

# American oystercatcher, snowy plover, black skimmer, least tern

*Haematopus palliatus, Charadrius nivosus,  
Rynchops niger, Sternula antillarum*



Photographs (clockwise from top left): American oystercatcher, snowy plover, black skimmer, and least tern by FWC

## Species Overview

**Status:** The American oystercatcher, snowy plover, black skimmer, and least tern are listed as state Threatened on Florida’s Endangered and Threatened Species List.

## Current Protections

- [68A-27.003\(2\)\(a\)](#), F.A.C. No person shall take, possess, or sell any of the endangered or threatened species included in this subsection, or parts thereof or their nests or eggs except as authorized by Florida Fish and Wildlife Commission (Commission) rule or by permit from the Commission or when such conduct is authorized in a management plan as defined in this chapter and approved by the Commission, or as authorized in Commission-approved guidelines.
- [Florida Statute 379.411](#) Intentional killing or wounding of any species designated as endangered, threatened, or of special concern; penalties.—A person may not intentionally kill or wound any fish or wildlife species designated by the commission as endangered, threatened, or of special concern, or intentionally destroy the eggs or nest of any such fish or wildlife, unless authorized by rules of the commission. A person who violates this section commits a Level Four violation under s. 379.401.
- [68A-27.001\(4\)](#), F.A.C. Take – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. The term “harm” in the definition of take means an act which actually kills or injures fish or wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. The term “harass” in the definition of take means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.
- [68A-16.001](#), F.A.C., [68A-4.001](#), F.A.C., and the Federal Migratory Bird Treaty Act protect native birds, active nests, eggs, and young.

### Box 1. Quick links

Will my activity cause take?

- [Definitions and take](#)
- [Figure 6](#)
- [Appendix A](#)

Can I avoid take?

- [Measures to Avoid Take](#)
- [Examples of Activities Not Expected to Cause Take](#)
- [Other Authorizations for Take](#)

How do I apply for a permit?

- [Box 2](#)
- [Incidental take](#)
- [Research, education, salvage](#)

Are there standard mitigation or minimization for my activity?

- [Standard mitigation options](#)
- [Appendix B](#)

If not, how do I determine mitigation?

- [Box 2](#)
- [Mitigation options](#)

- [68A-16.006](#), F.A.C. prohibits the use, placement, and possession of bird traps without the appropriate authorization.
- [68A-19.005](#), F.A.C. designates Critical Wildlife Areas that may have year-round or seasonal closures to prevent disturbance during critical life stages for imperiled wildlife, including these species.

## Biological Background

This set of Guidelines addresses four species: American oystercatcher (*Haematopus palliatus*), snowy plover (*Charadrius nivosus*), black skimmer (*Rynchops niger*) and least tern (*Sternula antillarum*). These state-Threatened species are collectively referred to as imperiled beach-nesting birds (IBNB, FWC 2013).

This section describes the biological background for IBNBs and provides context for the following sections. This section focuses on habitats that support essential behaviors, threats, and [what constitutes take](#) for these species. For more information about life history and conservation actions for IBNBs, please refer to [A Species Action Plan for Four Imperiled Beach-nesting Birds](#) (FWC 2013).

American oystercatchers, black skimmers, and least terns are found throughout most coastal areas of the state, but snowy plovers are found only along the coasts of the Panhandle and Southwest Florida. Black skimmers and especially least terns are also observed at inland water bodies. Least terns only occur in Florida during their breeding season and spend the non-breeding season in Central and South America (Thompson et al. 2020). American oystercatchers and black skimmers are year-round residents, with resident populations augmented by migrants in the non-breeding season. Most snowy plovers are year-round residents, but some migrate to other Gulf of Mexico states during the non-breeding season (Himes et al. 2006).

Breeding seasons vary by species and location within Florida ([Figure 1](#)). IBNBs may re-nest multiple times in a season if nests fail (Gochfeld et al. 2020, Page et al. 2020, Thompson et al. 2020, Working Group et al. 2020), but only snowy plovers rear multiple broods in a season (Pruner 2010, Pruner et al. 2011, Page et al. 2020).

IBNBs often return to the same site where they nested during previous breeding seasons (Gochfeld 1978; Atwood and Massey 1988, FWC 2013; FWC unpublished data). However, IBNBs sometimes temporarily or permanently abandon breeding sites due to changes in environmental conditions, poor reproductive success, or excessive disturbance (Burger 1982, Burger 1984). At sites re-used by IBNBs between 2011-2018, some sites were abandoned temporarily, but these absences were typically only 1 to 2 years and rarely exceeded 4 years (FWC, unpublished data). This underscores the importance of conserving recent breeding sites, even if birds are absent for 1 or more years.

American oystercatchers and snowy plovers are solitary rather than colonial-nesters, with territories spaced closer together in higher quality habitat ([Figure 2](#)). Least terns and black skimmers nest in colonies ranging from a few pairs to hundreds (Gore 1996; [Figure 3](#)). Multi-species colonies are common and may include other seabirds (Gore et al. 2007, Zambrano and Warraich 2012). All 4 species nest in scrapes: shallow, inconspicuous depressions in sand, shell, gravel, cobble, dredge spoil, or some combination of these materials ([Figure 4](#)). American oystercatchers also nest in wrack or low vegetated substrate.

IBNB chicks are dependent on their parents to protect them from heat and cold. Newly-hatched chicks typically cannot regulate their own body temperature until they are 10 days old (Nichelmann and Tzchentke 2002), so parents brood (i.e., cover with their bodies) newly-hatched chicks to protect them from the elements. American oystercatcher and snowy plover adults spend considerable time brooding chicks during this time period (Colwell et al. 2007, Working Group et al. 2020). Least terns brood young continuously for the first 24-48 hours after hatching. Black skimmers brood young continuously for the first week.

American oystercatcher chicks are dependent on their parents for invertebrate food up to 60 days after hatching, though they may do some foraging on their own in as early as 2 to 3 weeks (Working Group 2020). Snowy plover young, which leave the nest within hours of hatching, forage for insects and other

invertebrates (Page et al. 2020). Black skimmer and least tern chicks are solely dependent upon their parents for provision of food (fish) until they are capable of sustained flight and can forage on their own. American oystercatchers, black skimmers, and least terns typically raise broods at the breeding site, but snowy plover parents guide young chicks to high quality brood-rearing sites, sometimes up to several miles away from breeding sites (Pruner and Johnson 2010).

When not foraging, IBNBs need safe places for the essential behavior of roosting (i.e., resting or sleeping). All 4 species roost in flocks during the non-breeding season. The availability of safe roosting sites that are exposed at high tide is considered a limiting factor for American oystercatchers in Florida (Brush et al. 2017).

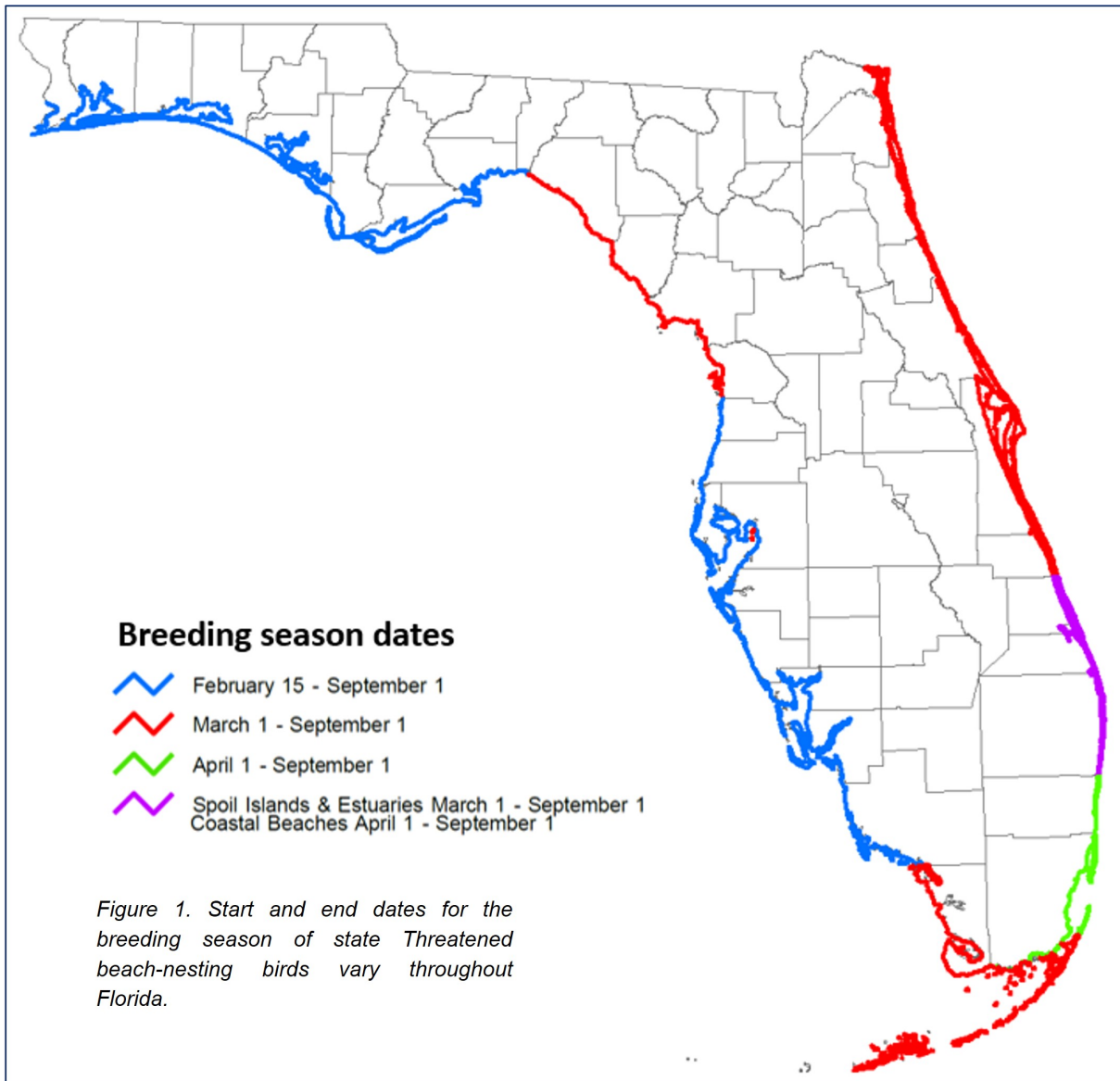
### **Habitat features that support essential behavioral patterns**

In Florida, IBNBs are primarily found along sandy beaches, inlets, spoil and barrier islands, and estuaries. Least terns and black skimmers are also found in interior portions of Florida, particularly foraging around freshwater lakes and manmade bodies of water and resting in adjacent sandy or gravel areas.

Breeding IBNBs need undisturbed, open or sparsely-vegetated habitat with sand, shell, gravel, cobble, dredge spoil, or some combination of these materials in which to dig scrapes (e.g., Figure 4). American oystercatchers breed on beaches, natural and spoil islands, and shell rakes. Snowy plovers breed on open or sparsely vegetated barrier islands and coastal beaches. Black skimmers and least terns nest on beaches, emergent sandbars, washouts in dunes and coastal berms, shell rakes, and dredge spoil islands. American oystercatchers, black skimmers, and least terns also nest on flat, gravel rooftops (Zambrano and Smith 2003, Gore et al. 2007). More than half of Florida's least tern population nests on rooftops (FWC 2020), presumably due to habitat loss, human-related disturbance, and avoidance of mammalian predators (Fisk 1978). Least terns in Florida have also been documented nesting on 2 non-gravel rooftops (Warraich et al. 2012), as well as sand mines, temporary mining sand tailings, construction sites, causeways, agricultural fields, parking lots, and other bare lands (Gore et al. 2007, Zambrano and Warraich 2012 Thompson et al. 2020). Development; groins, jetties, and shoreline hardening structures; mechanical beach raking; and human recreational activities in coastal areas are likely reasons why least terns are increasingly nesting in alternative locations.

The availability of high-quality brood-rearing habitat is important for chick survival (Pruner 2010, DeRose-Wilson et al. 2018). For American oystercatchers, black skimmers, and least terns, brood-rearing habitat typically overlaps with breeding habitat. Brood-rearing habitat may overlap with breeding habitat for snowy plovers, though in some areas snowy plovers guide chicks along the shoreline, sometimes for great distances, to high-quality brood-rearing habitat (Pruner and Johnson 2010). These *Critical Brood-rearing Sites* (see [definition](#) below) may be similar to breeding habitat but often contain significant features such as ephemeral pools, lagoons, salt flats, and other low energy, poorly-drained coastal areas recharged by tidal activity and rainwater. These features have greater amounts of prey, which results in greater productivity for snowy plovers (Pruner 2010).

Imperiled beach-nesting birds roost in similar habitats used for breeding. IBNBs need open roost sites that are relatively safe from predators and close to foraging areas (Rogers et al. 2006). American oystercatchers require quality roost sites available during high tides (Brush et al. 2016). These *Critical Roosting Sites* (see [definition](#) below) for American oystercatchers tend to be farther away from shore and away from woody vegetation that can harbor potential predators (Brush et al. 2016).



*Figure 2. American oystercatchers and snowy plovers are solitary-nesting shorebirds.*



*Figure 3. Black skimmers and least terns are colonial-nesting seabirds. FWC photos.*



*Figure 4. Least tern eggs in a scrape. FWC photo.*

American oystercatchers forage on sandy beach shorelines, oyster beds, and shell rakes, and in estuaries, lagoons, impoundments, and other tidal areas. Snowy plovers forage in a variety of coastal habitats, such as washovers; ephemeral tidal pools; mudflats; sandflats; wrack lines; sparsely vegetated dunes; and shorelines of coastal ponds, lagoons, and salt marshes. The wrack line is an important source of invertebrate prey for shorebirds (Colombini and Chelazzi 2003, Dugan et al. 2003). Snowy plover chicks sometimes shelter and forage for insects among sparse coastal vegetation such as sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pescaprae*), and other native beach vegetation (e.g., *Panicum amarum*). Least terns and black skimmers forage for fish and occasionally for crustaceans in shallow waters immediately offshore and within estuaries, lagoons, and impoundments; they also forage in bodies of fresh water. Black skimmers require shallow, calm waters for foraging.

### Threats

Human-related disturbance, habitat loss, habitat alteration, and predation are the primary threats faced by IBNBs (Schulte et al. 2016, Burger 2018). Human-related disturbance results from a wide variety of activities, including but not limited to, beach recreation (Sabine et al. 2008, DeRose-Wilson et al. 2018); dogs (Weston and Elgar 2007, Faillace 2010, Weston and Stankowich 2014); construction projects in breeding sites; operation of unmanned or manned vehicles on land, in the water, or in the air (Burger 1998, Borneman et al. 2016, Durkin and Cohen 2019, Valle and Scarton 2019); special events such as fireworks, concerts, and sporting events (U.S. Fish and Wildlife Service 1997; FWC unpublished data); mechanical beach-cleaning (E. Forsys, Eckerd College, personal communication); construction of groins and jetties; emergency response to disasters such as oil spills (Henkel et al. 2014); and rooftop maintenance and repairs (FWC unpublished data). Human-related disturbance reduces survival and reproductive success for shorebird and seabird populations (Anderson and Keith 1980, Safina and Burger 1983, Pruner et al. 2011, Borneman et al. 2016, DeRose-Wilson et al. 2018). Impacts of human-related disturbance on reproductive success include reduced nesting, hatching, and fledging success rates (Safina and Burger 1983, Stillman et al. 2007, Pruner et al. 2015).

Human-related activities can impact IBNBs directly or indirectly. Direct mortality of eggs and chicks occurs from trampling by pedestrians, destruction or predation by dogs, or crushing by vehicles (Chase III and Gore 1989, Melvin et al. 1994, Toland 1999, Durkin and Cohen 2019). IBNB eggs and chicks are well-camouflaged and difficult to see, and chicks stand still or lie down in low areas when approached (Colwell et al. 2007, Page et al. 2020). Chicks can have trouble climbing out of tire ruts and may not move fast enough to avoid vehicles (see Melvin et al. 1994 for citations).

In addition to direct injury or mortality, human activities can indirectly affect survival and reproductive success through disrupting breeding, feeding, or sheltering. Activities that flush adult birds from nests exposes eggs and chicks to predators and the elements, creating the likelihood of nest failure and chick mortality. During incubation, nest failure can occur if eggs are exposed to extreme temperatures, particularly heat (Webb 1987). Egg temperatures greater than 105° F can lead to malformation or death of bird embryos (Lundy 1969). Surface temperatures frequently exceed these levels at shorebird and seabird nesting sites in the southern United States (Mallarch and Leberg 1999), with surface temperatures in excess of 140° F recorded at least tern nesting sites on beaches and dredge spoil islands and in excess of 150° F on rooftop nesting sites in Georgia (Krogh and Schweitzer 1999). In response to high temperatures, shorebirds and seabirds spend more time incubating and shading eggs during the hottest part of the day (Purdue 1976, Grant 1982, Gochfeld et al. 2020). Egg temperatures can increase to lethal levels after just a few minutes of exposure to direct sunlight (Grant 1982, Yasue and Dearden 2006, Amat et al. 2017, Stenzel et al. 2019), and embryo failure in shorebirds has been observed in as little as 2 minutes of exposure to high temperatures (Grant 1982). Similarly, exposure to extreme temperatures can negatively impact chick survival. Signs of physical distress (e.g., calling, panting, and elevated rates of movement) in least terns have been observed after as little as 5 minutes of exposure to ambient temperatures above 113° F (Howell 1959). Although less of a threat in Florida than exposure to extreme heat, prolonged exposure to lower temperatures may also result in nest failure or have sublethal effects on embryo development (Grant 1982). Activities that flush adults

away from nests may also make eggs and chicks more vulnerable to predators (Quinn 1984, Stenzel et al. 2019). When human activity disturbs adult birds sheltering eggs or chicks and causes them to flush, this creates the likelihood of reproductive failure.



*Figure 5. Shorebirds engage in distraction displays to lure predators away from nests. Such displays are costly for eggs and chicks left unattended. FWC photos.*

Breeding adults respond to disturbance by moving away from nests or chicks or by employing defensive behaviors, both of which divert their time from incubating eggs and feeding chicks (Sabine et al. 2008). When approached by people or dogs, snowy plovers and American oystercatchers may simply run from nests, but they also give alarm calls, and/or perform distraction displays, including feigning injury, crouching, or adopting a mock sleeping or brooding posture (Figure 5; Page et al. 2020, Working Group et al. 2020). Least terns and black skimmers may take flight, produce alarm calls, and dive at perceived intruders (Gochfeld et al. 2020, Thompson et al. 2020). Black skimmers also engage in distraction displays, including flying low, sometimes paddling the ground briefly with their feet, or feigning injury (Gochfeld et al. 2020). Engaging in these behaviors is potentially costly for eggs

and chicks. For example, IBNB chicks require frequent brooding by their parents until they are able to regulate and maintain their own body temperature (Nichelmann and Tzchentke 2002), so situations that cause parents to separate from chicks can cause harm. Beach-nesting birds can abandon nests or entire breeding sites as a result of being disturbed repeatedly (Burger 1984, Lafferty et al. 2006, Sabine et al. 2008, Martín et al 2015).

Chick survival decreases when human activity increases (Ruhlen et al. 2003, DeRose-Wilson et al. 2018). Human-related disturbance reduces the time that parents spend brooding and guarding their chicks and can cause chicks to feed less and to move to lesser quality habitat where they may have lower feeding rates, slower growth, and decreased survival (Yalden and Yalden 1990, DeRose-Wilson et al. 2018). Regular and repetitive disturbance can contribute to protracted snowy plover brood-rearing periods (up to 7 weeks instead of the typical 4 weeks), thereby reducing fledge rates (Pruner et al. 2015).

Repeated disturbance of foraging and roosting adult birds also threatens IBNBs. Recurring disturbance can force beach-nesting birds to abandon high-quality foraging or roosting habitat in search of undisturbed sites (Burger 1986, Burger 1994). Repeated disturbances are stressful and energetically costly for adult birds, with potential impacts on survival (Hill et al. 1997, Rogers et al. 2006, Gibson et al. 2018).

In addition to causing disturbance, human activities have greatly limited the amount of habitat available for IBNBs (Schulte et al. 2016). Coastal development has resulted in the loss of habitat, and losses are expected to continue as the state's population continues to grow (Carr and Zwick 2016). Dredging, coastal armoring, and groins and jetties can result in loss of IBNB habitat by direct removal of habitat and by altering natural coastal processes. Reduction in habitat can lead to abandonment of a breeding site (Burger 1984). Beach management practices such as mechanical beach cleaning and beach driving, create disturbances that can render otherwise suitable habitat unusable for IBNBs. Development, vegetation succession, and human recreational activities in coastal areas are all likely reasons why least terns and black skimmers are increasingly nesting in alternative locations (Gore et al. 2007, Zambrano and Warraich 2012, Thompson et al.

2020). Over 50% of Florida's least tern population currently nest on rooftops (FWC 2020), where they face unique challenges such as chicks trapped in gutters, falling off edges, or falling down downspouts where they become trapped or killed. Gravel rooftops suitable for nesting are decreasing in quantity and quality in Florida (DeVries and Forsy 2004, Zambrano and Warraich 2012), with an average of three suitable rooftops lost per year from 2000-2019 (FWC, unpublished data). As the amount of suitable habitat on beaches and rooftops declines, the limited remaining habitat increases in importance.

Increased levels of native and non-native predators also threaten IBNBs. Trash left behind on the beach by people attracts predators, such as laughing gulls (*Leucophaeus atricilla*), crows (*Corvus* sp.), rats (*Rattus* sp.), and raccoons (*Procyon lotor*), that scavenge for food scraps. Direct feeding of birds, especially gulls, also commonly occurs on recreational beaches. Both of these food sources increase predator presence and redirects their foraging attention onto the sandy beach areas where IBNBs are nesting or rearing chicks.

Additional threats for IBNBs include climate change and associated severe weather events, harmful algal blooms (FWC, unpublished data; Landsberg et al. 2009, Newstead 2014), and environmental contaminants (Shender et al. 2018). Climate change is expected to result in stronger weather events and disruption of weather and ocean patterns, as well as range expansion and increased frequency of harmful algal blooms, such as *Karenia brevis* (Errera et al. 2014, Gobler 2020). Sea level rise, and the consequential coastal squeeze, will further limit the amount of available habitat. [A Species Action Plan for Four Imperiled Beach-nesting Birds](#) (FWC 2013) and the Florida Beach-nesting Bird Plan (Schulte et al. 2016) outline actions to address many of the threats described above.

### **Potential to Significantly Disrupt or Impair Essential Behavioral Patterns**

This section describes what constitutes take of IBNBs under Chapter 68A-27, F.A.C. For ways to avoid take (and thus preclude the need for an FWC permit) please see [Measures to Avoid Take](#). Take of IBNBs can be either incidental or intentional. **Incidental take** refers to take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. This type of take is prohibited without an [incidental take permit](#) or [other authorization](#) (see [Box 2](#)). Harassment of IBNBs during coastal engineering projects is an example of incidental take. **Intentional take** is not incidental to an otherwise lawful activity and is prohibited without [a scientific collecting permit](#) or unless the take is authorized under certain circumstances involving [risks to property or human safety](#). Capturing and handling IBNBs for research is an example of intentional take.

The following terms, as defined below, are used throughout these guidelines:

- **Active Nest:** Nests are typically shallow depressions (scrapes) in sand, shell, gravel, or sparsely vegetated substrate. For the purposes of this document, a nest is considered active when it is supporting essential behavioral patterns, including breeding behavior that occurs from the point of nest building (i.e., digging a scrape) until young of the season permanently leave the nest. Essential behavioral patterns at active nests include incubating or shading eggs and brooding or feeding young. Breeding behavior, including courtship and territorial defense, that occurs in areas with nests (scrapes) signifies active nesting for IBNBs, even when eggs are not yet present in the scrapes. Scrapes are considered active nests until there is sufficient documentation demonstrating they no longer support essential behavioral patterns. Please note that this definition conforms with the definition of "active nest" in the FWC's Imperiled Species Management Plan but differs from the definition in the [Breeding Bird Protocol for Florida's Shorebirds and Seabirds](#) and Species Action Plan (FWC 2013) by including courtship and territorial defense in areas with scrapes.
- **Inactive Nest:** A scrape becomes inactive when it no longer contains viable eggs and does not contain young that are incapable of permanently leaving the nest. An inactive nest may contain egg-shell fragments or dead chicks, but only if adult birds have stopped attending to the nest, eggs, or young is the nest considered inactive.

- **Breeding Site:** An area used by shorebirds and seabirds for breeding.
  - **Active Breeding Site:** Breeding sites where one or more Active Nests are present. Active Breeding Sites include sites for colonial nesting seabirds and solitary nesting shorebirds. The boundary of the Active Breeding Site is determined by creating a 300-foot buffer -- or a smaller, site-specific buffer delineated with Regulatory Boundary Signs by FWC staff or Florida Shorebird Alliance Partners in accordance with the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#) -- around Active Nests. For colonies, this means that the buffer is from the outermost nests. Boundaries may shift if the colony grows in size. At ground sites, buffers are sometimes, but not always, delineated using symbolic fencing and Regulatory Boundary Signs (i.e., posted areas). On rooftops, buffers often encompass the entire rooftop.
  - **Recent Breeding Site:** Breeding sites where one or more Active Nests have been recorded in any of the preceding five consecutive breeding seasons for which data are available in the FSD (i.e., for which data have undergone review and quality control by FWC staff). As noted in the Biological Background section, some breeding sites are not used every year, but IBNBs often return to the sites in subsequent breeding seasons (FWC, unpublished data). This definition may be revisited in future revisions of this document as new data become available. Recent Breeding Sites include sites for colonial nesting seabirds and solitary nesting shorebirds. A map of Recent Breeding Sites can be found in the “ShoreMap” application on the FWC’s website at: <http://geodata.myfwc.com/pages/upland>. Recent Breeding Site maps will be updated April 1<sup>st</sup> of each year. Please note that rooftops and other artificial structures (e.g. abandoned bridges) are not considered Recent Breeding Sites due to the [ISMP policy on state-listed species and man-made structures](#) (see [Other Authorizations for Take](#)).
- **Colony:** A congregation of one or more pairs of breeding birds that nest and roost in close proximity at a particular location. Colonies can contain multiple species.
- **Critical Brood-rearing Site:** Habitat that has been used frequently by snowy plover chicks and juveniles for resting, foraging and other essential behaviors over the preceding five years for which data are available in the FSD (i.e., for which data have undergone review and quality control by FWC staff). A map of Critical Brood-rearing Sites can be found on the FWC’s website at: <http://geodata.myfwc.com/pages/upland> and is updated annually by April 1<sup>st</sup>. Critical Brood-rearing Sites may or may not overlap with Recent Breeding Sites.
  - **Active Critical Brood-rearing Site:** A Critical Brood-rearing Site is considered active from March 15-August 31, which is when it is likely to contain snowy plover chicks and juveniles.
- **Critical Roosting Site:** Habitat critical for the essential behaviors of roosting (i.e., sheltering) for American oystercatchers. A map of Critical Roosting Sites can be found on the FWC’s website at: <http://geodata.myfwc.com/pages/upland>. Critical Roosting Sites may or may not overlap with Recent Breeding Sites. Critical Roosting Sites support essential behaviors year-round.
- **Regulatory Boundary Sign:** Signage specifically used to protect sensitive IBNB nesting, feeding, or roosting areas from human disturbance. These signs reference state or federal rules or statutes and are designed to prevent stakeholders from inadvertently violating laws protecting IBNB. Areas protected by Regulatory Boundary Signs, often accompanied by rope (i.e., “symbolic fencing”), are typically referred to as “posted areas.” The [Guidelines for Posting Shorebird and Seabird Sites in Florida](#) describe the difference between Regulatory Boundary Signs and educational signs.

#### Expanding on what constitutes take for IBNBs

Broadly speaking, the most frequently-encountered types of take include harm via death or injury of adults, eggs, or young; harm via significant habitat modification; or harassment of adults or chicks. Activities can result in one, two, or all three of these types of take. Please note that FWC typically does not issue permits for death or injury of adults, eggs, or young except in cases of human health and safety. Common examples of take include:



**Examples of harm**

1. Actions result in take if they cause death or injury of IBNB adults, eggs, or young. Examples of this type of take include *but are not limited to*:
  - a. A person steps on or moves eggs.
  - b. A vehicle operator runs over or strikes IBNB adults, eggs, or young.
  - c. A dog owner allows a dog to enter an Active Breeding Site where the dog subsequently kills or injures IBNB adults, eggs or young.

Some examples of activities that may result in this type of take are listed in [Appendix A](#). The FWC and partners use symbolic fencing and Regulatory Boundary Signs, as well as coordination with rooftop owners/managers, wherever possible to help stakeholders avoid this type of take.

2. Significant habitat modification results in take under the circumstances below, although this is not an exhaustive list. Significant habitat modification typically does not take place during minor activities exempt from Coastal Construction Control Line (CCCL) permitting under [Rule 62B-33.004](#).
  - a. Actions cause take if they result in loss or modification of greater than 500 square feet (0.01 acres) of habitat within Active or Recent Breeding Sites or that render Active or Recent Breeding Sites unsuitable. Examples of actions that significantly impair or disrupt breeding in this manner include, but are not limited to, those described in [Appendix A](#). Please note that Appendix A is not comprehensive. Those conducting actions listed in Appendix A – or other actions not listed but that may cause take – within an Active or Recent Breeding Site should contact the FWC for a [permit](#).
  - b. Actions cause take if they result in loss or modification of greater than 500 square feet (0.01 acres) of habitat within Critical Brood-rearing Sites for snowy plover or that render Critical Brood-rearing Sites unsuitable. Examples of actions that significantly impair or disrupt essential behaviors in this manner include, but are not limited to, those described in [Appendix A](#). Please note that Appendix A is not meant to be comprehensive. Those conducting actions listed in Appendix A – or other actions not listed but that may cause take – within Critical Brood-rearing Site should contact the FWC for a [permit](#).
  - c. Actions cause take if they result in loss or modification of greater than 500 square feet (0.01 acres) of habitat within Critical Roosting Sites or that render Critical Roosting Sites unusable. Examples of actions that significantly impair or disrupt essential behaviors in this manner include, but are not limited to, those described in [Appendix A](#). Please note that Appendix A is not meant to be comprehensive. Those conducting actions listed in Appendix A – or other actions not listed but that may cause take – within Critical Roosting Sites should contact the FWC for a [permit](#).

**Examples of harassment**

3. Actions that result in IBNBs flushing within or from Active Breeding Sites (i.e., adults or juveniles flying into the air or flightless young moving away from the source of disturbance, or adults displaying [defensive behaviors](#)) cause take by significantly disrupting or impairing breeding. Guidance on appropriate buffer distances to avoid take can be found below in [Measures to Avoid Take](#). Examples of this type of take include, *but are not limited to*:
  - a. A person enters an Active Breeding Site and subsequently flushes IBNBs.
  - b. A vehicle operator flushes IBNBs that are in an Active Breeding Site.
  - c. A dog owner fails to keep their dog from flushing IBNBs that are in an Active Breeding Site.
  - d. A person uses fireworks that cause IBNBs to flush within or from Active Breeding Sites.
  - e. Construction or development activities, or preparation for such activities, causes IBNBs to flush within or from Active Breeding sites.

- f. A person flushes IBNBs on a rooftop that is an Active Breeding Site. Please note that the FWC has a process in place to authorize take on rooftops for emergency repairs (see [Appendix E](#)).

Some examples of activities that may result in this type of take are listed in [Appendix A](#). The FWC and partners use symbolic fencing and Regulatory Boundary Signs, as well as coordination with rooftop owners/managers, wherever possible to help stakeholders avoid this type of take.

4. Intentionally or negligently keeping birds from breeding or rearing broods (but see [Other Authorizations for Take](#)). Examples of this type of take include, *but are not limited to*:
  - a. A person places objects within an Active or Recent Breeding Site or Critical Brood-rearing Site with the intent of deterring IBNBs from breeding or brood-rearing.
  - b. A person uses measures designed to deter birds (e.g., plastic owls, moving objects, predator calls, propane cannons, furrowing of the substrate, etc.) within an Active Breeding Site or within a Recent Breeding Site or Critical Brood-rearing Site during the breeding season (see Figure 1 for dates).
  - c. A person prevents snowy plover chicks from accessing areas posted with Regulatory Boundary Signs within an Active Critical Brood-rearing Site. These posted areas typically contain ephemeral pools, lagoons, salt flats, and other low energy, poorly-drained coastal areas recharged by tidal activity and rainwater that are crucial for snowy plover chicks.
5. Intentionally or negligently forcing flightless young snowy plovers to flush (move away from the source of the disturbance) or adults with flightless young to display [defensive behaviors](#) within an Active Critical Brood-rearing Site. Examples of this type of take include, *but are not limited to*:
  - a. A person pursues snowy plover adults or young within an area posted with Regulatory Boundary Signs in an Active Critical Brood-rearing Site.
  - b. A dog owner allows their dog to pursue snowy plover adults or chicks within an Active Critical Brood-rearing Site posted with Regulatory Boundary Signs.
  - c. A vehicle or equipment operator enters an area posted with Regulatory Boundary Signs and subsequently flushes snowy plover adults or chicks.
6. Intentionally or negligently forcing American oystercatchers to fly from a Critical Roosting Site year-round.

**Examples of other forms of take**

7. Capturing, handling, or collecting IBNBs or eggs constitutes take, as does banding, collecting, attaching auxiliary markers to, and drawing blood or other biological samples from IBNBs. Those wishing to conduct these activities should seek a [Scientific Collecting Permit](#).

**Box 2. Steps to Apply for an Incidental Take Permit**Step 1: Determine if take is likely to occur (i.e., if a permit is necessary)

- The [Distribution and Survey Methodology](#) section can help determine if an activity will occur within 300 feet of an Active Breeding Site, Recent Breeding Site, Critical Brood-rearing Site, or Critical Roosting Site.
- [Measures to Avoid Take](#), Figure 6, and [Appendix A](#) can help potential applicants determine whether a project or activity is expected to cause incidental take.
- Review the [Examples of Activities Not Expected to Cause Take](#) and [Other Authorizations for Take](#).
- If there is a visual and auditory buffer between the project footprint and the habitat (e.g., construction is separated from the habitat by a structure or major road), contact the [FWC regional shorebird contact](#) to see if avoidance of take is possible.

Step 2: Determine the type of take that is likely to occur

- Refer to the [Potential to Significantly Disrupt or Impair Essential Behavioral Patterns](#) section for definitions of terms and common types of take.
- Broadly speaking, common types of incidental take include harm via **death or injury** of adults, eggs, or chicks; harm via **significant habitat modification**; or **harassment of breeding pairs or chicks**. Activities can result in one, two, or all three of these. Please note that FWC typically does not issue permits for death or injury of adults, eggs, or young except in cases of human health and safety.

Step 3: Estimate the extent of take that is likely to occur

- Determine the extent of take (e.g., how many breeding pairs of birds would be taken or how many acres would be modified) using the ShoreMap application at <http://geodata.myfwc.com/pages/upland>. Refer to the [FWC Permitting: Incidental Take](#) section for information on how to estimate the extent of take.

Step 4: Identify Minimization Measures

- Minimization measures reduce the amount of take that will occur (refer to [Minimization Options](#)).

Step 5: Identify Mitigation Measures

- Mitigation measures counterbalance the take identified in Steps 2 and 3 and provide a scientific or conservation benefit (refer to [Mitigation Options](#)).

Step 6: Fill out and submit an online permit application

- Incidental take permit applications are available on the [online permitting site](#), currently under the name “migratory bird nest removal.”
- The applicant must be the landowner or an agent designated in writing by the landowner.
- Fill in all required fields in the online application, and upload the [Supplemental Application for IBNB](#).
- For emergency repairs on rooftops, see [Appendix E](#).

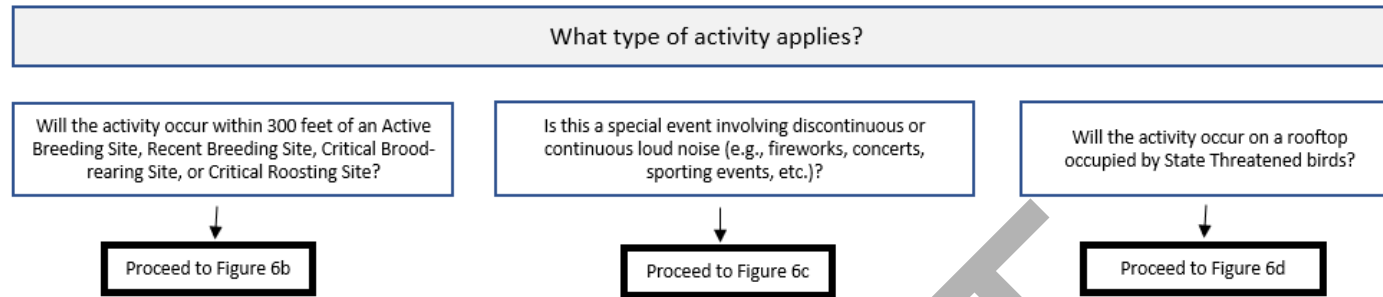


Figure 6a. Determining whether an activity is likely to result in take of imperiled beach-nesting birds.

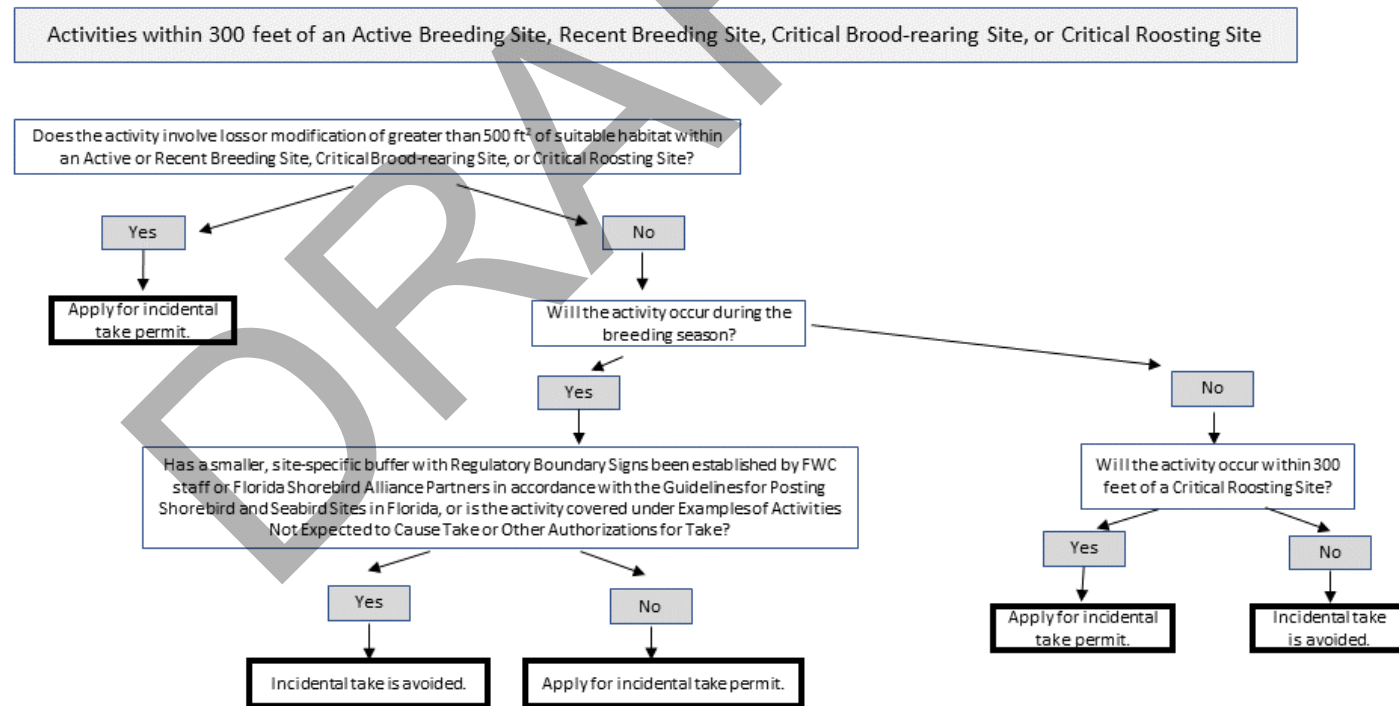


Figure 6b. Determining whether an activity within 300 feet of an Active Breeding Site, Recent Breeding Site, Critical Brood-rearing Site, or Critical Roosting Site is likely to result in take.

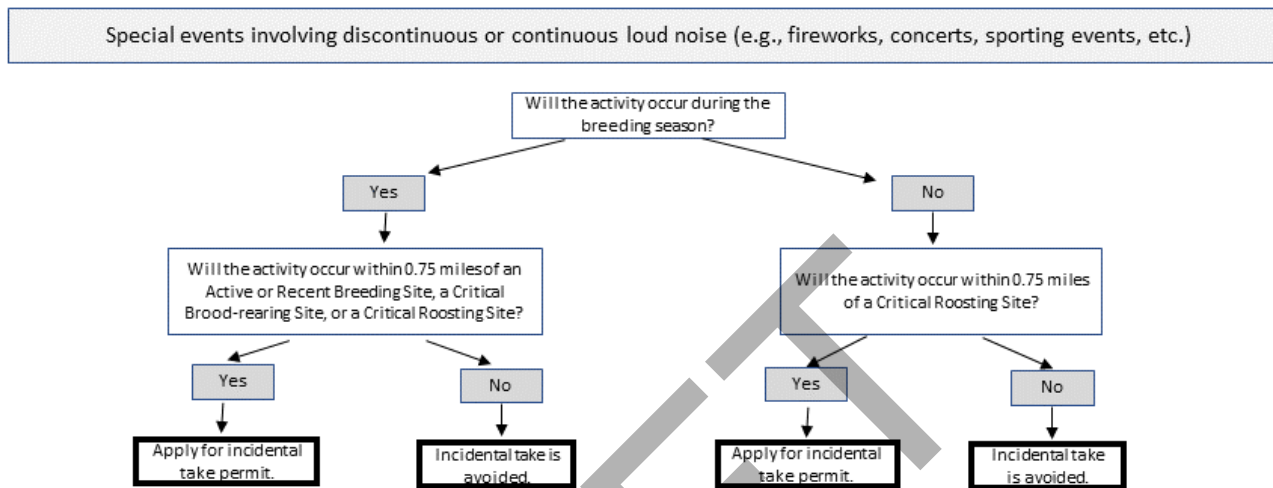


Figure 6c. Determining whether a special event involving discontinuous or continuous loud noise is likely to result in take.

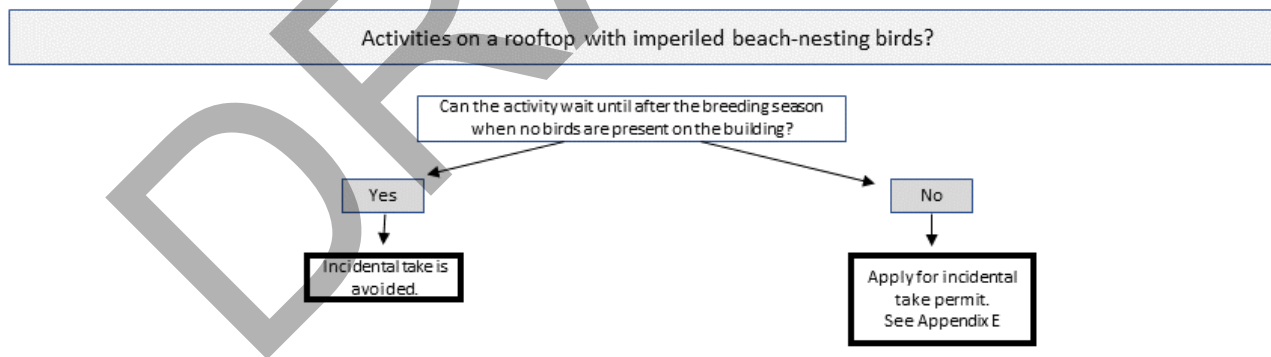
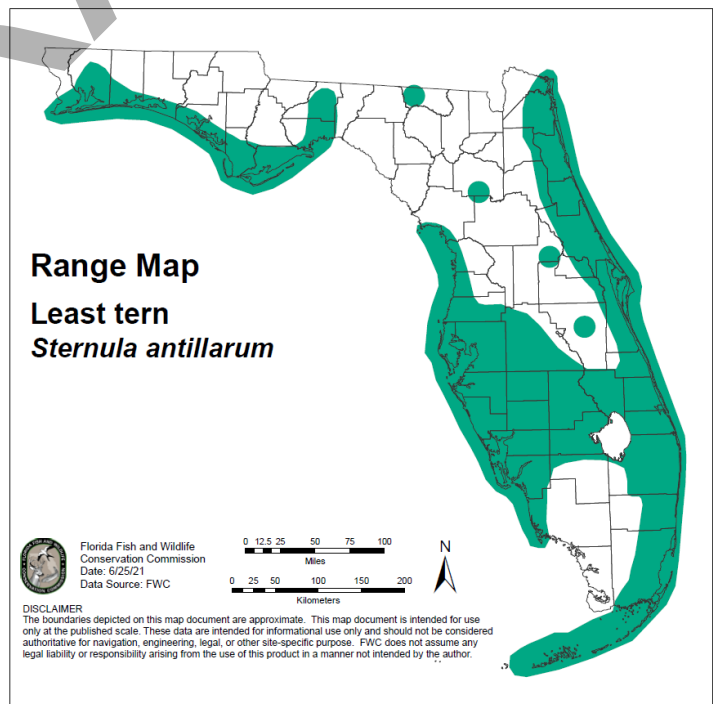
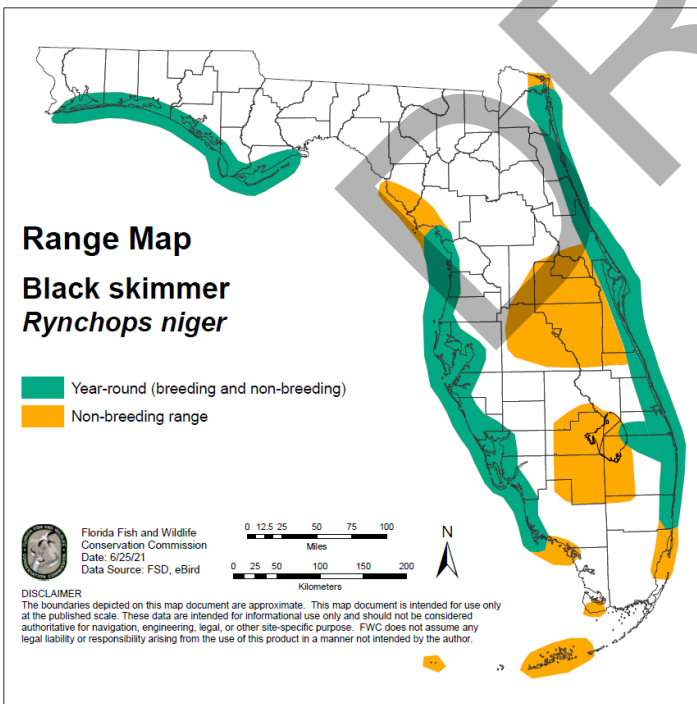
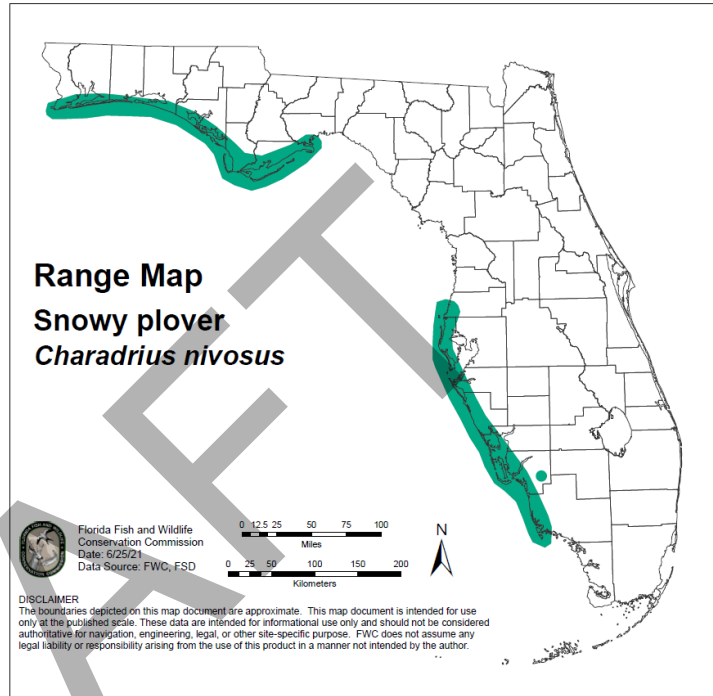
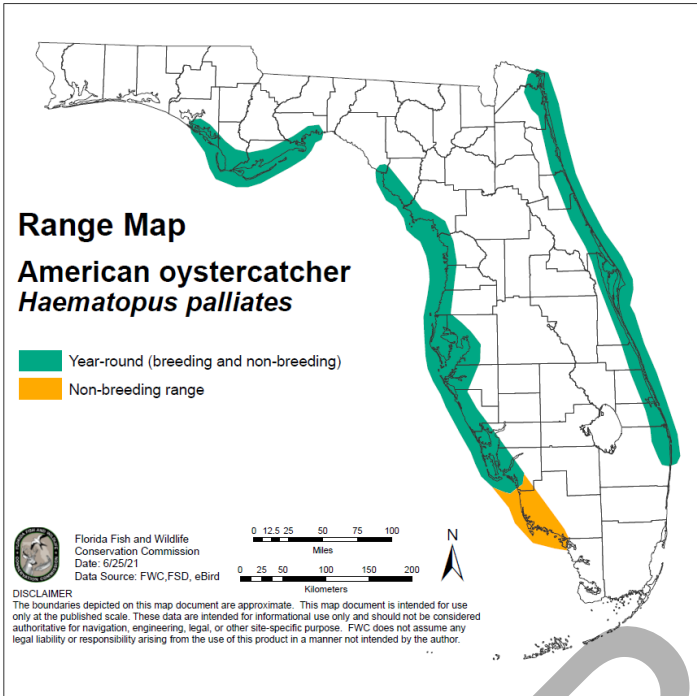


Figure 6d. Determining whether an activity on a rooftop used by imperiled beach-nesting birds is likely to result in take.

## Distribution and Survey Methodology

The maps below depict the principal geographic range of the species addressed in these Guidelines. Maps and counties below do not represent an exhaustive list of all areas where Breeding Sites, Critical Brood-rearing Sites, and Critical Roosting Sites may occur. Refer to [Recommended Survey Methodology](#) below, for links to the most up-to-date online IBNB distribution app (ShoreMap), which can be used in combination with shorebird surveys and habitat surveys to determine if IBNBs and IBNB habitat occur near your project boundaries.



**Counties:** Alachua, Bay, Brevard, Broward, Charlotte, Citrus, Collier, De Soto, Dixie, Duval, Escambia, Flagler, Franklin, Glades, Gulf, Hamilton, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lake, Lee, Leon, Levy, Manatee, Martin, Miami-Dade, Monroe, Nassau, Okaloosa, Okeechobee, Osceola, Palm Beach, Pasco, Pinellas, Polk, Polk, Saint Johns, Saint Lucie, Santa Rosa, Sarasota, Volusia, Wakulla, Walton.

### Recommended Survey Methodology

The survey methods below are meant to help stakeholders determine if an activity may result in take of IBNB. All projects should conduct a “project planning survey;” those that may occur inside the breeding season also should conduct an additional “pre-activity” survey to identify any new Active Breeding Sites near or within project boundaries, prior to project initiation.

#### Project planning surveys

Project planning surveys occur during the initial stages of project design. Potential permit applicants can conduct these “desktop surveys” via an online mapping application (app) called “ShoreMap” at <http://geodata.myfwc.com/pages/upland>. This app provides locations of all identified Recent Breeding Sites, Critical Brood-rearing Sites, and Critical Roosting Sites based on data within the Florida Shorebird Database (but see Box 3).

Data within ShoreMap are updated on April 1st of each year *and the desktop survey will be valid until March 31<sup>st</sup> of the following calendar year*. Permit applicants must use the most up-to-date maps available on ShoreMap at the time their online application is submitted. Permits are generally valid for one year, and mitigation agreed upon in the permit will remain the same regardless of updates/changes to Recent Breeding Site boundaries on ShoreMap while the permit is valid. However, minimization measures in the permit will apply to any previously undetected Active Nests or Active Breeding Sites found during project activities.

The app also has tools to calculate the extent of take and mitigation that may be needed for take that is unavoidable (see [FWC Permitting: Incidental Take](#) for more details).

#### Pre-activity surveys

For some projects or activities (see [Appendix B](#)), pre-activity surveys conducted by a qualified Bird Monitor may be necessary to minimize take. Minimum qualifications and roles for Bird Monitors are in [Appendix C](#).

Even if an activity is not within a Recent Breeding Site according to the desktop survey, we recommend a pre-activity survey by a qualified Bird Monitor for activities that occur during the breeding season in [suitable habitat](#), as a precaution. *Please note that, if previously undetected Active Nests or Active Breeding Sites are found during project activities, take is unavoidable, and take is not already authorized by an incidental take permit, the applicant should contact the FWC to discuss [permitting options](#).*

#### Box 3. Inland sites

Please note that ShoreMap focuses on coastal sites and does not include inland sites, such as mines. For inland sites that do not have data in the Florida Shorebird Database, surveys using the [Breeding Bird Protocol for Florida’s Shorebirds and Seabirds](#) are recommended to identify Active Breeding Sites during the project planning stage to avoid potentially costly project delays.

## Recommended Conservation Practices

Recommended conservation practices are general measures that could benefit the species but are not required. No FWC permit is required to conduct these activities (unless specified below). For additional actions that benefit IBNB conservation, please see the [Species Action Plan](#) (FWC 2013).

- Monitor ground and rooftop nesting sites using the [Breeding Bird Protocol for Florida’s Shorebirds and Seabirds](#). Please note that monitoring within a designated FWC [Critical Wildlife Area](#) during a closed period requires a permit, and entering an area posted with Regulatory Boundary Signs is likely to cause take. Also, accessing rooftops where birds are actively nesting requires meeting minimum qualifications ([Appendix E](#)), and monitoring both ground and rooftop nesting sites may require permission from property owners and managers.
- Enter monitoring data in the state’s central data repository for shorebirds and seabirds, [the Florida Shorebird Database](#).
- Manage breeding sites to maintain and restore conditions necessary for successful nesting:
  - Reduce disturbance to Active Breeding Sites by following the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#). Please note that posting nesting areas incorrectly can result in take of IBNBs and possibly marine turtles. Coordinate with the regional [Florida Shorebird Alliance partnership](#) or [FWC Regional Shorebird Contacts](#), as well as local land managers, prior to posting.
  - Improve compliance with posted areas by organizing a [Bird Stewardship Program](#) at Active Breeding Sites.
  - Install educational [signage](#) according to the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#), and distribute [outreach materials](#) at Active or Recent Breeding Sites.
  - Improve nesting habitat for shorebirds and seabirds by [managing vegetation](#) or substrate outside of the breeding season and when no Active Nests are present. Examples include removing invasive exotic vegetation, creating open sandy areas, and increasing the longevity of open areas through placement of shells. Contact the [FWC regional shorebird contact](#) for technical assistance on project siting and design. Careful consideration is required when siting and implementing projects to avoid take of federally-listed beach mice and [marine turtles](#). Please note that vegetation and substrate management require permission from the landowner and an authorization from the Florida Department of Environmental Protection.
  - Remove [invasive, non-native vegetation](#) outside of the breeding season and when no Active Nests are present.
  - Follow the [Best Management Practices for Operating Vehicles on the Beach](#), even when driving on beaches in areas not known to support IBNB.
  - Avoid placement of trash, open trash receptacles, and other food sources that may attract predators near Active or Recent Breeding Sites or Critical Brood-rearing Sites.
  - Discourage the public from feeding wildlife on the beach, as such feeding can attract predators.
- Manage rooftops outside of the breeding season and when no Active Nests are present to maintain and restore conditions necessary for successful nesting. Obtain permission from the building owner and manager prior to any rooftop maintenance or management for shorebirds and seabirds, and contact your local [FWC regional shorebird contact](#) for technical assistance. Please note that some activities on rooftops during active nesting can result in take of IBNBs or other protected migratory birds.
  - Conduct routine rooftop maintenance and non-emergency repairs between September 1<sup>st</sup> – April 1<sup>st</sup>.
  - Organize a [Rooftop Steward](#) program or join an established program to monitor, chick-proof, and chick-check rooftops.
  - Decrease chick mortality by installing “chick fencing” around the perimeter of rooftops prior to each breeding season.
  - Cover exposed tar with sand or gravel prior to the breeding season, if allowable under local regulations, to keep eggs or chicks from becoming stuck.
  - Cover drains and gutters with galvanized mesh to prevent chicks from falling through.
  - Monitor for fallen chicks following the [chick-checking manual](#).



- Remove potential perches for avian predators by adding perch deterrents to signage or structures and removing perch sites when possible.
- Develop a site-specific predation management plan in coordination with your local [FWC regional shorebird contact](#) to conduct predation management activities within an adaptive management framework. Obtain any necessary local, state, or federal authorizations and landowner permissions prior to conducting predation management. *Please note that conducting activities within an Active Breeding Site posted with Regulatory Boundary Signs -- or within 300 feet of Active Nests for Active Breeding Sites without Regulatory Boundary Signs -- (e.g., removing a ghost crab burrow near a nest) is expected to cause take, which is prohibited without a permit or other authorization.*
- Create or improve suitable nesting or foraging habitat on beaches, oyster bars and rakes, and spoil islands outside of the breeding season and when no Active Nests are present. Contact the [FWC regional shorebird contact](#) for technical assistance. Please note that an authorization may be necessary from the Florida Department of Environmental Protection.
- Consider IBNB habitat needs when planting native vegetation or installing sand fencing for dune ecosystem restoration.
  - Contact the [FWC regional shorebird contact](#) for guidance on how to balance the needs of different wildlife species in project design.
  - Avoid Recent Breeding Sites when possible, or minimize loss of IBNB habitat within Recent breeding Sites to the extent practicable.
  - Avoid erecting sand fencing in a manner that creates a barrier to snowy plover chicks traveling within Recent Breeding Sites or between breeding sites and Critical Brood-rearing Sites.
  - Consider removing sand fencing if monitoring data indicate that (1) avian predators are using the fencing as perches and (2) predation of IBNBs by avian predators is occurring at the site.
  - Consider waiting 1-2 years after a storm to assess whether native plants will recover without planting, and focus native plantings in areas that are not recovering naturally.
  - Consider reducing vegetation density, with all applicable state or local authorizations, if planted areas become too dense for wildlife.
  - When planting native vegetation or placing sand fencing, maintain periodic openings to allow IBNBs to access back-dune habitat features.
  - Develop and implement monitoring to determine the long- and short-term project outcomes for coastal dependent species. This information can be used to refine management and conservation strategies to minimize future project impacts to IBNBs.
- Design docks, piers, and similar recreational facilities with conservation measures to minimize threats from [entanglement in fishing line](#). Examples include marked repositories or lidded trash cans for discarding fish carcasses, educational signage, and participation in the [Monofilament Recovery and Recycling Program](#). Promote fishing line cleanup activities. *Please note that take is likely to occur if construction of new docks, piers, and similar recreational facilities occurs within an Active Breeding Site or within 300 feet of a Recent Breeding Site, Critical Brood-rearing Site, or Critical Roosting Site.*
- Remove fishing line, tackle, and other debris from breeding sites to reduce the probability of entanglement, provided the removal occurs outside of the breeding season and when no Active nests are present, with appropriate state and local authorizations, and with landowner permissions.
- Join your local [Florida Shorebird Alliance](#) partnership to further identify site-specific opportunities and needs.

## Measures to Avoid Take

### **Avoidance Measures that Eliminate the Need for FWC Incidental Take Permitting**

The following measures will eliminate the need for an FWC [incidental take permit](#). Figure 6 and [Appendix A](#) provide additional tools for determining whether an activity is likely to result in incidental take. For more information on projects that may cause intentional take (e.g., capturing and handling for research, intentional

take to ensure human safety), please visit the [intentional take](#) section of this document. Projects may avoid incidental take by:

- Avoiding acts that can kill or injure IBNB adults, eggs, or young; and
- Avoiding acts that result in loss or modification of greater than 500 square feet of habitat within Active or Recent Breeding Sites, Critical Brood-rearing Sites, and Critical Roosting Sites (see definitions [above](#)); and
- Avoiding actions that render greater than 500 square feet of habitat within an Active or Recent Breeding Site, a Critical Brood-rearing Site, or Critical Roosting Site unusable for essential behaviors (see the [take section](#) for examples); and
- Avoiding flushing IBNB adults or young (i.e., cause adults or juveniles to fly or flightless young to move away from the source of disturbance, or adults to display [defensive behaviors](#)) within or from Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites. This can be achieved by:
  - Conducting activities that can result in human disturbance outside of Active Critical Brood-rearing Sites and outside of a buffer of 300 feet (91 m) from Active Nests, Recent Breeding Sites during the breeding season (Figure 1), and Critical Roosting Sites year-round (or outside of a site-specific buffer posted with Regulatory Boundary Signs by FWC staff or Florida Shorebird Alliance partners in accordance with the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#));
    - Examples of activities that can result in human disturbance include, but are not limited to: pedestrian traffic, operation of vehicles or vessels (including trucks, boats, bicycles, Segways, etc.), terrestrial remote-controlled vehicles, recreational equipment (e.g., paragliders, paramotors, windsurfing, etc.), and construction/development activities.
    - Note that recreational pedestrian traffic on beaches is not expected to result in take if people and their leashed pets remain outside of areas posted with Regulatory Boundary Signs within Active Breeding Sites, Active Critical Brood-rearing Sites, and Critical Wildlife Areas.
  - Avoiding flying an unmanned aerial system (UAS) over Active Breeding Sites, Recent Breeding Sites during the breeding season, Active Critical Brood-rearing Sites, and Critical Roosting Sites year-round; and
  - Operating either manned or unmanned aircraft in a manner that does not result in birds flushing (i.e., adults or juveniles flying into the air or flightless young moving away from the source of disturbance, or adults displaying [defensive behaviors](#)) within or from Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting-Sites; and
  - Maintaining a distance of at least 0.75 miles (1.21 km) between continuous and discontinuous loud noises from special events (e.g., fireworks displays, concerts, sporting events, and similar events that typically require a Coastal Construction Control Line (CCCL) permit from the Department of Environmental Protection), and Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites unless sound models (e.g., Keyel et al. 2018) indicate sound levels will be less than 85 decibels at the Active Breeding Site, Active Critical Brood-rearing Sites, or Critical Roosting Sites.
- Adhering to shorebird permit conditions in Joint Coastal Permits (JCPs) during beach nourishment.

### **Examples of Activities Not Expected to Cause Take**

This section provides examples of specific activities that, when conducted in the manner described below, are not expected to result in take and do not require a permit from the FWC. Please note that this section is meant to provide assurances to stakeholders conducting these activities but is not meant to be a comprehensive list.

- Pedestrian traffic on beaches that remains outside of areas posted with Regulatory Boundary Signs within Active Breeding Sites, Active Critical Brood-rearing Sites, and Critical Wildlife Areas.
- Conducting activities authorized under an FWC Marine Turtle Permit issued pursuant to Florida Statute 379.2431(1) and Florida Administrative Code Rule 68E-1, provided all activities are conducted outside of areas posted with Regulatory Boundary Signs and either on foot or in accordance with the beach driving minimization measures in [Appendix D](#). Maintaining communication between Marine Turtle Permit Holders and [FWC regional shorebird contacts is important for avoiding take](#).
- [Vegetation removal](#) or substrate management (e.g., placement of shell to maintain open areas for nesting) done outside of breeding season and when no Active Nests are present, and done in a manner that maintains or improves suitable IBNB breeding habitat within Recent Breeding Sites. Careful consideration is required when siting and implementing projects to avoid take of federally-listed beach mice and [marine turtles](#). Please note that vegetation and substrate management require permission from the landowner and an authorization from the Florida Department of Environmental Protection.
- Removal of [invasive, non-native vegetation](#) outside of the breeding season and when no Active Nests are present.
- Viewing or photographing IBNB from outside areas posted with FWC Regulatory Boundary Signs, or from greater than 300 feet from an Active Nest if the site is not posted with signage. Increase this distance if the activity provokes altered behavior. Indications of altered behavior include changing from feeding/roosting/breeding activities to an alert posture, flushing, calling, or exhibiting [defensive behaviors](#) such as dive-bombing or distraction displays.
- Activities on rooftops that occur outside of the breeding season and when no Active Nests are present and that occur in accordance with the [ISMP policy on state-listed species and man-made structures](#).
- Non-injurious deterrents applied on rooftops during the non-breeding season and when no Active Nests are present. [FWC regional shorebird contacts](#) can provide technical assistance on effective deterrents.
- Repair or maintenance of existing roadways and utility infrastructure within a Recent Breeding Site or a Critical Brood-rearing Site, provided repairs occur outside of the breeding season, when no Active Nests are present, and when there is no degradation to the habitat (e.g., through changes in breeding substrate).
- Clearing associated with construction (or similar projects) may attract IBNBs by creating the open, sandy conditions conducive for IBNB nesting. Use of non-injurious deterrents (e.g., maintaining constant activity on-site or placement of alternative substrate like straw or jute mats) to keep birds from being attracted to newly-cleared areas (i.e., areas cleared within the past 5 months) is not considered take, provided birds have not already started creating scrapes and exhibiting courtship behavior. Please note that this only applies to newly-cleared sites *before* they become Active Breeding Sites; an Incidental Take Permit may be necessary once Active Nests are present. [FWC regional shorebird contacts](#) can provide technical assistance on effective deterrents.

This list is not an exhaustive list of actions that are not expected to cause take. Please contact the [FWC regional shorebird contact](#) at the appropriate [regional office](#) if you are concerned that you could potentially cause take in a manner not listed above. For private landowners, developers, consultants, and government agencies proposing land use plans or development and construction projects with the potential to convert wildlife habitat to other land uses, technical assistance is available from the FWC *Office of Conservation Planning Services*. General information on fish and wildlife species and habitat conservation measures can be accessed through the [Florida Wildlife Guide](#), which includes planning tools for ecologically-based, landscape-level conservation. Project-specific requests for fish and wildlife coordination can be emailed to [ConservationPlanningServices@MyFWC.com](mailto:ConservationPlanningServices@MyFWC.com). Regionally assigned staff can assist with listed species

coordination, pre-application project review, wildlife survey and other conservation recommendations.

### Other Authorizations for Take

Rule 68A-27.003(2)(a) notes that some forms of take can be authorized via Commission-approved guidelines. This section outlines forms of take that are authorized without a FWC permit. Please note that the authorizations below do not authorize take of other state- or federally-listed species, such as marine turtles, red knots, piping plovers, or beach mice.

- Dredge deposition areas may use non-injurious deterrents to prevent IBNBs from initiating nesting within the portion of the site scheduled for deposition of dredged material within that breeding season.
- Rooftop-related authorizations
  - Qualified Rooftop Bird Monitors ([Appendix E](#)) are authorized for harassment of IBNBs that may occur when accessing rooftops to determine where birds are located on the rooftop; estimate number of adult IBNBs; and determine if nests, eggs, or young are present as part of preparing an incidental take permit.
  - The State-listed species and man-made structures policy in the FWC's [Imperiled Species Management Plan](#) authorizes the removal or modification of structures recently or previously occupied by state Threatened species, provided at least 14 days prior notification is provided to the [FWC regional shorebird contact](#); no eggs or dependent young are present, or the nesting cycle (or rearing of young) has been completed; and the activity is conducted in such a way so as to avoid direct physical injury of individual animals.
    - In accordance with this policy, building owners with rooftop-nesting IBNBs may erect FWC-approved passive deterrents during the non-breeding season to deter future nesting on their rooftop. To identify FWC-approved passive deterrents, please contact the [FWC regional shorebird contact](#).
    - Building owners also can remove or modify rooftops in the non-breeding season and when no Active Nests are present without a permit.
  - Placing fallen chicks back on a roof using a safe, non-injurious method, such as a "[chick-a-boom](#)" and in accordance with the Florida Shorebird Alliance's [Rooftop/Chick Checking Manual](#).
- Beach driving to address an imminent human health and safety emergency.
- Beach driving associated with official government activities that remains outside of areas posted with Regulatory Boundary Signs and outside of Critical Wildlife Areas during closed periods and that adheres to beach driving minimization measures in [Appendix D](#).
- Beach cleaning necessary to address severe deposition of organic material associated with algal blooms, such as red tide or drift algae events, provided personnel follow measures in [Appendix D](#) and remain outside of Active Breeding Sites.
- Activities within an airport security area in accordance with Rule 68A-9.012 F.A.C.
- In accordance with the [Imperiled Species Management Plan's Policy on Nest Removal for Inactive Single-use Nests of State-Threatened Birds](#), no permit is required to destroy an [Inactive Nest](#) as long as the proposed level of habitat modification or degradation is not significant enough to result in take (see significant habitat modification under [Expounding on what constitutes take for IBNBs](#)). *Please note that this policy does not authorize take via harm or harassment of nearby adults, eggs, or chicks.* It is best not to destroy an inactive nest until after the breeding season.
- Planting of native species and installation of sand fencing that strengthen the dune ecosystem against erosion and provide habitat for wildlife are authorized without a FWC Incidental Take Permit, unless activities occur inside of an Active Breeding Site or Active Critical Brood-rearing Site. Additionally, project managers must contact the [FWC regional shorebird contact](#) when planning these activities in Critical Brood-rearing Sites, and sand fencing must be removed from Recent Breeding Sites and Critical Brood-rearing Sites once the fencing is no longer functional. Efforts should be made to implement site-specific restoration strategies in consultation with FWC subject

matter experts that maximize benefits for a healthy, resilient dune ecosystem while minimizing harm to IBNBs (see Recommended Conservation Practices).

- Take is authorized for time-sensitive operations that occur after the Governor or a local government issues a declaration in response to local emergencies or other situations that place public health, safety, or welfare at risk, though Emergency Orders issued by the Governor may include required minimization measures, such as those in Appendices C and D.
- As described in Rule 68A-27.007(2)(c), F.A.C., land management activities that benefit wildlife and are not inconsistent with FWC Management Plans are authorized and do not require a permit authorizing incidental take.
- Placement of chick shelters within Active Breeding Sites under the following circumstances:
  - Placement of chick shelters must be approved by the [FWC regional shorebird contact](#), in coordination with FWC's [marine turtle management program](#).
  - Please note that chick shelters must not be placed without permission from the landowner or building manager.
  - Placement of chick shelters must avoid impacts to unmarked marine turtle nests, hatchlings, and nesting females.
- Activities within sand tailing or other active mine operation areas, provided such activities occur outside of 300 feet of an Active Nest and without flooding the Active Breeding Site or occur during the non-breeding season or when no Active Nests are present.
- Rendering sand tailing areas for mine operations unsuitable for nesting prior to the breeding season in order to avoid conflicts with planned deposition projects.
- Emergency water management actions necessary for human health and safety, such as flood control.
- For breeding sites that meet the following conditions, take via significant habitat modification is authorized outside of the breeding season and when no Active Nests are present, and the landowner is authorized to use passive, non-injurious deterrents or altered substrate (e.g., straw, jute mats) prior to subsequent breeding seasons to keep IBNBs from returning (contact the [FWC regional shorebird contact](#) for technical assistance on deterrents):
  - A newly-cleared construction site (i.e., cleared within the past 5 months) that IBNB have used for nesting,
  - A newly-cleared site (i.e., cleared within the past 5 months) intended for water storage, flood control, or water management upon which IBNB have nested,
  - Temporary habitat created as part of mining activities,
  - Gravel roads or parking lots upon which IBNB have nested.
- If IBNBs nest on the footprint of a single family dwelling, multi family dwelling, or commercial building that was destroyed by a tropical storm or hurricane, take via significant habitat modification is authorized outside of the breeding season and when no Active Nests are present within the footprint, provided pre-construction or reconstruction activities associated with storm recovery—or an official declaration of a state of emergency by the Governor of Florida or a local governmental entity—begin on the site within 5 years.
- Flooding of reservoirs designed for water storage and Storm Water Treatment Areas (STAs) when no Active Nests or flightless chicks are present.

## Coordination with Other State and Federal Agencies

The FWC participates in other state and federal regulatory programs as a review agency. During review, FWC staff identifies and recommends measures to address fish and wildlife resource impacts and may provide recommendations for addressing potential impacts to state-listed species in permits issued by other agencies. If permits issued by other agencies adequately address all requirements for issuing a state-Threatened species take permit, the FWC will consider these regulatory processes to fulfill the requirements

of Chapter 68A-27, F.A.C., with a minimal application process. This may be accomplished by issuing a concurrent take permit by the FWC, by a memorandum of understanding with the cooperating agency, or by a programmatic permit issued to another agency. These permits would be issued by the FWC based on the understanding that implementation of project commitments will satisfy the requirements of Rule 68A-27.007, F.A.C. This situation is expected to be rare for IBNBs.

### **Review of Land and Water Conversion Projects with State-Listed Species Conditions for Avoidance, Minimization and Mitigation of Take**

- FWC staff, in coordination with other state agencies, provide comments to federal agencies (e.g., the Army Corps of Engineers) on federal actions, such as projects initiated by a federal agency or permits being approved by a federal agency.
- FWC staff works with landowners, local jurisdictions, and state agencies such as the Department of Economic Opportunity and the Florida Department of Transportation on land use decisions, including long-term planning projects like sector plans and transportation projects, projects in Areas of Critical State Concern, and large-scale comprehensive plan amendments.
- FWC staff coordinates with state agencies such as the Department of Environmental Protection (DEP) and the five Water Management Districts that issue Environmental Resource Permits (ERP), such as JCPs. JCPs cover activities such as beach nourishment, groins and jetties, port facility expansion projects, some navigational dredging projects, and some docking facilities.
  - During the JCP process, FWC staff may provide guidance on avoidance, minimization, and mitigation measures for IBNBs. DEP may include avoidance measures as conditions in the JCP permit.
  - FWC staff will also work with DEP and the applicants during the pre-application period to determine if mitigation required as part of the JCP will also satisfy the applicants' responsibilities under Rule 68A-27 F.A.C. and associated rule enforcement policies (see FWC [Incidental Take Permitting](#) process below).
  - Conservation benefit, as evaluated by considering factors listed in Rule 68A-27.007(2)(b), F.A.C., may be accomplished through avoidance, minimization, and mitigation measures included in a JCP permit.
  - For activities governed by both Chapter 373 Part IV, F.S., (ERP) and Chapter 378 Part II, F.S., (Conceptual Reclamation Plan [CRP]), the applicant may request FWC review of the DEP application, if it includes a Wildlife/Habitat Management Plan (WHMP), and it is submitted concurrently to DEP and FWC. A WHMP shall address all state-listed species observed or reasonably likely to occur on a project site. The application and WHMP will be reviewed by FWC staff to determine whether or not it complies with the requirements under Chapter 68A-27, F.A.C. and the standards in the FWC's [Imperiled Species Management Plan](#), which provides further details about WHMPs.
- FWC Shorebird Program staff coordinate with DEP and applicants for some CCCL permits (e.g., attending pre-construction meetings or phone conferences; annually providing maps of Recent Breeding Sites, Critical Brood-Rearing Sites, and Critical Roosting Sites to CCCL program staff).

## **FWC Permitting: Incidental Take**

According to Rule 68A-27.001, F.A.C., incidental take is take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Activities that result in take to IBNBs are prohibited without an incidental take permit from the FWC unless stated [otherwise in these guidelines](#). Incidental take permit applications are available on the [online permitting site](#), currently under the name "migratory bird nest removal." The applicant must be the landowner or an agent designated in writing by the landowner. Please note the following:

- **Applicants should be aware that the FWC typically does not issue permits for take of Active Nests** (as defined above in this document), except in situations involving health and human safety.
- **For emergency rooftop repairs**, [Appendix E](#) is designed to expedite the permitting process by helping rooftop owners submit a complete permit application.
- Box 4 provides information regarding **mechanical beach cleaning**.
- Permits will not be issued solely for **proposed infrastructure** (e.g., roads and utilities) that are part of a larger common development plan, project, plat, or subdivision. Issued permits must address all IBNBs to be impacted on the entire project, development, plat, or subdivision site plan (the development footprint). Utility infrastructure may be permitted independently for system expansion or system improvements needed to support new customers or increased demand.
- Permittees and their agents/subpermittees must **have a copy of the permit available** when conducting permitted activities. Construction projects must have a copy of the permit posted on site.
- In addition to state permits, the applicant is responsible for acquiring any necessary **local or federal authorizations**. Federal permits may be required from the U.S. Fish and Wildlife Service to comply with the Migratory Bird Treaty Act (16 USC 703-712). For example, removing an Active Nest may require a federal permit in addition to the state permit under certain circumstances. Issuance of a state permit does not constitute federal authorization, nor does issuance of a federal authorization substitute for a state permit for state-Threatened species. Permits may also be needed for take of federally-listed marine turtles, piping plovers, red knots, or beach mice that share habitat with IBNBs.

The FWC may issue permits *when there is a scientific or conservation benefit to the species* and only upon showing by the applicant that the permitted activity will not have a negative impact on the survival potential of the species. Scientific benefit, conservation benefit, and negative impacts are evaluated by considering the factors listed in Rule 68A-27.007(2)(b), F.A.C. These conditions are usually accomplished through a combination of avoiding take when practicable, minimizing take that is unavoidable, and mitigating for the permitted take. The sections below describe the minimization measures and mitigation options available as part of the incidental take permit process for take of IBNBs. The lists below are not an exhaustive list of options.

#### Box 4. Beach cleaning (mechanical)

Regulations for mechanical beach cleaning will go into effect on December 1, 2022, to provide time for stakeholders to adapt to changes in regulation for this activity.

[Appendix B](#) provides information on when and where beach cleaning is expected to result in take and standard minimization and mitigation measures for a FWC Incidental Take Permit for this activity.

Determining appropriate minimization and mitigation measures requires determining the *type(s)* and *extent* of take that will occur from an activity.

#### Determining the Type of Take

As discussed in [Potential to Significantly Disrupt or Impair Essential Behavioral Patterns](#), incidental take can occur in a variety of forms. Harm, whether via direct injury or mortality or via significant habitat modification, has long-term impacts. Harassment can have impacts for one year (e.g., an activity that occurs within 300 feet of Active Nests for just one breeding season) or multiple years (e.g., an annual special event), depending on the activity.

#### Determining the Extent of Take

Applicants can estimate the extent of take (e.g., how many breeding pairs of birds would be harassed and/or the extent of habitat to be modified) using the [ShoreMap app](#) at [\\_](#). The steps below use suitable habitat (Box 5) and recent history of birds on the site to estimate the number of breeding pairs harmed

or harassed by activities. Given the dynamic nature of the coast, *a site visit is strongly recommended to ensure the accuracy of the extent of take estimated by the app:*

- Users of the app will draw a polygon representing the footprint of the project.
- Users will then buffer the project area by 300 ft (for most activities) or 0.75 miles (for special events with continuous or discontinuous loud noises).
- Users then calculate the proportion of overlap between the buffered project area and the Recent Breeding Site, Critical Brood-rearing Site, or Critical Roosting Site, including only areas of suitable IBNB habitat (see Box 5). In Recent Breeding Sites, users should not include areas seaward of the line separating the dry sand beach from the wet sand (i.e., the area affected by typical tides). This line is sometimes visible on aerial imagery. However, as noted in the previous paragraph, a site visit is recommended to assess whether the extent of habitat has changed, particularly if the aerial imagery available in the app for the project area is greater than 1 year old.
- Based on the proportion of overlap, the app’s output includes an estimate of the number of breeding pairs to be harassed and/or the extent of habitat to be modified. For the purposes of determining appropriate mitigation, the extent of harm via significant habitat modification is measured in square feet, and the extent of harassment is measured in terms of number of breeding pairs.
- *The online tool will be updated annually on April 1<sup>st</sup>, and the estimate of take will be valid until March 31<sup>st</sup> of the following calendar year.*

#### **Box 5. Determining Suitable Habitat**

In Recent Breeding Sites, “suitable habitat” for the least tern, black skimmer, and snowy plover occurs in landcover types of Sand Beach (Dry), Beach Dune, Coastal Berm, Coastal Grassland (as described in [Kawula and Redner 2018](#)), as well as dredge-spoil areas, and includes the following characteristics:

- (a) substrate of sand, shell, gravel, cobble, dredge spoil, or some combination of these materials, *AND*
- (b) vegetation is either absent or dominated by herbaceous plants, *AND*
- (c) vegetation, when present, covers less than 90% as measured by ocular estimation.

In Recent Breeding Sites, “suitable habitat” for the American oystercatcher occurs in landcover types of Sand Beach (Dry), Beach Dune, Coastal Berm, Coastal Grassland, Oyster Bar, or Salt Marsh (as described in Kawula and Redner 2018), as well as dredge-spoil areas, and includes areas with substrate of sand, shell, gravel, cobble, dredge spoil, wrack, or some combination of these materials. “Suitable habitat” in Critical Roosting Sites includes oyster rakes and oyster bars.

In Critical Brood-rearing Sites, “suitable habitat” for snowy plovers occurs in landcover types of Sand Beach (Dry), Beach Dune, Coastal Berm, Coastal Grassland, Tidal Flat, or Intertidal (as described in Kawula and Redner 2018), as well as ephemeral pools, lagoons, and other low energy, poorly drained coastal areas recharged by tidal activity and rainwater. Brood-rearing habitat for snowy plovers includes the following characteristics:

- (a) substrate of sand, silt, shell, gravel, cobble, mud, dredge spoil, wrack, or some combination of these materials, *AND*
- (b) vegetation is either absent or dominated by herbaceous plants, *AND*
- (c) vegetation, when present, covers less than 90% as measured by ocular estimation.



## Minimization Options

Minimization options can help to reduce take of the species and lessen the mitigation necessary to counterbalance take (Box 6). All minimization options below assume that adhering to avoidance measures that eliminate the need for FWC permitting is not possible, and that some level of take may occur. *Please note that [Appendix B](#) provides standard, activity-specific minimization options for some actions.* Below are general options that apply to most activities.

### Seasonal, Temporal, and Buffer Measures

- Conduct activities outside of the breeding season whenever possible (Box 6).
- For activities that may result in birds flushing from Active Nests, schedule activities for early morning (i.e., within 2 hours of sunrise) or evening (i.e., within 1 hour of sunset) to minimize the exposure of eggs/chicks to heat and sun. Alternatively, measure surface temperatures, and cease work when surface temperatures reach 105° F. Be sure to measure temperature at the surface (e.g., via infrared thermometer) rather than atmospheric temperature.
- For activities that must take place within Active Breeding Sites or within 300 feet of Active Critical Brood-rearing Sites during the breeding season, maintain the largest buffer feasible from Active Nests or Active Critical Brood-rearing Sites to reduce the extent of take.
- If a project will result in significant habitat modification and must occur during the breeding season, the following minimization measures will reduce take via harassment:
  - A buffer of 300 ft (91 m) from Active Nests is recommended to avoid take via harassment during most activities.
  - A buffer of 0.75 miles (1.2 km) is recommended for activities with loud, intermittent or consistent noises (e.g., fireworks, sporting events, concerts, etc.).
  - Increase the size of the buffer if birds appear agitated or disturbed by project activities.
  - A smaller, site-specific buffer may be established in coordination with the [FWC regional shorebird contact](#).
- If activities must occur within 300 ft of a Critical Roosting Site, attempt to avoid conducting activities within two hours of high tide.

### Design Modification

- Design projects so all or most activities that must occur near or within Recent Breeding Sites or Critical Brood-rearing Sites occur outside of the breeding season (Box 5).
- Structure the order of tasks to minimize the number and/or duration of project activities during the breeding season within Active or Recent Breeding Sites or Critical Brood-rearing Sites.
- Limit the work area to the smallest extent practical.
- Leave beach wrack in place whenever possible, at least one-third of any continuous wrack line. Wrack provides important foraging habitat for shorebirds (Dugan et al. 2003, Schlacher et al. 2017).
- Employ methods to reduce speeds for road projects in breeding or brood-rearing habitat.
- Design projects in a manner that onsite conservation is a feasible form of mitigation (see [Mitigation Options](#) below).

### Box 6. Example of minimization

Adopting minimization measures can reduce the amount of mitigation needed to counterbalance take. For example, a construction project that occurs during the breeding season may cause take via both significant habitat modification *and* harassment of breeding pairs. A Permittee seeking to make a financial contribution as mitigation would have to counterbalance both forms of take. Conducting the activity outside of the breeding season would reduce the financial contribution (i.e., the contribution would only include the amount necessary to counterbalance take via significant habitat modification).

- Limit the number of dune walkovers, crossovers, vehicular ramps, and similar access points, and site them as far as possible from Active or Recent Breeding Sites and Critical Brood-rearing Sites.

#### Method Modification

- Maintain buffers using symbolic fencing and Regulatory Boundary Signs in accordance with FWC's [Guidelines for Posting Shorebird and Seabird Sites in Florida](#).
- Use a qualified Bird Monitor (see [Appendix C](#) for qualifications) to:
  - Identify the location of Active Breeding Sites and flightless chicks.
  - Establish, adjust, and maintain buffers around Active Nests and Active Critical Brood-rearing Sites using Regulatory Boundary Signs on each day prior to initiation of project activities until Active Nests and flightless young are no longer present. A buffer of 300 ft (91 m) is recommended to avoid take via harassment during project activities, unless a smaller, site-specific buffer with Regulatory Boundary Signs has been established by FWC staff or Florida Shorebird Alliance Partners in accordance with the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#).
  - Flightless chicks may wander outside areas posted with Regulatory Boundary Signs. Alert project personnel to the presence of flightless chicks so personnel can avoid death or injury to chicks.
  - Establish access and travel corridors for vehicles, pedestrians, and heavy equipment as far away from Regulatory Boundary Signs as possible to avoid death or injury to flightless chicks or impacts to nests established outside Regulatory Boundary Signs.
  - When flightless chicks are present within or adjacent to travel corridors, monitor movement of vehicles to ensure no chicks are in the path of the moving vehicle and chicks are not separated from adult birds.
  - Signs and symbolic fencing shall not be removed, repositioned, or otherwise modified by anyone other than the Bird Monitor or FWC. FWC staff may adjust Regulatory Boundary Signs if bird monitors have not correctly posted Active Breeding Sites or Active Critical Brood-rearing Sites.
- Adhere to minimization measures for operation of vehicles on the beach in Active or Recent Breeding Sites or Critical-brood-rearing Sites (see [Appendix D](#)).
- Level or smooth tracks, ruts, or holes capable of trapping flightless chicks at the conclusion of each day's work.
- For activities that must occur within 300 feet of Active Nests on beaches, dredge material islands, oyster rakes, or similar substrates (note: please see [Appendix E](#) for minimization measures specific to rooftops):
  - Schedule activities within 2 hours of sunrise or within 1 hour of sunset to minimize the exposure of eggs/chicks to heat and sun. Alternatively, measure surface temperatures, and cease work when surface temperatures reach 105° F. Be sure to measure temperature at the surface (e.g., via infrared thermometer) rather than atmospheric temperature.
  - Employ a qualified Bird Monitor to post nesting areas using signage and symbolic fencing in accordance with FWC's [Guidelines for Posting Shorebird and Seabird Sites in Florida](#) to assist project personnel with identifying and staying as far away as possible from nests.
  - Cease activities within the breeding site if chicks are observed displaying signs of physical distress (calling, panting, high rates of movement, etc.).

#### Mitigation Options

*Please note that mitigation must provide scientific or conservation benefit to the specific species taken by project activities (e.g., actions that result in take of American oystercatchers must provide mitigation that benefits American oystercatchers). Mitigation is scalable depending on the impact (e.g., Box 5), with mitigation options available for take that significantly impairs or disrupts essential behavioral patterns.*

The list of mitigation options in Table 1 and the section below is not exhaustive. [Programmatic permits](#) (e.g., multi-party or longer-term permits for repeat activities) are possible and will be evaluated on a case-by-case basis. In rare cases, mitigation provided through the ERP process may satisfy the requirements of Rule 68A-27, F.A.C., as described in [Coordination with Other State and Federal Agencies](#). All mitigation contributions will support IBNB conservation actions consistent with the Species Action Plan (FWC 2013) or those identified by FWC subject matter experts as emerging needs for the species.

*Table 1. Typical mitigation options for Incidental Take Permits for IBNBs.*

Type of Mitigation	Options
<b>Scientific Benefit</b>	Studies that provide <i>significant advancement</i> in knowledge or management of the species (see list in this document)
<b>Conservation Benefit</b>	Onsite conservation Offsite conservation Financial contribution Information*

\*The information option includes support for research, monitoring, or education. This option can be part of a mitigation package but not the sole source of mitigation.

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**Scientific Benefit**

As noted in the [Imperiled Species Management Plan](#), a study must provide *significant advancement* in knowledge or management of the species in order to meet the standard of scientific benefit. The following research and monitoring projects will provide scientific benefit, provided FWC staff approve the objectives and methods submitted as part of the permit application.

- Establish or expand on existing studies designed to increase the knowledge of the effects of predation, predator presence, and effectiveness of targeted predation management in an adaptive management framework on the demographics of breeding shorebirds and seabirds. Study shall include the assessment of predator presence and predation frequency in relation to vegetation structure.
- Evaluate and assess the impacts of beach management strategies for purposes other than benefiting IBNBs (e.g., beach nourishment, revegetation, etc.) on breeding and nonbreeding shorebird and seabird movement patterns, reproductive success, and survival.
- Establish or expand on existing studies designed to monitor change and loss of coastal habitat through management/restoration, vegetation succession, or ecological processes, focusing on shorebird and seabird foraging, roosting, and breeding habitats to determine impacts to shorebird and seabird survival, reproductive success, and population size.
- Evaluate the importance of site fidelity in breeding and nonbreeding IBNBs and incorporate site specific variables to determine rates of mortality and emigration.
- Establish a monitoring program that allows rapid assessment of the effects of natural or man-made perturbations including episodic coastal oiling or other environmental contaminants, harmful algal blooms, or similar events on shorebird and seabird survival and health. This program shall extend to tracking of survival of impacted birds as well as the tracking of birds in the area that were not impacted.
- Develop and implement a large-scale (statewide), long-term ( $\geq 7$  years) demographic study using either color-banding or transmitter technology for least terns or black skimmers to examine survival and dispersal of adults and fledged chicks.
- Model the impact of climate change (sea-level rise, temperature, and rainfall) on the nesting and foraging habitat of state-threatened shorebirds and seabirds. This could include a spatiotemporal assessment of foraging habitat near priority seabird colonies, as determined through coordination with FWC staff.
- Design and implement a statewide study to enhance the understanding of least terns and black skimmer interactions with fisheries and how diet is impacted by things like red tide, freshwater inputs into the estuary (rainfall), etc. Develop a publicly available seabird diet database.

**Conservation benefit**

*To achieve conservation benefit, standard mitigation options are available for some activities in Active or Recent Breeding Sites, whereas mitigation will be evaluated on a case-by-case basis for other activities (Table 2, [Appendix B](#)). Mitigation will be evaluated on a case-by-case basis for all activities in Critical Brood-rearing Sites and Critical Roosting Sites.*

*Table 2. Activities within Active or Recent Breeding Sites for which standard mitigation options are available (see Appendix B). Other activities require case-by-case evaluation.*

Mitigation type	Activity	
<b>Standard mitigation</b>	Beach cleaning	Emergency response
	Beach vehicular ramps	activities
	Major structures*	Non-habitable structures*
	Minor structures*	Rooftop maintenance /
	Groins and jetties	repairs
	Coastal dune lake outlets	Special events
	Debris removal, oil-spill cleanup, derelict vessel removal, removal of sand from roads	Stormwater outfalls
	Dune crossovers/walkovers	
<b>Case-by-case evaluation</b>	Beach nourishment**	Scientific research
	Coastal armoring***	Others
	Dredge material management	
	Dredging	
	Mining	

\* As defined in [Florida Statute 161.54](#), though note that dune walkovers and crossovers and sand fencing are handled separately in these guidelines.

\*\*Adhering to the shorebird conditions in a Department of Environmental Protection Joint Coastal Permit typically constitutes avoidance of take for beach nourishment activities. In rare cases where avoidance is not possible, mitigation will be evaluated on a case by case basis. Shorebird conditions do not always constitute avoidance for other activities associated with JCPs.

\*\*\* As defined in Rule [62B-41.002, F.A.C.](#)

### Standard Mitigation Options

Standard options ([Appendix B](#)) often include choice of one of the following options:

#### Onsite conservation

Onsite conservation is the preferred option for shorebird conservation, when feasible. Onsite conservation includes establishing a “Seasonal Refuge” for IBNBs. Seasonal Refuges are on-site areas where Regulatory Boundary Signs and symbolic fencing are posted early, just prior to breeding season and are not taken down until breeding season ends or breeding activity is completed, whichever is later. Such areas provide undisturbed open space for IBNBs to conduct breeding activities with minimal human disturbance. These refuges may also provide brood-rearing habitat for IBNBs. A Seasonal Refuge must be of sufficient size and have habitat of sufficient quality to sustain a number of IBNB pairs greater than the number of pairs for which the applicant is seeking authorization for take. Seasonal Refuges must be maintained for 25 years for projects that result in significant habitat modification. If a Seasonal Refuge is part of a [Programmatic Permit](#) covering multiple landowners, the location of the Seasonal Refuge can vary from year to year, provided each location has sufficient quantity and quality of habitat.

FWC staff may determine that onsite mitigation is not applicable for one or more of the following reasons:

- The site does not contain sufficient quantity of habitat to support a number of IBNB pairs greater than the number of pairs for which the applicant is seeking

authorization for take.

- The site does not contain sufficient quality of habitat (e.g., Seasonal Refuges must be at an elevation that protects nests from being washed over during most high tides; nesting habitat should not be directly adjacent to tall buildings; nesting habitat must have less than 10% vegetation cover; the configuration of the habitat must be wide enough to prevent disturbance; etc.).
- Habitat modifications due to the project or activity will increase threats (e.g., human disturbance, predators) onsite.
- Future activities on or adjacent to the site are likely to increase threats or reduce habitat quality over time.

Applicants should include details on the size, configuration, and location of Seasonal Refuges proposed as mitigation in their permit application. Permit conditions will include these details, as well as requirements on when and how the area must be posted with Regulatory Boundary Signs and requirements associated with habitat management. [FWC regional shorebird contacts](#) can provide technical assistance on acceptable configurations for Seasonal Refuges being proposed as mitigation.

FWC staff also will consider onsite habitat restoration or enhanced management as part of the mitigation package. Examples include, but are not limited to, removal of invasive exotic vegetation, removal of paved surfaces, speed attenuation measures (e.g., speed humps) at roads with documented IBNB mortality, adding shell to prolong availability of open areas, and predation management.

#### **Offsite conservation**

If onsite conservation is determined to be infeasible, potential permittees also have the option of offsite conservation. Offsite conservation can include population management (e.g., predation management), improved protections (e.g., Regulatory Boundary Signs, bird stewards, law enforcement patrols) from human-related disturbance, rooftop management, seasonal closures, habitat restoration (e.g., vegetation management), habitat creation (e.g., nesting platforms for least terns, spoil island management), 1:1 land acquisition with management, or any combination of these actions. It is preferable for offsite conservation to be located within the same region of the state where IBNBs are impacted by project activities (see map of IBNB regions in the [Species Action Plan](#) [FWC 2013]). Close coordination with the appropriate [FWC regional shorebird contact](#) is encouraged prior to proposing offsite mitigation as part of a permit application. Offsite mitigation must provide an overall conservation benefit to the species to be taken. Requirements associated with offsite mitigation are included in permit conditions.

#### **Financial contribution**

Permit applicants also can make a financial contribution to the Fish and Wildlife Foundation of Florida's Imperiled Species Permitting Conservation Fund in lieu of onsite or offsite conservation. Mitigation funding will be used to fund priority actions included in, or consistent with the objectives of, the [Species Action Plan](#) (FWC 2013).

The framework presented below for calculating financial contribution applies to all activities with standard mitigation options (Table 2), with the exception of minor and non-habitable structures less than 1,500 square feet and dune walkovers and crossovers, which are addressed in a separate section below.

An online app, ShoreMap is available on FWC's website at <http://geodata.myfwc.com/pages/upland> to guide stakeholders in determining the appropriate financial contribution for some activities ([Appendix B](#)). Given the dynamic nature of the coast, *a site visit is strongly recommended to ensure the accuracy of the extent of take estimated by the*

*app.*

**For harassment:**

1. The app provides a number of pairs of birds associated with a Recent Breeding Site.
2. The user of the app determines the proportion of the Recent Breeding Site impacted by a project or activity, as described in the [Distribution and Survey Methodology Section](#).
3. Multiplying results of step 1 with those of step 2, rounding up, produces an estimate of the amount of harassment (expressed in number of pairs of birds).
4. Multiplying the number of pairs in step 3 by the appropriate cost/pair in [Table 4](#) produces the financial contribution to achieve conservation benefit. Table 4 provides the mitigation cost per pair for each species, taking into account the relative abundance of each species in Florida.

**For significant habitat modification:**

1. The user of the app determines the proportion of the Recent Breeding Site impacted by a project or activity, as described in the [Distribution and Survey Methodology Section](#).
2. The app provides an estimate of square feet of both direct impacts (i.e., activities that remove habitat) and indirect impacts (activities that render habitat unusable or reduce its suitability) for activities that result in significant habitat modification. A few examples of indirect impacts include IBNBs avoiding nesting in otherwise suitable habitat next to a building or other tall structure, or IBNBs nesting in reduced numbers in otherwise suitable habitat in front of a new hotel due to increased pedestrian traffic. The app also indicates the relative priority of the habitat, ranked from Tier 1 (highest value) to Tier 3.
3. Multiplying the area of direct and indirect impacts by the values in Table 5 provides the financial contribution to achieve conservation benefit. When a site is Tier 1 for one species and Tier 2 or 3 for another, mitigation must represent the highest value (Tier 1). See Box 6 for an example.

*Table 3. Types of take, and anticipated form(s) of financial contribution*

<b>Type of take</b>	<b>Form(s) of financial contribution</b>
Harassment	Per breeding pair (per year for repeat activities)
Direct mortality or injury	FWC typically does not issue permits for this type of take, except in emergency situations
Significant habitat modification	Per square foot
Significant habitat modification <i>and</i> harassment*	Per breeding pair <i>plus</i> per square foot

\*e.g., construction projects that occur during the breeding season

*Table 4. Financial contribution for harassment is measured **per breeding pair** of birds and varies by species.*

Species	Per pair (Per year)
American oystercatcher	\$1,900
Black skimmer	\$270.00
Least tern	\$200.00
Snowy plover	\$2,250.00

*Table 5. Financial contribution for significant habitat modification is measured **per square foot** and varies based on the size (Tier) of the breeding site.*

Tier	Direct impact	Indirect impact
Tier 1	\$8.00	\$2.00
Tier 2	\$6.50	\$1.50
Tier 3	\$1.75	\$0.50

*Table 6. Financial contribution for dune walkovers and crossovers that remove habitat from or terminate within a Recent Breeding Site or Critical Brood-rearing Site*

Tier	Single family	Multi-family (< 10 units) or parking area (< 10 spots)	Multi-family (> 10 units) or parking area (> 10 spots)
Tier 1	\$500	\$19,000	\$33,000
Tier 2	\$500	\$9,500	\$19,000
Tier 3	\$500	\$950	\$9,500



**Minor structures and non-habitable structures under 1,500 square feet**

Minor and non-habitable structures (as defined in [Florida Statute 161.54](#)) that are less than 1,500 square feet require only direct impact mitigation for significant habitat modification. Please note that dune crossovers and walkovers have a separate mitigation structure (Table 6).

**Box 6. Example of financial contribution**

A construction project must be done during the breeding season. The applicant checks ShoreMap, which indicates that the project will occur within a Recent Breeding Site. The project footprint within the Recent Breeding Site exceeds 500 square feet and will therefore result in significant habitat modification, as well as harassment of breeding pairs.

The applicant draws the project footprint in ShoreMap, which estimates that take will include harassment of 5 breeding pairs of least terns, as well as direct impacts to 1,000 square feet and indirect impacts of 2,000 square feet of Tier 2 least tern habitat.

The applicant wishes to mitigate using a financial contribution. Using Table 4, the applicant calculates the mitigation for harassment as:

$$5 \text{ pairs} \times \$200 = \$1,000$$

Using Table 5, the applicant calculates mitigation for significant habitat modification as:

$$(1,000 \times \$6.50) + (2,000 \times \$1.50) = \$9,500$$

The total financial contribution would be  $\$1,000 + \$9,500 = \$10,500$

**Case-by-case options**

If standard mitigation options are not available, or if an applicant wishes to propose alternative mitigation to achieve conservation benefit, the following list provides mitigation categories for applicants to consider:

**Habitat**

- Seasonal on-site refuge to protect IBNBs during the breeding season
- Offsite habitat creation and maintenance (e.g., least tern nest platforms, spoil island management)
- Habitat restoration and maintenance (e.g., vegetation management, beach nourishment with seasonal refuge [note: nourishment may not be appropriate in some sites with snowy plovers or American oystercatchers])
- Enhanced management of existing habitat (e.g., predation management, improved protections, rooftop management, seasonal closures).

**Funding**

- Mitigation may take the form of a financial contribution to the [Fish and Wildlife Foundation of Florida's](#) Imperiled Species Permitting Conservation Fund. Mitigation funding will be used to fund priority actions included in or consistent with the objectives of the [Species Action Plan](#).

**Information**

- Mitigation can be used to support research, monitoring, or educational projects included in or consistent with the objectives of the [Species Action Plan](#). This form of mitigation can be

part of a mitigation package but shall not be the sole form of mitigation unless included above under [Scientific Benefit](#).

#### Programmatic Options

- Multi-year or long-term permits are possible and will be considered on a case-by-case basis. Examples of activities that may benefit from a programmatic permit include, but are not limited to, repeated activities like dredge spoil management and large-scale public works projects. Programmatic permits can cover multiple activities occurring on the beach. Programmatic permits similar to [Safe Harbor Agreements](#) are possible for landowners concerned that a temporary activity may attract nesting IBNBs.

#### Multispecies Options

- Different species of IBNBs often nest in the same location, and multispecies permits are available. It is also possible to include state-Threatened IBNBs in Habitat Conservation Plans developed in coordination with the U.S. Fish and Wildlife Service for federally-listed marine turtles, red knots, piping plovers, or beach mice.

#### Other Types of Agreements

- In some large-scale or complex situations, FWC may authorize take via another legal instrument, such as a Memorandum of Agreement, in lieu of a programmatic or multispecies permit.

#### Assembling a mitigation package

When assembling a mitigation package, applicants must evaluate: (1) what is the extent of take that will occur, and (2) how much mitigation would be necessary to counterbalance the take and provide an additional benefit to the species? Mitigation for actions that harass breeding pairs must at least replace the productivity lost due to the action. The appropriate amount and duration of mitigation will depend on the impact. For example, if an action harasses a colony of 10 least tern pairs in a single breeding season, mitigation would have to be sufficient to replace the lost breeding opportunity for those 10 pairs and provide an additional benefit. However, if an action results in permanent loss of a breeding site used by 10 least tern pairs, mitigation would have to counterbalance more than just a one-time loss of productivity. In this hypothetical example, mitigation could include replacing the lost habitat through habitat protection, creation, or restoration, or counterbalancing lost productivity over at least the average generation length or expected adult life span of the species.

The mitigation options outlined in the pages above may be combined by the applicant when creating a mitigation package. Additional mitigation options may be considered by the [FWC's Protected Species Permitting Office](#), provided the applicant can provide sufficient justification of scientific or conservation benefit.

## FWC Permitting: Intentional Take

Intentional take is not incidental to otherwise lawful activities. Per Chapter 68A-27, F.A.C., intentional take is prohibited and requires a permit. For state-Threatened species, intentional take permits may only be considered *for scientific or conservation purposes* (defined as activities that further the conservation or survival of the species taken). Permits are issued for state-Threatened species following guidance in Rule 68A-27.007(2)(a), F.A.C. Intentional take is authorized under certain circumstances that involve risks to property or human safety, such as on airport property ([see above](#)).

### Risks to Property or People

#### Intentional take for Human Safety

- Rule 68A-9.012, F.A.C., describes circumstances under which IBNBs may be taken on airport property without further state authorization for an imminent threat to aircraft or human safety.

- Permits will be issued only under limited and specific circumstances, in cases where there is an immediate danger to the public's health and/or safety, such as imminent or existing power outages that threaten public safety, or in direct response to an official declaration of a state of emergency by the Governor of Florida or a local governmental entity. Applications submitted for this permit must include all information that is required from any other applicant seeking a permit, along with a copy of the official declaration of a state of emergency, if any. If chicks are removed and taken to a licensed rehabilitation center under these circumstances, the permittee must compensate the rehabilitation center for food and supplies for subsequent care of the birds.

#### **Aversive Conditioning**

- Not applicable for IBNBs.

### **Scientific Collecting and Conservation Permits**

Scientific collecting permits may be issued for IBNBs using guidance found in Rule 68A-27.007(2)(a), F.A.C. Activities requiring a permit include some forms of research, captive possession, educational use, and salvage of parts or eggs, as described below. Applicants can apply for scientific collecting permits on the FWC's [online permitting site](#).

**Research activities** requiring a permit include any projects that involve capturing, handling, or marking IBNBs; approaching or entering Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites for scientific purposes; conducting biological sampling; or other activities that may cause take. *To avoid requests for additional information, please carefully review the Considerations for Issuing a Scientific Collecting Permit and Relevant to all Scientific Collecting for IBNBs sections below.*

Please note that some Recent Breeding Sites are located in designated [Critical Wildlife Areas](#), which are closed to public access without a permit at certain times of year (Rules 68A-14.001 and 68A-19.005, F.A.C.). *Research or monitoring requiring entry into Critical Wildlife Areas during closed periods must provide a justification in the scientific collecting permit application.*

Scientific collecting permit applications involving **captive possession** for any period of time must include a full explanation of whether the facility has the appropriate resources for accomplishing the objectives and for maintaining the animals in a safe and humane manner. Applications for **educational use** of live IBNBs must include an evaluation by an independent rehabilitator and a licensed veterinarian demonstrating that the individual cannot be released into the wild; must demonstrate appropriate educational use; and must include information about the ability of the applicant(s) to conduct the educational activities, their history of performing such activities, and resources for maintaining IBNBs. Appropriate educational use means that the IBNBs must be housed at a non-profit scientific or educational facility, must be on public display with the intent of conservation education whenever the facility is open to the public (provided the bird is in good health), and must not be displayed for commercial purposes (i.e., any manner that implies personal use or that promotes or endorses any product, merchandise, good, service, business or organization). Additionally, applicants that wish to possess live IBNBs for educational purposes must abide by caging requirements (Rule 68A-6, F.A.C.) and obtain a license for exhibition/public sale (372.921 Florida Statutes).

For **possession of dead IBNBs, or their parts or infertile eggs**, an applicant must meet the definition of appropriate educational use provided above, except that specimens may be housed in a manner appropriate for their preservation, provided they are still accessible for public use. Permits may be issued to display a specimen if the specimen was obtained via a rehabilitation facility or was encountered dead.

Although issuance of a state permit does not depend on the possession of **local or federal authorizations**, permittees must obtain all necessary local and federal authorizations before executing the state permit. Please note federal permits may be required from the U.S. Fish and Wildlife Service to comply with the

Migratory Bird Treaty Act and may be required from the United States Geological Survey (USGS) Bird Banding Lab for banding, color-marking, specific capture methods, sampling of blood/tissues, collection of feathers, and attachment of transmitters or other data gathering mechanisms. Federal salvage permits are also required to collect any dead individuals (i.e., mortality not due to research activities or incidental take from research activities) or parts of deceased individuals, including feathers and tissues.

#### **Considerations for Issuing a Scientific Collecting Permit**

FWC staff considers the following questions when evaluating Scientific Collecting Permit applications, based on the factors outlined in Paragraph 68A-27.007(2)(a), F.A.C. The bullets under each question provide guidance to permit applicants for assembling a complete application:

- 1) Is the purpose adequate to justify removing the species (if the project requires this)?
  - Permits may be issued if the identified project is consistent with the goal of [Species Action Plan](#) (i.e., improvement in status that leads to removal from Florida's Endangered and Threatened Species List), or addresses an identified data gap important for the conservation of the species.
- 2) Is there a direct or indirect effect of issuing the permit on the wild population?
  - Applicants must include detailed methods, including measures taken to minimize take. Applications also must include proposed study duration, sample size, and disposition of individuals, as appropriate.
  - Trapping, capturing and handling IBNBs may impact the wild populations' ability to forage, breed, or rear young. Applications proposing these activities must include trapping and handling protocols. Trapping and handling protocols must identify measures to lessen stress for captured individuals and to lessen the impacts to IBNB populations.
  - Methodologies for any collection of tissues such as blood must be clearly spelled out, including measures taken to reduce stress/injury to the birds.
  - If proper precautions are not in place, entering Active Breeding Sites or Active Critical Brood-rearing Sites could result in death or injury of eggs or chicks, harassment of adults or chicks, or even abandonment of the site. Applicants that propose to work near or within Active Breeding Sites or Active Critical Brood-rearing Sites must include measures for minimizing disturbance.
  - American oystercatchers rely on Critical Roosting Sites at high tide. Applicants that propose to work near or within Critical Roosting Sites must include measures for minimizing disturbance.
- 3) Will the permit conflict with a program intended to enhance survival of species?
  - Applications include clear objectives to ensure that the project does not conflict with other conservation efforts for the species.
  - Coordination with land managers, partners (county, city, state or national), and FWC's Shorebird Program must be addressed in the application to demonstrate that the project will not conflict with other efforts for the species.
  - Applications must identify the project location, such as where trapping or handling will occur (privately owned or public lands).
  - Applicants that propose to approach or enter Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites must justify that the level of disturbance to birds will not conflict with objectives of the [Species Action Plan for Four IBNBs](#) (FWC 2013) and other relevant conservation efforts for the species.
- 4) Will purpose of the permit reduce likelihood of extinction?
  - Projects consistent with the goal of the [Species Action Plan for Four IBNBs](#) (FWC 2013) or that fill identified data gaps in species life history or management may reduce the likelihood

of extinction.

- Applications must include clear project objectives and justification of why the proposed project has a scientific or conservation purpose, including how the project advances conservation of the species.
- 5) Have the opinions or views of other scientists or other persons or organizations having expertise concerning the species been sought?
- 6) Is applicant expertise sufficient?
- Applicants must have prior documented experience or training with this or similar species, and applicants must have met all conditions of previously issued permits.
  - The application must describe the qualifications (e.g., experience or training) of all project participants and the resources and facilities available to conduct the proposed work.

**Relevant to all Scientific Collecting for IBNBs:**

- Permit amendment and renewal applications must be “stand alone” (i.e., include all relevant information on objectives and methods, even if previously submitted for a predecessor permit).
- Applications must include a proposal that contains the elements in the Considerations for Issuing a Scientific Collecting Permit and Relevant to all Scientific Collecting for IBNBs sections above.
- If the work requires entrance into a [FWC Critical Wildlife Area](#) during a closed period, a justification for entering the Critical Wildlife Area in the permit application is required.
- As noted above, scientific collecting permit applications must include detailed qualifications or training for all individuals that will be capturing or handling IBNBs. For those likely to submit multiple applications over time, the FWC strongly encourages applicants to upload minimum qualifications as part of an application for a self-issuing Registered Agent permit in the [online permitting site](#). The FWC also encourages applicants to include qualifications of sub-permittees in the Registered Agent permit. This approach will allow applicants to upload minimum qualifications only once rather than repeatedly uploading them in each scientific collecting permit application.
- Surveys using [The Breeding Bird Protocol for Florida’s Seabirds and Shorebirds](#) or The FWC Monitoring Protocol for Non-breeding Shorebirds and Seabirds do not need a permit, unless surveyors require access to Critical Wildlife Areas.
- Passive observations (such as those involved in behavioral studies) of foraging, roosting, and nesting birds do not need a permit provided observers remain outside the identified buffer distances and the birds do not flush from Active Nests or Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites. Operation of game cameras within Active Breeding Sites requires a Scientific Collecting Permit.
- For guidance on permitting for surveys of IBNBs using UAS, please see [Appendix F](#) for more information.
- Aerial surveys in manned vehicles do not need a permit, provided flight altitude is above 500 feet from Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites.
- Non-destructive habitat sampling near foraging, roosting, and nesting birds does not need a permit, provided observers remain outside Active Breeding Sites, Active Critical Brood-rearing Sites, or Critical Roosting Sites when oystercatchers are present.
- Any mortality must be reported to the FWC, and FWC staff will provide guidance on proper disposal of specimens in the permit conditions.
- A final report must be provided to the FWC in the format specified in the permit conditions.

## Additional information

The app displaying Recent Breeding Sites, Critical Brood-rearing Sites, and Critical Roosting Sites is available at

[www.Myfwc.com](http://www.Myfwc.com) [INSERT LINK IN PDF]

Information on economic assessment of these Guidelines can be found at

<http://myfwc.com/wildlifehabitats/imperiled/management-plans/>

## Contact

For permitting questions or to report mortalities, contact the FWC at (850) 921-5990 or [WildlifePermits@myfwc.com](mailto:WildlifePermits@myfwc.com). To contact a FWC regional shorebird contact, please visit <https://myfwc.com/conservation/you- conserve/wildlife/shorebirds/contacts/>.

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## Appendices

### Appendix A – Examples of actions expected to cause take

The table below provides examples of actions that create the likelihood of significantly impairing or disrupting essential behavioral patterns. If conducting one of these activities in one of the times and places where take is possible, we recommend contacting the [FWC regional shorebird contact](#) to avoid a wildlife violation. This list is not meant to be comprehensive. See the [Take](#) section for general guidance. H = harassment, D = direct injury or mortality, S = significant habitat modification.

Action	Expected to Cause Take Where/When Within 300 feet of...						Notes
	Recent breeding site (during breeding season; Figure 1)	Recent breeding site (outside of breeding season)	Active nests (i.e., within an Active Breeding Site)	Active Critical brood-rearing site (Mar 15 - Aug 31)	Critical brood-rearing site (Sep 1 - Mar 14)	Critical roosting site (year-round)	
Allowing dogs to run through			H, D	H, D		H, D	
Beach Nourishment and Associated Tilling (As defined in Rule <a href="#">62B-41.002, F.A.C.</a> ) NOTE: Adherence to shorebird conditions in a Joint Coastal Permit (JCP) typically constitutes avoidance of take. In rare cases where avoidance is not possible, mitigation will be evaluated case-by-case. Projects issued a JCP prior to 2012 should contact FWC to make sure JCP permit conditions still are sufficient.	H, D		H, D	H, D			
Beach Vehicular Ramps	H, D, S	S	H, D, S	H, D, S	S		Significant habitat modification if habitat loss > 500 sq ft or if the ramp terminates in one of these sites
Beach Cleaning (mechanical)	H, D		H, D	H, D			Regulations for mechanical beach cleaning will go into effect on December 1, 2022
Coastal Armoring (As defined in Rule <a href="#">62B-41.002, F.A.C.</a> )	H, D, S	S	H, D, S	H, D, S	S		
Coastal Dune Lake or Stormwater Outlets	H, D, S	S	H, D, S	H, D, S	S		Significant habitat modification if habitat loss > 500 sq ft

**Appendix A (continued) – Examples of actions expected to cause take**

The table below provides examples of actions that create the likelihood of significantly impairing or disrupting essential behavioral patterns. If conducting one of these activities in one of the times and places where take is possible, we recommend contacting the [FWC regional shorebird contact](#) to avoid a wildlife violation. This list is not meant to be comprehensive. See the [Take](#) section for general guidance. H = harassment, D = direct injury or mortality, S = significant habitat modification.

Action	Expected to Cause Take Where/When Within 300 feet of...						Notes
	Recent breeding site (during breeding season; Figure 1)	Recent breeding site (outside of breeding season)	Active nests (i.e., within an Active Breeding Site)	Active Critical brood-rearing site (Mar 15 - Aug 31)	Critical brood-rearing site (Sep 1 - Mar 14)	Critical roosting site (year-round)	
Debris removal, oil spill cleanup, removal of derelict vessels, removal of sand from roads, and Emergency Response Activities (i.e., immediate action to repair, replace, or restore structures, equipment, works, and operations damaged by a storm, during a state of emergency declared by an Executive Order of the Governor)	H, D		H, D	H, D		H	
Deposition of dredged material (e.g., onto spoil islands or Dredge Material Management Areas)	H, D		H, D	H, D			
Dredging	H, D, S	S	H, D, S	H, D, S	S	H, S	Significant habitat modification if habitat loss > 500 sq ft or if indirect habitat loss > 500 sq ft through erosion
Dune Crossovers, Walkovers, Mobi Mats	H, D, S	S	H, D, S	H, D, S	S		Significant habitat modification if habitat loss > 500 sq ft or if the walkover/crossover terminates in a Breeding Site or Critical Brood-rearing Site.

**Appendix A (continued) – Examples of actions expected to cause take**

The table below provides examples of actions that create the likelihood of significantly impairing or disrupting essential behavioral patterns. If conducting one of these activities in one of the times and places where take is possible, we recommend contacting the [FWC regional shorebird contact](#) to avoid a wildlife violation. This list is not meant to be comprehensive. See the [Take](#) section for general guidance. H = harassment, D = direct injury or mortality, S = significant habitat modification.

Action	Expected to Cause Take Where/When Within 300 feet of...						Notes
	Recent breeding site (during breeding season; Figure 1)	Recent breeding site (outside of breeding season)	Active nests (i.e., within an Active Breeding Site)	Active Critical brood-rearing site (Mar 15 - Aug 31)	Critical brood-rearing site (Sep 1 - Mar 14)	Critical roosting site (year-round)	
Groins, Jetties, and Other Erosion Control, Inlet Management, or Sand-catching Structures	H, D, S	S	H, D, S	H, D, S	S	H, S	Significant habitat modification if habitat loss > 500 sq ft. Also, these structures can cause take if they separate snowy plover breeding sites from Active Critical Brood-rearing Site.
Major and Minor Structures (As defined in <a href="#">Florida Statute 161.54</a> ) (e.g., single-family and multi-family dwellings, roads, bridges, boardwalks, etc.)	H, D, S	S	H, D, S	H, D, S	S	H, S	Significant habitat modification if habitat loss > 500 sq ft, unless: (1) construction occurs landward of a paved road and does not require movement of people or equipment within breeding or brood-rearing habitat, (2) existing development of similar or larger size provides an auditory and visual barrier between the activity and breeding or brood-rearing habitat.
Mining			H, D				

**Appendix A (continued) – Examples of actions expected to cause take**

The table below provides examples of actions that create the likelihood of significantly impairing or disrupting essential behavioral patterns. If conducting one of these activities in one of the times and places where take is possible, we recommend contacting the [FWC regional shorebird contact](#) to avoid a wildlife violation. This list is not meant to be comprehensive. See the [Take](#) section for general guidance. H = harassment, D = direct injury or mortality, S = significant habitat modification.

Action	Expected to Cause Take Where/When Within 300 feet of...						Notes
	Recent breeding site (during breeding season; Figure 1)	Recent breeding site (outside of breeding season)	Active nests (i.e., within an Active Breeding Site)	Active Critical brood-rearing site (Mar 15 - Aug 31)	Critical brood-rearing site (Sep 1 - Mar 14)	Critical roosting site (year-round)	
Non-habitable Structures on the Beach (As defined in <a href="#">Florida Statute 161.54</a> ) (e.g., non-portable Lifeguard Stands)	H, D, S	S	H, D, S	H, D, S		H, S	Significant habitat modification if habitat loss > 500 sq ft, unless: (1) construction occurs landward of a paved road and does not require movement of people or equipment within breeding or brood-rearing habitat, (2) existing development of similar or larger size provides an auditory and visual barrier between the activity and breeding or brood-rearing habitat.
Intentionally Deterring IBNBs by Placing Objects or Devices or changing the substrate (e.g., placing straw, furrowing the sand)	H		H	H		H	
Rooftop Maintenance or Repairs (Note: take can occur even if birds are on a rooftop adjacent to where repairs are taking place)			H, D				See Appendix E
Scientific Research (not on IBNBs) that requires movement of people, vehicles, or equipment or alteration of habitat	H, D		H, D	H, D		H	

**Appendix A (continued) – Examples of actions expected to cause take**

The table below provides examples of actions that create the likelihood of significantly impairing or disrupting essential behavioral patterns. If conducting one of these activities in one of the times and places where take is possible, we recommend contacting the [FWC regional shorebird contact](#) to avoid a wildlife violation. This list is not meant to be comprehensive. See the [Take](#) section for general guidance. H = harassment, D = direct injury or mortality, S = significant habitat modification.

Action	Expected to Cause Take Where/When Within 300 feet of...						Notes
	Recent breeding site (during breeding season; Figure 1)	Recent breeding site (outside of breeding season)	Active nests (i.e., within an Active Breeding Site)	Active Critical brood-rearing site (Mar 15 - Aug 31)	Critical brood-rearing site (Sep 1 - Mar 14)	Critical roosting site (year-round)	
Special Events (e.g., concerts, fireworks, sporting events)	H, D		H, D	H, D		H	Harassment can occur from impulsive or consistent loud noise within .75 miles, unless (1) previous observations demonstrate that birds are acclimated at the site, or (2) sound models (e.g., Keyel et al. 2018) indicate sound < 85 decibels at the site. Also crowds or equipment within 300 feet of the site can cause harm or harassment.
Use of Vehicles or Vessels (e.g., UTVs, cars, trucks, boats, paddlecraft, paragliders, windsurfing, paramotors, etc.)	H, D		H, D	H, D		H	

### Appendix B – Standard Options for Minimization and Mitigation Measures for Active and Recent Breeding Sites

When		Where		Minimization measures	Mitigation options*
Breeding season  (See Figure 1)	Non-breeding season  (Generally Sept 2 - Feb 14)	Within 300 feet of... (see Distribution and Survey section)	Recent breeding site  Active nests (i.e., within Active Breeding Site)		
<b>Beach cleaning (mechanical)</b>					
X		X		Appendix C. Bird Monitors	<b>Raking <math>\leq</math> 2 times/week:</b> None  <b>Raking <math>&gt;</math> 2 times/week:</b> the Permittee must choose one of the following mitigation options: (1) <b>on-site, temporary refuge</b> or (2) <b>financial contribution</b> (per year for harassment; Table 4)
X			X	If previously unknown Active Breeding Sites are found, apply Appendix C.	None, if previously unknown Active Breeding Sites are found. Follow minimization measures in Appendix C. Bird Monitors.
<b>Beach vehicular ramps</b>					
	X	X			<b>(1) offsite mitigation</b> <b>(2) financial contribution</b> (significant habitat modification; Table 5)
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	<b>(1) offsite mitigation.</b> <b>(2) financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5)



## Appendix B (continued) – Standard Options for Minimization and Mitigation Measures for Active and Recent Breeding Sites

When		Where		Minimization measures	Mitigation options*
Breeding season  (See Figure 1)	Non-breeding season  (Generally Sept 2 - Feb 14)	Within 300 feet of... (see Distribution and Survey section)			
		Recent breeding site	Active nests (i.e., within Active Breeding Site)		*These are standard mitigation options, and applicants may propose alternative mitigation measures that counterbalance take and provide conservation benefit.
<b>Groins and jetties</b>					
	X	X		Shorebird and seabird conditions within the Department of Environmental Protection's Joint Coastal Permit	(1) <b>offsite mitigation.</b> (2) <b>financial contribution</b> (significant habitat modification; Table 5)
X		X	X	Shorebird and seabird conditions within the Department of Environmental Protection's Joint Coastal Permit	(1) <b>offsite mitigation.</b> (2) <b>financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5)
X	X	If separates a Critical brood-rearing Site from a Recent or Active Breeding Site		Shorebird and seabird conditions within the Department of Environmental Protection's Joint Coastal Permit	(1) Maintain connectivity by <b>maintaining sand</b> on the geotextile tubes or rocks in perpetuity, or (2) build and <b>maintain a corridor in the groin.</b>
<b>Coastal dune lake outlets and stormwater outfalls</b>					
	X	X			(1) <b>offsite mitigation.</b> (2) <b>financial contribution</b> (significant habitat modification; Table 5)
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	(1) <b>offsite mitigation.</b> (2) <b>financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5)
<b>Debris removal, oil-spill cleanup, derelict vessel removal, removal of sand from roads</b>					
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	No mitigation is necessary because removal and cleanup provide conservation benefit.

**Appendix B (continued) – Standard Options for Minimization and Mitigation Measures for Active and Recent Breeding Sites**

When		Where		Minimization measures	Mitigation options*
Breeding season  (See Figure 1)	Non-breeding season  (Generally Sept 2 - Feb 14)	Within 300 feet of... (see Distribution and Survey section)			
		Recent breeding site	Active nests (i.e., within Active Breeding Site)		*These are standard mitigation options, and applicants may propose alternative mitigation measures that counterbalance take and provide conservation benefit.
<b>Dune walkovers, crossovers, mobi mats</b>					
	X	X			Table 6.
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	Table 6.
<b>Major structures</b> As defined in <a href="#">Florida Statute 161.54</a>					
	X	X			(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification; Table 5)
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5)
<b>Minor structures</b> As defined in <a href="#">Florida Statute 161.54</a>					
	X	X			(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification; Table 5; direct impact only if structure is < 1,500 square feet)
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5; direct impact only if structure is < 1,500 square feet))

**Appendix B (continued) – Standard Options for Minimization and Mitigation Measures for Active and Recent Breeding Sites**

When		Where		Minimization measures	Mitigation options*
Breeding season	Non-breeding season	Within 300 feet of... (see Distribution and Survey section)			
(See Figure 1)	(Generally Sept 2 - Feb 14)	Recent breeding site	Active nests (i.e., within Active Breeding Site)		*These are standard mitigation options, and applicants may propose alternative mitigation measures that counterbalance take and provide conservation benefit.
<b>Non-habitable structures</b> As defined in <a href="#">Florida Statute 161.54</a>					
	X	X			(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification; Table 5; direct impact only if structure is < 1,500 square feet)
X		X	X	Appendices C. Bird Monitors and Appendix D. Operation of Vehicles	(1) <b>on-site, temporary refuge.</b> (2) <b>offsite mitigation.</b> (3) <b>financial contribution</b> (significant habitat modification <i>plus</i> harassment; Tables 4 and 5; direct impact only if structure is < 1,500 square feet)
<b>Rooftop maintenance and repairs</b>					
X			X	Appendix E. Rooftops	<b>No mitigation is necessary</b> , because maintaining gravel rooftops that support rooftop-nesting birds achieves conservation benefit.
<b>Special events -- periodic or continuous loud noise within 0.75 miles</b>					
X		X	X		Presence of a qualified Bird Monitor to collect data on the response of nesting birds to the noise, plus an after-action report.
<b>Special events – crowds, vehicles, equipment</b>					
X		X	X	Establishing Regulatory Boundary Signs according to the Guidelines for Posting Shorebird and Seabird Sites in Florida. Steward(s) to educate the public and keep the public from entering areas with Regulatory Boundary Signs. Appendix D for vehicles.	(1) <b>financial contribution</b> (harassment; Table 4)

## Appendix C – Bird Monitors

Bird surveys shall be conducted by trained, dedicated individuals (Bird Monitors) with proven shorebird and seabird identification skills and avian survey experience. The primary purpose of the Bird Monitor is to help the FWC Incidental Take Permittee (Permittee) avoid direct injury or mortality to birds or eggs. **The Permittee must include a list of Bird Monitors with the permit application.** Applicants can search the list of Registered Agent permittees on FWC’s [online permitting site](#) to find a Bird Monitor that meets the minimum qualifications below.

### Minimum Qualifications for Bird Monitors

Bird Monitors must meet the following minimum qualifications:

1. Bird Monitors must obtain a self-issuing Registered Agent permit on the [online permitting site](#). Registered Agent Permits must be renewed every 2 years. Applicants must upload a copy of the IBNB Bird Monitor Supplemental Application, which is available on FWC’s website.
2. The IBNB Bird Monitor Supplemental Application must include the applicant’s previous training and experience surveying breeding beach-nesting birds in Florida.
  - a. Applicants must demonstrate that they have conducted at least 1 survey that involved observation of Active Nests of imperiled beach-nesting birds.
  - b. Applicants also must attest that they are able to 1) identify all species of beach-nesting birds by sight and sound within their region (see [Species Action Plan](#) for IBNB regions), 2) identify breeding/territorial behaviors, and find nests of shorebirds and colonies of seabirds that occur in the project area, and 3) identify habitats preferred by shorebirds/seabirds nesting in the project area.
  - c. Applicants must attest to being familiar with FWC beach driving guidelines (Appendix D).
  - d. Applicants must provide the date on which they completed full-length webinars: New Route-Surveyor and Returning Route Surveyor, which can be found on the [Resources tab of the FSD website](#).
  - e. Applicants must attest that they willing and able to post Active Breeding Sites consistent with the Florida Shorebird Alliance (FSA) [Guidelines for Posting Shorebird and Seabird Sites in Florida](#).
3. The applicant must agree to follow and must adhere to the Bird Monitor Code of Conduct.
4. The applicant must upload the Certificate of Completion for Bird Monitoring Training, available on FWC’s website.

### Roles of Bird Monitors

*The following minimization measures are examples of potential permit conditions. Please note that these example conditions are subject to change. These examples are meant to help permit applicants assemble a complete application.*

Any parts of the project where “project activities” on the beach take place entirely outside the breeding season do not require a Bird Monitor. However, please note that, while most species have completed the breeding cycle by September 1, flightless young may be present through September and must be protected if present. The term “project activities” includes operation of vehicles on the beach, movement or storage of supplies or equipment on the beach, construction, mechanical beach cleaning, sand placement or sand removal, and other activities that may harm or harass shorebirds or seabirds.

1. The Permittee is responsible for identifying and employing a Bird Monitor who meets the minimum requirements in Appendix C of Species Conservation Measures and Permitting Guidelines. Permittees can search the list of Registered Agent permittees on FWC’s [online permitting site](#) to find a Bird Monitor that meets the minimum qualifications.
2. The Bird Monitor must read and understand the conditions in the FWC Incidental Take Permit associated

with project activities.

3. The Bird Monitor shall provide the following protection measures within a Recent or Active Breeding Site or Critical Brood-rearing Site during the breeding season.
4. The Bird Monitor must initiate nesting shorebird/seabird surveys on each day of project activities, before any activities have begun, and must continue for the duration of the permitted activity or the end of the nesting season, whichever is earlier. However, if birds have not initiated any Active Nests by August 1<sup>st</sup> in a Recent Breeding Site (i.e., no part of the Recent Breeding Site has become Active), the Bird Monitor may cease surveys within the Recent Breeding Site.
  - a. Bird Monitors must review and become familiar with the information in the Instructions tab, must review and employ the data collection protocol in the Resources tab, and must implement data entry procedures outlined on the Resources tab of the FWC FSD website (<https://public.myfwc.com/crossdoi/shorebirds/>).
  - b. Bird survey routes must be established in any parts of the project area that are within an Active or Recent Breeding Site (see *how to add a route* on the FSD resources page).
  - c. The Bird Monitor shall survey for breeding activity and the presence of flightless chicks on each day upon which work will occur, prior to initiation of project activities.
  - d. No movement of equipment, operation of vehicles, or other activities that could potentially disrupt breeding behavior or cause harm to the birds, their eggs, or young shall occur each day until the Bird Monitor had completed the survey and all nest area protection work.
5. Surveys shall be conducted by walking the length of all survey routes and visually surveying for the presence of shorebirds or seabirds exhibiting breeding behavior, and shorebird or seabird chicks or juveniles, as outlined in the Florida Shorebird Database (FSD) Breeding Bird Protocol for Shorebirds and Seabirds. Use of binoculars (minimum 8x40) is required and use of a spotting scope may be necessary to accurately survey the area. If an ATV or other vehicle is needed to cover large survey routes, the Bird Monitor shall stop at intervals of no greater than 200 feet to visually inspect for breeding activity, and adhere to appropriate beach driving best practices outlined in Appendix D [this document]. Bird survey protocols, including downloadable field data sheets, are available on the [FSD website](#). All surveys conducted during the breeding season shall be reported to the FSD website within one week of data collection, even if no shorebird or seabird breeding behavior was observed.
6. The Bird Monitor(s) shall establish a disturbance-free buffer zone around any location within the project area where the Bird Monitor has observed shorebirds or seabirds engaged in breeding behavior, including territory defense. A 300-foot buffer shall be established around each nest or around the perimeter of each colonial seabird nesting area, unless a site-specific buffer with Regulatory Boundary Signs already has been established by FWC staff or Florida Shorebird Alliance Partners in accordance with the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#). A 300-foot buffer shall also be placed around the perimeter of areas where solitary nesting shorebirds are seen digging nest scrapes or defending nest territories, unless a site-specific buffer with Regulatory Boundary Signs already has been established by FWC staff or Florida Shorebird Alliance Partners in accordance with the [Guidelines for Posting Shorebird and Seabird Sites in Florida](#).
  - a. All construction activities, movement of vehicles, stockpiling of equipment, and pedestrian traffic are prohibited in the buffer zone.
  - b. Smaller, site-specific buffers may be established if approved in writing by the [FWC regional shorebird contact](#).
  - c. The Bird Monitor(s) shall ensure that the perimeters of designated buffer zones are marked according to FSA Posting Guidelines available at: <http://flshorebirdalliance.org/resources/instructions-manuals.aspx>) with posts, twine and

- FWC-approved signs stating “Do Not Enter, Important Nesting Area” or similar language around the perimeter (see example of signage for marking designated buffer zones at <http://myfwc.com/conservation/you-serve/wildlife/shorebirds/> ).
- d. Posts shall not exceed 4 feet in height once installed. Symbolic fencing (twine, string or rope) must be placed between all posts at least 2.5 feet above the ground (to avoid impacts to marine turtles) and rendered clearly visible to pedestrians.
  - e. Posting shall be maintained in good repair until no active nests, eggs, or flightless young are present. The posts and materials for the protection buffer zones shall be removed once all breeding or nesting behavior has ceased, unless otherwise arranged with the [FWC regional shorebird contact](#).
  - f. Although solitary nesters may leave the buffer zone temporarily with their chicks, the posted area continues to provide a potential refuge for the family until breeding is complete. Breeding is not considered to be completed until all chicks have fledged.
  - g. Posting with Regulatory Boundary Signs shall only occur on property for which the Bird Monitor has permission from the landowner.
7. [NOTE: *this condition applies only to construction-related projects*] The Permittee shall require the Bird Monitor to conduct a shorebird/seabird education and identification program (and/or provide educational materials) with the on-site staff to ensure protection of precocial (mobile) chicks. All project personnel are responsible for watching for shorebirds and seabirds, nests, eggs and chicks. If the Bird Monitor finds that shorebirds or seabirds are breeding within the project area, the Permittee shall place and maintain a bulletin board in the project staging area with the location map of the construction site showing the bird breeding areas and a warning, clearly visible, stating that “NESTING BIRDS ARE PROTECTED BY LAW INCLUDING THE FLORIDA ENDANGERED AND THREATENED SPECIES ACT AND THE STATE and FEDERAL MIGRATORY BIRD ACTS”.
8. For projects involving continued work near Active Breeding Sites or Active Critical Brood-rearing Sites, the Bird Monitor(s) shall remain on site during work or revisit the site periodically throughout the day to determine if birds appear agitated or disturbed by project activities in adjacent areas. If birds appear to be agitated or disturbed by these activities, then the Bird Monitor(s) shall immediately widen the buffer zone to a sufficient size to protect breeding birds, if possible.
9. The Bird Monitor(s) shall ensure that project activities do not result in direct injury or mortality (e.g., crushing of eggs by vehicles or pedestrians). If direct injury or mortality is unavoidable, project activities must not resume until the chicks obstructing the activity have fledged or permanently vacated the nest site, or the nests obstructing the activity have been destroyed by predators or other natural causes.
- a. If flightless young are present in an Active Breeding Site or Active Critical Brood-rearing Site, the Bird Monitor shall remain on site after the initial survey to ensure that flightless young are not in the path of vehicles or equipment.
10. The Bird Monitor(s) shall ensure that reasonable and traditional pedestrian access is not blocked in situations where breeding birds will tolerate pedestrian traffic. This is generally the case with lateral movement of beach-goers walking parallel to the beach at or below the highest tide line. Pedestrian traffic may also be allowed when breeding was initiated within 300 feet of an established beach access pathway. The Bird Monitor(s) shall work with the [FWC regional shorebird contact](#) to determine if pedestrian access can be accommodated without compromising nesting success. These site-specific buffers must be determined in coordination with the [FWC regional shorebird contact](#).
11. If necessary, travel corridors shall be designated and marked outside the buffer areas for pedestrian, equipment or vehicular traffic.

- a. Heavy equipment, other vehicles, or pedestrians may transit past breeding areas in these corridors. However, other activities such as stopping or turning heavy equipment and vehicles shall be prohibited within the designated travel corridors adjacent to the breeding site.
  - b. If pedestrian pathway and/or equipment travel corridor modifications are approved by the [FWC regional shorebird contact](#), these shall be clearly marked.
  - c. When flightless chicks are present within or adjacent to travel corridors, project related vehicles shall not be driven through the corridor unless a Bird Monitor is present to adequately monitor the travel corridor.
  - d. Any chicks that may be in the path of moving vehicles must be avoided.
  - e. Any tracks, ruts, or holes that may be capable of trapping flightless chicks must be leveled, while avoiding any impacts to the chicks.
12. Any injury or death of a shorebird or seabird (including crushing eggs or young) resulting from project activities shall be reported immediately to the [FWC regional shorebird contact](#) and [WildlifePermits@myfwc.com](mailto:WildlifePermits@myfwc.com).

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## Appendix D –Operation of vehicles

*The following minimization measures are examples of potential permit conditions. Please note that these example conditions are subject to change. These examples are meant to help permit applicants assemble a complete application.*

1. Take is authorized without the following minimization measures when permittees or others are driving on the beach to respond to an immediate health and human safety emergency. Otherwise, the minimization measures below must be followed.
2. The permittee shall check FWC's website annually on April 1st for the location of Recent Breeding Sites and Critical Brood-rearing Sites, and all personnel associated with the permit shall be instructed about the potential presence of protected species and the location of Recent Breeding Sites and Critical Brood-rearing Sites in the permitted area.
3. All personnel associated with the permit shall take the annual training from the FWC regarding IBNBs typical minimization measures. The training will be available on the FWC's website.
4. Any previously unknown Active Breeding Sites that are encountered opportunistically by personnel associated with the permit shall be reported to the FWC immediately at [FWC regional shorebird contact](#).
5. Prior to operating vehicles within an Active or Recent Breeding Site or Critical Brood-rearing Site, the Permittee shall employ the following measures:
  - a. The Permittee's designated Bird Monitor (Appendix C) shall establish designated access, travel, and work areas. Once established, the same access and travel areas shall be used for the duration of permitted activities, unless areas need to be adjusted to avoid direct injury or mortality to eggs or chicks. No vehicle operations shall occur outside of the permitted project area or the designated access and travel areas.
  - b. Designated travel areas must be outside of areas posted with Regulatory Boundary Signs.
  - c. Designated travel areas seaward of the crest of the frontal dune or line of permanent vegetation must require operators to drive on the wet, hard-packed sand at low tide and as close to the hard-packed sand as possible at high tide.
  - d. For travel that must occur landward of the crest of the frontal dune or line of permanent vegetation, the Bird Monitor must establish designated access and travel corridors in developed or disturbed areas, if present, to minimize impacts.
6. All vehicle and equipment operators for permitted activities must adhere to the conditions listed below in Active or Recent Breeding Sites and Critical Brood-rearing Sites:
  - a. Vehicles shall be operated at slow speed (<6 mph [10 kph]) and drivers shall use caution and watch for wildlife within the vehicle's line of travel.
  - b. When possible, permitted personnel shall use light-weight vehicles with < 10 psi vehicle-to-ground pressure such as all-terrain (ATV), utility task (UTV), side by side (SXS), multi-purpose utility (MUV), and recreational off highway (ROV) vehicles during the shorebird and seabird nesting seasons. The use of heavy equipment and street vehicles should be avoided when possible.
  - c. All vehicles operating seaward of the crest of the frontal dune or line of permanent vegetation must enter the beach through the designated access area(s) and transit directly to the designated travel area(s).
  - d. Vehicles must move laterally along the beach in the designated travel area(s). Vehicle access during periods of extreme high tides may not be possible through Active Breeding Sites, and



- operators should plan accordingly.
- e. To avoid impacts to protected species when operating vehicles on the beach, operators must drive directly to and from the project area, avoid stopping or turning around within Active or Recent Breeding Sites or Critical Brood-rearing Sites, avoid creating large ruts in the sand, and not drive over dunes or any beach vegetation outside the approved designated access corridor.
  - f. Vehicles, other than those used for authorized mechanical beach cleaning, must avoid the wrack line. These areas of biotic material, including marsh grass, seagrass, and seaweed, provide important feeding and roosting habitat and may contain shorebird or seabird chicks or marine turtle hatchlings.
  - g. No fluids (e.g., grease, oils, gas, radiator coolant, etc.) shall be discharged onto the beach or dune and all vehicles must be stored and fueled landward of the beach/dune system.
7. Vehicles must be operated on the beach during daylight hours only and shall not remain on the beach overnight.
  8. When driving outside of Active or Recent Breeding Sites or Critical Brood-rearing Sites, follow FWC's [Best Management Practices for Operating Vehicles on the Beach](#) to avoid impacts to marine turtles.

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## Appendix E – Rooftops

Conducting emergency activities such as HVAC repairs on rooftops with active nests is expected to result in incidental take. The [FWC regional shorebird contact](#) can provide technical assistance on whether take is avoidable or whether a permit is recommended. Take of rooftop nesting birds may be authorized under an Incidental Take Permit from the FWC. **The objective of this appendix is to expedite the permitting process by helping rooftop owners submit a complete permit application.** No mitigation is required, because maintaining gravel rooftops that support rooftop-nesting birds achieves conservation benefit. Please note that the FWC typically does not issue permits for injury, death, or collection of eggs or flightless young during rooftop repairs.

When applying for a permit, applicants must include the following typical minimization measures. If a rooftop activity needs to deviate from these minimization measures, permit applicants must provide a justification to the Protected Species Permitting Office as part of the application packet. Applicants can include additional minimization measures in the application packet if they wish to do so.

- The Permittee must only perform work that cannot be delayed until the birds are no longer breeding on the roof.
- Contractors or other personnel accessing the roof for the authorized activities must be instructed not to directly disturb the birds and must limit their work area to perform the work in the least intrusive manner possible.
- Contractors or other personnel must schedule activities for early morning (i.e. within 2 hours of sunrise) or evening (i.e., within 1 hour of sunset) to minimize the exposure of eggs or chicks to heat and sun. Alternatively, measure temperatures at the surface of the roof and cease work when surface temperatures reach 105 degrees F, and resume work when surface temperatures drop below 105 degrees F.
- Work must not be done in the rain, especially if chicks are present.
- Minimize the time that birds spend off the nest by limiting the time spent on the roof, keeping materials and equipment within reach, minimizing standing and walking around to the extent practicable, minimizing the number of people to the extent feasible, limiting sudden movements, remaining quiet, and keeping a low profile.
- A designated Rooftop Bird Monitor must watch birds for signs of disturbance at all times during rooftop activities. If adults leave eggs and chicks unattended for prolonged period, work must cease temporarily to allow adult birds to return. The Permittee is authorized to use a visual barrier to minimize disturbance at the discretion of the Rooftop Bird Monitor.
- The FWC approved individual must retrieve any chicks that fall from the building due to authorized activities and place the chicks back on the roof.
- The FWC approved individual must inform contractors or other personnel accessing the roof where it is safe to travel to avoid injury to eggs or young.

### Rooftop Bird Monitor Minimum Qualifications

The Rooftop Bird Monitor must meet the following minimum qualifications:

- Bird Monitors must obtain a self-issuing Registered Agent permit on the [online permitting site](#). Applicants must upload a copy of the IBNB Bird Monitor Supplemental Application, which is available on FWC's website.
- The IBNB Bird Monitor Supplemental Application must include the applicant's previous training and experience surveying breeding beach-nesting birds in Florida.
  - Applicants must demonstrate that they have conducted at least 3 surveys that involved

identifying Active Nests of IBNBs.

- Applicants also must attest that they are able to 1) identify all species of beach-nesting birds by sight and sound, 2) identify breeding/territorial behaviors, and find nests of shorebirds and colonies of seabirds that occur in the project area, and 3) identify habitats preferred by shorebirds/seabirds nesting in the project area.
- The applicant must agree to follow the Bird Monitor Code of Conduct.
- The applicant must upload the Certificate of Completion for Rooftop Bird Monitoring Training, available on FWC's website.

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## Appendix F – Operation of Unmanned Aerial Systems (UAS) Near Shorebirds and Seabirds

### Guidance for Use of UAS for Recreational, Commercial, or Research Applications That May Result in Incidental Take of Beach-Nesting Birds

The following guidance applies to uses of UAS other than for scientific surveys of beach-nesting birds, which are covered in a separate section below.

1. Be aware that beach-nesting birds are protected by both State and Federal law.
  - Your use of UAS could lead to impacts that violate these laws (e.g., the federal Migratory Bird Treaty Act; federal Airborne Hunting Act; state Rules 68A-4, 68A-16, and 68A-27, F.A.C.).
  - Shorebirds and seabirds can view UAS as a potential predator.
  - Beach-nesting birds that are disturbed by UAS may flush from their nests.
  - Flushing birds from nests leave the eggs and young vulnerable to predators and the elements.
2. Check current rules and notices on the property.
  - Use of UAS is prohibited on some properties and requires permits on others.
  - Keep the privacy of others in mind during all UAS flights.
3. Be familiar with FAA rules regarding operation of UAS.
  - Always remain within line-of-sight of your UAS while flying.
  - Flying your UAS even at relatively low altitudes can be a violation of federal airspace regulations.
4. To avoid a wildlife violation, check before you fly:
  - Check online at [*insert link to app*] to identify areas where flying a UAS could result in a wildlife violation (i.e., Recent Breeding Sites, Critical Brood-rearing Sites, or Critical Roosting Sites).
  - Check with people that know, such as the property's resource manager (public lands) or [FWC regional shorebird contact](#), to inquire if sensitive or nesting birds may be present along the entirety of your intended UAS flightpath from takeoff to landing.
  - Check the area for symbolic fencing and signage that would indicate a breeding site for beach-nesting birds.
  - Perform a pre-flight check for shorebirds and seabirds immediately before takeoff to determine the location of any nearby birds.
5. **Avoid flying over Recent Breeding Sites during the [breeding season](#), areas posted with signage or symbolic fencing, Active Critical Brood-rearing Sites (March 15 to August 31), and Critical Roosting Sites year-round.**
  - If you cannot avoid flying over one of the sites mentioned above, we recommend that you contact the FWC's Protected Species Permitting Office to discuss an Incidental Take Permit.
  - If you need to obtain an Incidental Take Permit, the section [Guidance for Using UAS to Survey or Study Beach Nesting Birds](#) below contains some potential minimization measures that could be included in the permit application.
6. Operators and observers must remain at least 300 ft horizontal distance from Active Breeding Sites, Critical Brood-rearing Sites, or Critical Roosting Sites during the dates specified above.
  - Please note that approaching or entering a nesting colony of beach-nesting birds, an area posted with symbolic fencing or signage, or a Critical Roosting Site to retrieve a UAS that has landed or crashed is likely to result in take, which is prohibited without a permit.
7. Avoid launching your UAS directly at birds.
  - Birds are more likely to be disturbed by UAS running at full throttle as they gain altitude. Launch and land your UAS away from birds, and preferably out of their sight.
8. Avoid changing direction, speed, or altitude in the vicinity of birds.
  - Banking motions and changes in altitude, speed, or direction can make your UAS behavior appear like a predator to birds.

- Special care should be taken when using a fixed-wing UAS whose profile could be perceived as an aerial predator.
  - Birds are less likely to view your UAS as a threat if you fly a fixed direction, speed, and altitude.
  - Birds are less likely to view your UAS as a threat if given time to observe and habituate to it in the sky before it flies nearby.
9. Launch and land your UAS > 600 ft from birds (and preferably out of sight).
- Birds are particularly frightened by UAS as they take off or land.
10. Cease UAS activity immediately if you observe birds flushing or becoming agitated.
- Signs of disturbance include birds moving away from the UAS, decreasing other natural behaviors to watch the UAS, nodding their heads up and down to continuously size up the distance between themselves and the UAS, wing flapping, standing or walking away from nests, flushing off of nests, or chasing or dive-bombing the UAS.

### **Guidance for Using UAS to Survey or Study Beach Nesting Birds**

Biologists are increasingly turning to UAS as an efficient way to survey birds. Using a UAS to conduct surveys of state-Threatened beach-nesting birds (IBNBs) has the potential to result in take, because disturbed birds may flush from nests, leaving eggs and young unattended and exposed to predators, sun, and cold. Some shorebirds and seabirds sometimes pursue and attack UAS. The body of knowledge for UAS and disturbance to shorebirds and seabirds has increased in recent years, but enough uncertainty remains to warrant an FWC Scientific Collecting Permit for researchers that wish to fly UAS over breeding IBNBs. *The following guidance is meant to help biologists develop minimization measures when applying for a [Scientific Collecting Permit](#).*

1. Proposed surveys with UAS must contribute to our knowledge of appropriate survey methods for IBNBs by measuring and reporting the responses of IBNBs to the UAS. Use one or more observers as spotters to measure behavioral responses from the birds.
2. Be aware that reactions to UAS by birds tend to be species-specific (Barr et al. 2020) and vary based on the type of UAS and how it is flown (McEvoy et al. 2016, Borelle and Fletcher 2017, Mapes et al. 2020).
  - **Oystercatchers and plovers**
    - Oystercatchers (*Haematopus* sp.) are known to chase and even strike UAS (Rebolo-Ifran et al. 2019 [supplemental material], Valle and Scarton 2019).
    - We were unable to find data for the reaction of snowy plovers (*Charadrius nivosus*) to UAS at the time of writing.
  - **Terns and skimmers**
    - Use of a fixed-wing UAS on cloudy days resulted in flushing by least terns (*Sternula antillarum*) at both 279 ft (85 m) and 380 ft (116 m), but least terns were not disturbed when the same UAS was flown with sky-blue camouflage on cloudless days (Mapes et al. 2020).
    - Common terns (*Sterna hirundo*) initially flushed when approached by a fixed-wing UAS at 300 feet (91 m) but became habituated over subsequent surveys (Chabot et al. 2015). Common terns quickly habituated to a quadcopter flown at 49 ft (15 m) and 98 ft (30 m) in another study (Reintsma et al. 2017).
    - Black skimmers (*Rynchops niger*) and royal terns (*Thalasseus maximus*) exhibited limited disturbance from a quadcopter flown between 150 ft (46 m) and 400 ft (122 m; Barr et al. 2020).
    - Aleutian (*Onychoprion aleuticus*) and Arctic terns (*Sterna paradisaea*) did not flush from a quadcopter flown in a “lawn mower” pattern at an altitude of 49 to 66 ft (15 to 20 m; Magness et al. 2019).
    - Bevan and colleagues (2018) recommended altitudes of greater than 197 ft (60 m) for surveys of great crested terns (*Thalasseus bergii*) with a quadcopter.

3. Select UAS designs that are likely to reduce disturbance. Choose smaller, low-visibility vehicles with low audio signatures when possible (Borelle and Fletcher 2017). Take special care when surveying using a fixed-wing UAS whose silhouette could be perceived as an aerial predator (McEvoy et al. 2016). Contrast of UAS color against the sky may also increase disturbance for fixed-wing UAS. Painting a fixed-wing UAS sky blue and flying on cloudless days may decrease disturbance. (Mapes et al. 2020).
4. Observers and operators must remain greater than 300 ft from Active Nests.
5. Begin by flying at the maximum allowable UAS flight ceiling (typically 400 ft above ground level) and allow focal birds to observe flight transects outside of the nesting or colonial boundaries. This allows the birds to habituate and assess the UAS as a non-threat (Chabot et al. 2015, Brisson-Curdadeau et al. 2017). Once an initial pass has been made without noticing bird disturbance, lower the aircraft altitude by approximately 50 ft at a location away from the target birds, and then make another straight-line pass over the birds. Continue repeating this process until an ideal altitude for your UAS sensor payload is achieved, or the birds exhibit signs of disturbance, whichever occurs first.
6. How the UAS is flown is important for reducing disturbance:
  - Avoid launching your UAS directly at birds.
    - Birds are more likely to be disturbed by objects coming straight toward them.
  - Avoid changing direction, speed, or altitude above or near birds.
    - Banking motions and changes in altitude or direction can make your UAS appear like a predator to birds. These maneuvers should occur away from birds.
  - Launch and land your UAS > 600 ft from birds (and preferably out of sight).
    - Birds are particularly frightened by UAS as they take off or land.
  - Surveys in a “lawn mower” pattern are less likely to cause disturbance (Mulero-Pazmany et al. 2016).
  - Conduct a trial flight before a formal survey to assess bird behavior before, during, and after the flight.
  - Conduct the survey under mild weather conditions in case any birds leave the nest and avoid conducting the survey if potential nest predators (e.g., crows) are in the area.
7. Increase your UAS altitude immediately if you observe signs of bird disturbance, such as birds moving away from the UAS, decreasing other normal behaviors to watch the UAS, nodding their heads up and down to continuously size up the distance between themselves and the UAS, wing flapping, standing or walking away from nests, flushing from nests, or pursuing the UAS. If the signs of disturbance continue after a subsequent pass at a higher altitude, immediately abort the survey and return on a different day.
8. Please note that approaching or entering an Active Breeding Site or Critical Roosting Site to retrieve a UAS that has landed or crashed could result in take, which is prohibited unless retrieval is explicitly included in a permit.

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