

HUMBOLDT PENGUIN

TASK #1

ANIMAL RESEARCH

Climate	<ul style="list-style-type: none"> • Prefers warm climate, averages between 40-75°F • Likes colder water where food is abundant. Temperatures average between 50-60°F
What covers their body? How is this helpful?	<ul style="list-style-type: none"> • Covered in short, stiff, overlapping feathers • Keeps a soft layer of downy feathers close to the skin • Feathers keep them warm and waterproof
Social Dynamic	<ul style="list-style-type: none"> • Highly social and live in large colonies • Communicates with one another using a variety of vocals • Courtship rituals and nest together
Appearance	<ul style="list-style-type: none"> • Black backs with white belly (countershading) • Black heads with white stripe • Pink skin around their eyes and at the base of their bill • Height: 25-28 in. tall / Weight: 7-13 lbs.
How do they move? How would that help them in their habitat?	<ul style="list-style-type: none"> • Can swim but also walk and hop on land • Uses flippers and feet to move around • Streamlined, torpedo-shaped bodies and wings that propel penguin through the water
How do they care for their young?	<ul style="list-style-type: none"> • Mated pairs work together to build a nest in a burrow and raise their young together • Both parents incubate the egg • Both parents feed the chicks regurgitated fish • Builds a nest by digging a burrow under rocks and soil
What do they eat? What adaptations do they have to support their diet?	<ul style="list-style-type: none"> • Eats small schooling fish like anchovies and sardines • Body shape helps penguin dive to forage at depths down to 500 ft. • Catches their prey using their beak
Habitat	<ul style="list-style-type: none"> • Rocky coasts of Chile and Peru • Rests in caves and burrows • Feeds in surrounding waters of the nutrient rich Humboldt Current



TASK #2

HUMBOLDT PENGUIN NEEDS IN A ZOO

After learning about what Humboldt penguins need in the wild, students are prompted to write things that a Humboldt penguin would need in a zoo. Below are suggested answers but students are encouraged to be creative.

- Rocky areas for nests
- Pools for swimming with ways to maintain water flow and temperature
- Land/shore areas
- Shade source
- Temperature controlled areas to stay warm
- Different types of substrate to walk on or dig in (sand or rocks)
- Lighting that mimics the natural sunrise and sunset times
- Large enough space to house a large flock
- Areas behind the scenes for additional care/treatment
- Filtration system to have clean/clear water

HUMBOLDT PENGUIN ENRICHMENT

Suggested Enrichment:

- **Environmental Enrichment-** Sprinkler/mister, ice cubes throughout habitat, rearrange items in habitat
- **Food Enrichment-** Fish ice cubes and puzzle ball with fish
- **Manipulative Enrichment-** Boomer balls, frisbees, dive rings, and hard plastic toys
- **Sensory Enrichment-** Music, smells/sounds of other penguins or animals, and radio
- **Social Enrichment-** Interaction with other animals, bubbles, painting, training with animal care specialists

Things to avoid:

- Continuous use of the same form of enrichment
- Parts that could easily be broken off
- Items that could lead to entanglement
- Metal
- Small enrichment or small items that could be ingested (string, screws, soft plastics)



HUMBOLDT PENGUIN CONSERVATION STATUS

Conservation Status: Humboldt penguins are listed as a Vulnerable Species by the IUCN.

Countries found: Humboldt penguins are found along the coastlines of Peru and Chile.

Has the animal's range changed over time? No. While the range has remained the same, the Humboldt penguin is more spread out and nesting areas have decreased.

Did your animal's population change? Yes, their population has decreased significantly.

Threats: Climate change, overfishing of penguin's food items, guano harvesting, El Niño, oil spills, predation by non-native species, and human interference are all factors in the Humboldt penguin's population decline.



HISTORICAL / CURRENT RANGE:
The range of Humboldt penguins has not changed significantly over time. However, the Humboldt penguin population and available nesting sites have decreased.



HUMBOLDT PENGUIN DIET

Humboldt penguins eat a large variety of fish, crustaceans, squid, and other sea creatures. Their preference greatly depends on where they live and what is available when they are hunting out at sea. At the Zoo, our penguins are mostly hand fed fish twice per day. This means they get to eat as much as they want until they are full. Because our animal care specialists feed and track the penguins at meal times, they are able to dispense medications and supplements to the penguins that need them. Students will design a diet plan for the Humboldt penguins at their zoo.

EXTENSION ACTIVITY

Students can use the extension on page 43 to create a diet plan for an entire week, and answer some questions about how adding penguin chicks to the groups would change their feeding plan.

TASK #5

HABITAT DESIGN

Students are encouraged to design a zoo habitat that satisfies the natural behaviors of Humboldt penguins. Below are a few suggestions.

Natural Behaviors: Swimming, cavity nesting, diving, sliding, socializing, vocalizing, waddling, wing stretching

- Land area should be large enough for various feeding stations, space to get out of the water and onto land, and various zoo employees to work. Different heights and different substrates within the area encouraging natural behaviors is ideal.
- Penguins use nest boxes, caves, rock areas, and burrows to nest. Barriers like rocks may be used during breeding seasons between nest sites.
- Penguins must have a barrier that separates the public from the penguins. This barrier can be acrylic, glass, or a moated area with walls and should be tall enough to prevent the public from touching the penguins.
- Humboldt penguins are warm weather birds, and need an outdoor space when the temperature is appropriate. An indoor and outdoor space prevents exposure to bad weather and provides a comfortable distance away from the public. A minimum distance of 4 ft. is recommended.
- Facilities may offer above-water and below-water viewing.

Humboldt Penguin Diet Extension Activity



Like other birds, baby penguins rely on their parents to feed them for the first few months of life. During this time, penguin parents must eat more fish to make sure both themselves, and the chicks are receiving enough food. In human care, we adjust the parents' diet during this time by giving them **triple** the number of fish. Each parent regurgitates approximately half of their daily diet for the baby penguin to eat. Complete the weekly diet for a Humboldt penguin below, then answer the challenge questions.

When planning the diet for Humboldt penguins, remember the following:

- Each feeding, Humboldt penguins must get at least two or more different kinds of fish. Due to its nutritional value, capelin must be included daily.
- The total amount of fish must be between 500 g - 700 g for a **standard** Humboldt penguin diet.

Diet	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Fish (Between 500 g - 700 g)	Total:	Total:	Total:	Total:	Total:	Total:	Total:

If the standard daily diet for a Humboldt penguin is between 500-700 g, what is the diet range for a Humboldt penguin parent?

On average, each penguin parent regurgitates half of their diet to feed their chick. What is the range, in grams (g), a Humboldt penguin chick could be fed by one of its parents daily?

What is the total range, in grams (g), that a Humboldt penguin chick could consume in an entire week?