

Birding Survey of Cedar Island Marina Inc. (1989-1990)

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INTRODUCTION

The study area is located in Clinton Harbor (Clinton, CT). The study area consists of a short portion of the Hammonasset River, Cedar Island Marina (CIM), an area of dredge spoils contained by three diked containment areas and a small portion of mosquito ditched salt marsh. The comparison study area (HAM) is an extensive area of beach and salt marsh located at the east end of Hammonasset State Park. The rest of the state park lies to the south and west of the study areas and the town of Clinton is to the north and east. The purpose of this study is to record interactions between birds and human activity; to make comments, as appropriate, on the bird distribution and the effects human modification have had on the bird populations of the area.

When we set out to study the bird use of the Clinton Harbor and Cedar Island Marina we were already familiar with the area from many years of birding in Connecticut. Noble Proctor has led class field trips to Hammonasset State Park for some 20 years and Fred Sibley has birded the area for almost as long and has been operating a hawk banding station at Hammonasset State Park for the last 6 years (directly south of and in view of the area labeled impoundment three in our study). The inner portion of Clinton Harbor is easily viewed from several sections of Hammonasset State Park and we had made occasional visits to the Clinton side of the harbor. Sibley had made several visits to the marina area in connection with his testimony on a proposal

for the expansion of Cedar Island Marina, Inc. We therefore bring to this with a substantial amount of prior knowledge on bird distributions in Connecticut and especially in this specific portion of Connecticut. We did not expect to make any startling discoveries and in all honesty felt we could write most of the conclusions before we began gathering the data. The data has now been collected and it includes some surprises that deflate our egos and threaten our smugness.

The results were rather overwhelming. We have made over 600 sightings. Each sighting represents a species located in one sub-area, the number of individuals, the date, tide conditions, and other comments. Unfortunately the data cannot be fed into a computer and conclusions spit out to match the numbers of birds seen on given dates. Much of the prior knowledge mentioned above has to be used in judging the importance of these sightings. A certain amount of grouping and regrouping of the data has to be done to arrive at a logical explanation for the bird distributions we found. A certain amount of crystal ball matching of the results with possible future uses of the area is needed to really wrap up the results. The methods and data section that follow explain the various sub-areas used and the grouping of species into three categories; regular, nesting, and special interest.

METHODS AND DATA

During 1989 and 1990 a total of 19 monthly visits were made to the main study site. The portion of Hammonasset State park that extends along the west side of Clinton Harbor and onto Cedar Island was also censused on six visits to provide a comparison to the species and numbers observed in the Cedar Island Marina (CIM) survey. A species seen in one location was listed as one sighting. Thus with eight sub-areas regularly visited on 19 visits there was the potential for 152 sightings of a species. Naturally with habitat and seasonal constraints no species approached this total. The five most common species were song sparrows (*Melospiza melodia* - 48 sightings), Herring Gulls (*Larus argentatus* - 29), Mallard Ducks (*Anas platyrhynchos* - 27), Mute swans (*Cygnus olor* - 27), and Doublecrested Cormorants (*Phalacrocorax auritus* - 20).

The Cedar Island Marina (CIM) study area was split into the following sub-areas: Sub-area one, Dock. This sub-area includes the existing marina and boat slips, buildings and parking lots; Sub-areas two, three, and four are dredge spoil impoundments one, two, and three respectively. The areas are numbered from east to west. Sub-area five, River. The river sub-area includes all water areas of the inner harbor extending up river to the first bend. Sub-area six, Dredge. this is the 16 acre area of mudflat that would have been dredged for the expansion of the existing marina. Sub-area seven, Edge. This is the strip of vegetation

between impoundments 1, 2 and 3 and the river. **Sub-area eight, Tip.** This is the area of marsh vegetation which extends from the end of the last dredge spoil impoundment to the Hammonasset river.

During the census the observer would drive along the edge of the docks with at least one stop. The observer would then drive past impoundments one and two, parking at the end of impoundment two. The observer would then walk along impoundment three, through the marsh (Tip), to the river, and then back along the (Edge) to impoundment one and back along the road to the car. The river and inner harbor would be checked through this entire process. If the Hammonasset survey was included in that day's census the observer would go to Meigs point nature center, obtain the special permit needed for the censused area, and then walk from there to the board walk and out to the beach on the west side of the harbor. Counting would start at the beach and continue to the beginning of the houses on Cedar Island.

A total of 81 species were seen in the main survey area and a total of 47 species were identified in the Hammonasset State Park survey. In both surveys a total of 91 different species were identified. Almost half of the species, 42, were judged to be unimportant in the discussion of the bird utilization of the area. These excluded species were seen only a few times and in small numbers. Most were out of habitat vagrants or migrants. Appendix A gives an annotated listing of all the species observed with comments on their distribution and on the number of

sightings made.

For the purpose of this discussion we have grouped the species seen on the CIM survey as; regular (27 species); nesters (14), or of special interest (21). A species was judged to be regular if it was seen on four or more visits to any one sub-area. Nesters are species actually building nests in the study areas. Three species in this category are not in the regular category because they were not seen frequently enough in any one sub-area. One species is very secretive species and the other two species nested on the Hammonasset beaches and visited the CIM study area only infrequently. Species of special interest (no overlap with the previous groups) were migrants or vagrants which were seen only a few times, but are important in understanding the bird use of the area. Table one gives the total number of species seen in each sub-area, total number of individuals in each sub-area, total number of regularly occurring species in each sub-area, total number of nesting species in each sub-area and species of special interest in each sub-area.

DISCUSSION

When we cut the 91 total species to the 30 nesting and regularly occurring species plus an additional 21 species of special interest we are presenting a truer picture of the bird use in the Cedar Island Marina study area. The following discussion is divided into a discussion of each of the eight sub-areas of the CIM survey with the Hammonasset survey used as comparison. Sub-areas two, three and four (impoundments one, two and three) will be discussed last.

Sub-area one - Dock

This is a totally man-modified habitat. The species found here are primarily the ones that have had a long history of association with man. The marina buildings provide nesting habitat for several species of birds. This sub-area provides several food supplies. There is the direct feeding of waterfowl and seabirds by people and then there is the natural food supply provided by the marine growth on the pilings and floats. Birds were also seen feeding on schools of small fish which were attracted to this complex, three dimensional marina habitat. The marina complex is the most distinct habitat of the eight sub-areas in this study. Over half of the 20 species recorded here are regulars. This is the highest percentage of any of the sub-areas.

The marina area is of importance to 12 species in the study and for half of these it is the only sub-area in which they occur

regularly. Barn Swallows (*Hirundo rustica*), European Starlings (*Sturnus vulgaris*), House Finch (*Carpodacus mexicanus*) and House Sparrows (*Passer domesticus*) all nest here and are found elsewhere only incidentally. Double-crested Cormorants, Herring Gulls, Ring-billed Gulls (*Larus delawarensis*) and Laughing Gulls (*Larus atricilla*) all use the pilings of the marina for roosting. The Laughing gull and usually the Herring gull are present in small numbers at the marina compared to their numbers on the river while the Ring-billed Gull is most abundant and most regular at the marina and relatively uncommon elsewhere. One would expect the Ring-billed Gull to be scavenging around the docks and dumpsters although this was not observed. Mute Swans, Mallard Ducks and American Black Ducks (*Anas rubripes*) are all regular in the marina and the latter two species were observed with small young. The Mallard Duck is the most common and most frequent resident of the three and was seen on almost every visit. Mute Swans were present on half of the visits and the Black Duck on a third of the visits. A Pied-billed Grebe (*Podilymbus podiceps*) was also seen feeding in the marina on two winter visits.

Cedar Island Marina thus affords nesting and feeding areas for four man-associated land birds. It provides roosting sites for four coastal waterbirds, one of which uses the marina as an important feeding site. The marina provides feeding and sheltered resting areas for one species of swan and two species of ducks and is an important winter feeding site for Pied-billed

Grebes. Cedar Island Marina with its associated roosting sites, shelter, deep water, scavenging possibilities, lack of predators, and abundant fish supply provides a focus for all of these species.

Sub-area five - River

The River and inner harbor Provides habitat for very few species or individuals at any given time of the year with the Mute Swan the most common species. As one moves upstream past Cedar Island Marina and up the Hammonasset River the bird use increases slightly with the occasional cormorant or gull perched on channel markers and a few Great Blue Herons (*Ardea herodias*) along the banks. On some low tides there may be a considerable concentration of Seabirds (gulls and terns) feeding in the shallow water, but only a very few shorebirds were seen. This may be due to both a poor food source in the area and to the infrequency with which the area is exposed. When there are onshore winds there are usually no mudflats exposed and even under ideal conditions the mudflats do not become available to birds until late in the tidal cycle. Thus when large numbers of shore birds were present in impoundment three there were almost no small shorebirds on the mudflats or on the flats of the Hammonasset State Park survey.

The 22 species observed on the river include six ducks, five gulls and two terns and only two shorebirds. Only five of these species were of regular occurrence. The Great Black-backed Gull (*Larus marinus*) was seen on most visits, the Herring Gull on over

half the visits as were the Mute Swan and Double-crested Cormorant. The fifth species, the Great Blue Heron, was present on five visits and almost always along the banks on the Hammonasset side of the river. These five species make up 70% of the sightings on the river. With the exception of the Great Blue Heron all of these species are common in every harbor or sheltered area along the Long Island Sound coast. Numbers of individuals were highly variable with the highest number of individuals and species being seen at low tide. During winter visits the area was nearly deserted.

One of the purposes this study was to document the interactions between birds and boats. With only a few exceptions birds took no notice of boats and in those few cases the birds flew only a short distance before resuming their former feeding or roosting behavior.

Cormorants, gulls and Osprey (*Pandion haliaetus*) were all seen to stay on channel markers as boats went by only yards away. Great Blue Herons sometimes reacted to the boats passing, it is not clear if this was in response to the boat or the wake left by the boat. In all cases the herons soon returned to feeding. We all know that some species respond adversely to boat disturbance. In this case boat disturbance has evidently long since driven out all the sensitive species and those that are left are well adjusted to heavy boat traffic. If we assume that one boat causes disturbance and two boats cause more disturbance but not twice as much as one then at some point we will eventually reach

the point of maximum disturbance. We may have reached that point in Clinton Harbor.

Sub-area six - Dredge

This 16 acre area is bounded on the south by the boat channel, on the east by the Cedar Island Marina bulkhead, on the north by the river bank and on the west by a deep mosquito ditch draining the marshes adjacent to the dredge spoils. There is not a lot of use of this area during high tide and the mudflats are exposed for short periods and not necessarily on every tidal cycle. Thus the paltry 30 sightings of 14 species on this small sub-area of intertidal mudflat is not unexpected. Only the Mute Swan was seen here regularly. The deep mosquito ditch at the west end seems to be important. At low tide small fish are concentrated in this area and on one observed tide there were large flocks of Laughing Gulls (40+), Willets (*Catoptrophorus semipalmatus* - 12), and Least Terns (*Sterna albifrons* - 14) along with cormorants, herons and other gulls. Except for this mosquito ditch the area is as much a desert as the rest of the river.

Sub-area seven - Edge

This very narrow strip of land between the dredge spoil impoundments and the river is essentially a degraded marsh habitat and one would not expect it to hold many species. The 32 sightings of 15 species clearly illustrate these limitations. Song Sparrows and Sharp-tailed Sparrows (*Ammodramus caudata*) both were seen nesting here. A single Belted Kingfisher (*Megasceryle*

alcyon) had a favorite fishing perch in the area and was a regular occurrence. The other 12 species are all single sightings of birds resting on the river edge or passing by.

Sub-area eight - Tip

This area (although relatively small) is excellent salt marsh with the typical patchwork of mosquito control ditches. Its close proximity to the marinas and neighborhood houses is evidently a benefit. During the year of our study we may have been the only people who walked out there and it is unlikely any dogs or cats ever have any reason to come out here. This is better protection than any area of Hammonasset gets despite patrols and special protective regulations.

Willetts, a rare nester in the state, were found here at a higher concentration than in the Hammonasset marshes. Clapper Rails (*Rallus longirostris*), Sharp-tailed Sparrows and the Seaside Sparrow (*Ammodramus maritima*), typical salt marsh species, also nested here in good numbers along with the more widespread Song Sparrow. The Short-eared Owl (*Asio flammeus*) and the American Bittern (*Botaurus lentiginosus*) were each observed once in this area. They are rare in Connecticut at the present time, with salt marshes a preferred winter habitat. Osprey were regular over this area and this was also a major feeding area for the Snowy Egret (*Egretta thula*).

Sub-areas two, three and four - Impoundments one, two and three

Impoundments one and two were normally dry and heavily overgrown with Phragmites. Impoundment three usually had a

puddle of water at the North-west end which was sometimes quite large. Impoundment three hosted a much larger variety of birds than the first two impoundments. The 15 species at impoundment one, 25 species at impoundment two, and the 45 species at impoundment three clearly show this gradient. Only the Mourning Dove (*Zenaida macroura*), the Savannah Sparrow (*Passerculus sandwichensis*) and the Song Sparrow were regularly found at the first two impoundments and represented almost half of the sightings. Sub-areas one and two are not a particularly exciting area - some open area and some grass and weed seeds are the big attractants.

Impoundment three presents an entirely different picture. Both the Mallard Duck and Black Duck were observed there with young and may well have nested in the Phragmites on the dikes. Osprey visited the nest platform at one end of the impoundment and purple martins inspected the martin house at the other end. Killdeer (*Charadrius vociferus*), American Kestrel (*Falco sparverius*), American Crow (*Corvus brachyrhynchos*), Savannah Sparrow, Song Sparrow and Red-winged Blackbirds (*Agelaius phoeniceus*) were all regular users of the area although probably only the Song Sparrow nested. The real surprise was the heavy use the area received in late summer from migrant shorebirds. At least 15 species of shorebirds were present in July and August and there were several hundred individuals present on one visit. These numbers are may not be that high when compared to major stop over sites such as New Haven Harbor and Milford Point. They

are, however, higher than anything found in the Madison/Clinton area. This number of species is impressive for any site. Species like the Western Sandpiper (*Calidris mauri*), the White-rumped Sandpiper (*Calidris fuscicollis*), and the Stilt Sandpiper (*Micropalama himantopus*) are good finds for a birder but can be found at numerous places along the coast and would also be expected somewhere in the Hammonasset State Park complex. However, the Wilson Phalarope (*Steganopus tricolor*) and a rail, the Common Moorhen (*Gallinula chloropus*), are true rarities - species which would prompt a bird watcher to drive up from Greenwich for a view. The area was rich in birds of special interest. This impoundment with its temporary pool of rainwater provided a habitat not found elsewhere in the area.

The fact that this unmanaged dredge spoil site was the most exciting part of the study area deserves more than a passing mention. We have observed this phenomena, a concentration of shorebirds, at other dredge spoil areas in the past and would like to take this opportunity to expound on the potential of such areas as these. Impoundments one and two clearly show how sterile such an area can be. Impoundment three is like this when its pool dries up. When there is enough rainfall for a pool to form, a large food supply (composition unknown) evidently grows and serves as a magnet for a great variety of shorebird species. In this totally unmanaged situation there were suitable nesting conditions for ducks and unique feeding conditions for some very rare migrants. One wonders if a little management would make

this dredge spoil area a very productive habitat. Certainly a small island in such a pool would provide numerous nest sites for Black Ducks and Mallards. A properly controlled water supply would ensure that there was shorebird habitat every year for larger numbers than what we observed. In fact what we propose is similar to what many wildlife management areas actually do. No one is going to turn Hammonasset park into a wildlife management area, but one of these dredge spoil impoundments could be turned into a valuable wildlife resource. There are numerous such dredge spoil areas along the coast and some agreement between the DEP and the owners could turn them into very productive wildlife habitat.

CONCLUSIONS

The bird use of the main study area is not spectacular although there were several notable surprises. The Hammonasset marshes and the Cedar Island beach are excellent coastal salt marshes with the typical species one associates with these areas. The western most portion of the study area, the "tip", was at least as rich a salt marsh as any similar sized area in Hammonasset and we attribute part of this richness to the protection provided by the Cedar Island Marina. Impoundment three was surprisingly rich in both species and numbers when there was standing water present. This is a duck nesting area and a feeding site for fall migrant shorebirds. We feel both functions could be greatly enhanced with a little management. The other two impoundments were essentially sterile. The marina area provided food and nesting sites to a large number of common widespread opportunistic species. The river throughout most of the tide cycle receives very little bird use. On some low tides in some seasons there are concentrations of gulls, cormorants, herons and willets. We never saw nor had reason to believe there would ever be large numbers of shorebirds on the intertidal flats because these flats are only exposed for a limited time in the tide cycle and are evidently poor food sources.

The largest numbers of individuals and species were present in the summer months. We think the birds present in the river, harbor and marina areas were all acclimated to heavy boat traffic

and we found no evidence of any serious disturbance

APPENDIX A

An annotated list of all species seen during the 19 visits to the Cedar Island Marina study area and the six visits to the Hammonasset State Park study area (91 species total).

Information is presented in the following order: Common name, Importance (if any), Scientific name, total number of sightings in the CIM study area, number of sightings in each CIM sub-areas, Total number of sightings in the HAM study area, Connecticut status and comments.

Importance Codes

- # - Birds nesting in CIM survey area (14).
- * - Birds seen 4 or more times in one CIM sub-area (28).
- ^ - CIM survey sighting of special interest (21).

Red-throated Loon *Gavia stellata* - 1-CIM. 1-dredge. An uncommon winter visitor to the Connecticut coast.

Pied-billed Grebe ^ *Podilymbus podiceps* - 2-CIM. 2-dock. Rare breeder and early winter resident in Connecticut. The November and December were unexpected and highly noteworthy.

Great Cormorant *Phalacrocorax carbo* - 2-CIM. 2-river, 1-HAM. A regular winter visitor all along the East Coast, less common in harbors and rivers.

Double-crested Cormorant * *Phalacrocorax auritus* - 19-CIM. 11-river, 4-dock, 3-dredge, 1-edge, 4-HAM. An abundant summer resident and uncommon winter resident. Found feeding in the river or perched on channel markers on all visits except when the Hammonasset river was frozen.

American Bittern ^ *Botaurus lentiginosus* - 1-CIM. 1-tip. A rare and perhaps endangered species in Connecticut. This October sighting is not entirely unexpected as the marshes in this area are excellent stopover sites.

Great Blue Heron * *Ardea herodias* - 7-CIM. 5-river, 2-tip, 4-HAM. A regular migrant and winter resident along the coast. The birds were usually feeding close to the banks of the river on the Hammonasset side.

Great Egret *Casmerodius albus* - 2-CIM. 2-tip. A local breeder and uncommon visitor to the coast from early spring to late fall.

Snowy Egret * *Egretta thula* - 9-CIM. 6-tip, 1-dredge, 1-edge, 1-river, 5-HAM. A local breeder and common visitor to the coast. Feeds in shallower areas than the Great Egret and the Great Blue Heron. It is not surprising to find high numbers in the marshes on Cedar Island Marina Property.

Green-backed Heron ^ *Butorides striatus* - 5-CIM. 3-imp. three, 2-tip, 1-HAM. A common summer resident along the coast. It is not surprising to find this bird in the small pool in impoundment three.

Black-crowned Night Heron ^ *Nycticorax nycticorax* - 1-CIM. 1-imp. three. A common, but rather secretive, summer resident of the Connecticut.

Glossy Ibis *Plegadis falcinellus* - 1-HAM. A flock of 22 was seen at Hammonasset in July.

Mute Swan * *Cygnus olor* - 27-CIM. 12-river, 8-dock, 5-dredge, 1-edge, 1-tip. An introduced species that is now common to abundant all along the Connecticut coast. Mute Swans were seen in the river on almost every visit.

Canada Goose *Branta canadensis* - 4-CIM. 3-tip, 1-river. A common resident along the Connecticut coast. These were only observed on winter visits.

American green-winged Teal ^ *Anas crecca* - 2-CIM. 1-imp. one, 1-imp. three. A regular winter resident and migrant. Seen in March and April.

American Black Duck *# *Anas rubripes* - 17-CIM. 7-imp. three, 5-dock, 2-dredge, 2-edge, 1-river. A common coastal breeder and year-round resident. Black Duck with broods of small young were seen on two occasions in impoundment three.

Mallard Duck *# *Anas platyrhynchos* - 27-CIM. 16-dock, 6-imp. three, 2-tip, 1-dredge, 1-imp. one, 1-river. A common coastal breeder and year-round resident. Mallards with broods of young were seen several times among the docks and once in impoundment three.

Greater Scaup *Aythya marila* - 1-CIM. 1-river. A common winter resident along the Connecticut Coast.

Black Scoter *Melanitta nigra* - 1-HAM. Three birds were seen at Hammonasset in February.

Surf Scoter *Melanitta perspicillata* - 1-HAM. Six birds were seen at Hammonasset in February.

Common Goldeneye *Bucephala clangula* - 1-HAM. Four birds were seen at Hammonasset in February.

Bufflehead *Bucephala albeola* - 5-CIM. 3-river, 2-dredge, 1-HAM. A regular winter visitor to the small coves and inlets of the Connecticut coast.

Red-breasted Merganser *Mergus serrator* - 3-CIM. 3-river, 1-HAM. A regular winter visitor to the coast and large rivers of Connecticut.

Osprey *# *Pandion haliaetus* - 14-CIM. 5-tip, 3-river, 2-imp. three, 1-dock, 1-imp. two, 4-HAM. A common to uncommon breeder along the Connecticut Coast. Usually seen in the air, but one was seen perched on the docks and on two occasions a pair was seen placing sticks on the Osprey platform at the end of impoundment three.

Northern Harrier *Circus cyaneus* - 4-CIM. 3-imp. three, 1-tip. A regular fall migrant along the Connecticut coast.

Sharp-shinned Hawk *Accipiter striatus* - 1-CIM. 1-imp. three. A common fall migrant through the area.

American Kestrel * *Falco sparverius* - 6-CIM. 4-imp. 3, 2-tip, 1-HAM. A common fall migrant through the area.

Peregrine Falcon *Falco peregrinus* - 1-HAM. One bird was seen at Hammonasset in September.

Clapper Rail *# *Rallus longirostris* - 3-CIM. 3-tip. A common although secretive inhabitant of Connecticut coastal marshes.

Sora Rail ^ *Porzana carolina* - 1-CIM. 1-imp. three. A regular fall migrant. This particular bird was young and may have been reared locally.

Common Moorhen ^ *Gallinula chloropus* - 1-CIM. 1-imp. three. A rare bird in Connecticut. This bird was seen in August and was surely a migrant.

Black-bellied Plover *Pluvialis squatarola* - 4-CIM. 3-imp. three, 1-river, 1-HAM. A regular fall inhabitant of the Connecticut coast. All sightings were of single birds.

Semipalmated Plover ^ *Charadrius semipalmatus* - 2-CIM. 2-imp. three, 3-HAM. A common fall migrant. One flock of 16 birds was present in late July.

Piping Plover # *Charadrius melodus* - 4-HAM. This is a rare breeder on the beaches of Hammonasset State Park. A maximum of eight birds were seen in July. This bird could possibly be attracted to impoundment three with some modification of that habitat.

Killdeer *# *Charadrius vociferus* - 9-CIM. 7-imp. three, 1-imp. two, 1-imp. one, 4-HAM. A common summer and often winter resident in the state. The sightings at impoundment three were all in June or later. The birds may have been local nesters and come to impoundment three to feed.

American Oystercatcher *Haematopus palliatus* - 3-HAM. An uncommon local nester along the Connecticut coast. One pair was present at Hammonasset.

Greater Yellowlegs *Tringa melanoleuca* - 9-CIM. 3-edge, 2-imp. three, 1-dredge, 1-imp. two, 1-imp. one, 1-tip, 1-HAM. A common migrant in Connecticut inhabiting a great variety of habitats.

Lesser Yellowlegs ^ *Tringa flavipes* - 2-CIM. 2-imp. three. An uncommon migrant. Flocks of 8 and 6 were seen in July and September respectively.

Willet *#^ *Catoptrophorus semipalmatus* - 12-CIM. 6-tip, 3-imp. three, 1-dredge, 1-edge, 1-imp. two, 3-HAM. A recent summer resident of the state and now well established in a number of marshes. At least three pairs nested in the marsh at the tip and another three pairs nested in the marshes of Hammonasset. Because of the tremendous difference in the size of these two areas the "Tip" area must be offering the Willets something that the Hammonasset marshes cannot. Willets were also the only bird seen in any number in the "Dredge" area, twelve birds were seen feeding here in late July.

Spotted Sandpiper ^ *Actitis macularia* - 6-CIM. 3-imp. three, 2-imp. two, 1-edge, 2-HAM. A regular migrant.

Ruddy Turnstone *Arenaria interpres* - 1-CIM. 1-river, 3-HAM. A regular migrant along the Connecticut coast where it usually prefers rocky shores.

Sanderling *Calidris alba* - 1-CIM. 1-imp. three, 3-HAM. A common migrant usually found on sandy beaches.

Semipalmated Sandpiper ^ *Calidris pusilla* - 2-CIM. 1-imp. two, 1-edge. A common to abundant migrant. A flock of 97 birds was present in early September in impoundment three.

Western Sandpiper ^ *Calidris mauri* - 3-CIM. 2-imp. three, 1-imp. two. An uncommon fall migrant. In September 16 were seen in impoundment three.

Least Sandpiper * *Calidris minutilla* - 8-CIM. 6-imp. three, 1-dredge, 1-imp. two, 3-HAM. A common Connecticut migrant, especially in inland areas. Flocks of 34 and 21 were seen in : impoundment three.

White-rumped Sandpiper ^ *Calidris fuscicollis* - 1-CIM. 1-imp. three. A rare migrant in Connecticut. A flock of four birds was seen in September.

Stilt Sandpiper ^ *Micropalama himantopus* - 1-CIM. 1-imp. three, 1-HAM. A rare migrant in Connecticut. Two birds were seen in September.

Short-billed Dowitcher ^ *Limnodromus griseus* - 1-CIM. 1-imp. three, 2-HAM. An uncommon migrant in Connecticut. Six birds were present in late July.

Wilson Phalarope ^ *Steganopus tricolor* - 2-CIM. 2-imp. three. A very rare migrant in Connecticut. Single birds were seen in August and September.

Laughing Gull * *Larus atricilla* - 6-CIM. 4-dock, 2-river, 2-HAM. A common summer visitor. Birds were usually found perched on pilings in the dock area. A flock of 43 was seen feeding in the river at low tide in August.

Bonaparte's Gull *Larus philadelphia* - 1-CIM. 1-river. A common spring and fall migrant in Connecticut.

Ring-billed Gull * *Larus delawarensis* - 15-CIM. 9-dock, 2-river, 2-dredge, 1-edge, 1-imp. one, 1-HAM. A year-round Connecticut resident and common in all seasons. The maximum observed in the dock area was 41 in March.

Herring Gull * *Larus argentatus* - 29-CIM. 12-river, 10-dock, 3-dredge, 1-imp. one, 1-imp. two, 1-imp. three, 1-tip, 4-HAM. A common Connecticut coastal breeder and year-round resident. Flocks of over 60 were seen on the river and groups of 50 were seen in the dock area. In modern times this bird is closely associated with humans and their refuse. Surprisingly, the highest Herring Gull numbers were found in the dock area in March when human habitation is normally at its lowest.

Great Black-backed Gull * *Larus marinus* - 19-CIM. 15-river, 3-dock, 1-imp. one, 3-HAM. A common Connecticut coastal breeder and year-round resident. This bird was present on all but one visit in the river area. Highest numbers of this bird (about 20) were found in late summer.

Royal Tern *Sterna maxima* - 1-HAM. One bird was seen on the Hammonasset survey.

Common Tern *Sterna hirundo* - 5-CIM. 2-dredge, 2-river, 1-dock, 4-HAM. A common breeder on Faulkner's Island and a regular visitor along the Connecticut coast. In July 35 birds were seen feeding in the small channel next to the western edge of the dredge area at low tide.

Forester's Tern ^ *Sterna fosteri* - 1-CIM. 1-dredge. An uncommon fall migrant in Connecticut.

Least Tern # *Sterna albifrons* - 5-CIM. 3-river, 2-dredge, 4-HAM. A summer resident that nests in small numbers (less than 10 pairs) at Hammonasset. All the birds sighted were assumed to be associated with this colony and the 14 birds seen in late July would match this assumption. Most of the birds were seen feeding in the small channel next to the western edge of the dredge area.

Black Skimmer *Rynchops niger* - 1-HAM. Three birds were seen on the Hammonasset survey in August.

Rock Dove *Columba livia* - 1-CIM. 1-dock. A common local introduction.

Mourning Dove * *Zenaidura macroura* - 14-CIM. 6-imp. two, 5-imp. one, 3-imp. three. A common Connecticut breeder and year-round resident. These birds were usually found feeding along the road edge and in the dry impoundments. Maximum counts in a sub-area were 11 and 6.

Short-eared Owl ^ *Asio flammeus* - 2-CIM. 2-tip, 1-HAM. A rare migrant and winter resident. A single bird was seen in November and December.

Ruby-throated Hummingbird *Archilochus colubris* - 1-HAM. One bird was seen at Hammonasset in September.

Belted Kingfisher * *Megaceryle alcyon* - 8-CIM. 6-edge, 1-dredge, 1-tip. A common year-round resident along the Connecticut coast. This single bird was present on half the visits.

Horned Lark *Eremophila alpestris* - 3-CIM. 2-imp. three, 1-river, 1-HAM. An uncommon nester and winter resident. A large flock of this species winters at Hammonasset and the birds seen in the study area were probably of this flock.

Purple Martin ^ *Progne subis* - 3-CIM. 3-imp. three. A rare and local nester in Connecticut. On two occasions birds were seen perched on the Martin house near the impoundments. It is possible that these birds were scouts from the colony located at Hammonasset.

Western Kingbird *Tyrannus verticalis* - 1-CIM. 1-imp. one. An accidental visitor to Connecticut.

Tree Swallow *Iridoprocne bicolor* - 5-CIM. 3-imp. three, 2-imp. two, 1-HAM. A common migrant. These few individuals were part of mixed swallow flocks feeding over the Impoundment area.

Rough-winged Swallow *Stelgidopteryx ruficollis* - 4-CIM. 2-imp. two, 2-imp. three, 1-HAM. A less common migrant. These individuals were part of the mixed flock of swallows seen feeding over the area.

Bank Swallow *Riparia riparia* - 2-CIM. 1-imp. two, 1-imp. three, 1-HAM. A common Connecticut migrant with flocks of over 20 seen here.

Barn Swallow *# *Hirundo rustica* - 8-CIM. 4-dock, 2-imp. two. 2-imp. three, 1-HAM. A common nester and summer resident. Birds nested in the boat sheds and in the marina's travel lift.

American Crow * *Corvus brachyrhynchos* - 15-CIM. 7-tip, 4-imp. three, 2-imp. two, 1-imp. one, 1-dock. A common year round resident. On one occasion 30 crows were seen feeding in the "tip" sub-area.

Fish Crow *Corvus ossifragus* - 4-CIM. 2-imp. two, 1-imp. three, 1-dock. An uncommon resident along the Connecticut shore. This bird is not often found as far east as Clinton.

Marsh Wren *Cistothorus palustris* - 1-CIM. 1-imp. three. A common summer resident and Connecticut coastal marsh breeder.

Gray Catbird *Dumetella carolinensis* - 1-CIM. 1-imp. three. A common summer resident and in this case a migrant.

Northern Mockingbird *Mimus polyglottos* - 1-CIM. 1-dock. A common summer resident.

Cedar Waxwing *Bombycilla cedrorum* - 1-CIM. 1-imp. three. A common Connecticut resident. These birds were late season wanderers.

European Starling *# *Sturnus vulgaris* - 7-CIM. 7-dock. A common Connecticut resident. Birds were seen nesting in the structures of the marina.

Yellow Warbler *Dendroica petechia* - 4-CIM. 2-imp. three, 1-imp. two, 1-tip. A common Connecticut summer resident and fall migrant. These sightings all represent early fall migrants.

Common Yellowthroat *Geothlypis trichas* - 8-CIM. 3-imp. one, 2-imp. two, 1-imp. three, 1-edge, 1-tip. A common summer resident in Connecticut marshes. All sightings seem to represent migrants or winter vagrants.

American Tree Sparrow *Spizella arborea* - 2-CIM. 2-imp. three. A common Connecticut winter resident.

Vesper Sparrow *Poocetes gramineus* - 1-CIM. 1-imp. two. A rare Connecticut migrant.

Savannah Sparrow * *Passerculus sandwichensis* - 16-CIM. 6-imp. three, 4-imp. two, 3-tip, 2-imp. one, 1-edge, 1-HAM. A common migrant and winter resident. The maximum flock sizes seen were 8 and 10 birds.

Sharp-tailed Sparrow *# *Ammodramus caudacuta* - 14-CIM. 8-tip, 6-edge, 3-HAM. A common summer resident in Connecticut salt marshes.

Seaside Sparrow *# *Ammodramus maritima* - 6-CIM. 4-tip, 1-imp. three, 1-imp. two, 4-HAM. An uncommon summer resident in Connecticut salt marshes.

Song Sparrow *# *Melospiza melodia* - 48-CIM. 13-tip, 12-imp. three, 9-imp. two, 9-imp. one, 5-edge, 3-HAM. A common year round resident in Connecticut coastal marshes and a common summer resident state-wide. This species was relatively evenly spread over the area and was obviously nesting. The largest number seen in any sub-area at any time was six.

White-crowned Sparrow ^ *Zonotrichia leucophrys* - 1-CIM. 1-imp. two. A rare migrant.

Red-winged Blackbird * *Agelaius phoeniceus* - 11-CIM. 4-imp. three, 3-imp. one, 2-imp. two, 1-edge, 1-tip, 2-HAM. A common marsh breeder and irregular winter visitor. These sightings were all of small numbers and most likely represent local breeders.

Common Grackle *Quiscalus quiscula* - 2-CIM. 1-dock, 1-imp. one. A common summer resident. These sightings probably represent wanderers from local breeding groups.

House Finch *# *Carpodacus mexicanus* - 9-CIM. 7-dock, 2-imp. two, 1-HAM. A common Connecticut resident. The maximum count in any one sub-area was six.

American Goldfinch *Carduelis tristis* - 1-CIM. A common summer breeder and winter resident.

House Sparrow *# *Passer domesticus* - 12-CIM. 12-dock. A common resident. The maximum count of 11 was only a little higher than the average count indicating a small breeding population on the marina grounds.

Table 1

Cedar Island Marina Bird Survey and The Hammonasset State Park
Bird Survey by Sub-area

Sub-area	# of Species	# of Individ.	# of Regular Sightings	# of Nesting Species	# of Species of Special Interest
River	22	84	5	0	0
Dock	20	97	11	4	1
Edge	15	32	3	2	0
Dredge	16	29	1	0	1
Imp. 1	15	32	2	1	1
Imp. 2	25	50	3	1	0
Imp. 3	45	119	8	5	16
Tip	26	80	8	5	2
Ham.	48	100	X	6	X

Figure 1 Map of the Cedar Island Marina (CIM) And The Hammonasset State Park (HAM) Study Sites

