



Osprey

(*Pandion haliaetus*)



Photo courtesy R. Gardener. Upper Narrow River, Rhode Island; April 2017.

The osprey, often called the “fish hawk” due to its diet consisting primarily of fish, occurs worldwide in coastal regions. Rhode Island once supported a substantial population of osprey, but between 1940 and 1970 the numbers were greatly reduced because of the use of DDT and related pesticides, and their accumulation in the ecosystem. In 1967, the population bottomed out at only two nests in the state. In 1973, the R.I. Department of Environmental Management (RIDEM) took control of osprey conservation in Rhode Island and, by protecting its habitat and creating suitable nesting areas, the population has increased significantly. In 2010, RIDEM passed the osprey program to The Audubon Society of Rhode Island, who now monitor ospreys with the help of their volunteer network. There are now around 150 active nests throughout the state.

Description

The osprey is an impressive bird with a wingspan of up to 68 inches and a sharp crook in the wrist, one of its most characteristic features. When seen from above, the body is a rich brown color, while the underparts and head are white. At times, ospreys are mistaken for a bald eagle (*Haliaeetus leucocephalus*) because of their white head, however, the white underparts of the osprey distinguish it from the bald eagle’s dark underside. The osprey also has a distinctive black face stripe, often called the “mask”, and a dark speckling on the chest, called the “necklace.” Ospreys typically weigh three to four pounds and can be up to two feet long (head to tail). They have a black, sharply curved bill and yellow eyes. Females are typically larger than males. The plumage of the juvenile is very similar to that of the adult, but the dark feathers of the young are tipped in a buff color and often speckled on the wings. The juveniles also have a reddish-orange eye rather than the yellow eye of an adult. At 18 months of age, ospreys achieve their full adult plumage.



Photo courtesy of L. Fish. Bucklin Hill, Rhode Island; 2017.

Life History

Range and Habitat:

Due to their dependence on fish to survive, ospreys are found near the coast or by bodies of open shallow water. They are found on every continent, except Antarctica. Ospreys found nesting in Rhode Island are migratory, spending their winters in Central and South America. During the summer months, they will breed along the eastern and western coasts of the United States and Canada, as well as much of inland Canada. Florida and Mexico have year-round populations. Ospreys can be found in coastal areas as well as freshwater lakes, marshes, and rivers farther inland.



Photo courtesy of the US Fish & Wildlife Service.
William L. Finley National Wildlife Refuge, Oregon.

Food Habits:

Ospreys prey almost exclusively on fish (both saltwater and freshwater), hovering above the water at heights up to 150 feet before diving feet first into the water to grab their prey. They will submerge their bodies fully under water, but they are extremely buoyant and will rarely go more than a meter down. Their talons are specially adapted with spicules (small, raised barbs) to grip slippery fish without dropping them. Ospreys may also be seen catching snakes, eels, or frogs. Bald eagles and great black-backed gulls will often chase osprey to steal their prey.

Reproduction:

Ospreys migrate to their breeding grounds between March and April, and stay until August. The typical osprey nest is constructed of large sticks on a high perch over water or land which provide the birds with a high elevation, and an unobstructed view of their surroundings. Today, osprey nests can often be seen on electric poles or man-made platforms. The interior of the nest is lined with algae, bark, grass, and sometimes plastic. Ospreys mate for life and frequently return to the same nesting site each year. They will continue to add materials to their nest each breeding season, resulting in nests up to ten feet high and weighing several hundred pounds.

Females lay an average of three eggs in April, which she incubates for about 38 days. Males may contribute to incubation, but are primarily responsible for providing their mates with food. Eggs usually begin to hatch in late May, after which females care for the young while the males continue to bring them food. The young ospreys fledge after about 50 days, but continue to depend on their parents for another eight weeks. The young ospreys will remain at their wintering ground for two to three years before returning to their northerly breeding grounds when they are sexually mature. Ospreys typically become sexually mature after three years, although after two years they may make a practice attempt at nest building.



Photo courtesy of J. Bishop.
Hazard Nest, R.I.; May 2017.

Regulatory Status

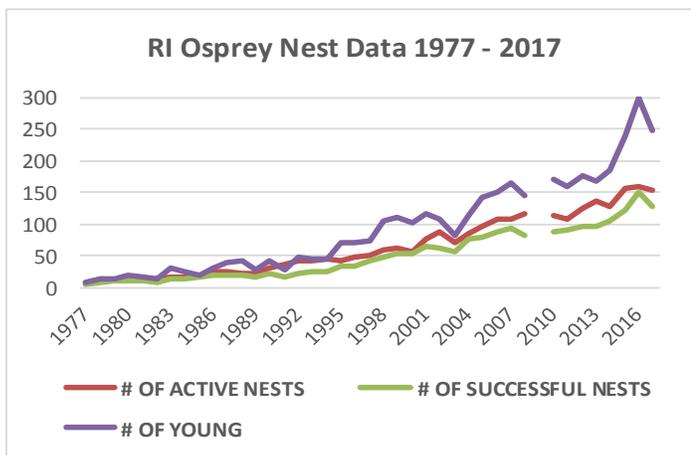
Between 1940 and 1970, the osprey population dramatically declined due to the use of DDT. Similar to the bald eagle, concentration of this contaminant occurred through the food chain, passed from insect to fish to raptor. The pesticide could not be readily broken down once inside the body, and would become lodged within fat cells. This contamination reduced the ability to mobilize the calcium to produce strong eggshells. The eggs then laid by the osprey had shells too thin for successful incubation, and would often break under the weight of the female. Within 30 years, the number of active nests between New York City and Boston decreased by 85%. In 1972, the osprey

was listed as an Endangered Species by the U.S. Fish and Wildlife Service. DDT was banned in the United States in 1972, and since then the osprey population has greatly increased. The osprey was downgraded to Threatened in 1983, and then to a Species of Special Concern in 1999. Today, ospreys are still federally protected under the Migratory Bird Treaty Act.

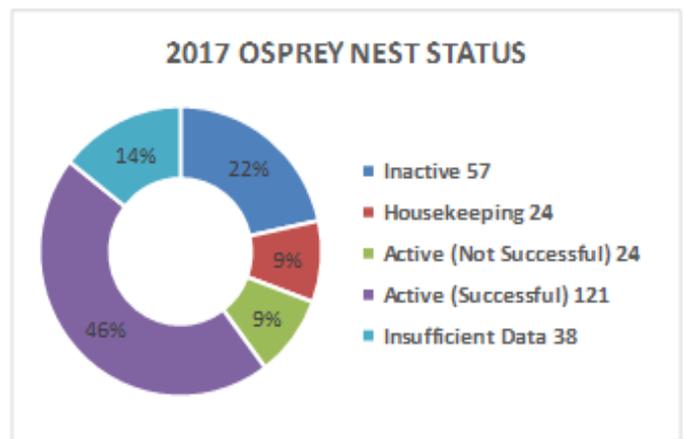
The Migratory Bird Treaty Act (16 U.S.C. 703-712) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, any migratory bird, or the parts, nests, or eggs of such a bird.

Rhode Island Monitoring Program

The Audubon Society of Rhode Island (ASRI) has been leading the osprey monitoring program since 2010. The program was first created by RIDEM in 1977, with the goal of recording the breeding success of ospreys to document their recovery from the detrimental effects of DDT. Each summer, during osprey breeding season (April - August), ASRI enlists volunteers to monitor over 250 nests throughout the state. Volunteers for the osprey monitoring program identify new nests, photograph behaviors, document nest sites, and observe the number of chicks and their behavior. This information provides biologists with a population estimate, an estimate of fecundity (number of offspring), and helps provide evidence about the general trend of the population. From these monitoring efforts, there is evidence that the osprey population in Rhode Island is increasing.



Number of osprey active nests, successful nests, and fledged young in Rhode Island from 1977-2017. Data courtesy of the Audubon Society of Rhode Island. No data collected in 2009.



2017 Status of osprey nests in Rhode Island. Data courtesy of the Audubon Society of Rhode Island.

If you are interested in learning more information about the osprey monitoring program or would like to volunteer, please visit www.riosprey.info.

Ospreys as Bioindicators

By observing the Rhode Island osprey population, biologists can glean important information about local ecosystems. Ospreys are a bioindicator, meaning their presence in an ecosystem can indicate its “health”, that is, an ecosystems condition and qualitative status. As an apex predator, ospreys are sensitive to contaminants that magnify through the food chain (biomagnification). Those contaminants which infect the food sources of the fish, and thus the fish themselves, then affect the ospreys, and in greater concentrations. These contaminants can be more readily tested and detected in this observable species, than by more intensive methods of analyses.

Avoiding Problems

Osprey nests can at times be a nuisance to people when they are built on man-made structures. Ospreys may build their nests on electric poles, power lines, and even boats. Removing an osprey nest is a federal offense according to the Migratory Bird Treaty Act, however, if an osprey nest is becoming a nuisance, it is possible to apply for a state permit to remove the nest under certain circumstances. Once a federal permit is obtained, please contact the Rhode Island Division of Fish and Wildlife at DEM.DFW@dem.ri.gov or call (401) 789-0281 for more information.



Photo courtesy of C. Raithel, RIDEM
Division of Fish and Wildlife.

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Selected References

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