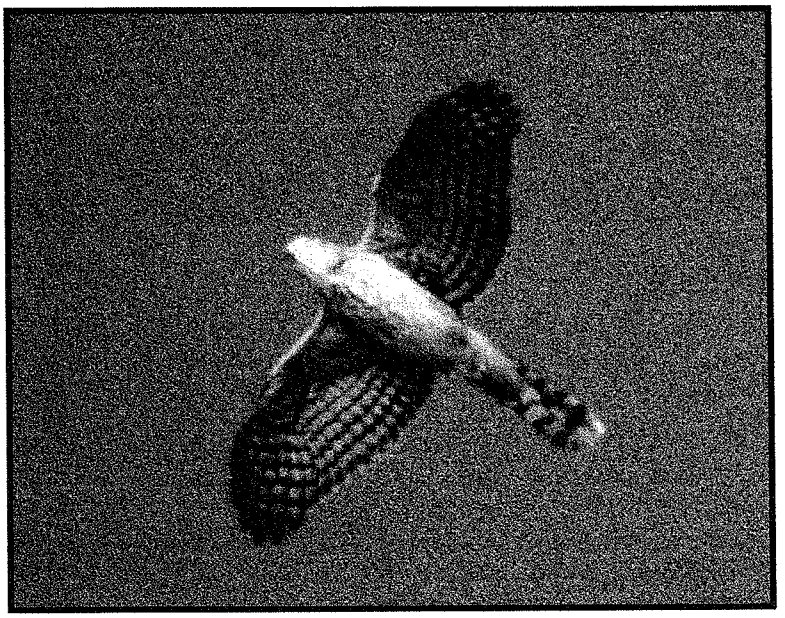
HA File N0. 96.22

Winter Raptor and Waterfowl Studies on the Maurice River, Cumberland County, New Jersey 1995-1996



Many Cooper's hawks (*Accipiter cooperii*) were seen flying over the river .
Photo by Clay C. Sutton.

Submitted May 13, 1997

to

Jane Morton Galetto, President
Citizens United to Protect the Maurice River and its Tributaries

by

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INTRODUCTION

The winter of 1995-1996 marked the ninth consecutive season of wintering raptor and waterfowl studies along the Maurice River corridor conducted by Herpetological Associates, Inc. (HA) under contract to Citizens United to Protect the Maurice River and Its Tributaries (CU). As in previous years of this investigation, birds of prey (raptors or birds of prey) and waterfowl (ducks and geese) were counted on the average of every ten days to two weeks from mid-December (December 12, 1995) to mid-March (March 21, 1996).

METHODOLOGY

A total of ten surveys were conducted along the length of the mainstream Maurice River between Millville and East Point, in Cumberland County, New Jersey during the winter of 1995-1996. This 14 mile stretch of river was sampled at eight points: Fifty minutes were spent counting raptors and waterfowl at each site. For a complete explanation and details of the methodology we used, please see the extensive write up found in "Wintering Raptors and Waterfowl on the Maurice River" by Clay Sutton in *Records of New Jersey Birds,* Vol. XIV, No. 3, Autumn, 1988, published by the New Jersey Audubon Society. (Also, see the seven subsequent reports written for CU by HA for each winter season since). HA's survey team counted 15 different species of raptors and 26 species of ducks and geese during this ongoing study.

RESULTS OF INVESTIGATION

RAPTORS

A total of 1,777 raptor sightings of 15 species were accrued during the ten surveys for an average of 178 birds of prey per survey. **Table 1** shows the raptors recorded on the Maurice River during the winter of 1995 - 1996. Following is an annotated list of species and an account of our observations.

- Black Vulture - At an average of 13.9 birds per survey, black vultures were slightly below 1993-1994's average of 24.7 birds and 1994 - 1995's average of 20.5 birds. **Table 1** shows a peak of 30 birds in late December, but fewer numbers were observed over the following weeks. While some birds may have dispersed with the approach of spring, the overall decline in observations was more likely related to our surveys not intersecting the concentration of birds near their roost site(s).

- Turkey Vulture - At 83.9 birds per survey compared to last year's 59.3, turkey vultures were comparatively more abundant during the winter of 1995-1996. This years average is in line with the previous years of the survey.

- Osprey - An early returning Osprey was recorded on March 9, and ten were tallied on the final survey conducted on March 21. These observations represent nesting birds returning to their traditional sites on the Maurice River in spring.

- Bald Eagle - The average of 10.1 eagles in 1995-1996 was higher than any previous season (8.4 in '92-'93 / 9.5 in '93-'94). New all time daily high counts of 20 individual birds occurred on January 5 and January 13. See **Figure 1** for Bald Eagle seasonality.

- Golden Eagle - One golden eagle was seen on February 9, a date that might indicate a bird wintering on the river, or at least in the region. It was also seen on the non-survey dates of February 10 and 12.

- Northern Harrier - At 19.6 birds per survey, harrier numbers were similar to, but slightly lower than, the 23.8 birds per survey recorded in 1994-1995. See **Figure 2** for the seasonality of Northern Harrier numbers on the river.

- Cooper's Hawk - During the first five years of the surveys, Cooper's hawks averaged about one per survey. During the following four years, the average was 1.5 ('92-'93), 1.7 ('93-'94), 1.4 ('94-'95), and 1.5 ('95-'96). This would seem to indicate a slight increase in the wintering population along the river over the last four years. This also coincides with its apparent increase as a breeder in the state over the same time frame. Due to its stealthy hunting habits, Cooper's Hawks are much less obvious than the other raptors seen along the river (i.e. vultures, red-tailed hawks, harriers), so any conclusions drawn as to its wintering status are tenuous.

- Sharp-shinned hawk totals during the surveys were average, but an amazing 16 were recorded on December 17, a figure which no doubt includes some late migrants.

- Northern Goshawk - A single Goshawk was recorded on December 17, the only one of the survey period.

- Red-shouldered Hawk - Three different individual red-shouldered hawks were recorded during the survey, about an average number for the Maurice River in winter for this secretive species.

- Red-tailed Hawk - The average of 40.7 red-tails during the 1995-1996 survey was slightly lower than the previous highs of 41.0 recorded in 1992-1993 and 41.6 recorded in 1994-1995. When viewed over the nine years, red-tailed numbers have been remarkably consistent. See **Figure 3** for the seasonality of Red-tails on the river.

- Rough-legged Hawks were average this season with about five individuals accounting for the twelve sightings made in 1995-1996.

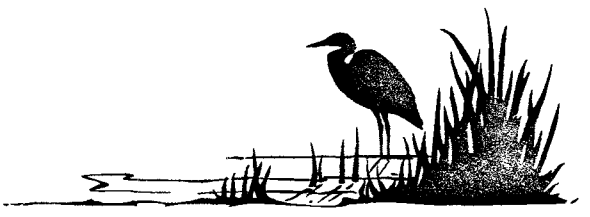
- American Kestrel - At 1.5 birds per survey, the alarming decline of kestrels as wintering species in New Jersey is evident. This is the second lowest average in the eight years of the study and the drop has been steady. The averages have gone from 2.5 in the first five years to 1.9 in 1992-1993, to 1.67 in 1993-1994, 1.1 in 1994-1995. Both breeding and migratory numbers have dropped in the same time frame. The Kestrel is a species in trouble in South Jersey.

- Merlin - While only one Merlin was seen on the surveys (January 28), they were also seen on four non-survey dates in December and January. Probably two Merlins wintered in the area.

- Peregrine Falcon - Two different peregrines were encountered on the surveys. One was an adult male and the other an immature male. This is average for winter on the Maurice.

Raptor Summary

In summary, 1995-1996 was an average year for raptor numbers on the Maurice River. Average, that is, for the Maurice River. It should be noted that raptor concentrations along the river are among the highest in both New Jersey and along the entire east coast. The average of 10.1 eagles per survey was the highest of any of the nine winters studied, perhaps reflecting the species steady comeback. Certainly far more than 20 individuals were involved. Unquestionably, the area continues to be an important wintering site for eagles, perhaps the most valuable in the state of New Jersey.



WATERFOWL

Four key species of waterfowl (snow goose, black duck, mallard, and northern pintail) were tracked during this investigation and 26 species were recorded. The winter of 1995-1996 was characterized by several ice events. At least three fairly major freezes occurred, concentrating waterfowl and driving some from the region. Thaws occurred between major events, and Snow Goose numbers fluctuated greatly as birds left the area and returned following thaws. **Table 2** shows the waterfowl recorded on the Maurice River on ten dates between December 12, 1995 and March 21, 1996. A total of 48,854 sightings were accrued, for an average of 4,885 waterfowl per survey. Snow Geese, American Black Ducks, Mallards, and Northern Pintails predominated, in that order.

- Snow Geese - The average of 3,422 birds per survey is easily one of the higher totals in the nine years of the study (**Figure 4**). There were great fluctuations in Snow Goose numbers. The peak of 13,000 on February 25 represented returning birds following a major warming trend. Snow Geese remain a hallmark of the lower reaches of the Maurice River in winter.

- Black Duck - At an average of only 595 birds per survey, and at a peak of only 1,149 birds, black duck totals were the lowest of the nine seasons of the study (**Figure 5**). The previous lows were the previous winter's 810 birds per survey and 1993-1994's 953 birds per survey. While the black duck population is under pressure from several sources (*e.g.* interbreeding with mallards) the low numbers of the last three seasons may be mostly weather related. In 1996-1996, a good initial survey of 1,149 (December 12) was followed by steadily declining numbers, with only a slight recovery in the spring. It is theorized that Black Duck numbers were highly influenced by freeze-ups in 1995-1996. Numbers driven south by harsh weather apparently never returned to the river following thaws.

- Mallard - The average of 185 birds per survey in 1995-1996 was below the totals of the first eight years of the study (**Figure 6**). While extremes in weather can offer a partial explanation for the decline in dabbler numbers over the past two years, a decade of poor reproductive seasons in the prairie pothole regions may be the larger reason.

- Northern Pintail - The 72 birds per survey was a record low, numbers are still down compared to the first five years of the study. Here again, we have the same debate as to whether reproductive success or weather conditions is at the center of the dabbler number decline in the last few years. Expected spring concentrations of Pintails never occurred in 1996, although this was a region-wide trend and not confined to the Maurice River.

Low duck totals recorded during 1995-1996 were, for the most part, due to the harsh weather encountered during most of the winter. As has been stated, however, low numbers for dabblers such as mallards and pintails may be attributed to poor breeding success over the past decade. While it has been reported that in 1995 the "prairie pothole" regions produced a bumper crop of ducks, this increase in population was not seen on the Maurice River during 1995-1996. It is also largely unknown or unreported whether these species in South Jersey originate from the pothole region.

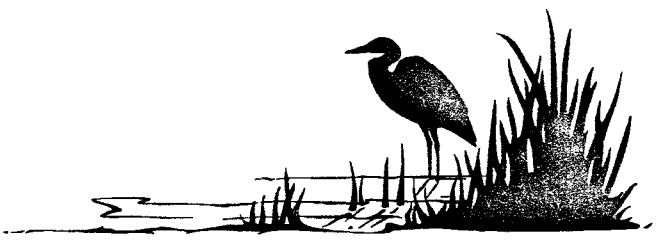
DISCUSSION

COMPARISON TO THE COHANSEY RIVER

As an adjunct to the Maurice River study conducted for Citizens United, HA staff, while involved in other endeavors, were able to carry out a similar (though less intensive) survey of the Cohansey River. The data accrued at that time is presented here and allows an important comparison between New Jersey's (and Cumberland County's) two largest tributaries to the Delaware Estuary.

Table 3 shows raptors recorded on the Cohansey River during the winter of 1995-1996. Table 4 shows waterfowl recorded on the Cohansey during the same time frame. For a complete summary of methodology and previous Cohansey River survey results (for winter 1990-1991 and 1991-1992) see: *Cumberland County Delaware Estuary Study, Vol. 1, Rare, Threatened and Endangered Species Study*, by Herpetological Associates, Inc., October 1992, pages 71-73.

In past studies it has been noted that both vulture and eagle numbers have averaged less for the Cohansey when compared to the Maurice. This was again true in the 1995-1996 studies. Eagle numbers were much lower (3.0 versus 10.1) on the Cohansey. Northern harrier and red-tailed hawk totals compared favorably again this year. As in the past, American kestrels were more numerous along the Cohansey (4.0 versus 1.5) due to the prevalence of agricultural lands.
With the exception of snow geese and Canada geese, considerably fewer waterfowl were found along the Cohansey. As has been stated in the past, this is no doubt due to the lack of brackish/wild rice wetlands. The presence of over 13,000 snow geese on January 1 continues a trend seen in past years. The same prevalence of agricultural lands that attract kestrels do the same for geese.



SUMMARY

The winter raptor populations on the Maurice River in 1995-1996 were similar to those of the previous seven years. Vulture populations along the river continue to be high. Record eagle populations were present during the winter of 1995-1996. While eagle numbers vary with weather and prey availability, the river can, on any given day, play host to a dozen birds or more. The river also supports very stable winter populations of northern harrier and red-tailed hawk. A species of concern, American kestrel, appears to be in trouble throughout its New Jersey wintering range, and particularly along the Maurice River.

Waterfowl populations on the river were down for the third year in a row. As previously discussed, this may be related to weather conditions at either extreme, or more ominously, to long-term declines in duck populations. Despite reports of the U.S. Fish and Wildlife Service, that the population of breeding ducks in the summer of 1995 was double the average of the last four decades in the "prairie pothole" regions, this certainly has not had a positive impact on Maurice River winter populations. However, the long term success of increased duck populations also depends on stable wintering grounds and food-rich migratory stopovers. In this respect, the Maurice River plays a crucial role in the health of eastern North American duck populations. This role is important regardless of yearly fluctuations of waterfowl populations in the region.

ACKNOWLEDGMENTS

We wish to thank Citizens United for their ongoing support on this project. We sincerely thank Donald Fauerbach, Berwyn Kirby, and Glenn Ewan for their support and continuing interest in our work. We also thank Jane Galetto for her interest, assistance, and logistical support throughout this project.

We also thank James Dowdell of HA, Inc. for his companionship, ornithological skills, and for assisting us on many of the bird surveys. Bob Zappalorti, Executive Director/President of HA edited the text, designed the layout, and performed the desk-top publishing of this document.

FIGURE 1: Seasonality of Raptor Concentrations.

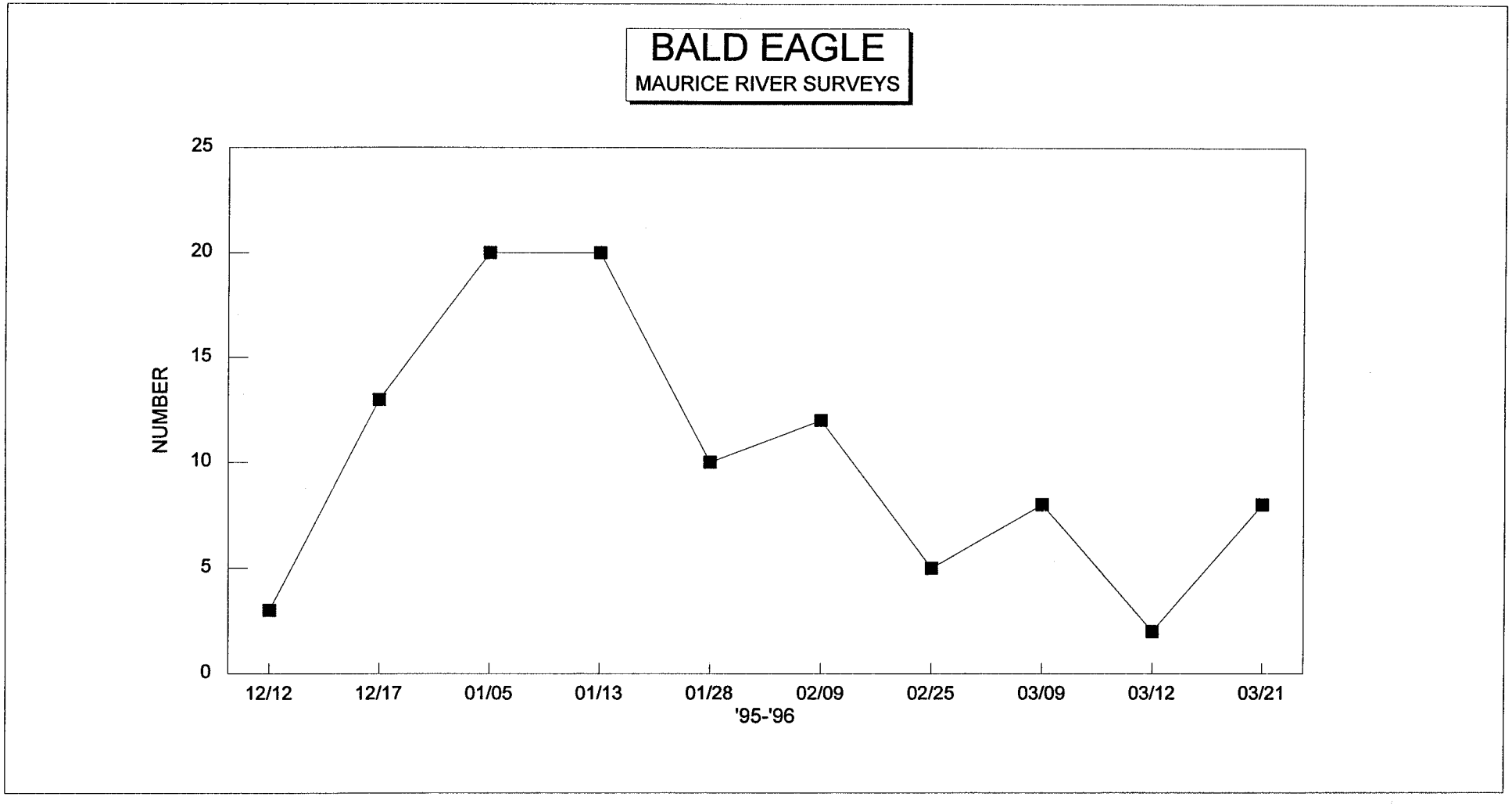
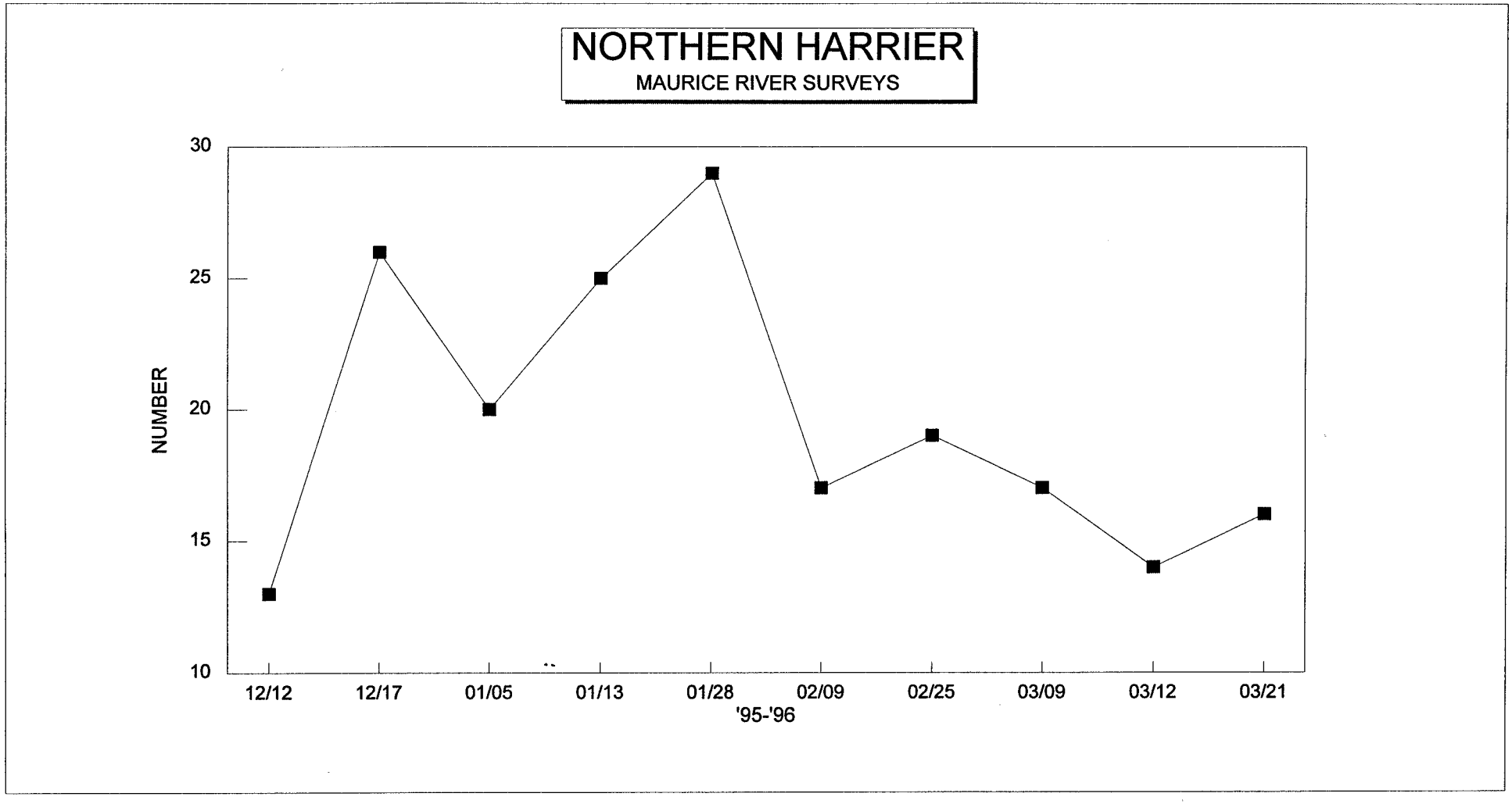


FIGURE 2: Seasonality of Raptor Concentrations.



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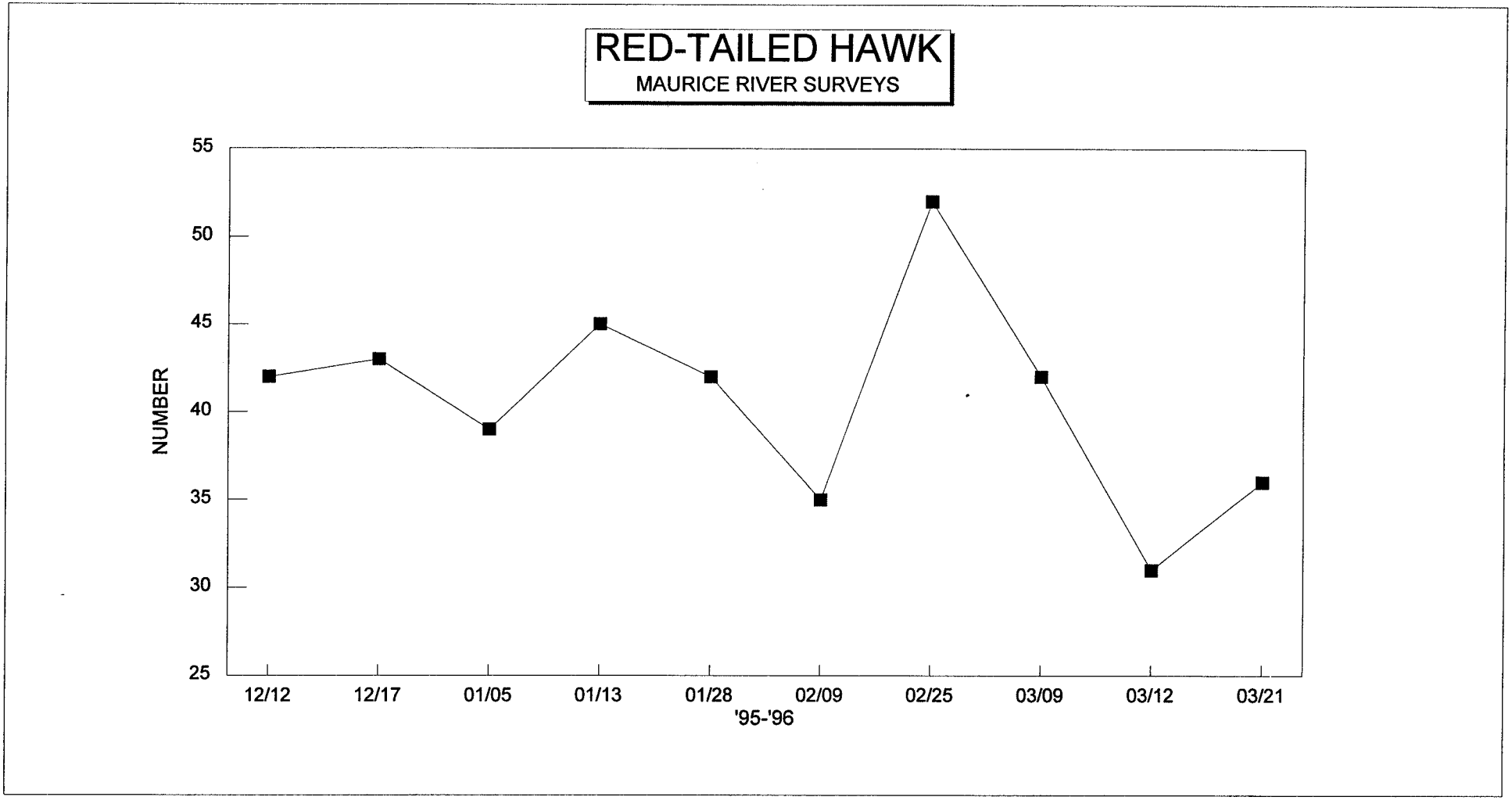
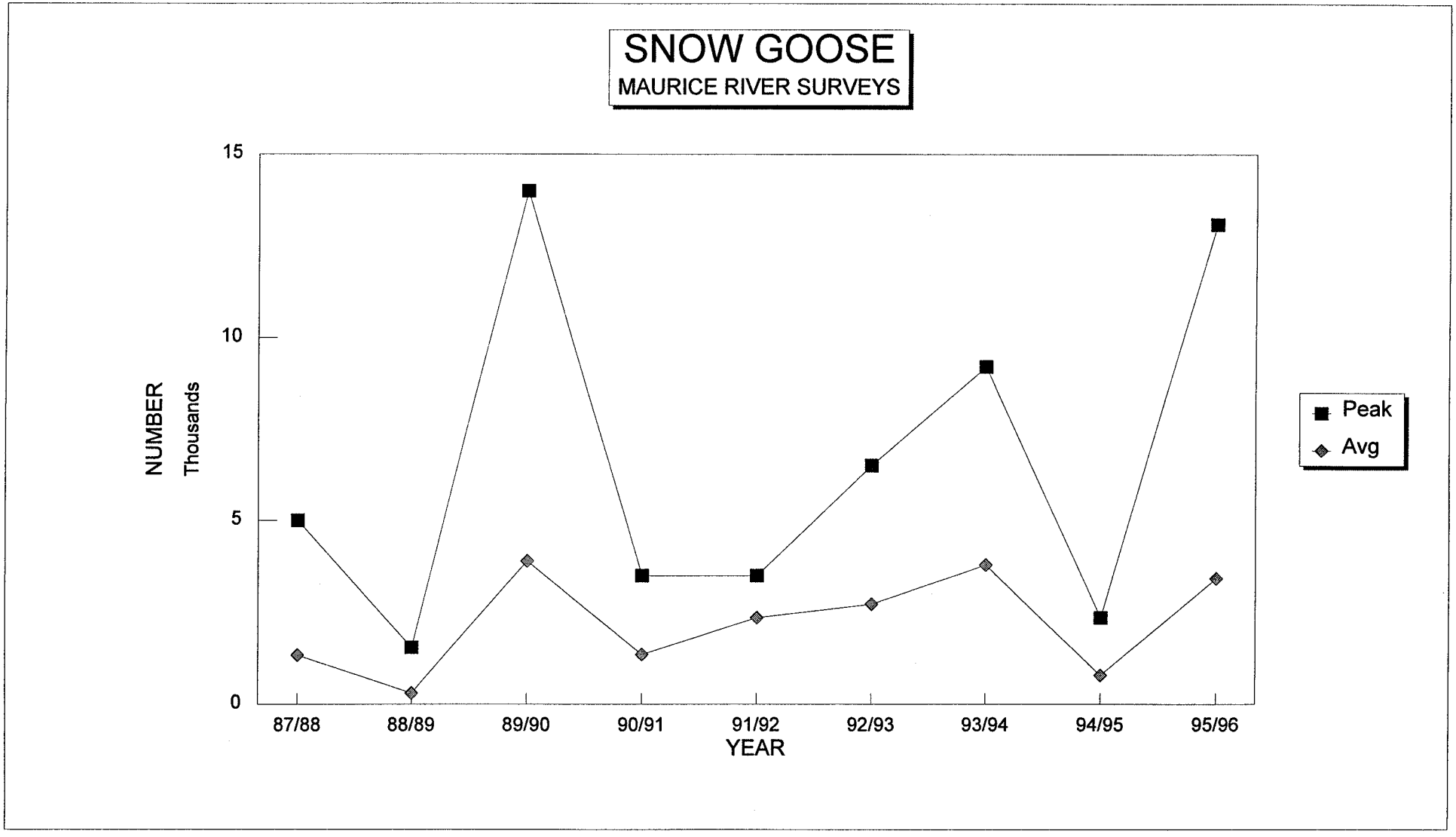


FIGURE 4: Long-term Waterfowl Trends.



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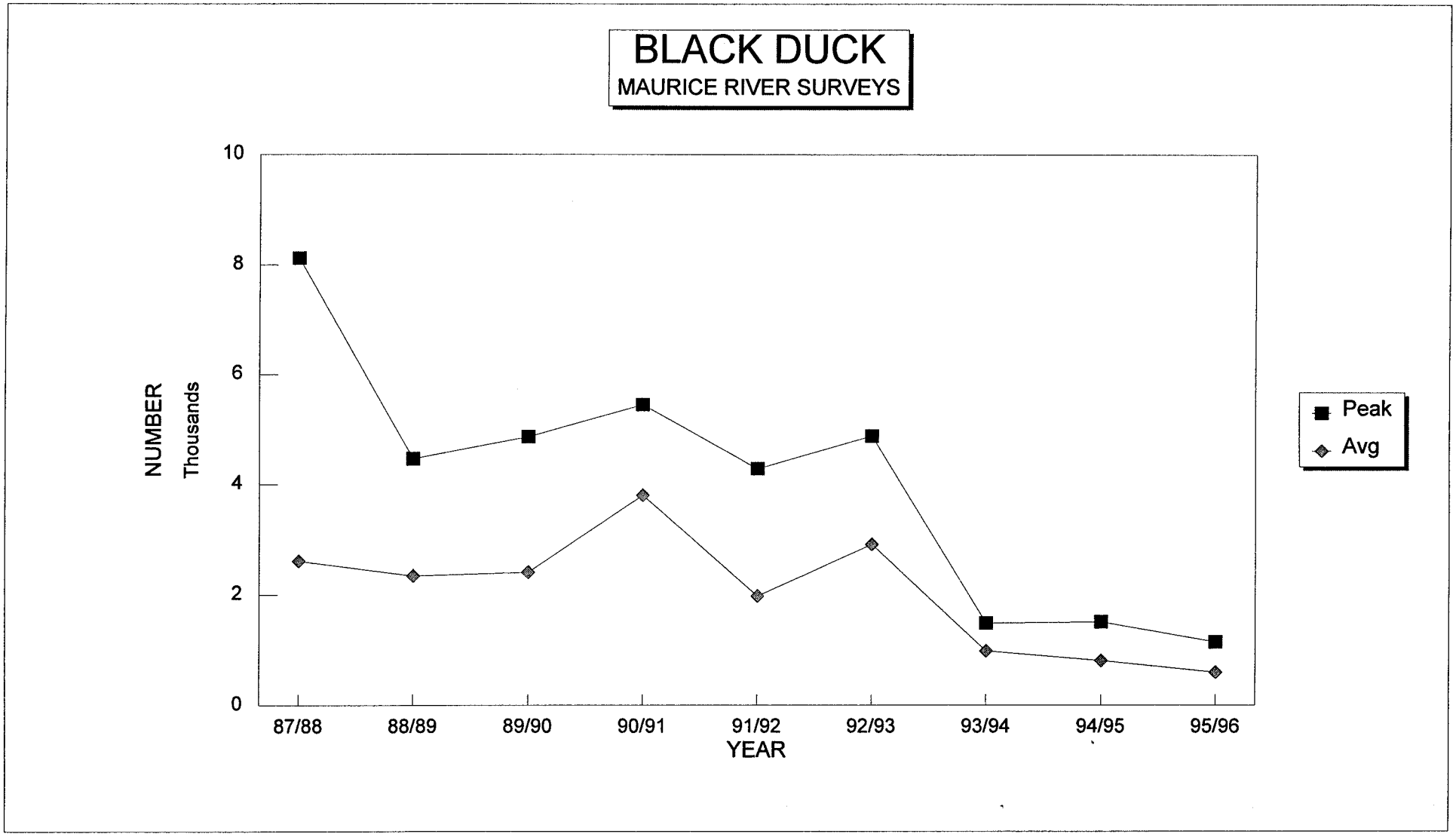

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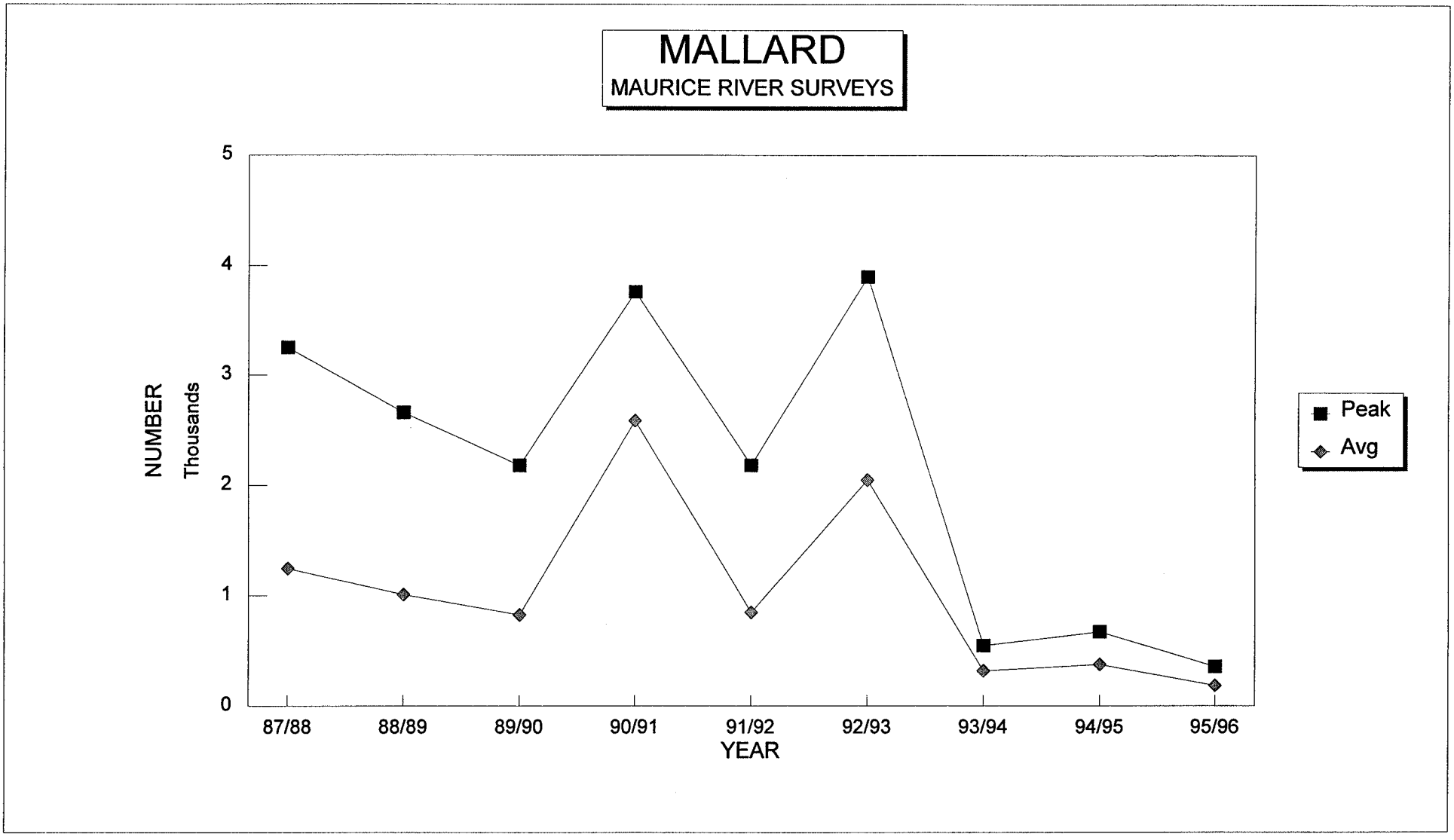

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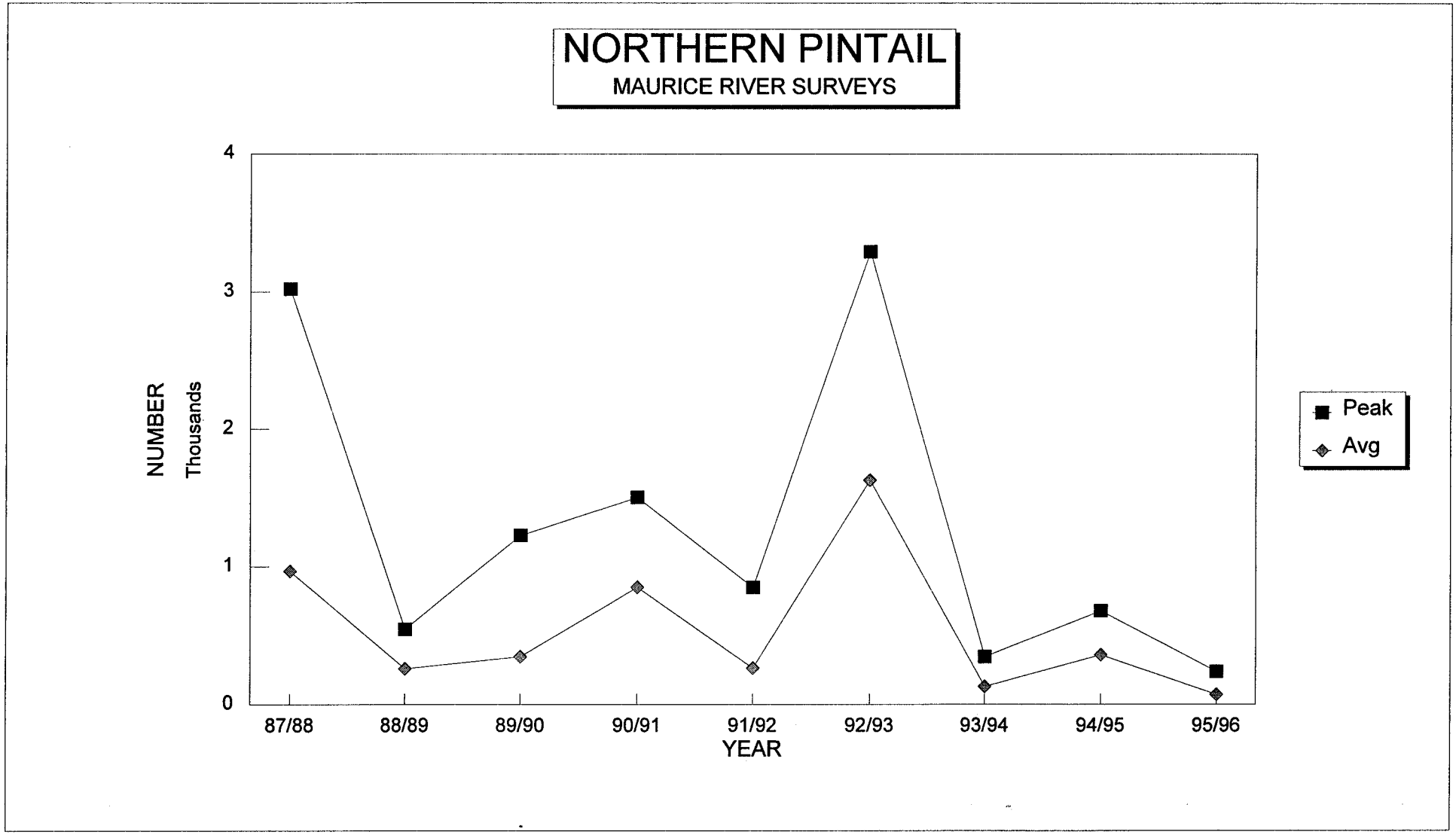

Table 1. Raptors recorded on the Maurice River, winter 1995-1996.

SPECIES	12/12	12/17	01/05	01/13	01/28	02/09	02/25	03/09	03/12	03/21
Black Vulture	27	30	2	6	13	26	29	1		5
Turkey Vulture	105	107	91	46	61	117	120	83	57	52
Osprey								1		10
Bald Eagle	3	13	20	20	10	12	5	8	2	8
Northern Harrier	13	26	20	25	29	17	19	17	14	16
Sharp-shinned Hawk	4	16	3	4	3	1	2		1	1
Cooper's Hawk	2	4			3	1	4		1	
Northern Goshawk		1								
Red-shldrd Hawk			1	2		1	1			
Red-tailed Hawk	42	43	39	45	42	35	52	42	31	36
Rough-legged Hawk	2	1	1	1	3	1	1	2	1	
Golden Eagle						1				
American Kestrel	2	3	1	1	1	2	1	1	1	2
Merlin					1					
Peregrine Falcon		1	1		1	1				
Total	200	245	179	150	167	214	229	155	108	130

Merlin also seen on 01/01 and on 3 dates in December.
Peregrine Falcon also seen on 01/14.
Golden Eagle also seen on 02/10 and 02/12.

Source: Herpetological Associates, Inc., 1996.

Table 2. Waterfowl recorded on the Maurice River, winter 1995-1996.

SPECIES	12/12	12/17	01/05	01/13	01/28	02/09	02/25	03/09	03/12	03/21
Tundra Swan	1	13					3			
Mute Swan		1			3	5	13	7	14	8
Snow Goose	266	252	3600		4000	1500	13100	4778	5100	1350
Brant		5								
Canada Goose	42	263	46	102	76	134	475	101	55	48
Wood Duck	1	3						12		3
Green-winged Teal	76	2	60		75		37	182	229	108
Am. Black Duck	1149	694	439	410	362	684	250	631	815	520
Mallard	215	237	117	226	117	276	47	162	356	95
Northern Pintail	11	8	16		105		184	135	240	17
Blue-winged Teal	1									
Gadwall			1		1				2	6
American Wigeon							1	1		
Canvasback								36	50	38
Ring-necked Duck			60							
Greater Scaup			10							
Lesser Scaup							7			21
Scaup sp.	100	11	20	20						
Oldsquaw		1								
Black Scoter		1								
Surf Scoter		1								2
Scoter sp.		15								
Common Goldeneye	4	65	1	6	4		6	12	2	7

Bufflehead	14	119	35	1	65		72	82	178	181
Hooded Merganser	11	8		20	1	20		9		1
Common Merganser	2	5	14	2	4	34	12	2		
SPECIES	12/12	12/17	01/05	01/13	01/28	02/09	02/25	03/09	03/12	03/21
Red-br. Merganser	14	50	16	31	45	2	22	83	144	89
Ruddy Duck							1			2
Total	1907	2027	4435	818	4858	2655	14230	6233	7187	2504

Twelve Northern Shoveler seen on 04/10.

Table 2. Waterfowl recorded on the Maurice River, winter 1995-1996.

Table 3. Raptors recorded on the Cohansey River, winter 1995-1996.

SPECIES	01/01	01/14
Black Vulture	-	15
Turkey Vulture	35	69
Bald Eagle	4	2
Northern Harrier	25	29
Sharp-shinned Hawk	7	4
Cooper's Hawk	4	2
Red-shldrd Hawk	1	2
Red-tailed Hawk	40	40
Rough-legged Hawk	-	1
American Kestrel	6	2
Merlin	2	-
Total	124	166

Table 4. Waterfowl recorded on the Cohansey River, winter 1995-1996.

SPECIES	03/12	03/21
Mute Swan	4	2
Snow Goose	13109	4425
Canada Goose	1287	4962
Wood Duck	1	
Green-winged Teal	1	
Am. Black Duck	148	132
Mallard	178	140
American Wigeon	10	
Common Goldeneye	10	7
Hooded Merganser	3	
Common Merganser		5
Red-br Merganser	3	
Total	14754	9666

Source: Herpetological Associates, Inc., 1996

Winter Raptor and Waterfowl Studies on the Maurice River, Cumberland County, New Jersey

Canvasbacks on the lower Maurice River at Heislerville, Winter 1995 - 1996.
Photo by Clay C. Sutton

A Study Funded by

Citizens United to Protect the Maurice River and its Tributaries

Herpetological Associates, Inc.