-spanning collections of mortality data for any single species. A retrospective study by Simon et al. published in 2020 categorized and analyzed Michigan bald eagle COD data from 1986 to 2017. The study determined the most common COD between 1986 and 2017 to be trauma (59%), the majority of which were vehicular trauma. Poisoning, or toxicosis, was the second most common COD (14.2%). Disease accounted for an average of 7.1% of bald eagle deaths during that 32-year period. We continued these analyses by obtaining bald eagle necropsy data from Michigan from 2018 to present. Our analyses show similar and consistent COD trends with the critical exception of 2022, in which disease as a COD spiked to 41.8% due to Highly Pathogenic Avian Influenza, (hereafter, HPAI). This and other similar reports indicate the substantial and likely persistent threat of HPAI or other emergent novel viruses to bald eagle populations, and the risk of a significant backslide in the species' recovery.

### **Session Details:**

General Session: Contaminants and Disease, Park, 02 Oct, 2025 01:00 PM

## Ecological Drivers Behind Secretive Marshbird Detection, Availability, and Abundance within Southeastern Louisiana

Leah Moran<sup>1</sup>, Aylett Lipford<sup>2</sup>, Jonathon Valente<sup>3</sup>, Andy Nyman<sup>4</sup>, Sammy King<sup>5</sup>

**Abstract ID :** 136

### **Abstract Summary :**

It is well established that estimates of abundance are a function of both environmental variables and detection probability. Secretive marshbirds abundances are known to be affected by many patterns and processes such as vegetation structure, seasonal or annual hydrological variables and presence of edge. Additionally, probability of detection of marshbirds is affected by time of day, wind speed, and/or temperature. But these variables do not measure the probability of an individual being present, or available, within a plot point during a survey due to events such as temporary emigration. New insights reveal how temporary emigration affects availability for detection, especially of elusive species such as secretive marshbirds. In this study we quantified the effects of habitat patterns and processes on abundance and distinguished different components of detectability for marshbirds by measuring both the probability of observation and the probability of being present. 3,160 callback surveys were completed across the coastal marshes of southeastern Louisiana to gain abundance estimates of breeding marshbirds by evaluating relationships using hydrological and vegetation data from long-term coastal research monitoring stations (CRMS) stations and remote sensing imagery. N-mixture models were created in JAGS for king rails, hybrid rails, clapper rails, purple gallinules, common gallinules and least bitterns across fresh, intermediate, brackish, and saline marshes. Species were affected differently by abundance covariates, but seasonal water depth variability almost always positively affected abundance of marshbirds. Additionally, availability of detection was affected by monthly changes in water depth and water depth at time of survey, but whether availability increased or decreased varied by marsh type. Wetlands are heterogenous and dynamic by nature and marshbirds shift behaviors and movements based on flooding patterns and processes. Therefore, incorporating fine scale temporal and spatial ecological variables for abundance estimates by parsing out observation and availability detection covariates can help biologists and managers obtain more robust estimates of marshbirds for management and conservation.

### **Session Details:**

General Session: Habitats and Distribution, State, 01 Oct, 2025 10:00 AM

## Ten years of lessons learned recovering and managing New York state Piping Plovers along eastern Lake Ontario.

Kennedy Sullivan <sup>1</sup>, Jonathan Cohen <sup>2</sup>, Molly Picillo <sup>3</sup>, Alison Kocek <sup>4</sup>, Michelle Stantial <sup>5</sup>, Maureen Durkin <sup>6</sup>

**Abstract ID :** 137

### **Abstract Summary :**

Piping Plovers, extirpated since the 1950s in the Great Lakes in New York, returned as an annual nester in 2015. Based on habitat analyses conducted soon after recolonization, nesting areas were of lower quality than in the core of the range in Michigan. With intensive management of human disturbance and predators, as well as periodic habitat enhancement, the population increased to a peak of three pairs by 2022, with recruitment above recovery targets. However, in recent years, losses of adults during the breeding season have led to a cessation of nesting, with only nonbreeding individuals present in 2025. Public attitudes toward plover management have also been a challenge. These experiences highlight lessons learned about the limits of intensive management at the edge of a species' range, the importance of addressing public perceptions, and the need to adapt strategies as populations and pressures change. Further efforts to enhance habitat, protect the species, and conduct outreach are planned.

### **Session Details:**

Symposia: Conservation and Recovery of Piping Plovers in the Great Lakes and Beyond, Front, 02 Oct, 2025 10:00 AM

## Raily-ingarounda unified protocol: A Multi-agency Approach to Monitoring in San Francisco Bay

Julian Wood<sup>1</sup>, Megan Elrod<sup>2</sup>, Jennifer McBroom<sup>3</sup>, Tobias Rohmer<sup>4</sup>, Joy Albertson<sup>5</sup>, Rachel Tertes<sup>6</sup>,  
Dajanae Stitts<sup>7</sup>, Loren Roman-Nunez<sup>8</sup>

**Abstract ID :** 138

### **Abstract Summary :**

Conserving secretive marsh birds presents unique challenges due to their low detectability, patchy distributions, and vulnerability to environmental change. Therefore, effective monitoring and recovery depends on collaboration among scientists, managers, and decision makers to ensure standardized methods, rigorous data management, and actionable results. In the San Francisco Bay Estuary, Point Blue Conservation Science, the U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, and the State Coastal Conservancy's Invasive Spartina Project have built such a partnership to advance marsh bird conservation. Together, the partnership developed and implemented a standardized monitoring protocol adapted from the North American Secretive Marsh Bird Protocol. The survey design incorporates probabilistic sampling, with repeated counts, employing call-broadcasts to increase detection of two high-priority species: the federally endangered California Ridgway's Rail (*Rallus obsoletus obsoletus*) and the state-threatened California Black Rail (*Laterallus jamaicensis coturniculus*). The partnership coordinates on-the-ground survey implementation and proactively strategizes the effort to minimize gaps in long-term data continuity as funding ebbs and flows for a given organization. Survey data are managed in the Avian Knowledge Network (avianknowledge.net), a FedRamp-certified platform that ensures security, transparency, and integration across projects. By replacing inconsistent historical methods and disparate data tables with a unified, statistically robust protocol and open-source data framework, the collaboration enhances confidence in trend estimation and accelerates the translation of science into management. Results from the coordinated range-wide surveys demonstrate that Ridgway's Rails have re-colonized and continue to thrive in tidally restored areas offsetting declines elsewhere in the estuary. Trends for both rail species, along with indicators for other estuarine bird guilds, will be made publicly available through the San Francisco Bay State of the Birds website. This dynamic platform is designed to share the latest science with land managers, policymakers, and restoration practitioners, providing timely assessments of bird responses and recommended conservation actions. By integrating rigorous science, coordinated management, and transparent communication, this partnership exemplifies how long-term multi-agency collaboration can deliver measurable conservation benefits for secretive marsh birds and the tidal wetlands they depend on.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## Collaborative science of the Western Yellow Rail Working Group helps advance conservation throughout the annual cycle

Laurie Hall<sup>1</sup>, Ken Popper<sup>2</sup>, Konner Larkin<sup>3</sup>, Kalysta Adkins<sup>4</sup>, Susan De La Cruz<sup>5</sup>, Mike Green<sup>6</sup>, Christian Hagen<sup>7</sup>, Miles Sheuering<sup>8</sup>, John Vradenburg<sup>9</sup>, Amy Walsh<sup>10</sup>, Emily Wells<sup>11</sup>

**Abstract ID :** 139

### **Abstract Summary :**

Knowledge of a species' distribution and habitat use throughout the annual cycle is critical for addressing avian conservation needs and making informed management decisions. The yellow rail (*Coturnicops novaboracensis*; YERA) is a secretive migratory bird with a small, disjunct population segment that breeds in the Upper Klamath Basin of California and Oregon. Little is known about its wintering areas, but sparse detections of YERA in California suggest the western population segment may winter there. With more than 30 members, the Western Yellow Rail Working Group spans multiple geographies and represents federal, state, and local agencies, contractors, non-profits, and academics. We have worked collaboratively for more than 5 years to estimate breeding population size, restore breeding habitat, identify wintering habitat, and track migrating YERA. By leveraging the diverse knowledge and skillsets of our group members and sharing equipment and resources, we have collectively conducted over 40 breeding surveys across 10 sites in the last 5 years, established a method to estimate YERA abundance using autonomous recording units (ARUs), banded 106 YERA, marked 8 YERA with barometric geo-locators and 4 with MOTUS tags, developed an environmental DNA assay to detect YERA in wetlands, conducted call-playback and ARU surveys at six potential wintering areas, and restored nearly 45,000 acres of wetland habitat where a large proportion of the population breeds. Through strong coordination, communication, and collaboration our scientific achievements have helped better understand the ecology of western YERA and advanced their conservation throughout the annual cycle.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

## The Western Yellow Rail Working Group leverages diverse expertise and resources to advance conservation

Laurie Hall <sup>1</sup>, Mike Green <sup>2</sup>, Amy Walsh <sup>3</sup>, Kalysta Adkins <sup>4</sup>, Susan De La Cruz <sup>5</sup>, Christian Hagen <sup>6</sup>, Konner Larkin <sup>7</sup>, Ken Popper <sup>8</sup>, Miles Sheuering <sup>9</sup>, John Vradenburg <sup>10</sup>, Emily Wells <sup>11</sup>

**Abstract ID :** 140

### **Abstract Summary :**

Approximately five years ago, a group of bird enthusiasts began the Western Yellow Rail Working Group to aid yellow rail (*Coturnicops noveboracensis*) conservation efforts. The working group is a collaboration of researchers and resource managers from state and federal agencies, academic institutions, and non-governmental organizations. Our primary goal is to identify and address knowledge gaps in the biology and ecology of yellow rails that breed in a small population in the Western United States. This population, estimated at 150 breeding pairs or less, is genetically unique from eastern yellow rails and is separated from breeding areas in the Eastern United States by more than 1000 km. Recently, the working group developed a formal charter to guide our research and management efforts. In addition, the group hosts monthly meetings where we report out on past research and management activities and discuss and prioritize future activities. Examples include: organization of an annual week-long breeding season survey and banding effort; organization of a week-long small rail tag attachment workshop with an expert from the East coast; outreach through conservation newsletters and videos; wetland restoration in breeding habitat; surveys in potential wintering habitats; development of an environmental DNA assay; and comparison of in-person and autonomous recording unit surveys. By leveraging our collective expertise, equipment, funding, partnerships, and permits, the Western Yellow Rail Working Group is improving our understanding of yellow rails in the west and advancing wetland conservation.

### **Session Details:**

Symposia: Rail-y Great Partnerships: Case Studies of Collaborative Marshbird Conservation , Park, 30 Sep, 2025 10:00 AM

**Where are we now? Decades of research in inland North America has determined status, addressed knowledge gaps, and derived management tools for Common Tern conservation**

Jennifer Arnold <sup>1</sup>, Stephen Oswald <sup>2</sup>

**Abstract ID :** 141

**Abstract Summary :**

Breeding populations of Common Terns across inland North America have been in decline since the 1960s, and in many areas the pace is accelerating. Census efforts have tracked this trajectory across major strongholds in the US and Canadian Great Lakes, the large lakes of Manitoba and, to a lesser extent, boreal populations. Research and monitoring have elucidated major threats to inland terns as competition for nest sites, habitat degradation and flooding, activities of a broad range of predators and human development in the region. While inland populations are not sufficiently genetically isolated to be considered a subspecies, population genetics indicate emigration from inland areas and only low levels of connectivity with coastal tern colonies, matching available banding data. Inland colonies form large, interconnected metapopulations. Movement is occurring away from human- degraded regions leaving boreal areas as the only refuge despite rapid climate change and encroaching human development. Separate research initiatives have revealed the ecological uniqueness of inland Common Terns in areas such as physiology, demography, habitat selection, foraging and behavior. Long-term management at colonies across the continent has demonstrated solutions to stem localized declines and has used novel approaches and technologies to advance Common Tern conservation. With improved understanding of inland Common Terns and intensifying declines in many inland areas, broad-scale coordination and initiatives are needed to develop best practices for conservation within the necessary metapopulation framework. Further legislative designations would mobilize new resources for tern conservation, particularly in areas where no specific protection for this species exists. This symposium stands at the brink of a new era for inland Common Terns where large-scale initiatives and coordination now backed by decades of research could be leveraged to reverse the continent-wide population declines. The goals of this symposium and roundtable are to provide the latest information on status, threats and management solutions for inland Common Tern populations and work towards coordinated initiatives for their recovery.

**Session Details:**

Symposia: Setting Conservation-based Management Goals for Inland Breeding Common Terns, Front, 01 Oct, 2025 10:00 AM

# Poster Abstracts

Organized alphabetically by Author

Session Details: Poster Session, Grandview Ballroom I, September 30, 2025 @ 06:00 PM

## Abundance and Diversity of Waterbirds in Small Lakes of Lake Cluster of Pokhara Valley, Nepal

Prabhat Adhikari<sup>1</sup>, Rajendra Basaula<sup>2</sup>, Pradeep Adhikari<sup>3</sup>, Anil Poudel<sup>4</sup>

### Abstract Summary :

Waterbirds are important indicators of aquatic ecosystem health. This study assessed the seasonal diversity and abundance of waterbirds in six small lakes within the Lake Cluster of Pokhara Valley, Nepal's largest Ramsar site. Bird surveys were conducted from autumn 2019 to summer 2020 using the fixed-radius point count method. All individuals seen or heard were recorded during standardized observation periods. A total of 1,016 individual birds were observed, representing 24 species from 10 families, with Anatidae being the most abundant. Bird abundance peaked during winter, largely due to the arrival of migratory species. Khaste Lake supported the highest number of individual birds, while Dipang Lake exhibited the highest species richness and diversity. Resident species were commonly found in wetlands with dense aquatic vegetation, while migratory birds preferred deeper water bodies, forested margins, and clearer water. Although human activities such as fishing, farming, and recreation were present in and around the lakes, waterbirds were often observed coexisting with these disturbances. This suggests some level of adaptation to human-modified landscapes. The study provides important baseline data and highlights the ecological significance of small lakes, underscoring the need for continued monitoring and community-based conservation strategies to sustain waterbird populations in the Pokhara Valley.

## Hotspot Analysis Informs Management Decisions for the Piping Plover

Jennifer Bradley<sup>1</sup>  
Stony Brook University

### Abstract Summary :

Adult mortality and nest loss due to predation is a major conservation and management concern of the piping plover (*Chardrius melodus melodus*). High resolution data of predation events is important for predicting predation risk of specific piping plover nesting sites and making appropriate management decisions regarding exclosure and resource use. Applying geoanalysis tools to nest fate data shows spatial clustering of nest and adult predation events, as opposed to traditional monitoring methods that analyze predation of protected sites temporally. In this study the nest fate and geographic data of piping plover nests at Smith Point County Park on Long Island New York were analyzed in ArcGIS Pro to identify spatial and temporal trends of certain nest fates from 2018 to 2024 (n = 235). Hotspot analysis (Getis-Ord Gi\*) was used to detect spatial clustering of high and low occurrences of nest success (hatching), nest predation, and nest abandonment for each season individually in addition to a pooled dataset of all years. 10 of 21 hotspot analyses reported spatial correlation of certain nest fates with at least 90% confidence. The 2018-2019 and 2024 seasons had at least one hotspot with at least 90% confidence for predation. This spatial clustering analysis can be used to create online modeling tools to allow land managers to make more accurate predictions of predation risk in certain areas for future seasons, which has major implications for management decisions regarding exclosure use.

## Temporal changes in secretive marsh bird occupancy and detection along the Upper Mississippi River

Ava Cross-Weisbeck<sup>1</sup>, Marie Perkins<sup>2</sup>, Jason Riddle<sup>3</sup>, Stephen Winter<sup>4</sup>

### Abstract Summary :

Secretive marsh birds (SMBs), including species such as Virginia rail (*Rallus limicola*), sora (*Porzana carolina*), least bittern (*Botaurus exilis*), and American bittern (*Botaurus lentiginosus*), are wetland-dependent waterbirds that exhibit cryptic behavior. These species rely on high-quality emergent wetlands for breeding and are considered indicators of wetland health. Due to their elusiveness, monitoring these birds has been challenging, leading to knowledge gaps about their populations. They are considered a priority resource of concern for the Upper Mississippi River National Wildlife and Fish Refuge (UMRNWFR). From 1999 to 2008, call-broadcast surveys of SMBs were conducted at 99 sites within the UMRNWFR. In 2025, 59 historic survey sites were resurveyed using the same methods. We analyzed presence-absence data to estimate occupancy and detection probabilities while accounting for spatial and temporal covariates. Over the 1999-2008 study period, the mean ( $\pm$  SD) percentage of birds detected per survey point were  $12.0 \pm 7.3$  for sora,  $15.1 \pm 7.4$  for Virginia rail,  $4.9 \pm 3.1$  for least bittern, and  $0.8 \pm 1.1$  for American bittern. Detections per survey point were 8.6 (least bittern), 4.4 (Virginia rail), and 1.7 (sora) times lower in 2025 compared to the means from the historical surveys. American bitterns were not detected in 2025. This decline in observations of SMB could suggest a decline in emergent wetland abundance and health within the UMRNWFR. Future research will incorporate presence-absence data of SMBs derived from autonomous recording units placed at SMB survey sites during the 2025 field season.

## A tale of two insectivores: Comparing PFAS exposure in house wrens and tree swallows at Selected Department of Defense Sites along the East Coast, USA

Christine Custer<sup>1</sup>, Paul Dummer<sup>2</sup>

### Abstract Summary :

Per- and polyfluoroalkyl substances (PFAS) are a global contaminant and have been for many decades. We used two insectivorous bird species, the house wren (*Troglodytes aedon*) and the tree swallow (*Tachycineta bicolor*) to better understand PFAS distribution in the environment, its movement within and between ecosystems, and differences in food web dynamics in the aquatic and nearby terrestrial ecosystems. The concentration of 40 PFAS (Total40) detected in eggs and nestlings tended to be lower in the wrens compared to the swallows. Perfluorooctane sulfonate was the only PFAS detected in all samples in all matrices. Concentrations of most other PFAS, such as the carboxylates and fluorotelomers, did not differ between species. The diet differed between the two species and therefore the patterns of the 40 PFAS differed between the two species as well. There was a distance component such that the amount of PFAS contamination in wren tissues decreased as the distance from the contaminant source increased.

## Predation Success of Wading Waterbirds in a Semi-Natural Environment

Nikolas Dahmen<sup>1</sup>, Fiona Carton<sup>2</sup>, Stephen Blake<sup>3</sup>

### Abstract Summary :

In the last half century, the waterbird fauna (birds dependent on wetlands) of the Midwest has declined by 80%, driven largely by habitat loss. Urban wetland areas can provide habitat for waterbirds, although habitat quality is seldom evaluated. As urbanization increases, understanding the habitats needed to maintain viable waterbird populations is important for adaptive management in urban green spaces. Forest Park, a 555-hectare urban park in St. Louis, is visited by at least 36 species of waterbirds that utilize a semi-natural, restored waterscape. The Park is also visited by 15 million human visitors annually. We initiated a pilot study to quantify the foraging success of piscivorous wading waterbirds in the park to infer foraging habitat quality and the potential drivers of waterbird distribution. We sampled waterbird foraging success in water bodies across the Park between September 2024 through August 2025 using focal animal sampling for 20-minute periods, during which we recorded behavior change with time, number of strikes, and strike success. We present data on *Ardea alba*, *A. herodias*, and *Egretta caerulea*. Strikes per minute increased as body size decreased. Prey capture rate was highest in *A. alba*. Fish comprised >80% of prey, with frogs making up the rest of items. Prey capture rate varied significantly across foraging locations. Based on these pilot data, we have initiated an extensive undergraduate-led study across the entirety of the water system, that will identify foraging habitat quality gradients by species across the park and provide a starting point for adaptive Park management.

## Drone Assisted Deployments of ARUs

Joshua Driscoll <sup>1</sup>, Ryan Wicks <sup>2</sup>, Patricia Huckery <sup>3</sup>

### Abstract Summary :

The Great Ipswich Salt Marsh that stretches between Massachusetts and New Hampshire is New England's largest saltmarsh, the longest contiguous salt marsh north of Long Island, and is internationally recognized as an Important Bird Area. Located on the Atlantic Flyway, this locale is an important stopover spot for migratory species as well as key breeding habitat for the endemic Saltmarsh Sparrow (*Ammodramus caudacuta*) and a number of threatened and endangered waterbirds. Despite international, national, and state conservation status, the area faces an assault of threats from historic trenching, commercial/residential development, and high bacterial contamination from inefficient septic systems, among others. In order to survey this 20,000+ acre marsh effectively and with as little disturbance as possible, we investigated the feasibility of drone assisted deployment of ARU units within the marsh. This field method is applicable to marsh breeding shorebirds and wading birds, as well as the Saltmarsh Sparrow. Through habitat assessment, potential nest identification from aerial imagery, ARU deployment, and algorithmic analysis of data, this study proved feasibility of drone assisted ARU deployment, providing information on breeding birds with minimal impact to this sensitive ecosystem.

## Assessing the effects of leg-loop attached tags on incubating Forster's Terns: preliminary results

Dave Moore <sup>1</sup>, Misha Khan <sup>2</sup>

### Abstract Summary :

Our objective was to assess the short-term effects of tag attachment on nest attendance of incubating Forster's Terns. During early incubation (mean nest age  $\pm$  SD =  $7.1 \pm 2.6$  days), in June 2025, we captured one adult per nest, banded it (USFWS) and collected a blood sample (for genetic sexing). Additionally, adults received either: (1) a field-readable color band (n=12; control group) or (2) a color band and a GPS or satellite tag attached by leg-loop harness (n=7). Two types of tags were deployed: (i) Ornitela OrniTrack-3 (3.6 g, 10 cm antenna; n=4) and (ii) Sunbird Avian Argos PTT (3.0 g; 23 cm antenna; n=3). All tags were  $< 2.6\%$  of body mass. A few hours after capture ( $1.8 \pm 1.2$  h; Day 0), we used GoPro7 cameras to record nest attendance by both pair members.

Behaviors were scored as incubating, standing on the territory or away from the nest. A second behavioral sample was collected between Day 2 and Day 4 ( $3.6 \pm 0.8$  days post capture). Video length ranged from 26 – 92 min ( $57 \pm 0.1$  min). On average, nest attendance (Day 0 = 47%; Day 2-4 = 53%) and incubation (Day 0 = 44%, Day 2-4 = 47%) did differ between control and tagged birds, nor between sample periods. Incubation at the pair level averaged  $97.3 \pm 5.1\%$  (range = 76.5 – 100%). Attachment of tags by leg-loop harness did not affect nest attendance of incubating Forster's Terns, compared to controls. We plan to continue this study in 2026.

## A strong partnership and unconventional method to reduce human disturbance at a key beach nesting site in New Jersey

Meghan Kolk<sup>1</sup>, Lisa Ferguson<sup>2</sup>, Brittany Morey<sup>3</sup>

### Abstract Summary :

As one of just a few natural beaches left in New Jersey, Stone Harbor Point Conservation Area provides important habitat for beach-nesting birds, is a premiere shorebird migration stopover, and hosts one of only three breeding colonies of Black Skimmers (*Rynchops niger*) in the state. Because the site is also enjoyed by many visitors for recreational activities, we oversee a Beach Steward Program annually in cooperation with the Borough of Stone Harbor to reduce human disturbance, document disturbance events, and provide education and outreach about sharing the beach responsibly. One type of disturbance, landed watercraft at the inlet, stood out as the most impactful and most difficult to control. Because the Public Trust Doctrine allows for public access to tidal waters and adjacent shorelines up to the mean high-water line in New Jersey, even local law enforcement could not effectively limit disturbance. When the issue peaked in 2022, the town acted swiftly with the adoption of a new rule and regulation by ordinance to their code governing access to paid beaches. The new rule prohibits individuals from accessing the beach from the water or by way of watercraft, providing a clear restriction to be communicated by the stewards and to be enforced by the local police. After an initial adjustment period, compliance has improved greatly, disturbance has been minimized, and the Black Skimmer colony has responded positively with successful breeding seasons, demonstrating the importance of strong partnerships with landowners.

## Fragments in Flight: Microplastic content in Herring Gull (*Larus smithsonianus*) and Great Black Backed Gull (*Larus marinus*) Diets

Emelia Lakebrink<sup>1</sup>

### Abstract Summary :

The presence of microplastics in marine environments is an increasingly pervasive and persistent threat to coastal species. Seabirds, in particular, are in a vulnerable trophic position that allows the bioaccumulation of these contaminants. An investigation of microplastics within the diets of American Herring Gulls (*Larus smithsonianus*) and Great Black-backed Gulls (*Larus marinus*) was conducted during the 2025 breeding season on Great Duck Island (44°09'08"N 68°14'55"W), an offshore island in the Gulf of Maine. Samples of regurgitate and guano were collected from chicks and around nesting sites for analysis. Samples were analyzed using a potassium hydroxide (KOH) digestive process to dissolve organic components, followed by visual analysis using a microscope. Tagging studies of island gulls suggest that some individuals will tend to specialize in following lobster boats, while others frequent local landfills or intertidal regions on adjacent islands.

These habitat types are exposed to differing amounts and types of plastics. My work builds upon previous results which indicate a microplastic presence characterized by near equal proportions of microplastic fibers and fragments. Guano samples yielded significantly higher proportions of fibers, with blue being the largest quality type overall. Here, I present additional results from the 2025 season and compare them with prior work.

## Using Landscape Metrics to Identify Suitable Eastern Black Rail Habitat

Trevor Markwood<sup>1</sup>  
Texas A&M University

### **Abstract Summary :**

The Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) is a federally threatened species whose native range has been shrinking since the 1980s.

However, due to their secretive nature, information on preferred Black Rail habitat is lacking. Across the Texas Gulf Coast, Black Rails prefer high marsh or salty prairie habitat with dense, grassy vegetation, but there are numerous effects that are still being investigated. While a variety of studies look at site-level metrics and their impact on occupancy, landscape metrics are understudied for their impact on Black Rails. The goal of this project is to determine which landscape variables impact Black Rail occupancy. We will utilize previous survey data from call-response and passive acoustic monitoring surveys from 8 different refuge study sites and over 80 different points at those sites. Across these points, we will investigate wetland cover, patch size, biomass, and other influential landscape variables that could influence Black Rail occupancy. We will be using landscape analysis software to create high-resolution landscape images to run analysis on using Fragstats. This analysis will give insight into what areas are more likely to have breeding Black Rail populations, and which landscape practices are detrimental to supporting Black Rails.

## A self-made crèche: Juvenile Roseate Spoonbills form preferential associations with other juveniles of similar ages

Thomas Mateo<sup>1</sup>, Gregory Kohn<sup>2</sup>, Lindsay Mahovetz-Myers<sup>3</sup>, Mike Taylor<sup>4</sup>

### Abstract Summary :

In many avian species, juveniles must quickly adapt to their new social surroundings following independence from their parents. During this adolescent period, building social relationships is crucial in developing later social skills and shaping future outcomes, yet the details of this period are largely unknown. A flock of Roseate Spoonbills housed at the Jacksonville Zoo & Botanical Gardens showed a gradient of approach and displacement rates following the introduction of juveniles at two separate transition periods. Most approaches were directed towards juvenile peers and almost all hostile interactions occurred with juveniles involved. This contributed to the formation of robust subgroups within the flock that were the result of active self-assortment by juveniles. This indicates that juvenile subgroups serve to bridge the gap between them and the larger group as they mature and that crèching behavior has appeared through convergent evolution in distantly related species.

The importance of juveniles in shaping their social environment as they develop may be shared across a wide diversity of different bird species in which crèches are observed. Most importantly, this showcases the necessity to expand the body of research for this species and learn more about the unique natural history of this iconic wetland bird.

## Energy expenditure throughout the nesting cycles of three colonial waterbird species

Joseph McGovern<sup>1</sup>, Bart Ballard<sup>2</sup>, David Essian<sup>3</sup>, Dale Gawlik<sup>4</sup>, Jordan Giese<sup>5</sup>

### Abstract Summary :

In waterbirds, energy expenditure varies across different stages of the annual cycle. During a nest cycle, for example, breeding birds may invest increasingly more time or energy foraging to provision their growing young. For colonial waterbirds, flights from colonies to foraging areas are likely to be the primary source of energetic costs. Given other stressors, including loss of foraging habitat and colony disturbance, understanding how individuals allocate energy during this period may be critical to waterbird conservation. However, energy expenditure and allocation by wading birds is poorly understood. We aim to link patterns of energy expenditure to nest age for three wading bird species. Adult Tricolored Herons (*Egretta tricolor*, n = 46), Reddish Egrets (*Egretta rufescens*, n = 23), and Great Egrets (*Ardea alba*, n = 12) were captured on colony islands along the Texas coast during incubation (April through July) 2023 – 2025, fit with GPS – GSM transmitters and onboard triaxial accelerometers, and tracked throughout the remainder of the breeding season. We use location data to delineate the nesting period, and calculate daily overall dynamic body acceleration (ODBA, a proxy for energy expenditure) throughout the nesting cycle. We predict that ODBA will increase during the nestling stage, with provisioning costs likely highest near fledging. The results will provide high-resolution information about energy allocation during this key period when energetic needs are high. Eventually, these results will be integrated with foraging habitat selection, and may be linked to nest fate. Accelerometer-derived estimates of energy expenditure paired with high-resolution location data provide a new opportunity to understand parental investment at a fine spatial and temporal scale. This information can be used to prioritize colony islands for rehabilitation and management.

## Endoparasites in Magnificent Frigatebirds (*Fregata magnificens rothschildi*) from Southeast Florida

Isabelle Petty<sup>1</sup> Alexia J. Hilber, Christopher A. Blonar, and David W. Kerstetter  
Halmos College of Arts and Sciences, Nova Southeastern University  
8000 North Ocean Drive, Dania Beach, FL 33004 USA

### Abstract Summary :

Investigating parasite communities can provide important insights into their host species health and trophic interactions. The Magnificent Frigatebird (*Fregata magnificens*, *F. m. rothschildi* subspecies) is a large pelagic seabird that is widely distributed across tropical and subtropical marine regions. Their wide-ranging foraging behavior and fish-based diet suggest that they would potentially host a diverse range of trophically transmitted endoparasites. However, endoparasite research on these birds is limited to three studies, the most recent of which dates to 1964. This study describes the endoparasite community from the gastrointestinal tracts of Magnificent Frigatebird specimens (n=6) collected from various rehabilitation centers across southeast Florida. The most commonly observed parasites included Nematodes and Digeneans, with few Cestodes. Notably, this survey has produced a new host record for strigeids (*Digenea*), who utilize aquatic snails and leeches as their intermediate hosts. The results provide an important updated baseline for both continued studies on the health of Magnificent Frigatebirds, particularly in the context of changing marine ecosystems, and for future studies on parasite ecology and transmission in seabird populations.

## Waterbird Migration through the Straits of Mackinac, 2015 through 2025

Ed Pike , and John Frederickson  
Mackinac Straits Raptor Watch

### **Abstract Summary :**

Mackinac Straits Raptor Watch has been conducting long-term monitoring of waterbird migration through the Straits of Mackinac since 2015. Our goal is to collect comprehensive data to document the migrant waterbirds; including their numbers, phenology and associated weather patterns using rigorous methodology and trained observers. Systematic spring counts occur from March 20 through May 15, and fall counts from August 20 through November 10, with expert counters conducting standardized 6-hour counts daily beginning 15 minutes before sunrise. From 2015 through 2019 observations occurred from McGulpin Point in Emmet Co. To improve coverage of the Straits, starting in 2020 observations have taken place at two key locations-McGulpin Point in Emmet County and Graham Point in Mackinac County-on alternating days. Data is recorded electronically, uploaded in real time to a centralized database, then cleaned and archived following established protocols. Over the monitoring period, 57 unique species of migratory waterbirds have been documented. On average, 35 species totaling approximately 30,000 individuals are observed each spring, and 38 species totaling 40,000 individuals each fall. Two species are known to migrate outside the fall count period: Red-necked Grebe begin their migration earlier than the beginning of the fall count period, while Redhead use the Straits as a late-season stopover, with peak numbers of up to 20,000 individuals occurring after count operations conclude. This ongoing migration record provides potentially valuable data for researchers and may serve as an indicator of environmental change in the Great Lakes region.

## Nest success and juvenile dispersal of King rail (*Rallus elegans*) in Southeastern Arkansas

Anne Puchalsky<sup>1</sup>, Caleb Roberts<sup>2</sup>

### **Abstract Summary :**

King rail are a critically imperiled breeding species in the state of Arkansas that have faced population declines across their range due to a variety of threats. A successful breeding population is located in the restored wetlands of Freddie Black Choctaw Island: West, a wildlife management area managed by the Arkansas Game and Fish Commission. Since King rail populations are known to be mostly residential in Arkansas, it is necessary to consider their needs for breeding, brood rearing, and over-wintering. One goal of this project is to provide wetland management tools to boost King rail populations in Arkansas throughout the Mississippi Alluvial Valley region. To reach our goal, we will locate and monitor nests to determine the site's success rate. We will also work to understand juvenile dispersal patterns through the use of transmitters. Estimating the nesting success rate of King rail in Southeastern Arkansas will further our knowledge on preferred nesting conditions and predation rates. Thus far we have found 21 nests, that were primarily located in dense patches of *Carex* and *Juncus* species, with average water depths of 10 centimeters. We plan to deploy transmitters on juveniles in late summer to track their movements. This research will provide information on creating and managing suitable conditions year-round through habitat and water level management that will be able to inform private landowners and agency management strategies to better include secretive marsh birds like King rails. It will also help us understand how juvenile King rails utilize the landscape around them at a vulnerable life stage.

## Alcids on Great Duck Island, Maine

Ezra Rowe <sup>1</sup>

College Of The Atlantic Island Research Center

### Abstract Summary :

Black Guillemots (*Cephus grylle*) on Great Duck Island, Maine (44°09'08"N, 68°14'55"W) are highly social, and nest in dense multispecies colonies. Gull (*Larus* sp.) and alcid distribution and presence on the island have changed since the beginning of the century, thus a new island-wide survey of guillemot ecology and behavior was needed. Between 9 June and 23 July 2025, alcid nest sites were located and mapped, and interspecific interactions and colony attendance were monitored. Although habitat assessments revealed an abundance of potential nest sites, alcid nests were clumped in certain areas. A total of 49.7% (84/169) of guillemot nests and 100% of Atlantic Puffin (*Fratercula arctica*) nesting area occurred within gull colonies.

Guillemots in gull colonies exhibited cautious provisioning behaviors including circuitous flight and synchronised, swamping deliveries. Kleptoparasitism by gulls was opportunistic. Guillemots were most abundant at dawn (0430), then declined sharply by ~0700 and further until 1200, after which numbers remained low until dusk. Puffin attendance was highly synchronous and often bimodal. Courting Razorbills (*Alca torda*) and Murres (*Uria aalge*) occurred sporadically in small numbers, rafting and loafing with other alcids. Recommendations support improved guillemot censusing and preservation of alcid habitat in New England.

## Balancing Energy and Ecology: Migration Behavior of Shorebirds

Kate Sheehan<sup>1</sup>

### **Abstract Summary :**

Migration behavior in shorebirds is crucial for their health and the ecosystems they inhabit. This study explores the ecological and physiological consequences of varying migration strategies employed by Semipalmated Sandpipers and Short-billed Dowitchers that breed in the Arctic and winter in southern South America. Specifically, we investigate these species as they stop at Delaware Bay, often the first and sometimes the only stopover habitat on their journey north to breeding grounds. At this vital location, they capitalize on the abundance of horseshoe crab eggs to gain necessary weight, ensuring they are in optimal condition for the energetically costly breeding activities that await them. While the 'long-haul' migratory strategies of some Semipalmated Sandpipers and Short-billed Dowitchers provide essential feeding opportunities, they also induce physiological stress, leading to significant adaptations such as the resorption of vital organs, including intestines, to conserve energy, water, and time. In contrast, we examine conspecifics and other shorebird species, like the Dulin, which do not employ long-haul migration strategies but instead undertake frequent shorter stopovers along their migration routes. To assess these strategies, our methods include basic morphometric assessments of birds in Delaware Bay, alongside analyses of their microbiomes. By linking body condition and gut microbial community composition to migration strategies, we aim to elucidate patterns in physiological health among different groups of shorebirds. As this project is in its early stages, we anticipate that with additional sampling and development of research partnerships, we will identify migratory strategy groupings and uncover critical life system endpoints associated with these behaviors. Ultimately, our findings will contribute to a deeper understanding of how migration strategies affect shorebird health and ecology, informing conservation strategies that address the challenges these species face during their migratory journeys.

## Learning on the fly: management and monitoring of Virginia's largest seabird colony during in-progress restoration efforts

Chelsea Sweeney<sup>1</sup>, Kelsi Hunt<sup>2</sup>, Sarah Karpanty<sup>3</sup>, Rebecca Gwynn<sup>4</sup>, Ruth Boettcher<sup>5</sup>, David Norris<sup>6</sup>

### Abstract Summary :

The South Island of the Hampton Roads Bridge-Tunnel (HRBT) is part of the Interstate-64 corridor where it crosses the mouth of the James River between Norfolk and Hampton, Virginia. In 1983, Common Terns and Black Skimmers began nesting on South Island and soon joined by Gull-billed Terns, Sandwich Terns and several gull species. By 2007, this site became the largest seabird colony in Virginia. In 2020, the expansion of the HRBT and I-64 corridor triggered the temporary relocation of the colony from South Island to the adjacent Rip Raps Island and several industrial barges where the birds would be monitored and managed until a permanent location for the colony could be established. We uniquely marked a proportion of the seabird population on South Island in 2018 and 2019 to evaluate the birds' shift from South Island to Rip Raps Island, and assess their breeding success, movement patterns, and survival. In 2020, the colony was extirpated from South Island using deterrents and attracted to the interim habitat using callback systems and decoys. From May–August, 2020–2025, we continued to mark individuals, monitor colony size, reproductive success, and estimate survival. Royal Tern colony size ranged from 5,000–6,800 pairs, producing 1,050–5,225 chicks per year. Sandwich Tern nests were less abundant but variable. Common Terns, Black Skimmers and Gull-billed Terns mostly nested on barges, and nest abundance, hatching success, and chick survival varied annually. While the numbers of each species using the interim habitat varied, abundances of each species were similar to those before relocation, though weather events played pivotal roles in the colony's productivity. Spatial distribution of species shifted annually as interspecific competition increased. Observations of breeding individuals banded on-site suggest strong colony retention and recruitment. Observations of marked individuals breeding in other colonies within and outside of Virginia suggest this urban colony serves as an important source population. Within the next several years, a permanent nesting island will be constructed using suitable material dredged from local navigational channels. We discuss successes and challenges of these management actions, and present considerations for future seabird relocation and restoration efforts.

## Visually annotating waterbird identification from drone surveys

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### **Abstract Summary :**

Small unmanned aerial vehicles (aka drones) are now ubiquitous in projects surveying gregarious waterbirds. This ubiquity can be traced to several advantages drones have over more traditional manned aircraft, such as their low cost and their inherently lower risk of use for waterbird ecologists. Another advantage of drones is their on-board cameras capable, in most cases, of taking aerial videos and photographs making surveys available for review in perpetuity. Whereas, in principle, this makes it possible for survey data to be error checked by reviewers of videos and observers' data logs, it can be logistically difficult to know which surveyed birds were detected by the original observer when reviewing the data and videos/photographs are not visually annotated. In these cases, correcting false positives and false negatives in the data may not be possible, especially if the original observer is unavailable during data review. Therefore, having a method for visually annotating drone videos and photographs is of paramount importance. Here we present our pipeline for making waterbird survey data annotation visually clear. We used an in-house Python script to extract drone video meta-data from survey videos (N = 50) conducted with ANAFI Parrot drones and converted these videos into a format readable by ArcGIS Pro. We then annotated the survey videos using the Image Analyst extension of ArcGIS Pro. This annotation pipeline plotted the georeferenced flight path on the map simultaneously with the video feed, and annotations on the video feed were automatically plotted on the map. In addition to this pipeline for visual annotation of waterbird drone surveys, we exhibit the different features for video review included in ArcGIS Pro and freeze frame stills of waterbird groups and individuals taken at an altitude of 20 m with the drone moving at a speed of 3.6 m/s. Finally, we present what the future may hold for drone data collection from waterbird populations.

## Effects of nest-site selection on nest success and temperature regime during incubation in beach-nesting birds

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### Abstract Summary :

For ground-nesting birds, nest incubation is a period during which adult birds are highly vulnerable to predation. Birds potentially reduce their own risk by nesting in the open, away from vegetation, where they have an uninhibited view of approaching predators (a good viewshed). However, open sites may experience higher temperatures and/or higher nest predation and therefore lower success. In the 2025 breeding season, incubation temperatures for two beach-nesting birds, *Sternula antillarum* and *Anarhynchus wilsonia*, were recorded across four sites.

Paired data loggers were used to take simultaneous reading of temperature inside and outside of the nest scrape. Temperature comparisons between the scrape and external substrate show a difference of 5-10 degrees centigrade. Intraspecific temperature comparison shows some temperature difference between vegetated versus non-vegetated nests. From preliminary results, the act of incubation may reduce large temperature fluctuations when comparing nests with varying amounts of vegetation cover.

## Occurrence of leg damage in Leach's Storm-Petrel on Great Duck Island, Maine.

Jay Van Pelt<sup>1</sup>

Alice Eno Field Research Station, College of the Atlantic

### **Abstract Summary :**

Leg damage has been previously noted in the Leach's Storm-Petrel (*Hydrobates leucorhous*) breeding in Canada and Europe. During the summer of 2025 instances of foot or leg deformity, injury, or pathology were recorded in breeding petrels on Great Duck Island, Maine. This is the first synthesis of leg damage in a Maine colony. Birds were sampled as part of ongoing research on site fidelity and breeding success. Breeding Storm-Petrels on Great Duck showed an unusually high (>32%) occurrence of leg damage. Damages were primarily broken and healed bones and missing portions of the toes or webbing. Additionally, two instances of developmental abnormality, three pathologies, and one complete amputation of the foot were recorded. Aside from pathology, all recorded damages were fully healed. The nature of the recorded damages suggests predatory pressure by marine organisms during the time petrels spend foraging or resting at sea.

## Great Lakes piping plovers: winter range and migration, 1998-2024

Francie Cuthbert <sup>1</sup>, Alice Van Zoeren <sup>2</sup>, Stephanie Schubel <sup>3</sup>

### Abstract Summary :

Records have been maintained on approximately 14,000 Great Lakes piping plovers reported during migration and winter since 1998. Many are repeat records. Reports come from beach-goers, birders, photographers, non-profit groups, universities, federal, state agencies and provincial governments. We collaborate with other plover researchers to validate color-band ID when necessary. All known chicks are banded with a USGS band and brood combo color bands. If they return to nest, adults are recaptured and given a unique color band combination including an orange flag which designates a bird as a Great Lakes breeder. Because the Great Lakes population is small (88 pairs in 2025) we are usually successful at banding most chicks and 90%+ of the nesting adults in any given year. Therefore, winter reports provide a very accurate "picture" of many aspects of plover biology during the non-breeding season. This poster summarizes some of the key information we have learned including number of winter range reports and reporters; percent of breeding Great Lakes plovers located during the winter (up to 60-70%); distribution of plovers during the non-breeding period; number of captive-reared plovers reported during the winter; survival of some individuals after major hurricanes. The value of this database is priceless as it engages citizens, provides agencies with identity of locations needing protection and opens up opportunities for endless exploration of details on the basic biology and natural history of this species without reliance on electronic tracking devices.

## Influence of Dry Season Hydrology, Habitat, and Prey on Wading Bird Nesting in the Everglades

Benjamin Zeitler<sup>1</sup>, Michelle Petersen<sup>2</sup>

### Abstract Summary :

Wading birds are top predators in subtropical wetland ecosystems, where seasonal weather patterns drive variation in resource pulses and hydrologic dynamics. In the Florida Everglades, these birds depend on dry season conditions that concentrate prey in shallow depressions. However, the timing and consistency of water-level drydowns vary annually, influencing both habitat accessibility and prey availability. Wading birds respond to changes in hydrological conditions by altering foraging strategies and nesting behavior, ultimately affecting reproductive success. This study examines the long-term relationship between dry season hydrology, prey availability, and wading bird nesting abundance. During the dry seasons of 2005-2025, we measured prey concentrations across 1,766 sites across 4,964km<sup>2</sup> of Everglades freshwater using a 1-m<sup>2</sup> throw trap. Regional water depths were concurrently tracked using the Everglades Depth Estimation Network (EDEN) to estimate habitat availability. We defined super nesting events in years where nest abundance was two standard deviations over the long-term mean, occurring in 2009, 2018, and 2021, with habitat availability reaching 82%, 76%, and 82%, respectively. While prey biomass and density were highest in 2009, they were below average in 2018 and 2021. In the 2025 dry season, prey density and biomass were nearly double their decadal averages, and habitat availability reached 90%, the highest in the 21-year study period, indicating potential for another super nesting year. However, preliminary data indicate that 2025 nest counts were 35% below the decadal average. A possible explanation is that rapid water-level recession rates in the central and western Everglades caused critical foraging habitat to dry too early, limiting prey access during peak nesting. too early. These findings underscore the complex role of hydrologic patterns in shaping ecosystem productivity and trophic dynamics. While both prey availability and habitat availability are important for nesting success, our results suggest that their relative influence may shift depending on year-specific hydrological conditions. Ongoing analysis will help quantify how spatial and temporal hydrologic variability influence prey dynamics and nesting effort, with implications for restoration planning and adaptive management across the Greater Everglades ecosystem.