American Oystercatcher

Best Management Practices

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American Oystercatcher Working Group

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Introduction

American Oystercatchers (*Haematopus palliatus*) are large, conspicuous shorebirds that are strictly tied to the coastal zone throughout the year. Unlike many shorebirds that breed in the Arctic and migrate to coastal regions in the winter, American Oystercatchers in the United States breed along the Atlantic Coast from Cape Cod to Florida, and along the Gulf Coast from Florida to Mexico (American Oystercatcher Working Group 2012). The winter range extends from central New Jersey south through the Gulf of Mexico. The most recent comprehensive population estimate comes from a 2003 aerial survey of the species' winter range which estimated 10971 individuals (+/-298), with 7500-8000 wintering on the Atlantic Coast (Brown et al. 2005).

American Oystercatchers are listed in both Georgia and Florida as "threatened", and as a "species of special concern" in North Carolina (North Carolina Wildlife Resources Commission 2008). The American Oystercatcher Conservation Plan lists American Oystercatchers as a high priority species (Schulte et al, 2010), in part because of significant threats from development, recreational activity, and altered predator communities that have substantially reduced the available habitat and reproductive success of beach nesting birds.

Like many long-lived species, Oystercatcher reproductive rates tend to be highly variable but generally low (Evans 1991, American Oystercatcher Working Group 2012, Davis et al. 2001, Wilke et al. 2005, McGowan et al. 2005a, Traut et al. 2006). This means that the species is unable to recover quickly from population declines. These traits also make it difficult to assess the status of a population because populations can persist for many years, even if reproductive success is low. The breeding population of Virginia's barrier islands, a historical stronghold for Oystercatchers, fell from 619 breeding pairs in 1979 to 255 breeding pairs in 1998 (Davis et al. 2001). A 2004 survey that covered the same region estimated the population at 302 breeding pairs (Wilke et al. 2005). This survey also covered lagoon and marsh habitat and found an additional 223 pairs. These results and earlier work (Lauro and Burger 1989) suggest populations may be moving into non-traditional habitats, and highlight the need for additional work in marsh and upland habitats not normally associated with Oystercatchers. During the period of apparent decline in the mid-Atlantic, the species expanded its breeding range into the northeastern United States (Davis 1999, Mawhinney and Bennedict 1999, Nol et al. 2000, Davis et al. 2001).

This document outlines key threats to American Oystercatchers and associated beach nesting birds and describes management practices that represent the most effective means of addressing these threats. Management actions are proposed that focus on restoring and creating habitat, controlling

predation and reducing disturbance, and educating and engaging the public in conservation as well as working with local, state and federal agencies.

Goals

The business plan for recovery of American Oystercatcher Populations calls for coordinated management of oystercatcher populations with the stated intent to increase populations using best management practices (Brown et al 2008). This document presents management options to coastal managers interested in maintaining and increasing populations of American Oystercatchers and associated beach-nesting birds through management actions that influence survival and reproductive success. We provide a science-based approach to understanding and influencing factors affecting habitat use, reproductive success and survival of American Oystercatchers across a range of habitats in the Eastern United States. This document is based on work conducted by the American Oystercatcher Working Group from 1997-2011 and is intended for use by federal, state and private biologists, and other land managers.

Conservation Concerns

As an obligate coastal species, American Oystercatchers are at risk throughout their range from changing patterns of land use in the coastal zone. Human population growth is widespread in coastal areas, and recreational use is also on the rise. Many visitors to the coast seek out undeveloped beaches. As coastal islands and beaches are developed, more visitors are concentrated onto the remaining undeveloped areas. These anthropogenic changes place growing pressure on natural communities along the coast. As a beach-nesting species, *H. palliatus* is particularly vulnerable because the nesting season typically coincides with the peak of human activity on beaches. Primary factors of conservation concern are:

1. Low overall population size: Despite its extensive range, the overall population size is estimated at only ~11,000 individuals in the United States (Brown et al 2005)

2. Widespread habitat loss: *H. palliatus* is restricted to a narrow range of coastal habitats, and the development of beaches, barrier islands, and marshes is a serious concern for the species;

3. Threats during the breeding and nonbreeding seasons: Populations also face pressure from recreational disturbance, increases in nest predators, potential contamination of food resources, and alteration of habitat through beach stabilization. Consequently, the species has low reproductive success throughout much of its range.

4. Climate change: As an obligate coastal species, *H. palliatus* is particularly vulnerable to effects of sea-level rise. Changes in storm frequency, average temperature, and rainfall patterns are all potential disruptors as well.

Associated Species

The community of beach nesting birds that are associated with American Oystercatchers in the United States includes Piping Plover (*Charadrius melodus)*, Wilson's Plover (*Charadrius wilsonia*), Snowy Plover (*Charadrius nivosus*), Willet (*Tringa semipalmata*), Least Tern (*Sternula antillarum)*, Common Tern (*Sterna hirundo)x*, Forster's Tern (*Sterna forsteri)*, Sandwich Tern (*Thalasseus sandvicensis)*, Royal Tern (*Thalasseus maximus)*, Roseate Tern (*Sterna dougallii)*, Caspian Tern (*Hydroprogne caspia)*, Gull-billed Tern (*Gelochelidon nilotica)* and Black Skimmer (*Rynchops niger*). In addition many waterbird species use the same nesting islands, and arctic nesting shorebirds share the many of the same habitats during migration and winter.

American Oystercatcher Biology

Identification

Large, pied shorebird (40–4 4 cm long; 400–700 g), dark above on head and mantle, white on breast and flanks. Long, straight, bright red to orange bill. Long, pale pink legs, lacks hallux. Bright yellow iris, sometimes with dark flecks. Shows narrow, white wing stripe in flight. Long reddish bill laterally compressed. Yellow eyes with red eye ring and black head and neck, contrasting with brown mantle, distinguishes this from other species. Males and females visually indistinguishable. Juveniles have varying degrees of dusty orange to gray on bill and mottled brown feathers on back until fully mature. Otherwise similar to adult. (Bird of North American Online 2012).

Breeding Biology

The breeding season begins in late January in the Gulf of Mexico and Georgia (B. Winn, S. Heath, unpublished). By Mid to late March most Oystercatchers are back on territory in New England at the current Northern limit of their range. Oystercatchers form pairs and lay 2-3 eggs in a shallow scrape on sand or other exposed substrate. Eggs are incubated for ~27 days. In the event of a failed nest a pair typically waits 10-14 days and then re-nests. Pairs may re-nest up to four times during a nesting season, but will usually not try to re-nest after early July. When a nest hatches both parents care for the young, bringing food items, brooding the young chicks, and defending against predators. The pre-fledging period takes 35-40 days for most chicks, though it can be longer in areas with poor food resources. Unlike other shorebirds, Oystercatcher chicks do not feed themselves and are reliant on their parents for food for at least 30 days post fledging.

Habitats

Nesting

American Oystercatchers nest primarily on sand and shell beaches, though nests have been found in spartina marsh and pebble beaches as well. Typical nests are placed in areas with little to no vegetation, although substrate highly variable and dependent upon site type (Lauro and Burger 1989; Toland 1992; Wilke et al. 2005; Traut et al. 2006). Historically the species was believed to nest primarily on outer barrier beaches, but in more recent years birds have been found nesting on marsh islands, shell islands, dredge spoil islands, rocky islands, and even gravel rooftops in North Carolina and Florida.

Foraging

Oystercatchers feed primarily on bivalves and concentrate in areas of abundant food, such as intertidal mud or sand flats, or on shellfish beds.

Roosting

Oystercatchers prefer to roost on open ground free of vegetation with high visibility in all directions and adjacent to foraging areas. In fall and winter Oystercatchers gather in roosting flocks on shell rakes, inlet sandbars, and small islands. Oystercatchers occasionally also roost on docks and exposed pipelines (Brown et al 2005).

Habitat Management

As development and alteration of the coastal environment continues, Oystercatcher populations are likely to be increasingly limited by nesting sites. Creation of new nesting habitat may allow young

birds to acquire territories sooner and contribute more offspring over the course of their lifetime. *Haematopus palliatus* readily use new dredge spoil islands for nesting and roosting (McGowan et al 2005). Design and placement of new islands may be crucial. In North Carolina, Audubon and the Wildlife Resources commission work closely with the U.S. Army Corp. of Engineers to build and maintain dredge spoil islands that will support colonial nesting birds. These islands can benefit Oystercatchers because their basic habitat requirements are similar to colonial nesting species, but placement of the island in relation to gull colonies and Oystercatcher foraging areas may be important to maximizing productivity. Pairs raising chicks on islands close to foraging habitat and away from nest predators experience may have higher chick survival rates (McGowan *et al.* 2005).

Management Recommendations:

Where possible, work with US Army Corp and municipalities to place dredge material in locations adjacent to Oystercatcher foraging areas. North Carolina Audubon and the Wildlife Resources commission found that the shape and size of the island are important for success. Small islands with steep walls are less useful for Oystercatchers and colonial nesting waterbirds than larger islands with a low, sloping profile. Oystercatchers will nest more readily if vegetation on the island is kept to a minimum, which means ongoing efforts to control vegetation must be employed to keep this habitat viable. Oystercatchers experience higher productivity when they nest in close proximity to foraging areas. This is especially true for birds nesting on dredge islands were natural food sources are likely to be limited. Dredge islands placed adjacent to known foraging sites are likely to be more valuable and produce more fledglings (McGowan et al 2005).

Disturbance Management

Disturbance to nesting areas from human activity, including pedestrians, vehicles, boats, and dogs is widespread throughout the range of the species. Disturbance events expose eggs and chicks to predators and environmental conditions. Disturbance events can decrease nesting success in waterbirds and shorebirds and can affect foraging behavior (Burger 1981, Burger and Gochfeld 1998, Fitzpatrick and Bouchez 1998, Whittaker and Knight 1998, Carney and Sydeman 1999, Hunt 1972, Robert and Ralph 1975, Tremblay and Ellison 1979, Safina and Burger 1983, Novick 1996, Davis 1999, Rodgers and Schwikert 2002, Rhulen et al. 2003, McGowan and Simons 2006, Tarr et al. 2010., Peters and Otis 2007, Sabine 2008, Virzi 2010, Schulte 2012) Vehicle traffic on nesting beaches can result in direct mortality of chicks and adult birds and decrease productivity by up to 50% (Schulte 2012). Oystercatcher pairs display a wide range of apparent tolerance to disturbance, with some birds leaving the nest when observers are hundreds of meters distant, and others remaining on the nest at just a few meters. All disturbances are not created equal, however,

and Oystercatchers respond differently to pedestrians, dogs, vehicles, and other forms of disturbance. Furthermore the effects of disturbance may be more complex than flushing distance. Increased levels of stress hormones, site abandonment, and behavior modification are all potential indicators of disturbance effects. The management recommendations below are the result of the published studies cited above as well as years of collective management experience by members of the American Oystercatcher Working Group. Site specific constraints or conditions may warrant departure from these recommendations, but this approach has proven effective across the range of the species.

Management Recommendations:

Use symbolic fencing on beaches to protect areas used by nesting American Oystercatchers from March 15 to August 15 (Atlantic Coast) and February 1 to August 1 (Gulf Coast). Closure size should be at least 200m from known nests. Beaches with Oystercatcher broods should be completely closed to vehicle traffic and the closure size increased to at least 300m around broods minimize disturbance and danger to the chicks. Small nesting islands should be closed to boat landing during the breeding season. Whenever possible, closures should be accompanied by educational signs describing the Oystercatchers and other beach nesters and explaining the purpose of the closures (see appendix 1). Accompanying interpretation programs and social media campaigns will play a key role in understanding and support from the public. Roost sites used by flocks during migration and winter should be protected from disturbance using similar methods with buffers of at least 100m (Rodgers and Schwikert 2002). When an Oystercatcher chick can fly 100 meters it means that the chick is strong enough to use flight to escape ground predators and thus can be considered “fledged” or flight-capable. This is important for estimating reproductive success because the odds of long-term survival increase substantially after a chick is fledged. Until a chick is able to fly well (100+ meters) any flight places the chick at risk from aerial predators which will key in on a weak flyer. Even when the chick can fly well if it is flushed repeatedly it will quickly tire and become a target for gulls and other predators. After a couple of flights a newly fledged chick will often go back to hiding in low spots on the beach, including truck ruts. In areas with high disturbance and especially vehicle traffic, managers should wait until the chicks are 45 days and flying well before opening the area to traffic.

Predator management

Predators account for the majority of nest and chick losses during the breeding season (Davis 1999, McGowan *et al.* 2005, Nol 1989, Novick 1996, Sabine *et al.* 2005, Schulte and Brown 2003, Schulte 2012, Wilke and Watts, 2004). Nest predators in the United States include Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), Coyote (*Canis latrans*), feral cats (*Felis catus*), Bobcat (*Lynx rufus*), American Mink (*Mustela vison*), Herring Gull (*Larus argentatus*), Great Black-backed Gull (*Larus marinus*), Laughing Gull (*Larus atricilla*), American Crow (*Corvus brachyrhynchos)*, Fish Crow (*Corvus ossifragus*), and Ghost Crab (*Ocypode quadrata*). Management of nest predators can be an effective means of improving annual reproductive success of Oystercatchers and other beach nesting birds. The effectiveness of predator control is dependent on the methods used, the composition of the predator community, characteristics of the site, time of year, and scope of the control effort. A consistent policy of controlling artificially abundant and non-native predators must be a key part of long-term management and recovery of the American Oystercatcher population.

Predator removal can be controversial and some organizations avoid the practice entirely either because they do not feel it is not consistent with their philosophy or because of fears of backlash from the public and from organized animal rights groups. While these concerns have merit, it is also true that predator control measures can be an extremely effective tool for the conservation of beach-nesting birds. A recent study of raccoons and nesting oystercatchers on Cape Lookout National Seashore showed a 70% increase in Oystercatcher nesting success following a 50% reduction in the raccoon population (Simons and Waldstein 2010). This result mirrored the effects of a natural predator removal following the severe flooding associated with Hurricane Isabel in 2003. Following this storm predator levels were greatly reduced on some islands of the Outer Banks of North Carolina, and nesting productivity increased by up to 80% for several years until predator populations recovered. On Metompkin Island in Virginia, the presence of a single red fox caused almost complete nest failure of over 70 pairs of Oystercatchers as well as nesting terns, skimmers, and plovers. When the fox was removed the following year nesting success on the island rebounded to make the island one of the most productive on the eastern seaboard.

Management recommendations:

Predator control will be most effective when the local suite of predators and their relative impact on nesting success is understood. Mammalian predators are usually the greatest threat to nest and chick survival, but different predators may require different strategies.

Direct control: Direct control methods include trapping, shooting or otherwise removing nest predators from the environment. Control efforts in late winter through the early part of the breeding season are likely to be most effective at increasing reproductive success. Predators are more susceptible to trapping when they are already stressed in late winter and removal of predators prior to the breeding season will maximize the window of opportunity before predator populations recover. Complete removal of any predator species is often not possible or even desirable, especially for native species. Concerted efforts to reduce populations of mammalian predators and in some cases, gulls and crows, over a short time window can result in immediate and significant improvements in reproductive success. Direct control methods for mammalian predators are most efficient and have long-lasting positive effects when employed on islands where re-colonization by predators is slower (Waldstein 2010).

Indirect control: In some cases excluding predators may be an alternative to direct control measures. Electric fences can be used around nesting colonies or even around individual nests. These fences are difficult to maintain, but can be effective at keeping out mammalian predators when in good working order. Low predator fences are another tool currently being employed on islands in Massachusetts. These fences are metal mesh approximately 2-3 feet high and are not electrified. This type of fence will not keep out a canid predator, but appear to be effective at stopping skunks and, to a lesser extent, feral cats. Fences are most effective when deployed on a large scale around nesting colonies.

Concerns about predator control should be addressed honestly and directly. Engagement with the humane society, the ASPCA, and local groups can go a long way toward mitigating negative reaction to predator control measures. Every effort should be taken to ensure that safe, humane, and ethical practices are followed and alternatives explored and implemented when they would be equally effective. Some groups have had success working with local veterinarians to ensure that best practices for euthanasia are followed. Feral cat control in particular can be controversial and some groups are willing to try to rehabilitate and adopt trapped feral cats. Conversely, attempts to conduct predator control in secrecy risk greater negative reaction when discovered and therefore will likely have little long-term success or benefits to the species at risk.

Education and training

Public involvement in conservation and management efforts are a crucial component of long-term survival of American Oystercatchers and other beach nesters. Targeted outreach and education are vital to developing connections between human and natural communities. Efforts to minimize human disturbance must go hand-in-hand with efforts to engage beachgoers and increase awareness of the fragile coastal ecosystem. Positive engagement can blunt backlash from beach closures and create a core of informed members of the public that support conservation work.

Management Recommendations:

The first step in developing an outreach program should be a clear identification of stakeholders (*e.g.* through a participatory stakeholder analysis), an assessment of current attitudes and awareness among members of the public, and an assessment of existing education efforts and needs.

The next step in a successful education program is more challenging. Successful programs will be tailored to regional or local situations so there will necessarily be a wide range of working models. One common theme is direct engagement with stakeholders. Massachusetts Audubon and the USFWS found that many beachgoers were reacting negatively to beach closures for birds, in part because many people had never even seen the birds that were being protected. A combination of active engagement of beachgoers by seasonal staff and deployment of educational signs at beach closures is beginning to increase awareness and shift perceptions and behaviors.

The primary targets of educational outreach efforts aimed at reducing human disturbance should be marinas, beachgoers, and other segments of the recreating public that use beachfront habitats. Efforts should focus on informing beachgoers on how to recognize breeding territories and avoid disturbance within them (such as keeping pets leashed within breeding areas), and on informing boat users about how to avoid swamping nests with wakes during the periods of highest tides. These efforts will have to be tailored locally with appropriate materials and methods of outreach. However, as this is a rangewide need, regional exchanges of approaches and materials will prove invaluable. The results of these assessments should then be used to tailor site-specific outreach and education programs. The linking of local communities, such as through sister school initiatives and experiences exchanges, could prove to be an effective outreach and education tool.

Social marketing is a newer tool that is being deployed for shorebird conservation. A campaign called "Celebrate the Delaware Bay" is raising awareness and engaging people in the conservation of Red

knots and other shorebirds through dissemination of songs, videos clips, book, and photos, all intended to help people appreciate the Bayshore, ultimately, to do things that would benefit it — such as minimizing disturbance to foraging birds. A similar approach at a wintering site in Argentina was very successful in engaging the community to protect the birds and changing patterns of ATV use on beaches to avoid disturbing overwintering knots.

Partnerships with non-traditional groups can also be effective. Most commercial whale watch companies now partner with non-profit conservation groups to include a naturalist to provide context and encourage responsible use of the ocean environment. Massachusetts Audubon recently partnered with a local Inn and tour company on Cape Cod that brings tourists to local beaches. Mass Audubon now sends trained volunteers along with these groups to identify sensitive areas, educate about nesting and migrating shorebirds, and answer questions from beachgoers.

Engaging beachgoers is important, but not sufficient for protection. Members of the Georgia dept of Natural Resources made a concerted effort to identify and engage decisionmakers within the state government that could affect use and development of coastal islands. DNR staff brought state officials to visit nesting areas so they could have first-hand knowledge of the situation and problems facing beach-nesting birds. This effort is directly credited with preserving at least one critical nesting area in the state that otherwise would likely have been opened for recreation and possible development.

Monitoring

A coordinated monitoring program is essential to track the success of management efforts and refine practices in a timely and effective manner. The American Oystercatcher working group is currently engaged in a coordinated effort to recover the population of the American Oystercatcher in the United States. The working group has agreed on key metrics to assess success, including nest survival, productivity (chicks fledged/pair), adult survival rate, and population size. In addition to these biological metrics, success of the overall conservation effort should also be evaluated through more general measures of success including:

- Total/new area in active management
- Total/new area designated incorporated into public and private conservation systems
- Number of conservation groups participating in beach nesting bird conservation and the Oystercatcher Working Group
- Geographic extent of management efforts
- Proportion of the Oystercatcher population under active management

- New laws and policies enacted to protect shorebirds/Oystercatchers

Integrated management of other beach-nesting species

Many of the challenges and recommendations described in this document are relevant for other beach nesting species, such as Piping and Wilson's Plovers, Common and Least Terns, and Black Skimmers to name a few. The American Oystercatcher Working Group is currently (2012/2013) engaged in an exercise to evaluate and quantify how our collective efforts to protect, manage and monitor American Oystercatchers along the Atlantic and Gulf coasts also benefit other coastal bird species.

Most management efforts to enhance Oystercatcher populations will tend to benefit these species as well, but the most effective approach will be a planned and integrated effort to manage the community of beach nesting birds. Piping plovers, for example, already have a broad monitoring and management network. Many partners in the Oystercatcher Working group have already trained their seasonal staff to simultaneously monitor and manage plovers as well as oystercatchers, terns, and other beach nesters. This approach is demonstrably more efficient than trying to manage each species in isolation, but often requires substantially more staff and resources than managing for a single species. Oystercatchers in particular can be challenging because of generally lower densities, broader distribution, and greater habitat variety than other beach nesters.

An effective integrated management strategy will first identify the highest value coastal sites based on overlap in site use and productivity of multiple species of interest. Middle Core Banks on Cape Lookout National Seashore in North Carolina is a good example of this. Oystercatchers nest on the island in higher densities than the rest of the park, but the full conservation value of the site is apparent when taking into account the nesting Piping Plovers, Wilson's Plovers, and large colonies of Least Terns, Black Skimmers, Gull-Billed Terns, and Common Terns on the island. Similar high-value sites include Stone Harbor New Jersey, Bull's Bay South Carolina, Metompkin Island Virginia, and Tuckernuck Island and Tern Island, Massachusetts, to name a few. Management efforts, such as predator control and minimizing disturbance, should first focus on these high-value sites to bring the largest return for precious conservation dollars. Another advantage to this integrated approach is the ability to approach a wider array of funders than would be possible under a single-species management strategy. The biggest challenges to integrated management are the increased coordination, time, and cost required to carry out the field work and data management, while networking with multiple partners.

Summary

American Oystercatchers and associated beach nesting birds continue to be at risk from threats ranging from habitat loss and degradation to elevated predator populations. A practical, consistent, and coordinated approach to management of environmental and human impacts on the beach nesting bird community is vital to long-term conservation success. Disturbance management, predator control, habitat management, education, and social networking are important components of the successful management of beach nesting birds. The American Oystercatcher Working Group is engaged in an ambitious and promising effort to recover Oystercatcher populations, but broader integration into multi-species conservation efforts may be needed to ensure the long-term success of the beach-nesting bird community.

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