Airline Pit Fish and Wildlife Research and Management Notes

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Title: Airline Pit

INTRODUCTION

Airline Pit is a 24-acre final cut lake located on the Greene-Sullivan State Forest, approximately three miles west of Linton, Indiana. The pit, which is owned and maintained by the Indiana Department of Natural Resources, Division of Forestry, has an earthen boat ramp and ample shore fishing sites.

The Airline Pit fishery has been managed by the Indiana Department of Natural Resources since 1974. Survey results in 1974 concluded that the pit was suitable for trout survival. Approximately 500 trout had been stocked annually from 1976 through 1992, with occasional stockings of broodstock and/or surplus hatchery fish. Since 1993, an effort has been made to stock 700 or more trout per year. All stocked trout have been rainbow trout, with the exception of four brown trout stockings in 1977, 1978, 1981, and 1982. Channel catfish were stocked in 1977, apparently with little success. Because of the deep cool water, warmwater game fishes have been difficult to manage. Subsequently, the trout-stocking program has provided a unique and successful fishery at an otherwise unproductive lake.

Little data have been collected from Airline Pit over the years. One voluntary creel survey was conducted covering 1979 and 1980. Past fisheries surveys have included very little in terms of sampling gears. In 1974, a rotenone survey was conducted. In 1977 and 1979, spot-check surveys were conducted using gill nets only. This survey was the first time an electrofishing boat and trap nets had been utilized.

The present survey was conducted June 30 through July 2, 2003. The objective of the survey was to evaluate the overall status of the fishery. Sampling effort consisted of 0.75 hour of pulsed DC electrofishing, four overnight gill net sets, and four overnight trap net sets. This report presents the results of the survey along with recommendations for future work.

RESULTS AND DISCUSSION

Water quality at Airline Pit was very good in comparison to other pits in the area. The temperature and dissolved oxygen (D.O.) profile showed suitable habitat for trout down to 48 feet. A few anomalies in the profile occurred with D.O. concentrations, which could be attributed to specialized phytoplankton occupying preferred depths and temperatures and/or influence of underground water seeping into the lake. Surface alkalinity, which is sometimes used as a rough indicator of productivity, was 68.4 ppm. This is considered moderately productive. However, nutrients in the water are extremely low causing primary productivity to be low.

A minimal number of aquatic plant species were documented in this survey which included Eurasian watermilfoil, an unidentified milfoil species, curlyleaf pondweed, American pondweed, small pondweed, Chara, cattail, and heart-shaped water plantain. The aquatic macrophytes did not appear to be harming the fishery or angler access even though Chara was extremely abundant.

Fish sampling efforts produced 152 fish weighing a total of 21.17 pounds representing six species. Bluegill dominated the sample by number (64.5 percent), followed by redear sunfish (17.8 percent), largemouth bass (8.6 percent), rainbow trout (5.9 percent), warmouth (2.6 percent), and one black

bullhead (less than 1 percent). Rainbow trout were the most abundant species by weight (46.4 percent), followed by largemouth bass (20.1 percent), redear sunfish (14.6 percent), bluegill (12.2 percent), warmouth (3.6 percent), and black bullhead (3.1 percent).

The bluegill sample consisted of 98 fish ranging from 1.1 to 7.3 inches in length representing young-of-the-year through age 5. Only 3.1 percent of the bluegill sampled were considered harvestable by anglers (6 inches or larger). Bluegill growth rates were within the expected ranges for pits in District 6. It takes approximately six growing seasons for a bluegill to reach 6 inches in length in Airline Pit. The Bluegill Fishing Potential Index was seven, which indicates a poor bluegill fishery (Ball and Tousignant 1996).

Twenty-seven redear sunfish were sampled ranging from 3.2 to 8.2 inches in length. 2- through 5-year olds were represented. Growth rates were within district averages for pits. Only 7.4 percent of the redear sampled were considered harvestable (7 inches and larger). Like bluegill, redear sunfish in Airline Pit require approximately six growing seasons to reach harvestable size.

The largemouth bass sample consisted of 13 fish ranging from 3.5 to 12.4 inches in length. These fish were from 1- to 4-years-old. Growth rates were average for age 1+ fish as compared to pits in District 6. Bass older than age 1+ exhibited below average growth compared to district pit averages. Twelve inches is generally considered a socially acceptable harvestable size for largemouth bass. However, Airline Pit is managed with a 14-inch minimum size limit for largemouth bass, therefore no legally harvestable bass were sampled in this survey.

Nine rainbow trout were sampled ranging from 12.5 to 14.2 inches long. All were aged as 1-year-old. No district averages exist for rainbow trout growth. Little information could be derived from having district growth rates for rainbow trout, since all of the rainbow trout sampled in this district would be the result of state hatchery stockings.

In addition to the above-mentioned species, four warmouth and one black bullhead were sampled. On rare occasions, they will contribute to the angler's creel.

CONCLUSIONS AND RECOMMENDATIONS

Airline Pit is not able to support a large number of fish at this time because of the low primary productivity. Angling opportunities for warmwater species are limited. That being said, the pit continues to be a quality candidate for the put-and-take rainbow trout program. Overall, few fish were sampled, but the high conductivity of the water limited electrofishing efficiency. In addition, increased water clarity contributed to fish avoidance of gill nets and trap nets.

No rainbow trout older than age 1+ were sampled. It is not known if stocked rainbow trout survive through the winter in Airline Pit. Harvest rates, which are suspected to be very high, could be limiting the potential for larger individuals. Other limiting factors could be the forage available, and the foraging habits of rainbow trout. The fishery is currently managed as a put-and-take trout fishery intending to provide maximum utilization of stocked fish. Some discussion has taken place regarding the potential for a put-grow-and-take fishery at Airline Pit and several other trout lakes. Should this strategy be pursued, brown trout may prove to be a more practical alternative. Brown trout could be better adapted to utilize fish as forage. This characteristic may result in increased winter survival carry over to the next year. A creel survey should be conducted in the future to determine angler pressure and harvest on Airline Pit. The creel survey would be designed to evaluate trout stockings. Without the stocking program, it appears Airline Pit would offer very little in the way of recreational fishing.

Research must be conducted to determine more efficient means of sampling in clear, highly conductive pits. Two considerations are monofilament gill nets for decreased visibility and therefore decreased net avoidance, and more powerful electrofishing gear such as the Smith-Root® 7.5 GPP.

LITERATURE CITED

Ball, R. L., and J. N. Tousignant. 1996. The development of an objective rating system to assess bluegill fishing in lakes and ponds. Indiana Department of Natural Resources. Indianapolis. 18 pp.

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