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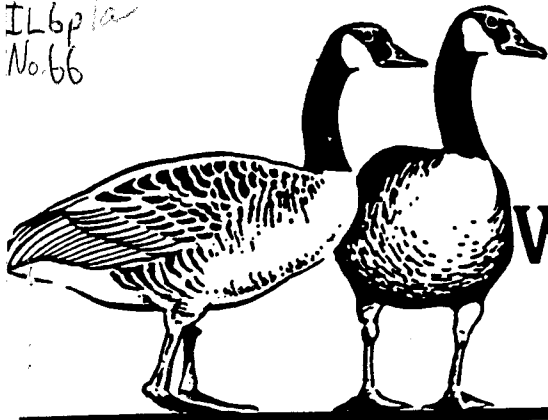
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WATERFOWL PROGRAM

ILLINOIS DEPARTMENT OF CONSERVATION

DIVISION OF WILDLIFE RESOURCES NATURAL HISTORY SURVEY

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WATERFOWL HARVEST AND HUNTER USE IN THE REND LAKE QUOTA ZONE DURING THE 1989 WATERFOWL SEASON

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Abstract: Rend Lake and the surrounding area in Franklin and Jefferson counties comprise the Rend Lake Quota Zone. Hunters are required to register before and after each day's hunt. Hunter use and harvest at Rend Lake are determined from hunter registration sheets. The known harvest is then used as a percentage to project total harvest in the two counties. The Rend Lake Quota Zone is assigned a harvest quota equal to 15% of the statewide Canada goose harvest allocation. The statewide Canada goose harvest allocation was 103,500. The Rend Lake Quota increased by 40% in 1989 to 15,500. The goose season at Rend Lake opened 20 November 1989 and closed 56 days later on 14 January 1990. The daily bag limit was 2 Canada geese from 20 November through 31 December and increased to 3 Canada geese beginning on 1 January. The duck season at Rend Lake opened 10 November and closed 30 days later on 9 December. Waterfowl hunters on the public hunting areas at Rend Lake harvested 3,868 ducks (2,519 mallards) and 3,971 geese. Waterfowl hunters spent a total of 14,148 days afield on the public hunting areas at Rend Lake. Duck harvest increased 8% while the goose harvest decreased 5% in 1989. Season length, shooting hours (sunrise) and bag limits (conventional) did not change in 1989. Hunter success during the duck season was .54 ducks per trip while goose hunters reported a .45 success rate after the close of the duck season. Access areas with the highest duck harvest included Bonnie Church Camp (873), Cottonwood (741), Waltonville East (334), Casey Fork Dam (321), Dareville (311), and Silo (202). Goose hunters were most successful at Turnip Patch (550), Whistling Wings (487), Ward Branch (377), Lambrusco (344), Honker's Point (269), and Ken Gray (263). Canada goose numbers at Rend Lake reached a December high of 18,000 compared to 72,000 in 1988. A major cold period occurred during the week of 25 December resulting in the entire lake being frozen. Canada goose numbers at Rend Lake decreased to 3,000 on 26 December. Warmer temperatures prevailed in early January and Canada goose numbers reached a record high of 170,000 on 16 January.

INTRODUCTION

Rend Lake constitutes one of the largest and most diverse waterfowl areas in Illinois, offering excellent hunting opportunities for ducks and Canada geese. Waterfowl harvest at Rend Lake has been monitored since 1975. Beginning in 1979, hunters using Rend Lake public access areas were required to register and report their daily harvest. The registration system was developed in response to the need for a practical method of determining hunter use and harvest at Rend Lake. This has proven to be a reliable and accurate technique. Commercial goose clubs on private lands in the Rend Lake Quota Zone are required to obtain a license and submit daily hunter registration and harvest records at the close of the hunting season. Prior to the 1982 season, noncommercial goose hunting areas were also required to register hunters and report harvest. Since 1982, the Canada goose harvest on private land in the surrounding area has been derived from the Illinois Waterfowl Hunter Questionnaire Survey. This statewide survey has been conducted since 1981 and will continue in the future on an annual basis.

In 1986, Rend Lake and the surrounding area in Franklin and Jefferson counties were designated as a Mississippi Valley Population (MVP) Canada goose harvest quota zone. The protection provided by the quota zone allowed liberalization of harvest regulations while preventing an overharvest in a high concentration goose area. An accurate account of harvest and hunter use is necessary for the continued evaluation of the waterfowl management program at Rend Lake.

The Rend Lake Wildlife Management Area is a cooperative project between the U.S. Army Corps of Engineers (COE) and the Illinois Department of Conservation (DOC). The project comprises approximately 16,000 acres of land and water in Jefferson and Franklin counties. Implementation of the waterfowl harvest and hunter use survey was partially funded by Pittman-Robertson Project W-83-D.

Employees of the Division of Lands, Division of Wildlife Resources and COE assisted in the distribution and collection of hunter registration sheets in 1989.

METHODS

Hunter use and waterfowl harvest at all Rend Lake public access areas (44) were monitored using a mandatory registration system. A registration box was placed at each hunter access area around the lake and the Big Muddy and Casey Fork management areas. Hunters were required to register before hunting and report their daily harvest by number and species following each hunt. Registration sheets were collected daily and the number of hunters

and harvest by species were totaled for individual access areas and for each day of the season.

Hunter activity and Canada goose harvest on private land surrounding Rend Lake were assessed in three ways. Commercial licenses were issued for all areas where payment was received for goose hunting privileges. At these commercial clubs, hunters were required to register before hunting and report their harvest at the end of the hunt. Registration forms were submitted by commercial club owners at the end of the season to the Union County Refuge office for tabulation of harvest and hunter use. Goose harvest on other private lands surrounding Rend Lake in Franklin and Jefferson counties was determined from the Statewide Waterfowl Hunter Questionnaire Survey. This was conducted after the 1989 waterfowl season. In addition to this information, a projection of total harvest in the two-county quota zone was possible using the mean reported harvest on the public hunting areas in past years. Analysis of Canada goose population and harvest data at Rend Lake over the past five years revealed that hunters on the public hunting areas have reported a consistent 35% of the total goose harvest in the Rend Lake Quota Zone. This percent was then used as a base to project total harvest throughout the season in the two-county zone. Goose harvest and hunter use on the public hunting areas were tabulated daily by DOC staff at the Mt. Vernon game farm. Projected harvest in the zone was determined and harvest update information was forwarded to the Rend Lake COE office where it was provided to the public throughout the season by a recorded telephone message.

Canada goose populations at Rend Lake and other wintering areas in southern Illinois were monitored weekly by aerial surveys starting in mid-October and continuing to mid-February. DOC biologists conducted the inventories using Department of Transportation aircraft (Cessna 210 or Cessna 337).

RESULTS AND DISCUSSION

A projected fall flight of 1.25 million MVP Canada geese resulted in much higher harvest allocations and continued liberalization of hunting regulations in 1989. The Canada goose harvest allocation for Illinois increased from 74,000 in 1988 to 103,500 in 1989. Season length outside the quota zone increased from 50 days in 1988 to 60 in 1989. The daily bag limit for Canada geese was 2 from 20 November through 31 December. For the first time in the Rend Lake Quota Zone, the daily bag limit for Canada geese increased to 3 beginning on 1 January. The Rend Lake Quota Zone annually receives 15% of the statewide harvest allocation. The harvest quota assigned to Rend Lake increased (40%) from 11,100 in 1988 to 15,500 in 1989. The protection offered by a quota zone, with emergency closure when the quota is reached, allowed hunters to be afield the entire 56 day season in 1989. The season opened

20 November and closed 14 January.

Despite improvements in winter snowpack in some parts of prairie Canada, total pond numbers decreased 20% from 1988. This is the second lowest level on record. Total pond numbers in the north-central states increased significantly (63%) from last year's poor conditions, however, the total duck breeding population in surveyed areas decreased 8% from 1988 and was 24% below the 1955-1988 average. Mallard breeding pairs decreased (7%) from 6.5 million in 1988 to 6.1 million in 1989. Of the 10 major species, 9 decreased from 1988 population levels. In 1989, the fall flight index of ducks was estimated to be 64 million, down (3%) from 66 million in 1988. The 1989 fall flight is the second lowest index on record.

Season length (30 days), shooting hours (sunrise) and bag limits (conventional) did not change in 1989. The duck season at Rend Lake opened 10 November and closed on 9 December.

Although mild weather prevailed throughout most of the duck season at Rend Lake, waterfowl migration was normal. Weather conditions following the close of the duck season were unseasonably mild followed by extremely cold periods. The major migration of Canada geese (500,000) from east-central Wisconsin occurred 16-18 December. Subzero temperatures occurred during and after the migration which froze Rend Lake and forced many geese to seek open water at Union County and Horseshoe Lake Conservation Areas. The temporary departure of most of the geese from Rend Lake had a significant impact on harvest and hunter success. Temperatures moderated during the last few days of December causing the ice to melt on the lake which resulted in improved hunter success as the geese returned to the area.

Hunter Use

Waterfowl hunters reported a total of 14,148 days afield (Table 1) in 1989 (down 4% from 1988). The 5-year (1985-1989) average was 13,405 days afield, with a minimum of 6,555 in 1976 and a maximum of 17,873 in 1981. Goose hunters had the opportunity to harvest geese 36 days after the close of the duck season in 1989.

Registration forms revealed that 7,190 hunters were afield during the duck season while 6,958 hunters hunted geese after the close of the duck season. During the duck season, the mean number of hunters per day was 240 and an average of 193 goose hunters per day were active on Rend Lake after the close of the duck season.

Access areas which received the highest hunting pressure included Whistling Wings (1,039), Lambrusco (947), Cottonwood (901), Bonnie Church Camp (870), Turnip Patch (780), Ward Branch (777), and Bonnie South (764).

Eighteen licensed commercial goose clubs in the Rend Lake Quota Zone reported a total of 2,629 days afield in 1989-90. The number of commercial clubs and days afield were, respectively, 125% and 25% greater than in 1988. The Statewide Waterfowl Hunter Questionnaire Survey revealed that a total of 7,000 hunters (19% greater than 1988) spent 42,600 days afield (24% greater than 1988) in the Rend Lake Quota Zone (Anderson 1990).

Harvest

A reported total of 3,868 ducks (8% greater than 1988) was harvested at Rend Lake during the 1989 waterfowl season (Table 2). Mallards comprised 65% of the harvest, wood ducks 8%, green-winged teal 7%, and black ducks 7%. Mallard harvest continued to be below (17%) the 5-year (1985-1989) average of 3,045. Harvest trends for dabbling ducks and diving ducks from 1985-1989 are shown in Figures 1 and 2.

The access areas with the highest duck harvest included Bonnie Church Camp (873), Cottonwood (741), Waltonville East (334), Casey Fork Dam (321), and Dareville (311). These 5 areas accounted for 67% of the total duck harvest on the public hunting areas in 1989.

The Canada goose harvest at Rend Lake totaled 3,971 geese in 1989-90 (Table 3). This represents a 5% decrease from 1988-89, however it was the third highest harvest since 1976. Goose harvest is often incidental to duck hunting during the duck season. Hunters reported an incidental harvest of 805 geese or 20% of the total during the duck season in 1989. The majority of the harvest (80%) occurred in late December and early January, after the close of the duck season when 6,958 goose hunters harvested 3,166 geese. Public access areas with the highest goose harvest included Turnip Patch (550), Whistling Wings (487), Ward Branch (377), Lambrusco (344), and Honker's Point (269).

Applying the reported harvest on public hunting areas as 35% of the total two-county zone goose harvest, resulted in a projected harvest estimate of 11,346 geese in the Rend Lake Quota Zone. This was 4,154 geese less than the assigned quota of 15,500. The harvest estimate derived from the Statewide Hunter Questionnaire Survey after the season revealed a similar estimated harvest of 12,613 geese in the Rend Lake Quota Zone (Anderson 1990).

Eighteen commercial goose hunting clubs reported a total harvest of 843 geese for the season (9% less than 1988).

Hunter Success

Duck hunter success at Rend Lake improved slightly in 1989 (.54), compared to 1988 (.49) (Table 3). Goose hunter success on the public hunting areas is influenced by cropping patterns, weather factors and migration chronology. After the close of the duck season, goose hunters reported a success rate of .45 compared to .43 in 1988. The success rate in the Rend Lake Quota Zone as determined by the Statewide Hunter Questionnaire Survey was .30 goose per hunter in 1989 compared to .28 in 1988. Commercial goose hunting clubs in the Rend Lake Zone reported a success rate of .32 goose per hunter-trip in 1989 (down from .44 in 1988).

Waterfowl Population Status

Extremely cold temperatures caused Rend Lake to freeze in late December which resulted in a mass exodus of waterfowl from the area. An aerial survey conducted 26 December revealed only 3,000 geese at Rend Lake which is a record low for December (Table 4). Unprecedented numbers of Canada geese were recorded on other refuges in southern Illinois and western Kentucky on 26 December (871,150). After temperatures moderated in early January, Canada goose numbers at Rend Lake increased to 170,000 on 16 January (Table 5). This represents the highest number ever recorded at Rend Lake (Figure 3).

Five waterfowl population aerial inventories were conducted by the Illinois Natural History Survey between 11 October and 12 December. Total duck numbers in 1989 increased significantly (71%) from similar surveys conducted in 1988. Duck populations surveyed at Rend Lake increased from 2,945 on 11 October to a peak of 29,920 on 9 November. Aerial inventories revealed that total duck numbers decreased from 25,075 on 21 November to 11,255 on 12 December.

The number of mallards surveyed in 1989 increased 23% compared to the same survey period (October - December) the previous year. In 1989, peak numbers of mallards were recorded on 21 November (15,000) compared to 17 November (11,000) 1988.

CONCLUSIONS

Food (corn and small grain mixture) and water conditions in the subimpoundments and refuge were good in 1989. However, green forage (wheat and ladino clover) production on the refuge was poor. This was a result of poor wheat germination due to a lack of precipitation, and improper management of clover fields.

An extremely cold period in late December may have contributed to an avian cholera die-off at Rend Lake. This resulted in an estimated loss of 500 Canada geese during the week of 18 January.

Because of this year's excellent production, the outlook for the MVP is very encouraging. Surveys conducted during this winter revealed that the present MVP population (871,150) is well above the current management objective of 500,000. Continued growth (age and recruitment) will translate into generous harvest allocations and liberalization of regulations statewide next year.

The fall flight forecast of ducks declined again in 1989, and several species are now at all-time lows. In some areas, however, production indices have shown improvements compared to last year's low levels. Winter snowpack and spring rains returned to near normal in some areas. Improved water and habitat conditions for several years will be necessary before the downward trend of duck populations can be reversed.

LITERATURE CITED

- Anderson, W.L. 1990. Preliminary results of the 1989 Illinois waterfowl hunting questionnaire. Illinois Dept. of Conservation, Waterfowl Program Preliminary Rpt. 6pp.
- Whitton, R.M. 1990. Waterfowl harvest and hunter use in the Rend Lake Quota Zone during the 1987 and 1988 waterfowl season. Illinois Dept. of Conservation, Waterfowl Program Periodic Rpt. No. 65. 8pp.

Table 1. Waterfowl harvest and hunter use on public hunting areas at Rend Lake, Illinois for the 1989 waterfowl season.

NAME OF ACCESS AREA	TOTAL HUNTERS	MALLARDS	TOTAL DUCKS	CANADA GEESE
Blue Gill Hole	32	0	0	10
Bonnie Church Camp	870	633	873	7
Bonnie South	764	21	52	194
Buck Creek	335	63	94	78
C & E Lot	212	4	7	81
Casey Fork Dam	611	213	321	98
Casey Fork West (Genevo)	292	29	44	41
Cottonwood	901	514	741	58
County Line	396	5	12	108
Crossroads	89	34	85	2
Dam West	47	2	9	11
Dareville	543	211	311	73
Elk Praire	101	0	0	26
Gun Creek North	89	0	0	34
Gun Creek Northeast	40	0	1	4
Gun Creek South	18	0	0	0
Gun Creek West	92	8	30	13
Hamilton Branch	32	4	18	3
Honkers Point	761	4	20	269
Ina Parking Lot	593	3	7	149
Ina Ramp	339	10	28	87
Jackie Branch	339	18	30	149
Ken Gray	678	2	13	263
Lambrusco	947	13	21	344
Mine 21	364	1	2	125
Nason North	111	46	84	4
Nason South	60	2	6	25
North Marcum	7	0	5	0
North Marina	33	0	0	38
Pin Oak Flats	180	104	159	24
Pump Lot	87	16	25	0
River Road	74	22	36	0
RLCD Cemetary	76	0	1	13
RLCD Ramp	142	4	7	50
Ryder Bottoms	55	9	26	2
Sailboat Harbor	100	1	3	30
Sandusky North	43	3	16	2
Silo	460	149	202	82
Turnip Patch	780	27	57	550
Waltonville Dam	104	4	15	5
Waltonville East (148)	516	218	334	41
Ward Branch	777	11	33	377
Whistling Wings	1,039	111	140	487
Willbanks Woods	19	0	0	14
Totals	14,148	2,519	3,868	3,971

Table 2. Harvest of ducks by species at Rend Lake, (Southern Zone), Illinois, 1982 through 1989. Data collected from hunter registration reports.

SPECIES	1982	1983	1984	1985	1986	1987	1988	1989
<u>DABBLING DUCKS</u>								
American Wigeon	283	249	198	115	142	145	54	95
Black Duck	222	147	251	113	122	179	182	261
Blue-Winged Teal	174	102	227	38	27	34	10	14
Gadwall	335	395	206	182	291	199	57	126
Green-Winged Teal	247	321	256	152	205	323	168	285
Mallard	4,390	5,447	5,002	3,273	2,964	3,915	2,556	2,519
Northern Shoveler	74	105	109	96	51	107	32	53
Pintail	216	118	98	85	62	82	23	41
Wood Duck	537	734	457	279	531	660	271	310
<u>TOTAL</u>	6,478	7,618	6,804	4,333	4,395	5,644	3,353	3,704
<u>DIVING DUCKS</u>								
Bufflehead	34	36	70	52	54	35	30	27
Canvasback	32	53	42	46	15	0	0	0
Common Goldeneye	0	1	7	4	0	0	0	0
Redhead	31	65	158	70	68	24	21	14
Ring-Necked Duck	108	237	304	161	133	163	92	52
Ruddy Duck	45	57	40	27	20	17	7	13
Scaup	117	200	306	160	174	105	79	58
<u>TOTAL</u>	367	649	927	520	464	344	229	164
<u>TOTAL ALL SPECIES</u>	6,845	8,267	7,731	4,853	4,859	5,988	3,582	3,868

Table 3. Waterfowl harvest and hunter success on public hunting areas at Rend Lake, Illinois, 1976-1989.

YEAR	NO. OF HUNTERS	HARVEST		HUNTER SUCCESS	
		DUCK	GEESE	DUCKS	GEESE
1976	6,555	7,414	2,017	1.13	.21 ^a
1977	8,377	8,748	1,630	1.04	.19
1978	12,622	9,060	4,604	.78	.36
1979	12,978	5,375	1,917	.52	.15
1980	16,134	5,493	3,508	.39	.22
1981	17,873	6,285	2,827	.46	.16
1982	14,682	6,845	1,109	.57	.08
1983	13,352	8,270	1,856	.76	.14 ^b
1984	11,050	7,724	610	.70	.06
1985	8,964	4,901	1,214	.55	.14
1986	14,300	4,859	2,042	.52	.32 ^c
1987	14,867	5,988	1,676	.63	.28 ^d
1988	14,748	3,582	4,177	.49	.43 ^e
1989	14,148	3,868	3,971	.54	.45 ^f

a

Last 20 days of goose season after close of duck season

b

.34 Last 15 days of goose season after close of duck season

c

Last 23 days of goose season after close of duck season

d

Last 28 days of goose season after close of duck season

e

Last 30 days of goose season after close of duck season

f

Last 36 days of goose season after close of duck season

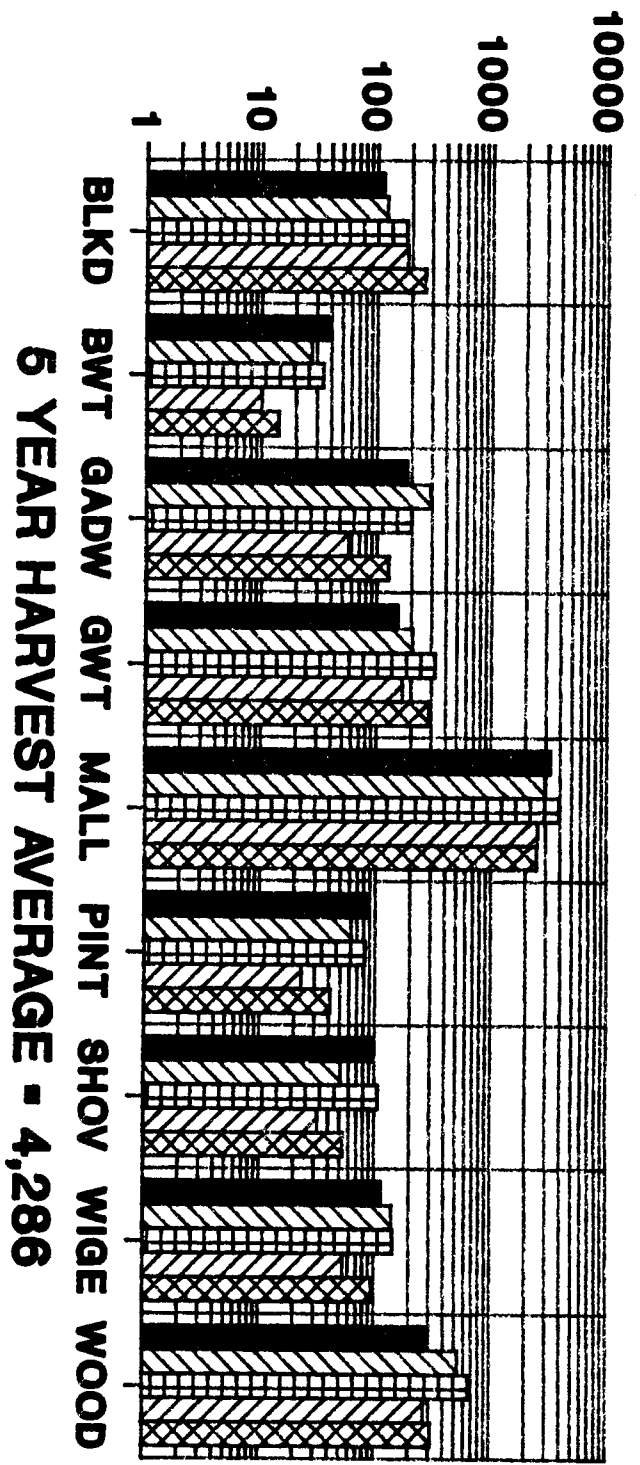
Table 4. Canada goose numbers at Rend Lake through the fall and winter of 1986-1989.

<u>1986</u>		<u>1987</u>		<u>1988</u>		<u>1989</u>	
DATE	NO. OF GEESE	DATE	NO. OF GEESE	DATE	NO. OF GEESE	DATE	NO. OF GEESE
10-14-86	2,000	10-13-87	6,000	10-15-88	4,500	10-23-89	5,000
10-20-86	2,500	10-19-87	6,000	10-24-88	7,000	10-31-89	8,000
10-27-86	2,500	10-27-87	5,000	10-31-88	7,500	11-06-89	9,000
11-03-86	4,500	11-02-87	9,000	11-07-88	9,500	11-13-89	12,000
11-10-86	6,000	11-09-87	9,000	11-14-88	14,000	11-21-89	14,000
11-24-86	12,000	11-18-87	10,000	11-21-88	7,500	11-29-89	14,000
12-10-86	30,000	11-23-87	10,000	11-28-88	7,000	12-06-89	18,000
12-15-86	60,000	12-09-87	12,000	12-05-88	17,000	12-11-89	14,000
12-22-86	65,000	12-16-87	18,000	12-12-88	40,000	12-18-89	13,000
01-05-87	60,000	12-21-87	68,000	12-19-88	72,000	12-26-89	3,000
01-12-87	38,000	12-29-87	50,000	01-04-89	90,000	01-02-90	40,000
01-26-87	55,000	01-04-88	50,000	01-10-89	75,000	01-08-90	90,000
		01-11-88	74,000	01-17-89	70,000	01-16-90	170,000
		01-25-88	110,000	01-23-89	135,000	01-22-90	120,000
						01-29-90	85,000

Table 5. Peak numbers of Canada geese at Rend Lake, Illinois
1971-1990.

YEAR	NUMBER OF GEESE	DATE
1971-72*	6,000	Dec. 22
1972-73	2,000	Dec. 13
1973-74	13,000	Jan. 04
1974-75	32,000	Dec. 18
1975-76	50,000	Jan. 22
1976-77	42,000	Dec. 14
1977-78	100,000	Jan. 23
1978-79	62,000	Jan. 04
1979-80	90,000	Jan. 14
1980-81	88,000	Jan. 27
1981-82	120,000	Jan. 18
1982-83	40,000	Feb. 03
1983-84	44,000	Feb. 07
1984-85	72,000	Jan. 15
1985-86	70,000	Dec. 09
1986-87	65,000	Jan. 13
1987-88	110,000	Jan. 25
1988-89	135,000	Jan. 23
1989-90	170,000	Jan. 16

* First year that Canada geese started using Rend Lake



YEARLY HARVEST			
1985 - 4,393	1986 - 4,396	1987 - 5,644	
1988 - 3,363	1989 - 3,704		

Figure 1. Dabbling Duck Harvest at Rend Lake from 1985-1989.

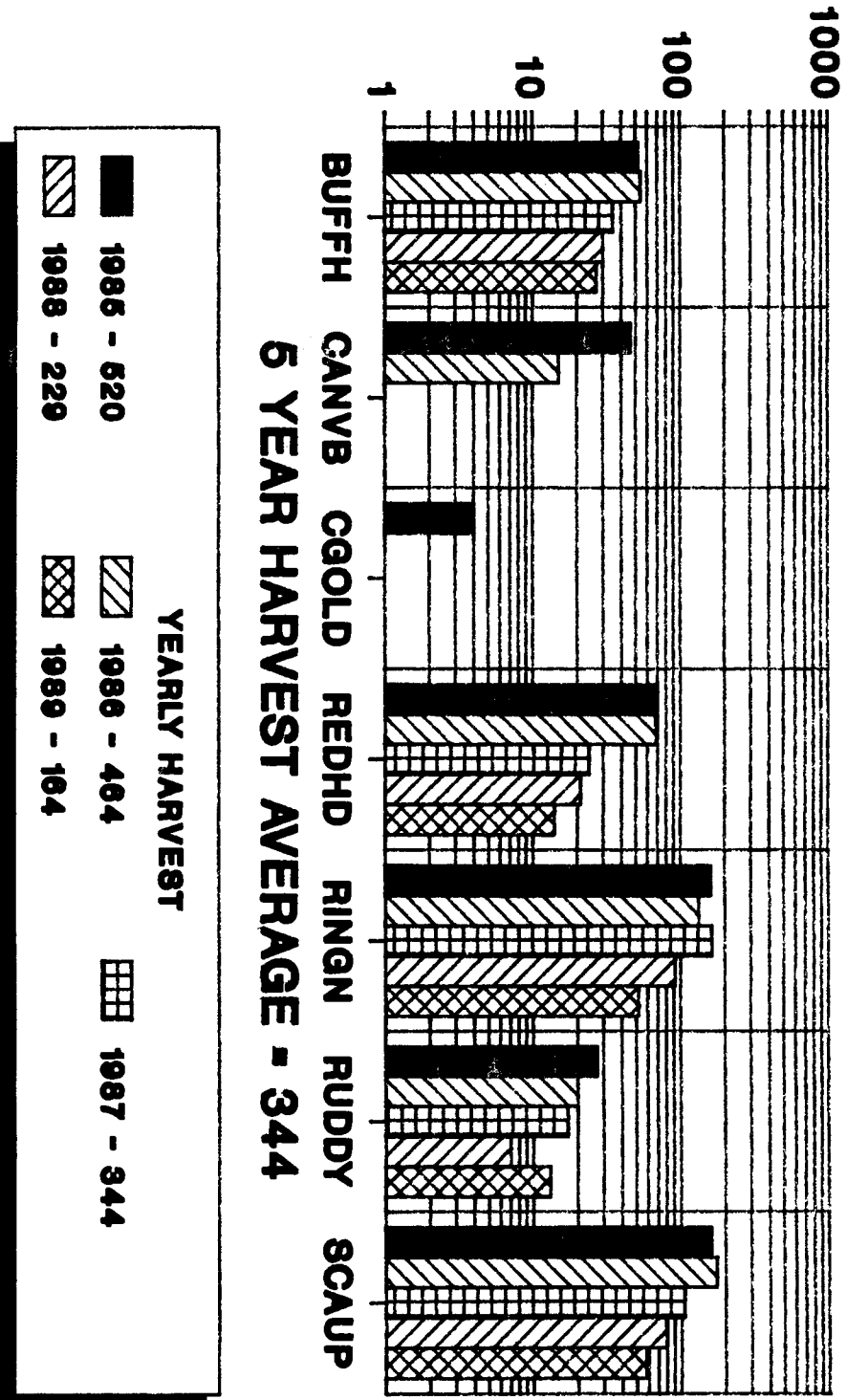


Figure 2. Diving Duck Harvest at Rond Lake from 1985-1989.

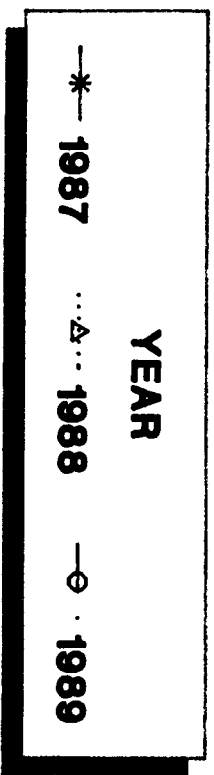
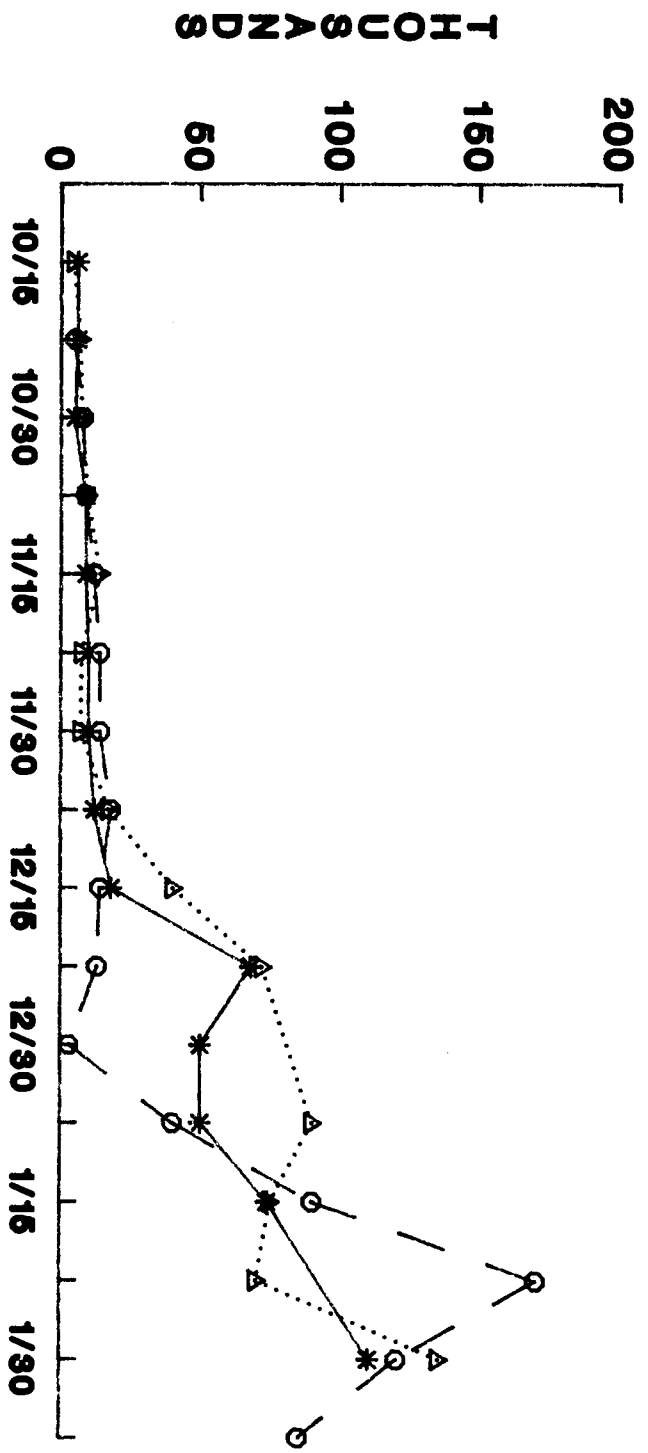


Figure 3. Numbers of Canada Geese at Rond Lake from 1987-1989.