

**AVIFAUNA AT THE
PROPOSED HERRING COVE
SEWAGE TREATMENT PLANT**

HALIFAX REGIONAL MUNICIPALITY

PROJECT NO. 14169

REPORT TO

HALIFAX REGIONAL MUNICIPALITY

ON

**AVIFAUNA AT THE PROPOSED HERRING COVE
SEWAGE TREATMENT PLANT**

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1.0 INTRODUCTION

On behalf of Halifax Regional Municipality, Jacques Whitford Environment Limited conducted bird surveys at the site of the proposed Herring Cove sewage treatment facility. This is one of four potential sewage treatment facility sites proposed for Halifax Harbour. This particular facility is situated within a parcel of relatively undisturbed woodland which has some potential to harbour rare or sensitive bird species. The other three sites are located in highly disturbed urban settings which have low potential to harbour rare or sensitive bird species and were not surveyed. The surveys contribute information the state of the existing environment which is intended to be utilized as baseline information in environmental assessment processes associated with these facilities and subsequent environmental management or monitoring requirements.

2.0 METHODS

Two bird surveys were conducted on the site, one late in the migration period on May 18, 1999 and one during the breeding season on June 16, 1999. Surveys were begun at approximately 6:00 and were completed by 10:00 am. The survey was conducted from within the Hayes property; however, some birds observed in habitats outside, but in close proximity to the property were also recorded. All species of bird sighted or heard within the survey area were listed and the numbers of each species were recorded.

The breeding status of each species was determined. Species identified but not exhibiting signs of breeding were classified as non-breeders. Species observed or heard singing in suitable nesting habitat were classified as possible breeders. Species exhibiting the following behaviors were classed as probable breeders:

- courtship behavior between a male and female;
- birds visiting a probable nesting site;
- birds displaying agitated behavior; and
- male and female observed together in suitable nesting habitat.

Species were confirmed as breeding if any of the following items or activities were observed:

- nest building or adults carrying nesting material;
- distraction display or injury feigning;
- recently fledged young;
- occupied nest located; and
- adult observed carrying food or faecal sac for young.

The population status of each species was determined from existing literature. Lists of provincially rare birds were derived from Scott (1994) while nationally rare species were derived from COSEWIC (1998). Lists of birds considered to be sensitive to anthropogenic activity in Nova Scotia were derived from the Nova Scotia Department of Natural Resources (1998).

3.0 RESULTS AND DISCUSSION

3.1 Migration Survey

Thirty-eight bird species were recorded on the property during the migration survey (Table 1). The most abundant species present during this survey, in descending order of abundance, were: Black-throated Green Warbler, Golden-crowned Kinglet, Black-capped Chickadee, Magnolia Warbler, Yellow-rumped Warbler, and Dark-eyed Junco.

One of the species recorded during the survey, Merlin, is considered to be a rare breeding species in Nova Scotia (Scott 1994) but is frequently observed during migration (Tufts 1986). It was observed during the migration survey but was not observed during the breeding bird survey suggesting that this species does not breed on the property. As such, construction of a sewage treatment plant on the property is unlikely to significantly affect this species.

Common Loon, a species considered to be sensitive to human activities (Nova Scotia Department of Natural Resources 1998) was also recorded near the property during the survey. Common Loons populations are threatened by poisoning through ingestion of lead, mercury and PCB's. Local breeding populations are threatened by swamping of nests by wash from power boats and water level fluctuations in hydro-electric flowages. Collisions with boats and loss of breeding habitat as a result of lakefront property development and forestry operations also threaten this species. In Nova Scotia, most threats to Common Loon populations are associated with breeding habitat in freshwater including ingestion of lead sinkers, mercury contamination of freshwater fish and loss or degradation of breeding habitat. The study area does not provide suitable breeding habitat and the site does not appear to attract large numbers of migrating or non-breeding loons (one Common Loon was observed approximately 500 m from the property on May 18 and none were observed on June 16). As such, construction of a sewage treatment plant is unlikely to have any significant effect on the local Common Loon population.

Two raptor species, Sharp-shinned Hawk and Merlin were observed during the migration survey. Neither species was recorded during the breeding season survey suggesting that they do not breed on the property.

Table 1 Bird species recorded in or near the study area				
Scientific Name	Common Name	Number Observed May 18	Number Observed June 16	Breeding Status *
<i>Gavia immer</i>	Common Loon	1	-	Ne
<i>Phalacrocorax carbo</i>	Great Cormorant	2	-	Ne
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	6	10	Ne
<i>Accipiter striatus</i>	Sharp-shinned Hawk	1	-	Ne
<i>Falco columbarius</i>	Merlin	1	-	Ne
<i>Bonasa umbellus</i>	Ruffed Grouse	-	1	Ne
<i>Larus marinus</i>	Great Black-backed Gull	3	1	Ne
<i>Larus argentatus</i>	Herring Gull	7	15	Ne
<i>Columba livia</i>	Rock Dove	2	1	Fo
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	-	1	Pr
<i>Colaptes aureus</i>	Northern Flicker	3	2	Pr
<i>Tachycineta bicolor</i>	Tree Swallow	2	-	Ne
<i>Cyanocitta cristata</i>	Blue Jay	7	14	Cf
<i>Corvus corax</i>	Common Raven	-	1	Fo
<i>Corvus brachyrhynchos</i>	American Crow	4	15	Fo
<i>Parus atricapillus</i>	Black-capped Chickadee	14	7	Cf
<i>Parus hudsonicus</i>	Boreal Chickadee	2	1	Ne
<i>Sitta canadensis</i>	Red-breasted Nuthatch	5	4	Cf
<i>Certhia americana</i>	Brown Creeper	1	-	Ne
<i>Troglodytes troglodytes</i>	Winter Wren	1	-	Ne
<i>Turdus migratorius</i>	American Robin	5	5	Po
<i>Catharus guttatus</i>	Hermit Thrush	2	-	Ne
<i>Regulus satrapa</i>	Golden-crowned Kinglet	18	12	Cf
<i>Regulus calendula</i>	Ruby-crowned Kinglet	1	1	Po
<i>Bombycilla cedrorum</i>	Cedar Waxwing	-	1	Ne
<i>Sturnus vulgaris</i>	European Starling	2	-	Ne
<i>Vireo solitarius</i>	Blue-headed Vireo	1	1	Po
<i>Vireo olivaceus</i>	Red-eyed Vireo	-	1	Po

<i>Mniotilta varia</i>	Black-and-white Warbler	-	1	Po
<i>Parula americana</i>	Parula Warbler	4	2	Po
<i>Dendroica magnolia</i>	Magnolia Warbler	11	2	Po
<i>Dendroica coronata</i>	Yellow-rumped Warbler	11	8	Pr
<i>Dendroica virens</i>	Black-throated Green Warbler	18	10	Po
<i>Seiurus aurocapillus</i>	Ovenbird	1	-	Ne
<i>Geothlypis trichas</i>	Common Yellowthroat	-	1	Po
<i>Quiscalus quiscula</i>	Common Grackle	6	1	Ne
<i>Coccothraustes vespertina</i>	Evening Grosbeak	2	2	Fo
<i>Carpodacus purpureus</i>	Purple Finch	3	-	Ne
<i>Carduelis pinus</i>	Pine Siskin	4	-	Ne
<i>Carduelis tristis</i>	American Goldfinch	5	2	Fo
<i>Loxia curvirostra</i>	Red Crossbill	3	-	Fo
<i>Loxia leucoptera</i>	White-winged Crossbill	6	-	Fo
<i>Junco hyemalis</i>	Dark-eyed Junco	10	17	Cf
<i>Zonotrichia albicollis</i>	White-throated Sparrow	1	1	Pr
<i>Melospiza melodia</i>	Song Sparrow	3	5	Po
TOTAL		179	146	

* Breeding Status Cf = Confirmed Breeder Pr = Probable Breeder

Po = Possible Breeder Fo = Observed Flying Over Study Area

Ne = No Evidence of Breeding Activity

3.2 Breeding Season Survey

Thirty-one species were recorded during the breeding season survey (Table 1). The most abundant species on or near the property during this survey were: Dark-eyed Junco, American Crow, Herring Gull, Blue Jay, Golden-crowned Kinglet, Black-throated Green Warbler, and Double-crested Cormorant. Five species were confirmed as breeding on the property including: Blue Jay, Black-capped Chickadee, Red-breasted Nuthatch, and Golden-crowned Kinglet. Four species were classed as probable breeders including: Ruby-throated Hummingbird, Northern Flicker, Yellow-rumped Warbler, and White-throated Sparrow. The ten species classed as possible breeders included: American Robin, Ruby-crowned Kinglet, Blue-headed Vireo, Red-eyed Vireo, Black-and-white Warbler, Parula Warbler, Magnolia Warbler, Black-throated Green Warbler, Common Yellowthroat, and Song Sparrow. No evidence of breeding activity was recorded for the remaining species. None of the species recorded during the breeding season survey are considered to be rare in Nova Scotia (Scott 1994) or Canada (COSEWIC 1998) nor are any identified as being sensitive to anthropogenic activities (Nova Scotia Department of Natural Resources 1998).

3.3 Potential Interactions with the Project

Construction and operation of a sewage treatment plant at this site could affect birds as a result of habitat loss and disturbance of birds. Construction of the sewage treatment plant will result in the loss of habitat for terrestrial bird species which currently use the site resulting in the displacement of these species. Spruce forests such as the one present on the site typically support between 150 and 450 pairs of birds/km² (Erskine 1977). The amount of habitat lost to construction of the sewage treatment plant will be approximately one hectare. Therefore habitat loss associated with construction will result in the displacement of 1.5 to 4.5 pairs of birds, a very small proportion of the local population. The site does not provide critical habitat for any rare or particularly sensitive species and as such provincial or local populations of birds will not be significantly affected by habitat loss associated with construction.

Construction activity and operation of the sewage treatment plant can disturb birds preventing them from utilizing suitable habitat. The site is currently surrounded by housing development and the area where the sewage treatment plant is to be located is frequently used by ATV's. As such, birds using the site are already exposed to various sources of disturbance and species particularly sensitive to anthropogenic activities do not make extensive use of the site. In addition, the field surveys indicate that the site does not provide critical habitat for rare bird species. Disturbance associated with construction and operation of the site are therefore unlikely to have significant effects on local bird populations.

3.4 Mitigation

No species specific mitigative measures are required since the site does not provide critical habitat for any rare or sensitive bird species. However, several generic mitigative measures may be employed to minimize negative effects on bird populations present on the site. The amount of habitat disturbed during construction of the facility should be kept to a minimum. Where possible, clearing of the site should not be conducted between April and August to minimize the number of active nests destroyed as a result of construction.

4.0 REFERENCES

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