BIRDSCARIBBEAN SEABIRD WORKING GROUP NEWSLETTER

June 2024

- 2023-2024 Caribbean Seabird Census
- Herpesvirus in Magnificent Frigatebirds
- Seabirds at BirdsCaribbean 24th International Conference
- Calls for collaboration
- Highlighted Research - Trends of breeding seabirds in the Virgin Islands

Birds Caribbean

Table of contents

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About the Seabird Working Group

The Seabird Working Group (SWG) was formed in 1998 to understand the big picture driving seabird communities in the region. Since then, the group has been composed of managers, conservationists, researchers, and educators working together to help study and protect populations of breeding and migratory seabirds in the Caribbean.

The aims of the group are to:

- Connect People - Bring together people working on, and interested in, Caribbean seabirds
- Share Knowledge - Share information about research, monitoring, management, and conservation of seabirds in the Caribbean
- Promote Conservation - Seek new opportunities to expand conservation and research activities on Caribbean seabirds, and support those working towards this goal
- Advocate for Seabirds - Respond to crises and threats that may impact Caribbean seabirds and their habitats

The SWG is currently managed by a committee of three co-chairs (below), supported by Jennifer Wheeler, Louise Soanes, Natalia Collier, and Lisa Sorenson. We are always looking for additional committee members to help lead SWG initiatives: if you have any questions or are interested in joining us, please contact us!

Dr Ann Sutton, Jamaica
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Dr Rhiannon Austin, Turks and Caicos Islands
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Survey of people interested in Caribbean seabirds

In 2020, we initiated a survey of people interested in seabird conservation, education, and research in the region: the results of this survey can be found in our 2021 Newsletter.

If you are new to the Caribbean seabird community or haven't responded yet, we are still interested in hearing from you. You can fill out the questionnaire at the following address: https://forms.gle/ykNMAfUYQVDmJKTw9.

Communications

Website

In the SWG pages on the BirdsCaribbean website, you will find links to background information on the working group, active seabird projects, seabird resources, and our seabird blog posts at www.birdscaribbean.org/caribbean-birds/seabirds.

We would love to hear from you if you are keen to get further involved in any of our work!

Social platforms

Groups.io community

The SWG has a listserv with Groups.io: https://birdscaribbean.groups.io/g/SeabirdWG. Anyone interested can become a member and start interacting via email or through the Groups.io webpages. This platform will be the main communication tool for SWG co-chairs to share information with the whole Caribbean seabird community, but it is open to anyone to share knowledge, post questions, and list information on recent publications, jobs, events, grant opportunities, etc. that may be of interest to all. Visit the Groups.io webpage for details on how to join.

Facebook group

Members of our community have started a Facebook group (Caribbean Seabird Group) to provide an informal network for those who regularly use Facebook, and are interested in Caribbean seabirds and related topics. It complements the BirdsCaribbean Facebook page where regular updates on all Caribbean birds can be found. The Groups.io listserv will remain our main communication tool but we will do our best to relay information to and from the Facebook group as well.

Please be aware that we have a zero-tolerance policy for any actions by group members that compromise the safety, fairness, or productivity of our platforms.

Seabird Graduates

Congratulations to recent graduates who studied Caribbean seabirds! Scientific knowledge of Caribbean seabirds is advancing thanks to the hard work of graduate students and early career professionals.

Antonio Garcia Quintas, PhD

Antonio received his doctorate from UMR MARBEC in Sète, France through the ARTS program of the Institut de recherche pour le développement. He studied the breeding ecology and conservation of larids in Cuba, focusing on selection and suitability of breeding habitat, plasticity of trophic niche, and breeding phenology. Antonio also assessed the impact of anthropogenic disturbances on conservation. His thesis will soon be available at https://theses.fr/s278668

Luis Ramos-Vázquez, MS

Luis received his masters degree from the University of Puerto Rico - Mayagüez. He studied the breeding biology of Least Terns (*Sternula antillarum*) at two colony sites in southwestern Puerto Rico, and assessed the occurrence of new threats to breeding Least Terns. Luis also studied the diet of Least Tern chicks using fecal DNA metabarcoding. His thesis is available at http://dx.doi.org/10.13140/RG.2.2.22644.73602

Kate Sutherland, MS

Kate received her masters degree from the University of North Carolina Wilmington, USA. She analyzed breast feathers from 65 historic specimens of Black-capped Petrels (*Pterodroma hasitata*) collected between 1978-1989. She used stable isotopes to study the foraging ecology of the petrel's phenotypes. Kate also assessed the species' historical exposure to mercury. Her thesis is available at https://libcat.uncw.edu/record=b3987127~S4

Whether you are a student, early career, or a seasoned professional, the Seabird Working Group is here to help – so don't hesitate to reach out directly to one of the co-chairs, on our listserv, or on social media if you have any questions or need support. We encourage you to apply to research and conservation grants (including those offered by BirdsCaribbean) and we can help with grant writing and setting up collaborations.

Calls for collaborations

Banded Brown Pelicans – **Adrianne Tossas**, BirdsCaribbean (Adrianne.tossas@birdscaribbean.org)
Did you see banded Brown Pelicans (*Pelecanus occidentalis*) in Puerto Rico? Adrianne Tossas and her colleagues initiated a tracking study of pelicans nesting in Aguadillas (read more p21). They are seeking observations of adults and juvenile pelicans banded with green and white plastic bands.

Nest exposure to flooding – **Guillaume Dillenseger**, University of South Bohemia, Czech Republic (guillaume.dillenseger@orange.fr)
Guillaume studies how birds nesting on the ground (shorebirds, seabirds, etc.) are exposed to risk of flooding. In tropical regions with seasonal rainfalls, this risk has been overlooked. Therefore, Guillaume has started a collaborative project "Birds don't breed on random soils #BDBORS". This project is already getting data from sub-tropical China, India, Madagascar and Peru. Guillaume would like to hear from you if you are monitoring ground-nesting seabirds or shorebirds.

Mercury exposure – **Antonio Garcia-Quintas**, Centro de Investigaciones de Ecosistemas Costeros, Cuba (agquintas86@gmail.com)
Antonio is interested in assessing mercury levels in seabirds from various sites in the Caribbean. Using mercury concentrations in seabird tissues, collaborators would develop a model to predict the risk of mercury contamination in any region of the Caribbean and perhaps in other tropical regions. For this work, Antonio is seeking feather or down samples. The species have not yet been fully defined, but will most likely include gulls and terns.

Disease in Frigatebirds – **Manrico Sebastiano**, University of Antwerp, Belgium (manrico.sebastiano@uantwerpen.be)
Magnificent Frigatebirds (*Fregata magnificens*) in French Guiana are being impacted by herpesvirus, a disease responsible for mass mortality in chicks. The virus is spreading so Manrico and his colleagues are looking for collaborators in the Caribbean that could be on the lookout for clinical signs in chicks and adults (read more about the disease p10, below). They also need help with the collection of blood and feather samples to further elucidate the causes of these deadly outbreaks.

Banded Roseate Terns – **Rafael Ângelo Revorêdo**, Centro de Estudos e Monitoramento Ambiental (rafael.revoredo@hotmail.com)
In Brazil, Rafael and his colleagues banded 30 Roseate Terns (*Sterna dougallii*) with yellow and black plastic field-readable bands (read more p16). Any observation of banded Roseate Terns in the Caribbean is fundamental to understanding the migratory dynamics of these populations. If you observe banded Roseate Terns in the Caribbean, please contact Rafael Revoredo (rafael.revoredo@hotmail.com) and Joan Walsh (jwalsh@amnh.org).

Update on the 2023-2024 Caribbean Seabird Census

With the launch of the first regionally coordinated Caribbean Seabird Census in 2022, we were hoping to match the levels of engagement and support seen in other long-term regional programmes, such as the Caribbean Waterbird Census and the Caribbean Landbird Monitoring Network. We're thrilled to announce that we are on our way to achieve just that!

Now in the final few months of data collection, we have begun to review the data already submitted: we have already received breeding seabird data from 14 countries, and have commitments from an additional 14 countries that data will be submitted by the end of the year. Our focus now lies on identifying and addressing any data gaps, with special attention to several of the historically important seabird breeding colonies located in the Bahamas, Dominican Republic, Puerto Rico, and Trinidad and Tobago.

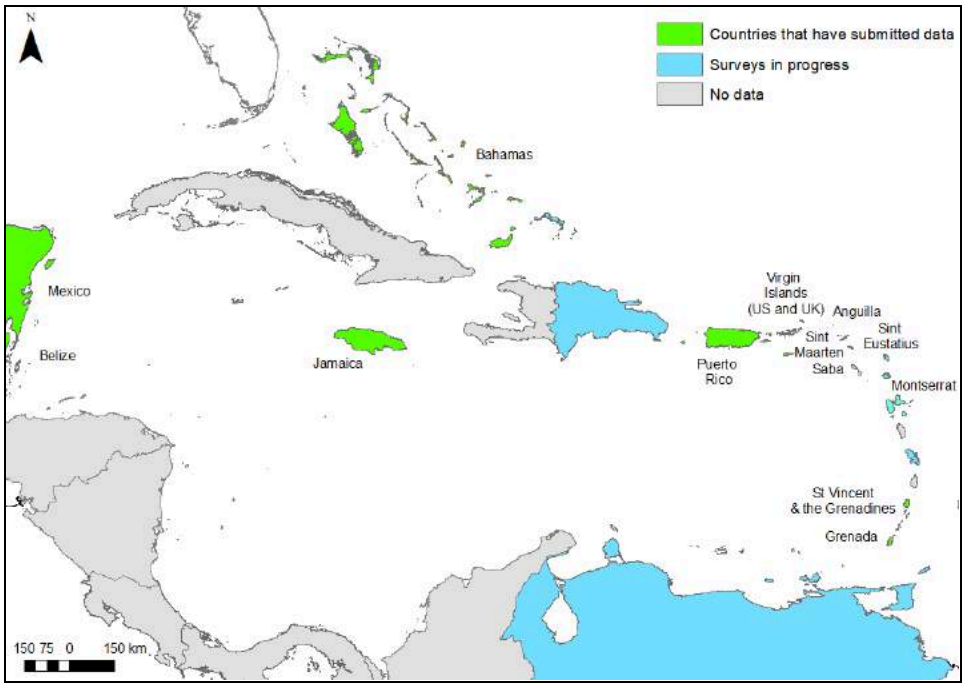
In the Dominican Republic, the current focus of the Ministry of Environment is getting out to the islands of Cayo Siete Hermanos, which were once reportedly home to thousands of breeding pairs of seabirds. In Trinidad and Tobago, Darshan Narang from the Trinidad and Tobago Field Naturalists' Club will be concentrating survey efforts on Little Tobago, recognised as one of the Caribbean's most important seabird colonies, along with Soldado Rock, once home to thousands of breeding terns. In Puerto Rico, Nahira Arocho and Luis Ramos are bringing survey efforts to a series of offshore cays in La Cordillera Reef Natural Reserve. While further north in the Bahamas, the New Providence Bird Club is expanding its annual programme of boat-based birding trips to incorporate seabird surveys on some of the offshore cays.

What next?

Now that seabird census data is trickling in, it is time to start merging and analyzing all of this important information. We aim to do this collaboratively with those of you who have submitted data. Hopefully many of you will be attending the BirdsCaribbean International Conference in Santo Domingo, Dominican Republic this July (read more p24). We are planning to get together during the conference to share experiences of data collection and to discuss our findings and the trends that we have all been observing.

Following the discussion in Santo Domingo, we plan on working collectively to pull together all the data into an article or a monograph that we hope to publish in the Journal of Caribbean Ornithology. We will keep you updated on the progress of this effort.

Over the next year, we will also be organizing webinars on data analysis and applications, and on communicating the results of the regional seabird census to a wide audience.



Map highlighting countries that have already submitted data to CSC23-24 and those where surveys are in progress. Note: countries as a whole are colored even though only a few localized sites may be censused.

How you can participate

We hope to see you in Santo Domingo in July, but please also get in touch if you have identified islands that still require surveys and would like more information on how you can get involved.

If you need more information, please visit our seabird census webpage details on survey techniques, field data sheets and standardized data entry forms. You will also be able to test your knowledge of Caribbean seabirds and field methods with our quizzes, which are linked to our webinar topics.

If you are an avid birdwatcher but conduct less formal seabird counts, we also encourage you to share your eBird checklists of breeding seabirds (or any seabird sightings) with us by adding caribbeanseabirdsurveys as an eBird contact.

We are grateful as always, for the support, enthusiasm and huge effort that everybody is making to make the regional seabird census as comprehensive as possible.

The Seabird Census Team

Contact: Louise Soanes, Caribbean Seabird Census 2023-2024 Coordinator (caribbeanseabirdsurveys@gmail.com)

Disease in Frigatebirds

The French natural reserve of Grand Connétable is a hotspot of biodiversity in South America. The small rocky island located near the coasts of French Guiana hosts one-third of the global population of endemic Cayenne Tern (*Thalasseus sandvicensis eurygnathus*), about 8,000 pairs of Royal Terns (*Thalasseus maximus*), and about 1,900 pairs of Magnificent Frigatebirds (*Fregata magnificens*). However, a threat is looming over this seabird heaven; one that can easily spread from the confines of Grand Connétable.

A disease with massive consequences

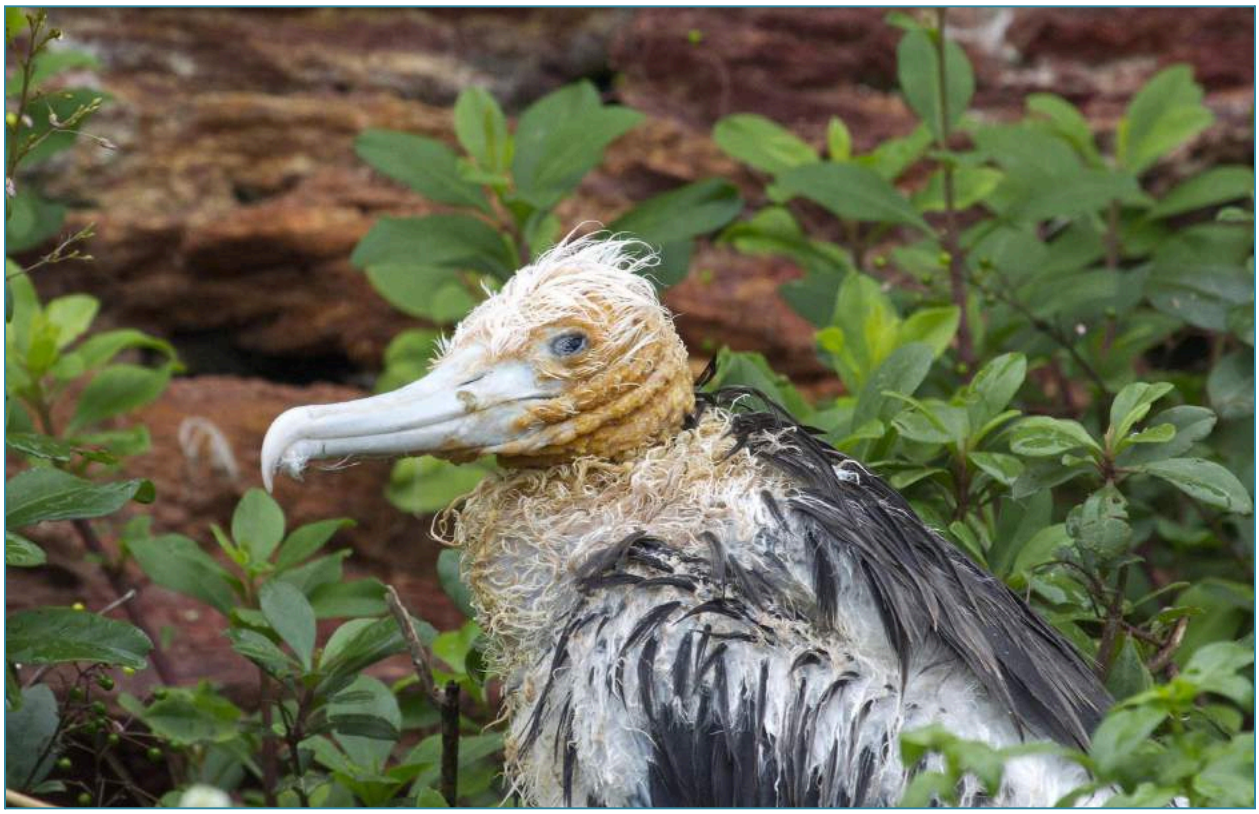
Since 2005, researchers and wildlife managers at Grand Connétable have been documenting how the population of Magnificent Frigatebirds is subject to massive mortality episodes, estimated to affect between 85 and 95% of chicks annually [1,2]. The disease – most likely associated with herpesvirus activity [3,4] – is characterized by the appearance of skin crusts on the neck and wings of affected birds, which rapidly spread all over the chick's body, resulting in low chances of recovery (about 15% [5]).

In 2014, we started intensively studying the population consequences of the disease, and the causes that might underlie the appearance of clinical signs in this population. We found that chicks with visible clinical signs of the disease exhibit changes in blood-based oxidative status markers [1], high inflammation levels [2], and lower immune defenses [4] as compared to healthy chicks.

Nutritional stress and pollution as main stressors

When we tried to understand the appearance of clinical signs, we identified nutritional stress as a potential environmental stressor affecting frigatebirds. Frigatebirds, which are opportunistic feeders, take advantage of discards from fisheries. After the dramatic decline of the local shrimp fishery activities in the early 2000s, field observations suggested that adult frigatebirds were struggling to feed their chicks [6]. However, by giving extra food to chicks for several days, we showed that none of the chicks that received extra food died or got infected [5].

Another potential environmental stressor that might trigger the herpesvirus outbreaks is local mercury contamination. Mercury is a contaminant that can impact almost every aspect of avian physiology. We measured high levels in the blood of frigatebirds [7,8].



A frigatebird chick shows the typical clinical signs of a herpesvirus outbreak, on Grand Connétable island, French Guiana. (Manrico Sebastiano)

Frigatebird travels increase the risk

Despite the high mortality of chicks observed during the past few years, the number of Magnificent Frigatebirds has increased since the first mortality events in 2005, suggesting that the population does not suffer negative demographic effects. After remaining constant from 1981 to 2016 (except for sporadic fluctuations in the range of 200-400 individuals), the number of breeding pairs increased rapidly in recent years. This may be caused by immigration of adult birds from other colonies [4]. The closest breeding colony to Grand Connétable island is in Trinidad and Tobago, 1,200 kilometers to the north, while the first breeding colony towards the south is located in the Brazilian archipelago of Fernando de Noronha, 2,400 kilometers away. The exchange of individuals might help to guarantee the long-term survival of the Grand Connétable population through the immigration of young, healthy individuals but this could also lead to the spread of the disease.

Until 2016, the only known Magnificent Frigatebirds that showed clinical signs of the disease were chicks from Grand Connétable. However, we found the same clinical signs (i.e. skin

crusts) under the plumage of both adult males and females and on the gular pouch of adult males during the 2016 breeding season. With this discovery, we understood that the disease could potentially spread to other colonies, prompting us to investigate further.

A rapidly spreading disease

During that same breeding season, I visited the frigatebird population located in Barbuda. Together with the rangers of the Frigatebird Sanctuary nature reserve (in Codrington lagoon), we captured and sampled 25 chicks and 22 adult frigatebirds. As we had feared, we found skin crusts under the plumage of some adults of both sexes, and on the gular pouch of some males.

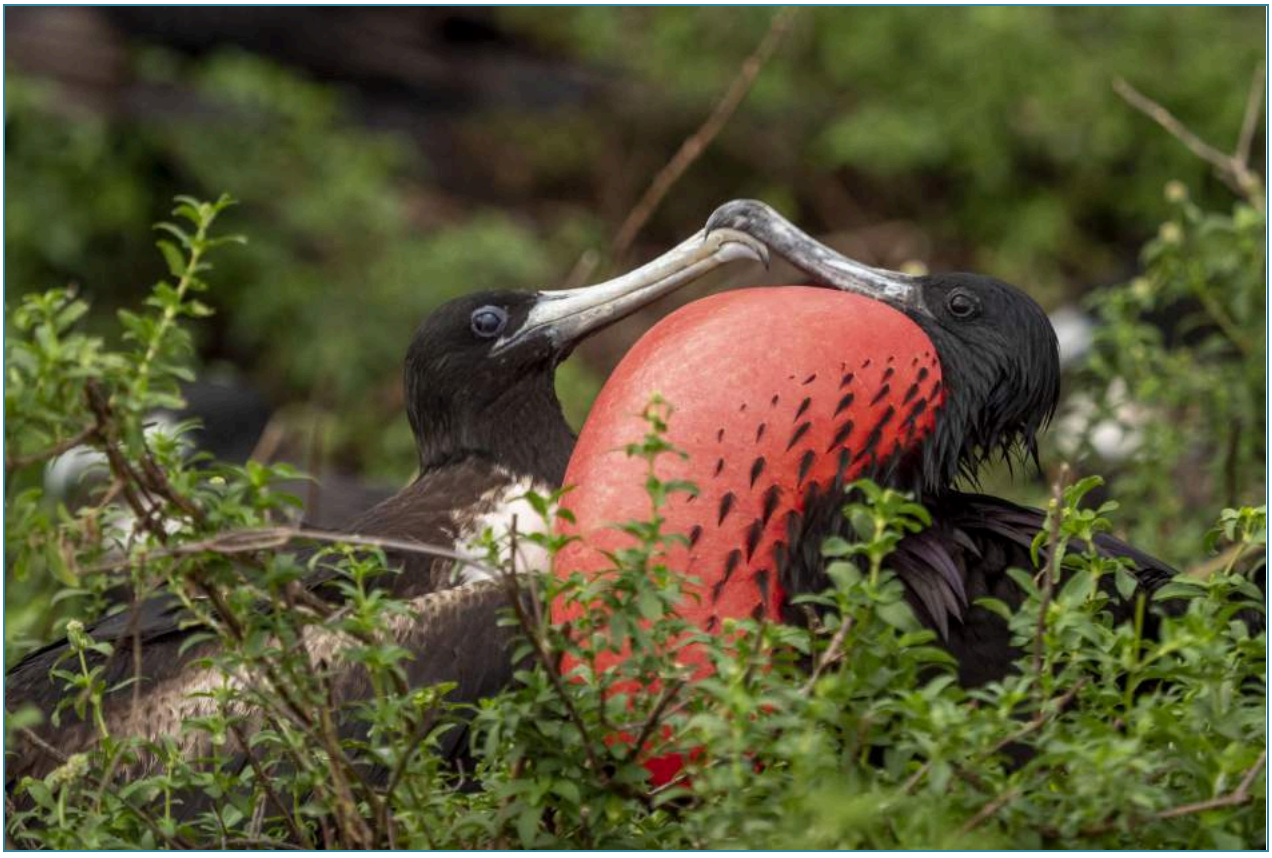
In 2016, Magnificent Frigatebirds nesting in Barbuda showed signs of herpesvirus. (Manrico Sebastiano)

In early 2024, we were contacted by a Brazilian researcher who had observed the same very strong clinical signs in frigatebird chicks in a colony in Brazil. Therefore, it is likely that the disease is spreading, and mortality events could potentially be observed in other colonies.

As of today, we are intensifying our investigations: we are seeking collaborators in the Caribbean that could keep on the lookout for clinical signs in chicks and adults. We also need help with the collection of biological samples to further elucidate the causes of these outbreaks that could jeopardize frigatebird colonies in the region. We have already collected samples in Mexico and Barbuda and our goal is now to collect blood and feather samples from several colonies from Brazil to the upper Carribean.

To go further, you can have a look at a video I had made on the subject (my old fundraising campaign). Feel free to share!
https://experiment.com/projects/why-are-frigatebird-chicks-so-vulnerable-to-a-viral-disease

Contact: Manrico Sebastiano, University of Antwerp (manrico.sebastiano@uantwerpen.be)



A male Magnificent Frigatebird displays for its mate on Réserve Naturelle Grand Connétable. (Florent Pouzet)

Updates from the Islands

A wide range of activities involving seabirds are taking place throughout the Caribbean, including those focused on monitoring, research, conservation, and education. Below we showcase some of the inspiring and important ongoing projects on the islands.

Projects

Viking joins in on Caribbean seabird research

As the first and only cruise ship to take part in the Caribbean Seabird Census 2023-2024, Viking Octantis dedicated efforts onboard to surveying the western Caribbean Sea as she sailed from the Panama Canal to Ft. Lauderdale, FL, USA. Viking Octantis is one of two Expedition ships of the cruise company Viking that provide guests with expedition activities as well as a dedicated science lab with ongoing research and data collection in Antarctica and the Great Lakes with international partners across the globe.

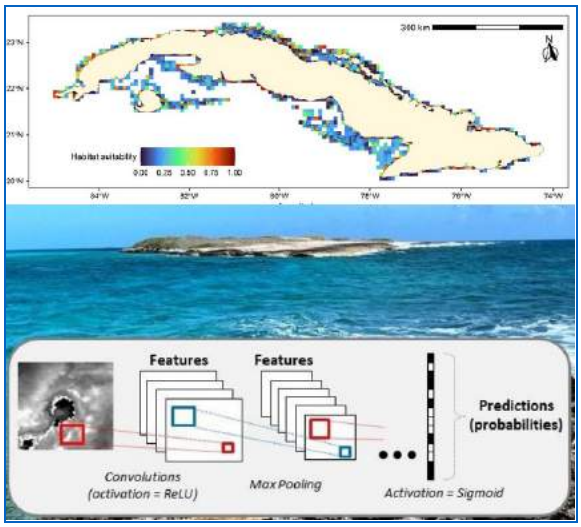
While Viking Octantis sailed from the Panama Canal to Ft. Lauderdale, our onboard Ornithology Specialist, Dr. Jeff Skevington, conducted surveys following defined protocols of 30 minute transects in the mornings and afternoons while the ship was underway. Overall, 22 surveys were completed over the course of five days (~2,500 kilometers of distance covered) and uploaded to eBird (https://ebird.org/tripreport/215093). Photos were taken when possible, and weather conditions, Beaufort scale conditions, and location of observation point of the ship were recorded within each survey.

Surveys during this transit have documented Brown (*Sula leucogaster*) and Red-footed Boobies (*S. sula*), Sooty Terns (*Onychoprion fuscatus*), Magnificent Frigatebirds (*Fregata magnificens*), Pomarine Jaegers (*Stercorarius pomarinus*), and Barn Swallows (*Hirundo rustica*), among other species.

Monitoring of the West Caribbean Sea is limited; with Viking Octantis and her sister ship, Viking Polaris, making this transit twice a year, continuous work with BirdsCaribbean can provide valuable insights into seabirds in this region.

Contact: Dr. Kimberly Galvez, Viking Octantis Chief Scientist (kim.galvez@viking.com)
Photo: Viking Octantis (cruisereport.com)

Habitat modeling of seabird breeding sites in Cuba



The way animals select their breeding habitat may have great impacts on individual fitness. This complex process depends on the integration of information on various environmental factors, over a wide range of spatiotemporal scales. For seabirds, breeding habitat selection integrates both land and sea features over several spatial scales. Seabirds explore these features prior to breeding, assessing habitat quality. However, the information gathering and decision-making process by seabirds when choosing a breeding habitat remains poorly understood.

We compiled 49 historical records of larid colonies in Cuba from 1980 to 2020. We then predicted suitable breeding sites for larids and evaluated their breeding macrohabitat selection using artificial intelligence methods and satellite imagery. We also evaluated the relative contribution of 18 land- and sea-based environmental covariates describing macrohabitats at three spatial scales (i.e., 10, 50, and 100 km).

Sites with higher habitat suitability covered 20.3% of the predicted area. Larids breeding macrohabitats were sites relatively close to main islands, with sparse vegetation cover and high chlorophyll-a concentration at 50 and 100 km around colonies. Lower sea surface temperature at larger spatial scale was critical to discriminate breeding from non-breeding sites.

Our analysis provides crucial knowledge in tropical regions that lack complete and regular monitoring of seabirds' breeding sites.

Reference: Garcia Quintas et al. 2023. *Machine and deep learning approaches to understand and predict habitat suitability for seabird breeding*. Ecology and Evolution https://doi.org/10.1002/ece3.10549

Contact: Antonio Garcia-Quintas, Centro de Investigaciones de Ecosistemas Costeros (agquintas86@gmail.com)

Image: Habitat mapping and summary of methods used in the analysis (Antonio Garcia Quintas)

Tracking Roseate Terns from Brazil to North America

In February-March 2024, the Centro de Estudos e Monitoramento Ambiental in Brazil, in partnership with Aquasis, Mass Audubon, National Audubon's Seabird Institute, and the U.S. Fish and Wildlife Service, led a study to elucidate critical aspects of the natural history of Roseate Terns (*Sterna dougallii*) during the non-breeding period.

Fifteen Roseate Terns were equipped with GPS transmitters. 30 terns also received yellow and black plastic field-readable bands with the sequences YN0 to YN9 (e.g. YN0, YN1, YN2, etc.), YP0 to YP9, and YR0 to YR9 (see photo).

Despite significant banding programs in the northeastern U.S., a considerable number of Roseate Terns wintering in Brazil are not banded and are possibly originating from Caribbean sites. Thus, any observation or recovery of Roseate Terns in the Caribbean is fundamental to understanding the migratory dynamics of these populations.

This work occurs in the context of intense efforts to reduce tern mortality in Brazil. Since 2010, injured birds, predominantly terns, have been recorded along the north coast of Brazil. Investigations revealed collisions with power lines as the primary cause, with many of these birds wearing North American leg bands. International collaborative efforts led to the implementation of mitigation measures, including marking power lines with reflective markers to reduce collisions. A genetic analysis of birds killed in the powerline collisions will help clarify if Caribbean Roseate Terns are also at risk.

If you observe banded Roseate Terns in the Caribbean, please contact Rafael Revoredo (rafael.revoredo@hotmail.com) and Joan Walsh (jwalsh@amnh.org).

Contacts: **Rafael Ângelo Revorêdo**, Centro de Estudos e Monitoramento Ambiental (rafael.revoredo@hotmail.com)

Photo: A GPS- tracked Roseate Tern wearing metal and plastic field-readable bands. (Rafael Revorêdo)

Black-capped Petrel Conservation

The International Black-capped Petrel Conservation Group continues to implement the 2021 Conservation Action Plan for the Diablotin Black-capped Petrel (*Pterodroma hasitata*). The foremost enabling strategy (building local capacity) involves assistance to partners in Hispaniola, Grupo Jaragua and Action pour la Sauvegarde de l'Ecologie en Haïti (ACSEH), who monitor 130+ nests in five locations.

Another enabling strategy is locating all breeding locations. In addition to Hispaniola, the Diablotin may persist in Cuba, Dominica and Guadeloupe, and partners are continuing to search for nesting areas. The third enabling strategy is to explore restoration methods and techniques to attract breeders or to translocate chicks to sites free from threats. Construction of artificial burrows and trialing of social attraction are steps towards a long-term restoration project for the petrel.

The Plan's remaining strategies are focused on addressing the most significant threats to petrels. On land, these are predation by introduced mammals, collision with lighted structures, and conversion of breeding habitat to agriculture. Partners have intensified predator surveillance and control, especially of mongoose and dogs. Collision threats are being mitigated by outreach on rescuing downed birds. The conversion of habitat to agriculture is being addressed with community programs in sustainable agriculture and environmental awareness.

At-sea threats to petrels include marine energy production, pollution, and collision with lighted vessels in the western North Atlantic, Caribbean Sea, and Gulf of Mexico. Advocacy for petrels in the realm of marine policy may have influenced the siting of U.S. offshore leases for energy production. The 2024 listing of the Diablotin on the U.S. list of Endangered Species also reflects successful advocacy.

The Plan and annual updates can be found online on the Black-capped Petrel Working Group's page (www.diablotin.org).

Contacts: For the Dominican Republic: Ernst Rupp, GrupoJaragua (ernst.rupp@grupojaragua.org.do); **for Haiti: Anderson Jean**, ACSEH (anderson.jean.ht@gmail.com); **for marine and research: Yvan Satgé**, Clemson University, (ysatge@clemson.edu); **for planning: Jennifer Wheeler**, BirdsCaribbean (jennifer.wheeler@birdscaribbean.org).

Photo: Wooden nest boxes were constructed and installed where Diablotin burrows had been damaged or destroyed by dogs, as well as novel locations. (Grupo Jaragua)

Caribbean Seabird Census in Guadeloupe and Martinique

Caribbean Seabird Census surveys took place in the French Antilles in November and December 2023. The Groupement d'intérêt scientifique pour les oiseaux marins (GISOM), with funding from the Office Français de la biodiversité, the DEAL de Martinique and the DREAL Guadeloupe coordinated surveys of Red-billed Tropicbirds (*Phaethon aethereus*), and searches for Brown Pelican (*Pelecanus occidentalis*) and Audubon's Shearwater (*Puffinus lherminieri*) nesting areas.

In Guadeloupe, the Association pour la Sauvegarde de la Faune des Antilles (ASFA) monitored Red-billed Tropicbirds and Brown Pelicans, notably in the Saintes archipelago. In Petit Cul-de-Sac Marin, ASFA discovered a new colony of Brown Pelicans, with almost 65 nests, on an islet that had not been occupied historically. Since the disappearance of the Le Gosier colony (induced by humans), this is the largest colony in Guadeloupe. Additionally, GISOM surveyed the island of Marie Galante, confirming the presence of Audubon's Shearwater (calls heard). Using thermal binoculars Frantz Duzon also surveyed Audubon's Shearwaters, though the species has yet to be confirmed nesting in Guadeloupe. The Office National des Forêts also carried out tropicbird surveys on the cliffs of the Réserve Biologique.

In Martinique, Marine Park staff searched for Red-billed Tropicbirds from the sea, particularly around Rocher du Diamant. This is the most important breeding site for the species in Martinique. New nesting sites have been detected. In the Îlets de Saint Anne, Martinique Regional Park rangers deployed acoustic recorders and camera traps in shearwater caves to gain a better understanding of the species' phenology. We hope to give you the results in the next newsletter.

Last News: First breeding success for the Brown Pelican in Martinique!
Daniel Pinelli and Thomas Zebst (Biotope) discovered three Brown Pelican nests with at least four chicks during fieldwork on White-Tailed Tropicbirds (*Phaethon lepturus)*. Although a nest with two eggs was discovered in 2021 on another site (but which had been abandoned), this is the first evidence of successful nesting in Martinique.

Contact: Antoine Chabrolle, Groupement d'intérêt scientifique pour les oiseaux marins (antoine.chabrolle@mnhn.fr)
Photo: Multiple surveys took place in Martinique and Guadeloupe. (Antoine Chabrolle)

Coastal bird monitoring and management of a new threat on Cabo Rojo NWR, Puerto Rico

The Cabo Rojo National Wildlife Refuge, Salt Flats unit, is located in the southwest corner of Puerto Rico. It is an important stopover site for shorebirds in the Caribbean and a breeding site for the Least Terns (*Sternula antillarum*). Dedicated efforts to monitor nesting populations started with Luis Ramos conducting his Master's thesis research on the Refuge's Salt Flats during 2021-2022.

Red-tailed Boas (*Boa constrictor*) were found on the nesting site. The first record of Least Tern predation by the boa was also confirmed, with feathers of a juvenile tern identified in a boa's stomach. As a result, the boa population is currently being controlled at Salt Flats.

In 2023, a Coastal Bird Breeding Monitoring Program was developed to monitor Least Terns and other ground nesting shorebirds during the breeding season. With the support of volunteers, all nests were marked, nesting habitat was characterized, and threats were documented. An outreach campaign was also developed and for the first time the nesting area was closed to the public to protect the birds during the breeding season.

A total of 206 nests of Least Terns were documented. However, almost half of the nests were lost to predation by other invasive species and by heavy rains/high tide flooding of the nesting area. Least Terns are arriving this year again and the Refuge is starting another year of monitoring of the nesting population with stronger closure measures implemented to protect migratory seabirds. We also installed an elevated platform with a social attraction sound system and decoys as an alternative nesting area for Least Terns. Our purpose is to provide a safe area where Least Terns and other migratory seabirds can nest.

Contact: Nahira Arocho, U.S. Fish and Wildlife Service (nahira_arocho@fws.gov)

Photo: Refuge personnel add the finishing touches to the Least Tern floating platform. (Nahira Arocho)

Seabird monitoring program at Culebra National Wildlife Refuge, Puerto Rico

During the last eight years, Effective Environmental Restoration has been collaborating with the Culebra National Wildlife Refuge to monitor breeding seabirds on the northwestern tip of Culebra, Puerto Rico and 13 surrounding cays. Surveys were done by foot on 11 cays, and by boat on two inaccessible cays. This effort confirmed that 11 species of migratory and resident seabirds used the Culebra National Wildlife Refuge areas for nesting. We determined species abundance in each colony via direct counts or estimates of the numbers of pairs, nests, and/or individuals.

In various cays, we found signs of predator activities targeting Sooty (*Onychoprion fuscatus*) , Bridled (*O. anaethetus*), and Sandwich Terns (*Thalasseus sandvicensis*). Notably, during our 2023 visits to the Flamenco Peninsula colony, we observed more than 65 dead Sooty Terns. Predator monitoring projects conducted in the past using trail cameras demonstrated the presence of cats, dogs, deer, and rats at that site. Other signs suggested predation by a Red-tailed Hawk (*Buteo jamaicensis*).

In general, this study showed that the total abundance of Sooty Tern nests has been declining on Culebra NWR for the last eight years.

This project was made possible through funding from the U.S. Fish & Wildlife Service, Caribbean National Wildlife Refuge.

Contact: Eduardo Ventosa-Febles, Effective Environmental Restoration (eerestoration@gmail.com)

Photo: Survey of a colony of Sooty tern on Flamenco Peninsula. (Eduardo Ventosa)

Brown Pelican monitoring and research in western Puerto Rico

Since 2020, undergraduate students led by Adrianne Tossas have been monitoring the Brown Pelican (*Pelecanus occidentalis*) nesting colony in the bay of Aguadilla, northwestern Puerto Rico. A third breeding season was monitored from September 2023 to March 2024. The number of individuals recorded in biweekly surveys increased to 158 by mid-October 2023, compared to a maximum of 75 observed in previous counts (2020-2022). The nests were built on top of tall trees on a steep cliff bordering the seashore. We were able to follow 20 nests throughout the season, with about 10 additional nests located in the northern extreme of the cliff. Ninety-five percent of the nests were successful, producing a total of at least 31 fledglings. We observed high fluctuations found through the year and suggest that they are related to dispersal after nesting attempts. Only 10 to 50 individuals are usually found in the bay during non-breeding months.

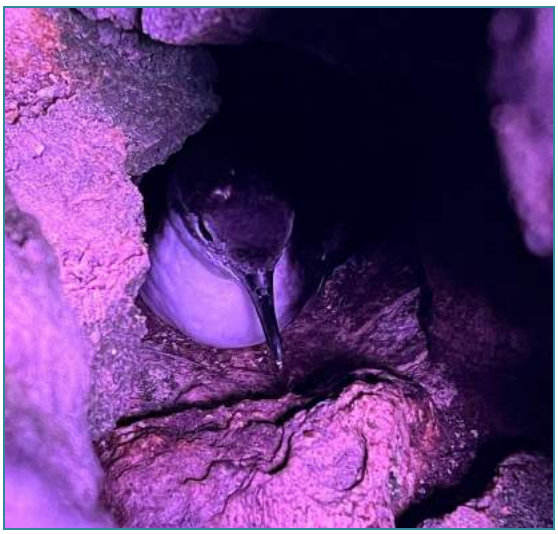
From March 11 to 15, 2024, Yvan Satgé (Clemson University) and Rhiannon Austin (Liverpool University) visited the pelican nesting colony in Aguadilla to provide training for the initiation of a tracking study. Luis Ramos and Nahíra Arocho (U.S Fish and Wildlife Service), and Alcides Morales (Para La Naturaleza) also joined this training opportunity. Participants learned about different equipment used to track seabirds, their correct deployment, how to safely band pelicans as well as take morphometric data, including mass, tarsus, wing, and culmen measurements. With great help from Crash Boat Experiences, we trapped 12 adult and juvenile pelicans, which we banded with metal and green plastic field-readable bands, and tagged with GPS loggers.

This trip was coordinated as a collaboration with the Brown Pelican project of Patrick Jodice, U.S. Geological Survey South Carolina Cooperative Fish & Wildlife Research Unit, at Clemson University.

This project was authorized by the Puerto Rico Department of Natural and Environmental Resources under permit # 2024-IC-015.

Contact: Adrianne Tossas, BirdsCaribbean (Adrianne.tossas@birdscaribbean.org)
Photo: A newly color-banded Brown Pelican sits on a boat. (Adrianne Tossas)

Involving communities to protect seabirds of the Venezuelan Caribbean



The NGO AveZona assessed the size of the populations of seabirds breeding in Los Roques Archipelago National Park, an area threatened by human activity. With the support of a Betty Petterson grant from BirdsCaribbean (2023-2024), locals were involved and an exhaustive census of the colonies of *Sula sula*, *S. leucogaster* and *Puffinus lherminieri* present in some keys of the Los Roques Archipelago took place. AveZona participated in the Caribbean Seabird Census 2023-2024 by surveying Tortuga and Margarita islands in the Roques Archipelago.

AveZona also created outreach materials for the identification of Venezuela's seabirds and created additional materials to involve communities in the conservation of natural coastal marine areas.

AveZona alerts that seabird breeding colonies in Los Roques Archipelago could be threatened by uncontrolled tourism growth promoted by the national and territorial governments, such as the expansion of the airstrip on Gran Roque, which is expected to have a great impact on adjacent bird populations, and the construction of tourist accommodation in areas not stipulated in the National Park's Management Plan and Use Regulations. Although numerous environmental and scientific organizations have expressed their concern about the actions that are deteriorating the ecosystem in the National Park, so far they have not received a response from the government authorities responsible for protecting the area.

AveZona's actions are focused on observation and data collection in collaboration with local inhabitants, with the objective of presenting results and fostering change from the community. We recognize that we lack the resources and political influence to foster positive change for the benefit of the archipelago. However, we hope that our outreach and community engagement can raise awareness among local people about the importance of the biological diversity present in the archipelago.

Contact: Josmar Marquez, AveZona (contactoavezona@gmail.com)
Photo: *Puffinus lherminieri* observed during the July 2023 census. (Daniel Serva)

Seabird monitoring and research activities in the Turks and Caicos Islands

This season marks the third year of nation-wide seabird surveys in the Turks and Caicos Islands, funded by the UK Government's Darwin Plus scheme, The collaborative team, led by the University of Liverpool, UK, includes the Turks and Caicos National Trust, Turks and Caicos Reef Fund, RSPB, Birdlife International and SAERI Falklands Ltd, with additional collaboration from the TCI Government's Department of Environment and Coastal Resources (DECR), and the School of Field Studies.

After extensive efforts, population data are now available for all 15 resident seabird species. During the past year, over 41 individuals have been involved in the effort, and 84 visual surveys comprising ~524 hours of team time were undertaken across 50 sites on the cays and islands of the Caicos and Turks Banks. This equates to 169 surveys and 1169 hours of team efforts since the project began! In addition to visual surveys (via foot, boat or kayak), drones were used across 22 sites over two years to collect imagery data that are used to automatically estimate the abundance of breeding seabirds. Acoustic monitoring methods have also been developed and applied to collect population estimates of the elusive Audubon Shearwater (*Puffinus lherminieri*), which nests within inaccessible caves and crevices in the limestone bedrock on a number of cays.

The end goal of this ongoing massive effort is to provide up-to-date information that will support the implementation of appropriate management for seabirds and their habitats across TCI. Project staff are working hard to process and analyze the wealth of data that have been generated since 2022. This includes undertaking threat assessments, validating the various methods used to gain population estimates, providing guidance for long-term monitoring programmes, and making recommendations for site and species management plans. As part of this work, the project team are collaborating with Birdlife International to undertake an update of the Important Bird and Biodiversity Area (IBA) network across the TCIs, and are identifying sites with seabird populations that justify designation as Key Biodiversity Areas (KBAs). By identifying a network of high priority areas for protection, as well as suitable actions to apply within them, we aim to improve conservation of seabirds and their breeding sites in this Caribbean archipelago.

Contact: Rhiannon Austin, University of Liverpool (r.e.austin@liverpool.ac.uk)

Photo: Seabird surveys are taking place at all hours of the day in the Turks and Caicos Islands. (Rhiannon Austin)

Beach Birds project on iNaturalist

It is now possible to report dead beached birds in iNaturalist's Beach Birds project. Since December 2021, over 5,000 documented observations are helping researchers to understand the spread of diseases in wild bird populations (particularly seabirds).

In 2022, bird flu, or highly pathogenic strain of avian influenza (HPAI), was responsible for the death of millions of wild birds globally, including the continental Caribbean. Seabirds and waterfowl were heavily impacted. Avian influenza is still on the landscape and although fewer birds are being reported as dead this year so far, collecting information on dead birds remains very important because it helps inform emergency responses.

Reporting sightings of dead birds in iNaturalist's Beached Bird project can contribute to a better understanding of the scope and scale of mortality events. The iNaturalists Beached Bird project serves as a central location for records of mortality in seabirds and waterbirds as recognized by the Community Science & Marine Bird Health working group of the Atlantic Marine Bird Cooperative. All mortalities of marine and coastal birds in the Western Hemisphere are welcomed.

However, please note the following: Observation reports need to be recorded appropriately so that the spatiotemporal trends in waterbird mortality can be documented. Your observation will **only** be captured in iNaturalist projects **if** observations are annotated as 'dead'. Unfortunately, this cannot be done in the phone app currently (though we are working with iNaturalists developers to fix this). To annotate an observation, open iNaturalist.org in a web browser and go to your observation's page. Under the 'Annotations' section, there will be a dropdown menu for 'Alive or Dead'. Complete instructions can be found here: https://atlanticmarinebirds.org/downloads/iNat_How_to_report_dead_birds_properly_english_CAN_USA_Nov2023.pdf

Recent publication: Taylor et al. 2024. *Strengths and limitations of using participatory science data to characterize a wildlife mass mortality event*. bioRxiv. doi.org/10.1101/2024.05.02.592273

Contact: Stephanie Avery-Gomm, Environment and Climate Change Canada (Stephanie.Avery-Gomm@ec.gc.ca)

Image: Screenshot of iNaturalist's Beach Birds project showing the observation map.

In the region, and elsewhere

- Hannah Madden published a *Species Action Plan for the Red-billed Tropicbird in the* ***Dutch Caribbean***. The Action Plan contains background information about the species, as well as information about its ecology, threats, and conservation status. A proposed Management Plan outlines conservation goals, management options, stakeholders, priority actions, as well as recommended species- and habitat-specific management actions. The Action Plan is available at https://www.researchgate.net/publication/374948220_Red-billed_Tropicbird_*Phaethon_aethereus_mesonauta*_in_the_Dutch_Caribbean_Species_Action_Plan. **Contact: Hannah Madden** (hannah.madden.ecopro@gmail.com).

- Environmental Protection in the Caribbean (EPIC) recently concluded monitoring of Brown Pelicans on **Sint Maarten**. The resulting *Manual for Habitat and Population Management* and *Technical Report: An Investigation of the State of Sint Maarten's Brown Pelican Population for Improved Management of the Species and Its Habitat* can be found at this link: https://epicislands.org/where-we-work/projects/brown-pelican-population-assessment-for-management/. **Contact: Natalia Collier**, EPIC (ncollier@epicislands.org).

- Seabird conservationists in the **Turks and Caicos Islands** produced two mini films about local seabirds: *Monitoring & Conservation actions for seabirds of the Turks and Caicos Islands* and *Seabirds of the Turks and Caicos Islands: The Audubon's Shearwater*. These films document the monitoring and research efforts that are being undertaken on the archipelago, under an ongoing Darwin Plus project. **Contact: Rhiannon Austin**, University of Liverpool (r.e.austin@liverpool.ac.uk).

- The Deepwater Horizon Open Ocean Trustee Implementation Group has funded three seabird restoration projects in the Caribbean. These projects will help Caribbean seabird species impacted by the Deepwater Horizon spill that occurred in the northern Gulf of Mexico in 2010 to recover.
  - Predator removal and seabird nesting colony restoration at **Mona Island, Puerto Rico** (pdf)
  - Seabird nesting colony reestablishment and protection at **Desecheo National Wildlife Refuge, Puerto Rico** (pdf)
  - Invasive goat removal to restore seabird nesting habitat in **St. Vincent and the Grenadines** (pdf)

- The Pacific Seabird Group and Waterbird Society are jointly organizing their annual conference in San Jose, Costa Rica, from 6-9 January 2025: https://psg.wildapricot.org/annual-meeting

- The World Seabird Union (of which BirdsCaribbean is a member organization) is organizing the 4th World Seabird Conference in Hobart, Australia from 7-10 September 2026: worldseabirdunion.org

We missed your seabird project? We want to hear about it!
Please send updates through this form: https://forms.gle/p2X9xj8WUMd5xDA1A

BirdsCaribbean 24th International Conference

BirdsCaribbean is organizing its 24th International Conference in Santo Domingo, Dominican Republic, with the help of local organizer Grupo Jaragua. From 18 –22 July, attendees will showcase their conservation projects and discuss the conference's theme *From Mangroves to Mountains—Safeguarding our Avian Treasures*. This theme celebrates the incredible variety of habitats and endemic birds found in Hispaniola. For more information, visit https://sites.google.com/view/birdscaribbeanconference2024.

The Seabird Working Group is organizing a symposium on challenges and opportunities for Caribbean seabird conservation, research, and monitoring in a changing world. From Black-capped Petrels (*Pterodroma hasitata*) digging their burrows in the highest Caribbean mountains, to Brown Pelicans (*Pelecanus occidentalis*) building nests in mangroves across the region, Caribbean seabirds perhaps best embody the theme of this year's conference. During this symposium and its associated round table, we will discuss how conservation, research, and monitoring can help safeguard our Caribbean seabirds. As a preview of the symposium, we share the abstracts that were selected for the upcoming conference.

Favián Acevedo Caro et al. *Status and reproduction of a Caribbean Brown Pelican subpopulation in northwestern Puerto Rico.* Since 2019 we have been assessing the population status of the Caribbean Brown Pelican (*P. o. occidentalis*) on the coast of Aguadilla, northwestern Puerto Rico. We counted up to 158 individuals in 74 biweekly surveys. In October 2021, we found an active breeding colony with 53 nests on a steep cliff bordering the seashore. In 2022, hurricane Fiona decreased reproductive success overall, suggesting the need of long-term monitoring to understand fluctuations through time. [*Poster presentation*]

Flavia Alvarez Denis et al. *Phenology of vocalizations of* Pterodroma hasitata *in La Bruja, Santiago de Cuba*. The Black-capped Petrel (*Pterodroma hasitata*) is the only species of this genus that nests in the Caribbean region. In Cuba, the first known report was made in 1977 in La Bruja cove, on the southern coast of the Sierra Maestra. The aim of the study was to confirm the presence of *P. hasitata* in this locality and determine the phenology of nocturnal vocalizations. We made 656 detections through vocalizations in approximately 72 hours of sampling. The period with the highest number of detections was between 00:01 and 1:00. [*Oral presentation*]

Julio Araujo et al. *Monitoring populations of boobies and terns in Cayo Tuna, Montecrisiti, Dominican Republic*. The Cayos Siete Hermanos Wildlife Refuge, Montecristi, Dominican Republic, is a breeding ground for boobies and terns. Monitoring began in 2005, with a frequency of three visits a year between April, June and August, in four plots, through direct counts of eggs and chicks. The most abundant species, *Onychoprion fuscatus* and *O. anaethetus*, averaged 11,542 individuals together, followed by *Anous stolidus* (4,193). *Sternula antillarum* nested in the key only in four seasons with an average of 167 pairs. Starting in 2011, the presence of *Thalasseus sandvicensis* was recorded. [*Oral presentation*]

Angel Arias-Barreto et al. *Monitoring of seabird nesting colonies in Los Caimanes national park, 2020-2023, Cuba*. Since 2006, seabird colonies have been recorded within Los Caimanes National Park, Villa Clara province, Cuba. Between 2020-2023, we confirmed nesting activity for seven seabird species, mainly *Leucophaeus atricilla* (1,203 nests), followed by *Onychoprion anaethetus* (398) and *Thalasseus maximus* (388). *Sterna dougallii* was recorded for the first time in 2023. Species composition and population sizes varied among years, with lowest numbers in 2023, a decrease also observed in other nesting colonies in the area. [*Oral presentation*]

Nahíra Arocho-Hernández et al. *Seabird restoration project on Desecheo Island National Wildlife Refuge*. In 2010, the U.S. Fish and Wildlife Service and local partners began a seabird restoration project on Desecheo National Wildlife Refuge, in the northwest coast of Puerto Rico. After a successful eradication, the island was declared rat-free in 2017. A seabird social attraction project was started using different methods complemented by an ongoing biosecurity program. Breeding activity was confirmed for Bridled Tern (*Onychoprion anaethetus*), Brown Noddy (*Anous stolidus*), and Audubon's Shearwater (*Puffinus lherminieri*). [*Oral presentation*]

Rhiannon Austin et al. *Validating methods for population estimation of scrub-nesting and crevice-dwelling seabirds in the Turks and Caicos Islands*. Between 2022 and 2024, >40 sites in the Turks and Caicos Islands were surveyed to develop population monitoring programmes for 15 resident seabird species. Vessel, ground, aerial and acoustic surveys were undertaken, and repeatable methodologies were developed to gain estimates that account for varying breeding behaviors and habitats. We present initial results of this extensive collaborative effort relevant to seabird monitoring efforts elsewhere in the Caribbean. [*Oral presentation*]

Lucas Bernier et al. *Filling the gap: seabird monitoring on the Beata Ridge*. In February 2024, a three-week-long megafauna expedition was conducted in the Beata Ridge area, in waters of the Caribbean Sea south of the Dominican Republic. A total of 15 bird species were identified, comprising both resident and migratory species, thereby establishing a baseline for seasonal presence. Of particular significance, the expedition yielded 80 confirmed sightings of the endemic and endangered Black-capped Petrel (*Pterodroma hasitata*), totaling 101 individuals. Beata Ridge likely represents an important feeding area for this species. [*Oral presentation*]

Andrew Dobson and Jeremy Madeiros. *Conservation of Bermuda's seabirds – Measures to assist future breeding success.* Bermuda's seabird species (Bermuda Petrel *Pterodroma cahow,* White-tailed Tropicbird *Phaethon lepturus*, and Common Tern S*terna hirundo*) have suffered a serious decline in populations since human settlement in the early 1600's. Hurricanes since 2000 have had a significant effect on cliff nest sites. However, measures were already underway to mitigate the effect of such storms and increase breeding success. Active management has been put into place to improve breeding success. [*Poster presentation*]

Juliana Coffey et al. *Foraging ranges of nesting adult Red-footed Boobies in St. Vincent and the Grenadines*. In 2012, St. Vincent and the Grenadines was highlighted as the most important nation in the Lesser Antilles for nesting seabirds – yet these populations remain amongst the least studied and most threatened. In 2023, we tracked nesting adult Red-footed Boobies (*Sula sula*) from a globally important colony, Battowia Island Important Bird Area. We present preliminary results of Red-footed Booby foraging ranges from 17 individuals. [*Oral presentation*]

Antonio Garcia-Quintas et al. *Trophic niche plasticity and mercury concentrations in tropical breeding Laridae from Cuba*. Using chicks' down and feathers, we used the isotopic niche (δ15N and δ13C) of five Laridae species in two Cuban breeding areas to infer the plasticity and overlap of the trophic niches. Bridled (*Onychoprion anaethetus*) and Roseate Terns (*Sterna dougallii*) showed small and stable isotopic niches, unlike Laughing Gull (*Leucophaeus atricilla*), Royal (*Thalasseus maximus*) and Sandwich (*T. sandvicensis*) Terns which had large and variable isotopic niches. We found high mercury loads in most species. [*Oral presentation*]

Ernesto Hernández Pérez. *Breeding colonies of Charadriiformes seabirds in the Refugio de Fauna Lanzanillo–Pajonal-Fragoso, 2005–2023*. For 19 years, we censused nests in the Lanzanillo-Pajonal-Fragoso Wildlife Refuge, one of the main seabird nesting sites of the Sabana-Camagüey Archipelago, Cuba. We recorded four breeding species: *Sterna dougallii*, *Thalasseus sandvicensis*, *Onychoprion anaethetus* and *Sternula antillarum*. In 2008, we recorded more than 450 nests, and fewer than 50 in 2011. [*Oral presentation*]

Clarissa Lloyd. *Seabird populations on Anguilla's offshore cays post-restoration interventions.* In 2012, the Anguilla National Trust started restoring the biodiversity of Anguilla's offshore islands. Comprehensive seabird populations across all offshore islands were conducted in 2012 and 2022, with additional surveys taking place on select islands in 2015, 2016, 2019 and 2021. Over time, seabird populations have continued to fluctuate, suggesting that other factors beyond invasive species are impacting population recovery. [*Oral presentation*]

Shivam Mahadeo et al. *Temporal and spatial activity of four seabird species on Tobago, Little Tobago, and St Giles Island.* This study investigates abundance and activity changes of four species—Magnificent Frigatebird (*Fregata magnificens*), Red-billed Tropicbird (*Phaethon aethereus*), Brown Booby (*Sula leucogaster*), and Red-footed Booby (*S. sula*) —in Tobago, Trinidad and Tobago. Available data indicate increasing populations of Brown Boobies and Magnificent Frigatebirds, contrasting with declining, Red-billed Tropicbird populations in Tobago. Red-footed Booby showed fluctuating trends, peaking notably in 2015 and 2019. [*Poster presentation*]

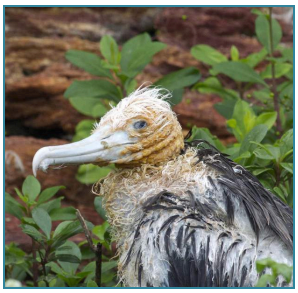
Adrián Naveda-Rodríguez et al. *Assessing the population status of the Brown Booby (*Sula leucogaster*) and Red-footed Booby (*S. sula*) at Los Roques archipelago, Venezuela*. Los Roques Archipelago National Park is one of the 76 Important Bird Areas of the Venezuelan Caribbean. To better understand the current status of Brown Booby (*Sula leucogaster*) and Red-footed Booby (*Sula sula*) at Los Roques, we surveyed the nesting population in four localities in January 2020, June and September 2021, January 2022, and July 2023. Brown Booby abundance decreased from 710 individuals in 2020 to 302 in 2023, whereas Red-footed Booby abundance decreased from 550 in 2020 to 377 in 2022. [*Oral presentation*]

Jonathan Nochebuena and Marisol Gaytán. *Reinforcement of the program "Let's help the Bridled Tern return home" in Isla Contoy national park, Quintana Roo, Mexico.* The Bridled Tern(*Onychoprion anaethetus*) breeds on Isla Contoy, a small island in the Mexican Caribbean. In 2019, we started the programme *¡Ayudemos al charrán embridado a regresar a casa!* to help protect and conserve its nesting grounds. In 2023, we implemented a banding program to assess the movements of Bridled Terns in and out of their nesting areas, and confirm site fidelity. [*Oral*]

Luis Ramos-Vázquez et al. *Breeding biology and diet of least terns (*Sternula antillarum*) in southwest Puerto Rico: new insights on conservation needs.* We investigated the breeding success and diet of Least Tern (*Sternula antillarum*) chicks from 222 nests across two colonies in southwest Puerto Rico from 2021 to 2022. We documented human disturbance and flooding, and discovered threats of predation by Yellow-crowned Night-Herons (*Nyctanassa violacea*) and Red-tailed Boas (*Boa constrictor*). Diet analysis of 36 fecal samples showed that chicks mainly consume scaled sardines (*Harengula jaguana*) and silversides (*Atheriniformes sp*.). [*Poster presentation*]

Jemimah Rivera and Sabino Silva. *New records for the avifauna of Los Frailes archipelago, Venezuela.* Los Frailes archipelago is a group of 10 islands in the Venezuelan Caribbean Sea used as feeding, stopping, and nesting areas. Field trips were made on January 28, 29, and August 17, 2022, with boat tours around the islands and islets, and walks on Puerto Real Island. A total of 24 species of birds were found: 6 aquatic and 18 terrestrial. *Sula leucogaster*, *S. dactylatra* and *Pelecanus occidentalis* were observed nesting. [*Oral presentation*]

Yvan Satgé et al. *Foraging areas and diet link to high mercury levels in the endangered Diablotin Black-capped Petrel.* We measured high concentrations of total mercury in feathers of Diablotin (Black-capped Petrel *Pterodroma hasitata*), an endangered pelagic seabird endemic to the Caribbean. We also showed that fish dominated the species' diet, including mesopelagic groups, and fishes targeted by Caribbean fisheries. These results confirm that Diablotin is highly exposed to mercury through its mesopelagic diet. [*Oral presentation*]



Manrico Sebastiano et al. *Disease occurrence in a seabird species widely distributed between Central and South America*. Over the past 10 years, we have been working on a population of Magnificent Frigatebirds (*Fregata magnificens*) in French Guiana, whose chicks suffer massive mortality episodes (up to 90%) that occur annually. We investigated whether mercury exposure and/or food scarcity may determine the recurrent disease outbreaks. We also show how adult birds are suspected to be infected by the virus, and the first evidence that the virus might be spreading to other colonies. [*Poster presentation*]

Daniel Serva et al. *Is Los Roques archipelago a safe place for seabirds in the Venezuelan insular Caribbean?* We conducted a study to determine the size of seabird breeding populations in Los Roques Archipelago National Park, which is threatened by human activity. The unruly construction of new hotels, the presence of uncontrolled domestic species, the expansion of the runway of the Gran Roque airport and the lack of interest from governmental entities, make this important enclave for Caribbean seabirds increasingly vulnerable. Nevertheless, locals are monitoring colonies of *Sula sula*, *S. leucogaster* and *Puffinus lherminieri*. [*Poster presentation*]

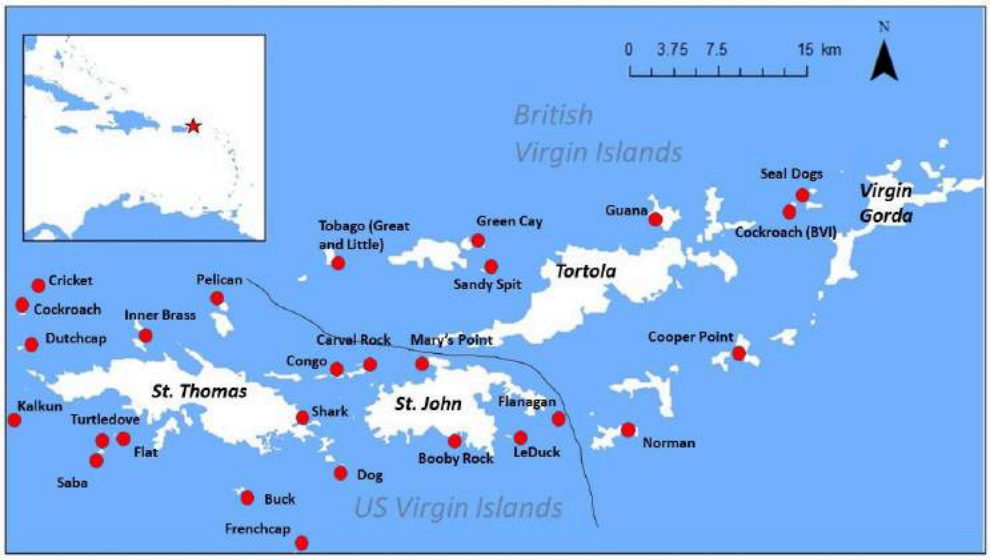
Chang-Hong Tsao et al. *Estimating population size of nesting seabirds in Half Moon Caye, Belize using aerial approach.* The unique littoral forest of Half Moon Caye is home to the only nesting colony of Red-footed Booby (*Sula sula*) that can be found in Belize. Our study compared ground and aerial approaches to determine the effectiveness and accuracy of counts for Red-footed Booby and Magnificent Frigatebird (*Fregata magnificens*). We observed that conducting nesting seabird census using a drone and proper correction factor provided a better population estimate. [*Oral presentation*]

Highlighted Research: Trends of breeding seabirds in the Virgin Islands

Recent research finds widespread declines in the number of seabirds nesting in the British and U.S. Virgin Islands.

In wildlife conservation, deciding which species need protection is critical for making sure that resources go where they are most needed. Ideally, we make these decisions based on long-term monitoring data, consisting of population counts, because they can show trends and tell us the rate of species' declines. Unfortunately, this information is lacking for many regions. This is a common issue in seabird research, as monitoring efforts can be limited due to the logistical difficulties in accessing seabird nesting islands.

The collaborators of this study are all biologists who focus on seabirds, and this issue is what led us to write this paper. It was apparent to us that seabirds are declining in the Virgin Islands (VI), but it was difficult to communicate that message due to the lack of actual data. Our paper was born out of a goal of updating the statuses of seven seabird species in the VI by combining three years of modern surveys with published data from other sources.



The study's footprint in the U.S. and British Virgin Islands, with locations of important seabird nesting islands.

The Caribbean is a unique place to work, and every region has its specific traits that can make seabird monitoring challenging. In the VI, it's size. The VI is a small region, but it has over 57 small islands and cays that may host breeding seabirds. Some seabirds use the same colony sites every year, but others, like the Roseate Tern (*Sterna dougallii*), switch colony sites annually. This means that the first step of annual seabird surveys is to find the birds! We check every possible nesting island in both territories to make sure we aren't missing any colonies, which would lead to undercounting. The US and British VI manage resources separately, so these surveys need to be conducted separately for each territory.

For most species, we count seabirds by counting the number of nests, since each nest represents a breeding pair. For these counts, we have to swim out to the islands with all our gear in coolers, because we can't dock the boat on the tiny, rocky islands. Nests can be difficult to find, and counts have to be conducted early and quickly so that we cause minimal stress to the colony. Because some species in the region breed year-round, these surveys need to be conducted in both the summer and winter breeding seasons. All this to highlight how difficult conducting these annual counts can be, and why it takes so much effort for researchers in the VI to collect these data.

Researcher Paige Byerly counts Brown Booby nests on Kalkun Island, USVI. (Chris Pavlik)

In our paper, we show evidence for declines in all seven species since 2000, with stronger declines for boobies and pelicans than for terns. Although the most recent published data describes Red-footed Boobies (*Sula sula*) breeding in the region, we found that this species is no longer present in the VI. Masked Boobies (*S. dactylatra*) are almost gone from the region, and both Brown Boobies (*S. leucogaster*) and Brown Pelicans (*Pelecanus occidentalis*) have significantly declined.

Seabirds are important indicators of habitat marine habitat quality because they depend so heavily on healthy oceans for their survival. We don't quite know why seabirds in the VI are declining, but the best evidence suggests that it's because the marine environment in the region has become degraded due to development, overfishing, and climate change. These changes have likely led the prey that seabirds depend on to also decline. Seabirds feed their chicks small fish, squid, and other marine organisms for food, and when these types of prey are not available, their chicks can starve. These fish are a critical foundation of the food web in nearshore ecosystems and seabirds are not the only organisms that depend on them. But by continuing to monitor seabirds in the VI, we can aid in evaluating the greater health of the marine environment. It's our hope that our research will show that better monitoring and conservation of marine prey species is needed for effective conservation of marine biodiversity both above and below the surface.

Reference: Current status and 21st century population trends of breeding seabirds in the U.S. and British Virgin Islands (2023) Paige Byerly and others. *Journal of Caribbean Ornithology* 36:126–134

Contact: Paige Byerly, Senckenberg Institute of Biodiversity (byerlyp@si.edu)

Journal of Caribbean Ornithology: Your venue to publish Caribbean seabird research

Stefan Gleissberg, Managing Editor, presents the Journal of Caribbean Ornithology, a fully open-access resource to publish and access scientific articles and reports.

The Journal of Caribbean Ornithology (JCO) is a prime outlet for peer-reviewed ornithological and conservation work from the Caribbean. JCO grew out of a newsletter ("El Pitirre" in 1988) and has evolved into a full-fledged scientific journal, now in its 37th year of continuous publication.

JCO is fully open-access, and articles now receive a DOI (Digital Object Identifier), making it easy to find and download the PDFs of articles. Manuscripts are accepted in English, Spanish, and French, and all articles contain professionally translated abstracts. JCO's publication fees remain low (and can be waived where needed) thanks to continued sponsoring of our operations by BirdsCaribbean.

JCO and its publisher BirdsCaribbean are enthusiastic about building capacity in the Caribbean. We particularly encourage early-career researchers and conservationists, who may not have access to the resources of an academic department at a university, to consider publishing their results with us. JCO's approach is to pair rigorous external peer-review by experts in the field with comprehensive assistance in the development of manuscripts. From submission to publication, authors receive personalized guidance throughout peer review, revision, copyediting, and production stages, ensuring that your work will attain the highest-possible quality when published!

JCO publishes not only full research articles, but also short observational research notes, as well as other formats (reviews, perspectives & opinions, book reviews, etc.). Conservation reports are a great way to portray multi-year local projects and initiatives. Regardless of format, all submissions are subject to review by expert reviewers. A good way to start envisioning your next publication with JCO is to browse the comprehensive archive.

JCO will offer a workshop at BirdsCaribbean's 24th International Conference in Santo Domingo: *How to publish your research and conservation reports*. This will be a great opportunity to connect with our editorial team and get a sense of the publication process at JCO. Whether you present an oral paper or a poster, get in touch with JCO editors and BirdsCaribbean mentors to discuss the design of a manuscript even while you are collecting data. We hope to meet you at the conference, and are excited to hear about your ongoing or planned project!

Contact: Stefan Gleissberg (stefan.gleissberg@birdscaribbean.org)

Recent Seabird Publications and Resources

Below is a list of recent publications and resources on Caribbean seabirds, and on themes of interest to the Caribbean community of seabird enthusiasts. Most publications are free to access but, if that is not the case, we encourage asking the authors directly for a copy: authors are usually very keen to share their research.

Seabird nutrient subsidies enrich mangrove ecosystems and are exported to nearby coastal habitats (2024) Jennifer Appoo, Nancy Bunbury, Sébastien Jaquemet, et al. *Iscience 27(4)*. The authors assessed the contribution, uptake, cycling, and transfer of nutrients from seabird colonies in remote Indian Ocean mangrove systems free of human stressors. They found that nutrients from seabird guano can be substantial, improving the nutrient status and health of mangroves and adjacent coastal habitats.

Seasonal patterns of Least Tern distribution along the Atlantic Coasts of North, Central, and South America (2023) Jonathan Atwood. *Waterbirds 46(1):85-90*. The author describes seasonal changes in the distribution of Least Terns (*Sternula antillarum*) along the Atlantic and Caribbean coasts based on banding recoveries and data submitted to eBird and WikiAves. Most of the limited band recoveries obtained south of the U.S. are of birds killed during hunting activities. Banding at South and Central American, and Caribbean nesting sites, and efforts during October–April to locate and identify marked birds, are necessary to develop a full life cycle conservation strategy for this species.

Freshwater parasites as potential barriers to seabird dispersal: Evidence from vagrant booby specimens in western North America (2023) Matthew Baumann, Sara Brant, Selina Bauernfeind, et al. *The Wilson Journal of Ornithology 135(3):327-344*. Inland vagrancy and overland dispersal by seabirds are rare phenomena with poorly understood causes and consequences. The authors describe two new specimens of *Sula leucogaster*, found inland nearly halfway between Pacific and Caribbean colonies. Using mitochondrial DNA, they located their origin in the Caribbean. Based on parasite fauna, the authors suggest that susceptibility to freshwater parasites may cause boobies to fail overland dispersal, thus explaining relative rarity of transcontinental dispersals.

Current status and 21st century population trends of breeding seabirds in the U.S. and British Virgin Islands (2023) Paige Byerly, Susan Zaluski, Daniel Nellis, et al. *Journal of Caribbean Ornithology 36:126-134*. In the Virgin Islands, seabird declines have been noted across species groups, but few estimates of temporal trends exist. The authors compared estimated population sizes from two time points in the early 21st century to more rigorous count data collected in 2016–2018 for seven seabird species. They found widespread declines, with the magnitude of declines greater for resident species than for migratory species. They also found that Red-footed Boobies (*Sula sula*) were extirpated from the region.

Quantifying annual spatial consistency in chick-rearing seabirds to inform important site identification (2023) Martin Beal, Paulo Catry, Richard A. Phillips, et al. *Biological Conservation 281:109994*. Using GPS-tracking data from 23 seabird species (including *Sula* species from the Caribbean), the authors assessed the importance of multi-year sampling for identifying important conservation sites during the chick-rearing period. They found a high degree of spatial overlap among distributions from different years in

most species. A key consideration for identifying important sites from tracking data is whether enough individuals were tracked during the sampling period, rather than that tracking during multiple years.

Seabirds boost coral reef resilience (2023) Cassandra Benkwitt, Cecilia D'Angelo, Ruth Dunn, et al. *Science Advances 9:eadj0390*. The authors assess how nutrients provided by nesting seabirds can influence coral reef recovery following an extreme marine heatwave. Corals transplanted from rat- to seabird-islands quickly assimilated nutrients from guano. Increased guano nutrients also doubled coral growth rates. The authors conclude that restoring seabird populations will help greater coral reef resilience through enhanced growth and recovery rates of corals.

Seasonality of the Black Skimmer (Rynchops niger, Aves: Laridae) on the northeast Caribbean coast of Costa Rica (2023) Sebastián Bonilla-Sánchez, Andrea Cruz-Siles, and Erick Herrera-Quesada. *Zeledonia 27(2):40-43*. The authors recorded the seasonal presence of Black Skimmers at the mouth of Río Colorado, in the northeast coast of Costa Rica, between 2011 and 2023. Skimmers were most present between March and December, with a peak between April and May.

Early breeding site arrival of a migratory tropical seabird correlates with large-scale climatic phenomena in the North Atlantic (2023) Letizia Campioni, Jeremy Madeiros, and Paolo Becciu. *Research Square (pre-print)*. Using data from eBird, the authors explored trends in the first annual observation of White-tailed Tropicbird (*Phaethon lepturus*) at their Bermuda breeding ground from 1953 to 2023. Specifically, they examined the relationship between the arrival time of tropicbirds and large-scale atmospheric phenomena. They suggest that tropicbirds breeding in the North Atlantic may be responding to climate-induced changes affecting the Atlantic Ocean.

Citizen science data reveal possible multi-decadal phenological changes in the arrival time of a migratory tropical seabird species at the breeding ground (2023) Letizia Campioni, Jeremy Madeiros, and Paolo Becciu. *Marine Biology 170(10):124. [This is the peer-reviewed version of the pre-print above]* The authors investigated arrival dates of White-tailed Tropicbird (*Phaethon lepturus*) at Bermuda using eBird data. They found that tropicbird observation dates advanced substantially over the past 70 years suggesting that arrival time has been likely shifting of ca. 20–25 days. Dates of first observation were not related to large-scale atmospheric phenomena, and further investigation is required to understand the underlying causes of these progressively early arrivals.

Exposure of an endangered seabird species to persistent organic pollutants: Assessing levels in blood and link with reproductive parameters (2024) Letizia Campioni, Bernat Oró-Nolla, José Granadeiro, et al. *Science of The Total Environment 172814.* The authors investigated the annual variation in exposure to persistent organic pollutants in the endangered Bermuda petrel (*Pterodroma cahow*). They also assessed the relationship between female contaminant burden and breeding parameters. They found that petrels were exposed to a wide range of pollutants. Females with greater contaminant burdens laid eggs with a lower probability of hatching but contaminant concentration did not affect female investment in egg production (size and volume).

Comunidades de aves de las islas del Parque Nacional Sistema Arrecifal Veracruzano (2023) Cynthia Carmona-Islas, Jordi Toto-Cobix, Jacobo Santander-Monsalvo, et al. *Hidrobiológica*. The

authors analyzed bird communities across six islands within the Veracruz reef system, Mexico, during April 2021 and 2022. They estimated species richness, abundance, and diversity among seabirds, waterbirds, and raptors. They observed 11 seabird seabird species, and confirmed breeding for Black Skimmer (*Rynchops niger*).

Frigatebirds Fregata: impacts of potential taxonomic change on population and conservation status (2023) John P. Croxall. *Bird Conservation International* *33:e70*. Following a new genetic study of frigatebirds, the author provides a modern review of the genera's conservation status. Up to five new species-level taxa, two of which would be "Critically Endangered" globally and may already be effectively extinct, may need to be recognized.

Parental infanticide by egg destruction in Red-billed Tropicbirds *Phaethon aethereus* on the Caribbean island of Sint Eustatius (2023) Hailley Danielson-Owczynsky, Hannah Madden, and Patrick Jodice. *Marine Ornithology* *51(2)*. The authors report on two cases of probable parental infanticide in Red-billed Tropicbirds (*Phaethon aethereus*) that occurred at the Sint Eustatius colony during the 2021–2022 breeding season. They present both cases with images collected from remote cameras as evidence. While appearing counterproductive, parental infanticide may provide an alternative reproduction strategy that favors lifetime reproductive success over short term success.

A case study of sea and shorebird breeding recovery following goat and cat eradication on Klein Curaçao, southern Caribbean (2023) Adolphe Debrot, Rob Wellens, Henriette de Vries, et al. *Journal of field ornithology* *94(3)*. The authors document major seabird breeding recovery on Klein Curaçao following the removal of goats in 1997, significant reforestation from 2000–2005, and the extermination of cats in 2001. Although the only seabird confirmed to breed on the island since the 1960s has been the Least Tern (*Sternula antillarum*), authors confirm an additional eight sea- and shorebird species on the island for the first time. The dominant species are the Cayenne Tern (*Thalassaeus sandviscensis*), Laughing Gull (*Larus atricilla*), Sooty Tern (*Onychoprion fuscatus*), and Least Tern, in that order.

Seabird guano inputs increase impacts from introduced mammals on the native plants and animals of an oceanic island (2024) Walter Espíndola and Tomás Carlo. *Oecologia* *204(4):975-984*. The authors investigated how guano inputs shape terrestrial food webs in a Red-footed Booby (*Sula sula*) colony in Mona Island, Puerto Rico. By quantifying guano deposition and its relationship to plant biology and to the activity of native and introduced animals, they showed that guano inputs increased the gross primary plant productivity, size, and fecundity by twofold. Guano inputs were also associated with twofold increases in density of Anole lizards, but also to increases in the activity of introduced mammals.

Écologie de la reproduction et conservation des Laridés (mouettes et sternes) de Cuba dans un contexte anthropique (2023) Antonio Garcia-Quintas. *PhD thesis, Université de Montpellier, France*. The author studied the breeding ecology and conservation of Larids in Cuba, focusing on selection and suitability of breeding habitat, plasticity of trophic niche, and breeding phenology. Using traditional and state-of-the-art methods to optimize scarce data, fill basic information gaps and make ecological predictions at different scales, the author aso assessed the impact of anthropogenic disturbances on conservation.

Machine and deep learning approaches to understand and predict habitat suitability for seabird breeding (2023) Antonio Garcia-Quintas, Amédée Roy, Christophe Barbraud, et al. *Ecology and Evolution* 13:e10549. Using a compilation of 49 historical records of Larid colonies in Cuba from 1980 to 2020, the authors predicted potentially suitable breeding sites for larids and assessed their breeding macrohabitat selection. They also predicted the nesting suitability of non-monitored sites of the Cuban archipelago.

Annual plasticity of the trophic niche of the Bridled Tern *Onychoprion anaethetus* in Cuba (2024) Antonio Garcia-Quintas, Christophe Barbraud, Paco Bustamante, et al. *Ardeola* 71(2):277-290. The authors assessed year-round variability in the isotopic niche Bridled Terns (*Onychoprion anaethetus*) nesting at two breeding areas in North Central Cuba. Using feathers, down and blood samples they showed that Bridled Terns occupied a narrow and relatively plastic isotopic niche. The largest variability occurred between the non-breeding and the pre-laying phases, showing a marked reduction of the niche breadth.

Identifying potential high-risk zones for land-derived plastic litter to marine megafauna and key habitats within the North Atlantic (2024) Samantha Garrard, James Clark, Nicola Martin, et al. *Science of the Total Environment* 922: 171282. The authors analyzed the risks that plastics pollution originating on land have on marine megafauna (seabirds, marine mammals, sharks and rays, and large fish) and coastal habitats – coral reefs, mangroves, seagrass, saltmarsh and kelp beds. They highlighted several potential high-risk zones across the North Atlantic, including the US Atlantic and Gulf coasts. Caribbean islands were among the largest generators of marine plastic pollution, and litter originating in the region significantly impacted both sides of the Atlantic.

Distributing transmitters to maximize population-level representativeness in automated radio telemetry studies of animal movement (2023) Juliet Lamb, Pamela Loring, and Peter Paton. *Movement Ecology* 11(1):1. The authors conducted a retrospective power analysis of data from the Motus Wildlife Tracking System for Piping Plovers (*Charadrius melodus*) and Common Terns (*Sterna hirundo*) tagged in the Bahamas and the United States, respectively. They found that ~ 100–150 tracked birds were required to identify 90% of locations known to be used by the tracked population, with 40–50 additional individuals required to include 95% of used locations.

Insights from attempts to track movement of Black Skimmer (*Rynchops niger*) fledglings in the southern Gulf of Mexico with automated telemetry and band resighting (2023) Kara Lefevre, Elizabeth Forys, Adam DiNuovo, et al. *Journal of Caribbean Ornithology* 36:107–113. This study tracked the movement of Black Skimmer (*Rynchops niger niger*) chicks after they fledged from two important colonies on the Gulf coast of Florida. Thirty-five chicks were followed with manual telemetry, automated tracking via the Motus Network, and systematic band resighting. Chicks remained at their natal colony for a minimum of 24 days after being tagged. The farthest known movement was 370 km, to Key West.

Red-billed Tropicbird (*Phaethon aethereus mesonauta*) in the (Dutch) Caribbean Species Action Plan (2023) Hannah Madden. *Waardenburg Ecology Report 23-0419. Waardenburg Ecology, Culemborg, The Netherlands.* This document contains background information about the Red-billed Tropicbird (*Phaethon aethereus mesonauta*), as well as information about its ecology, threats and conservation

status. The Species Management Plan outlines conservation goals, management options, stakeholders, priority actions, as well as recommended species- and habitat-specific management actions.

Absence of genetic structure among ecologically diverse populations indicate high plasticity in a pantropical seabird (2024) Mariana Mazzochi, Vitória Muraro, Nelson Fagundes, et al. *Conservation Genetics*. The authors assessed the genetic structure of Brown Noddies (*Anous stolidus*) nesting the northeast of Brazil. They showed low levels of genetic structure and a signal of an ancient population expansion, with all colonies belonging to the same genetic population. They suggest that Rocas Atoll serves as a stepping-stone for Caribbean individuals migrating to the Southwestern Atlantic populations.

Migration, breeding location, and seascape shape seabird assemblages in the northern Gulf of Mexico (2023) Pamela Michael, Jeffrey Gleason, Christopher Haney, et al. *Plos one* 18(6):e0287316. Using at-sea observations between 2017–2019, the authors identified four seabird assemblages in the U.S. Gulf of Mexico: two assemblages, one dominated by Black Tern (*Chlidonias niger*) and the other co-dominated by Northern Gannet (*Morus bassanus*)/Laughing Gull (*Leucophaeus atricilla*), occurred on the continental shelf; an assemblage dominated by Sooty Tern (*Onychoprion fuscatus*) occurred along the continental slope into pelagic waters; and the fourth assemblage, which had no dominant species, was broadly distributed. 76% of the species assessed bred predominantly outside the study area.

Black Terns (*Chlidonias niger*) beyond the breeding grounds: Occurrence, relative density, and habitat associations in the northern Gulf of Mexico (2024) Pamela Michael, Kathy Hixson, Jeffrey Gleason, et al. *The Wilson Journal of Ornithology*. Using at-sea observations from 2017 to 2019, the authors characterized Black Tern (*Chlidonias niger*) spatial and temporal occurrence in marine waters of the U.S. Gulf of Mexico. Black Ternes were observed during March–May and July–October, predominantly on the continental shelf at <200 m depth. Relative densities were greatest in the fall, coinciding with Black Terns' southward migration.

Managing harvests of seabirds and their eggs (2023) Liliana Naves and Thomas Rothe, *In* Conservation of Marine Birds. *Academic Press* 345-367. In this book chapter, the authors discuss the harvests of seabirds, eggs, and chicks, a widespread practice across more than 160 countries, including countries in the Caribbean. These harvests involve diverse socio-ecological contexts including indigenous and local community subsistence, recreational, and commercial uses. Currently, many seabird populations have diminished to a point where they can no longer sustainably accommodate harvests. Therefore, seabird harvest sustainability may depend on alleviating other threats such as fisheries bycatch and introduced predators.

Cross population comparison of complex migration strategies in a declining oceanic seabird (2023) Nina O'Hanlon, Rob van Bemmelen, Katherine Snell, et al. *bioRxiv.org (pre-print)* 2023.06.01.541278. The Arctic Skua (*Stercorarius parasiticus*) has experienced substantial declines across the North-East Atlantic. The authors tracked Arctic Skuas from four breeding populations to understand migratory behavior or routes. The skuas used several discrete staging areas during their south and northbound migrations with an area of apparent high marine productivity in the mid-North Atlantic being of high importance. Two individuals from Svalbard wintered in the Caribbean region.

Atlantic populations of a declining oceanic seabird have complex migrations and weak migratory connectivity to staging areas (2024) Nina O'Hanlon, Rob van Bemmelen, Katherine Snell, et al. *Marine Ecology Progress Series 730:113-129. [This is the peer-reviewed version of the pre-print above]*

The costs and benefits of kleptoparasitism in frigate birds: An integrative review (2023) Vidya Padmakumar and Murugan Shanthakumar. *International Journal of Forest, Animal and Fisheries Research 7(2):01-04*. This paper reviews the kleptoparasitic behavior of frigatebirds, focusing on the factors that influence its occurrence, frequency and success. The paper draws on evidence from various studies conducted in different regions of the world, including the Indian Ocean, the Pacific Ocean and the Caribbean Sea. The review indicates that kleptoparasitism is a complex and dynamic behavior that reflects the interactions between frigatebirds and their environment.

Reproductive Success and Chicks Diet of the Least Tern (*Sternula antillarum*) in the South-southwest of Puerto Rico (2023) Luis Ramos-Vázquez. *MS thesis, University Of Puerto Rico Mayagüez, Puerto Rico.* The author investigated the breeding biology of the Least Tern (*Sternula antillarum*) in the southwest of Puerto Rico. By monitoring 222 nests across two colony sites during the 2021 and 2022 breeding seasons, the study found a low breeding success, attributed to predation and flooding. Yellow-crowned Night-Herons (*Nyctanassa violacea*) and Red-tailed Boas (*Boa constrictor*) are new threats to Least Terns on the Island. Least Terns nested in rocks and sand with debris but without vegetation at the nest. The main prey groups identified in fecal samples were scaled sardines (*Harengula jaguana*) and silversides (*Atheriniformes* sp.).

The Caribbean's mythical Aves Bank (2024) Ruud Stelten. *International Journal of Cartography 10(1):57-67*. Although not about seabirds, this publication may be of interest to those who are curious about Aves Island. The author discusses a "cartographic myth", the Aves Bank, a long and narrow submarine bank that was thought to connect Aves Island with Saba and St. Eustatius. The Aves Bank myth was born in the 1720s and was quickly adopted by cartographers, who for over a century depicted it on maps and charts in various ways. This article explores how the myth was born, perpetuated, and eventually faded from existence.

Vocalizations and species limits in the North Atlantic clade of small shearwaters (Procellariiformes: *Puffinus*)(2024) George Sangster, Magnus Robb, William Mackin, et al. *Biological Journal of the Linnean Society blae008*. In this study, the aerial calls of *Puffinus lherminieri boydi* are described in detail and compared with those of *P. l. baroli* and *P. l. lherminieri*. Results show differences between males and females, and among the three taxonomic groups. These acoustic data, in combination with previously reported patterns of morphometric and molecular divergence, support the recognition of three North Atlantic species: *P. lherminieri*, *P. baroli*, and *P. boydi*.

Black-capped Petrel (*Pterodroma hasitata*) (2023) Yvan Satgé, Adam Brown, Jennifer Wheeler, et al. *In* Birds of the World*. Cornell Lab of Ornithology doi:10.2173/bow.bkcpet.02.* The authors propose a complete revision of the *Birds of the World* account for the Black-capped Petrel (*Pterodroma hasitata*), updated with the findings of recent studies of the species.

Spatial segregation between phenotypes of the diablotin black-capped petrel Pterodroma hasitata during the non-breeding period (2023) Yvan Satgé, Bradford Keitt, Chris Gaskin, et al. *Endangered Species Research 51:183-201*. The authors assess differences in the non-breeding distributions

of the two phenotypes described in the Diablotin Black-capped Petrel (*Pterodroma hasitata*). Using satellite tracking data of petrels captured at sea, they show that the smaller dark form used waters of the Carolinian marine ecoregion, and the heavier light form used pelagic waters of the Virginian ecoregion, to the north. These differences in distribution result in distinct exposure to marine threats in the western North Atlantic.

Adults Determine the Success of Kleptoparasitism in Frigatebirds (2024) Manrico Sebastiano. *Waterbirds* 46:132-138. The author describes cases of kleptoparasitism in Magnificent Frigatebirds (*Fregata magnificens*) nesting in French Guiana, a behavior that had never been described in that population. Results showed low success of the kleptoparasitism behavior as a feeding strategy but that the presence of adults in the chase highly increases the success rate.

Stable isotope and mercury analysis of black-capped petrel (Pterodroma hasitata) feathers to investigate trophic position and foraging areas of light, dark and intermediate forms (2023) Kate Sutherland. *MS thesis, University of North Carolina Wilmington, USA*. The author investigated the foraging ecology of two forms of Black-capped Petrels (*Pterodroma hasitata*) by analyzing breast feathers from 65 historic specimens, collected between 1978-1989, for three stable isotopes and total mercury concentrations. There were no significant differences in trophic position among the color forms of Black-capped Petrel. High concentrations of total mercury were observed, with high variability among feathers of individuals.

Synchronous timing of return to breeding sites in a long-distance migratory seabird with ocean-scale variation in migration schedules (2023) Rob van Bemmelen, Børge Moe, Hans Schekkerman, et al. *Movement Ecology* 12(1):22. Using tracking data, the authors tested whether migration schedules among breeding populations of Arctic Skuas (*Stercorarius parasiticus*) differ as a function of their use of wintering areas. Skuas nesting at higher latitudes started fall migration later and showed faster spring migration. Skuas that traveled farther spent less time in wintering areas. Two individuals from Svalbard wintered in the Caribbean region.

Royal Tern chicks wait for their parents to return from their foraging trip, at a breeding colony in Los Caimanes National Park, Cuba. (Angel Arias Barreto)