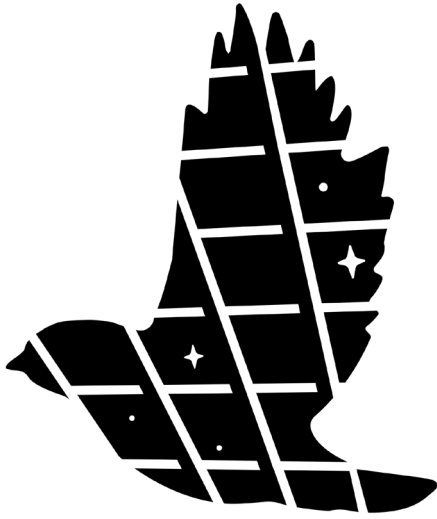


Toolkit For Preventing and Documenting Bird Strikes (Downed Birds) on Cruise Ships



Acknowledgment



B I R D C O L L I S I O N
P R E V E N T I O N
A L L I A N C E

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This toolkit was adapted from “Protocol for holders of a State of Hawai‘i incidental take license and U.S. Fish and Wildlife Service incidental take permit responding to dead or injured birds under the Kaua‘i Seabird Habitat Conservation Plan,” created by Jiny Kim (USFWS) and Katherine Cullison (Department of Fish and Wildlife, DOFAW), updated by Elyse Sachs (USFWS) and Kelli Yamaguchi (DOFAW).

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Background

One of nature's great marvels that few people know about is that millions of birds are actively flying over the ocean at night, including billions of birds that migrate over the ocean every spring and fall. Shorebirds, waterfowl, and songbirds travel extraordinary distances using cues such as light from the stars and the moon to navigate their migratory journeys. Seabirds travel and forage across vast areas of the ocean in all seasons. Before humans devised electric lighting, the moon and the stars used to be the brightest objects at night, and their phases and illumination are critically important to birds and other wildlife.

Nighttime lighting, such as lights on cruise ships and other structures, can attract birds to the light source and disorient them during migration or nighttime movements. Many lights are visible up to 200 km away, which can pull birds away from their natural migration path or distract them from feeding. The brighter skies from artificial light sources are more problematic for birds during nights with low visibility, such as periods of fog, cloud cover, bad weather, or nights where there is no moonlight. Lights are also especially problematic if they are close to areas with large groups of birds, which could be along bird migration routes or near breeding colonies of seabirds.



Birds that become disoriented or attracted by lights can become entrapped, flying around lights until, in exhaustion, they collide with the ship, land on decks, or fall into the water. When these events affect large numbers of birds, they are sometimes referred to as a "bird storm" and can last several hours. "Bird storms" resulting in thousands of bird mortalities have been documented in the Atlantic and Pacific oceans and the Gulf of America (hereafter referred to as the Gulf). When birds collide with a vessel, many of them die on impact or become stunned, and some of them can even get trapped inside the ship's cabins and quarters. These incidents can affect operations by creating potential health and safety hazards for operators and guests and cause costly damages to the ship.

The cruise line industry is in a unique position to benefit its guests and millions of birds by adjusting the lighting on its ships. In this toolkit, we provide guidance on the 4 aspects of reducing lighting to protect birds and enhance the guest experience:

1. Prevent attraction by physically reducing lighting and engaging guests in lighting reduction efforts.
2. Prepare ship crews to respond to any birds found on board.
3. Predict the times of year when lighting reductions will be most effective.
4. Respond to birds found downed on the vessel and record data that will assist in evaluating the effectiveness of these efforts.

Prevent

1. Reduce lighting during sensitive times of the year for migrating and fledging birds. Preventing or minimizing bird strikes is the primary recommended measure.

- a. **March – May** and **August – October** are periods of bird migration when birds may be exposed to ship lighting. Radar-based estimates for the general and peak migration periods for migratory songbirds are provided in Table 1. **September – December** is when young seabirds (birds that spend the majority of their life on the open ocean) may be taking their first flights and are most vulnerable to lighting in the three nights leading up to and following a new moon. These timeframes are the most sensitive for birds at sea and when it is most important for their survival to minimize nighttime lighting that illuminates any areas beyond the cruise ship.

Table 1: Timing of the migration season as estimated from offshore observations by NEXRAD weather surveillance radars (data provided by Cornell Lab of Ornithology / BirdCast). The start and end of the migration period encompasses 90% of the total observed offshore migratory passage. The start and end of the peak migration period represents the shortest period encompassing 50% of the total observed migratory passage. “North Atlantic” represents the coast from Maryland up to Maine, “Mid Atlantic + Gulf” represents the coast from Virginia down to Texas, including Florida. While there is less data from which to conclude, migration also occurs in the Pacific Ocean within similar timeframes.

Season	United States Region	Start	End	Peak Start	Peak End
spring	North Atlantic	3/24	5/26	5/2	5/18
spring	Mid-Atlantic + Gulf	3/22	5/19	4/20	5/7
fall	North Atlantic	8/23	11/5	9/29	10/27
fall	Mid-Atlantic + Gulf	8/28	10/31	9/24	10/16

- b. Extinguish non-essential exterior lighting and exterior lighting that is decorative or omnidirectional (i.e., not fully shielded).
- c. Extinguish non-essential digital screens or wall-mounted exterior lighting that is not fully shielded.
- d. Where possible, direct lights towards the ship to reduce lighting from spilling into the surrounding environment.
- e. Extinguish lighting that points upward or outward from the ship (e.g., illuminates ship stacks or other structures, under water, or illuminates and reflects off the surface of or under the water).
- f. If possible, dim essential lighting to lowest levels needed for wayfinding, reassurance, and safety.
- g. **Passenger outreach**
- In daily briefings and other regular outreach, notify passengers and crew of the steps the company is taking to reduce nighttime lighting for the protection of wildlife and the environment. See an example of passenger messaging in Resources.
 - Ask guests to close blinds at night and turn off balcony lights when they are not using their balconies.
 - Ask guests to turn off their room lights at night when they leave their rooms.
 - Ask guests not to touch any birds they find and to contact reception/safety immediately.

Prepare

2. Train and prepare select crew members on light reduction, monitoring, and bird handling protocols.

- a. Train ship captain, operators, and staff who control ship lighting on protocols to extinguish, alter position, or dim lighting.
- b. Develop a list of lighting adjustments ("bird mode") to keep on the bridge by the lighting controls or label the switches accordingly.
- c. Train and regularly encourage a subset of crew or staff to inspect ship decks for downed birds during the day and night as part of regular work routines, so that it becomes habitual. Designate one or more people as the points of contact to report to, whether or not birds are found.
- d. Regularly record whether or not birds are found during regular inspections and work routines. If a bird is found, collect information on the date, time, number, location (both of the specific area on the ship where the bird was discovered, and where the ship was at time of discovery), and conditions under which birds are found on the ship (e.g., weather conditions such as wind speed and direction, extent of cloud cover, and moon phase). Consistent monitoring data will be useful to determine the extent of the issue and if mitigation measures are proving beneficial. An example template for monitoring the ship is included in Resources.
- e. Using the Safety Protocol for Downed Birds, train a subset of staff or crew how to handle live and dead birds and collect useful data. Complete the Downed Bird Reporting Form for collecting data on birds found on the ship.
- f. Maintain at least one response kit per deck level and ensure staff know where the kits are located. See a list of materials for each response kit in Resources.

Predict

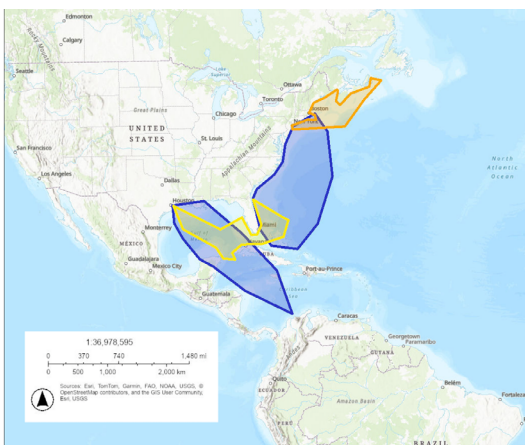
3. Using the procedure below, predict the nights with a higher risk for large numbers of migrating birds to collide with ships.

For the Continental U.S., the Gulf, and the Caribbean ships are at highest risk for bird collisions under a combination of conditions:

1. Dates: Birds are migrating northward April – May, and birds are migrating southward August – October
2. Time: Dusk until dawn, peaking in the middle of the night
3. Moon phase: Three nights before and three nights after a new moon. See <https://www.moongiant.com/fullmoons/> for new moon dates.
4. Weather: Fog, low cloud ceiling, storms, or rain. Extreme weather events, such as hurricanes, tropical storms, and large weather fronts, may contribute to unusual bird migration patterns, such as pushing migrating birds to areas indirectly impacted by extreme weather and where ships may be transiting.
5. Location: Near the shore or when traveling in high-traffic migratory flyways, especially between the Caribbean islands and the Gulf.
6. A large number of birds are predicted to migrate over the closest major coastal cities. BirdCast (<https://birdcast.info/>) is an online tool that predicts the number of birds migrating each night and sends notifications when large numbers of birds are likely to be migrating over an area. When far from shore, beyond the coverage of BirdCast, a ship's radar unit may detect large numbers of flying animals in the atmosphere, such as birds and bats, and help the ship operators predict the immediate risk for an event.

For Hawai'i ships are at the highest risk for seabird collisions and fallout under a combination of conditions:

1. Dates: Hawai'i's seabirds leave their nests for the first time September – December and are most vulnerable to the impacts of artificial light at night during this time period.
2. Time: Dusk until dawn.
3. Moon phase: Three days before and after a new moon.
4. Weather: Periods of high winds concurrent with low moon illumination (i.e., the new moon) may increase the rate of seabird fallout, which is when seabirds become disoriented by artificial light, and either circle lights or collide with structures and collapse to the ocean or ground exhausted.



Yellow and orange-shaded areas represent areas with dense cruise traffic, with higher concentrations of cruise traffic in the area shaded in yellow. The blue-shaded areas represent areas with high numbers of migratory bird species during the spring and fall each year. The overlap in these areas represents where birds may be at highest risk of becoming disoriented by human activities offshore, such as nighttime lighting on cruise ships, with the majority of this overlap being in the Gulf and around Florida

Respond

4. Recommendations for high-risk nights:

- a. Alert crew to the risk and request they report to trained crew or staff any observations of birds congregating around or colliding with the ship.
- b. Extinguish or dim all but essential lighting for navigation and safety.
- c. Remind passengers to close curtains and turn off cabin and balcony lights.
- d. Have ready access to response kits and a designated area of the ship for transporting any exhausted or injured birds for recovery.

5. If many birds are congregating around and landing on the ship:

- a. Keep all windows and doors closed where possible.
- b. Keep passengers away from areas with downed birds.
- c. Give birds space and time to recover. They may take flight overnight or in the morning.
- d. Following protocols, move live birds to a designated area of the ship for recovery.
- e. Properly document and dispose of dead birds.
- f. Record data on the incident and response using the data sheet template in Resources, including for large events.

6. If birds enter the ship and cabins:

- a. If a bird is in an indoor area and is exhausted or hits a window and can be picked up, handle the bird in the same manner as if picked up on the ship deck (following safety protocols) and move it to the designated area of the ship for recovery.
- b. If a bird(s) is flying around inside:
 - i. Do not attempt to chase or capture the birds.
 - ii. Keep passengers and other crew away from the area.
 - iii. Open nearby exterior windows and doors.
 - iv. Turn off interior lights to help birds naturally orient towards the lights of the exits.
 - v. If exterior lights have been turned off, illuminate exits with a flashlight or small lights from decks or balconies to help birds orient towards them.
 - vi. Give birds time to recover and exit on their own.
 - vii. Birds that do not find their way out can be approached, keeping the bird between the person and the exit to help the bird move towards the exit.
 - viii. Rescue any birds that remain trapped and can be picked up the same as if picked up on the ship deck.

Resources

- a. Passenger outreach messaging:** Here is some suggested template language that you can use to prepare, inform, and educate your guests about the ship's altered lighting. You may want to tailor this suggested language to your ship, destination, or other localized geographic information.

For the Continental U.S., the Gulf, and the Caribbean:

PROTECT MIGRATING BIRDS

From April – May and August - October, billions of birds will be taking flight from land and crossing expanses of open ocean. As a precautionary measure, [VESSEL NAME] will reduce its lighting on open decks to prevent birds from being attracted to and accidentally flying into the vessel. This is to both prevent injuries to the birds and keep our guests and ship safe. Please assist this effort by turning off balcony lights when you retire for the night and closing your cabin drapes after dark if you have lights on inside. [COMPANY] is committed to ensuring that wildlife and the environment are protected and cared for. Should you find a bird on board, please do not touch it; instead, immediately call our Reception Desk [NUMBER].

For Hawai'i:

HAWAII SEABIRD PROTECTION

From September – December, Hawaii's seabird fledglings will be taking their first flight from nests on land to the open ocean. As a precautionary measure, [VESSEL NAME] will reduce its lighting on its open decks to prevent the birds from flying into the vessel and sustaining any injuries. Please assist this effort by turning off balcony lights and closing your cabin drapes after dark if you have lights on inside. [COMPANY] is committed to ensuring that Hawaii's wildlife and environment are protected and cared for. Should you find a bird on board, please do not touch it; instead, immediately call our Reception Desk [NUMBER].

- b. Response kit material list:** This is a suggested list of materials to have on hand and in one place, with ready access in the event a strike should occur.
- i. Copy of this protocol
 - ii. Copies of the Downed Bird Reporting Form and pen/pencil to fill out the form
 - iii. Field guide for birds to aid in identifying the type or species of bird or, for Hawaii, see below for a list and description of Hawaiian seabirds. Sibley, Audubon, Smithsonian, or Peterson bird field guides all provide helpful illustrations. Several apps can reliably identify species and types of birds with a photo if or when the device is connected to a cellular or wifi network. Useful apps include Cornell Lab of Ornithology's Merlin, iNaturalist, and Seek by iNaturalist
 - iv. 15 small and 5 medium-sized ventilated cardboard boxes. Cardboard boxes can be stored flat, folded on an as-needed basis, discarded after use, and replaced. Reusable containers can also be used, such as 1-2 pet carriers per kit for larger birds or other non-airtight containers (container must provide enough room for the animal to comfortably move around, but also be sturdy enough to hold an active bird)
 - v. Two clean towels (large enough to wrap around the bird); soft cloth such as a t-shirt or flannel
 - vi. Gallon-size zipper storage bags (for dead birds if company protocols include collection of dead birds)
 - vii. Permanent marker to write information on zipper storage bag
 - viii. Flashlight/head lamp (for searching in the dark)
 - ix. Protective gloves (several pairs of plastic/latex disposable gloves) and two pair of work gloves for handling large birds
 - x. Eye protection

xi. Hand disinfectant

Plastic pet carriers sized for cats and small dogs are recommended for handling medium-sized birds, such as petrels and shearwaters. All containers must have towels or rags placed in the bottom to help prevent slipping and protect the bird's feet and breastbone. The towel or other cushioning material should sufficiently cover the bottom of the container. Ensure the carrier is padded inside, well-ventilated, and covered (to provide a sense of security). Place only one bird per carrier.

Cardboard boxes used for transporting injured wildlife are to be used once and then discarded to avoid cross-contamination and/or disease or pathogen transfer. If plastic pet carriers are used, adequately clean or sterilize between uses.

Handle wild birds only if it is absolutely necessary and as minimally as possible. The less physical contact you have with the animal, the better for you and the animal.

c. Data sheet template for ship monitoring for birds

Collecting data from routine monitoring on the ship will be useful to determine the extent of the issue and if mitigation measures are proving effective. Record all searches, even those that find no birds. In the event a bird is found, complete the Downed Bird Reporting Form further down in Resources. This data sheet template can also be used to track counts of birds for any events with a large number of birds (e.g., >10 birds).

Each vessel or cruise company collecting data can store and review the information to learn which measures are working. If a company would like to voluntarily share its data, the Coastal and Offshore Lighting Working Group is developing a process to receive and compile the information. The Working Group is interested in learning more about the scope and scale of the issue, nuances of the contributing factors, and which mitigation measures are most effective, all of which will be used to provide updated information to the cruise line industry.

Vessel Name:									
Date	Local Time	Location Found (on ship)	Ship Location (GPS Coordinates)	# of Birds Found	Weather Conditions (wind speed and direction, extent of cloud cover, and moon phase)	Reduced ship lighting? (Y/N)	Searcher Name	Downed Bird Form completed (Y/N)?	Photos taken (Y/N)?
Notes:									

d. Safety Protocol for Downed Birds:

1. Wear personal protective equipment (e.g., disposable gloves) when handling downed wildlife. Disease and contamination exposure can work in both directions (bird to person, and person to bird). If multiple live birds are being handled, use a new pair of gloves between each bird. The same gloves can be worn for handling dead birds.
2. If the bird is dead, complete the Downed Bird Reporting Form and discard of the bird following company protocols for disposing of dead wildlife (in some cases that may be to drop the bird overboard).
3. If the bird is alive, instructions are as follows:
 - a. If the bird is not entrapped, give it a quiet space and some time to recover and take flight.
 - b. If the bird is entrapped or does not show signs of recovery:
Use caution. Pick up the bird as safely as possible. Seabirds are docile but beware of their pointed bills. Birds may target eyes and can cause serious injury or be injured if not handled properly. Bear in mind your safety first and then the injured bird.
 - c. Approach the bird from behind, use a towel, t-shirt, or cloth to gently wrap around its back and wings. Gently cover the head (like a tent) and keep voices low to help the bird remain calm and greatly reduce stress.
 - d. Never put birds near your face. Extend your arms. When handing a bird to someone else, make sure that the head, neck, and wings are secure and in control first to avoid serious injury to handlers and to minimize injury to the bird. Never allow an alert bird with injuries to move its head freely while being handled. Communicate with the person you are working with.
 - e. Place the bird in a ventilated box (described in the previous section) for transport. Never put two animals in the same container.
 - f. Provide the bird with a calm, dark, cool, quiet environment, and do not keep the bird longer than necessary.
 - g. Never feed an injured bird. Attempting to provide food or water may further injure the bird.
 - h. Complete the Downed Bird Reporting Form for each grounded, injured, or dead individual.

The following infographic was created and is being used with permission by the Joint Nature Conservation Committee and the Government of South Georgia and the South Sandwich Islands. It can be printed and included with materials or posted in areas for crew to read.

Bird-strike Handling Guidelines

WHAT TO DO IN THE EVENT OF A BIRD-STRIKE:

YES

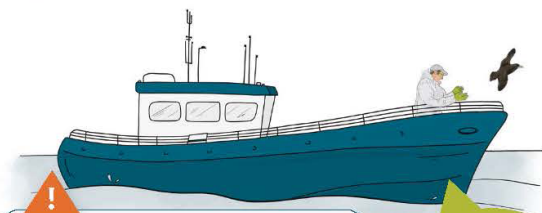
Does the bird look alert?

NO

If the bird looks alert,

1a

is not saturated with water, has no visible injuries and weather conditions are not misty/foggy/snowy (note that wet/windy is OK) and deck lights are off – quick release is recommended.



Consider the best time for release if possible:

Daylight ☀ - skua, kelp gull, shag, giant petrel, albatross
Dusk 🌙 - all other species

Ensure **no predators** such as skuas or large gulls are around during release

If the bird does not look alert,

2

(e.g. eyes closed, head drooping) is injured, waterlogged or weather conditions are poor (misty/foggy/snowy) then place in a ventilated box. Make sure to close and secure lid.

1 bird per box or multiple birds of the same species if necessary



Store in a **cool, dark, quiet and dry** sheltered area

Do not overcrowd boxes. Lids on boxes should be secure. Do not give bird food or water.

Small box:
35x35 cm approx =
3 small birds max;
1 medium max;
no large birds!

Medium box:
60x60 cm min =
6-8 small birds;
3 medium;
no large birds!

Large box:
130x130 cm =
1 large bird only,
such as an albatross.



See overleaf for guidance on bird sizes.

Prepare to release the bird.

1b

Stand at a ship railing that is high on the superstructure on the windward side of the vessel. Sit the bird on your outstretched hands. If the bird does not take off on its own after a few minutes then gently throw the bird up in the air.



If the bird **returns back** on deck after release, follow step 2

Record details of the bird-strike on recording forms.

1c



Has the bird recovered?

YES

NO

Go back to step 1 and follow steps 1a-c.

Give the bird more time, then assess again. If the bird dies, dispose of it. Only retain birds if you hold the relevant permits from the appropriate authority.

Do not forget to record details

KIT LIST

Please refer to the box size guide in step 2.

Before handling a bird, ensure you have:



Gloves



Goggles/Glasses



Ventilated Box

HOW?



BEWARE: Do not hold birds close to your face/eyes – always try to wear eye protection. Some birds may regurgitate food when handled. This will not harm them or you, but do not try to put this back into its mouth or give them other food.



Small birds: 14-23 cm 33-39 cm
e.g. storm petrels, diving petrels, prions.

Bird can be held in one hand with its back in the palm of the hand and the neck between index and middle fingers. The wing can be held open - to check for injury - by gently holding the upper wing between the thumb and index finger of the non-holding hand.



Medium birds: 30-38 cm 76-82 cm
e.g. white-chinned petrel, shearwaters, skuas.

Initially, hold the body of the bird with both hands and with wings folded. To avoid being bitten, brace the back of the head with one hand, with your other hand around the body/wings.



OR



Large birds: 107-135 cm 254-351 cm
e.g. albatross, giant petrels.

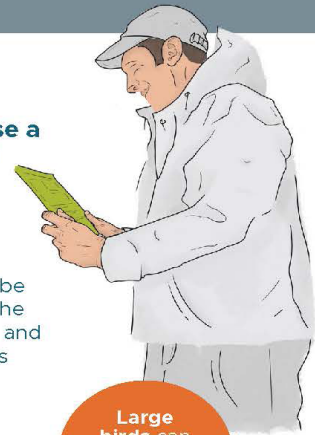
Hold the body and folded wings in your arms or crouch over the bird holding it in place with your legs. Restrain head by gently but firmly holding bill in one hand, but without covering the nostrils.

Large birds can also be held under your arm.

WHO?

If possible, choose a designated crew member

who is familiar with these guidelines to handle and release birds. Birds need to be handled safely (for the crew and the birds), and for as short a time as possible.



ADDITIONAL INFORMATION

How to approach birds - To both minimise stress to the birds and to ensure welfare/safety of the bird/handler, try to keep the following in mind: Keep movements slow, speak quietly, do not have too many people around, do not shine a torch right at the bird's face, try not to use flash on cameras, handle as little and as quickly as possible whilst staying safe. Do not make an announcement, draw attention to the event, or take time to show birds to others on board.

Health & safety - The welfare of the handler is as much a priority as the welfare of any stranded birds. Please ensure gloves (thinner gloves are recommended for better dexterity) and eye protection are used when handling any bird - or if eye protection is not available, keep the bird well away from your face - they can reach further than you might realise!

Enhanced monitoring during a bird-strike event - After a bird-strike has been recorded on your vessel, frequent checks of the deck for more birds can reduce the amount of time they spend on deck and increase their chances of survival.

Optional response to reduce the possibility of a bird-strike in poor weather conditions - Birds are more likely to land on deck in poor weather conditions - especially when it is foggy or snowy. If birds start to land on deck then, if safe to do so, consider reducing ice lights and vessel speed to a minimum until conditions improve.

Oiled birds - Cleaning an oiled bird is a specialist process and attempting to wash oil from a bird can cause more harm than good, so this is not recommended. Instead, handle the bird as little as possible, retain it in a box (ideally on its own so it does not contaminate others) and release when the bird is dry.

Recording forms - To help us understand how many birds are landing on deck, what species are found most often, and under what conditions bird-strike most commonly occurs, please ensure that you record any instances of bird-strike on the recording forms (to species level if possible). Taking a picture of a specimen if circumstances allow can be useful for identification if you are unsure! A mobile phone camera is perfect - take lots of pictures, including upperparts, underparts and head/bill.

If the bird has a metal ring on its leg please read and record the numbers/letters very carefully (check twice!). Other forms of tag might also be present. Please make a note or photograph these if you can, but do not attempt to remove any.

Bird flu - This guidance is intended for use outside of outbreaks of Highly Pathogenic Avian Influenza (HPAI)/bird flu. Where there is an identified risk or outbreak of HPAI, please refer to specific guidance from the relevant authorities.

e. Downed Bird Reporting Form

Downed Bird Reporting Form

Page 1 of 1

Vessel Name: _____

Type of bird : _____

o Identify birds to the best of your ability using either a field guide, an app on a cell phone (e.g., Merlin or iNaturalist), or simply to a general bird group, such as seabird, songbird, shorebird, raptor, gull, humminbird, etc.). You can also provide a general description or refer to a photo that's taken of the bird for later identification.

File Name: [naming convention: YEAR-MM-DD_FACILITY or VESSEL ABBREVIATION]

Observer Name:	
Report Prepared by:	
Date of Incident:	
Incidental or Routine Search:	
Local Time Observed:	
Location on Vessel (be specific):	
GPS Coordinates units and datum; prefer: GCS WGS84 or NAD83 UTM Zone 4N (specify):	
Weather Conditions (cloud cover, wind and direction, precipitation):	
Moon Phase:	
Vessel Lighting Conditions:	
Outcome (released alive, dead, or other(describe)):	
Photos taken (Y/N) and provided to	

Downed Bird Reporting Form

Page 1 of 2

Condition of Specimen [describe the animal's general condition, as well as any visible injuries, be specific (e.g., large cut on right wing tip)]:

Probable Cause of Injuries and Supportive Evidence [be descriptive (e.g., 'probable light source', 'collision', 'exhaustion')]:

Action Taken [include names, dates, and times]:

Additional Notes/Comments:

Include the following:

- Photos showing the downed bird:

- a) up close
- b) with its immediate surrounding; and
- c) nearest structures in the background.

Include a ruler or measuring device to provide scale.

f. Other scientific resources:

Threats to Birds: Offshore Structures <https://www.fws.gov/library/collections/threats-birds-offshore-structures>

Procedures for handling and documenting stranded birds <https://www.cnlopb.ca/wp-content/uploads/mkiasseis/bestpracbird.pdf>

Managing bird strike in South Georgia and the South Sandwich Islands https://www.bmis-bycatch.org/system/files/zotero_attachments/library_1/BCKADKQ9%20-%20Tierney%20et%20al.%20-%20What%20goes%20thump%20at%20night%20managing%20bird-%20strike%20in.pdf

g. Training slides are available in .ppt format:

Safety Protocol for Downed Bird

h. List of Hawaiian Seabirds–For Cruise Ships:

This is a list of the most commonly observed seabird species found on cruise ships during the fallout season (September –December) in the main Hawaiian Islands. This list is based on existing seabird fallout data from a cruise ship line, and is not meant to be an exhaustive list of all seabirds that are present in the Hawaiian Islands. Photos are included for the most likely species found as fallout on cruise ships. Additional seabird species that could fallout, but have not been confirmed to, are listed at the end of the document. For photos of additional species, Merlin Bird ID is a free bird identification app with photos. All of the seabird species listed here are protected under the Migratory Bird Treaty Act (MBTA), and some species have additional protections under the Endangered Species Act (ESA).

'Ua'u-Hawaiian Petrel(*Pterodroma sandwichensis*)

Federal status: ESA -Endangered

State status: Endangered

IUCN(global)status:Endangered

Photocredit:National Parks Service, Public domain, via Wikimedia Commons



'A'o - Newell's Shearwater (*Puffinus newelli*)

Federal status: ESA - Threatened

State status: Threatened

IUCN (global) status: Critically Endangered

Photo credit: ABR



'Ua 'u Kani – Wedge-tailed Shearwater (*Ardenna pacifica*)

Federal status: MBTA

State status: Indigenous

IUCN (global) status: Least Concern

Photo credit: Forest and Kim Starr, Creative Commons Attribution 3.0 US License



'Ewa 'ewa – Sooty Tern (*Onychoprion fuscatus*)

Federal status: MBTA

State status: Indigenous

IUCN (global) status: Least Concern

Photo credit: Duncan Wright, USFWS, Public Domain



'Ake 'ake - Band-rumped Storm Petrel (*Hydrobates castro*)

Federal status: ESA - Endangered (Hawai'i population)

State status: Endangered

IUCN (global) status: Least Concern

Photo credit: USFWS Pacific Region, Public domain, via Wikimedia Commons



Leach's Storm Petrel (*Hydrobates leucorhous*)

Federal status: MBTA

State status: Indigenous

IUCN (global) status: Vulnerable

Photo credit: C. Schalwe, Public domain, via Wikimedia Commons



Koa'e kea – White-tailed Tropicbird (*Phaethon lepturus*)

Federal status: MBTA

State status: Indigenous

IUCN (global) status: Least Concern

Photo credit: Dreizung, CC BY-SA 3.0



Koa'e ula – Red-tailed Tropicbird (*Phaethon rubricauda*)

Federal status: MBTA, Bird of Conservation Concern

State status: Indigenous

IUCN (global) status: Least Concern

Photo credit: Forest and Kim Starr, CC BY 3.0 US



Christmas Shearwater (*Puffinus nativitatis*)

Federal status: MBTA, Bird of Conservation Concern

State status: Indigenous

IUCN (global) status: Least Concern

Photo credit: Duncan Wright, USFWS, Public domain, via Wikimedia Commons



Sooty Shearwater (*Ardenna grisea*)

Federal status: MBTA

State status: Indigenous

IUCN (global) status: Near Threatened

Photo credit: Sabine's Sunbird, CC BY-SA 3.0



Black-winged Petrel (*Pterodroma nigripennis*)

Federal status: MBTA

State status: Indigenous

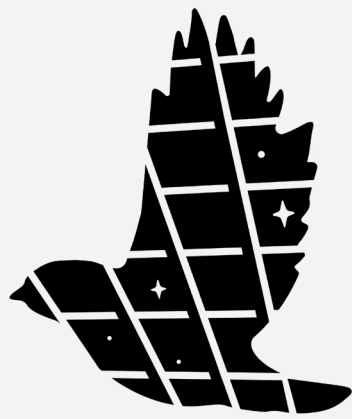
IUCN (global) status: Least Concern

Photo credit: Christopher Watson (<http://www.comebirdwatching.blogspot.com/>), CC BY-SA 3.0



Other Seabird Species:

- 'Ou - Bulwer's Petrel (*Bulweria bulwerii*)
Federal: MBTA, Bird of Conservation Concern
State: Indigenous
IUCN (Global): Least Concern
- Nunulu - Bonin Petrel (*Pterodroma hypoleuca*)
Federal: MBTA, Bird of Conservation Concern
State: Indigenous
IUCN (Global): Least Concern
- Tristram's Storm-Petrel (*Hydrobates tristrami*)
Federal: MBTA, Bird of Conservation Concern
State: Indigenous
IUCN (Global): Least Concern
- Kermadec Petrel (*Pterodroma neglecta*)
Federal: MBTA
IUCN (Global): Least Concern
- Mottled Petrel (*Pterodroma inexpectata*)
Federal: MBTA, Bird of Conservation Concern
IUCN (Global): Near Threatened
- Juan Fernandez Petrel (*Pterodroma externa*)
Federal: MBTA, Bird of Conservation Concern
IUCN (Global): Vulnerable
- Cook's Petrel (*Pterodroma cookii*)
Federal: MBTA, Bird of Conservation Concern
IUCN (Global): Vulnerable
- Buller's Shearwater (*Ardenna bulleri*)
Federal: MBTA, Bird of Conservation Concern
IUCN (Global): Vulnerable



B I R D
C O L L I S I O N
P R E V E N T I O N
A L L I A N C E

Toolkit For Preventing and Documenting Bird Strikes (Downed Birds) on Cruise Ships