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## Semi-Controlled Hunting of Waterfowl at Lake Odessa, Louisa County, Iowa - 1960 and 1961

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the report of Benny Newman of Agency, Iowa. He reported that in prime cover in the Des Moines River bottom, he and a friend, between 1900 and 1910, flushed 10 to 30 coveys of quail per day. Some may have been flushed more than once. Cover was brush, trees, weeds and grass. Now many of these sections of land have only corn. A few sections have a minimum of cover and these support only 1 to 2 fall or winter quail coveys per 640-acre section.

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## Semi-Controlled Hunting of Waterfowl at Lake Odessa, Louisa County, Iowa—1960 and 1961

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*Abstract.* In 1960 and in 1961 two "controlled" shooting areas with a total of 25 "blind" sites were established at Lake Odessa, Wapello, Iowa. The remaining "uncontrolled" portion of the public hunting area was open without special restrictions. Checking stations were operated at each of the two main access points. A total of 6,014 hunters harvested 6,499 waterfowl in 33,968 hours, averaging one bird for each 5.2 hours of hunting in 1960. In 1961 a total of 3,391 hunters killed 3,391 waterfowl in 17,618 hours, averaging one bird for each 5.2 hours of hunting. Hunter success, expressed as the number of ducks per hunter per day, was 1.1 in 1960 and 1.0 in 1961; however, the aggregate harvest dropped 48 per cent in 1961. Season length was reduced 40 per cent and there was a 44 per cent drop in the number of hunters. The reduction in daily bag from 3 to 2 ducks had little if any effect upon the total harvest, and the reduction in season length was almost entirely responsible for the 43

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per cent drop in mallard kill. Mallards comprised 78 per cent of the harvest and wood ducks 7 per cent. Flight dates during the 1961 season were indicated by peak kills of mallards on October 23, November 3, 8, and 17. The sex ratio of mallards in the kill averaged 1.5 males to 1 female during both years, but increased during the major flight dates to 1.7:1, indicating a preponderance of drakes within the population, selectivity on the part of hunters and their preference for drakes. Age ratios of mallards obtained at checking stations and from wing examination were almost identical (0.7:1 and 0.8:1) indicating very poor production of mallards supplying young birds for hunters at Lake Odessa in 1961.

The Lake Odessa area in Louisa County, Iowa, comprises some 6,000 acres of land and water located just above the confluence of the Iowa and Mississippi Rivers (Fig. 1). Historically, this area of timbered potholes, marsh, low lying farm land, and open water has attracted vast numbers of migrant waterfowl during spring and fall migrations. Both the Iowa and Mississippi Rivers constitute major migratory arteries for wild ducks during mass fall flights down the Mississippi flyway (Bellrose and Sieh, 1960).

The Lake Odessa public hunting area (3,100 acres) lies between the upper and lower Louisa refuge units of the Mark Twain National Wildlife Refuge. The plan of semi-controlled hunting adopted for the 1960 season to eliminate overcrowding of hunters in problem areas and to improve the quality of hunting and reduce crippling losses was continued in 1961 (Sieh and Aspelmeier, 1961). Two "controlled" shooting areas with a total of 25 blind sites were again established. The remaining "uncontrolled" portion of the public hunting area was open to hunting without special restrictions. Checking stations again were established at each of the two main access points, one at Shaefer's Point and the other at Sand Run. Hunters were required to surrender their hunting licenses at a checking station to obtain special permits each day to hunt anywhere within the "controlled" or "uncontrolled" portions of the public hunting area.

All hunters were required to check back through the station each day, and data concerning their hunt were recorded. Checking station personnel verified and recorded species, age and sex of all waterfowl taken, recorded crippling losses as reported by the hunter, and returned each hunter's license in exchange for his special permit.

#### HUNTING SUCCESS

Waterfowl taken from the area included 16 species of wild ducks, two species of mergansers, coots, and one species of geese (Table 1). Hunters harvested 3,391 birds in 17,618 hours,

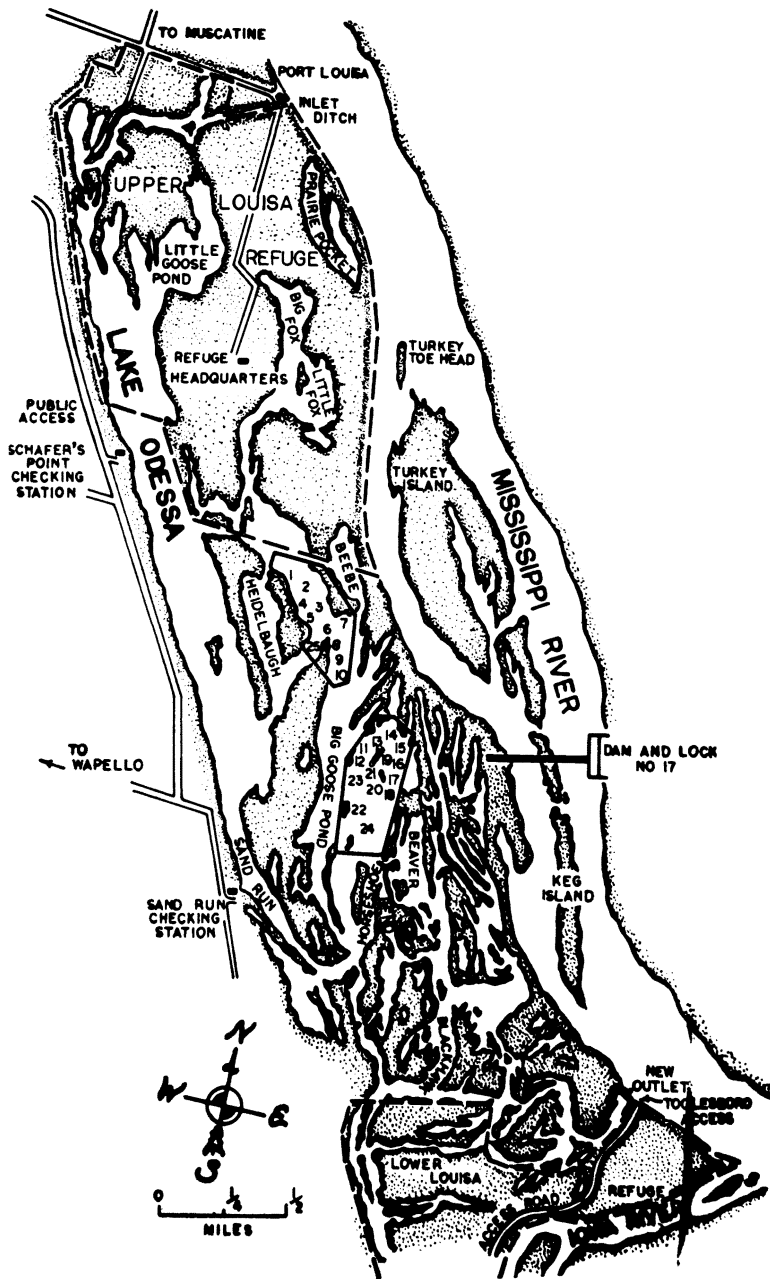


Figure 1. Controlled hunting areas with numbered blind sites, checking stations, and refuge units, Lake Odessa, Louisa County, Iowa, 1960 and 1961.

averaging 1 bird for each 5.20 hours hunting. The 1960 average was 5.22 hours per bird when 6,499 birds were taken in 33,968 hours. A total of 1,506 hunting parties comprising 3,391 hunters used this area in 1961, compared with 2,517 parties representing 6,014 hunters in 1960. This was a 44 per cent drop in the number of hunters, however, the season length was also reduced 40 per cent. Hunter success, expressed as the average number of ducks taken per hunter per day, was 1.0 in 1961 and 1.1 in 1960.

**Table 1.** Weekly Harvest Totals of Waterfowl, Lake Odessa, Fall, 1961

Species	Oct. 21-27	Oct. 28-31	Nov. 4-10	Nov. 11-17	Nov. 18-19	Total	Per cent
Mallard ( <i>Anas platyrhynchos</i> Linnaeus)	640	566	657	639	158	2660	78.5
Wood duck ( <i>Aix sponsa</i> [Linnaeus])	143	71	14	14	4	246	7.3
American widgeon ( <i>Mareca americana</i> [Gmelin])	16	19	34	24	20	113	3.5
Green-winged teal ( <i>Anas carolinensis</i> Gmelin)	23	17	8	28	12	88	2.6
Black duck ( <i>Anas rubripes</i> Brewster)	3	4	19	23	16	65	1.9
Pintail ( <i>Anas acuta</i> [Linnaeus])	21	14	16	8	1	60	1.7
Gadwall ( <i>Anas strepera</i> Linnaeus)	6	9	16	6	9	46	1.3
Ring-necked duck ( <i>Aythya collaris</i> [Donovan])	5	3	20	5	7	40	1.2
Lesser scaup ( <i>Aythya affinis</i> [Eyton])	2	10	7	5	4	28	.8
Shoveler ( <i>Spatula clypeata</i> [Linnaeus])	1	11	2	1	..	15	.4
Blue-winged teal ( <i>Anas discors</i> Linnaeus)	3	..	..	..	..	3	.1
Bufflehead ( <i>Bucephala albeola</i> [Linnaeus])	..	1	..	..	1	2	.1
Greater scaup ( <i>Aythya marila</i> [Linnaeus])	1	..	..	..	..	1	.1
Ruddy duck ( <i>Oxyura jamaicensis</i> [Gmelin])	..	..	1	..	..	1	.1
Common Goldeneye ( <i>Bucephala clangula</i> [Linnaeus])	..	..	..	1	..	1	.1
Hooded merganser ( <i>Lophodytes cucullatus</i> [Linnaeus])	..	2	1	..	1	4	.1
American merganser ( <i>Mergus merganser</i> Linnaeus)	..	..	..	2	..	2	.1
Canada goose ( <i>Branta canadensis</i> [Linnaeus])	7	1	..	..	..	8	.2
Coot ( <i>Fulica americana</i> Gmelin)	1	7	..	..	..	8	.2
<b>Totals</b>	<b>872</b>	<b>735</b>	<b>795</b>	<b>754</b>	<b>235</b>	<b>3391</b>	<b>100.3</b>

The most important species harvested was the mallard totaling 2,660 birds of 78 per cent of the kill. The wood duck was numerically the next most important species accounting for 246 birds or 7 per cent of the total. American widgeon or baldpate approximated 4 per cent of the harvest, green-winged teal almost 3 per cent and the remaining species less than 2 per cent each. Only 8 Canada geese were tallied. Hunters reported 637 cripples which were not retrieved indicating a minimum crippling loss of 18.8 per cent in 1961. The crippling loss in 1960 was 16.8 per cent.

REDUCTION IN HARVEST

Poor production of most species of wild ducks in the drought-

stricken prairies of North America during the summers of 1959, 1960, and in 1961 resulted in many seriously declining populations. Basic waterfowl regulations in the Mississippi Flyway were curtailed to reduce the total harvest of ducks within the flyway. In Iowa, the length of the open season was reduced from 50 days in 1960 to 30 days in 1961, and the daily bag limit was reduced from 3 ducks in 1960 to 2 ducks in 1961. In 1961 the duck season opened on October 21 and closed November 19, and in 1960 it opened on October 15 and closed December 3.

At Lake Odessa the total harvest of all species of waterfowl decreased from 6,499 birds in 1960 to 3,391 in 1961—a reduction of 48 per cent. Mallards dropped from 4,658 birds in 1960 to 2,660 in 1961—a reduction of 43 per cent. Wood ducks totaled 756 in 1960 and decreased to 246 in 1961—a 68 per cent drop. Inspection of the kill data for each day of the open season indicated the reduction in length of the waterfowl season was almost entirely responsible for the reduced total kill of mallards in 1961. The average number of mallards killed each day of the open season in 1960 was 93 compared with 88 per day in 1961. The reduction in daily bag from 3 to 2 ducks had little if any effect upon the total harvest of mallards at Lake Odessa.

The later opening date (Oct. 21) in 1961 caused a much reduced harvest of wood ducks and blue-winged teal. These reductions were clearly indicated by comparing the chronology of the harvests (Table 2). Likewise, pintails and green-winged teal indicated a reduced harvest because of the late opening date in 1961.

**Table 2.** Numbers of Waterfowl Taken Each Week in 1960 and 1961

Species	Year	Oct.	Oct.	Oct.-Nov.	Nov.	Nov.	Nov.	Nov.-Dec.	Totals
	1960 1961	15-20	22-28 21-27	29-4 28-3	5-11 4-10	12-18 11-17	19-25 18 & 19*	26-3	
Mallard	1960	422	646	682	1,067	640	541	660	4,658
	1961		640	566	657	639	158		2,660
Wood duck	1960	242	269	172	35	19	11	8	756
	1961		143	71	14	14	4		246
B-W teal	1960	53	5	2	3	2			65
	1961		3						3
Pintail	1960	59	33	11	11	7	3	3	127
	1961		21	14	16	8	1		60
G-W teal	1960	38	3	14	13	6	1	8	83
	1961		23	17	8	28	12		88

\* In 1961 there were only two days of hunting within this week.

In 1960 there were 65 blue-wings taken and in 1961 only 3. In Iowa, blue-winged teal begin their migration in mid-August, reach a migration peak about mid-September, and by mid-October their migration is almost over. Opening dates within the framework allowed by the U. S. Fish and Wildlife Service during the last decade (1950-1960) have precluded a satisfactory harvest of this species in Iowa. Late opening dates and short seasons are necessary during periods of serious waterfowl population decline.

INFLUENCE OF MASS FALL MIGRATION UPON THE HARVEST  
OF MALLARDS

In the early fall, freezing temperatures and permanent snow cover in the higher latitudes tend to concentrate most species of ducks in southern Canada and in the northern United States. Sudden thrusts of winter weather from the Arctic to the Gulf tend to coincide with mass fall migrations of waterfowl into Iowa (Sieh, 1958). In 1960, and in 1961 weather conditions were responsible for a series of fall flights into Iowa without the large or spectacular grand passage such as that observed on November 7, 1956 (Bellrose and Sieh, 1960).

Flight dates in the fall of 1961 were indicated by peak kills of mallards on October 23, November 3, 8, and 17 (Fig. 2). The early influx of mallards into Iowa from Canada on and about October 23 was reported throughout most of the state, but weather conditions were mild and the movements of birds were un spectacular. Large numbers of mallards also reached the Forney's Lake area in southwest Iowa about this date. The grand passage was reported throughout Iowa on November 3 and within much of the Mississippi Flyway. Some of the peak kills and flight dates at Lake Odessa in 1961 resulted from semi-local movements of mallards which were not reported state-wide nor flyway-wide.

Flight dates during the fall of 1960 were clearly indicated by the peak kills of mallards on Lake Odessa on October 19, October 29, November 3, November 9, and November 29 (Fig. 3). It was interesting to note that most of these same massed flights were recorded in northwestern Iowa on the day preceding the flight date at Lake Odessa. The grand passage in 1960 occurred in November 8 in northwestern Iowa and on November 9 at Lake Odessa.

## MALLARD AGE AND SEX RATIOS

In 1961 over 78 per cent of all the ducks taken at Lake Odessa were mallards, while in 1960 over 70 per cent were mallards. Only recently it has been possible to evaluate annual productivity of individual species. This has become possible through use of the "wing method" to obtain age and sex ratios throughout the flyway (Geis and Carney, 1961). It is desirable to supplement these age and sex ratio studies with more detailed kill information from strategic locations throughout the flyway such as at Lake Odessa.

At the checking stations each bird was examined to determine its species, age and sex. One wing from each duck was removed and placed in a paper sack and labeled according to species, age, sex and date of kill. In 1961 a sample of 1,166 mallard wings was obtained and later examined to verify the accuracy and

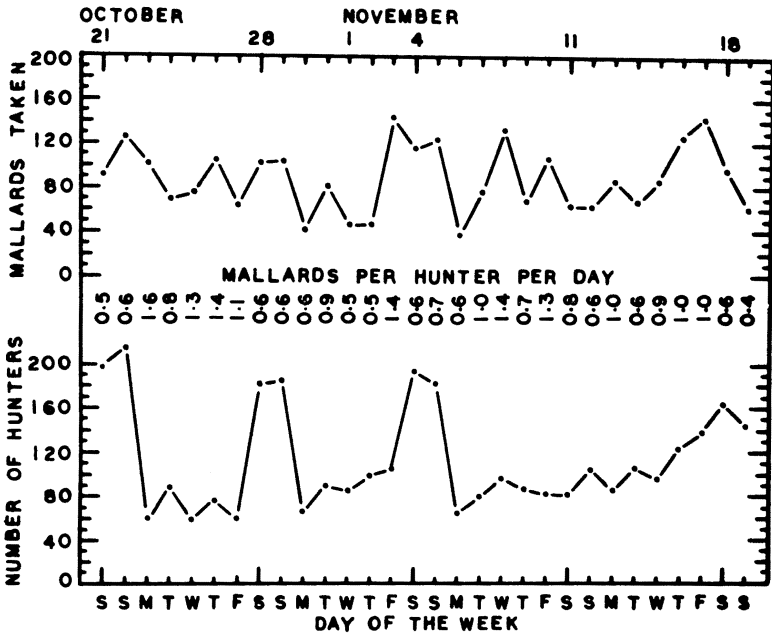


Figure 2. Number of mallards taken and number of hunters checked each day of the 1961 waterfowl season at Lake Odessa.

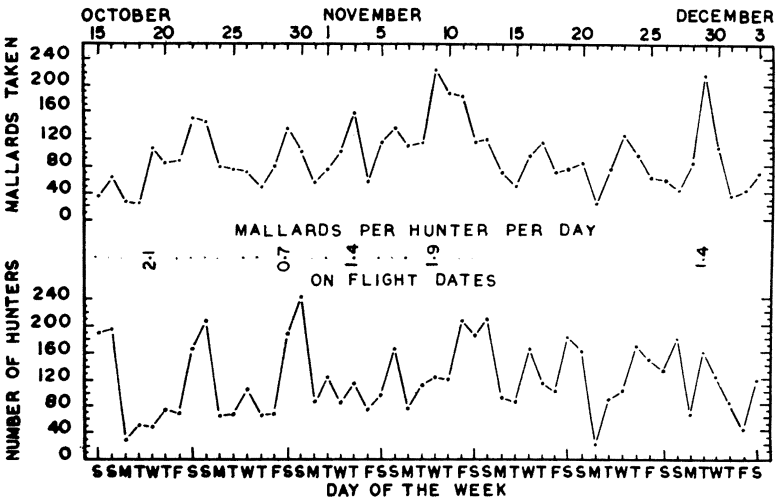


Figure 3. Number of mallards taken and number of hunters checked each day of the 1960 waterfowl season at Lake Odessa.

practicability of the "wing method" as a means of determining mallard age and sex composition in the harvest (Carney and Geis, 1960). Each wing was examined carefully and identified as "male" or "female" and as "immature" or "adult." The original



identification of 11 wings of the entire 1,166 later was challenged as to sex, and 87 for age. Some of these discrepancies probably resulted from inadvertent labeling errors, while others were the result of inexperienced checking station personnel.

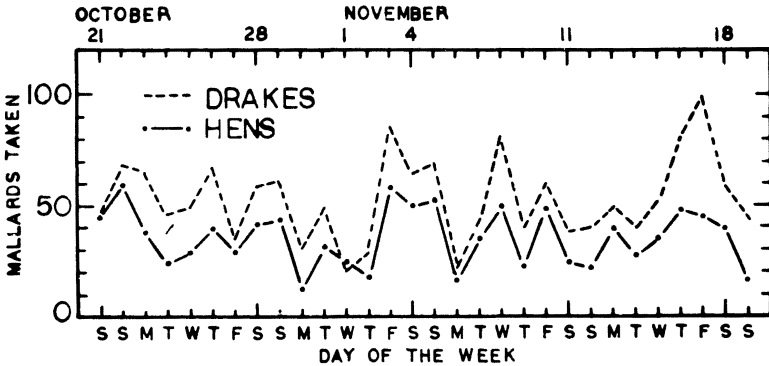


Figure 4. Number of male and female mallards checked each day of the 1961 waterfowl season at Lake Odessa.

The 2,660 mallards examined at the checking stations, 1,592 males and 1,068 females, provided a sex ratio of 1.5 males to 1 female (Fig. 4). The sex ratio obtained by wing examination was the same. In both 1960 and 1961 the mallard sex ratio was identical, 1.5:1. In both years, during the dates of peak kill the proportion of males in the harvest increased to 1.7 males : 1 female, probably indicating additional selectivity on the part of hunters and their preference for shooting drakes. It was assumed that these ratios indicated more opportunity to select drakes, rather than fewer hens available during these flight dates.

Table 3. Age Ratios of Male and Female Mallards During Each Week of the Open Season, 1961

Age ratios	Calendar dates				
	Oct. 21-27	Oct. 28-Nov. 3	Nov. 4-10	Nov. 11-17	Nov. 18 & 19
Immature males per adult male	0.54:1	0.49:1	0.59:1	0.67:1	0.54:1
Immature females per adult female	1.04:1	1.00:1	0.71:1	0.73:1	0.92:1

Age ratios (immatures per adult) of mallards obtained by the two methods were almost identical. The sample of 1,166 wings indicated an immature to adult age ratio of 0.8:1, while the 2,660 mallards aged at the checking stations indicated 0.7:1. These ratios indicated very poor production of mallards supplying young of the year (immatures) for hunters at Lake Odessa in 1961. Age ratios analyzed for each sex on a weekly basis also showed a preponderance of adults within the population at Lake Odessa, especially adult drakes (Table 3). This further suggests increased vulnerability of immature females and proportionately fewer adult females within the population. This study

was continued in part to try to explain the different age ratios between the sexes in the harvest, and to glean detailed kill information during a period when the mallard population at Lake Odessa and within the Mississippi Flyway was depressed.

#### ACKNOWLEDGEMENT

We express our appreciation and thanks to all the personnel of the Iowa Conservation Commission who operated the checking stations, and to E. B. Speaker, W. C. Brabham, and others whose encouragement and insistence made this project a reality.

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## Notes on the First Rearing and Introduction of *Esox masquinongy* in Iowa Waters

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*Abstract.* The Iowa State Conservation Commission purchased 1,535 muskellunge ( $\frac{3}{4}$ - to 1-inch fry) in 1960, from "Kenu," a Land-O-Lakes, Wisconsin commercial fish hatchery. Siewers Spring State Fish Hatchery and rearing pond facilities were used for the experimental rearing project. Eighty-five fish survived the June 7 to September 30 rearing period. Forty fish were stocked in each of the following Iowa lakes: West Okoboji, Dickinson County and Clear Lake, Cerro Gordo County. Two specimens have subsequently been recovered and identified from each lake.

The experimental rearing of muskellunge fingerlings at Siewers Springs State Fish Hatchery, near Decorah, Iowa, was attempted with some success during the period June 7 to September 30, 1960. The goal of the experimental rearing was to provide muskellunge fingerlings for experimental stocking in Clear Lake in Cerro Gordo County and West Okoboji Lake in Dickinson

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