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## MIGRATORY BIRD SECTION

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### WATERFOWL HARVEST AND HUNTER USE AT CARLYLE LAKE DURING THE 1973 SEASON

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**Abstract:** Car counts and random bag checks at Carlyle Lake during the 1973 waterfowl season indicated that 8,268 hunters harvested 5,639 ducks for an average of .68 birds per trip. Mild weather, poor food conditions and reduced duck populations resulted in low duck use. A peak of 8,000 birds was recorded on December 10th. Hunters, harvest and success for each major hunting area were: subimpoundment - 4,143 hunters, 3,603 ducks and .87 success ratio; flooded dead timber - 3,345 hunters, 1,635 ducks and .49 success ratio; open water area - 780 hunters, 401 ducks and .51 success ratio. An early season opening, mild weather and a shortage of other targets shifted considerable pressure onto the wood duck which made up 21 percent of the total bag. Mallards were 51 percent of the bag and other puddle duck species comprised 24 percent.

#### INTRODUCTION

This report covers hunter use and harvest during the second year of an intensive study of the Carlyle Lake Wildlife Management Area. In 1973 Periodic Reports, Numbers One and Four (Kennedy and Arthur, 1973a,b) respectively considered use and harvest during 1972 and opinion surveys of hunter regulation methods.

Data presented allows for comparison of 1972 when food crops and waterfowl use were abundant and 1973 when flooding prohibited row cropping and duck use dropped. This is particularly important due to the recent concern over "short-stopping" by the Bureau of Sport Fisheries and Wildlife and other states.

Appreciation is due Merrill Collins, Jack Golden, Darrel Sims, John Schlacter, Floyd Kringer, Alan Guy and Paul Willms.

#### METHODS AND MATERIALS

Hunter use was determined by driving to all access points on the lake at or slightly after the opening of shooting hours. Cars were recorded for each access point. The number of hunters per car was determined at the time of bag checks.

On the subimpoundment and the flooded dead timber areas, access points were randomly selected for bag checks each day. At the access points each hunter was

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checked for number and kinds of ducks harvested. No bag checks were made in the open water areas. It was considered to have the same hunter success ratios as the flooded dead timber areas.

Hunter use figures were estimated daily from the average number of hunters per car multiplied by the number of cars. Harvest figures were projected directly from success ratios and hunter numbers for each of the three areas.

Three waterfowl inventories were made during the fall. High fire danger claimed priority use of the aircraft during November and no counts were made.

## RESULTS AND DISCUSSION

For ease in discussion the results are broken into four sections: hunting pressure, hunter success, harvest, and species composition.

### Hunting Pressure

The total number of hunters using Carlyle Lake during the 1973 waterfowl season was 8,268 (Table 1). This is approximately a 12 percent decrease from 1972. The subimpoundment attracted the heaviest use with 50 percent or 4,143 of the total hunter efforts. The flooded dead timber accounted for 40 percent of the use and the open water had nine percent (Table 1).

These use figures for the three areas represents a slight shift from the use in 1972 (Kennedy and Arthur, 1973a). The flooded dead timber use dropped 900 hunter days while the subimpoundment use remained unchanged. Use in the open water dropped by 200 trips. This drop in usage is probably related to the poorer success discussed in a following section.

The Tamalco access to the flooded dead timber area continues to receive greatest use of all hunting access points accounting for 26 percent or 2,150 hunter use days. Within the subimpoundment access points there was a drop at parking lot number two of 200 hunter trips from 1972 to 1973. An increase of about 200 was recorded at Cox's Bridge. This shift was attributed to road construction on secondary roads leading to parking lot number two which made access all but impossible during the wet periods.

Hunting was heavy the first three weekends of the season and was markedly reduced the last three weekends. Weekday pressure was fairly constant throughout the season at about 100 hunters per day (Fig. 1). The flooded dead timber and subimpoundment use reflects basically the same patterns (Fig. 2).

An extremely mild fall was not conducive to high expectations for waterfowl hunters and hunting pressure was light. Warm weather tended to delay migration. It also resulted in less local movement of birds due to lower energy requirements and less food intake. These factors reduce harvest success and consequently hunting pressure.

### Hunter Success

The average success per hunter trip at Carlyle was .68 (Table 1). Success on the subimpoundment was .87, somewhat better than the .80 recorded in 1972.

The flooded dead timber success was .49 a significant drop from the .82 success of 1972. Success rates for the entire area are found in Figure 3 and a comparison between the flooded dead timber and the subimpoundment success is in Figure 4.

In 1972 when overall success was .84 the best period of sustained good hunting was for seven days the last of November and early December (Kennedy and Arthur, 1973a). This season there were two good periods, but of shorter duration (Fig. 3). The first period of four days was from October 24th through the 27th and the second period of three days was from October 31st through November 2nd.

The shift in hunting pressure between the access points from 1972 to 1973 was apparently the result of poor success (Table 1). In the subimpoundment, success at lots one, two and three was basically the same as in 1972. Cox's Bridge went from .64 in 1972 to .91 in 1973, thus accounting for the increase in use. The Tamalco access into the flooded dead timber area recorded a success of .98 in 1972 but dropped to .48 in 1973 losing 500 hunter trips between the two years.

### Harvest

The total duck harvest in all areas was 5,639 (Table 1). This represents a decrease of 27 percent from 1972 and reflects a number of factors. First, the waterfowl fall flight was expected to decline by a comparable percentage. Secondly, an extremely mild fall tended to shift migration patterns and hold many mallards further north than normal. Third, spring flooding prohibited the planting of millets and sorghums as in 1972. Consequently the area was not as attractive as in 1972. In 1973 approximately 240,000 birds were present at Carlyle during 10 days of the season. This year, although inventories were not sufficient, there was a notable reduction in birds (Fig. 7). The peak inventory recorded for 1973 was 8,000 birds.

Although harvest was reduced it did not approximate the proportions of change in duck use. This suggest, as have other studies (Bellrose, 1944; and Kennedy and Arthur, 1973c), that beyond a certain level there is little relationship between the number of ducks on an area and the number harvested.

The subimpoundment accounted for 64 percent of the harvest and the flooded dead timber hunter took 29 percent of the ducks. This is a marked change from 42 percent and 44 percent respectively for the same areas in 1972 (Table 1).

### Species Composition

Species composition of the bag for the entire area, the flooded dead timber area and the subimpoundment area is found in Table 2.

Mallards in the bag dropped from 72 percent in 1972 to 51 percent in 1973. This and other shifts in percent composition and volume are a result of low populations, weather and habitat conditions as mentioned earlier. Also a noticeable change is the increase in wood ducks from eight percent in 1972 to 21 percent in 1973. This is due primarily to an earlier season opening. Wood ducks were an important bird in the bag, particularly in the flooded dead timber area, until the 1st of November (Fig. 5 and Fig. 6). In 1972 they become infrequent in the bag around November 4th. This suggests a traditional migration period or changes in the weather and not shooting pressure which results in their exodus. Blue wing and green wing teal, and species of puddle ducks other than the mallard were more important birds in the bag in the subimpoundment area than in the flooded dead timber area.

Literature Cited

Bellrose, F. C. 1944. Duck populations and kill: an evaluation of some waterfowl regulations in Illinois. Illinois Natural History Survey Bulletin 23(2):327-372.

Kennedy, D. D. and G. C. Arthur, 1973a. Waterfowl harvest and hunter use at Carlyle Lake during the 1972 season. Illinois Dept. Conservation, Migratory Bird Sect., Periodic Rpt. No. 1. 17pp.

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\_\_\_\_\_. 1973b. Waterfowl hunter opinion survey of Carlyle Lake. Illinois Dept. Conservation, Migratory Bird Sect., Periodic Rpt. No. 4. 13pp.

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\_\_\_\_\_. 1973c. Criteria for selection of Illinois Waterfowl season dates. Illinois Dept. Conservation, Migratory Bird Sect., Periodic Rpt. No. 5. 32pp.

Table 1. The distribution of hunter numbers and harvest for each of the major areas and their access points at Carlyle Lake during the 1973 waterfowl season.

Area	Hunting Pressure		Ducks Harvested	Harvest		Percent Kill of Total Area
	Hunter Number	Percent of Area		Percent of Area	Success Ratio	
<b>Subimpoundment Area</b>						
Lot #1	1,110	.27	933	.26	.84	.17
Lot #2	1,059	.26	915	.25	.86	.16
Lot #3	850	.21	727	.20	.86	.13
Cox's Bridge	1,124	.27	1,028	.29	.91	.18
Total	4,143	1.01	3,603	1.00	.87	.64
<b>Flooded Dead Timber</b>						
Tamalco	2,150	.64	1,037	.63	.48	.18
Patako	1,195	.36	598	.37	.50	.11
Total	3,345	1.00	1,635	1.00	.49	.29
Open Water Total	780	1.00	401	1.00	.51	.07
Grand Total	8,268	.99	5,639	.68	.68	1.00

Table 2. Species composition of the bag at Carlyle Lake during the 1973 waterfowl season.

Species	Subimpoundment		Flooded Dead Timber		Total	
	Sample Size	%	Sample Size	%	Sample Size	%
Mallard	416	.47	434	.56	850	.51
Wood Duck	171	.19	177	.23	348	.21
Green Wing Teal	71	.08	28	.04	99	.06
Baldpate	57	.06	34	.04	91	.05
Gadwall	36	.04	29	.04	65	.04
Blue Wing Teal	36	.04	11	.01	47	.03
Pintail	34	.04	10	.01	44	.03
Black Duck	24	.03	16	.02	40	.02
Ringneck	15	.02	14	.02	29	.02
Shoveller	13	.01	3	T	16	.01
Lessor Scaup	8	.01	9	.01	17	.01
Redhead	3	T	2	T	5	T
Canvasback	2	T	2	T	4	T
Goldeneye	2	T	1	T	3	T
Hooded Merganser	--	--	5	.01	5	T
<b>Total</b>	<b>888</b>	<b>.99</b>	<b>775</b>	<b>.99</b>	<b>1,663</b>	<b>.99</b>



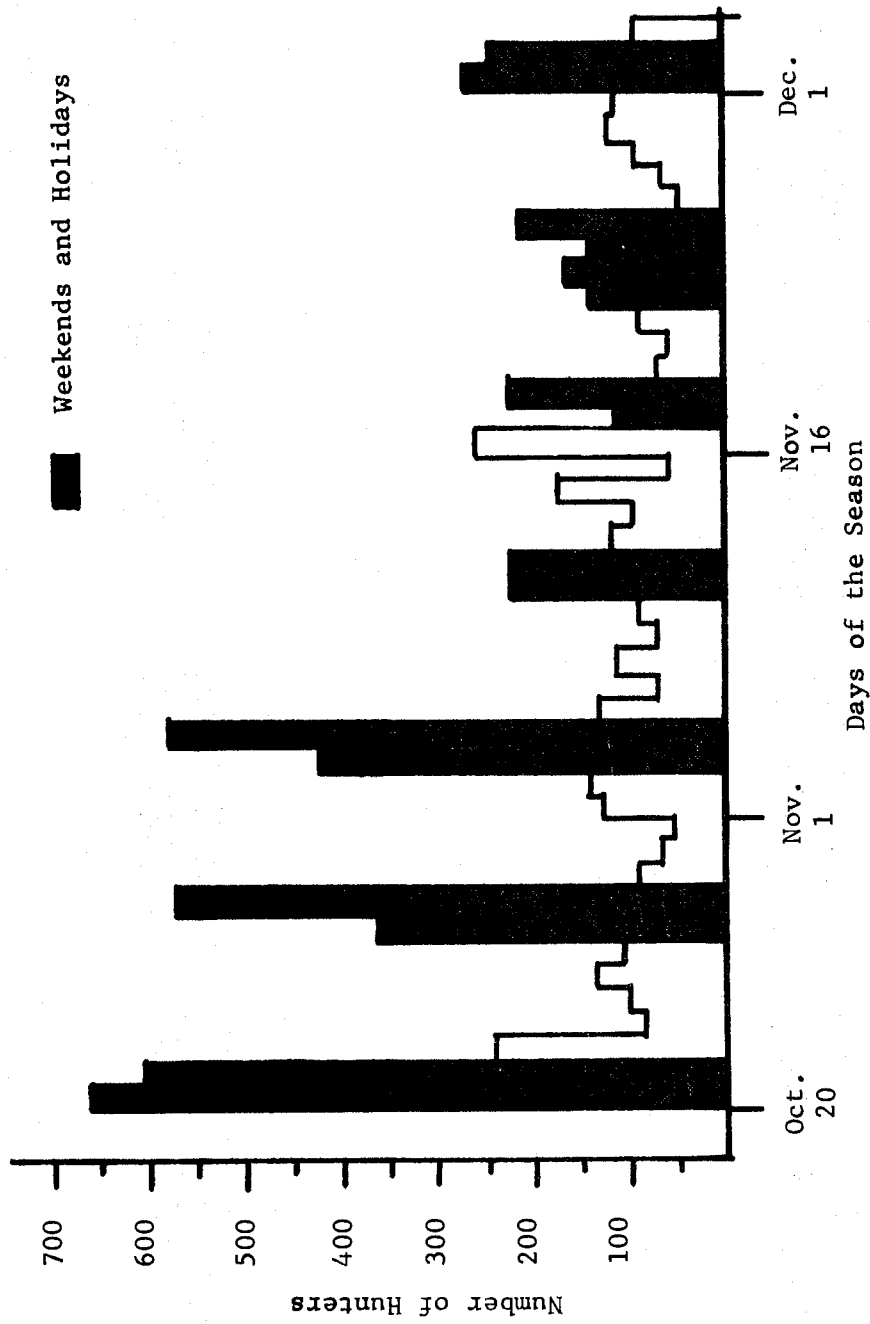


Figure 1. A progression of total hunting pressure at Carlyle Lake throughout the 1973 waterfowl season.

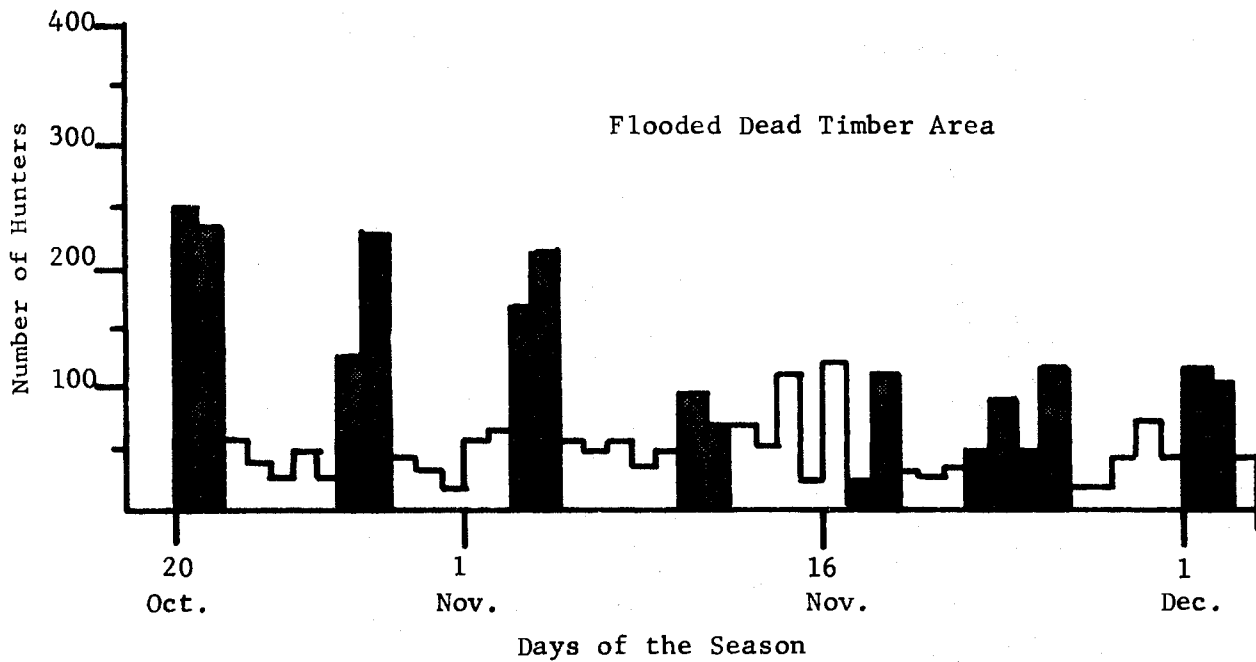
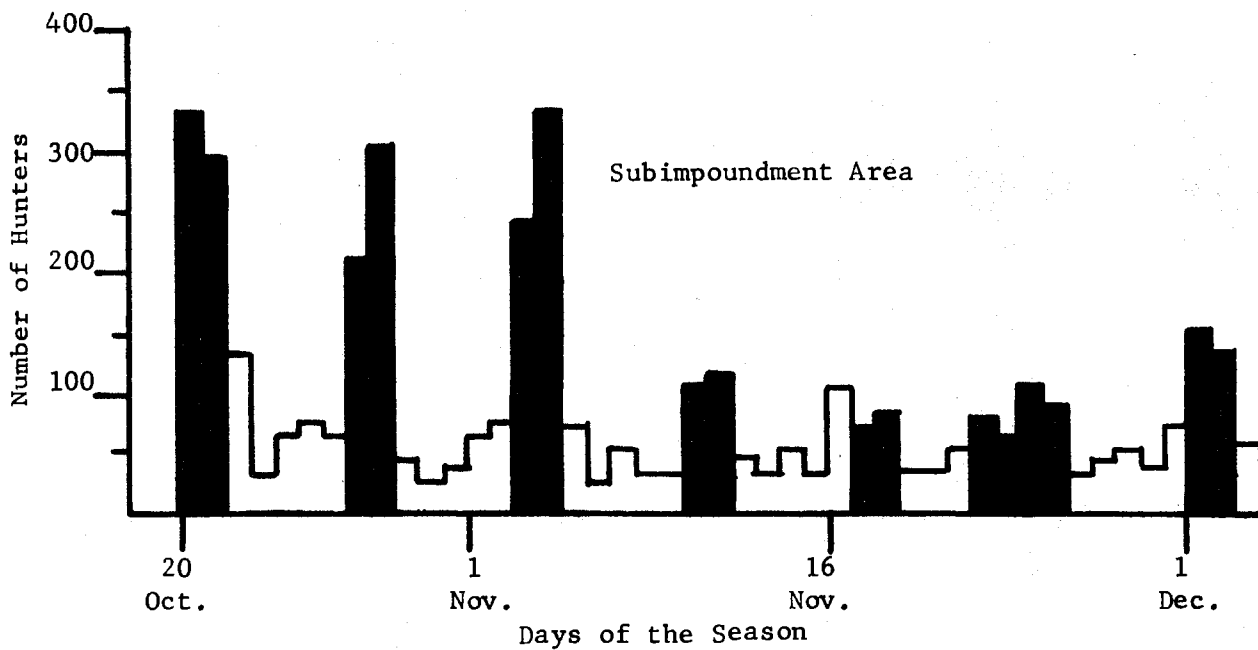


Figure 2. A progression of hunting pressure in the subimpoundment area and the flooded dead timber area at Carlyle Lake during the 1973 waterfowl season.



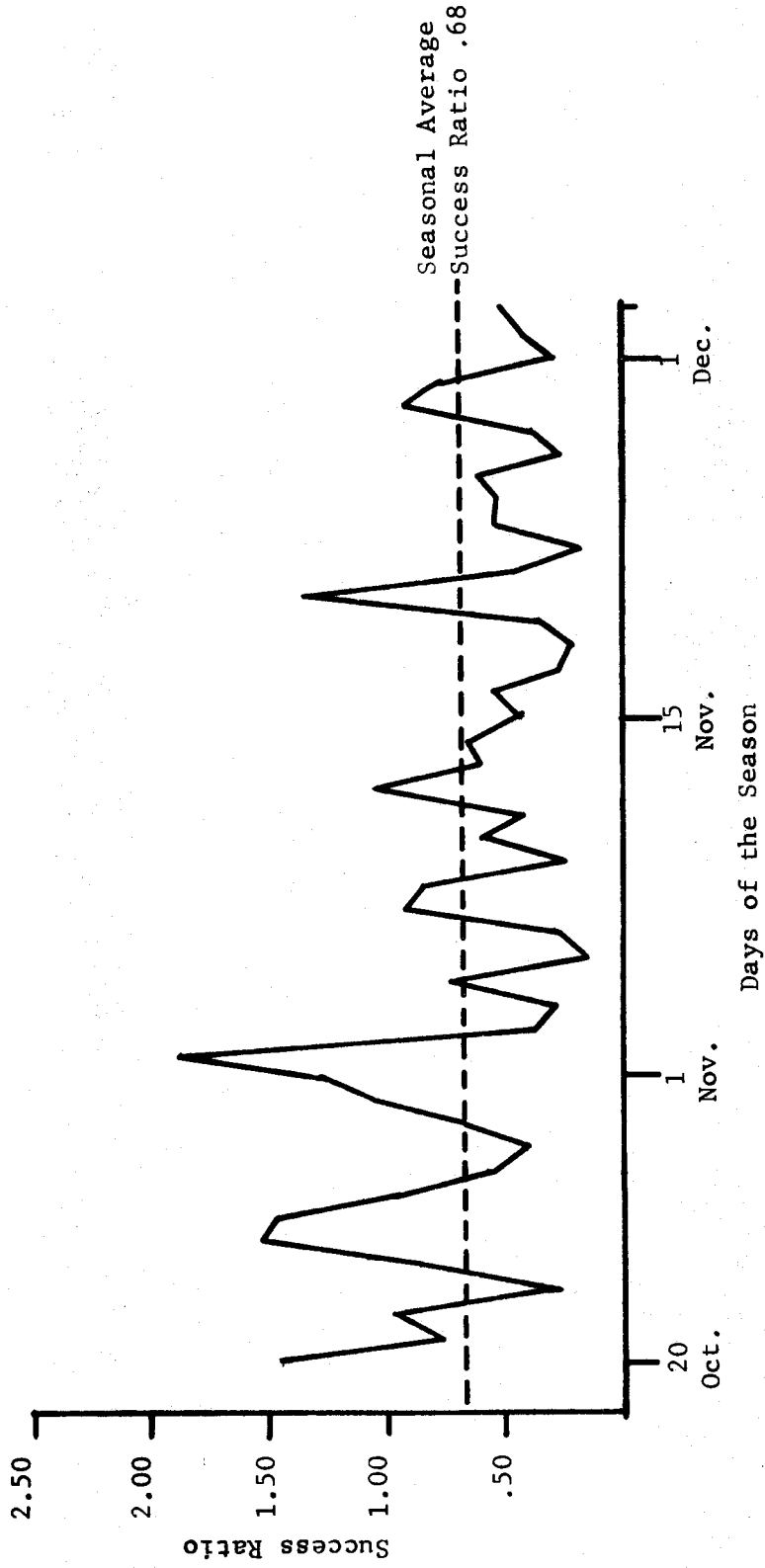


Figure 3. Daily success ratio from all hunting areas at Carlyle Lake during the 1973 waterfowl season.

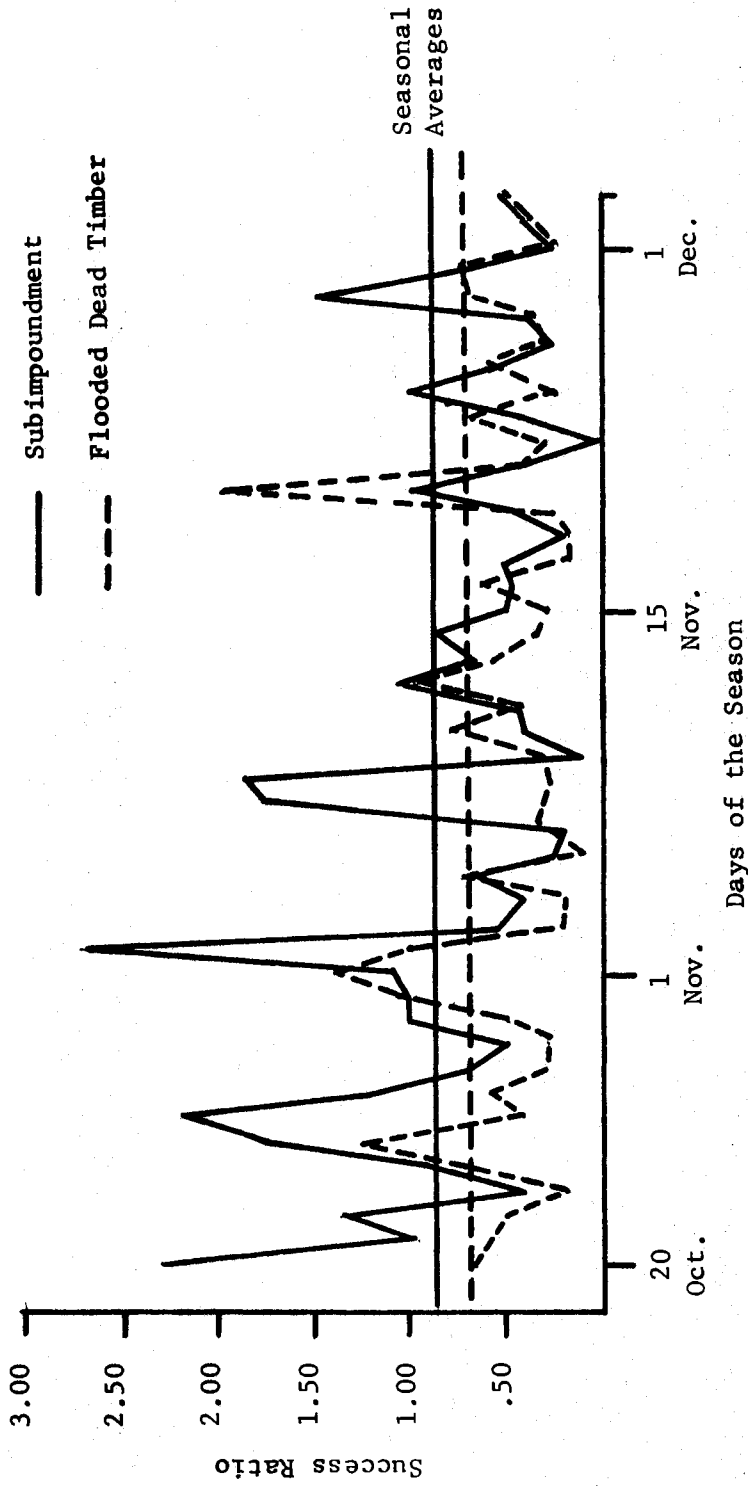


Figure 4. Daily success ratios from subimpoundment and flooded dead timber areas at Carlyle Lake during the 1973 waterfowl season.

Divers

Teal and Shoveller

Misc. - Puddlers

Wood Ducks

Mallards

Species



20 Oct. 22 Oct. 27 Oct. 1 Nov. 6 Nov. 11 Nov. 16 Nov. 21 Nov. 26 Nov. 1 Dec.

Figure 5. Species composition by five day periods throughout the 1973 waterfowl season on the flooded dead timber area of Carlyle Lake. The total of all shaded portions on any verticle plane through the graph represents 100% of the harvest for that day.

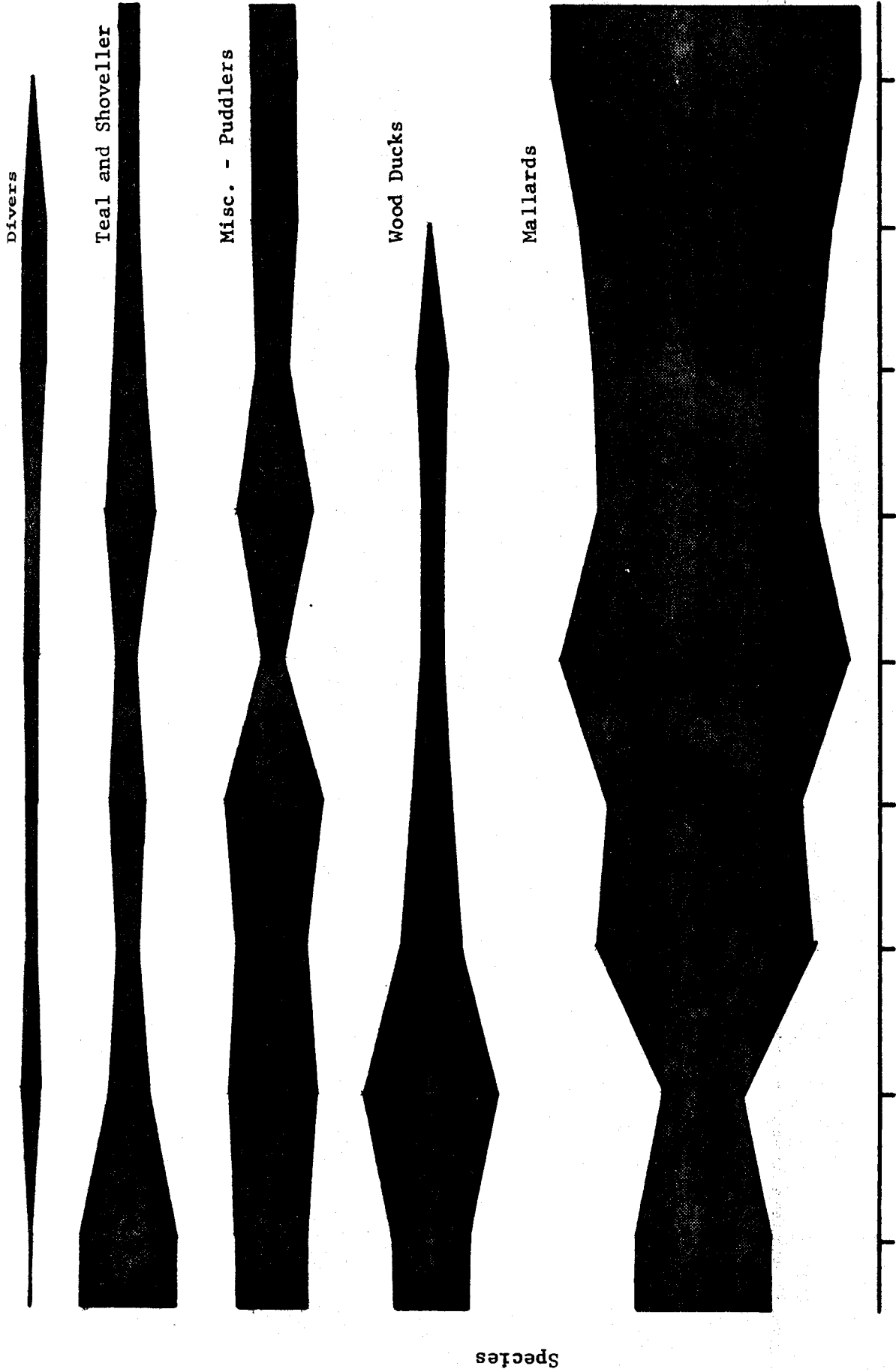


Figure 6. Species composition by five day periods throughout the 1973 waterfowl season on the subimpoundment areas of Carlyle Lake. The total of all shaded portions on any verticle plane through the graph represents 100% of the harvest for that day.

Species

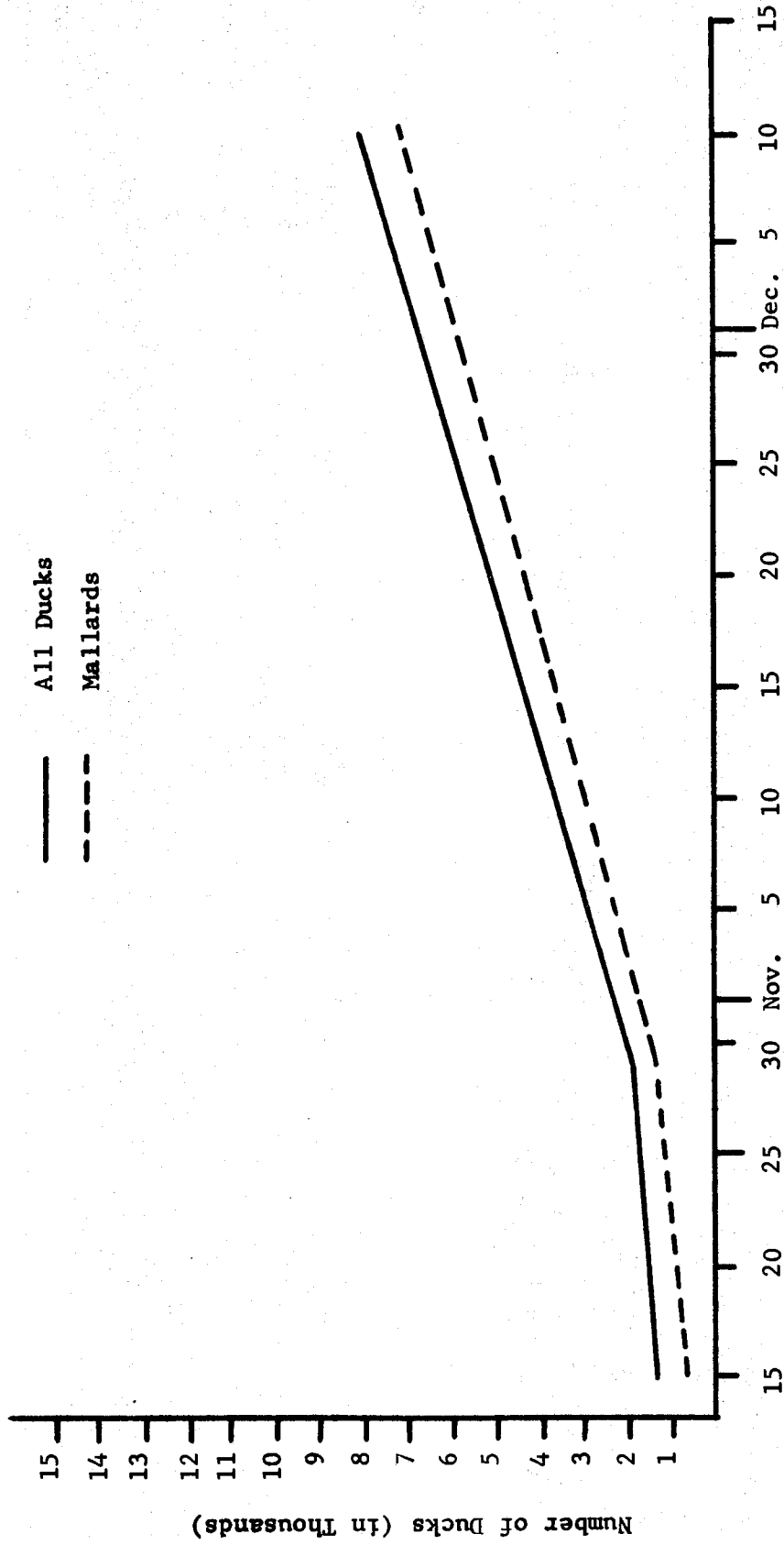


Figure 7. Waterfowl inventory figures for Carlyle Lake 1973