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Photographic Images Captured While Sampling for Bald Eagles near the Davis Pond Freshwater Diversion Structure in Barataria Bay, Louisiana (2009–10)

Data Series 605

U.S. Department of the Interior
U.S. Geological Survey

Cover. A mature adult bald eagle (*Haliaeetus leucocephalus*) perches in the Davis Pond, La., study area (photograph by Mike Musumeche, 2008).

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Abstract

The implementation of freshwater diversions in large-scale coastal restoration schemes presents several scientific and management considerations. Large-scale environmental restructuring necessitates aquatic biomonitoring, and during such field studies, photographs that document animals and habitat may be captured. Among the biomonitoring studies performed in conjunction with the Davis Pond freshwater diversion structure south of New Orleans, La., only postdiversion study images are readily available, and these are presented here.

Introduction

Controlled diversions of Mississippi River water across flood-control levees and into adjacent deltaic wetlands are thought to be one of the most effective, and perhaps the only, tool for large-scale coastal restoration in Louisiana (Day and others, 2000). The implementation of freshwater diversions in large-scale coastal restoration schemes, however, presents many scientific and management considerations (Swenson and others, 2006). Diversions bring needed sediments for rebuilding land, but water quality, aquatic primary production, and trophic relations may be altered in receiving basins, lakes, and marshes.

Currently, the Caernarvon freshwater diversion structure and the Davis Pond freshwater diversion structure are operating to reintroduce Mississippi River water to their respective estuaries at various rates (Swenson and others, 2006). Such large-scale environmental restructuring necessitates aquatic biomonitoring, whereby ecological condition studies performed both prediversion and postdiversion are crucial for assessing possible impacts. In the biomonitoring studies performed in conjunction with each diversion structure (Caernarvon: Conzelmann and others, 1996; Davis Pond: Jenkins and others, 2008, 2011), contaminant levels detected in biota collected prediversion were compared to those postdiversion.

Bald eagles (*Haliaeetus leucocephalus*) are protected by the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a–d) and the Migratory Bird Treaty Act (40 Stat.755, as amended; 16 U.S.C. 703–712). Because of their status, eagles and their supportive fisheries (for example, fish and bivalves) were focal points of the Davis Pond freshwater diversion studies (Jenkins and others, 2008, 2011).

Just as complex ideas can be conveyed with a single still image, the compilation of images captured during biomonitoring for eagles during the postdiversion study provides a visual display of the remoteness of eagle habitat, the majesty of the birds in their natural surroundings, and some of the challenges encountered by field personnel. The intent is to enhance and complement the understanding of freshwater diversion at Davis Pond.

The photographs herein are presented in Joint Photographic Experts Group [JPEG] format; they are not Section 508 compliant.

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Figure 1. This stand of trees near the Davis Pond freshwater diversion structure, south of New Orleans, La., is habitat for bald eagles (*Haliaeetus leucocephalus*).

Figure 2. Bald eagles (*Haliaeetus leucocephalus*) nest near this swamp area in the Davis Pond, La., study site. Such habitat supports fish, birds, turtles, and nutria (*Myocastor coypus*), all of which are important forage for nesting eagles.

Figure 3. In the Davis Pond, La., study area, the nests of bald eagles (*Haliaeetus leucocephalus*) are typically located in baldcypress (*Taxodium distichum*) trees.

Figure 4. Nests of the bald eagle (*Haliaeetus leucocephalus*) are often built at treetops. The height of this nest in the Davis Pond, La., study area is about 75 feet.

Figure 5. Because eaglets 8–10 weeks old were targeted for blood sampling in this study, aerial surveys were performed in the Davis Pond, La., study area to observe hatchlings and estimate age. Shown from above, a mature adult bald eagle (*Haliaeetus leucocephalus*) is perched on the edge of the nest, and an eaglet about 7 weeks old is in the nest.

Figure 6. A mature adult bald eagle (*Haliaeetus leucocephalus*) is perched above its nest in the Davis Pond, La., study area.

Figure 7. A mature adult bald eagle (*Haliaeetus leucocephalus*) responds at its perch to the approaching field team in the Davis Pond, La., study area.

Figure 8. Maintaining safe work practices is crucial and integral to U.S. Geological Survey field projects. Safety always comes first for employees; for instance, because this dead tree in the Davis Pond, La., study area was unsafe for climbing, the nest could not be approached even though bald eagle (*Haliaeetus leucocephalus*) eaglets were available for sampling.

Figure 9. This closeup view of a bald eagle (*Haliaeetus leucocephalus*) nest in the Davis Pond, La., study area shows how accessing nest contents is challenging because of the necessity of climbing over the edge from below.

Figure 10. In the Davis Pond, La., study area, U.S. Geological Survey scientist Larry Allain throws a weighted line over tree branches prior to placing a second rope in the appropriate position to continue the ascent.

Figure 11. Lower sections of baldcypress (*Taxodium distichum*) trees rarely sprout branches, which complicates climbing efforts. U.S. Geological Survey scientist Larry Allain ascends the lower trunk of this tree in the Davis Pond, La., study area by using the single rope technique.

Figure 12. U.S. Geological Survey scientist Larry Allain approaches a bald eagle (*Haliaeetus leucocephalus*) nest in the Davis Pond, La., study area, strategizing which route will provide the most effective way to climb into the center of the nest.

Figure 13. U.S. Geological Survey scientist Larry Allain reaches a bald eagle (*Haliaeetus leucocephalus*) nest in the Davis Pond, La., study area.

Figure 14. One of a pair of eaglets, at approximately 2–3 weeks old, was found dead in 2009 in the Davis Pond, La., study area. The likely cause of death was fratricide, which is not uncommon for the bald eagle (*Haliaeetus leucocephalus*).

Figure 15. A bald eagle (*Haliaeetus leucocephalus*) eaglet from the Davis Pond, La., study area is bled from a wing vein by using a needle and syringe in 2010. The blood was sent to a laboratory for analysis of contaminants.

Figure 16. The wing of a bald eagle (*Haliaeetus leucocephalus*) eaglet from the Davis Pond, La., study area is outstretched to show plumage.

Figure 17. A mature adult bald eagle (*Haliaeetus leucocephalus*) perches in the Davis Pond, La., study area (photograph by Mike Musumeche, 2008).

Figure 18. The livers of nutria (*Myocastor coypus*), a rodent that is common prey for bald eagles (*Haliaeetus leucocephalus*), were sent to a laboratory for contaminants analysis in 2010. This nutria is swimming among water hyacinth (*Eichhornia crassipes*) in the Davis Pond, La., study area.