

GUIDELINES TO MINIMIZE IMPACTS OF MECHANICAL BEACH RAKING ON BEACH-DEPENDENT BIRD SPECIES ALONG THE FLORIDA COAST

Overview:

Mechanical beach raking to remove man-made debris (litter) and wrack (natural debris such as stranded seaweed, shells, and other marine debris at the high tide line) from Florida's sandy beaches is an activity regulated by the Florida Department of Environmental Protection (FDEP) under the Florida Beach & Shore Preservation Act, Florida Statute 161. Mechanized beach raking practices can pose serious threats to the survival of seabirds and shorebirds that are dependent upon sandy beaches. Therefore, we do not endorse mechanical beach raking practices. However, for areas where this activity is permitted, and is in compliance with the rules and regulations listed below, we provide additional information and guidance to minimize the adverse impacts that beach raking has on beach-dependent bird species, which primarily includes the American oystercatcher, black skimmer, and species of gull, plover, sandpiper, and tern.

Rules and Regulations:

Florida's State law (Chapters 68A-4, 68A-13, and 68A-27 of the Florida Administrative Code, administered by Florida Fish and Wildlife Conservation Commission), provides protection to all beach-dependent bird species and provides additional protections for state-listed species (e.g., American oystercatcher, black skimmer, least tern, piping plover, roseate tern, snowy plover). The federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (40 Stat. 755; 16 U.S.C. 703 et seq.) is administered by U.S. Fish and Wildlife Service (USFWS) and protects all native beach-dependent bird species. Except where human safety is an issue, the MBTA does not provide provisions for "take"; i.e., the MBTA makes it illegal for anyone to, or attempt to, kill, pursue, hunt, or capture any migratory bird or parts, nests, or eggs. Therefore, no unauthorized person may take native beach-dependent bird species legally. The MBTA does not differentiate between intentional and incidental take of migratory birds. Indirect take (causing take indirectly) may also be considered a violation of the MBTA. Possession of a permit for beach raking does not exempt the permit holder from the Florida State law nor the MBTA. Any persons involved with activities associated with mechanical beach raking that result in take of these species are in violation of state and federal law. All take, including non-intentional, of migratory birds must be reported to USFWS's Division of Law Enforcement.

Threats to Beach-Dependent Birds and Habitat During Raking:

Beach wrack provides important roosting, cover, and food for adults and chicks of beach-dependent birds, and may thus be adversely impacted by the removal of wrack by raking activities (Dugan et al., 2003; Nordstrom et al., 2000). The invertebrates associated with wrack are often an important food source for beach-dependent birds (especially plover species) (Dugan et al., 2000). Recovery of this vitally important prey base after regular raking is not immediate and has been shown to take over six months (Dugan, pers. obs.), and year-round raking may cause a permanent loss of wrack. . Therefore, the resultant loss of food sources may severely compromise bird recruitment and survival. Moreover, beach raking destabilizes the beach by removing vegetation, increasing the loss of sand, and increasing the need for beach nourishment, which can impose a significant financial burden on state, federal, and local governments (Dugan and Hubbard, 2010).

Beach-Nesting Birds: Breeding adults of beach-dependent bird species begin to engage in courtship and nest site selection rituals early in their nesting season (typically February-March in Florida) (Chase and Gore, 1989; Himes et al., 2006). The operation of beach raking machinery may disrupt this behavior or destroy any formed nest scrapes (impressions in the sand) (Page et al., 1995). Once nests are laid, adult birds remain sensitive to disturbance during the incubation period. When disturbances (such as from the operation of beach raking machinery) cause the adults to leave their nest, the eggs or young chicks are left uncovered and exposed to potentially lethal heat, cold, and weather events (Flemming et al., 1988; Powell et al., 1996). Moreover, the flushing of adults from nests attracts the attention of opportunistic nest predators (e.g. crows, gulls, cats, crabs) that pose an additional survival risk to eggs and young chicks (Frid and Dill, 2002; Persons, 1994).

The chicks of beach-nesting birds are highly mobile, capable of moving significant distances from nest sites, and are also small and well camouflaged (Ruhlen et al., 2003). Chicks are virtually impossible to spot from a vehicle, and often respond instinctively to perceived threats by lying prone on the sand (or hiding in human footprints or vehicle tracks) in order to better blend in with beach surroundings. Hence, chicks are highly susceptible to being run over by passing beach raking equipment and other vehicles until they are capable of flying (e.g., 21-40 days after hatching) (Page et al., 1977).

The best way to prevent disturbance of, damage to, or direct mortality of beach-nesting bird eggs, chicks, and adults is to refrain from mechanical beach raking activities during the entire breeding season on beaches where birds are nesting. Removing human-generated litter by hand is the safest and preferred alternative, and conducting “pack-in/pack-out” practices will result in less litter in need of removal. However, if a permittee chooses to mechanically rake a beach during the shorebird breeding season, the following guidelines will minimize the likelihood that these activities will result in take (both direct and indirect) of eggs, chicks or adults.

Recommended Guidelines For Reducing Impacts to Beach-Nesting Birds During Raking:

On Florida’s beaches, the earliest breeding by snowy plovers begins in February, whereas other beach-nesting birds begin breeding shortly thereafter, and all beach-nesting birds typically have completed breeding by the end of August (Himes et al., 2006). Thus, from February 15 to August 31, no raking should occur unless a beach-nesting bird monitor (an individual who is well experienced in recognizing beach-nesting bird behavior and capable of recording those observations in accordance with the Florida Shorebird Database breeding bird protocol and is approved by an FWC regional biologist) is present and has completed a same-day survey of the area to identify nest locations or the presence of flightless chicks. Once nests are confirmed or identified, raking should be limited to no more than once per month until the first egg hatches. Raking should be ceased from the time the first egg hatches until all chicks can fly.

Where beach-dependent birds are present, the following should occur:

1. Install symbolic fencing 100 feet (for buffering) around breeding territory scrapes and nests (Lafferty 2001).
2. Mechanical raking equipment must maintain a 300-foot distance from any nest (or 200 feet from fencing) to reduce the chance that adults may leave their nests uncovered.
3. Stop raking once a monitor confirms that chicks are using the beaches.
4. Raking may resume 7 days after a monitor confirms the last chicks have fledged from the beach and no breeding or nesting adults are present. Thereafter, raking may be resumed no more than once per month.
5. Year-round: Maintain a minimum buffer of 5 feet from the wrack year around. Remove man-made litter (e.g. plastics, balloons, monofilament line) in or near the wrack line by hand.
6. Year-round: Maintain a minimum buffer of 10 feet from any live vegetation, as defined by the FDEP under the Florida Beach & Shore Preservation Act (Florida Statute 161).

Red Tide, Red Drift Algae, or Other Extreme Wrack Deposition Events:

Allow one full tidal cycle to pass prior to raking in case vegetation washes naturally offshore. If wrack removal must commence under these conditions during the nesting season, a beach-nesting bird monitor should be present during removal to ensure that vehicles do not pose a risk to nesting adults or flightless chicks. Additionally, leave some wrack following raking in order to provide a source of food and camouflage for breeding adults and chicks.

Post-Nesting Season:

Raking may resume 7 days after a monitor confirms the last chicks have fledged from the beach and no breeding or nesting adults are present. If vegetation emergence or dune formation has advanced to the point that re-engaging in historic raking patterns may be in conflict with regulations protecting beach vegetation, it is recommended that the permit holder and property owner consult with FWC and FDEP authorities prior to reinitiating raking.

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