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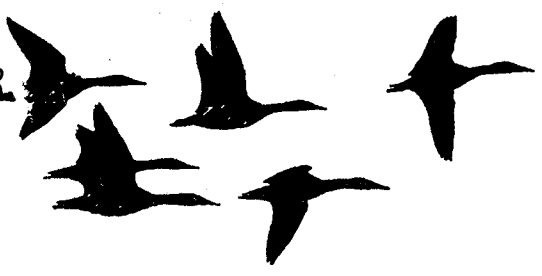
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# MIGRATORY BIRD SECTION

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## CHARACTERISTICS OF WATERFOWL HARVEST AT HORSESHOE LAKE, MADISON COUNTY, ILLINOIS

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**Abstract:** A survey of hunter use and waterfowl harvest on Horseshoe Lake, Madison County, Illinois revealed that 804 hunter trips yielded 1,206 ducks for an average daily success ratio of 1.50. Success was better earlier in the season than late. The dominant species in the bag was lesser scaup making up 45.8 percent of the total harvest followed by mallards at 27.7 percent. Band recovery records indicate normal recovery patterns. Recommendations for state management were to maintain waterfowl hunting with a low use, high quality stake blind system.

### INTRODUCTION

The impending purchase of Horseshoe Lake, Madison County, Illinois by the Illinois Department of Conservation implies wise management after a complete review of resource potential and development alternatives. The purpose of this report is to supply information of waterfowl harvest and hunter use for inclusion in the planning and decision making process. Appreciation is due to Richard Houk and those hunters on Horseshoe Lake that contributed freely of their harvest records.

Horseshoe Lake is located approximately one mile south of Granite City, Illinois (Fig. 1). The narrow western portion of the lake is one and a half miles from the Mississippi River and the main lake body lies three miles from the river. This location is four miles directly east of St. Louis, Missouri. The lake is 2,107 acres (Lockart, 1970) and contains Walkers Island, approximately 420 acres. The lake is bordered on all sides by various types of roads and highways. The Alton and Southern Railroad has a causeway across the southwestern arm and Granite City Steel has a 290 acre settling basin on the northwestern shore. Approximately 1,000 acres are presently being used as a private duck hunting club. The lake has long been recognized as an excellent diving duck hunting area.

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### METHODS AND MATERIALS

Harvest and use data were taken daily from each hunter throughout the 1974 waterfowl season.

No precise measures of duck use were taken although daily visits to the lake yielded a subjective determination of migration peaks.

Band recovery records for all waterfowl bands recovered in the ten minute degree block of Horseshoe Lake were solicited from the Banding Laboratory, Office of Migratory Bird Management, Laurel, Maryland.

## RESULTS AND DISCUSSION

For ease in discussion the results are broken into five sections: hunting pressure, hunter success, harvest, species composition and relationship of band recoveries.

### Hunting Pressure

There was a total of 16 blinds on the hunting club at Horseshoe Lake which forty different hunters made use of during the 1974 season. A daily average of 16 hunters and eight blinds were used. There was a total of 804 man-days of hunting effort expended or 35 percent of the potential.

Hunter use was much heavier on weekends than during the week. On weekends there was an average of 22.7 hunters per day, while during the week there was an average of only 13.2 hunters per day. Opening afternoon had the highest hunting pressure with 37 of the 40 hunters in their blinds. The Thanksgiving holidays constituted the heaviest continuous pressure.

Weather apparently had no effect on hunting pressure except during the final week of the season, when freezing reduced activity.

### Hunter Success

The daily average of ducks bagged per hunter at Horseshoe Lake for the 1974 season was 1.5. The season average for each blind was 75.4 ducks, with each hunter averaging 30.2 ducks for the season. These figures were moderate increases over 1973.

The first half of the season was more productive than the latter half (Table 1 and Fig. 2). During the first 25 days of the season 833 birds were bagged compared to only 373 during the second half. Hunters averaged 1.80 birds per day in the first half as opposed to only 1.09 birds per day in the second half. The second week of the season, October 30th to November 5th, had the highest success ratio with each hunter averaging 2.25 birds per day (Table 1).

After November 16th hunter success decreased, as has been the case during past seasons at Horseshoe Lake. This is attributed to the fact that over 60 percent of the bag at Horseshoe Lake is made up of diving ducks whose peak migration in Illinois occurs during the first week of November (Kennedy and Arthur, 1973).

The best periods of sustained harvest was from November 3rd to November 6th and from November 11th to November 14th (Fig. 2). During each of these four day periods hunters averaged 3.2 ducks per day. November 4th was the most successful day of the season, as 22 hunters bagged 120 ducks for an average of 5.5 per hunter.

### Harvest

The total duck harvest at Horseshoe Lake during the 1974 waterfowl season was 1,206. This represents an 18 percent increase over the 1973 season when 1,018 ducks were bagged.

A breakdown of ducks harvested by weekly periods is found in Table 1.

The reasons for reduced harvest during the final three weeks, November 20th to December 11th, was the departure of diving ducks and freezing weather. Although mallards were more abundant later in the season, harvest results show that about the same number was bagged in the first half of the season as the second half (Table 2). This suggests, as reported by Kennedy and Arthur (1973), that the number of ducks on an area has little direct relationship to the number bagged. Also, mallards had established regular feeding patterns and had stopped using the hunting areas on the lake by the fifth week of the season.

### Species Composition

The dominant species harvested at Horseshoe Lake was the lesser scaup making up 45.8 percent of the total bag. Mallards were next, accounting for 27.7 percent, followed by ring-necked ducks with 8.1 percent of the total bag. Seventeen other species were harvested in lesser amounts (Table 2).

Lesser scaup were harvested throughout the entire season with at least one bagged on 49 of the 50 days. They made up 45.7 percent of the total bag during the first half of the season, October 23rd to November 16th, compared to 46.1 percent of the bag during the second half of the season. However, there were 381 harvested in the first half and only 172 during the second half. The peak of their migration occurred on November 13th with over 5,000 birds on the lake. After this date there was a sharp decline in their numbers as well as most other species.

Since Horseshoe Lake is almost entirely an open body of water there is not much desirable habitat for mallards. The 1974 harvest of 334 mallards represents a slight decrease from 1973 when 350 mallards were bagged. During the first 25 days of this past season 164 mallards were harvested accounting for only 19.7 percent of the total bag. They were more important in the bag during the second half of the season as 170 were bagged accounting for 45.6 percent of the total harvest.

There were 777 diving ducks harvested on Horseshoe Lake accounting for 64.4 percent of the total bag. There were 429 puddle ducks bagged, which is 35.6 percent of the total harvest. During the first half of the season, 583 diving ducks were bagged or 70 percent of the total harvest. Two-hundred and fifty puddlers were bagged in the first half or 30 percent of the total harvest. One hundred and ninety-four diving ducks were bagged in the second half or 52 percent of the total harvest. Puddle ducks accounted for 48 percent of the total bag during the second half as 179 of these species were bagged.

### Relationships of Band Recoveries

There were 146 waterfowl band recoveries in the 10 minute degree block of latitude and longitude containing Horseshoe Lake. Because of variable proportions of each species banded the breakdown of recoveries has little merit. Although 52 percent (76) of the recoveries were mallards, 17 percent were Canada geese and eight percent were wood ducks. The most common species in the bag, lesser scaup, was represented by only three percent of the band recoveries. There were nine other species reported from bands: black duck, green-winged teal, blue-winged teal, shoveler, pintail, redhead, canvasback, ring-neck and blue goose.

Of the 76 mallard recoveries, 16 or 21 percent were considered to be banded on breeding areas. The distribution of those banding sites are comparable to those reported by Anderson and Henny (1972). The 33 recoveries from Illinois bandings are identical as those reported by Bellrose and Crompton (1970).

In summary, there are not sufficient recoveries to warrant an in-depth analysis. Visual inspection suggests that ducks using Horseshoe Lake exhibit a normal recovery pattern.

#### RECOMMENDATIONS

The current private operation offers a limited amount of high quality waterfowl hunting. The average daily success ratio of 1.5 experienced in 1974 was almost twice as productive as the best of 39 public hunting areas in Illinois and the harvest of 1,206 ducks exceeded that on 27 of the state areas (Kennedy et al, 1974).

We recommend that this quality recreation be continued in conjunction with the other uses intended for the property. To maintain the existing quality a stake blind arrangement such as we presently use at Batchtown but not to exceed the present number of 16 blinds is advised. Since the current locations of these blinds have evolved through experience over the years the sites should be maintained.

Waterfowl hunting will come at a time that will not present a major conflict to other activities. Site planning should consider the arrangement of activity areas to prohibit such conflicts.

This type of waterfowl hunting will have a low number of user days but each user day will be of the highest value. Consequently, we conclude that waterfowl hunting should receive a high ranking in the area objectives.

#### Literature Cited

- Anderson, D. R., and C. J. Henny. 1972. Population ecology of the mallard: I. A review of previous studies and the distribution and migration from breeding areas. Fish & Wildl. Ser. Resource Pub. 105. 166pp.
- Bellrose, F. C., and R. D. Crompton. 1970. Migration behavior of mallards and black ducks as determined from banding. Ill. Nat. Hist. Sur. Bull. 30(3):167-234.
- Kennedy, D. D., and G. C. Arthur. 1973. Criteria for selection of Illinois Waterfowl season dates. Illinois Dept. Conservation Migratory Bird Sect., Periodic Rpt. No. 5. 32pp.
- \_\_\_\_\_, G. C. Arthur and V. H. Hamer. 1974. Hunter use and harvest on public waterfowl areas during 1974. Illinois Dept. Conservation Migratory Bird Sect., Periodic Rpt. No. 11. 10pp.
- Lockart, R. 1970. Madison County surface water resources. Illinois Dept. Conservation, Division of Fisheries. 56pp.

Table 1. The distribution of hunter numbers and harvest on a weekly basis at Horseshoe Lake during the 1974 waterfowl season.

Date	Hunter Number	Ducks Harvested	Success Ratio
Oct. 23 - Oct. 29	164	245	1.49
Oct. 30 - Nov. 5	117	263	2.25
Nov. 6 - Nov. 12	119	178	1.49
Nov. 13 - Nov. 19	96	187	1.95
Nov. 20 - Nov. 26	115	110	.95
Nov. 27 - Dec. 3	116	132	1.13
Dec. 4 - Dec. 11	77	91	1.18
Total	804	1,206	1.50

Table 2. Species composition of the bag at Horseshoe Lake during the 1974 waterfowl season.

Species	No. Harvested		No. Harvested		Total No. of Ducks Harvested	%
	in First Half (Oct.23-Nov.16)	% (Oct.23-Nov.16)	in Second Half (Nov.17-Dec.11)	% (Nov.17-Dec.11)		
Lesser Scaup	381	45.7	172	46.1	553	45.8
Mallard	164	19.7	170	45.6	334	27.7
Ring-neck	95	11.4	3	.8	98	8.1
Redhead	52	6.2	2	.5	54	4.4
Ruddy Duck	28	3.3	5	1.3	33	2.7
Blue-Winged Teal	25	3.0	1	.2	26	2.1
Green-Winged Teal	18	2.1	2	.5	20	1.6
Bufflehead	16	1.9	4	1.1	20	1.6
Pintail	16	1.9	1	.2	17	1.4
Wood Duck	9	1.1	3	.8	12	.9
Shoveler	6	.7	2	.5	8	.6
Hooded Merganser	4	.4	2	.5	6	.5
Gadwall	5	.6	0	.0	5	.4
Goldeneye	0	.0	5	1.3	5	.4
Wigeon	4	.4	0	.0	4	.3
Black Duck	3	.3	0	.0	3	.2
White-Winged Scoter	3	.3	0	.0	3	.2
American Scoter	2	.2	0	.0	2	.1
American Merganser	2	.2	0	.0	2	.1
Red-Breasted Merganser	0	.0	1	.2	1	.1
<b>Total</b>	<b>833</b>	<b>99.2</b>	<b>373</b>	<b>99.6</b>	<b>1206</b>	<b>99.1</b>



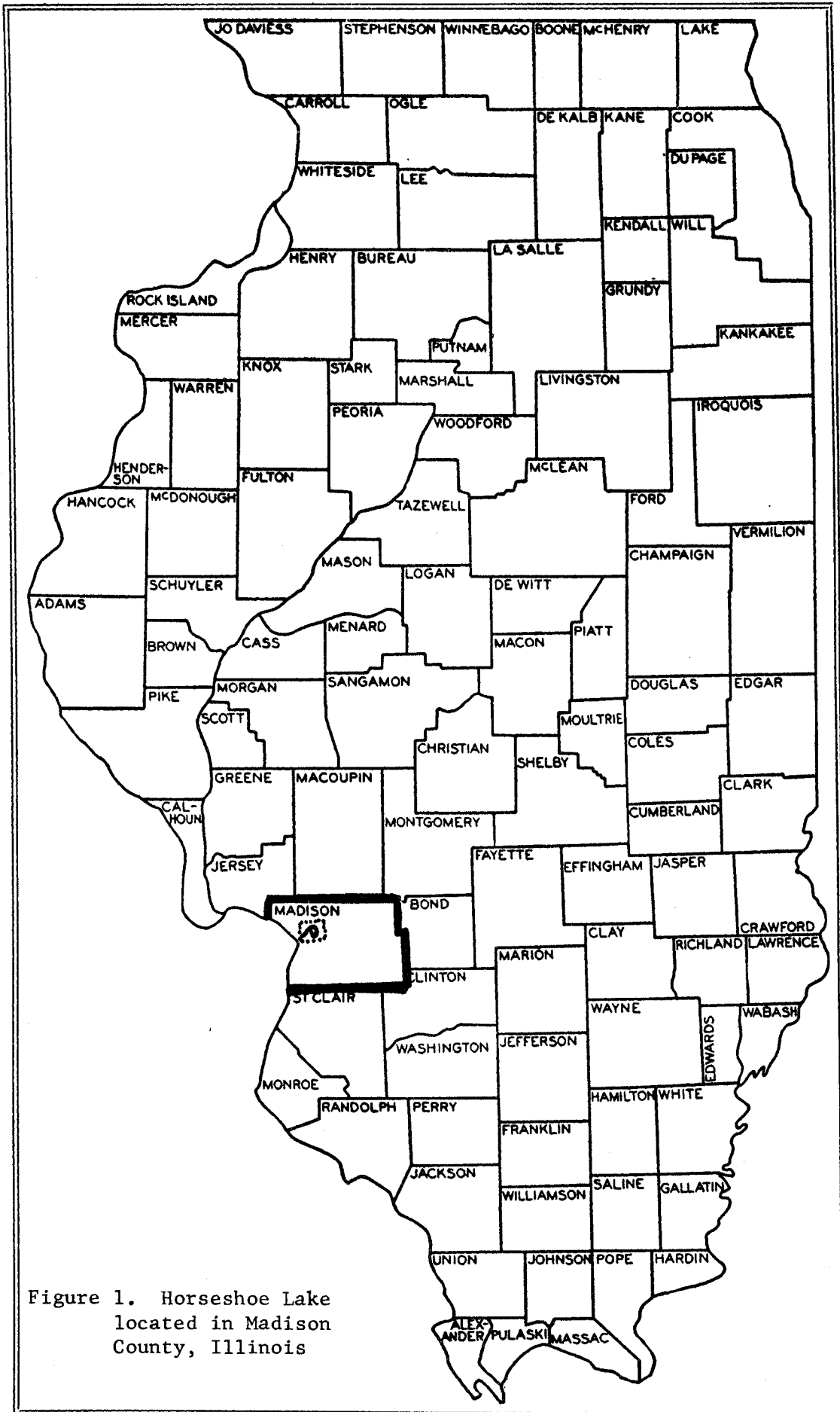


Figure 1. Horseshoe Lake located in Madison County, Illinois

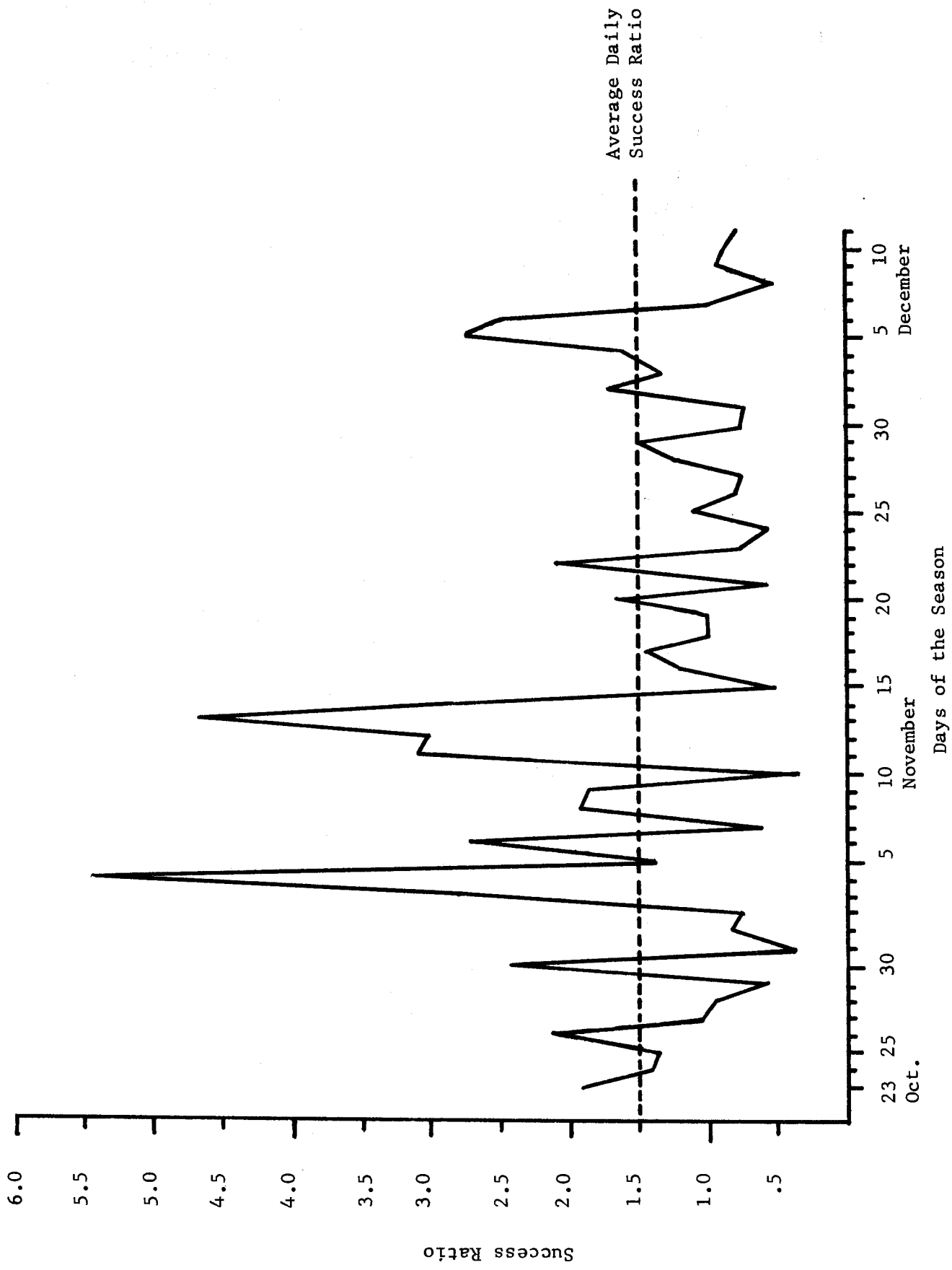


Figure 2. A daily progression of hunter success ratio throughout the 1974 waterfowl season at Horseshoe Lake, Madison County, Illinois