

Royal Terns



COASTAL BIRD
 STEWARDSHIP
 TOOLKIT

 Audubon

Western Sandpipers arriving at a high tide rest site. When the tide falls they will return to foraging.



The National Audubon Society—A Brief History

The National Audubon Society protects birds and the places they need, today and tomorrow.

Protecting waterbird populations has been part of Audubon’s mission since even before the official establishment of the National Audubon Society. Outrage over the slaughter of millions of waterbirds, particularly egrets and other wading birds, for the millinery trade led to the foundation of the Audubon Society for the Protection of Birds in 1886 by George Bird Grinnell. In 1896, led by Harriet Hemenway and Mina Hall, the Massachusetts Audubon Society was formed. By 1901 thirty-six state-level Audubon societies had formed, and in that same year they joined together to help establish the first National Wildlife Refuge in the U.S.—Pelican Island, in Florida. In 1905, the National Audubon Society was founded, with the protection of gulls, terns, egrets, herons, and other waterbirds high on its conservation priority list.

Audubon established its first system of waterbird sanctuaries in seven states along the eastern coast of the U.S., thus initiating the implementation of large-scale, scientifically based bird conservation efforts. The National Audubon Society was instrumental in the passage of the Migratory Bird Treaty Act (MBTA), signed by President Woodrow Wilson in 1918. It remains to this day one of the strongest laws protecting wild North American birds.

Today, Audubon protects birds throughout the Americas. To achieve the greatest impact for the greatest number of birds, Audubon organizes its work into five highly scalable core strategic priorities. These priorities cover the landscapes that birds need to thrive, including shorelines, lakes, bird-friendly cities, and habitat strongholds

that will provide shelter to birds as the climate changes and their habitats change. Audubon works across more than 1,000 sites on every U.S. coastline and in Latin America and the Caribbean. At almost half of these sites we work hand-in-hand with volunteers, communities, and partners to conduct stewardship activities—protecting places for birds to raise their young and to stop to feed and rest during migratory journeys. By protecting the web of life that represents the richest veins of biodiversity, Audubon is safeguarding our great natural heritage for future generations, preserving our shared quality of life and fostering a healthier environment.



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The use of decoys to attract seabirds to safe nesting areas, often called “social attraction,” was pioneered by Audubon and is now used around the world.

Introduction

Birds are the wildlife next door, present in the background of our daily lives. We wake to their songs and calls, and they enrich our memories of family, friends, and special places. We share our favorite beaches with birds, enjoying their skittering in the receding surf or flying just above the wave tops. For humans, beaches represent fun and relaxation. For birds, they are essential to survival—places to raise their young and to stop to feed and rest during migratory journeys.

Coastal birds live on the edge of the land and the sea, and lately their lives

are on the edge as well. More and more they must share their habitat with humans, and as a consequence they face a multitude of threats related to human activities. This Audubon toolkit is a handbook for beach stewardship project organizers, site leaders, and volunteer beach stewards who are dedicated to reducing those threats through education and onsite advocacy. Beach stewardship covers an array of activities, some involving protecting or improving the beach as a habitat in the near term or into the future, and others involving educating the public

about activities people engage in that disturb—and therefore harm—birds that share the shore. This toolkit addresses the latter, and includes all the basic information beach steward program organizers and stewards need to help protect nesting, wintering, and migrating coastal birds from human disturbance in their community.

Part 1 is an overview of the life histories of coastal birds and outlines the types of threats they face from the activities people engage in at the beach. Part 2 includes the basic principles of manag-

ing disturbance through stewardship. Part 3 includes the basic practices and tools for launching and sustaining a successful beach stewardship program. Part 4 is all about being a volunteer steward, an on-the-scene advocate whose primary job is to encourage beachgoers to have positive attitudes about birds on the beach and to help them recognize what activities are harmful to birds and why. Part 5 offers practical tools and information to support a successful coastal stewardship project.

The toolkit reflects the best practices, principles, and tools most applicable to stewardship of coastal birds, creating sustainable stewardship programs, and training and deploying volunteers. Audubon's long and unparalleled history of protecting birds makes our network uniquely qualified to create this guide. (See a brief history of Audubon on page 2.)

The toolkit's authors and contributors are members of Audubon's professional staff who are leaders of long-standing stewardship programs. The content is informed by the work of thousands of Audubon chapter staff and volunteers, Audubon wardens, and community groups who channel their passion for birds and nature into protecting and restoring the most important, vibrant, and vulnerable coastal habitats. These formidable advocates represent decades of experience protecting bird sanctuaries that are strongholds for coastal species, developing regional and national conservation plans and recovery plans for endangered species, restoring habitats, advancing knowledge through sound science, and building strategic partnerships to advance conservation. The toolkit gathers and standardizes best practices tested in the field as well as lessons garnered from interviews and focus groups with

“And to lose the chance to see frigate-birds soaring in circles above the storm, or a file of pelicans winging their way homeward across the crimson afterglow of the sunset, or a myriad terns flashing in the bright light of midday as they hover in a shifting maze above the beach—why, the loss is like the loss of a gallery of the masterpieces of the artists of old time.”

—Theodore Roosevelt, 1916

those who have been working for many years to protect birds along the Atlantic, Pacific, and Gulf coasts and throughout the Great Lakes region. Through community science, hands-on conservation, and community outreach, this dedicated army of advocates safeguards nesting sites, improves breeding, stopover and winter habitat, and generates public awareness and support for healthy, resilient coastal bird populations and the habitats they depend upon throughout their life cycles.

At Audubon we are all part of a powerful distributed network with a vast reach that includes more than 460 chapters, more than 20 state offices, more than 40 centers and sanctuaries, and more than 1 million members. At its best, our network has the knowledge and authenticity to care for birds and the places they need in communities across the country; it unites to tackle big challenges facing birds that cannot be solved by any single part of the network alone.



Shorebird identification can be tough, but it becomes easier with practice, and the data gained from volunteers can advance conservation strategies.

1

COASTAL BIRD CONSERVATION FUNDAMENTALS



Least Tern and chick



Short-billed Dowitchers (left) and Whimbrels

PART 1:

COASTAL BIRD CONSERVATION FUNDAMENTALS

The complex life histories of coastal birds call for full life-cycle conservation throughout the Americas. That means these birds need protection wherever they are at any time of year, whether they are breeding, wintering, or migrating. Many species travel long distances from breeding areas to overwintering areas, sometimes tens of thousands of miles round trip. They depend on a finite number of places with just the right kind of habitats that provide abundant food and are appropriate for nesting, resting, or roosting.



American Oystercatcher with a young chick

THE BASIC NEEDS OF COASTAL BIRDS

The habitats that coastal birds require for nesting, migration stopovers, and overwintering are increasingly being squeezed between development and rising seas. Added pressure comes from recreational use of the same habitats that birds require for survival as well as introduced or super-abundant predators. Populations of many beach-nesting birds and other species that depend on natural coastal habitats have declined; most nesting species are state- or federally listed as species of conservation concern. Stewardship of the sites that coastal birds depend on is an essential step in recovering declining populations and protecting birds and their habitats for the future. The dynamic and transient life histories of shorebirds and waterbirds make conservation of these coastal birds particularly challenging, which is why participation in a stewardship program is needed and so rewarding.

This toolkit presents best practices for supporting efforts to protect coastal birds so that they can survive and thrive. At its most fundamental, stewardship for birds means helping to ensure that they are able to meet these basic needs:

- Access to habitat during breeding, migration, and winter that provides needed resources and is safe from unnatural threats;
- Appropriate and sufficient food, roosting, and foraging habitat;
- Appropriate habitat where they can nest and raise their young in peace.

LIFE HISTORIES OF COASTAL BIRDS: AN OVERVIEW

Nesting can begin as early as January in some coastal regions. The season begins with courtship, nest site selection, and other nesting activities. This is a critical time when disturbance could cause nesting birds to abandon an area that is otherwise ideal for nesting.

Terns and Black Skimmers nest in large groups called colonies, as do pelicans and wading birds. Colonies may have less than a dozen to hundreds of nesting pairs, with nests closely spaced within a small area. Shorebirds are solitary nesters, and nesting pairs are usually scattered over a much greater distance, often with dozens to hundreds of yards between nests. Nesting habitat for shorebirds, terns and Black Skimmers is typically open, bare to sparsely vegetated sandy or rocky areas of the kind most often found on beaches, especially near inlets and estuaries, river mouths, and on islands. Pelicans usually nest on

grassy or shrubby islands, while wading birds prefer shrubs and trees.

Many people are surprised to learn that seabirds and shorebirds nest on the ground, often on the open, bare sand, shell- or pebble-strewn beaches, overwash fans, inlet spits, or islands. The nests of Least Terns, Black Skimmers, and many shorebirds are simple, shallow “scrapes” in the sand, often lined with nothing more than a few bits of shell. Terns like Common, Gull-billed, Roseate, and Arctic will often line their nests with grasses, shells, or pebbles. Gulls weave grasses into nest cup structures. Pelicans and wading birds build nests of sticks and twigs lined with soft grasses to soften the nest cup and protect the eggs and nestlings.

Not every place with the right substrate or habitat will do. Suitable nesting sites are usually located in areas without abundant predators and chronic disturbances, and they are near appropriate food and foraging habitat. Places that meet all the criteria are limited in number and distribution along the coast. In many regions of the coast, the nesting sites that exist today are the last places left; there are no alternatives and protecting those places is essential to sustaining populations of coastal birds.

When chicks have fledged and the nesting season is over, most seabirds and shorebirds depart their nesting areas for the places where they will spend the winter. Seabirds and shorebirds undertake some of the longest migrations of any animal on earth. Red Knots may travel from breeding grounds in the Arctic to the southern cone of South America; Arctic Terns may fly

from the North Atlantic to Antarctica. Other species like Piping, Wilson’s and Snowy Plovers, and Black and American Oystercatchers migrate much shorter distances—New England to Florida, for example—and some in the southern and western regions of the U.S. may remain in the general vicinity of their nesting areas year-round.



Southbound migration, often called “fall migration,” begins as early as the first week of July and can continue until December for some species. Northbound migration, often called “spring migration,” usually begins in March and can continue through May. The length and nature of migrations varies for each species—some may take days, others may take months; some move a hundred miles at a time, others can migrate more than a thousand miles at a time.

Regardless of distance traveled or timing, the birds need places to stop, rest, and refuel along the way. Like nesting sites, migration stopovers that provide safe roosting and resting habitat near foraging areas that support abundant food resources are finite in number. Migrating shorebirds must find sufficient prey at stopovers to pack on fat reserves that will fuel the next leg of their migration. These essential migration stopovers can also be places

where birds are threatened by chronic disturbances such as recreation, dogs, beach driving, and other activities that prevent them from foraging and cause them to expend valuable fat reserves eluding people or pets.

Two-thirds of the Western Hemisphere shorebird species nest in the Arctic and travel from Arctic breeding grounds to wintering grounds in coastal areas of temperate and subtropical U.S., the Caribbean, the Bahamas, Mexico and Central America, and temperate South America. Many of North America’s beach-nesting seabirds winter in the same general areas. The winter habitats provided by tidal flats, estuaries, marine shorelines, beaches, and islands, especially those near inlets and river mouths, are important.

“If and when we decide that we want the other creatures to continue sharing the Earth with us, we will have to leave room for them.”

—Henry Marion Hall, *A Gathering of Shore Birds*

The areas where coastal birds spend the winter are not random. Like nesting and stopover habitat, the wintering areas must have the food and appropriate habitat that the birds require, and they must be areas where birds can roost without disturbance and predation threats. Site fidelity is high, and suitable alternative habitats that provide adequate foraging and roost sites are few or may not exist in some areas. This makes protection and stewardship of overwintering areas a vital part of protecting coastal birds.

FEATURED SPECIES

The birds listed here have been identified as priority species for Audubon’s Coast Strategy (indicated by *) and other species threatened by disturbance. The conservation status of these species can be improved over time through effective coastal stewardship. Because the list is not comprehensive for all locations and situations, anyone wishing to establish a coastal stewardship program should first consult the state wildlife conservation agency to identify all local species in need of protection or that can be positively affected by those efforts.

Species Name	Federal Endangered Species Act Status	Population, Status, Population Trend
 American Oystercatcher*	none	http://www.audubon.org/field-guide/bird/american-oystercatcher
 Black Oystercatcher*	none	http://www.audubon.org/field-guide/bird/black-oystercatcher
 Snowy Plover*	Western subspecies: Threatened, Pacific Coast	http://www.audubon.org/field-guide/bird/snowy-plover
 Piping Plover*	Endangered, Great Lakes; Threatened, all other breeding and non-breeding range	http://www.audubon.org/field-guide/bird/piping-plover
 Wilson's Plover	none	http://www.audubon.org/field-guide/bird/wilsons-plover
 Red Knot*	Subspecies <i>Calidris canutus rufa</i> is listed as Threatened and occurs primarily along the Atlantic coast	http://www.audubon.org/field-guide/bird/red-knot
 Sanderling	none	http://www.audubon.org/field-guide/bird/sanderling
 Dunlin	none	http://www.audubon.org/field-guide/bird/dunlin
 Semipalmated Sandpiper*	none	http://www.audubon.org/field-guide/bird/semipalmated-sandpiper
 Western Sandpiper*	none	http://www.audubon.org/field-guide/bird/western-sandpiper
 Least Tern*	Endangered, CA	http://www.audubon.org/field-guide/bird/least-tern
 Roseate Tern*	Northeastern breeding population is Endangered; southeastern breeding population is Threatened.	http://www.audubon.org/field-guide/bird/roseate-tern
 Common Tern	none	http://www.audubon.org/field-guide/bird/common-tern
 Black Skimmer*	none	http://www.audubon.org/field-guide/bird/black-skimmer
 Brown Pelican*	none; delisted 2009	http://www.audubon.org/field-guide/bird/brown-pelican
 Reddish Egret*	none	http://www.audubon.org/field-guide/bird/reddish-egret

MAJOR THREATS TO COASTAL BIRDS

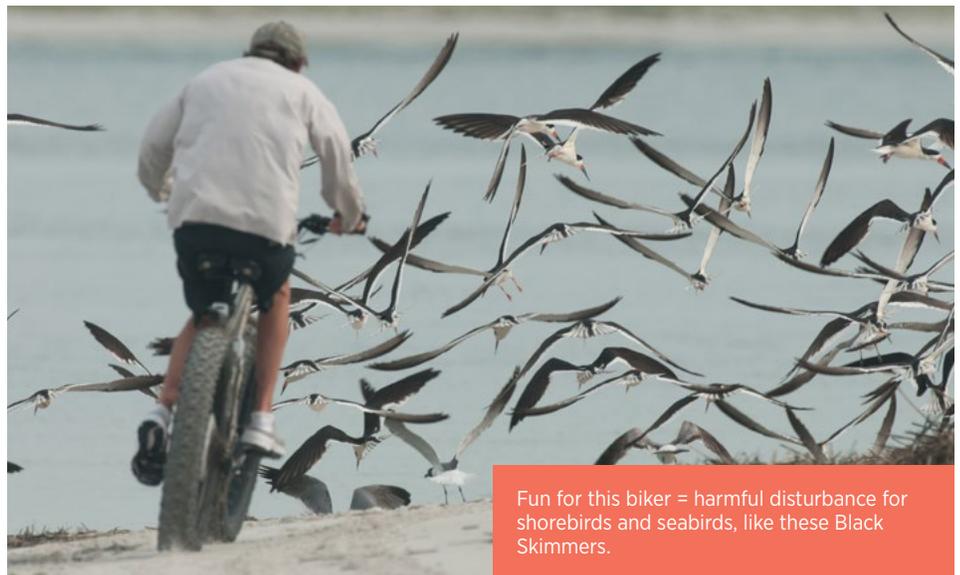
Coastal birds are under stress from a multitude of threats, some natural and some related to human activities; some happening in the moment, as when birds are harassed by people or their pets, and others occurring over time in the form of changes to their habitats and the climate. This toolkit focuses on threats to coastal birds caused by direct human disturbance because those threats can realistically be addressed by a coastal stewardship program carried out by volunteer beach stewards. They are described in detail later. But first, it's helpful for beach stewardship project leaders and volunteers to understand the other major threats that coastal birds (all birds) face because those threats are part of the larger picture of why birds need our help.

Loss of Habitat

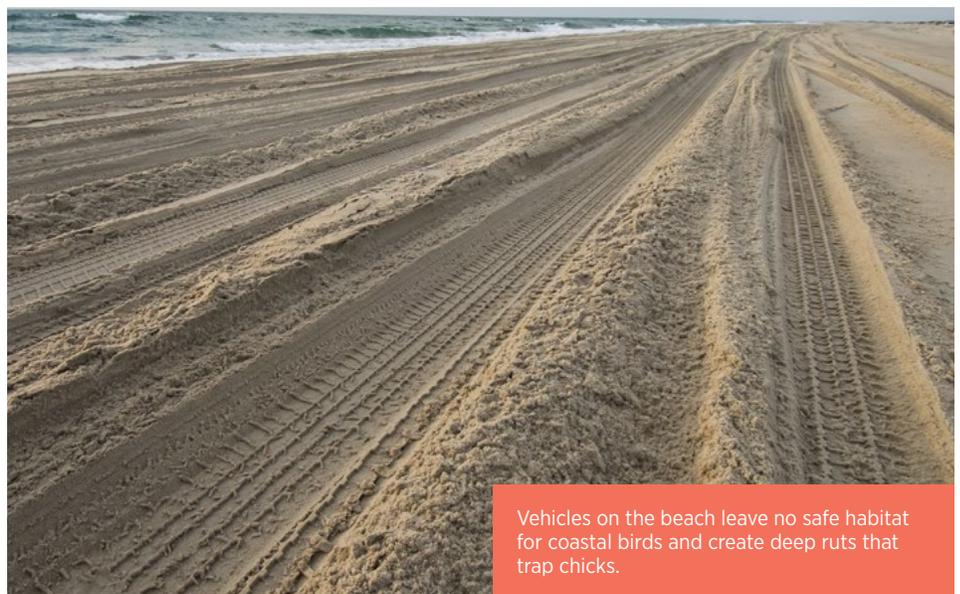
Development, infrastructure, recreation, beach grooming, hardened shorelines (construction of jetties, groins, seawalls, etc.), dredging, and other factors have dramatically changed the coast. Many barrier islands and coastlines are densely developed, and habitat once available to birds no longer exists. Inlets and estuaries have been stabilized, channelized, or otherwise altered in a manner that has degraded or eliminated entirely habitat that was once important to coastal birds. As a result, birds are confined to a fraction of the habitat that was once available, in some areas on offshore islands and the dynamic habitat around inlets or on publicly protected lands, and they are forced to nest where they face many threats.



Intense development and hardened beaches along coastlines destroy habitat for nesting, migrating, and overwintering shorebirds and seabirds.



Fun for this biker = harmful disturbance for shorebirds and seabirds, like these Black Skimmers.



Vehicles on the beach leave no safe habitat for coastal birds and create deep ruts that trap chicks.

Predation

Predation is natural and an important component in the web of life along the coast. It can also be a serious threat to nesting birds when the predators are not native or their population is super-abundant because of their ability to thrive in the presence of people, or when they are preying on species whose populations are very low because of unnatural causes. Predators gain an extra advantage when human disturbance causes adults to fly from their nests, leaving eggs and chicks unprotected. Common predators include gulls, ravens, crows, owls, feral and free-roaming cats, foxes, mink, skunks, coyotes, and raccoons. These are not the only predators, so it's important to consult local references or experts. Populations of some predators are often directly associated with human actions, such as improper garbage and waste disposal and feeding of gulls and feral cats.



Food waste on the beach attracts predators that prey on eggs and chicks.



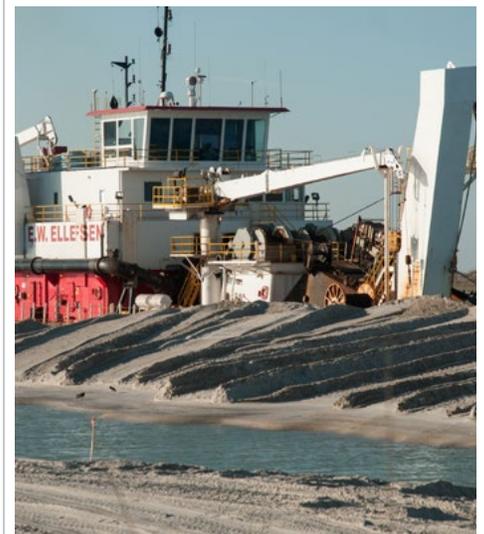
Sea-level rise is a threat to coastal birds as well as humans.

Climate Change

The threat of climate change to coastal birds is unprecedented in modern times. Because coastal birds exist on the edge of land and water, they are often the first to experience changes in coastal ecosystems. The accelerated warming of the climate is already and will continue to cause landscape-level changes to the coast. Sea-level rise, the changes in the frequency and severity of storms, rising water temperatures, increased erosion, higher tidal flooding related to warmer water, impacts to foraging habitats and food resources, and the human response to shoreline movement threaten the habitat that coastal birds require for survival. Where sea-level rise decreases existing habitat, competition for remaining habitat by people and birds becomes increasingly acute.

Beach and Inlet Stabilization

Coastal engineering practices designed to stabilize coastal systems that are naturally dynamic have a huge impact on beach-nesting birds and migrating and wintering shorebirds. Practices such as sand mining, inlet channelization, and the construction of hardened structures (jetties, groins, seawalls, etc.) on beaches, estuaries, and islands are widespread and have taken a toll on coastal bird habitat. Coastal inlets and estuaries are some of the most important habitats for coastal birds, yet 54 percent of inlets in the southeastern U.S. have been stabilized, channelized, hardened, or otherwise altered. Large Pacific estuaries, such as San Francisco Bay, contain only a small percentage of historic beaches and mudflats due to development and construction of seawalls. These practices limit or prevent sand movement, which in turn changes the natural dynamics of beach accretion and erosion, altering and often destroying important nesting, foraging, roosting, and loafing habitat for coastal birds.



Sand mining and channelization of inlets destroy coastal habitat for birds.

Reduced Food and Foraging Habitat Availability

Adequate and abundant food that meets the energy requirements of coastal birds is essential to sustaining bird populations. Many of the threats related to human activities—coastal development and engineering, predation, and climate change—affect food or foraging habitat. For example, hardened structures reduce or eliminate foraging habitat, and human recreation effectively prevents birds from accessing otherwise productive foraging areas. In addition, activities such as harvesting horseshoe crabs has had a direct negative impact on populations of Red Knots and other shorebirds that feed heavily on them at critical stopover sites.

Lack of Knowledge

Much of the emphasis of research and monitoring of coastal birds has focused on the biology, ecology, and populations of breeding birds. Much less emphasis has been directed toward migration and wintering habitat requirements. For many species, we lack the most basic information regarding sites that are important at all critical points in their life cycle. While breeding is important, most species of coastal birds spend as much as 75 percent of the year away from breeding sites, including oceanic sites. Their survival and fitness during this non-breeding time is essential to recovering and sustaining populations.

Human Disturbance

One of the best ways concerned and dedicated individuals can advocate for birds is by supporting local, state, regional, and federal policy initiatives and by joining Audubon and other con-



Red Knots, like other shorebirds, depend on a few key places from their breeding grounds to their wintering areas where they can stop, rest, and refuel during migration.

servation organizations. This toolkit also provides tools to support another kind of activism: being present on the beach as observer, protector, and educator to reduce the threat of human disturbance in its various manifestations.

Human disturbance occurs when the natural activity, behavior, or physiology of one or more birds is changed as the result of human activity. It is caused by a wide range of activities that include off-road vehicles; pedestrians walking through nesting colonies or disturbing flocks of roosting or foraging birds; dogs (on- and off-leash) and other domestic animals, including horses; kite-flying and drones; photographers; fireworks; boats; and many other activities that disrupt the natural behaviors of birds. In addition, leaving trash, especially food waste, on the beach attracts predators that prey on or menace birds. All of these types of disturbance are serious threats to nesting, migrating, and wintering coastal birds and contribute to habitat loss

Disturbances at breeding sites, even very brief disturbances, can increase egg loss, chick and adult death, pre-

dation, and nest abandonment. It also causes nest evacuation, slower growth and reduced body mass of nestlings, and premature fledging. Migrating and wintering birds don't have energy to spare; they need safe areas where they can stop to rest and refuel to increase energy storage for on-going migration. If birds are regularly disturbed, they use up their limited energy reserves. When they can't feed and rest in peace, they may not be able to store the fat they need to successfully complete their migrations, survive the winter, or arrive at nesting sites in condition to initiate breeding. As a result, fewer adult birds of reproductive age are able to reproduce, resulting in population declines.

“Human history is already marked by the passing of birds whose earthly tenure we shortened, by birds returned from the brink of extinction by sheer human will and determination, and by birds that teeter on the edge.”

—Deborah Cramer, *The Narrow Edge: A Tiny Bird, an Ancient Crab, and an Epic Journey*

A program manager installs symbolic fencing at nesting sites along the New York coast.

2

MANAGING HUMAN DISTURBANCE THROUGH STEWARDSHIP



Balancing the needs of birds with the desires of people to occupy some of the same habitat is central to managing human disturbance.



PART 2:

MANAGING HUMAN DISTURBANCE THROUGH STEWARDSHIP

The signs of disturbance can be subtle and barely noticeable to even trained biologists, or they can be obvious if you know what to look for. Nesting shorebirds often leave their nest and walk a safe distance away. Some species, especially plovers, may feign injury and attempt to lead an intruder away from their nest or chicks. Nesting terns and skimmers can be more aggressive. While they, too, will slowly walk away from their nest, they will also take flight and mob an intruder by flying aggressively toward the intruder or sometimes striking the offender. In some cases they may release the contents of their bowels while attacking, leaving even the most fashionable intruder with a smelly stain. Regardless of the response, the actions by nesting birds to defend their nests or chicks place the eggs or chicks in immediate danger from temperature stress and predators.

Controlling human disturbance requires managing people more than birds. People must be made aware of the

presence of nesting and other areas that are important for birds, and they must be kept at a safe distance to avoid disturbances that could jeopardize birds. This is accomplished by delineating sensitive sites or habitats with signs warning people of the presence birds. The signs must be erected at buffer distances that are adequate to prevent disturbances. In areas of high traffic, like beaches, rope or string between signs is essential to reducing disturbances. This method is often referred to as “symbolic fencing.” The presence of stewards, along with local outreach, is essential to successfully preventing disturbances, but it is not a substitute for symbolic fencing. (See **Tools, Guidelines, and Other Resources**, page 39, for additional information on symbolic fencing.)

Education and awareness combined with symbolic fencing and on-site stewardship are essential components of a successful stewardship program. With increased awareness of coastal birds as imperiled wildlife and knowledge of their habitat and energy needs, beachgoers and coastal residents can adopt a new set of cultural expectations when visiting the shore.

Stewards can help reduce disturbance by unthinking or unaware members of the public on beach areas where birds are present. The specific types of threats and the appropriate actions for stewards are described below.

VEHICLES

Vehicles on beaches have a significant negative impact on beach habitat, breeding, migrating, and wintering birds, as well as other wildlife and the beach environment. In a review of literature related to barrier islands and off-road vehicles, more than 500 scientific studies, conservation plans, management guidelines, and recovery plans list off-road vehicle use and the associated disturbances as a threat to birds and other natural resources. Physical impacts include crushing nests, eggs, chicks, and occasionally adults; increasing compaction of sand and changing the sand environment; crushing prey and altering foraging

When someone in a vehicle runs over a nest, egg, or chick, or strikes and injures or kills an adult or juvenile bird, beach stewards should document the incident with notes and photos and report it to local wildlife authorities. (See “Reporting a ‘Take’ of Protected Species” on page 37.)

habitat for shorebirds; increasing beach erosion; destroying dunes and dune vegetation; and altering the beach strand with deep ruts that can trap unfledged chicks. Disturbance by vehicles can result in abandonment of nesting and other habitats, low reproductive success, egg or chick loss, reduced foraging efficiency by adults and chicks, and disruption of nesting behaviors, and it may keep chicks away from foraging areas or the water's edge, which can jeopardize their survival.



Seabird and shorebird chicks are so well camouflaged, the driver of the vehicle that killed this Least Tern probably didn't even see it.

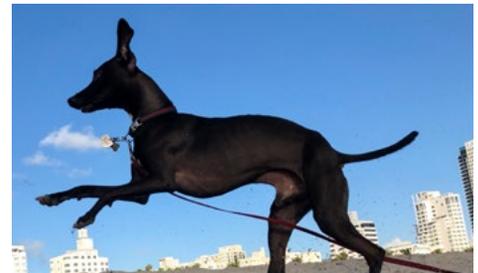
The behavior of shorebird and seabird chicks increases their vulnerability to being harmed by vehicles. Chicks are highly mobile and will often move between the water's edge or intertidal zone and the nesting area several times each day. Highly mobile broods, especially shorebirds, may move long distances (up to 1,500 yards or more) away from a nesting area and well outside of the recommended buffer distances and symbolic fencing, which means they could be in the path of vehicles. Chicks rely on their excellent camouflage to protect them from harm, hiding motionless next to a shadow-producing visual disruptor. Well-camouflaged chicks often crouch low and remain motionless in a tire rut,

in wrack (washed-up vegetation), or next to debris (shells, driftwood, trash, etc.). This instinctive behavior may result in the chicks being crushed by a passing vehicle.

- Vehicles should be kept far away from areas that are important for birds.
- Symbolic fencing with clear signage and visible rope or string and the appropriate buffer distances are essential for protecting nesting birds from disturbance or injury by vehicles. (See **Tools, Guidelines, and Other Resources**, page 39, for additional information on symbolic fencing.)
- Stewardship project leaders should work with law enforcement or the entity that has jurisdiction at a site to limit disturbance by vehicles, including establishing vehicle-free areas in areas where nesting, migrating, or wintering birds congregate.
- Authorized and official vehicles—law enforcement officials, lifeguards, maintenance staff, turtle patrols—contribute to disturbance and threaten birds, and should be restricted except during emergencies.
- Stewardship project leaders should communicate with law enforcement and other officials to raise awareness about the threat vehicles pose to birds, whether nesting, stopping over during migration, or overwintering.
- Symbolic fencing should be expanded wherever possible when chicks are present, and the expansion should include adjacent foraging habitat and intertidal areas.

- Pass-through or other vehicle corridors in the vicinity of nesting areas should not be allowed.

U.S. Fish and Wildlife Service guidelines should be followed for protection of Piping Plovers. (See **Helpful Resources**, page 56.)



Even a well-behaved, leashed pet is perceived as a threat by shorebirds.

PETS

Seabirds and shorebirds view pets, especially mammalian pets (e.g., dogs), as predators. They will often respond to the approach of pets, leashed or unleashed, at greater distances than they might respond to the approach of a human. Pets, especially dogs—even the most calm and well-behaved dogs—will sometimes catch and kill chicks. Adult birds will often fly off of their nests on the approach of a dog, even one on a leash, leaving their nests with eggs and chicks vulnerable to aerial predators as gulls or crows and heat or cold exposure.

- Pets should not be allowed on nesting beaches and islands, or other areas that are important for birds while the birds are using the site.
- On beaches where pets are lawfully allowed, they should always be leashed and should be kept at safe distance from the birds.

- Buffer distances should be increased by as much as 100 yards if pets are lawfully allowed near sensitive bird areas.
- Partnerships with community leaders to establish pet-friendly areas far away from important bird habitats can reduce the potential for pet-related disturbances.
- Community outreach to raise awareness, combined with symbolic fencing and oversight when pets can be on beaches and those areas with leash restrictions, these regulations should be strictly enforced.
- Additional signage explaining leash laws and pet restrictions will help beachgoers with pets understand and obey the restrictions.
- In areas where local regulations limit the time or seasonality when pets can be on beaches and those areas with leash restrictions, these regulations should be strictly enforced.

BEST PRACTICE: EDUCATION ABOUT DOGS ON THE BEACH

The Santa Barbara Audubon Society and Ventura Audubon Society created brochures for dog owners who bring their pets to the beach. The brochures include information about laws affecting dogs (leash laws, etc.), a summary of leash laws at specific local beaches, “Pawsitive Beach Tips” for having a positive experience when bringing a dog to the beach, “Sharing the Beach” for preventing dogs from disturbing birds, and helpful websites.



Dog owners who want to bring their pets to the beach often appreciate information presented in a friendly manner.



KITES, DRONES, AND OTHER UNMANNED AERIAL VEHICLES (UAVS)

Birds can perceive kites, drones, and other flying devices as avian predators and will leave their nests, eggs, and chicks if those devices get too close. At extremes, birds may abandon the area entirely if they are chronically disturbed by these devices. The U.S. Fish and Wildlife Service recommends that kites should be prohibited within 218 yards (200 meters) of Piping Plover nesting sites, unfledged chicks, and territorial adults.

- Beach stewards can reduce this type of disturbance by engaging kite-flyers and UAV-operators in a positive way to inform them about why it's important to observe appropriate buffer distances. The operator will usually move away from the birds if politely asked to do so.
- Local regulations may be needed to protect birds in areas where this type of disturbance is chronic. Check with the local state wildlife agency or local regulations, as many places have UAV regulations on flying over state or private properties.

- Signage to educate kite or UAV flyers will help protect nesting sites even at times when stewards are not present.
- Working with beach managers, stewards can proactively design bird-safe zones where kites and UAVs can be used without harming vulnerable nesting birds or roosting and foraging migrating flocks.

“Shore birds seem mere exhalations of the sea and reflect its eternal restlessness, somewhat as do the sands over which they scamper.”

—Henry Marion Hall, *A Gathering of Shore Birds*

PHOTOGRAPHERS

Photographers often want to get close to their subjects, or to position themselves in the best location for the available light, or to use habitat within a protected area as a background for their photographs. While most photographers are well meaning, their activities can cause significant disturbance to birds.

- Establishing and strictly enforcing appropriate buffer distances with symbolic fencing is an important first step in reducing disturbance from photographers.
- Beach stewards can explain to photographers in a friendly way how certain actions can harm their subjects—the birds—and how to avoid it.
- Audubon’s Guide to Ethical Bird Photography is an excellent resource for stewards as well as photographers. (See **Tools, Guidelines, and Other Resources**, page 54.)

FIREWORKS

Fireworks are common in coastal communities, especially around holidays, but these displays can be deadly to coastal birds. Fireworks near nesting birds can cause birds to permanently abandon their nests or chicks; cause chicks to panic, resulting in permanent separation from their parents, which nearly always results in death of the chick; or cause adults to abandon nests or chicks for a prolonged period of time, thereby increasing the chance of death by temperature stress or exposure predation by gulls or crows. In addition, fireworks debris can harm adults and chicks. Abandonment of nesting areas due to fireworks has occurred at a distance of more than 1,300 yards. The potential for additional disturbance, trespass, and trampling occurs when fireworks draw crowds of spectators on beaches after dark. A one-time fireworks display that may only last several minutes can cause loss of the nesting colony and death to chicks or the embryos in eggs, which is why these displays should be kept far away from the birds.

- Stewardship project leaders should work with local conservation organizations and agencies as well as civic authorities to keep fireworks displays at least 1,300 yards from nesting or other bird congregation areas.
- The U.S. Fish and Wildlife Service guidance for Piping Plovers, which recommends that fireworks displays should be kept at least three-quarters of a mile away from nesting areas, should be followed.
- Expanded buffer distances of up to 100 yards on beaches where people



Fireworks near nesting birds can frighten parents into abandoning their nests and chicks.

gather to watch fireworks may be warranted to prevent disturbances.

- Beach stewards can engage with the public during and after fireworks displays to raise awareness about birds on the beach and how to help protect them.
- Working with local law enforcement staff, beach stewards can protect nesting colonies by asking members of the public to move their activities away from the colony location.

BOATS

Boaters who approach birds too closely, especially nesting birds, can cause significant disturbance, and boat wakes can flood low-lying nesting areas or cause shoreline erosion. Managing these disturbances is difficult. Signs on posts placed in intertidal areas may wash out with shifting sand, boat wakes, or unconsolidated substrate, and may require approval by state agencies. Floating markers often require special prior approvals from state, federal, and/or local agencies before they can be placed in

navigable waters. Very little data exists regarding buffer distances, but the few studies of boat-related disturbance suggest that the buffer distances are similar to those for the approach of a person. (See **Tools, Guidelines, and Other Resources**, page 42, for recommended buffer distances for symbolic fencing, which can serve for boats as well.)

- The most effective role for a beach stewardship program in helping to reduce this type of disturbance is education and awareness focused on the boat owners and operators.
- Creation of “boaters guides” that include best behaviors is a good way to influence boaters. See **Helpful Resources**, page 56, for some examples.
- In-water buffer zones and markers such as those used at Florida’s Critical Wildlife Areas, can be very effective in reducing disturbances.
- Large signs that can be easily read from a boat can reduce boat landings and the associated disturbance.

FOOD WASTE AND FEEDING NUISANCE ANIMALS

Predation is natural and it is important in the web of life along the coast. It can also be a serious threat to nesting birds when the predators are not native or their population is super-abundant because of their ability to thrive in the presence of people, or when they are preying on species whose populations are very low because of unnatural causes. Common predators include gulls, ravens, crows, owls, feral and free-roaming cats, foxes, mink, coyotes, and raccoons. Trash that contains food waste, fish-cleaning stations, refuse collection sites, trash cans, and feeding stations for feral cats in the vicinity of nesting areas attract predators. The food associated with trash can contribute to super-abundant populations of some predators and increase the chance that predators will prey on birds, especially their eggs and chicks.

- Stewardship project leaders can work with jurisdictional authorities to provide sufficient and scavenger-proof garbage disposal receptacles.
- Beach stewards should engage beachgoers about how they can help reduce this threat by properly disposing of garbage and not feeding gulls.

- Feeding stations for feral cat colonies and spay-neuter-release areas should not be established on beaches or islands.
- Trash cans should be removed from beaches in the vicinity of nesting areas, and beach stewards should make every effort to keep the beaches clean and free from trash.

FISHING LINE AND PLASTIC TRASH

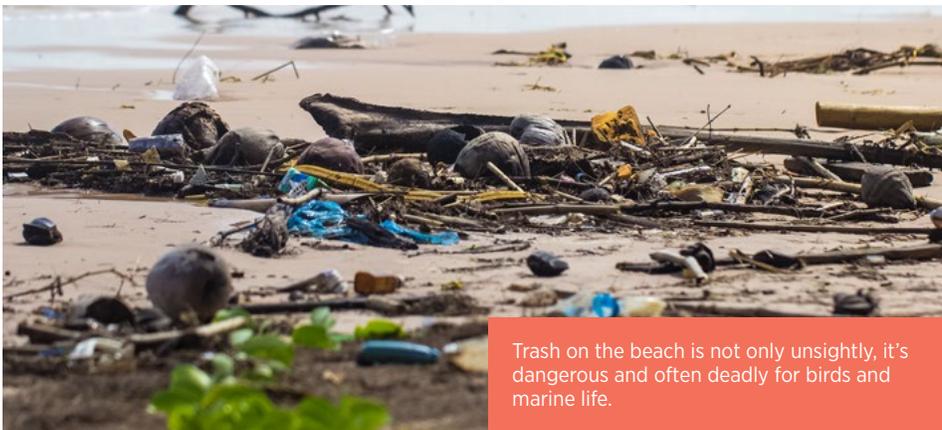
The number of birds that become entangled in discarded fishing line is staggering. Whether on the shore or in the water, fishing line easily wraps around birds' beaks, necks, wings, and feet, leading to long and tortuous injuries and often death. Lures and hooks attached to fishing line compound the danger.

Plastic bags, cups, beverage rings, and other forms of plastic trash represent an additional threat to birds and other marine life. Coastal birds can mistakenly ingest or become entangled in plastic items that are left on the beach or in unsecured trash containers, tossed in the water, or carried in from rivers, streams, and runoff. Even small bits of plastic can be ingested by marine life and enter the food chain.

- Beach stewards can inform beachgoers and anglers about the many dangers posed by discarded fishing line and all forms of plastic.
- Signage and local awareness campaigns can proactively reduce this threat and promote properly disposing of fishing line and all trash and leaving no trash on the beach.
- Beach stewards should remove all discarded fishing line and other trash from the beach daily.
- Stewardship programs can work with local agencies and/or beach managers to provide secure receptacles for disposing of fishing line at piers and other popular fishing sites.
- Stewardship programs can work with partner organizations and law enforcement to create public awareness campaigns about the dangers of fishing line and plastics.

EFFECTIVE ACTION THAT MAKES A DIFFERENCE

Managing human disturbance through proper stewardship is one of the best ways that concerned and dedicated individuals can get involved in bird conservation. This toolkit provides the tools needed to develop, lead, and/or participate in stewardship programs. It's fun, rewarding, a great project for Audubon chapters, and the birds need it. Read on to find out more.



Trash on the beach is not only unsightly, it's dangerous and often deadly for birds and marine life.

3

**BEING A COASTAL STEWARDSHIP
PROJECT ORGANIZER/LEADER**





Being a beach steward is rewarding and fun for people of all ages.

PART 3:

BEING A COASTAL STEWARDSHIP PROJECT ORGANIZER/LEADER

First and foremost, a successful beach stewardship program needs an effective leader, who is willing and able to...

- commit the necessary hours to investigate the site and the birds that use it;
- take the lead in organizing a stewardship program with or without partners;
- take the lead in securing necessary funding for materials and additional needs;
- establish and carry out a training regimen for volunteers;
- sustain the program over time by inspiring volunteers and coordinating their work;
- collaborate and communicate with partners;
- represent the program and its purposes to the public.

Although not all will apply to every project, the following steps and processes

detail the range of responsibilities of a coastal stewardship program organizer/leader.

See pages 45-52 for worksheets and checklists you can use to answer questions and organize information.



Volunteer beach stewards on the job

GATHERING INFORMATION

Organizing a stewardship program at a nesting site, migration stopover, or important wintering area for coastal birds starts with gathering information to answer basic questions.

Questions About the Birds:

- Which bird species are using this site?
- What is the existing state or federal guidance for these species for this geographical region?
- Why is the site important to coastal birds? Is it used for nesting, as a migration stopover site, or for overwintering?
- When do different species arrive and depart?
- What are the local, state or federal laws that apply to the species and habitats?

To find the answers:

- Consult authoritative resources online (e.g., Audubon's online bird guide at <http://www.audubon.org/bird-guide>) and/or in print to identify the birds that use the site and learn about their life histories, including whether they use this site year-round, only during breeding/nesting season, only in winter, or as a migration stopover.
- Find out if the birds are listed as endangered or threatened according to the federal Endangered Species Act (<https://www.fws.gov/endangered/>) and/or state law, which will have a bearing on stewardship activities and communication with the public.

Questions About the Site:

- Who owns the site?
- What are the threats to coastal birds at this site?
- Is there an existing stewardship program for this site?
- Is stewardship consistent with the land manager's/owner's priorities?

To find the answers:

- Look for signs on the property itself that reveal who has ownership or jurisdiction. A "public" beach might be owned by a local governmental authority, but it could also be privately owned. Most state and federal agencies, such as state parks, wildlife management areas, seashores and refuges, and many nongovernmental organizations such as Audubon protect nesting sites for coastal birds. Lacking any other clues, a search of local property records should reveal the owner. The property owner/jurisdictional authority is in essence a partner whose interests and rules and regulations must be taken into account.
- Threats to the site are usually revealed by multiple visits to determine the level of disturbance, the presence of off-road vehicles, evidence of dogs or other pets, or other threats. In general, if the site is accessible to the public and birds are nesting, then disturbance will be a threat and stewardship will be beneficial.
- To find out if the state Audubon office, National Audubon Society, or an Audubon chapter has a stewardship program in the area, check here to find a regional contact:
chapter_services@audubon.org
(800) 542-2748

Questions About the Community:

- Does this community generally show support for or interest in proactive initiatives on behalf of wildlife and environmental conservation?
- Is there a core group of people willing to put in the time and effort necessary to sustain a coastal stewardship program?
- Who are potential local partners? Is there an Audubon state office or chapter, other conservation- or wildlife-oriented organization that can provide resources and expertise?

To find the answers:

- Talk to friends and neighbors.
- Visit local organizations involved in birding, wildlife rescue and rehabilitation, or environmental conservation to find out about the community's investment in such activities.
- Read local newspapers for clues to the community's attitude toward wildlife conservation.
- Contact the local Audubon chapter or state office to learn about existing programs and the potential for creating a new stewardship program.

"The restlessness of shorebirds, their kinship with the distance and swift seasons, the wistful signal of their voices down the long coastlines of the continents of the world make them, for me, the most affecting of wild creatures."

—Peter Matthiessen, *The Wind Birds*

DEFINING THE PROJECT'S GOALS, AND STRATEGIES FOR ACHIEVING THEM

Once you have gathered information about the need, the birds, the site, and the community, the next step is to define the parameters of the coastal stewardship project. It can be as simple as having trained volunteers available on the beach to communicate with the public about the birds that use the habitat and how to share it with them. More elaborate projects involve creating, displaying, and/or distributing informational materials about the birds and the importance of stewardship; installing symbolic fencing to protect nesting, migrating, or overwintering birds; engaging schools and students and other groups in stewardship activities.

BEST PRACTICE: CONNECTING WITH THE COMMUNITY

"Be a Good Egg" is an initiative originated by Audubon North Carolina and adopted in New York, New Jersey, and Connecticut to encourage beachgoers to decrease human threats to shorebirds. Volunteers set up tables at beaches to engage beachgoers and spread the word about threats and how to behave responsibly in the presence of birds.



Regardless of how simple or complex the project will be, create a written proposal for the property owner or manager as well as potential partners. The proposal should include a clear description of all planned activities, the reasons those activities are needed, who will carry them out and how, and how the project will be managed and sustained over time. Enlist the help of the local Audubon chapter and the state Audubon office in this process, ensuring that the process, activities, and goals are consistent with best conservation practices and complement existing projects and activities. See **Tools, Guidelines, and Other Resources**, page 46, for a worksheet to help you organize information for the project proposal.

ESTABLISHING EFFECTIVE LOCAL PARTNERSHIPS

Partnerships are often the key to achieving the goals of a stewardship project. Effective partnerships begin with a clear vision, mission, and goals that the partners share, recognizing the unique contributions that each partner brings to the project. These contributions may be financial, added capacity, coordination, expertise, supplies, informational materials design and production, publicity, political activism, logistical support, or additional components of a stewardship project. For example, partnerships with public or private agencies, land owners/managers, zoos, wildlife rescue organizations, educational institutions,



Volunteers participate in a beach clean-up project.

or municipalities can lead to new or improved stewardship opportunities to reduce threats; new ordinances, laws, or policies that protect birds; and improved enforcement of existing laws. The list of opportunities is long and limited only by how willing organizers are to explore, innovate, and be open to collaborations with any possible partner in the region.

BEST PRACTICE: AN EFFECTIVE PARTNERSHIP

In 2016 the mayor of Oxnard, California, contacted the Ventura Audubon Society to ask for guidance on protecting an important nesting site at Ormond Beach. Through this partnership Ventura Audubon Society and the Oxnard City Council successfully passed an ordinance to provide more protection for Western Snowy Plover, the California Least Tern, and other shorebirds on Ormond Beach. The new rules include prohibitions against bringing any animal to Ormond Beach, including dogs and horses, and interfering with any designated habitat area. The public can continue to enjoy the beach by fishing, surfing, sunning, and picnicking, while other activities known to harm wildlife are restricted.



Volunteer stewards help beachgoers learn about and respect birds and their habitat.

This partnership continued with coordinated outreach at the site to inform the public of the new rules and regulations, leading to greater compliance and a safer site for birds.

One aspect of a partnership that must not be overlooked is sustainability. A partnership should be structured so that it can survive changes in leadership on either side. For the stewardship program, that means making sure the elements and guiding principles of a partnership are transparent throughout the organization, from leadership to volunteers.

Law Enforcement Partners

Law enforcement can be an important partner in a stewardship program, promoting the safety of birds as well as people. It is vital to identify and engage law enforcement agencies that have jurisdiction at the stewardship site early in the process. Involving them in clearly defining the roles of beach stewards and, if possible, in training stewards is always beneficial. The goal is to establish a positive, mutually respectful relationship between stewards and law enforcement officers in which each understands the role of the other.

Beach stewards are educators, not officers of the law, but they do occasionally encounter difficult situations that are best mediated by law enforcement. Law enforcement officers can help with compliance with local regulations, such as leash laws, trampling of dune vegetation, trespassing in protected areas, and others. Resources provided to stewardship participants should always include contact information for local police, wildlife, marine patrol, and/or Coast Guard law enforcement.



It's never too soon to introduce young people to the world of birds and the value of conservation.

Partnerships with Schools

Getting students involved in stewardship projects can have many benefits, not the least of which is getting them outdoors and introducing them to responsible stewardship and conservation. When young people understand the need for stewardship they become active problem-solvers and advocates while learning about the birds, other wildlife, and natural places in their community.

Stewardship program leaders can initiate partnerships with teachers to develop collaborative lessons for science or other classes. By focusing on aligning conservation-related lessons with education standards and specific science curricula, stewardship organizers have a better chance of overcoming the challenge of engaging schools whose administrators may be wary of bringing in outside partners. A resource available from Audubon for this is *Audubon*

Adventures—standards-based supplementary curriculum materials produced annually for students and teachers, promoting environmental knowledge and stewardship through a variety of themes. For more information, go to www.AudubonAdventures.org. One of the themes, *Sharing Our Shores*, is particularly appropriate for beach stewardship. See **Helpful Resources**, page 56, to find examples of activities for young people, including *Sharing Our Shores*.

After-school programs can be easier to navigate than in-school programs, as these programs sometimes have outdoor experience or field trip components built into their programming. Stewardship leaders can apply similar principles in initiating and developing lasting partnerships with after-school programs as they would to engage an in-school program.

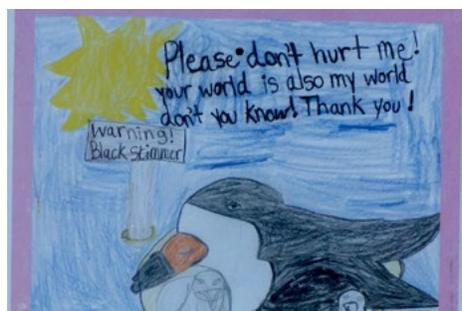
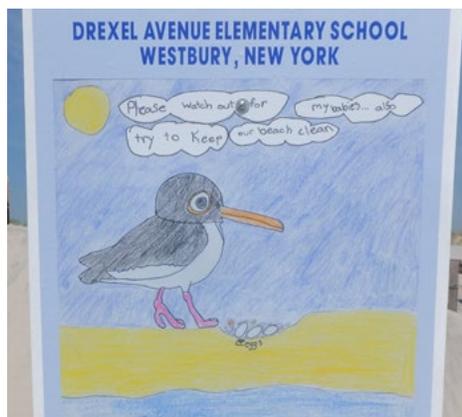
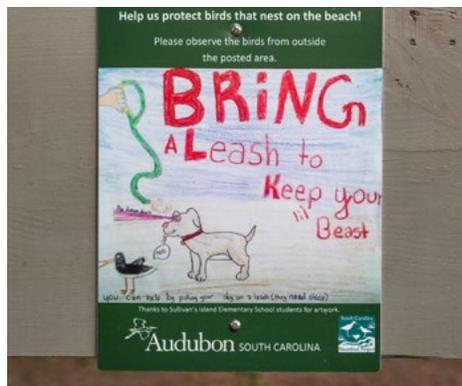
BEST PRACTICE: INTRODUCTION TO STEWARDSHIP

San Diego Audubon Society offers regular nature walks for children to places within walking distance of their after-school program sites. This is a great way to get children connected with the outdoors, particularly for those who may not otherwise have had the opportunity. Finding opportunities to consistently increase kids' levels of familiarity and comfort with being out in nature helps cultivate a deeper affinity for birds, other wildlife, native plants, and habitats that need protection, conservation, or restoration. Building children's connection to nature is an important first step in cultivating the next generation of conservation leaders.

Students can also play an important role in coastal stewardship through their art, writing, and messages. Student-created signs with original art and messages have been highly successful throughout the country in raising awareness and engaging beachgoers in protecting coastal birds.

BEST PRACTICE: STUDENT-CREATED SHARING OUR SHORES SIGNS

A signature innovation of Audubon's collaboration with schools involves having children create artwork and messages for signs to be used on the beach along with symbolic fencing. Children's artwork has a particular appeal, making it an extremely effective way to convey important information about protecting coastal birds to beachgoers who might not otherwise take the time or make the effort to read a printed sign. For detailed information on symbolic



Student-made signs carry important messages that beachgoers notice and respond to.

fencing and working with schools to create signs, see “Installing and Maintaining Symbolic or String Fencing” and “Working with Schools to Create Original Signs for Beach Stewardship” in **Tools, Guidelines, and Other Resources**, pages 39-44.)

Partnerships with Colleges and Universities

Partnerships with colleges and universities give students opportunities to engage in bird conservation projects, gain practical experience, build professional and technical skills, conduct research that can inform and advance bird conservation efforts, and satisfy community engagement requirements, among others. Stewardship projects, in turn, benefit from increased capacity to implement stewardship projects, increased engagement from younger and diverse participants, opportunities for new sources of funding, increased science and technical expertise, and opportunities for research to better inform and adaptively manage stewardship programs. These partnerships can be sustainable as long as there is mutual benefit for all parties.

BEST PRACTICE: EXPERTISE EXCHANGE

Santa Barbara Audubon Society partnered with a local university's environmental sciences department, which developed an online portal to crowd-source bird surveying information into an accessible database. This became a critical tool for the chapter, as university students produced data critical to Audubon chapter work, reinforced the value of Audubon chapters to the community as others got involved, and

deepened student interest in the work of the chapter as students had the chance to apply their skills and interests in a practical and actionable way.

ENGAGING COMMUNITY LEADERS AND CHANGE-MAKERS

“Where birds thrive, people prosper” is central to Audubon’s mission. Creating communities where birds and bird conservation are part of the fabric of the community will advance stewardship programs and set a great precedent for other communities. A key component of community engagement and developing strategic partnerships is engaging community leaders. These may be elected officials, municipal staff, business leaders, faith-based leaders, or other prominent individuals. Community leaders who are aware of and engaged in stewardship programs, and understand birds and their needs, can become important advocates. One effective way to introduce these leaders to your program is to hold special events where they can see stewardship projects in action. Seeing projects firsthand is often more effective than off-site education or awareness. If the community has a large population of non-English-speakers, try to recruit volunteers who speak the dominant language and also provide written materials in that language.

Community-based social marketing (CBSM) is one approach that can be effective in raising awareness and changing behaviors in support of coastal birds. CBSM draws upon broad social science and psychology, and employs techniques designed to understand

barriers to behavioral change and overcome those barriers to achieve lasting change. Fostering Sustainable Behavior: Community-based Social Marketing by Doug McKenzie-Mohr outlines four basic steps: identify the barriers and benefits, develop a strategy, pilot the strategy, and broad-scale implementation and evaluation. Each step is an essential component of the overall strategy.

While CBSM is often overlooked as being too expensive or complicated to implement, it is an approach that is results-oriented and effective at achieving lasting, sustainable change in behaviors and it should be considered wherever possible. Go to <http://www.cbsm.com/public/world.lasso> for additional information.

BEST PRACTICE: CHANGING COMMUNITY PERCEPTIONS

Frustrated with the imposition of local beach closures, community members in the Morro Bay area circulated a petition

to lift limitations on their beach access. It was clear that the community was not aware of the value that beach closures provide to protect the sensitive nesting habitat of Morro Bay’s Snowy Plovers. The Morro Coast Audubon chapter took on the challenge of changing community perceptions towards the Snowy Plover. The chapter launched a community education campaign, beginning with a children’s education program—called *Sharing Our Shores*—and encouraged kids to create artwork for symbolic fencing based on the lessons they learned. The chapter held an event to showcase the art and invited a local congresswoman to attend to attract broader community support and interest. As a result, the chapter had a larger-than-expected turnout, garnering positive press from local media outlets, and perhaps most notably, the attendance of a petitioner, who attended the event to show her newfound understanding and support of protecting the local Snowy Plover population.



RECRUITING VOLUNTEER BEACH STEWARDS

Look for volunteers throughout the community. You'll find them among members of the local Audubon chapter and other environmental-, wildlife-, and nature-oriented organizations; in student groups; on the beach where the stewardship program will be implemented; through social media; at meetings of civic organizations such as Rotary Clubs and neighborhood associations; through friends and family; and more. In other words, anywhere bird-lovers and people who care about the local environment are likely to be reached is a potential source of volunteers.

Word of mouth is a highly effective recruitment method. Prepare PowerPoint presentations about the birds and why they need stewardship to present at local meetings. Sending a press release to local media will usually boost attendance. (See **Helpful Resources**, page 56, to find an excellent example of a PowerPoint presentation.)

BEST PRACTICE: MAINTAINING A HIGH PROFILE

An excellent way to attract new volunteers is to maintain a high profile within the community. Many Audubon chapters do this by offering at least one or two formal learning opportunities a year within the community (e.g., nature walks; field trips; Christmas Bird Count; speaker events). This is particularly successful for keeping the community interested and engaged through all four seasons, especially when volunteer activities may only occur during one or two seasons.

Consider organizing events that attract potential volunteers, such as wine and cheese get-togethers to attract young adults; picnics in parks and other family-friendly events; bird walks on the beach and nature walks in neighborhoods. Include all residents of a community, especially those who might not otherwise be exposed to such opportunities. Post flyers in stores, community centers, places of worship, and residential bulletin boards to announce the call for volunteers.

Local schools at all levels are another excellent source of volunteers, especially when volunteer work is part of curricular requirements and/or extracurricular activities.

It is important for volunteers to understand at the outset that they will be required to commit a certain amount of time to training and to doing stewardship work onsite at scheduled times. Volunteers over age 18 should be willing to undergo a background check, especially when they will be working with or around children. Use a volunteer information form to gather contact information and availability for prospective volunteers. (See "Volunteer Information Form" on page 51 in **Tool, Guidelines, and Other Resources**.)

BEST PRACTICE: CONNECTING WITH VOLUNTEERS

During beach season, Houston Audubon Society uses webpage pop-ups to maximize every chance to engage beach-goers as potential volunteers. This coastal chapter often has promotional material on hand, so that volunteer stewards can easily direct interest-



A volunteer beach steward on the job in Louisiana

ed persons to a volunteer intake form and webpage. The page is set up to quickly identify the skills and interests of the potential volunteer, giving the chapter critical information to be able to plug them into relevant chapter activities. Houston Audubon Society recommends that chapters not let the interest of potential volunteers fizzle. Designating one person to coordinate the chapter's volunteer recruitment process has allowed the chapter to streamline the process of connecting interested volunteers directly to the relevant on-the-ground activity coordinators. This has also allowed the chapter to be clearer in setting volunteer expectations at the onset (especially for those interested in seasonal activities) by immediately responding to the interests of potential volunteers.

TRAINING VOLUNTEER BEACH STEWARDS

An important part of developing and implementing a stewardship program is to ensure that every participant knows and understands the birds, the place, what stewardship is and is not, and their roles and responsibilities. This is best accomplished through one or more training sessions that each potential steward is required to complete.

Training sessions should be taught by the most knowledgeable experts available and should include representatives from partner organizations whenever possible. The quality of the training will have a direct impact not only on the quality of the work volunteers do in the field, but also on volunteer retention and satisfaction.

Steward Training Tips

Potential beach stewards will come with varying levels of knowledge about coastal birds, their habitats and behaviors, threats, the need for stewardship, and various other topics that can be covered in one or more training sessions. But project leaders should not expect potential stewards to become experts or proficient at conveying the information to the public overnight. It will take time, and the more that project leaders can do to prepare stewards for the stewardship experience, the better ambassadors they will be. Developing a manual and resource materials that are specific to the site or geographic region will help stewards better understand the birds, their habitats, and why stewardship is necessary, and they will be able to be more confident, engaging, and knowledgeable when interacting with the public.



An information station like this is a great way to reach beachgoers as they arrive for a day of fun. Most are eager to learn what they can do to protect the birds and their habitat.

For beach stewards, people skills are more important than bird identification skills. One of the jobs of a project leader is to make sure that stewards learn to see themselves as ambassadors for the birds and understand that their main function

One only has to consider the life force packed tight into that puff of feathers [a Sanderling] to lay the mind wide open to the mysteries—the order of things, the why and the beginning.”

—Peter Matthiessen, *The Wind Birds*

is educating the public and enlisting visitors to the beach as allies. Most beachgoers are very cooperative once they understand the harmful consequences of activities that disturb birds.

Being a good listener is key for beach stewards. Listening respectfully to other perspectives can go a long way toward building bridges with beachgoers. The job of the steward is to engage the public in a positive way, but training should also prepare volunteers to deal with interactions that become antagonistic. It is imperative that the stewards know how to disengage and refer angry or

hostile individuals to law enforcement or other officials. The best long-term help the stewards can bring to the birds is to have beachgoers feel that their visit was enhanced by seeing the birds.

Role-playing works well as a training technique to help new volunteers learn how to deal with a variety of scenarios. Having a law enforcement officer present during steward training is also very valuable for the trainees as well the officer. Law enforcement officers can share their experiences in handling a wide variety of situations involving the public, and they will become more closely connected with the stewardship program.

For the stewards' first time in the field, having a seasoned volunteer or the site coordinator conduct an orientation session at the site is important. This will ensure that the stewards are fully prepared for the stewardship duties and are the best advocate for the birds.



It's never too early to start learning about and caring about birds at the beach.

Typical Resource Materials for Stewards

This toolkit includes much of the information in this list. Other items are site- or region-specific.

- A stewardship manual, tailored to your location and circumstances, to accompany topics covered in training sessions
- A photographic guide to the common birds at the site featuring adults, juveniles, various plumages likely to be seen, chicks, chicks of different age classes (see **Helpful Resources**, page 56, to find examples)
- Tips on bird identification and key aspects of life history for common species
- A list of frequently asked questions and key talking points
- An informational brochure, card, or other printed material (to be given out sparingly so as not to contribute to beach litter) with website and contact information for project leaders and authorities
- A notebook to use as a daily journal for recording observations of birds, the habitat, and incidents affecting birds (see **Tools, Guidelines, and Other Resources**, page 53)

“The ocean thunders, pale wisps and windy tatters of wintry cloud sail over the dunes, and the sandpipers stand on one leg and dream, their heads tousled deep into their feathers.”

—Henry Beston, *The Outermost House*

Key Information Volunteer Beach Stewards Need

Volunteers are the public face of any beach stewardship program. They will be most effective when they have a sound grasp of the natural histories of the birds they have committed to protect, knowledge of the extent and limits of their role as stewards, and a clear understanding of the mission, structure, and protocols of the stewardship program itself. An effective training program should prepare stewards in the following areas:

The Birds

- Species identification and general behaviors
- Life histories, biology, ecology, and habitat needs
- Threats to birds in general and specifically at this site
- Conservation status and legal protections for birds

The Site

- Other wildlife using the site and other relevant features of the site
- Chronology of use of the site by birds and other wildlife
- Basic history of the site—natural, cultural, ownership, visitors, other uses

The Project

- Overview of the project vision, goals, strategies, and actions
- Need for and goals of stewardship
- Roles and responsibilities of stewardship program leaders, project leaders, volunteer coordinators, stewards, partners, and others involved



Wire frames like this are meant to protect nests from predators, not capture volunteers!

Being a Steward

- What a steward is (educator) and is not (law enforcement officer)
- Interacting with the public
- Answering frequently asked questions
- Dealing with conflicts and difficult people
- Dealing with sick or injured wildlife
- Proper attire and equipment
- Safety and emergency guidance, protocols, and contacts
- Programmatic contacts, websites, and resources

MAINTAINING AND SUSTAINING THE PROGRAM

Getting a stewardship program up and running with partners and trained volunteers carrying out their respective functions is a significant achievement, but it is not the end of the work.

BEST PRACTICE: ENHANCE COMMUNITY ENGAGEMENT

Audubon's Morro Coast Audubon Chapter won a climate activist grant and used those grant funds to seed their chapter's community engagement efforts. They hired a student from a local university to fill the role of a community engagement liaison. Tasking a specific individual with this responsibility allowed the chapter to increase its visibility and recognition for its work and accomplishments. The chapter greatly increased the number of signatures collected from beachgoers to pledge to "share the beach," and enhanced turnout at key events like Earth Day and its annual March for Science.

Retaining Volunteers

Volunteers are more likely to remain committed to a stewardship program if they feel confident, successful, supported, and appreciated, and know they have a direct line of communication with the volunteer coordinator and program leadership. Volunteers who are interested in greater involvement or taking on leadership responsibilities should have those opportunities and know how to take advantage of them. It is also important for volunteers to understand how their work contributes to the short- and long-term goals of the program, the Audubon chapter, as well as to Audubon's goals within the flyway and beyond. Guide volunteers in getting connected to the bigger picture of the chapter by:

- Communicating to volunteers that they are a key resource critical to Audubon's ultimate goals related to bird conservation;

- Periodically and consistently asking volunteers to provide feedback on their experience, training, the program itself, and the resources available to them as part of the effort to continue to build and improve the program and reduce turnover.
- Engaging volunteers in the content of the stewardship project and chapter work, as well as the overall goals;
- Sharing community science reports and scientific findings where appropriate, in a timely fashion.

BEST PRACTICE: VOLUNTEER BUDDY SYSTEM

Institute a buddy system for beach outreach, pairing new volunteers based on their abilities or pairing new recruits with experienced volunteers. Taking into account all volunteers' levels of comfort with various activities will make their contribution meaningful and will increase the chapter's ability to retain those volunteers for future activities.

Communicating Effectively with Volunteers

How, when, and what to communicate with volunteers should be carefully thought out. Excessive or irrelevant communications have a depersonalizing, numbing effect, while communications that directly address volunteers' work and needs will help keep their work and progress fresh and predominant. A carefully maintained database of volunteers and a consistent approach to contacting them will add to volunteer satisfaction and retention.



Volunteer educators and eager students head out for a day of learning and fun at the beach.

BEST PRACTICE: KEEPING STEWARDS INFORMED

Within Audubon Florida, the steward coordinator for each site sends a weekly email to all stewards, preferably with chick or nest photos, providing everyone with an overview of nesting progress, steward observations from their duty shifts, and discussion of any disturbance issue that occurred while stewards were on duty and how those were handled and resolved. The emails also contain reminders about signing up for upcoming weekend or holiday duty and other important information.

“Must every bird prove its financial worth? Must every bird serve us?”

—Deborah Cramer, *The Narrow Edge: A Tiny Bird, an Ancient Crab, and an Epic Journey*

BEST PRACTICE: COMMUNICATION BY GENERATION

The challenge of communicating with a broad audience means there have to be many channels to engage everyone and that takes time. Determining a feasible communications schedule can

help chapters keep in consistent contact with volunteers on a regularly scheduled basis. Mailing recruitment flyers has been effective for recruiting members from Audubon communities and groups that do traditionally volunteer (e.g. Greatest Generation and Boomers)—for this population, the benefit of mailing flyers may outweigh the financial cost as they are often less responsive to email; Instagram or other social platforms might be better for a younger audience. A consistent schedule for communicating is an effective means for recruiting volunteers; aim to send out quarterly or monthly emails/communications to your volunteer or prospective volunteer pool.

Recognizing Volunteers as a Key Resource

Volunteer retention depends on making volunteers feel appreciated and acknowledged for all their hard work. At the same time, identifying what their work helped accomplish will increase their satisfaction. By showing volunteers how their contributions help reach the project or organizational goals and contributed to the overarching mission, volunteers are more likely to feel connected to the “bigger picture.”

Inciting these feelings of satisfaction after volunteers donate their time is an incredibly valuable tool to ensure that volunteers remain engaged with the work and return to help when they are called upon.

While program leaders can assess how volunteers would like to be recognized for their contributions, here are some examples:

- Program or chapter leadership, board members, and/or staff should thank volunteers.
- Ensure that volunteers are thanked for their contributions at every occasion.
- Send emails to thank volunteers and include a brief summary of accomplishments and how that ties back to the overarching mission and goals.
- Incentivize and recognize the unique and essential contribution of volunteers by providing special benefits to those who donate their time.



On the lookout for nesting birds from a safe distance

BEST PRACTICE: VOLUNTEER APPRECIATION

Audubon Florida holds annual volunteer appreciation events by region with a potluck meal or food provided. The event sometimes includes a PowerPoint presentation about the successes of the program and listing all the volunteers.

Developing Volunteer Leaders

Each volunteer-based project will have volunteers with diverse skills and abilities. There will likely be one or more individuals that emerge as leaders. Project leaders should identify where skill sets and commitment align with achieving the mission and seek out those who might be best positioned to help the project meet its long-term goals. Once identified, project leaders can gauge interest and build excitement around taking more responsibility, and recruit those individuals for leadership roles.



This volunteer is recording information about birds and conditions at the beach.

This enclosure will protect a shorebird nest from disturbance.



VOLUNTEER MANAGEMENT

An effective way to optimize coordination and follow-up is to designate a volunteer to lead volunteer coordination tasks from within a group of volunteers (assuming no staff exists). When working with groups that already have an established relationship with the chapter (religious organizations, schools groups, etc.), consider asking one person from that group to be the liaison with an assigned chapter member.

Preparing for Turnover of Volunteer Leaders

Changes in leadership can affect operations, and if unprepared, the departure of a leader may have a negative impact on the institutional knowledge and relationships cultivated with other organizations/individuals. Your organization can take simple steps to carry out succession

planning and knowledge management strategies that will help chapters retain institutional knowledge and relationships within the volunteer team.

It is never too early to begin thinking about who will replace volunteer managers and other key volunteers if they were to leave the project, and what relationships and knowledge needs to be shared to lessen the disruption of leadership succession. Succession planning includes process management for those volunteer leaders who are currently the connections to funders. A realistic discussion must take place to ensure that the chapter's fundraising and/or grant-seeking infrastructure has historical context and the opportunity for vibrant growth.

4

BEING A VOLUNTEER BEACH STEWARD



A young volunteer beach steward



Partnerships with state and local agencies can add resources and impact to stewardship projects.

PART 4:

BEING A VOLUNTEER BEACH STEWARD

As a volunteer beach steward, you are taking on the rewarding task of being an ambassador and advocate for birds in your community. You'll be involved in reducing human disturbance of birds by protecting the places they depend on and by educating beachgoers. You'll have the opportunity to engage and enlighten people who may be residents or may be visiting the area for the first time. You could be the first to ever show them a nesting Least Tern or Snowy Plover, or a Sanderling scurrying in the wet sand as the waves retreat. It can be a lightbulb moment for people and a great opportunity to help the public enjoy wildlife at the beach from a safe distance.

On any given day you might be talking with beachgoers about identifying different species of local birds, their nesting behaviors or feeding behaviors, when and why they're at this location at this time of year, and so on. You will educate, answer questions, and sometimes kindly ask people not to disturb the birds when necessary.

Your role as a volunteer beach steward involves:

- Informing the beach-going public about the presence of nesting or wintering birds, their habitats, and the actions they can take to help ensure the birds can nest, rest, or migrate successfully.
- Educating the beach-going public about the biology and life history of coastal birds.
- Introducing people to the wonder of birds, their behaviors, identification, threats, and general life histories.

- Keeping an eye on areas that are posted, assisting with maintenance of symbolic fencing, discouraging people from entering posted areas and disturbing birds, and reporting any problems to the appropriate authorities.

It's important to remember that you are strictly an educator and are not a law enforcement officer. Here are some general guidelines:

- When you encounter indifference or resistance from a beachgoer, you'll need to determine how much information that person seems willing to receive and know when not to press the issue.
- You'll need to remove yourself from situations when there are any signs of confrontation or hostility.
- If a hostile person enters a posted area where birds are nesting or they allow dogs or other persons to enter, your job is to contact a site supervisor or law enforcement officer.
- You should not intervene in a conversation between law enforcement and violators.



Signs, fencing, and the presence of stewards are all important tools for educating beachgoers about protecting birds.

ON DUTY AS A BEACH STEWARD

Here are some guidelines for what you'll need when you're in your role as a volunteer beach steward.

What to Wear

(according to the weather, of course)

- Appropriate attire for the conditions in your area and for interacting with the public as a representative of your stewardship program
- Stewardship shirt, hat, or other uniform that enables the beach-going public to recognize you as a steward.



Binoculars and/or spotting scopes help volunteer stewards keep an eye on birds' and beachgoers' activities.

What to Take

- Binoculars and a spotting scope, if possible
- Plenty of water and snacks
- Mosquito and/or other insect repellent
- Lawn or camping chair
- Cell phone with camera, or a separate camera
- Contact list for the program/site manager and law enforcement (including stray dog enforcement)
- Field journal and pen/pencil
- First Aid kit
- Towel
- Sunscreen

POSITIVE MESSAGES ABOUT SHARING THE BEACH WITH BIRDS

Your primary role as a beach steward is to encourage beachgoers to have positive attitudes toward sharing the beach with birds. Learning about the birds they see very often enhances beachgoers' enjoyment of the beach. Here are some messages and answers that apply to most coastal birds in most locations.

- Did you know there are birds nesting on this beach? These birds (pictures) nest on this beach.
- Successfully laying eggs and raising young are what allows these birds to survive as well as maintain and sometimes grow their populations.
- You can help these birds while you're at the beach today. By staying out of nesting areas, picking up your trash, and leaving your dogs at home you can help these threatened birds to survive.
- Staying out of fenced areas prevents eggs and chicks from being stepped on—look how camouflaged the eggs are, really hard to see (show pictures of eggs)—and reduces disturbances to adults that are tending to eggs and young chicks.
- Keeping dogs off the beach means that adult birds are not scared away from protecting their eggs and young chicks. When adult birds are undisturbed they can protect their eggs from bad weather and predators.
- By picking up your trash you make beaches less attractive to predators and more attractive to people. Less predators on the beach means that more eggs and chicks survive.

ANSWERS TO SOME FREQUENTLY ASKED QUESTIONS

Here are examples of questions beach stewards are frequently asked and suggested answers.

Why is it harmful to disturb beach-nesting birds?

- When people enter fenced areas, they can accidentally step on eggs and chicks that are perfectly camouflaged to blend in with their surroundings.
- Disturbances, including dogs on the beach and people, can scare adult birds away from their nests and prevent them from foraging, resting or roosting, all of which are essential to their survival.
- When adults leave their nests, eggs and chicks become vulnerable to predators and extreme temperatures, which can kill them in a short period of time.
- Trash left on the beach can attract predators to nesting areas.



What it's all about: bird tracks on a clean beach



Breeding and nesting birds like these Royal Terns need protection from disturbances of all kinds.

Why is it important to protect these birds?

- [Depending on the species...] For one thing, it's the law. These species are protected by state and federal laws. (See "Federal Laws That Protect Coastal Birds" in **Tools, Guidelines, and Other Resources**, page 55.)
- They are rare, threatened, or iconic species, and with a little help from you their future is more secure.
- Coastal birds add to the quality of experiences for people along the coast and we want generations to come to have the opportunity to enjoy these species on our beaches
- Fencing that protects these species also helps protect habitat for other native species, including plants. Fencing also helps to protect sensitive dunes.
- When these birds are successfully breeding on our beaches it means our beaches are healthy places for them and us.

Why is this area posted and off-limits for people?

- Habitat for coastal birds, especially beach-nesting birds, is declining for several reasons, including development, disturbance, sea-level rise, and other causes.
- Symbolic fencing allows space for the birds to nest and raise their young. Eggs and chicks are camouflaged so it's hard for predators to see them, but that same camouflaged coloration makes it difficult for people to see them, too.
- The posts, string, and signs help remind people that they are sharing the beach with nesting birds and need to stay a safe distance away.

Why are dogs bad for birds?

- An unleashed pet can chase birds or crush eggs or chicks. But even a leashed dog can cause trouble because birds perceive dogs as predators and will fly off their nests or away from their chicks even if the dog is

not chasing them. The birds often fly away at the sight of a dog that is well outside the posted area—even one that is walking calmly on a leash

SCENARIOS BEACH STEWARDS MIGHT FACE

- *There's a dog on a beach where dogs are not allowed.* Politely inform the dog's owner that dogs are not allowed on the beach. Often, people respond well if it seems a beach steward is doing them a favor by helping them avoid a costly ticket. In any case, talking to the owner is especially important if the dog is causing the birds to flush because it represents an opportunity to stop the disturbance immediately, before eggs or chicks are lost.
- *A person has walked into a colony of birds.* Without entering the colony, talk to the person and politely ask them to leave, following their footsteps out.

- *People are engaging in some type of activity (kite-flying, parasailing, playing ball, etc.) that is causing the birds to fly up.* Politely ask them to move away from the colony so as not to disturb the birds, and share with them the unique behavior of the birds and why they are “mobbing.” Suggesting an alternate location is usually well received.
- *Many birds in a colony suddenly fly up.* Look to see if they are chasing a crow or gull. If they are, no action is required. If it isn’t apparent what is causing the disturbance, move to where you can see the source of the disturbance to make sure it is not a person.

KEEPING A DAILY JOURNAL

A daily journal is an important way to capture information about each stewardship site. This will enable you and all volunteers to better understand the birds, the effects of environmental conditions, potential and observed threats, and people. Each of these will help to improve the stewardship program going forward and can add very important information that will help advance the conservation of coastal birds. Here are some general guidelines for a daily field journal:

- Record field notes each time that you are at the stewardship site; re-

cord the notes in the moment so that no details will be overlooked.

- Begin each entry with the date, site name, a brief weather description (include temperature, cloud cover, wind speed, wind direction, any other noteworthy weather conditions).
- Record your time of arrival and departure and who is in your group if you are working as a group.
- Record information about the birds: birds observed (species and numbers), other noteworthy wildlife, survey or monitoring data, habitat or other changes, bird behaviors, and all noteworthy observations of birds, people, other wildlife, weather or other.
- For nesting birds, record status of the birds such as courtship, nest-building, incubation, first or last chicks hatched, first or last chicks fledged, predation, disturbance, and any other observations.
- If you are at a site that is frequently visited by people, record the number of people, pets on and off leash, evidence that dogs have been there; how the birds respond to people or their pets, vehicles, recreation activities, and anything else that is noteworthy.
- At the end of your time in the field, take a few minutes to write a brief summary of the events and observations of the day.
- If in doubt, write it down.

(See **Tools, Guidelines, and Other Resources**, page 53, for an example of a decent/volunteer steward field notebook.)

It is good practice to record all of your observations, large or small, in your field



Volunteer stewards use their field journals to record important information about what’s happening with the birds on the beach.

journal. You never know when a seemingly small bit of information could be of great importance to advancing coastal bird conservation. Lastly, it is a good idea to make copies of your field notes and put them in a safe place. They are the only record of all of the information that you have collected.

REPORTING A “TAKE” OF A PROTECTED SPECIES

Under the Endangered Species Act, “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct.” The information below provides guidance in the event a beach steward witnesses or suspects a take has occurred. The information is the general standard operating procedure. Any observed or apparent take should be reported to a state or federal wildlife agency for any federal- and state-protected threatened or endangered species.

“To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be.”

—Rachel Carson, *The Edge of the Sea*



Recording information in a field journal

What to be on the lookout for:

- A dead bird, broken eggs, or missing nests;
- Off-road vehicles in the fenced area or evidence thereof;
- Someone deliberately harassing the birds or vandalizing the fences, signs, or enclosures;
- A pedestrian within the fenced area or evidence thereof;
- Unauthorized removal of fencing;
- Dogs off the leash around or in the fenced area; or
- Any other suspicious activity or signs of such activity.

What to do:

1. Contact the personnel identified as those to be contacted in case of an emergency.
2. Document the scene. If two stewards are at the scene, one person should notify the appropriate agencies and the other should document the incident and the scene. If there is only one steward, the steward should spend 10–15 minutes documenting the evidence with photographs and notes, notify appropriate agency personnel, and guard the scene until a law enforcement officer arrives.

The information is needed by law enforcement officers and biologists to better understand what happened at the scene. It is very important to notify the appropriate agencies and document the scene. In general, it is best to keep the scene as undisturbed as possible in order for the law enforcement officials to investigate. Therefore, leave everything untouched unless otherwise instructed by U.S. Fish and Wildlife Service or state wildlife officer. Stewards and land managers should develop a protocol for dealing with after-hours or weekend incidents.

Very important: Individuals participating in a stewardship program do not represent law enforcement and have no special privileges. At no time should you endanger yourself by confronting anyone suspected of being involved in a take of a protected species. This is the job of a trained law enforcement official.

5

TOOLS, GUIDELINES, AND OTHER RESOURCES



28 Jan 2016
Mostly Sunny 25° SW 10-15
25.29067, 078.13627
#7 Mixed flock of shorebirds (~1000)
mostly SBDO + BBRL @ 1km 135°
from our location + lat lang above
REEG (2W) GREY 5 flyby
EBH 1 ~100 sun uid shorebird
A in mangroves leading to flat
least 3, prob more.

Roost site @ Middle Bight
near camp 2
PIPL 60 PL=57
WIPL 11 PL=8
RUTU 1
LESA 3 PL=1
SEPL
WESA 54 - PL=28
SAND 2 - PL=4
REKN 1 - PL=1

Amoy 2
on Nend
of Camp
site

#9 start 1220 - 1239
Near Camp 3
ROYT 4
LBBG 1
WIP

#10 Nend of Inlet
start 1315 - 1400
PIPL 47 PL=42
WESA 26, PL=
SAND 2
WIPL 1
LESA 12
Count 2 from
PIPL 57
PIPL Band W
PIPL Band P
WESA 49
SAND 1
WIPL 1
LESA 17

Full Sand
25.3370
SBDO 3
REKN
BBPL
MADO

Bands
PIPL ULG UR GF PE2
PIPL PF 94
PIPL PF 53
PIPL PF 50



Campaigns like “Be a Good Egg” bring communities together to help nesting birds.

PART 5:

TOOLS, GUIDELINES, AND OTHER RESOURCES

INSTALLING AND MAINTAINING SYMBOLIC OR STRING FENCING

“Symbolic fencing” or sometimes called “string fencing” is a common method for protecting birds from human disturbance. This fencing provides a safe space for birds to nest and feed, as it prevents human, pet and vehicular disturbance. Fencing and signs serve as a reminder that the boundaries of bird habitat should be respected to ensure bird survival and nesting success. The presence of a beach steward, along with local outreach, is essential to successfully prevent disturbances, but is not a substitute for symbolic fencing. The physical barrier created by symbolic fencing is essential to preventing disturbances. Note that in most places it will be necessary to secure authorization or a permit from the property owner or other jurisdictional authority (such as local conservation authority or U.S. Fish and Wildlife Service) to install symbolic fencing.

The eggs and chicks of coastal birds blend in perfectly with sand and their surroundings, which makes them easy to step on if they are not protected. Symbolic fencing that includes the entire nesting area eliminates this threat and creates a safe buffer distance between birds and disturbance from

people. It is widely used and has been proven over and over again to be essential to protecting coastal birds.

Roping Off Nesting Sites: General Guidance

When roping off nesting sites, ample space at the nesting site along with an adequate buffer is critical. In some cases, a corridor to foraging habitat is necessary. These feeding corridors allow chicks and adults access to foraging habitat and reduce human disturbance on vulnerable chicks by limiting active or ongoing beach activities in areas where they feed. For example, after hatching, Piping Plover chicks must navigate their way to the foraging habitat to feed themselves, so they need feeding corridors to protect their access to foraging habitat. Terns and skimmers bring food to their chicks, but access to the intertidal areas is also important, especially during the extreme temperatures of summer. Each site has different symbolic fencing requirements. Researching and planning beforehand is critical to protecting nesting areas.



Symbolic fencing is a vital tool for protecting nesting shorebirds.

Understanding the seasonality and extent of habitat used by birds are important. Symbolic fencing for nesting birds should be erected before the birds arrive and initiate courtship and nesting activities. General guidance is to have the symbolic fencing established at least one week before the arrival of the first nesting birds of the season. It should cover all of the potential habitat that will be used by the birds. Doing so will ensure that birds have access to the habitat they need for nesting and that threats from disturbance do not cause the birds to abandon the site before the nest building and egg laying period. This is especially important for areas with the potential for heavy, chronic disturbance. The fencing should be left up for at least two to three weeks after all chicks have fledged if fledged chicks and adults are still using the area or until all adults and chicks have departed the area.

“No aspect of nature on this beach is more mysterious to me than the flights of these shorebird constellations. ... Birds which have been feeding yards away from each other, each one individually busy for his individual body’s sake, suddenly fuse into this new volition and, flying, rise as one, coast as one, tilt their dozen bodies as one, and as one wheel off on the course which the new group will has determined.”

—Henry Beston, *The Outermost House*

Southbound migration and the nesting season overlap in many regions of the U.S. Symbolic fencing established for nesting, especially at inlets, will benefit migrating shorebirds if it is left up. The fenced areas of beaches and islands will provide a safe resting and roosting areas for these birds during high

tide and when they are not foraging. The fenced areas should be adjusted wherever possible to include foraging habitat so that shorebirds can forage without chronic disturbance.

Understanding the timing of migration and overwintering is equally important. For non-breeding birds, they may only use the sites for several weeks or months, depending on the site and species, but for these months the sites are very important and deserve proper stewardship. In areas where chronic disturbance is a threat, establishing symbolic fencing to allow birds to have access to the habitat they need is important and will help them accumulate the fat reserves they need to make the next leg of migration or survive the winter.

Supplies Needed

Symbolic fencing requires a number of different supplies: signs, posts, string, flagging, and the tools to install them. Signs for use in the coastal environment should be waterproof and sufficiently rigid to withstand wind, rain and salt spray. Hardware and tools needed include hammer and nails or a battery powered drill and screws to affix signs to posts, posthole diggers or other digging tool, a pocket knife or scissors to cut rope or string, mallets or other device to pack sand and secure posts, work gloves, protective footwear, and safety glasses.

The most common signs have clear and concise regulatory language such as “Area Closed” or “Entry Prohibited,” in a large, clear font that can be easily read from a distance. (See **Helpful Resources**, page 56, for examples of signs and a template.) Additional information can



Student-created art helps get the message across.

be included on the signs, such as the range of dates when the area may be closed, contact information to report violations, penalties for violations, graphics for no entry or no pets, the logos of the responsible agency/organization and partners. Informational signage with messaging about the birds, importance of the habitat, why disturbance is a threat or other information is sometimes used to complement the regulatory signs.

Please see “Working with Schools to Create Original Signs for Beach Stewardship,” below, for a new and innovative approach to getting school students involved in making signs.

Posts can be made of any variety of materials: wood, plastic, fiberglass, metal or other material. The most commonly used posts are 2”x2” wooden posts that are 8’ in length, and can be treated or untreated. Treated posts generally last longer and can be used for multiple seasons. Spacing between posts should be sufficient so that a beachgoer approaching the symbolic fencing will clearly see a sign and that string between signposts will not sag or blow around in the wind. In most cases, 100’ to 125’ between signs will work. The signposts should be installed so that the signs are at eye level, or about five to six feet above ground. This will enable them to be easily seen by beachgoers.

“Plans to protect air and water, wilderness and wildlife, are in fact plans to protect man.”

—Stewart L. Udall



String or rope between signposts is an essential component of symbolic fencing on beaches and other high-traffic areas. It is the string or rope that creates a physical barrier to beachgoers who may not be paying attention to signage regardless of the wording. There are advantages and disadvantages to string and rope. Nylon string is resistant to water and wind and less likely to cause signposts to bend or break, and is also less expensive, easy to repair if cut, and easy to transport. Nylon string will also break if hit by an ATV, cyclist or vehicle, and is not likely to cause injury or damage. In at least one instance, the operator of an ATV was killed by hitting symbolic fencing with rope while traveling at a high rate of speed. Rope is more visible and is less likely to break or be cut, but it can present a hazard to an inattentive cyclist or ATV rider. If hit by a vehicle, the signposts will often break and the signs will be dragged through the nesting area and destroying nests with eggs and possibly chicks. Regardless of the material used, the visibility of the rope or string should be enhanced

with flagging or duct tape. Short strips of tape or flagging, 4” to 5” in length, should be tied every 10’ to 20’ along the string. Longer strips can be disruptive to birds.

After set up, regular maintenance and inspection of the symbolic fencing is important, especially after weather events such as storms or high tides that can break or topple posts with signs. Inspection of the fencing should be made daily, if possible, and repairs should be made immediately if needed.

With increased awareness of shorebirds as imperiled wildlife and knowledge of their habitat and energetic needs, beachgoers and coastal residents will have the option to adopt a new set of cultural expectations when visiting the shore. Allowing flocks to roost or feed undisturbed, keeping dogs away from nesting areas, and respecting and enjoying postings are all behaviors that can be encouraged by peer pressure generated by an increasingly informed public.

Buffer Distances

Several studies have addressed the reaction of nesting birds to human disturbances and provide recommended minimum setback distances. These recommended setback distances are the minimum distances at which recreation activity (including people and vehicles) should be kept from incubating birds and adults with chicks to avoid disturbances. In some cases buffer distances may extend into the water or include habitat that is not suitable

for birds (parking lots, shrub thickets, roads, structures, etc.). If so, then areas that are not suitable or accessible to coastal birds should be excluded from symbolic fencing.

Islands present a different challenge. Remote islands are increasingly becoming attractive for recreation and camping. Boats approaching islands can cause disturbance that can be detrimental to nesting birds and their chicks. As such, posting islands is

essential to controlling disturbance. Signs with posts are usually placed at the high tide line; those placed below the high tide line will often wash away. Where possible and where permitted by law, floating markers can be used to delineate a safe distance for boaters.

Setback (buffer) distances for placement of symbolic fencing from waterbirds and shorebirds are listed in the following table.

Species	Minimum Setback
 Common Tern	200 m (Erwin 1989, Rodgers and Smith 1995)
 Least Tern	200 m (Erwin 1989, Rodgers and Smith 1995)
 Black Skimmer	200 m (Erwin 1989, Rodgers and Smith 1995)
 Piping Plover	50 m (USFWS 1996); 200 m (Loegering 1992, Avery et al. 2004)
 American Oystercatcher	150 m during incubation (Sabine et al. 2005)
 Western Snowy Plover	20-30 m (USFWS 2007)
Non-breeding shorebirds and seabirds	100-140 m; all high-quality foraging habitat and adjacent high tide rest and roost habitat should be included (Rodgers and Smith 1997, Rodgers and Schwikert 2002).
Additional recommendations:	<ol style="list-style-type: none"> 1. Increase setback distances 100 m early in the nesting cycle (during courtship, nest building, territory establishment) due to heightened sensitivity of terns and skimmers to disturbances during this period (Erwin 1989). 2. Increase setback distances an additional 100 m in areas where dogs are permitted (Hunter et al. 2006). 3. For nesting Piping Plovers, increase buffer zones from 50 m to 100 m any place that disturbance of plovers by recreation is observed, then increase to 200 m if disturbance persists (Cohen 2005). 4. For nesting Western Snowy Plovers, at Oceano Dunes State Vehicle Recreation Area, vehicles prohibited within 100 ft of perimeter fencing, including camping, stopping, or parking (California State Parks 2017).

USFWS notes that “fencing should be expanded in cases where the 50-meter radius is inadequate to protect incubating adults or unfledged chicks from harm or disturbance. Data from various sites distributed across the plovers’ Atlantic Coast range indicate that larger buffers may be needed in some locations...”(USFWS 1996:192). As an example, USFWS notes that “Assateague Island National Seashore established 200 meter buffer zones around most nest sites and primary foraging areas” (USFWS 1996: 192).

WORKING WITH SCHOOLS TO CREATE ORIGINAL SIGNS FOR BEACH STEWARDSHIP

This project is most appropriate for students in grades 5 through 8.

- 1. Finding a partner school:** A quick call to the local Audubon chapter or schools near to the site is a good first step to identify an elementary or middle school interested in developing a beach stewardship project to protect coastal birds. Any school can participate, but schools near the project site will have the best opportunity to see the birds firsthand, may be able to assist with putting up the signs, and they can follow the birds through the season. An added benefit from involving local schools is the connection with the local community, parents, and opportunities to raise awareness throughout the community.
- 2. Finding a teacher:** A beach stewardship project involves many of the core subjects taught in elementary and middle schools, including

language arts, science, and art. The project could involve 1-3 class periods and a teacher willing to dedicate the amount of time needed to introduce the students to the birds and create original artwork and messages for signs is essential. The project should be developed to be consistent with the curriculum requirements of the school and a discussion with the teacher or school administrators will ensure that the project can be tailored to the school's and grade's curriculum.

- 3. Introducing the class to beach-nesting birds:** Preparation for introducing students to beach-nesting birds should begin during winter, long before nesting birds will begin to gather on the beach. Work closely with the teacher to find a date when the stewardship project leader can visit the class (or classes) to present information about beach-nesting birds. Important information to include would be the birds' life



Audubon's innovative program for engaging students in making signs to protect birds on the beach has been a big success in many places.

history, threats the birds face, what they need to be successful, why disturbance is harmful to them, and how people can help. Show plenty of good photographs of the birds and their nests, and explain that the class will be helping to protect birds by making signs to convince beachgoers to avoid disturbing nesting, migrating, or wintering birds. This initial presentation might take an hour.

- 4. Creating the artwork:** On a second visit (or as a continuation of the first visit), introduce the species of birds that are present at the project site and show plenty of good, well lit, high quality photographs. It is important for the students to know the size, shape, plumage characteristics and colors of the birds so they can create their signs. It can be helpful to make 8x10 prints, laminate or put in sheet protectors so they can be handled, and have the prints available as reference material for the students. The charm of the project is that local students will create original artwork for the signs and the artwork with their original messages will be on display to protect the birds.



Signs with student-made art draw attention to their important messages.



5. Creating original messages to go with the artwork: The artwork on the signs should feature an original message from the student related to coastal bird conservation. The messages will largely be derived from the information provided to the students. They should fit the goals of the beach stewardship program and also be courteous and respectful to all beachgoers. This activity might take an hour or more and some students might take their artwork home to complete it.

Some considerations for producing artwork as signs:

Medium: Markers or crayons are best because they produce bold colors that will reproduce nicely on the signs. Colored pencils or standard pencils are too light and too low-contrast to show up well on signs. Paints can be used, but the colors, lines or other features should have contrast and be bold enough to reproduce on signs.

Paper: Any medium to heavy weight art or poster paper will work. Copy paper or other lightweight papers should be avoided.

Size: The size limits for the artwork should be established before the students begin and it should be consistent with the desired size of the sign and sign material. Sign manufacturers can produce signs at any size desired, but there are important considerations. Signs that are too small will not be easily visible to beachgoers; too large and they may blow down or break the signposts during high winds. Standard sign sizes between 8x10 and 11x17 (landscape or portrait) should work nicely.

Message/branding: Standard text, the organization's logo, or contact information can be added after the artwork is scanned, so do not worry about having the children draw in these features. For examples of signs and a template, see **Helpful Resources**, page 56.

6. Preparing the artwork for signs: The best way to display the artwork on the beach and to have it last for one or more seasons is to transfer the art to rigid sign material. This is most easily done by scanning (or photographing) the art at print quality resolution (generally 300 dpi and 100% of original size). Text, logos or other graphics can be added to the digital files, if desired. A local sign shop should be able to recommend a variety of waterproof sign materials that would be suitable. Allow several weeks for the signs to be made.

“When I hear of the destruction of a species, I feel as if all the works of some great writer had perished.”

—Theodore Roosevelt

An alternative method of preparing the artwork for display is to laminate the art. This method is less desirable because of the harsh environment of the beach, exposure to wind and rain, the difficulty in affixing the signs to posts or string, and the laminate material is rarely waterproof. Artwork that is laminated for use as signs will usually last only a few weeks before it succumbs to the elements.

7. Installing the signs: Please see “Installing and Maintaining Symbolic or String Fencing,” page 39 above, for recommendations on the installation of the signs. Note that signs will need to be approved by the property owner or other jurisdictional authority. Consider organizing an event to invite the community to assist with sign installation, or ask the students to help put up the signs.

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

WORKSHEET: SITE ASSESSMENT

1. Species of birds using this site:

2. Local, state, and federal laws/regulations regarding these species in this region:

3. Coastal birds use this site for nesting migration stopover overwintering.

4. Approximate dates when each species arrives/departs: _____

5. Site owner/manager and contact information:

6. Threats/types of disturbance affecting birds here:

7. Owner/manager's priorities/concerns:

8. Local, state, and federal laws/regulations regarding this habitat:

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

WORKSHEET: PROJECT PROPOSAL

1. Mission statement:

2. Project description:

3. Project goals:

4. Participants/roles and responsibilities:

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

WORKSHEET: PROJECT PROPOSAL (CONT.)

5. Potential partners:

6. Materials/equipment required:

7. Funding requirements:

8. Other needs:

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

WORKSHEET: POTENTIAL LOCAL PARTNERS

1. Conservation organizations:

2. Law enforcement agencies/authorities:

3. Elementary, middle, and high schools:

4. Colleges and universities:

5. Community leaders:

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

CHECKLIST: TRAINING MATERIALS/INFORMATION FOR VOLUNTEER STEWARDS

About the Birds

- Species identification and general behaviors
- Life histories, biology, ecology, and habitat needs
- Threats to birds in general and specifically at this site
- Conservation status and legal protections for birds

About the Site

- Other wildlife using the habitat; vegetation; other relevant features of the site
- Chronology of use of the site by birds or other wildlife
- History of the site—natural, cultural, ownership, visitors, other uses

About the Project

- Overview of the project vision, goals, strategies, and actions
- Need for and goals of stewardship
- Stewardship program leaders, project leaders, volunteer coordinators, stewards, partners, and others involved

About Being a Steward

- What a steward is (educator) and is not (law enforcement officer)
- Tips for interacting with the public
- Answers to frequently asked questions
- Tips on dealing with conflicts and difficult people
- Procedures for dealing with sick or injured wildlife
- Proper attire and equipment
- Safety and emergency guidance, protocols, and contacts
- Programmatic contacts, websites, and resources

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

WORKSHEET: STRATEGY FOR COMMUNICATING WITH VOLUNTEERS

1. Person responsible for communicating with volunteers:

2. Method(s) of communicating (email, telephone/text, social media, etc.):

3. Communication strategy/goals (e.g., regular updates, special occasions/events, milestones, etc.):

WORKSHEETS FOR BEACH STEWARDSHIP PROJECT ORGANIZERS/LEADERS

VOLUNTEER INFORMATION FORM

Name:

Contact information: Telephone number(s), email address, home address

Name and contact information for person to contact in case of emergency

Medical/physical conditions that may affect stewardship activities

General information about availability for stewardship work (days, hours, etc.)

Special skills that may be relevant to stewardship activities

WORKSHEET FOR BEACH STEWARD VOLUNTEERS

IMPORTANT/EMERGENCY NAMES AND PHONE NUMBERS

Program Coordinator:

Site owner/jurisdictional contact:

Law enforcement contacts:

Wildlife enforcement contacts:

Bird/wildlife rescue organizations:

Dog enforcement contact:

WORKSHEET FOR BEACH STEWARD VOLUNTEERS

STEWARD FIELD NOTEBOOK

Date: _____

Site name: _____

Who was with you: _____

Weather (include temperature, cloud cover, wind speed, wind direction, and any other noteworthy weather conditions):

Time of arrival: _____

Time of departure: _____

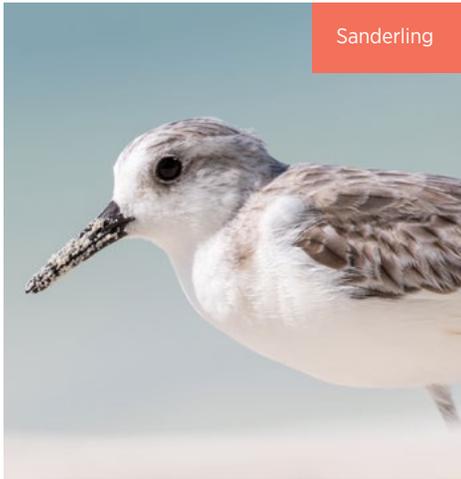
List of birds and abundance:

Noteworthy observations about birds (courtship, nest building, incubation, chicks, fledglings, banded birds and associated details, predation or predators, disturbance, etc.):

Noteworthy observations about the site (disturbance, people, condition of symbolic fencing, vehicles, dogs or other pets, etc.):

Summary of the day:

AUDUBON'S GUIDE TO ETHICAL BIRD PHOTOGRAPHY



The first essential element in bird photography is a sincere respect for the birds and their environment. In any conflict of interest, the well-being of the birds and their habitats must come before the ambitions of the photographer. Here are some basic guidelines.

Avoid causing unnecessary disturbance or stress to birds.

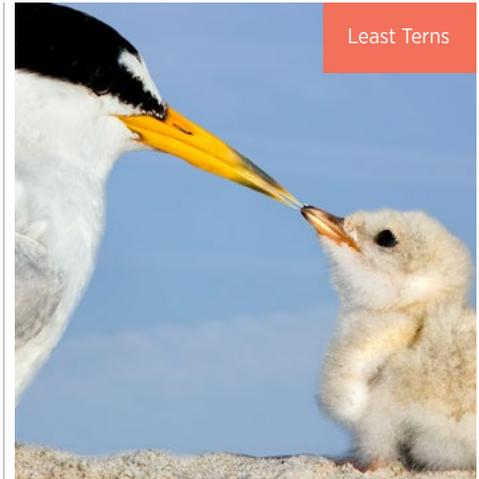
- Use a telephoto lens or a blind for close-up shots. If your approach causes a bird to flush (fly or run away) or change its behavior, you're too close.
- Some birds may "freeze" in place rather than flying away, or may hunch into a protective, aggressive, or pre-flight stance. Watch for changes in posture indicating that the birds are stressed, and if you see these, back away.
- Never advance on a bird with the intention of making it fly.
- Use flash sparingly (if at all), as a supplement to natural light. Avoid the use of flash on nocturnal birds at night, as it may temporarily limit their ability to hunt for food.



- Before sharing locations of specific birds with other photographers or birders, think carefully about potential impacts to the birds or their habitats.
- Concern for birds' habitat is also essential. Be aware of your surroundings. Avoid trampling sensitive vegetation or disturbing other wildlife.

Nesting birds are particularly vulnerable, and need special consideration

- Obey symbolic fencing and keep a respectful distance from the nest. If the adult leaves the nest, you're probably too close. Telephoto lenses of at least 500mm or more are recommended.
- Avoid flushing the adults or disturbing the young, or doing anything to draw the attention of predators to the nest. For example, repeatedly walking to a nest can leave both a foot trail and scent trail for predators.
- Do not move or remove anything around the nest, as it may be providing both essential camouflage and protection from the elements.



- Never use drones to photograph nests, as they can cause injury and stress to the nestlings and parents.
- Avoid flushing foraging shorebirds and all birds gathered at resting or roosting areas.
- Luring birds closer for photography is often possible with songbirds, but should not be attempted with shorebirds or seabirds.
- Show respect for private and public property, and consideration for other people. Enter private land only with permission. On public property such as parks and refuges, be aware of local regulations, hours, and closed areas.
- In group situations, be considerate of other photographers and birders who may be watching the same bird. Remember that your desire to photograph the bird doesn't outweigh the rights of others to observe it. Remember also that large groups of people are potentially more disturbing to birds, so it may be necessary to keep a greater distance.

FEDERAL LAWS THAT PROTECT COASTAL BIRDS

Federal and State Laws

Endangered Species Act (ESA)

16 United States Code (USC) 1531 – 1544;
50 Code of Federal Regulations (CFR) 17
Endangered species
Listed 12/11/1985

50 CFR 17.21(c): Take. (1) It is unlawful to take endangered wildlife within the United States, within the territorial sea of the United States, or upon the high seas. The high seas shall be all waters seaward of the territorial sea of the United States, except waters officially recognized by the United States as the territorial sea of another country, under international law.

“Take” under ESA is defined as: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Migratory Bird Treaty Act (MBTA)

16 USC 703 – 715; 50 CFR 10
Migratory Birds
Listed 50 CFR 10.13

50 CFR 21.11: No person may take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such bird except as may be permitted under the terms of a valid permit issued pursuant to the provisions of this part and part 13 of this chapter, or as permitted by regulations in this part, or part 20 of this subchapter (the hunting regulations), or part 92 of subchapter G of this chapter (the Alaska subsistence harvest regulations). Birds taken or possessed under this part in “included areas” of Alaska as defined in § 92.5(a) are subject to this part and not to part 92 of subchapter G of this chapter.

DEFINITIONS:

“Take”: To pursue, hunt, shoot, capture, collect, kill, or attempt to engage in any such conduct.

Harm: An act which actually kills or injures 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.

Harass: 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.



A young beach steward in St. Augustine, Florida, with an important message

HELPFUL RESOURCES

Click [HERE](#) for resources in support of coastal stewardship programs, developed by the Audubon Network and other conservation organizations that support coastal bird stewardship programs and activities. They include examples of best practices, guidelines, training materials, conservation plans, and educational materials and activities for young people, as listed below.

Examples of Beach Steward Training Materials

Audubon Florida Bird Steward Manual
Audubon Guide to Sharing the Beach with Shorebirds
Be a Good Egg Volunteer Training
Louisiana Beach Bird Stewardship 101
South Carolina Steward Training Presentation

Examples of Bird Identification Sheets for Beach Stewards

Beach-nesting Bird ID, Wrightsville Beach NC
Bird ID Cheat Sheet, Dewees Island SC
Connecticut Shorebirds
Pinellas County FL Bird ID Handout

Examples of Information Beach Stewards Use to Educate Beachgoers About Dogs on the Beach

“Eco-Dog’s Beach Guide,” Santa Barbara CA
“Dogs on the Beach,” Venture County CA

Bird-Friendly Boating Guidelines – Florida Examples

Boca Ciega Bay Boater’s Guide
Boater’s Guide to Clearwater Harbor & St. Joseph Sound
Hillsborough Bay Boater’s Guide
Hillsborough Bay Boater’s Guide, Spanish
Lower Tampa Bay Boater’s Guide

Coastal Bird Environmental Education Materials for Young People

Audubon Adventures “Sharing Our Shores” Student Magazine
Audubon Adventures “Sharing Our Shores” Student Poster
Audubon Adventures “Sharing Our Shores” Educator’s Guide
Audubon Adventures “Seabirds: Feathered Ocean Travelers” Student Magazine
Audubon Adventures “Seabirds: Feathered Ocean Travelers” Educator’s Guide
Audubon Adventures Seabirds Hands-on Activity: “Just Beak It!”

Ideas for Making Kids’ Signs for Bird Stewardship

How to Make Share the Shore Art Signs, Audubon California
Kids’ Beach Sign Template
Kids’ Beach Sign Example – Contest Winner

Guidelines for Law Enforcement Driving on the Beach

Florida Guidelines for Law Enforcement Driving on the Beach

Coastal Bird Conservation and Recovery Plans

Guidelines for Piping Plover Breeding Habitat-Atlantic, USFWS
Guidelines for Piping Plover Breeding Habitat-Addendum, USFWS
Western Snowy Plover Pacific Coast Population Recovery Plan, USFWS
Southeast U.S. Regional Waterbird Conservation Plan
North American Waterbird Conservation Plan
The U.S. Shorebird Conservation Plan
Pacific Shorebird Conservation Strategy, National Audubon Society
Atlantic Flyway Shorebird Initiative

Sample Photo Releases for Children and Adults Participating in Coastal Bird Stewardship Programs

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Coastal Bird Stewardship Toolkit Acknowledgments

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Royal Terns



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