

IAATO Snow Hill Emperor Penguin Colony Guidelines

Introduction

The emperor penguin (*Aptenodytes forsteri*) is one of the Antarctic penguins with the highest affinity to ice, and has adapted to survive at temperatures below -50°C , which are frequent in the Antarctic winter. Its reproductive cycle is one of the longest, starting in March–April and ending in December. Most of the colonies are developed on the marine ice pack, although some colonies reproduce on ice shelves or on land. Current climate models predict a drop in the population of this species, as a result of the reduction in the distribution of marine ice and the alteration of food availability, since Antarctic krill depends directly on ice for its larval development stage (Forcada and Trathan 2009).

The Snow Hill Island colony was discovered in the mid-90s (Coria and Montalti 2000) and is the northernmost Emperor penguin colony of Antarctica. It is located directly on the ice pack ($64^{\circ} 30' \text{ S}$ and $57^{\circ} 26' \text{ W}$; Libertelli et al., 2014), approximately 40–50 meters from the southern coast of the island, to the north east of the Antarctic Peninsula. The population numbers, measured by aerial photography, indicate that this colony is growing, with counts of over 10000 adult individuals in the past few years (IP 85, ATCM XXXVII; unpublished data), although climate conditions have a significant impact on reproductive success from one season to the next.



Potential Impacts

There are currently no known impacts of well controlled visitation to the Snow Hill Emperor penguin colony, the possible impacts that need to be avoided include:

- Disturbance of wildlife, not only penguins, by visitors
- Aircraft landing or flight activities
- The introduction of non-native species.

Avoiding Disturbance of Wildlife

- There may be no more than 100 visitors ashore at any time, exclusive of expedition guides and leaders, with a maximum of 20 visitors for every guide.
- Where there are less than 20 visitors there should be at least 2 guides.
- When visiting a colony, walk slowly and carefully and maintain a precautionary distance of 30m from the Snow Hill Emperor penguins.
- Increase distance from wildlife if any changes in behaviour are observed.
- Always give wildlife the right-of-way.
- Keep 30m away from areas adjacent to colonies facing the ice edge where the penguins commute to and from the ocean.
- Keep visitor pathways and penguin pathways separate where possible.
- If it is necessary to cross distinct areas where penguins are commuting, it is best that visitors stay in a tight group rather than being spread out, following the path set out by the expedition guides.
- Visitors should stop moving when a commuting penguin is approximately 15m away to allow it to decide the direction it wants to follow.
- Be aware of Leopard seals (*Hydrurga leptonyx*) that may be seen at breathing holes and may chase visitors.
- Do not surround Weddell seals, go between adult and pup or between a seal and its breathing hole.



Guiding visitors at the Snow Hill Emperor Penguin Colony

1. Approaching Emperor penguin colonies

On approach to the Snow Hill Emperor penguin colony the following precautions should be taken:

- Establish a passenger stopping point within 30 meters of a colony of emperor penguins with chicks (Mid-October – December). For visits in September, a distance of 50m is recommended.
- Once near the colony, it is recommended that visitors adopt a hunched position and remain in a low position until they leave the area.
- Continually assess the behaviour of the penguins and retreat if there are any signs of disturbance.
- Do not circle an emperor penguin colony. Keep all passenger and staff activity to one side of the colony.
- When sitting still, visitors may find themselves approached by adults or chicks as they move amongst the visitors. Remember to stay still and if you need to move, then move slowly.

2. At the edge of ice when fledging chicks are present

- When at the water's edge, chicks that are preparing to fledge are initially much less nervous.
- Keep visitors all to one side of the group of chicks, and it is recommended that the visitors sit 30 meters from where the chicks are preparing to enter the water.
- Chicks often lose all inhibition when passengers remain seated.
- Visitors may find themselves surrounded by chicks as they move amongst the visitors. Remember to stay still and if you need to move, then move slowly.
- Adult penguins are also usually less concerned about human activity at this point.



3. Closed areas

Guides may specify restricted areas to avoid hazards such as tide cracks, seal breathing holes, or weak sea ice, and penguin highways to access holes or tide cracks.

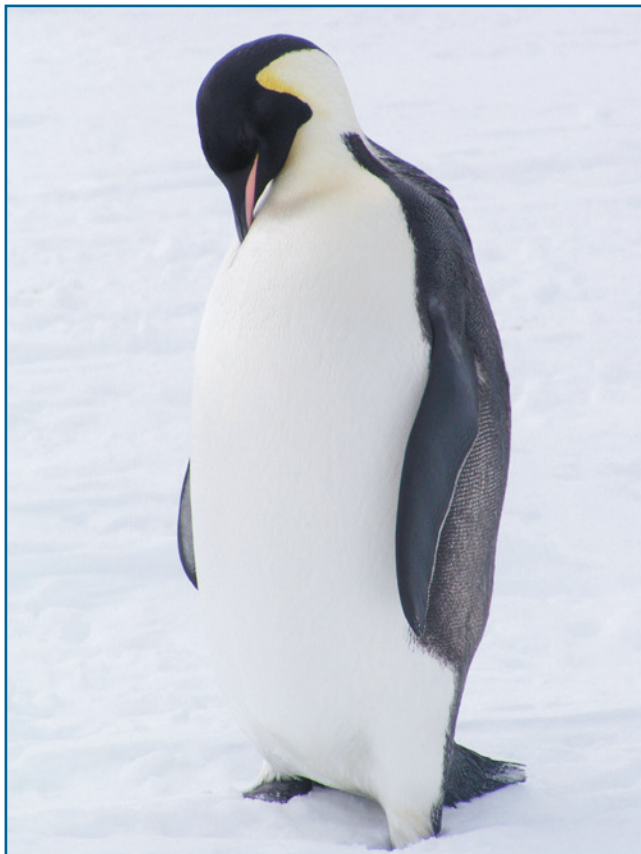
4. Guided walking areas

The approach path to the colony should be flagged, allowing space for routine slow shifting of groups of penguins. Colonies consist of several groups of penguins, thus care needs to be taken to flag a suitable approach route to the colony. Limit flags around the colony, thus limiting disturbance of the markings on the penguins, but ensure visitors are well briefed. This route should be guided.

5. Free roaming areas

Visitors may roam freely in the camp area (if camping) and near the penguin colony. Guides must be on site at all times with visitors, at a ratio of maximum 1:20. This area should be well flagged to ensure paths and moving groups of penguins are not disrupted.

Safety and disturbance mitigation measures for vessel operations



All visits shall take place according to the general Guidelines for visitors to Antarctica (Resolution 2, 2004). For this colony in particular, the following must also be considered:

- When possible Ships should approach the colony from the east of Snow Hill Island, and if anchoring, do so to the south east of the island, ice conditions permitting. This specific direction will allow the helicopter to access the colony from the south east of the island, so as not to interfere with the natural route taken by penguins in their access to the sea. If ice conditions do not allow for this anchoring in the north east of the island is recommended.
- Depending on seasonal ice, the Snow Hill Emperor penguin highway and colony site may change from year to year. For vessels and helicopter to avoid disturbance to the wildlife, variations on the anchorages and helicopter flight paths described above may be necessary.

Safety and disturbance mitigation measures for vessel helicopter operations

Helicopters should follow the guidelines laid out in Antarctic Treaty Resolution 2 (2004) 'Guidelines for the Operation of Aircraft near Concentrations of Birds in Antarctica.' In addition to these guidelines, the following mitigation and safety measures should be taken into consideration when landing close to the Snow Hill Emperor Penguin Colony:

- Cross coastlines at right angles and above 2000ft (~610m) AGL on flight approach.
- Maintain a vertical separation distance of 2000ft (~ 610m) AGL and a horizontal separation of 0.25 nautical mile (~ 460m) from coastlines where possible.
- Do not over fly emperor penguin colony (including major traffic pathways of penguins), or seals. Observe tide cracks and nearest ice edge on approach to colony to estimate security of landing areas. Land a minimum of 0.75 nautical mile (~ 1km) from colony or seals.
- Select a landing site behind a prominent physical barrier (e.g. iceberg) and if possible downwind to minimise colony and seal disturbance.
- Make minimum number of passes to inspect consistent with safe landing operations.
- If there are helicopter operations, ensure the landing site is clear of wildlife and that it is consistent with safe landing operations.
- Make minimum number of helicopter shuttles possible between the ship and landing site.
- It is recommended that helicopter operations be avoided between 10:00 p.m. and 04:00 a.m. (local time) to provide a resting period for the fauna.



Safety Considerations

- It is important to have emergency equipment that allows the set up of an emergency base camp if weather changes, particularly when doing helicopter operations.
- The base camp area should be checked immediately following landing to check the sea ice is secure.
- Fast-changing weather may cause significant problems if visitor groups are spread over a wide area. Guides must monitor weather and sea ice conditions and be prepared to retreat to camp if conditions require.
- Sea ice may crack or change rapidly and caution should always be exercised. Particular care must be taken near tide cracks.

Biosecurity and waste management

The introduction of non-native species into Antarctica has been identified as a potential threat to the biodiversity of the continent, thus biosecurity measures and waste management is critically important. The following measures must be carried out when visiting Emperor colonies.

- Make biosecurity checks, i.e. cleaning boots and equipment, before the visit (Follow IAATO guidelines on biosecurity precautions)
- Other than for emergency purposes, no food is to be taken to the Snow Hill Emperor Colony.
- Set caches, emergency stores and camp a minimum of 0.75 nautical mile (~ 1km) from colony or basking seals. Secure all wastes and garbage from wildlife and remove all waste at end of trip.
- Establish grey-water pit and record location if overnighing.