

Self Guided Tour Habitats



Habitat is a word used to describe the environment in which an organism lives.

At Living Coasts we have three principal habitats.

Penguin Beach



Auk Cliff



Waders estuary



Site map

MAP

Living Coasts



Key	
1	Car & Coach Park
2	Entrance
3	Penguin Beach
4	Auk Cliff
5	Walkers
6	Sea Ducks
7	Far Balli
8	Moroccan Pool
9	Interactive Area
10	Underwater Tunnel
11	Cafe and Tobler
12	Aquas Restaurant
13	Tradewinds Gift Shop and Tobler



Auks



Penguins



Seals



Underwater Tunnel



Interactive Area



Gift Shop

Underwater Viewing Areas

User guide

Each of the prompt cards will have a similar lay out. This part is reserved for general information.

It is worth reading the prompt cards before you take your group around Living Coasts.



This symbol stands for information.



This symbol provides an example of how to use one of the resources provided.



This symbol stands for an activity your group can do.

Quick information access

Identification keys

As there are many different kinds of organisms living in a habitat often keys are used to identify them.



Using keys

- Keys work on the basis of paired statements which offer two options for the presence or absence of a particular characteristic belonging to the organism being observed.



An identification key example

- 1. Beak is red - Inca tern adult
1. Beak is not red - 2
- If the organism does not possess the characteristic the user is guided to the next set of paired statements.



To do at Penguin beach

Hand out the penguin beach key cards to your group. Ask them to pick an animal to look at. Using only their key they must work out which animal they are observing.

Using identification keys
on penguin beach

Penguin beach features

Habitats provide organisms with important features they require to lead a full and successful life.



Salt water pool

- Macaroni penguins in the wild spend a great deal of time in the ocean. The pool helps to keep the penguins fit and the salt water is beneficial for their eyes and skin.
- Our keeping staff scatter fish to feed the penguins in the pool which encourages their natural behaviour.



Nesting burrows

- In the wild African penguins use burrows to protect the penguins and their young from the hot South African climate.
- Nesting burrows also provide the penguin chicks with a hiding place from land predators.



Shade

- Shade is vital for many of the species which live on penguin beach.
- Shade prevents organisms from getting too hot in the warmer months.

**Habitat features
on penguin beach**

Animal adaptations

Adaptation is the change in living organisms that allow them to live successfully in an environment..

i Camouflage

- All species of penguins are counter shaded for camouflage in the water.
- Counter shading means they have a predominantly white torso and a black back.
- When a predator looks down on a penguin its black back blends in with the sea bed floor.
- When a predator looks up at a penguin the penguins white torso blends in with the light coming through the surface of the water, making them difficult to spot.

i Insulation

- Penguins are densely covered with feathers which insulate them from the cold.
- Natural oil is produced by the penguins from their preen gland which is located just above their tail feathers.
- Penguins will collect the oil using their beaks and smooth it over their feathers to make themselves waterproof.

i Movement

- Their unique method of walking is an effective way of reducing energy loss enabling them to walk great distances with ease.

Adaptations

Auk cliff features

Some habitats are spaces utilised by particular animals at specific times of the year.



Cliff edge

- Coastal birds use cliff edges during the breeding season to find a partner, mate, create and nurture offspring during the spring.
- The cliff edge provides easy access to the ocean and fish.
- Many terrestrial predators find nesting sites difficult to reach apart from rats who are brilliant climbers and like to eat birds eggs and small chicks.



Salt water pool

- Auks are wonderful diving birds that will forage underwater for fish.
- They are used to strong currents and powerful waves.
- The auks here at Living Coasts can often be seen in the water bathing and preening their feathers.



Nesting burrows

- Some species of Auks nest in burrows to protect their offspring from disturbance, predators and the elements.

**Habitat features
on Auk Cliff**

Auk adaptations

Cliff edges are one of the most inhospitable habitats yet Auks have developed a number of adaptations to survive.

i

Eggs

- Common guillemots lay their egg on the cliff edge not in burrows.
- Common guillemot eggs are shaped like a pear which means if it's knocked it spins around in a tight circle rather than rolling and falling off the cliff.

i

Beaks

- Puffins have very large beaks which they use to collect fish.
- Puffins also have a spiny mouth and tongue to hold many fish.
- Collecting many fish at once means puffins can save energy by not going back and forth to their nest from the ocean.

i

Movement

- Auks are able to use their wings to propel themselves through the water and the air.
- Auks are stocky birds which enable them to dive, however this compromises their ability to fly.
- Puffins have to beat their wings at least 400 times a minute to take flight.

Adaptations

Waders estuary features

An estuary is a habitat which constantly changes as sea water floods in and out during the day and night.



Mudflat

- Many invertebrates such as lug worms live in the mud flats feeding on the dissolved organic matter.
- Lug worms feature frequently in the diet of a black-tailed godwit.



Vegetation

- As dead plant material begins to decompose and accumulate at the bottom of the estuary it provides nutrition for many micro-organisms which the wading birds will feed upon.
- During the breeding season many species of wading birds use vegetation to camouflage their nesting sites.



Tidal movements

- When the tide floods an estuary the salt water from the ocean mixes with the fresh water from the river to form brackish water.
- As the tide moves in and out of the estuary turbulence generated within the water column carries nutrients to the surface waters stimulating primary production.

**Habitat features
on Waders Estuary**

Waders adaptations

Wading birds have many different adaptations due to the constantly changing environment in which they live.



Long legs

- Wading birds are equipped with long legs to enable them to wade and find food within the estuary.
- Some wading birds have webbed feet preventing them from sinking through the soft mud when the tide is out.



Beaks

- Wading birds have different shaped beaks which are adapted to eat different kinds of food.
- The black-tailed godwit has a long straight beak which they plunge into soft mud and use to extract and eat the worms which live there.
- The pied avocet has a long curved beak allowing them to sift out and feed on micro-organisms from the shallow estuary water.



Movement

- Wading birds use flight mostly to escape predators.
- They will often stand on one leg, especially when resting. This helps to prevent energy loss in the form of heat.

Adaptations

Natural feeding relationships

Food chains are used to describe feeding relationships within a habitat.



To do at
Fur seal cove

Each animal card shows a creature which is part of a simple feeding relationship belonging to the South American fur seal. Distribute the cards amongst your group and ask them to place themselves in the order of who eats who. The correct order can be seen below.



Natural feeding relationship

Plankton: Tiny organisms which inhabit the water column for part or all of their life cycle. They form the base of the food chain.

Phytoplankton (**primary producer**) are tiny plants and Zooplankton are tiny animals. Most food chains begin with a green plant.

Anchovy (primary consumer): A common species of salt water fish which feed on plankton and fish eggs.

South American Fur Seal (secondary consumer): A large mammal which feeds on many different species of fish and invertebrates such as squid.

Orca (apex predator): Orcas have been known to eat South American fur seals in addition to other marine mammals, fish and birds.

Natural feeding relationships

Protection

It is estimated that, globally, over a million birds and 100,000 marine mammals and turtles die every year from entanglement, or ingestion of plastics (Laist 1997).



To do at Fur seal cove

- South American fur seals can mistake plastic bags for food which if swallowed can be potentially fatal.
- Demonstrate the food chain again this time Squid - Seal - Orca. Replace the squid with the plastic bag and then ask your group how this may affect the rest of the food chain?



Marine litter

- It's not just swallowing plastic bags which cause problems in the ocean.
- Oceanic creatures can also become trapped or entangled in litter, inhibiting their growth and movement or suffocating those that need to surface for air.



Protection

- The best way to help protect the marine environment from marine litter is to reduce or recycle the rubbish we produce.
- Use re-usable bags to take your shopping home.
- Contact your local beach clean organiser though the Marine Conservation Society to help out on quarterly beach cleans.

www.adoptabeach.org.uk

Protection