



Table of Contents:

<u>Topic</u>	<u>Page</u>
Interpretation Station Guidelines.....	2
Biofacts and Talking Points.....	3
Humboldt Penguin Talking Points.....	4
Conservation Highlights	6
Facts About Our Individuals.....	7
FAQs	8



Interpretation Station Guidelines:

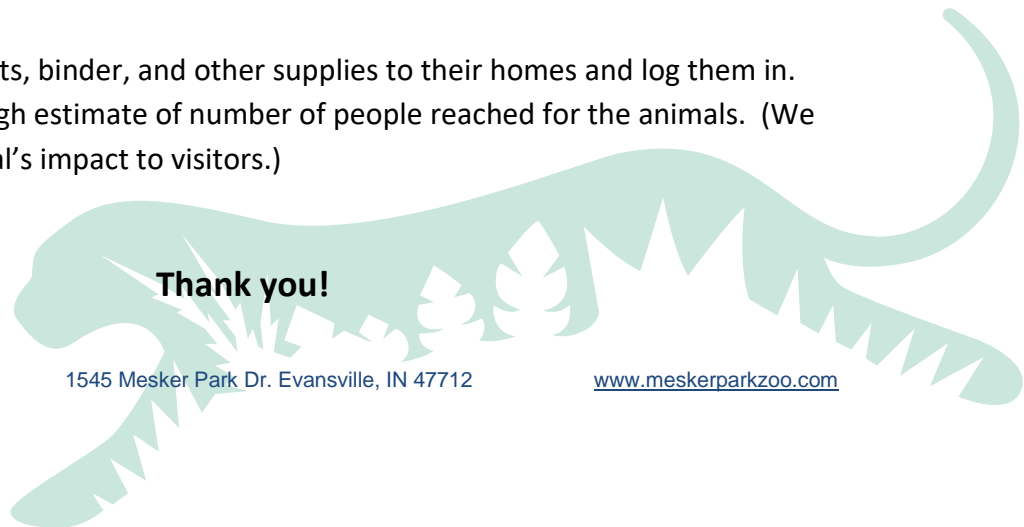
Upon arrival:

1. Please log into Volgistics using your phone or a Zoo computer.
2. In the Docent area, indicate the area or exhibit that you wish to interpret. Circle the area on the laminated Zoo map hanging on the bulletin board with a dry erase marker. This will allow others arriving to know it is occupied.
3. Grab the interp binder for the area.
4. Select and sign out the appropriate biofacts. Wrap them carefully and place them into a box for transportation to the exhibit.
5. Select and sign out appropriate ambassador animals you wish to use, if any. Place them in appropriate transport crates.
6. If taking animals, grab a radio if one is available, and an outreach kit.
7. Grab a wagon for your materials if necessary.
8. Transport to the exhibit or interpretation station. Ed staff can help transport you to the station on a cart. If going to the front entry side of the zoo, you can drive your personal car around to the front entry for closer access.
9. A silver table or cart and metal chair should be available at the exhibit.
10. Place tablecloth, biofacts, and informational signage on the table. Place AA where safe and appropriate for interpretation.
11. Interact with guests using the talking points as outlined in the interp binder.

Before leaving:

12. Pack everything up and head back to DC to return materials. Radio 5-1 or 8-1 for transport on a cart if needed and one is available.
13. Record in the interp binder the conservation topics discussed and a rough estimate of the number of people reached. (We keep track of how much conservation education we accomplish.)
14. Return animals, biofacts, binder, and other supplies to their homes and log them in. Be sure you give a rough estimate of number of people reached for the animals. (We keep track of an animal's impact to visitors.)
15. Log out of Volgistics.

Thank you!



Biofacts:

<u>Biofacts:</u>	
<u>Biofact:</u>	<u>Use:</u>
Pelt Cross Section	Shows interlocking feathers for insulation
Web Foot	Shows adaptation for swimming
Flipper	Shows adapted wing for swimming
Skull	Shows large eye opening and beak

Biofact Talking Points:

Pelt Cross Section: Penguins have many feathers to keep them warm by providing a waterproof insulating layer. Two layers of short, stiff and hooked feathers lock together, trapping a layer of air between the skin and the feathers. Underneath the outer feathers is a layer of down. Preening helps keep the feathers clean and well oiled. There is an oil gland at the tip of the tail – the bill is used to spread the oil through the feathers.

Web Foot and Flipper: Penguins' bodies are adapted for swimming. Although their webbed feet look similar to other water birds like ducks and geese. Their webbed feet are actually used for steering, not paddling. Their wings are shaped like paddle-like flippers. Penguins flap their flippers to propel them through the water at speeds up to 20 km per hour.

Skull: Flight birds have lightweight hollow bones to help them fly. Penguins are built for swimming; their bones are solid and much heavier. These act like a diver's weight belt, allowing them to stay underwater. Their bill is mainly used to catch food such as fish and squid. It is also used to preen feathers and to defend themselves from predators or other birds. The mouth and tongue are lined with backward pointing spines to hold the slippery fish until it is swallowed whole.



Humboldt Penguin Talking Points:

HABITAT:

1. **Range** - The Humboldt penguin lives along the coasts of Chile and Peru in the southeastern Pacific Ocean.
2. **Nesting** – They nest on islands and rocky coasts and feed in surrounding waters.
3. **Ocean** - Their habitat is highly influenced by the cold Humboldt Current flowing from Antarctica. This current is nutrient rich and vital to the productivity of plankton and krill, which fosters fish abundance.

PHYSICAL CHARACTERISTICS:

1. **Size** - Humboldt penguins are classified as medium sized penguins.
 - a. They grow to be about 26 to 28 inches in length.
 - b. They weigh about 10.4 pounds.
2. **Color** - They have blackish-gray upperparts, white underparts, a black breast band, and a black head with white strips running from the eyes.
 - a. Juveniles have dark heads but no breast bands.
 - b. Their coloring helps protect them in the water- the white blends in with the bright ocean surface.



DIET:

1. **Food** - Humboldt penguins feed primarily on fish, especially anchovies and herring. They also eat squid and crustaceans like shrimp.
2. **Water** - They actually do not have to drink water! Like all penguins, they have a special gland that removes salt from their bodies after they swallow saltwater!
3. **Source** - These penguins are known to travel long distances at sea to find food. This has become popular in recent years as prey species are becoming increasingly scarce.
4. **Predators** – They have their own natural predators -- leopard seals, fur seals, sea lions, sharks and Orcas.

BEHAVIOR:

1. **Communication** - Penguins use their voices to communicate like humans!
 - a. They make different sounds to show alarm or aggression, recognize family members, or coordinate a group.
 - b. The most common sound of a Humboldt penguin sounds like a Donkey bray-
Hawwww!

2. **Diving** - Humboldt penguins spend 75% of their lifetime in water.

- a. Most dives last about 6 minutes.
- b. Humboldts can hold their breath up to 18 minutes!

3. **Vision** - These penguins have great underwater vision!

- a. They use a second transparent eyelid to serve as “goggles” when underwater.
- b. They have sensitive eyes to better see underwater colors (violet, blue, and green).

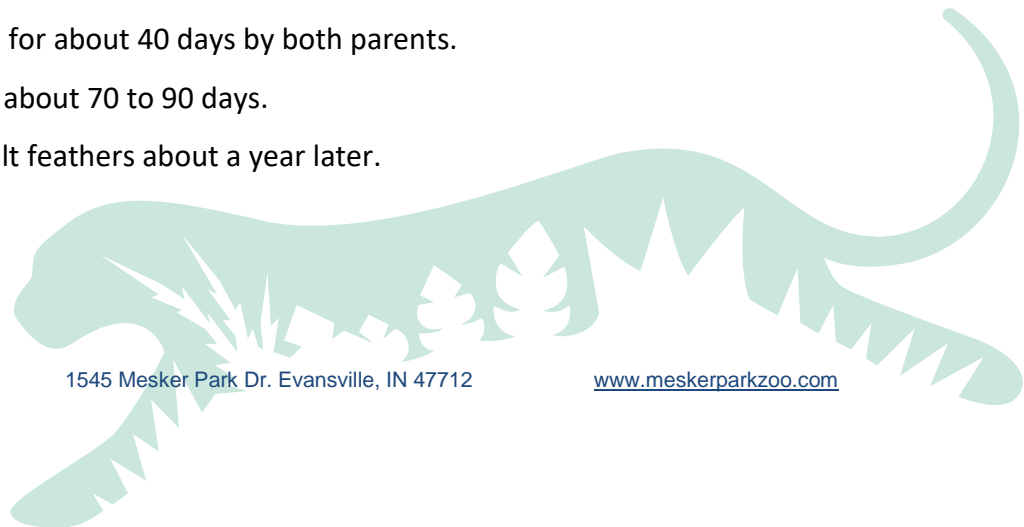


4. **Mating** - Humboldt penguins create lifetime partnerships!

- a. In the wild, Humboldt penguins breed any time of the year.
- b. In captivity, they will breed in late winter-early spring with chicks hatching in spring!

5. **Nesting** - They dig burrow-like nests among in caves and along cliffs.

- a. They make nests in piles of guano (large amounts of bird excrement)
- b. Females lay one or two eggs.
- c. Eggs are incubated for about 40 days by both parents.
- d. Chicks fledge after about 70 to 90 days.
- e. They molt into adult feathers about a year later.



POPULATION:

1. **Lifespan** - This penguin's lifespan is about 20 years.

2. **Population Size** –

- a. There were a million+ Humboldt penguins in the wild mid- 19th century.
- b. According to a 2017 census in Chile and Peru, the estimated global population of Humboldt penguins is 23,300 max. (IUCN.org)



Conservation Highlights:

THREATS:

1. Humboldt Penguins are considered VULNERABLE in conservation status.
2. Humboldt penguin populations were first devastated by the mining of guano deposits (large bird excrement piles) for fertilizer. These penguins prefer to nest in these deposits.
3. After having a slight recovery from these decreasing population numbers, these penguins now face a new threat- climate change. This reduces the penguin's prey productivity.
 - a. Changes in ocean currents and temperatures in the Pacific Ocean threaten the stability of the Humboldt Current from Antarctica.
 - b. The El Nino southern oscillation events reduce the upwelling of cold, nutrient rich waters. These events can cause drastic reductions in their fish supply, some years causing a significant crash of their populations to a few thousand penguins.
4. Humboldt penguins are also imperiled by intense commercial fishing and oil pollution.
 - a. Humans fish for anchovetta, which they harvest to make bone meal for animal feed.
 - b. This puts Humboldts in a resource competition they cannot win.

CONSERVATION:

1. Chile has had a 30-year ban on the hunting and capture of Humboldts since 1995.
2. In Peru, guano mining in penguin reserves is limited and a penguin protection contract must be signed if mining is permitted.
3. AZA zoos across the nation participate in a Species Survival Program to help increase number of healthy captive Humboldts!

Our Penguins:

Name	Gender	Hatch Year	Wing Identifiers	
Adrian	male	2007	right	green
Ramon	male	2012	right	yellow
Olivia	female	2015	left	black & red
Oscar	male	2016	right	blue & brown
Antonio	male	2016	right	brown & purple
Prince	male	2016	right	purple & yellow
Chirrida	female	2017	left	black-A07
Calypso	female	2018	left	yellow & blue
Carlito	male	2018	right	orange & yellow
Bill	male	2019	right	light blue
Harper	female	2019	left	red & white beads
Marco	male	2019	right	black- B14
Marcona	female	2019	left	clear with orange yellow
Nola	male	2019	right	red & blue beads

Penguins in this chart is arranged from oldest penguin to youngest. Females have identifying bands on left wings, males have them on right wing.

Following AZA's Humboldt Penguin Species Survival program recommendations, our penguins came from all over the country: Seattle, Columbus, St. Louis, Philadelphia, Brookfield, and San Diego.



Penguin Personalities:

- Marcona is the most curious and very friendly with people!
- Bill and Calypso are the most vocal.
- Olivia is a picky eater.
- Prince is a follower and does not want to lead anything.
- Carlito (has been nicknamed “The Garbage Can”)

Stories from their keeper, Chris:

- This is Prince, with the purple band. Prince is probably our biggest penguin and is a little standoffish sometimes. He usually waits for the other birds to do something adventurous before he joins in too. Prince thinks the best song by Prince is When Doves Cry and it’s hard for me to disagree with him.
- This is Olivia, with the black band. She is the penguin most likely to damage anything and everything in between her and dinner, including gloves, fingers and other penguins. She has a pretty impressive box jump as well.
- This is Carlito, with the orange band. Carlito is off in his own little world sometimes but he likes chasing things around in the water and investigating things. He’s a pretty tough bird all things considered.
- This is little Marcona, with the clear band. Marcona is usually front and center for anything we ask her to do, whether it’s “get on the scale” or “go on a walkabout” or when its food time. But she is a little picky about her fish sometimes. Not a capelin fan. You kinda gotta trick her into those.
- This is Bill, with the baby blue band. Bill’s kind of a spaz. He’s not a small penguin, but if the colony has decided to panic about something it’s usually because Bill has decided to panic first. Good eater though, not nearly as picky as some penguins.
- This is Calypso, with the multi-colored band. You know how sometimes you have a friend that just can’t help starting trouble? That’s Calypso. If our penguins are getting into a scuffle, I wouldn’t be shocked if Calypso is right in the middle of it somehow.





Frequently Asked Questions

About Humboldt Penguins

❖ **Where are they from?**

The coast and islands of Chile and Peru on the west coast of S. America, along the cold Humboldt ocean current.

❖ **How big do they get?**

Humboldts are classified as medium sized for a penguin. They weigh between 8-13 pounds, stand around 2 feet tall.

❖ **What do they eat?**

They eat a variety of schooling fish, including anchovy, silversides, capelin, herring, and smelt. They swallow fish whole without chewing, and gobble them up pretty fast before they can escape.

❖ **Do penguins have teeth?**

Nope! They swallow their food whole.

❖ **How long do they live?**

They live 15-20 years (up to 30 years in captivity).

❖ **Do they fly?**

Our penguins are adapted for swimming, not flying. They are built much differently than flying birds. Their bones are heavier and their feathers are smaller for land and water travel.

❖ **How fast do they swim?**

Up to 30 miles per hour!

❖ **How long can they stay underwater?**

They spend 75% of their time in the water, but they breathe air. They can hold their breath for up to 18 minutes, but the average dive is 6 minutes.



Frequently Asked Questions

❖ **How do they stay warm?**

They do not have blubber for insulation. Instead, they can trap air bubbles in their feathers for warmth.

❖ **How do they see underwater?**

These penguins have sensitive eyes to better see underwater colors (violet, blue, and green). Their eyes also have a second transparent eyelid, serving as “goggles” when underwater!

❖ **How do you tell their gender?**

They look very similar except that males are larger.

❖ **Do they have families?**

H. penguins form strong family units for nesting season. Mates form strong pair bonds. Mates work together to take care of their chicks until they can survive on their own. One parent cares for the young while the other acquires food.

❖ **Where do they nest?**

Females will lay up to 2 eggs up to twice a year in nests on land...among piles of guano (excrement) in rocky crevasses. Chicks hatch in the spring and parents share the incubation and chick rearing responsibilities. They regurgitate food for their young.

❖ **Why do they make noises?**

Each penguin has a unique voice, just like you. They can find and recognize their mates and young by their calls.

❖ **What are their predators?**

Predators in the water include sharks, fur seals, leopard seals, killer whales. Land predators include cats, dogs, foxes, snakes, and seabirds.

❖ **How many species of penguins are there in the world?**

18!



Frequently Asked Questions

❖ **What is the current world Humboldt penguin population?**

Based on a 2017 census in Chile and Peru, the global population is estimated at 10,000-23,000 individuals. The population experiences extreme fluctuations based on environmental conditions (like El Nino) that affect their food supply. (Source: www.IUCN.org)

About Our Exhibit

❖ **How many penguins do we have?**

We will have 14 penguins.

❖ **What are their names?**

Olivia, Prince, Marco, Carlito, Marcona, Bill, Calypso, Charrida, Harper, Nala, Adrian, and Ramon, Oscar, and Antonio.

❖ **How do you tell them apart?**

Each penguin has a unique arm band. They can be on different wings, have different colors, and labeled with a number! Females have them on the left wings, males on the right.

❖ **Where did these penguins come from?**

They came from other AZA accredited zoos around the country, from cities including Seattle, Columbus, St. Louis, Philadelphia, Chicago, and San Diego.

❖ **Do they get along?**

Penguins live in sociable colonies with many other penguins, and form strong and lasting pair bonds with their mate.

❖ **What do they do during the hot summer?**

These penguins don't need ice at all! They can handle the heat, and prefer temps of 40-80 degree F. However, they like cold water for swimming and fishing. Their pool stays 55 degrees F all year to resemble the cold Humboldt ocean current.



Frequently Asked Questions

❖ Why are their faces pink?

Pink, featherless areas on their heads are heat vents, where blood flows close to lose excess heat. This helps them stay cool.

❖ Is that penguin sick?

Humboldt penguins molt all their feathers to grow new ones over 2-3 weeks. This happens all at once during the summertime, and is very normal. But, they can be a funny sight.

❖ Why are the penguins picking at their feathers?

Penguins preen their feathers with their beak to spread oils that waterproof them. They have 70 feathers per square inch!

❖ Where are the babies?

MPZ participates in a cooperative breeding program with other AZA Zoos. The chicks hatch in the spring in the nest boxes, and they develop there for about 11 weeks. They are not on exhibit until they have their swim feathers, and since they grow so fast they are then already the same size as adults. The chicks will have different colored plumage their first year: grayer with less striping.

❖ What do the zookeepers feed them?

Our penguins are fed capelin, herring, and smelt, and little silversides for our daily public feedings.

❖ When are the feeding times?

They can be fed on the hour between 11 a.m. and 2 p.m.

❖ When are the keeper talks?

10 a.m and 2 p.m. daily

❖ Why is the water and the rocks green?

The water is a natural, living biological system that is healthy for penguins.



Frequently Asked Questions

❖ **Where are the fish?**

There will eventually be fish in the pool with the penguins.

❖ **What are the stickers on the glass?**

The stickers help birds see the glass so they can avoid hitting it.

❖ **How is this exhibit green?**

- Geothermal heating and cooling to maintain constant pool temp of 55 degrees F.
- Rainwater capture reduces the need to use treated city water.

Humboldt Conservation

❖ **Status:** Penguins are considered vulnerable in the wild by the IUCN (International Union for the Conservation of Nature www.IUCN.org)

❖ **Threats:**

- Introduced species such as goats, rats, cats, and dogs
- Human harvesting of guano that they use for nesting
- Commercial overfishing of their food source
- Ocean pollution (plastics) that they consume in the food chain or get entangled
- Warming oceans that reduces fish productivity in the Humboldt ocean current
- El Nino weather events that can cause a crash their fish supply.
- Tourism & development along the coastline

❖ **How can I help?**

- Protect water quality. Our waters here at home end up in the ocean via the Ohio and Mississippi Rivers.
- Switch to reusable products, not disposable plastic products that get into our waters.
- Use less energy to reduce greenhouse gas emissions and counter changes in our climate and oceans.
- Buy sustainably harvested fish to prevent overfishing of their food source. Use the *Seafood Watch* app as a guide.
- Support AZA zoos and their penguin breeding programs to hedge extinction.
- Support environmental organizations saving wild species and ecosystems.
- Many actions can help. The only wrong action is NO action.



Frequently Asked Questions

Engagement opportunities:

- ❖ Can you sound like a penguin?
- ❖ Can you hold your breath as long as a penguin?
- ❖ Can you walk like a penguin?
- ❖ How tall are you compared to a Humboldt penguin?
- ❖ Touch the penguin sculptures.
- ❖ Get in the boat for a picture opp.
- ❖ Check out biofacts.
- ❖ Demo table activities
- ❖ Feedings.

Resources:

https://www.biologicaldiversity.org/species/birds/penguins/Humboldt_penguin.html

<https://www.stlzoo.org/animals/abouttheanimals/birds/penguins/humboldtpenguin>

<https://www.yellow-eyedpenguin.org.nz/penguins/about-the-yellow-eyed-penguin/adaptations-for-survival/>