

IMPACT REPORT

2024



Center for Conservation in Punta San Juan, Peru



Background Summary

Punta San Juan is a 54-hectare peninsula, located on the southern coast of Peru and is one of 33 marine protected sites making up the Peruvian National Reserve of Guano Islands, Isles and Capes. It is also home to the largest breeding colony of Humboldt penguins in Peru. The Punta San Juan marine ecosystem is one of the most productive marine sites in the world. Here the continental shelf comes very close to the coastline creating an upwelling of cold, nutrient rich water that helps the marine life to thrive here. The Saint Louis Zoo has a long history of working with Humboldt Penguins and this Center is one of the original WildCare centers, created in 2004. The reserve currently has four full time staff and one part time administrative assistant (thru the university).

The Humboldt Penguin population has declined significantly in the past 20+ years, and in an effort to mitigate this decline, the Center has helped push for the formal designation of “National Marine Reserve” of not just the Punta San Juan area but for all of the 33 guano islands and points. We also have worked with local and governmental agencies to work towards more sustainable

fisheries. By providing the much-needed data from Punta San Juan, biologists along with government entities are making changes to the fishing mandates in Peru. And yet, even with these mitigation efforts slowing the decline, the Humboldt Penguin population is now listed as “Vulnerable” by the IUCN Red List, and is considered “Endangered” in Peru.

This species faces an uncertain future brought about by threats that include:

- » A largely unregulated fishing industry, that competes with the birds for food while also creating a hazard of penguin entanglement in the large fishing nets
- » The harvesting of guano for use as an organic fertilizer, directly impacting the substrate that many birds nest in
- » Stronger and more frequent ENSO (El Nino Southern Oscillations) weather events
- » Human disturbance in nesting and molting sites by tourists and fishermen

Center Achievements

Since the Center's inception in 2004, the Saint Louis Zoo has been a committed partner and contributor for Punta San Juan, in completing the annual Humboldt penguin census, providing funding for staff salaries and upkeep of the station and vehicles. It's very important to keep staff at the reserve to monitor the day to day activities and watch for intrusions into the area by things like foxes, dogs and unlawful fishing activities. We have had a bit of a slow period the last couple of years due to COVID-19, political unrest, Highly Pathogenic Avian Influenza (HPAI) and to top it off, they have had a severe El Nino occurring and, in 2023 have recorded the hottest summer on record!

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Humboldt Penguin Census

We continue to fund the annual Humboldt Penguin census along the coast of Peru. This was one of the outcomes of the 2019 Population Habitat and Viability Assessment workshop. It is imperative that we keep our pulse on this vulnerable population. We were unable to census in 2021 and 2023 due to continued issues with COVID and political unrest. In October of 2022 the first case of Highly Pathogenic Avian Influenza (H5N1) was detected at Punta San Juan and continued thru 2023 as seabirds made their way down the coast during migration periods.

As we move into 2025, we are planning for our next and probably last trip to assist with the Humboldt penguin census. The Center will continue to fund the yearly counts, but we now have three solid, in-country teams to handle the physical traveling along the coast and the counting.

Attached at the end of this report is the summary table of the most consistently counted sites through the years. See table 1.

Field Station and Vehicle Improvements

Another recently completed achievement was the

building and installation of the new Field Station. The old station was deemed unsafe for use, so it was abandoned and new plans were drawn up, using modular units. These are much nicer than the previous station and have many more, up-to-date amenities.



Image of new modular field station. Photo Credit-Susana Cardeñas

Finally, towards the end of 2023, we helped the staff pay for a new truck for the Reserve's biologists. The trucks there take a lot of abuse with the roads, sand and salty ocean air. The new truck was very much needed and we were happy to pitch in along with the rest of the consortium for this item.



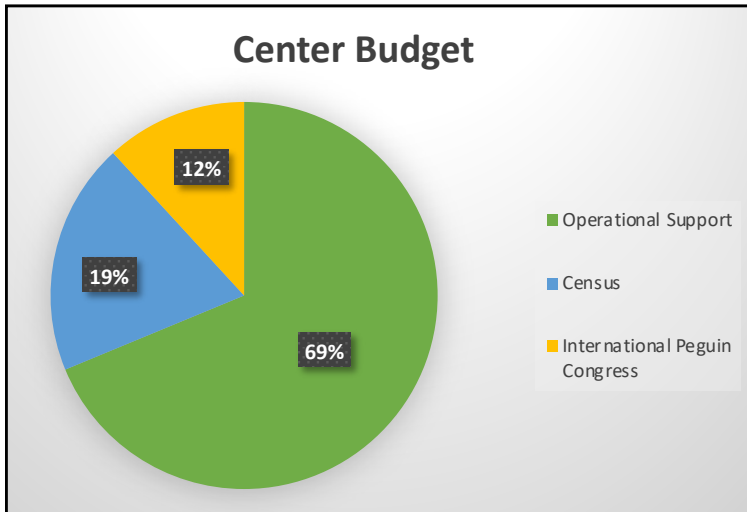
Newly purchased vehicle with sponsors logos. Photo credits-Susana Cardeñas

Budget Allocations

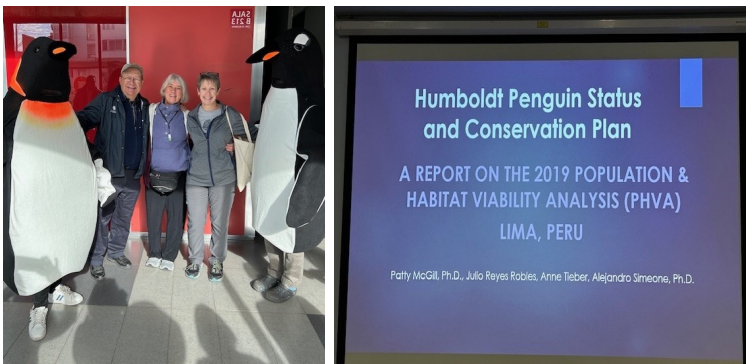
This center usually has several components to the budget, in 2023 we budgeted for the annual operational support \$21,237. This funding pays the biologist Salaries, upkeep on the vehicle and any repairs/items needed for the station.

We budgeted \$6,000 for the penguin census, which unfortunately could not be completed this year, so these funds went to help fund the new truck at the end of the year.

The International Penguin Congress took place in Chile, Peru in September of 2023 and \$3,654 was budgeted for travel support for this. We had several PSJ colleagues, along with Dr. Patricia McGill and myself, present papers at this conference that only happens once every three years.



The International Penguin Congress (IPC) is a conference that brings together penguin researchers, conservationists, and experts from around the world to discuss penguin biology, ecology, health, evolution, genetics, and behavior. The conference is held every three to four years and provides a forum for participants to collaborate on research, identify threats, and develop plans to protect penguin populations. The IPC also creates opportunities for people with a shared interest in penguins to connect and collaborate.



IPC attendees at the start of the meetings; Humboldt penguin census presentation

Focal Regions and Species

Our work within this Center is focused primarily at the Punta San Juan Reserve, located in the small town of Marcona, Peru. Punta San Juan is home to the largest breeding colony of Humboldt penguins in Peru. It is also a Marine Protected Area and has a very diverse ecosystem - from pinnipeds (fur seals and sea lions), to guano birds (penguins, pelicans, cormorants and terns) to coastal marine life. While this is our focal region, we do travel up and down the coast when doing our annual census count. We also partner with Areas Costeras y Recursos Marinos (ACOREMA), our education partner, who work out of Pisco, Peru.

Publications Produced in 2022, 2023

CCárdenas Alayza S. «Más de un bicentenario entre el guano y el mar». En Castro A. y M. I. Merino-Gómez. Desafíos y perspectivas de la situación ambiental en el Perú. En el marco de la conmemoración de los 200 años de vida republicana. [*Over two centuries between the guano and the sea. In Castro A and M.I. Merino-Gómez Challenges and perspectives of the environmental situation in Peru. In the framework of the commemoration of 200 years of republican life.*]

Lima: INTE-PUCP, p. 81-96.

<https://inte.pucp.edu.pe/publicaciones>

Doig-Alba, L, Bussalleu, A, Cárdenas-Alayza S, Cardaña-Mormontoy, M, Valdés-Velásquez, A. Have we achieved a sustainable balance? Evaluating the effects of regulated guano extraction on an important penguin breeding colony (2008–2019).

Global Ecology and Conservation 41(2023) e02351

<https://doi.org/10.1016/j.gecco.2022.e02351>

Cárdenas-Alayza, S., Ayala F., Ampuero-Merino, L. & Majluf P.

First record of King Penguin (*Aptenodytes patagonicus*) on the coast of Peru.

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<https://boletinunop.weebly.com/>

[uploads/6/2/2/6/62265985/aptenodytespatagonicus.pdf](https://boletinunop.weebly.com/uploads/6/2/2/6/62265985/aptenodytespatagonicus.pdf)

Stories from the Field

With the Field station down for almost two years, illegal fishing and poaching for shellfish within the reserve waters close to land, increased greatly. In 2023, video surveillance cameras were installed inside the reserve to help monitor for illegal activities.

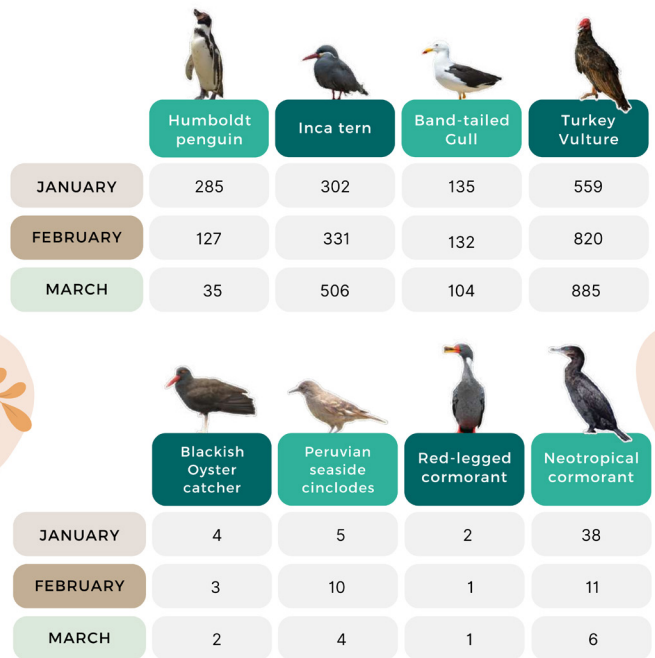
Highly Pathogenic Avian Influenza (HPAI) hit the coast of Peru in 2022 and continued strong in 2023. High mortality was documented with Peruvian Booby, Guanay Cormorant, Peruvian Pelican, Humboldt Penguin, Peruvian Gull, Sea Lion and Fur seal populations. Reserve staff were busy taking epidemiological samples from many carcasses in Punta San Juan to help learn what changes are seen in the body of these animals that are infected with HPAI.



Guanay cormorant deaths at PSJ. Reserve staff performing necropsies on dead birds to learn more about the changes that occur during the HPAI events. Photo credits Reserve staff

2023 also brought a severe El Nino weather event and PSJ recorded the hottest temperatures on record, both land and sea. The combination of these two events is thought to be the main causes of the disappearance of Humboldt penguins at Punta San Juan for the first time in recorded history! By mid-2024, the penguins were slowly making their way back to the peninsula.

Abundance of resident seabirds



Abundance records at PSJ saw Humboldt Penguins and other sea bird species at an all time low.

Census table Fig. 1

Abundancia relativa de Pingüino de Humboldt en PSJ (2019-2024)

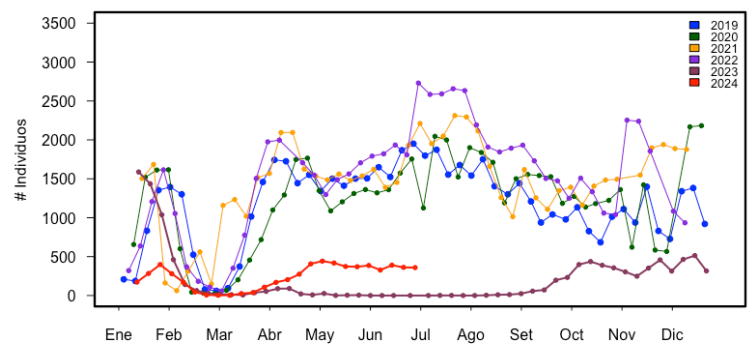


Table of most of the sites counted over the last 20+ years. The colors denote the three separate teams.

Plan For The Future

For now, we continue to support the Punta San Juan station and staff, as they continue to monitor the health of the biodiversity on site.

Future plans include monitoring a Guano Harvest in the near future, but no dates have been set yet as that is determined by governmental agencies and the guano mining companies. The last one was in 2018/2019.

Some future projects include:

- » An overall health study of the local vampire bats that live in the sea caves and feed on sea lions and fur seals.
- » Continued epidemiological surveillance on Humboldt penguins with the presence of HPAI.
- » Biologging with Humboldt penguins to see how El Niño affects food foraging and how far out and how deep the birds need to go to find food when these weather events happen. This is done by attaching a small transmitter to the birds back to gather data while the birds are out foraging for food.

We will also be hosting a junior researcher from PSJ at our endocrinology lab to work with our resident endocrinology team to learn how to run pinniped samples for hormone assessments.

A prey food study to determine the prey species preferred by Humboldt penguins will start in 2025. This will include two sites in Peru that maintain large numbers of penguins. We hope to see what fish species are now preferred by the birds and gather nutritional data and compare that to our birds in human care and see what the nutritional differences are between the groups.

