

THE 2008 BREEDING STATUS OF COMMON LOONS IN VERMONT

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ABSTRACT: Vermont's Common Loon population continued to increase in 2008, 3 years after the Vermont Agency of Natural Resources removed the species from the state Endangered and Threatened Species list. The Vermont Loon Recovery Project, a program of the Vermont Center for Ecostudies and the Vermont Fish and Wildlife Department, documented 61 loon nesting pairs and a record high 86 territorial pairs statewide. Of the 61 pairs that attempted nesting, 49 successfully hatched 75 eggs, with 55 chicks surviving through August (chick survival rate 73%, 0.64 chicks surviving per territorial pair). The number of chicks lost was slightly higher in 2008 (20) than in 2007 (15), resulting in 1 less chick surviving through August. There were 75 known and 11 potential territorial pairs (86 total territories). Three new nesting pairs and 3 new potential territorial pairs were identified. Thirteen pairs that have nested recently did not nest because of intruder loon activity, high water, or lack of suitable nest sites. Two loon pairs no longer appeared to be territorial. Seventeen nest failures were documented, including 5 re-nests. Four of these re-nests were successful. Causes of nest failure included predation (2 nests), flooding (3 nests), and incubating too long (4 nests). The remaining failed nests were abandoned for unknown reasons. The causes of mortality of most chicks were unknown. Six chicks disappeared after interactions with intruder loons, and 2 were possibly depredated (eagle and mink). Two adults died after ingesting lead fishing gear, and a third possibly died after a fight with another loon. Two adult loons crash landed on roads in Concord, VT and East Hardwick, VT and were successfully released. One loon was rescued from the ice on Lake Willoughby, while several other loons reported in distress were monitored closely. The VLRP did not receive any reports of loons caught in or ingesting fishing line for the first time in over 10 years. About 215 volunteers surveyed lakes throughout Vermont on 20 July as part of the Loonwatch program, an annual statewide loon count. Loons were observed on 84 of 148 surveyed lakes (occupancy rate of 57%), where observers counted 225 adult loons, 42 chicks, and 8 subadults, an increase in the number of adults from previous years. In 2004 and 2006, volunteers counted 184 and 201 adult loons, respectively. Twenty-three of the 61 breeding pairs nested on nesting rafts, 21 on islands, and 17 on shorelines. Thirty-three nesting rafts were placed. Warning sign buoys were placed around 35 of the 61 nests. Volunteers provided technical assistance through the placement and maintenance of nest warning signs and/or nesting rafts on 38 lakes as part of the adopt-a-lake program. Fifteen loon conservation programs were presented to over 360 adults and 150 children statewide.

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INTRODUCTION

In 1977, the Vermont Loon Recovery Project (VLRP) was initiated to assess the status of Common Loons (*Gavia immer*) in Vermont and found that the breeding population had significantly declined (Laughlin 1977). As a result, the VLRP began a loon monitoring and management program in 1978. Numbers of breeding pairs peaked at 19 in 1982, and then dropped sharply to 7 pairs in 1983 for unknown reasons. From 1983 to 1989, Vermont's breeding loon population gradually increased at an average rate of 1 pair per year, stabilized between 1989 and 1994 at 14-16 breeding pairs, then experienced a marked increase over the subsequent 14 years to 62 and 61 nesting pairs in 2007 and 2008, respectively. The VLRP is a program of the Vermont Center for Ecostudies (VCE) and the Vermont Fish and Wildlife Department (VFWD).

A major accomplishment was reached in 2005 with the removal of the Common Loon from the Vermont Endangered and Threatened Species list. Thirty years of Common Loon conservation and education by many groups and individuals enabled the achievement of this milestone. Through the guidance of VCE and the VFWD Nongame and Natural Heritage Program (NNHP), monitoring and management programs were implemented throughout the 1980s and 1990s. In 1998, the Vermont Loon Recovery Plan (Borden and Rimmer 1998) was recommended for approval by the Vermont Scientific Advisory Group (SAG) on Birds and the Vermont Endangered Species Committee (ESC), and approved by the Vermont Agency of Natural Resources (ANR). The recovery plan recommended actions on management, monitoring, research, and education programs to promote the recovery of the species. The Common Loon was designated a state endangered species in 1987 following documentation of its population decline in the early 1980's. The target level to de-list as written in the Vermont Loon Recovery Plan was "40 nesting pairs averaged over 5 consecutive years", with a minimum of 5 nesting pairs in "2 geographically discrete areas." From 2000-2004, the average number of nesting loon pairs was 41, and 6 pairs nested in the southern half of Vermont. The removal of the loon from the Vermont Endangered Species list provides a new challenge of how to responsibly manage a species once it is delisted. The VFWD, with the help of the VCE and the SAG on Birds, has drafted a post-delisting monitoring and management plan to address the continued threats to loons in Vermont and the species' current dependence on the VLRP's management and educational efforts.

Current monitoring efforts have included locating territorial and breeding pairs, documenting nesting chronology and nest-site locations, recording numbers of eggs hatched and chicks surviving through August, and identifying potential nesting habitat on lakes where non-breeding loons were frequently observed. On the third Saturday of July, volunteers surveyed most lakes and ponds considered suitable for loons as part of the on-going Loonwatch day, providing an annual statewide population estimate.

Public education efforts have included presenting slide lectures and discussions, distributing loon conservation fact sheets, educating and training volunteers, and placing signage about loon conservation at lake access areas. Over the past 10 years, extra efforts have been made to educate anglers about the threats of lead fishing gear and to encourage people to use non-lead alternatives. A ban on the sale and use of lead sinkers ½ ounce or less took effect in Vermont in 2006 and 2007, respectively. On most breeding and territorial lakes, adopt-a-lake volunteer observers have provided technical assistance by actively monitoring loon activity, assisting with management programs, and educating lake-users about appropriate boating behavior when near breeding loons.

Management efforts to increase loon nesting success have included enhancement of loon nesting habitat through placement of artificial nesting rafts, placement of warning sign buoys to reduce human disturbance, coordination with hydroelectric companies and other agencies to stabilize water levels during the nesting period, capture and rescue of injured loons or loons in distress, and law enforcement presence by state game wardens.

Since the mid-1980's, the VLRP has been a joint program between VCE and VFWD/NNHP. The Nongame Wildlife Fund has been the primary funding source for the VLRP (40-70% of budget) for many years, and VFWD has provided technical, law enforcement, and logistical support. Starting in 2006, the

VFWD began utilizing federal State Wildlife Grant funding for the VLRP through a nongame bird project grant. VCE annually hires the VLRP biologist, provides staff support, and raises the remaining VLRP budget through donations and grants.

METHODS

Monitoring of lakes with breeding and territorial loons

Collection of field data began in late April. The VLRP biologist, VFWD biologists and game wardens, or volunteers surveyed approximately 135 lakes with known histories of loon nesting, occupancy by territorial pairs, or high levels of loon activity on a regular basis (weekly to monthly). This represents an increase from 100-115 lakes over the past several years. Monitoring included recording data on loon behavior, nest-site location, water level, boating activity, and observation of other wildlife and human activity relevant to loon habitat or reproductive success. All observations were conducted with binoculars from a kayak, canoe, motorboat, or the shoreline. Observers collected information on standardized data forms, and regularly updated the VLRP biologist through phone calls, postcards, or e-mail. Over 120 adopt-a-lake volunteers participated in this intensive monitoring effort. New volunteers were sent detailed written instructions on conducting surveys (Hanson 1996). Nests were located by investigating traditional nest sites and carefully observing behavior of loons on the water. We categorized known territorial loon pairs as those non-nesting pairs present on a given lake in every year since the last documented breeding attempt on that lake. Potential territorial pairs were those that exhibited territorial behavior (e.g., observed together, acting defensively towards a third adult loon, nest searching, copulation) for at least a 6-week period on lakes that lacked a history of recent nesting or regular occupancy.

Management

Loon management practices included: 1) stabilization of water levels during the nesting period through cooperation with hydroelectric companies and others who control water levels; 2) placement of artificial nesting rafts in appropriate sites; 3) placement of warning sign buoys to discourage human intrusion at nest sites; 4) responding to all reports of distressed or dead loons, and 5) providing technical assistance to regulatory agencies. Volunteers provided important technical support for the first 4 of these practices.

The 7 hydroelectric companies and 3 agencies that regulate water levels on lakes where loons have historically nested were contacted in April by a VFWD biologist. A system of communication was established such that the VCE biologist informed the company when nesting had commenced and terminated. Each company was requested to stabilize water levels during the nesting period so that nests would not be flooded by rising water levels or left stranded by water drawdowns. Not all companies were able to stabilize water levels either because of hydroelectric needs or the inability to regulate water levels during large rain events.

Thirty-three artificial nesting rafts were placed on 31 lakes. These rafts provided an alternative nest site to natural sites where predation from terrestrial mammals and/or fluctuating water levels had caused nests to fail in previous years. Rafts were placed on some lakes with presumed territorial loon pairs, but where natural habitat is lacking (e.g., no suitable islands and/or marshes, highly developed shorelines). In cases where a potential pair is present and natural nest sites exist, rafts will not be considered unless the pair fails to nest after 4 or 5 consecutive years of occupancy. Rafts will also be considered on lakes where natural nests have failed 3 consecutive times, and the VLRP deems that rafts might prove beneficial. Six rafts have been removed since 2005 (Bald Hill, Brownington, Greenwood, Little Hosmer, Memphremagog, Newark), because natural nest sites were available. Adopt-a-lake volunteers maintained or helped with 20 rafts. Placement of rafts was completed as soon after ice-out as possible, because loons may begin visiting nest sites shortly after returning from their wintering grounds. Warning sign buoys were placed around 35 of the 61 active nest sites to discourage human intrusion close to nests. These signs were also placed around 2 other nest sites where loons ultimately did not nest in

2008. Sign buoys were used in areas where repeated human disturbance was likely to occur. The signs informed boaters that they were close to a loon nest site and that intrusion could contribute to nest failure. Buoys were typically placed 50 – 100 meters away from the nest site. Most incubating loons showed signs of being aware of a boater's presence at this distance, but did not crouch excessively or flush from the nest. Thus, stress on incubating loons was minimized, as was restriction of lake use by boaters and anglers. On several lakes, sign placement was determined by lake configuration and nest location. For example, if there was a large expanse of water around the nest, signs were placed up to 150 meters away. If the nest was in a channel, signs were placed as close as 10 meters. For pairs that used a traditional nest site, most signs were placed prior to nesting in early May. For loon pairs that often changed nest sites, sign buoys were not placed until nesting had begun. For pairs that did not nest, signs were removed by early July.

In responding to loon emergency calls, a communication protocol was established so that state police barracks and VFWD personnel initially contacted the VLRP biologist about injured, sick, or dead loons. If the biologist was unavailable, VFWD game wardens and biologists were contacted next to assess the reported incident. The St. Johnsbury Animal Hospital, the Lamoille Valley Veterinary Service, the Mad River Veterinary Service, the Country Animal Hospital in Bethel, Shelburne Veterinary Services, and the VT/NH Veterinary Clinic offered their services to conduct initial exams of sick or injured loons, in addition to the Vermont Institute of Natural Science (VINS) Wildlife Services Department. A written protocol for assessing and handling loons was sent to all participating veterinarians and VFWD game wardens.

Education

Public education continued to be a vital part of loon management efforts. Fifteen slide lectures and discussions on loon biology, conservation, and research were presented to audiences at lake associations, school groups, state parks, and other organizations (libraries, conservation groups, elderhostel, youth camps, and a resort). Approximately 360 adults and 150 children attended these programs. A sign designed by VFWD informing boaters and anglers how to help breeding loons was placed at lake access areas. Another sign cautioning boaters to be alert for loon chicks and to watch loons from a distance was also placed at access areas. Biologists, staff educators, and the project's volunteer network regularly informed camp owners and other lake users about loon conservation measures. The VLRP biologist was an advisor for a Sterling College student, Anika Klem. She conducted a study on the effectiveness of nest warning sign buoys and developed a protocol for measuring the risk of a nest site to human disturbance. Her results will be presented in several formats in the next year. Ms. Klem also assisted with management and monitoring duties during the summer of 2008.

In May 2004, Vermont passed a law banning the sale and use of lead sinkers ½ oz. or less beginning in 2006 and 2007, respectively. Lead jigs were not included in this law. In conjunction with VFWD, efforts to educate the public about the dangers of lead sinkers and jigs continued in 2008. The VFWD led efforts to educate anglers about the new lead fishing gear ban through posters, their website, and other outreach materials. VFWD "Get the lead out" brochures explaining the dangers of lead sinkers and non-lead sinker packets were distributed at presentations. VFWD distributed non-lead sinkers to many groups and at many different events throughout the spring and summer. A VFWD poster warning anglers about the risks posed by sinkers and discarded fishing line was placed at many lake access areas statewide.

VLRP conservation efforts received exposure in the Defenders of Wildlife national publication, *Defenders*, as well as state and regional newspapers and Vermont Public Radio.

Vermont Loonwatch Day

Vermont Loonwatch day was initiated in 1983 to provide a mid-summer estimate of the statewide loon population. On the third Saturday in July each year, volunteers survey assigned lakes, ponds, and reservoirs from 8:00 to 9:00 a.m., recording the number of adult loons, subadult loons (1-2 year olds), and loon chicks on the water body, as well as relevant human and wildlife activity. Observers on lakes larger

than 300 acres were allowed a longer survey period. Data were recorded on standardized forms and returned to the VLRP biologist for summarization via standard mail or e-mail. The information has provided an annual statewide population estimate, an estimate of the number of non-breeding loons, and a check on lakes with previously undetected breeding pairs.

Contaminant sampling

Abandoned eggs were collected and delivered to BioDiversity Research Institute (BRI) for methylmercury (MeHg) analysis (Evers et al. 1999). The contaminant data from eggs provide an indicator of mercury levels in Vermont lakes. The developmental stage of the embryos was also assessed. This research was part of a regional assessment of mercury throughout New England. Cooperators on this research include the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, BRI, the Vermont Department of Environmental Conservation, and several other state agencies, private organizations, and universities.

RESULTS

Distribution of territorial and nesting pairs

Seventy-three lakes supported 86 known and potential territorial loon pairs, 61 of which were confirmed to nest on 54 lakes (Fig. 1, Table 1). The highest concentration of breeding and territorial pairs occurred in the north-central and northeastern part of the state. Nesting was recorded for the first time on 3 new territories, including Derby P., Maidstone L.-SE, and Norton P.-North. A loon chick survived for the first time on Woodbury L. Three new potential territories were identified in 2008 (Crystal, Great Hosmer, Noyes). Observers reported loon chicks in several new locations, but none were found during follow-up surveys and none were reported later in the summer (Fairlee, Flagg, Shadow [Glover]). All of these sites will be monitored for pair activity in 2009, in case chicks did hatch in 2008 but disappeared soon after being reported. None of the sites where chicks were reported but not confirmed in 2007 had pair activity in 2008.

Population levels and breeding success

The number of nesting pairs remained stable, and the number of territorial pairs increased in 2008. Of the 61 pairs that attempted nesting, 49 successfully hatched 75 eggs (record high), with 55 chicks surviving through August (Fig. 2, Table 2). There were 75 known territorial pairs on water bodies where nesting had occurred within the last 3 years, and 11 potential territorial pairs, each of which was observed consistently for 6 weeks or more. Fourteen pairs that have nested in at least 1 year from 2002-2007 did not nest, possibly because of intraspecific competition (Long, Lower Symes, May, Peacham-SE) or lack of suitable nesting sites (Buck, Ewell, Osmore, Seymour-West). Eight pairs that have only nested once in the past several years did not nest in 2008.

Seventeen nest failures were documented, including 5 re-nests. Four of the 5 re-nests were successful. Causes of nest failure included likely predation (Green River-SE, Norton-N) and flooding (Green River-NW, Pensioner, Shadow [Concord]). Four pairs incubated their eggs beyond the expected hatch date and then abandoned their nests (Brownington, Seymour-Winape, Spring, Wallingford). The remaining failed nests were abandoned for unknown reasons, but the eggs were gone or knocked into the water.

The chick survival rate through August was 73%, with 0.64 chicks surviving per territorial pair. The causes of mortality of most of the 20 lost chicks were unknown. A Bald Eagle killed a chick on Norton P. -South, and possibly took a chick on Bald Hill P. A mink was observed carrying a possible loon chick (similar size and color) on Newark P. Five chicks disappeared after interactions with intruder loons were observed (Forest [2], Norton – Island, Wolcott, Woodbury). Two chicks were sent to Tufts University for necropsies (Maidstone N. and South P.). The Maidstone chick likely died from a boat hit.

Three adult loons were found dead (Eligo, Nelson, Ricker), two of which died from lead poisoning after ingesting lead fishing gear. These mortalities are listed as “unknown” in Table 4,

because Tufts University has not completed the full necropsies or identified which loons had ingested lead fishing gear.

Loon Rescues

The VLRP biologist or professional wildlife rehabilitators assisted and/or monitored 6 loons in distress in 2008. Several loons were monitored closely in December 2008 on lakes that were icing over (Newark, Seymour) and 1 was rescued from the ice (Willoughby) and released after being examined by the VINS Wildlife Services staff. The Newark P. loon flew off without assistance, and the Seymour loon was not observed again. Two adult loons crash-landed on roads or parking lots in Concord, VT and East Hardwick, VT and were successfully released.

The VLRP biologist spent over 50 hours conducting capture attempts and coordinating monitoring efforts with volunteers and game wardens. Volunteers were instrumental in the monitoring and capture attempts of all these birds.

Natural nesting sites and artificial nesting rafts

Of the 61 known nests, 17 (28%) were on shorelines, 21 (34%) were on natural islands, and 23 (38%) were on artificial nesting rafts (Table 3). To reduce the use of rafts when natural nest sites are present (e.g., islands, marshes), the Bald Hill and Brownington rafts were removed in 2007. Both pairs switched to natural sites. Two pairs used nesting rafts instead of natural sites (Echo and Somerset-N.). Rafts were placed at these 2 sites because of repeated nest failures on Echo L. (predation and flooding) and concerns about flooding on Somerset R. Fourteen established pairs built nests in new locations. The 3 new nesting pairs all built nests in natural locations.

Of the 33 artificial nesting rafts placed in 2008, 10 were not used for nesting. Five of these were located in areas where loons nested on natural sites (Holland-S, Norton – Island, Pensioner, Shadow [Concord], Thurman Dix), 3 were located on lakes with known territorial pairs (Kettle, McConnell, Seymour - W), and 2 were located in areas where loons were active but not necessarily territorial (Moore – Roaring Brook, Salem).

Volunteer Effort

Volunteers provided important technical assistance for loon conservation efforts in Vermont. The efforts of adopt-a-lake volunteers, who helped monitor over 70 lakes statewide, varied from a few surveys over the summer to daily observations. Volunteers assisted with either loon nest warning signs and/or nesting rafts on 35 of the 50 lakes where these management tools were used. Volunteers also educated lake-users and lake associations about loon conservation, both formally and informally. Volunteers were critical in helping to inform the VLRP biologist about lakes and ponds with increased loon activity and potential territorial pair development. Volunteers or other citizens aware of the loon program detected all 3 new nesting pairs and 3 new potential territorial pairs. A new “casual lake survey” program will be initiated in 2009 to promote surveys of lakes without nesting activity at any time from May through August.

Vermont Loonwatch Day

Vermont Loonwatch day was conducted on 20 July, with 148 lakes (excluding Lake Champlain) surveyed by 215 volunteers. Several large lakes were divided into sections and surveyed by multiple observers. Loons were observed on 84 of 148 surveyed lakes (occupancy rate of 57%), where observers counted 225 adult loons, 42 chicks, and 8 subadults (Table 2, Fig. 3). High counts of adult loons in 2008 were obtained on Lake Memphremagog (13), Peacham Pond (12 adults), Somerset Reservoir (9 adults), Harveys Lake (8 adults), and Green River, Maidstone, and Seymour lakes (7 adults). Loons were still incubating at 7 sites during the survey.

Sampling for contaminants

Whole egg analysis

Unhatched eggs in nests were collected from 1997-2008. Six eggs were collected in 2008. Analysis of 37 eggs collected from 2005-7 indicated low to moderate levels of methylmercury (MeHg) on most lakes except for the 4 eggs collected from Shadow Lake (Concord), which had 3 high readings. In past years, eggs from Holland (1997) and McConnell (1998) ponds and Green River (1998), Moore (1998), and Somerset reservoirs (2003) had MeHg levels that were considered high or very high. The Holland Pond eggs from 1998 and the Green River Reservoir egg from 2000, however, had moderate concentrations of MeHg.

Description of loon activity on individual lakes in 2008

Lake and loon activity descriptions are provided for nesting pairs, known territorial pairs, and potential territorial pairs. Lakes with high levels of loon activity are listed. Management level refers to the need for warning sign buoys to be placed around nest locations because of the potential risk of human disturbance causing nest failure. For high management lakes, warning sign buoys were either placed prior to nesting or within days of the beginning of incubation. Sign buoys may be helpful, but are not essential for moderate management lakes, and warning signs are not needed for low management lakes. Education of lake users about appropriate boating behavior near nests and around chicks, and contact with lakeshore owners, are important for high management lakes. With warning signs present, lake residents can more effectively inform boaters about staying away from nest sites. Table 3 provides a summary of nesting and territorial activity by territory location and details of the past 3 years of breeding activity.

Status of nesting pairs in 2008

Baker Pond (Glover): Nesting confirmed: 13 June Chicks observed: 17 June
Number chicks: 2 Number through Aug.: 1

Comments: The loons nested at the traditional north marsh site. One chick disappeared by early July.
Management level: low. Sign buoys were not used; recreational use is light.

Bald Hill Pond (Westmore): Nesting confirmed: 25 June Chicks observed: 23 July
Number chicks: 1 Number through Aug.: 0

Comments: The pair nested at a natural site on the shoreline for the first time. A nesting raft had been used since 1998, but was removed in 2007 to promote the use of natural sites. The chick disappeared within one week of the egg hatching. A Bald Eagle (*Haliaeetus leucocephalus*) was sighted on the pond during this time period, but the actual cause of mortality was not known.

Management level: moderate. Sign buoys were not placed. 4 sign buoys have been placed in the past. The pond receives moderate use by anglers and boaters.

Bean Pond (Sutton): Nesting confirmed: 3 June Nest failure confirmed: 27 June
Re-nest confirmed: 19 July Chicks observed: 13 August
Number chicks: 1 Number through Aug.: 1

Comments: The loons nested on a small hummock island on the west side of the pond. For the first nest attempt, an egg was left in the abandoned nest.

Management level: low. Sign buoys were not used; recreational use is light.

Beaver Pond (Holland): Nesting confirmed: 21 June Chicks observed: 19 July
Number chicks: 2 Number through Aug.: 2

Comments: The loons nested on the traditional nest island.

Management level: low. Sign buoys were not used; recreational use is light.

Berlin Pond (Berlin): Nesting confirmed: 27 May Chicks observed: 3 July
Number chicks: 2 Number through Aug.: 2
Comments: The loons nested at the traditional marsh-island site at the west end. Several surveys may be required to confirm the absence or presence of adult loons and/or chicks because of limited observation points.
Management level: low. No public access is allowed on the pond, as it Montpelier's public water supply.

Bourn Pond (Sunderland): Nesting confirmed: 27 May Chicks observed: 28 June
Number chicks: 1 Number through Aug.: 1
Comments: The loons nested on the traditional island site.
Management level: low. The pond has a hiking trail and campsites along its southern and western shores but is accessible only by a 3-mile hike from the nearest road.

**Brownington Pond:
(Brownington)** Nesting confirmed: 31 May Nest failure confirmed: late July
Comments: The pair nested in a new location along the marshy shoreline in the southeast corner of the pond. The pair abandoned the nest by late July after incubating beyond the expected hatch date, and the eggs disappeared. The nesting raft was removed in 2006, because adequate marsh habitat exists. The nest flooded twice in 2002, thus use of a raft in future years should be considered if flooding continues to occur regularly. There is a chance that the nest was flooded briefly, but the site appeared relatively high.
Management level: moderate. Sign buoys were not placed in an effort to reduce management needs. The lake is infested by Eurasian milfoil (*Myriophyllum spicatum*).

**Chittenden Reservoir:
(Chittenden)** Nesting confirmed: 23 June Chicks observed: 5 August
Number chicks: 1 Number through Aug.: 1
Comments: The loons nested on a raft on the eastern shore. Two other adult loons were likely observed on the reservoir in May and June.
Management level: high. 8 sign buoys were placed. The reservoir is heavily used by kayakers, canoeists, and anglers. There is a 5 mph speed limit on the reservoir. The large watershed and steep hillsides cause water levels to rise quickly with relatively small amounts of rain.

Coles Pond (Walden): Nesting confirmed: 25 May Chicks observed: 20 June
Number chicks: 2 Number through Aug.: 2
Comments: The loon pair nested in a marsh in the western cove for the second year.
Management level: moderate. 3 sign buoys were placed; boat traffic is light to moderate.

Derby Pond (Derby): Nesting confirmed: 31 May Chicks observed: 20 June
Number chicks: 1 Number through Aug.: 1
Comments: The loon pair nested in a marsh in the southeast part of the pond. This was the first recorded nest since monitoring began in 1978.
Management level: moderate. No sign buoys were placed; boat traffic is moderate.

**Lake Dunmore:
(Leicester/Salisbury)** Nesting confirmed: 21 June Chicks observed: 7 July
Number chicks: 2 Number through Aug.: 1
Comments: The loon pair nested on a large island in the south-central part of the lake about 20 feet away from the 2007 site. The nest site was not visible from outside the nest warning sign buoy area. A second egg hatched but the chick was found dead in the nest. Two subadults and occasionally two additional adults occupied the lake.
Management level: high. 8 sign buoys were placed. Boat traffic is heavy, and the island is a popular picnic, fishing, and swimming spot.

East Long Pond: Nesting confirmed: 13 June Nest failure confirmed: 18 June
(Woodbury)

Comments: The pair nested in a new location on the small island facing the channel. Many extraterritorial loons were observed throughout the season. The pair last nested successfully in 2005. Management level: moderate. Sign buoys were not placed for the first time in over 10 years. There is no public access on this pond. Hardwick Electric maintains the dam, but water levels are not adjusted.

Echo Lake (Charleston): Nesting confirmed: 27 June Chicks observed: 24 July
Number chicks: 2 Number through Aug.: 1

Comments: The pair nested on a nesting raft for the first time after 4 consecutive shoreline nest failures due to flooding and predation. One chick disappeared within one week of the eggs hatching. Management level: high. 6 sign buoys were placed. The nest site was located near many camps. Annual communication with the landowner nearest the nest site will be helpful. Boat traffic is high. Great Bay Hydro maintains the dam, but water levels are not adjusted.

Lake Eden (Eden): Nesting confirmed: 20 May Chicks observed: 15 June
Number chicks: 2 Number through Aug.: 2

Comments: The pair nested on a raft in the north end near the boat access. Management level: high. 1 sign buoy was placed. The lake is highly developed and receives motorboat, water skier, canoe, and kayak traffic. A Boy Scout camp is also located on the lake.

Lake Eligo (Greensboro): Nesting confirmed: 23 May Chicks observed: 21 June
Number chicks: 1 Number through Aug.: 1

Comments: The loon pair nested in a new location in a marsh at the north end almost 1 mile from the previous nest locations. The pair had nested on the islands for the past several years. An adult loon was found dead and sent to Tufts University for a necropsy. A lead jig head had been ingested, and many puncture wounds from other loons were observed. It is not unusual for a weak loon to be attacked by other loons. Management level: moderate/high. No sign buoys were placed around the marsh site. 6 sign buoys were placed around the island sites. Anglers and waterskiers frequent the lake and go very near the islands. The islands need to be monitored thoroughly prior to each weekend in May and June since both islands have camps, and the owners will need to know whether the loons are nesting. The lake is infested by Eurasian milfoil.

Forest Lake (Averill): Nesting confirmed: 22 May Chicks observed: 20 June
Number chicks: 2 Number through Aug.: 0

Comments: The pair used the nesting raft in the southern part of the lake. Both chicks disappeared after attacks by adult loons. Volunteers thought that the territorial adults might have killed the chicks, but the adults could have been intruders. Management level: moderate. No sign buoys were placed. Anglers occasionally use the lake, and a resort is located on the southwestern shore, adjacent to the nest site.

Foster's Pond (Peacham): Nesting confirmed: 22 May Chicks observed: 29 June
Number chicks: 2 Number through Aug.: 2

Comments: The pair used the nesting raft in the southern part of the lake. An intruder loon was observed on the pond several times. Management level: low. Anglers occasionally use the pond. There is only 1 camp on the pond, and it belongs to the loon volunteer.

failures in 2006 and 2008. The pair did not nest in 2007. Nesting habitat is very limited on the lake because of development, thus a nesting raft will be placed in 2009.

Management level: high. 3 sign buoys were placed (2 at the lake entrance to the channel and 1 downstream). A public beach and a private campground are located within ¼ mile of the nest site, but the nest site itself was well-concealed in the marsh.

Holland Pond – South: Nesting confirmed: 21 June Chicks observed: 6 July
(Holland) Number chicks: 1 Number through Aug.: 1

Comments: The pair nested on a small island at the south end.

Management level: moderate to high. 6 sign buoys were placed. Boat traffic can be heavy. The raft was placed because moderate rain events have flooded loon nests in previous years. An avian guard was installed over the nesting raft after possible eagle depredation of the eggs in 2006 and 2007.

Island Pond (Brighton): Nesting confirmed: 24 May Chicks observed: 21 June
Number chicks: 1 Number through Aug.: 1

Comments: The loon pair nested on the traditional island on the northeast side in a new location. This was the first chick to survive since 2003.

Management level: high. 6 sign buoys were placed. 2 additional signs could be placed along the shorelines if necessary. Signs will only be placed when nesting is confirmed, because the loons have used 7 different nest sites in 8 years over a 600-meter area. The island is posted, which keeps most people off. Boat traffic is high.

Joe's Pond (Cabot): Nesting confirmed: 16 May Chicks observed: 12 June
Number chicks: 1 Number through Aug.: 1

Comments: The loon pair nested on the raft near the northwest inlet. 1 egg disappeared.

Management level: high. 3 sign buoys were placed along the edge of the boat channel. A 2 x 4 foot sign was installed at the entrance to the channel asking boaters to move slowly past the artificial nesting raft without stopping.

Keiser Pond: Nesting confirmed: 4 June Chicks observed: 2 July
(Danville / Peacham) Number chicks: 2 Number through Aug.: 2

Comments: The pair nested on the eastern shore in marsh habitat for the third year.

Management level: moderate. 3 sign buoys were placed because canoeists and kayakers that circle this small pond were often observed close to the nest in 2006.

Little Averill Lake-West: Nesting confirmed: 28 June Chicks observed: 1 August
(Averill): Number chicks: 2 Number through Aug.: 2

Comments: The pair nested on the raft located in the inlet. The pair's last confirmed nest attempt was in 2005, but a lake resident reported seeing the adults with a chick in September 2007. If there was a nest, it was located in an unknown location. 1 to 2 other loons were usually observed on the lake.

Management level: high. 3 sign buoys were placed. The inlet has sand beaches on either side, making it a popular destination. Coaticook River Water Company controlled water levels during the nesting season.

Little Hosmer Pond: Nesting confirmed: 4 June Nest failure confirmed: 15 June
(Craftsbury) Re-nest confirmed: 26 June Chicks observed: 1 August
Number chicks: 1 Number through Aug.: 1

Comments: The loon pair first nested on the larger south island, but the nest was abandoned and the eggs disappeared. The loons re-nested on the small island.

Management level: moderate. 4 sign buoys were placed since boaters often go very close to both islands. No sign buoys are necessary if a third, smaller island is used. Boat traffic is light to moderate.

Maidstone Lake – North (Maidstone) Nesting confirmed: 24 May Chicks observed: 24 June
Number chicks: 1 Number through Aug.: 0
Comments: The loon pair nested at the 2007 site on a spit of land between the boat access and a new house. The chick was observed being attacked by an intruder loon in August, but the necropsy revealed blunt trauma was the primary cause of death, likely from a boat hit.
Management level: high. 3 sign buoys were placed. The site was highly exposed within 200 m of the boat access and several camps across the channel.

Maidstone Lake - South: (Maidstone) Nesting confirmed: 7 June Chicks observed: 4 July
Number chicks: 1 Number through Aug.: 0
Comments: The nest was located on the traditional southwest island, but was not easily visible. The chick disappeared within 2 weeks of the egg hatching. Extra loons were frequently observed on the lake, and a new pair nested a ½ mile away.
Management level: high. 4 sign buoys were placed, 1 of which was needed in front of the boat landing of a popular picnic spot. 2 additional signs were placed on trees on the east side of the island opposite the nest site to keep picnickers off. Recreational pressure is high from Maidstone State Park visitors, lakeshore owners, and other lake users.

Maidstone Lake - SE: (Maidstone) Nesting confirmed: 24 June Chicks observed: 16 July
Number chicks: 1 Number through Aug.: 1
Comments: The pair nested on the small island with a cottage on it in the southeast part of the lake. The island was used by the traditional south pair in the 1990s. This was the first time a third pair has nested on the lake since monitoring began in 1978.
Management level: high. No sign buoys were placed at the request of the landowners. The loons habituated to the presence of the landowners. Recreational pressure is high from Maidstone State Park visitors, lakeshore owners, and other lake users.

Martin's Pond (Peacham): Nesting confirmed: 30 May Chicks observed: 1 July
Number chicks: 2 Number through Aug.: 2
Comments: The loon pair nested on the raft in the central cove on the pond's north side.
Management level: high. 3 sign buoys were placed. Canoeists, anglers, and large motorboats frequent this small pond.

Miles Pond (Concord): Nesting confirmed: 28 May Chicks observed: 24 June
Number chicks: 2 Number through Aug.: 2
Comments: The pair nested on the raft located on the east side of the island. The adult male, banded in 2001, has moved to nearby Shadow Lake (Concord).
Management level: high. 5 sign buoys were placed. Boat traffic is often heavy. Rising water levels have flooded past nests.

Mollys Falls Reservoir: (Cabot) Nesting confirmed: 27 May Chicks observed: 3 July
Number chicks: 2 Number through Aug.: 2
Comments: The loons nested on the raft among the boulders at the "elbow" off the west shore. A Bald Eagle was observed on a boulder adjacent to the nest causing the incubating adult to leave the nest for a short period of time.
Management level: high. 4 sign buoys were placed.

Newark Pond (Newark): Nesting confirmed: 31 May Chick observed: 19 June
Chick disappeared: 26 June Re-nest observed: 16 July
Chick observed: 11 August Number through Nov.: 1

Comments: The pair nested on the west side of the island at the 2006 site. A mink was observed carrying an animal the size and color of a loon chick about the time the first chick disappeared. The pair re-nested successfully. Three loons were observed on the pond 2 days prior to the lake freezing over, but no loons were observed during an intensive follow-up survey on 26 November.

Management level: high. 7 sign buoys were placed around the island.

Nichol's Pond (Woodbury): Nesting confirmed: 17 June Chicks observed: 21 July
Number chicks: 1 Number through Aug.: 1

Comments: The pair nested on the raft in the south cove. The pond water levels were down 10 feet exposing 20-100 m of mudflats and rock around the pond. The dam was repaired in 2008, and water levels will be back at normal levels in 2009.

Management level: high. 5 sign buoys were placed. Canoe and motorboat traffic is moderate. A hiking trail is located around the north and west sides of the pond.

Lake Ninevah (Mt. Holly): Nesting confirmed: 28 May Chicks observed: 22 June
Number chicks: 2 Number through Aug.: 2

Comments: The loon pair nested on the traditional island nest site in the northwest part of the lake.

Management level: high. 3 sign buoys were placed because of heavy recreational use. The lake is infested by Eurasian watermilfoil.

No. 10 Pond (Mirror Lake): Nesting confirmed: 24 May Chicks observed: 19 June
(Calais) Number chicks: 2 Number through Aug.: 1

Comments: The pair nested on the raft in the northeast cove. There are no islands or marsh habitat on the pond. One chick disappeared within a week of the eggs hatching.

Management level: moderate. 3 signs buoys were placed. Boaters and anglers frequent the pond. There is a 5 mph speed limit for motorized boats.

Norton Pond – Island (Norton): Nesting confirmed: 12 June Chicks observed: 10 July
Number chicks: 1 Number through Aug.: 0

Comments: The pair nested on the traditional island and did not use the nesting raft. A fight was observed with an intruder loon on 14 July, and the chick was no longer present on 15 July.

Management level: high. 7 sign buoys were placed. Canoeists and anglers frequent the pond. Coaticook River Water Company stabilized the water level during the nesting season.

Norton Pond – North (Norton): Nesting confirmed: 22 June Nest failure confirmed: 26 June

Comments: A new pair was observed nesting on a peninsula in northwestern part of the pond. Within a week, a raccoon (*Procyon lotor*) had depredated the nest.

Management: moderate. The peninsula is an access point from a private road, and a nearby island has a cottage on it. Because of these habitat restrictions and because the shoreline nest was depredated, we are considering placing a nesting raft in a more isolated cove in 2009 near a volunteer's cottage.

Norton Pond - South Cove: Nesting confirmed: 22 May Chicks observed: 12 June
(Norton) Number chicks: 1 Number through Aug.: 0

Comments: The pair nested on the raft in the southeast cove. An eagle was observed attacking the chick on 9 July.

Management level: moderate. No sign buoys were placed in an effort to reduce management needs.

Peacham Pond – North Cove: Nesting confirmed: 25 May Nesting confirmed: 15 June
(Peacham) Number chicks: 2 Number through Aug.: 2

Comments: The pair used the traditional nest site on the south side of a small island in the north cove.

Management level: moderate. Boat traffic can be moderate on weekends. The water level was stabilized during the nesting season by Trans Canada Hydro.

Somerset Reservoir: Nesting confirmed: 22 June Chicks Observed: 11 July

North Islands (Somerset) Number chicks: 2 Number through Aug.: 1

Comments: This pair nested on a nesting raft for the first time. One chick disappeared by early August for unknown reasons. The male loon, banded in 1999 in the Somerset - Dandeneau territory, returned.

Management level: moderate. 2 sign buoys were placed. Boat traffic can be moderate on weekends. A nesting raft was placed in 2007, because water levels can rise during large rain events.

South Pond (Eden): Nesting confirmed: 24 May Chicks observed: 17 June

Number chicks: 2 Number through Aug.: 1

Comments: The pair switched back to the nesting raft after a failed island nest attempt in 2007. One chick was observed beaching itself in late August before being found dead a few days later. The body was sent to Tufts University for a necropsy.

Management level: moderate. 2 sign buoys were placed. The pond has no public access but has many private camps on the shoreline.

Spectacle Pond (Brighton): Nesting confirmed: 6 June Chicks observed: 21 June

Number chicks: 2 Number through Aug.: 2

Comments: The pair nested on a raft that was placed north of the traditional nest island.

Management level: high. 7 sign buoys were placed around the raft and traditional nesting island. The pond receives heavy recreational use. Brighton State Park staff made an intensive effort to educate park visitors to stay away from the island.

Spring Lake (Shrewsbury): Nesting confirmed: 2 June Nest failure confirmed: 25 June

Comments: The pair nested on a raft placed in the west end of the lake. The nest was abandoned for unknown reasons, and the eggs had disappeared.

Management level: moderate. No sign buoys were placed this year. In past years, 1 sign had been placed. The lake association closed a campsite and hiking trail near the western cove during nesting.

Stiles Reservoir: Nesting confirmed: 11 June Chicks observed: 3 July

(Waterford) Number chicks: 1 Number through Aug.: 1

Comments: The pair nested on a small hummock in the south marsh.

Management level: low. The reservoir is not open to recreational use, because it is the drinking water supply for St. Johnsbury.

Thurman Dix Reservoir: Nesting confirmed: not obs. Nest failure confirmed: 5 June

(Orange) Re-nest observed: not obs. Chicks observed: mid-July

Number chicks: 1 Number through Aug.: 0

Comments: The pair nested on the large island for the third year. In previous years, the pair had nested on a raft near the small island. The nest site is not readily observed without going on the water, which requires notifying the town police and the town of Barre. The chick disappeared within a week of the egg hatching.

Management level: low. The reservoir is not open to recreational use. The town of Barre stabilized the water level during the nesting season.

Wallingford Pond: Nesting confirmed: 21 June Nest failure confirmed: 1 August
(Wallingford)

Comments: The loon pair nested in the northwest part of the pond at the 2007 site. The pair on this pond has nested in 5 different locations during its 8 years of breeding. No islands are located on the pond. The nest was found abandoned after the loons incubated beyond the expected hatch date.
Management level: low to moderate. Anglers and canoeists infrequently use the pond.

West Mountain Pond: Nesting confirmed: 12 June Nest failure confirmed: 16 July
(Maidstone)

Comments: The nest was located on the traditional site on vegetation growing on a large fallen tree extending from shore. The nest failed for unknown reasons. The last year that a chick has fledged was 2004.
Management level: low. No sign buoys were placed. There is no public access on this pond and few camps.

Wolcott Pond (Wolcott): Nesting confirmed: 7 June Chicks observed: 4 July
Number chicks: 1 Number through Aug.: 0

Comments: The pair nested in a new location near the boat access. The chick disappeared after an attack by an intruder loon on 12 July.
Management level: low to high. If loons nest near the boat access site, 3 to 4 sign buoys should be placed. If necessary, a hand-written sign should be posted at the boat ramp asking boaters to stay in the designated channel.

Woodbury Lake (Sabin Pond) Nesting confirmed: 3 June Chicks observed: 19 June
(Woodbury) Number chicks: 2 Number through Aug.: 1

Comments: The loons nested on the raft at the south end of the lake for the second year. One chick disappeared by early July. This was the first successful nest since monitoring began in 1978.
Management level: moderate-high. 2 nest warning signs were placed. The lake is highly developed with heavy boat traffic, however, the nesting cove is in the quietest part of the lake.

Zack Woods Pond: Nesting confirmed: 3 June Chicks observed: 27 June
(Hyde Park) Number chicks: 1 Number through Aug.: 1

Comments: The loons nested on the island.
Management level: high. 7 sign buoys were placed on the pond, and 3 additional "loon nesting" signs were placed at the access areas adjacent to the nest site and at the trailhead along the main road. Heavy recreational use occurs, especially on weekends.

Known territorial, non-breeding loon pairs in 2008

Loon pairs on these lakes have either nested or have been observed nest building in at least one year since 2003, in addition to a pair being present during most surveys.

Bruce Pond (Sheffield): The pair nested for the first time in 2007 and was present during 3 of 6 surveys this year. The pond is small, thus it is likely the loons spend time on nearby lakes and ponds.
Management level: low. The pond is undeveloped and is only accessible by a ½-mile long logging road.

Buck Lake (Woodbury): A loon pair was present all summer. Loons last nested in 2003. Observers reported seeing a third adult on the pond occasionally for the fifth year.
Management level: moderate. 4 sign buoys have been placed in the past. Staff at the Green Mountain Conservation Camp were asked to limit activity on the large boulder in the middle of the lake about 300 meters from the nest site. A hiking trail is located along the entire western shore.

Chandler Pond (Wheelock): The pair nested for the first time in 2007, and was present all summer. Management level: low. The pond is undeveloped and is accessible by a field road to the dam.

Ewell Pond (Peacham): The pair was present all summer. Nesting habitat is minimal on this pond with no extensive hummock marshes and no islands. Management level: moderate. 3 sign buoys were placed in 2006 when the pair last nested. It might be possible to forego use of warning signs on this pond.

Holland Pond – North (Holland): The loon pair was present, but no nesting activity was observed. This pair nested for the first and only time in 2006. Management level: moderate to high. The nest site is potentially vulnerable to boaters accessing the trail to Turtle Pond, thus sign buoys might be necessary in future years.

Jobs Pond (Westmore): A pair was frequently observed on the pond during the summer. The loons built a nest bowl in 2006, but no nesting activity was observed in 2007 or 2008. One of the adults was the 1999 banded male from Bald Hill Pond. A pair last nested on Jobs Pond in 1999 on a nesting raft. The nesting raft is anchored along shore on the west side. Management: moderate. Anglers and boaters occasionally use the pond.

Kettle Pond (Groton): The pair was present throughout the summer. The pair had a failed shoreline nest in 2007 after more than 10 years of nesting on a raft. Management level: moderate. Sign buoys have not been placed in the past several years at the raft site or the 2007 shoreline site. Signage about breeding loons should be maintained at the two access points.

Long Pond (Westmore): 1-3 intruder loons were frequently observed on the pond along with the pair. Management level: high. 8 signs would be placed on (2) and around (6) the nesting island. Anglers and canoeists regularly use this pond.

Lower Symes Pond (Ryegate): The pair was present but no nesting activity was observed. Management level: low. Sign buoys were not placed. Small boats use the pond infrequently, and the nest is at the far end of a small bay out of the way of most boat traffic.

May Pond (Barton): The pair was present, but no nesting activity was confirmed. Intraspecific competition likely prevented nesting this year as 1 to 3 extra loons were frequently observed on the pond. A citizen reported seeing a chick on the pond in the August, but no chick was observed during follow-up surveys. Management level: moderate. 3 sign buoys were placed across the entrance to the nesting cove. Non-motorized boats and anglers frequently use this pond.

McConnell Pond (Brighton): The pair was present throughout the summer. The pair last nested in 2007 in a new unknown location, but had used a nesting raft in previous years. Management level: low. No sign buoys were placed. Surrounding land is privately owned, much of it by the Conservation Fund. The pond is not heavily used. The Conservation Fund is based in Virginia, but has a Vermont office in Shrewsbury.

Osmore Pond (Peacham): The pair was observed during most surveys. Loons nested for the first time in 2007 since a previous nest in 1980. Management level: moderate. There are no islands or extensive marshes on the pond, thus nesting habitat is minimal.

Peacham Pond – Southeast (Peacham): The loon pair was observed nest searching in May, but no nest was observed. The pair has only nested twice, and both nests failed.

Management level: moderate-high. 2 sign buoys were placed after 2 years of repeated nest failure, and the chance that kayakers might have caused the loons to leave the nest.

Woodward Reservoir (Plymouth): The loon pair was not observed during several surveys in May, but was then observed throughout June. Volunteers observed nest searching in mid-June, but there was no nest found. It is possible the pair was on Kent Pond in May where 2 loons were repeatedly observed during that time, but then were not seen starting in mid-June.

Management level: high. 4 sign buoys would be placed in the cove. Communication should be maintained with both the camp's main office and the Barn Day Camp program. Heavy recreational use occurs.

Potential territorial, non-breeding loon pairs in 2008

These lakes supported 2 adult loons through much of the summer but either had no recent history of nesting or had less consistent activity by pairs that previously nested. Repeated observation of 2 loons together over an extended period is a strong indication that a territorial pair is forming. From 2002-2007, volunteers and VLRP staff successfully located loon pairs prior to nesting on 21 water bodies. Identification of these pairs allowed for appropriate protective management measures to be initiated.

Caspian Lake (Greensboro): A pair was frequently observed in the west and northwest part of the lake from May through July. In addition, territorial behavior was observed, including male yodeling. Little or no suitable nesting habitat remains on the lake.

Crystal Lake (Barton): NEW. Two loons were often observed together, but on a lake this large, actual determination of pair status is difficult unless repeated, whole-lake surveys are conducted.

Curtis Pond (Calais): Two loons were reported during much of the summer, but not during all surveys.

Lake Elmore (Elmore): A pair of loons was observed throughout much of the summer, but less often than in 2006. Only single loons were observed in May and June by the VLRP biologist, but a volunteer reported a consistent pair in July and August. There is marsh habitat at the south end of this highly developed lake, which is infested with Eurasian milfoil.

Great Averill Lake - Inlet (Averill): Two adult loons were observed regularly in the southern half of the lake and inlet region. The VLRP biologist found a natural nest in the southwest inlet cove in 2005. This site was underwater in 2006 and 2007. A nest was observed at the south end of the lake in 2007, but it was unknown whether this pair or the traditional north pair made the attempt.

Great Hosmer Pond (Albany/Craftsbury): NEW. A loon pair was observed nest searching, but the pair was not on the pond during all surveys.

Lake Groton – North (Groton): For the second year, a second pair was observed at the north end of Lake Groton, especially from May through early July. There is limited to no nesting habitat in this highly developed part of the lake with cottages and 2 state parks.

Noyes Pond (Groton): NEW. Two loons were often observed on this small pond.

Seymour Lake – West (Morgan): Loons were observed swimming around the nesting raft that was used in 2005, and one loon reportedly was up on the raft for a short time.

Wallace Pond (Canaan): Residents on the pond reported seeing a pair of loons many times in 2008. The best nesting habitat is a marsh located on the Canadian side of the lake.

Warden Pond (Barnet): For the second year, a loon pair was frequently observed on the pond. The pond is undeveloped but there are no marshy shorelines or islands.

Lakes and regions of lakes with high levels of loon activity in 2008

Forty-one lakes or regions of lakes were identified as having moderate to high levels of loon use in 2008. An asterisk (*) indicates that some pair activity was observed, but either too few surveys were conducted or pair sightings were too infrequent to determine if a potential territory was forming.

<ul style="list-style-type: none"> * Lake Carmi (Franklin) Center Pond (Newark) Lake Champlain Comerford Reservoir (Waterford) * Daniels Pond (Glover) Dog [Valley] Pond (Woodbury) Lake Fairlee (Fairlee) * Flagg Pond (Wheelock) Gale Meadows (Winhall) * Greenwood (Woodbury) * Grout Pond (Stratton) * Halls Pond (Newbury) * Hardwood Pond (Elmore) * Kent Pond (Killington) 	<ul style="list-style-type: none"> Knapp Brook (Reading) Little Averill - Northeast (Averill) Lyford Pond (Walden) * Lake Memphremagog - Holbrook Bay (Newport) Miller Pond (Strafford) * Mollys Pond (Cabot) * Moore Reservoir (Concord/Waterford) * Lake Morey (Fairlee) Neal Pond (Lunenburg) * Nelson Pond (Woodbury) Lake Parker (Glover) * Pigeon Pond 	<ul style="list-style-type: none"> * Lake Rescue (Ludlow) * Lake Salem (Derby) Seymour Lake (Morgan) * Shadow Lake (Glover) Silver Lake (Barnard) Silver Lake (Leicester) Stratton Pond (Stratton) Sugar Hill Res. (Goshen) Sunset (Marlboro) Ticklenaked (Ryegate) Turtle Pond (Holland) * Wapanacki Pond (Wolcott) Waterbury Res. (Waterbury) Wheeler Pond (Brunswick) * Lake Willoughby (Westmore)
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DISCUSSION

Population Assessment

The number of Common Loon territorial pairs continued to increase in 2008, and the number of nesting pairs remained similar to 2007. The percentage of chicks surviving through August was at its lowest level since 2003 at 73 percent, and the rate of chicks surviving per territorial pair (0.64) was at its lowest level since 1995 (Table 2). However, this rate was still higher than the North America average of 0.53 (Evers 2006), and much higher than the New Hampshire rate in 2008 (0.39). A contributing factor to the moderate decline in the chicks surviving per territorial pair rate was the lower percentage of known territorial pairs that nested in 2008 (61 of 75 [81%]). In 2006 and 2007, 89 and 87 percent of the known territorial pairs attempted to nest, respectively. Eight of these non-nesting pairs were new in the past 5 years and have only attempted to nest 1 to 3 times. New pairs often nest less consistently than pairs in established territories for several reasons, including lower habitat quality and the newness of the site (Evers, pers. comm.). Another factor for the lower productivity rate was that extraterritorial loon activity was high for at least 5 of the 14 territories where nesting did not take place, and at least 5 chicks disappeared after loon fights were observed. Although a detailed study on the effects of extraterritorial loons has not been conducted, the rates of interactions might be increasing slightly. One outcome of higher population levels and increased interactions with intruder loons can be lower productivity rates, which have been documented in New Hampshire (K. Taylor, pers. comm.).

Evidence that most high quality territories are occupied includes loons nesting on: (1) lakes with minimal or marginal nesting habitat (Echo [Charleston], Harveys, and Maidstone – North and SE) and (2) lakes which are less than 40 acres (Baker, Bruce, Bean, Ewell, Keiser, Osmore). In 2007 and 2008, potential loon pairs might have developed on several 20-40 acre ponds (Curtis, Noyes, Warden) and larger lakes with minimal nesting habitat (Caspian, Crystal, Elmore, Groton – North, Seymour – West, Wallace). Productivity at these potentially lower quality territories appears to be lower than at established sites because of fewer nest attempts and more nest failures. Two of the 3 new pairs in 2008 nested on lakes with other loon territories already present. There are now 9 lakes in Vermont with multiple territories (Great Averill, Green River, Groton, Holland, Maidstone, Norton, Peacham, Seymour, Somerset). To successfully assess the expanding loon population on smaller lakes and new territories on larger lakes, the VLRP is encouraging citizens to survey lakes at any time from May through August as part of the “casual survey” program. A list of priority lakes is available at the VCE website.

More than half of the 61 nesting pairs in 2008 directly benefited from management activities. Several of the new breeding and potential territorial pairs utilized lakes that were highly developed, indicating that management and education activities will continue to play a vital role for breeding loons.

On Loonwatch day, almost 20 more lakes had loons reported on them in 2006-8 compared to 2004 and 2005. Occupancy rates have remained stable from 2006 to 2008. The increase in adult loon numbers can be attributed to more loons on larger lakes with most of these increases occurring in northeastern Vermont. Volunteers observed loons on Lake Carmi for the first time in several years and counted 5 additional adults in West Central Vermont in 2008 compared to 2007.

Management Assessment

Artificial nesting rafts: Artificial nesting rafts continue to enhance habitat for loon nesting in Vermont. Prior to 2005, the VLRP policy has been to use rafts on lakes that are subject to water level fluctuations, where eggs have been lost to mammalian predation (mostly by raccoons), and where there are presumed territorial loon pairs, but natural habitat is lacking (no suitable islands and/or marshes, highly developed shorelines). However, following the Common Loon's removal from the Vermont Endangered and Threatened Species list, the VLRP changed its raft placement policy to promote natural nest sites. This change more closely follows New Hampshire's Loon Preservation Committee (LPC) requirement that a nest needs to fail to flooding, stranding, or predation during 3 consecutive years before a raft is placed. For lakes that lack suitable natural habitat, we will usually wait until loons attempt a natural nest before determining whether a raft is warranted. This protocol serves as a guideline for raft management activities, as there could be a need for exceptions. As a result, 21 of the 23 new nesting pairs from 2005-2008 nested in natural locations.

In 2008, nesting rafts were placed on Echo Lake (Charleston) and Pensioner Pond where there have been numerous nest failures caused by flooding and/or mammalian predation. Echo Lake is also highly developed. The pair successfully used the raft in 2008. In 2009, a raft will be placed on Harvey's Lake after several failed nest attempts in marginal marsh habitat. We will place the raft in the only 100 m section of undisturbed shoreline left on the lake that is not exposed to the wind. A raft will also be placed at the new Norton Pond – North site, because of mammalian predation of this year's nest and the high risk of flooding. On lakes where loons have previously used nesting rafts, rafts were removed in the past 3 years on Bald Hill, Brownington, Little Hosmer, and Newark ponds. All pairs have subsequently nested in natural locations.

Warning sign buoys: The placement of warning sign buoys around nest sites has likely enhanced breeding success for at least 32 loon pairs during the last 7 years. On each water body, natural nest sites are located in areas that receive high levels of boat traffic, and/or the ponds themselves are small, so that even moderate boating activity potentially disturbs nesting loons. On other successful breeding lakes or ponds, sign buoys likely reduced the frequency of disturbances to the nesting pair.

Study on the Effectiveness of Nest Warning Sign Buoys

In 2008, the VLRP biologist sponsored Anika Klem's senior project at Sterling College. Ms. Klem coordinated a study to examine the effectiveness of nest warning sign buoys on loon nesting success (NS), using a human development index (HDI) at the scale of both whole lake (i.e., level of shoreline development and lake accessibility to boaters) and nest (i.e., exposure of nest to human disturbance). At the whole lake scale, we used a scoring system of lakeshore development and recreational use potential, similar to that in other studies of human recreation on lakes (DeSorbo 2007, Spillman 2006, Vermeer 1973). We expanded the HDI to include an additional score that assessed the relative exposure of each nest site to boaters and shoreline disturbance (e.g., nest location, visibility of nest, distance to navigable waters, distance to human activity on shore). Only the nest site HDI was used for the preliminary study, so that nest sites of similar exposure to disturbance could be compared. Preliminary results indicated that NS significantly increased with the presence of nest warning signs (NS=82%, n=397) compared to nest sites without signs (NS=65%, n=411; Chi Square = 28.343, $p < 0.000001$). When the relative exposure of nest sites to human disturbance was considered, nest warning signs made an even larger difference in NS. For higher risk nest sites, NS rates were 81% for

nests with nest warning signs (n=246) and 55% for nests without signs (n=143; Chi Square=25.21, p=0.0000005). For lower risk nest sites, the NS rates were 89% for nests with nest warning signs (n=85) and 71% for nests without signs (n=215; Chi Square=11.70, p=0.0006). HDI at the lake scale was not considered in this assessment.

Our assessment of NS at signed and unsigned sites subject to low and high nest exposure did not explicitly account for differences in nest location. We believe that a more rigorous statistical analysis should be conducted to include effects of the whole lake scale HDI, as well as other factors that might influence nest success (e.g., nest type, lake size, components of the HDI). For example, nest warning signs are more likely to be placed at raft and island nest sites, because these nests are subject to higher levels of boat traffic. Nests without signs are more likely to be well concealed along shorelines. Raft and island nests tend to be more successful than shoreline nests, in large part because of their relative inaccessibility to predators. In 2008, NS on rafts was 91%, on islands 81%, and for shoreline nests 65%. As data on NS and corresponding HDIs become available from other Northeastern states, we intend to conduct a more comprehensive assessment of nest warning signs and nest exposure. Preliminary results from Ms. Klem's study, however, strongly suggest that VLRP management efforts have had a major positive impact on loon nesting success.

Loon nests near cottages: Nine pairs have nested near camps or developed areas in 2007-8 (Echo, Eligo, Green River – SE, Joe's, Maidstone - North, Maidstone – SE, Martins, Peacham – SE, Shadow). On water bodies like these, volunteer cooperation by landowners has been essential. Our approach to communicate with landowners and provide them with information on how to promote successful nesting appears to be effective. All final decisions on how to deal with the nest site were left to the landowners. Although this approach required significant time and effort by the VLRP, most responses from landowners were positive. Detection of nesting sites and nest start dates is critical if management and education efforts are to be effective. In the future, we will consider loon nests next to cottages as “experimental”, in that they may or may not be successful. The loons may simply select a different, and more appropriate, nest location if they experience a failed nest. The placement of a nesting raft could offer a viable alternative if landowners cannot maintain an undisturbed area near the nest site. The VLRP has placed relatively few rafts on highly developed lakes with possible territorial activity and limited areas for raft placement (Joe's, Martins, Seymour). VLRP cooperators must continue to discuss how to approach situations like this in the future, especially on lakes such as Caspian, Groton, Joe's, Maidstone, Salem, Seymour, Willoughby, Memphremagog, and possibly even Champlain.

Threats to Vermont's loons

Vermont's loons continue to face many short- and long-term threats to their viability, including: (1) water level fluctuations on lakes where water levels are regulated; (2) shoreline development and human disturbance; (3) mortality through lead poisoning, entanglement with monofilament fishing line, and fishing gear ingestion (Fig. 4, Table 4); and (4) possible contamination of Vermont waters (e.g., effects of acid precipitation and MeHg accumulation). Two natural sources of mortality include predation and intraspecific competition between breeding pairs and extraterritorial (rogue/intruder) loons. Background and historic information on these threats are provided in the Vermont Common Loon Recovery Plan (Borden and Rimmer 1998, pp. 5-10) and the VLRP 2000 annual report (Hanson et al. 2000).

Water level issues: Hydroelectric companies and others who control water levels continue to promote successful loon breeding by stabilizing levels. This was especially critical on water bodies where loons nested on natural sites (Green River, Norton, Peacham, and Somerset). Hydroelectric companies do not or have difficulty stabilizing water levels on several water bodies (Chittenden, Great Averill, Hardwick, Little Averill, Mollys Falls, Norton) for several reasons, thus rafts may be a required management tool for successful loon nesting on these water bodies.

Shoreline development and human disturbance: No cases of human disturbance causing nest failure were documented in 2008. Not all intrusions are observed or reported, however. A chick from the Maidstone – North territory likely died from a boat hit. Lake residents observed an adult loon attacking the chick before the body was retrieved, which often occurs to injured or weak loons.

Rafts have been used by loons on several ponds that appear to have marginal natural nesting habitat (Echo, Fosters, Hardwick, Joe’s, Martins, Nichols, No. 10, Ricker, and Seymour – West and Winape). However, from 2002-2008, loons have nested on natural sites on several moderate to highly developed lakes (Dunmore, Echo, Eden, Great Averill – North, Greenwood, Harveys, Memphremagog – Bell Island, Maidstone – North and SE, Shadow), utilizing some of the last remaining undeveloped or suitable shoreline. Potential loon pairs were observed in 2008 on several other lakes where shorelines are highly developed (Caspian, Crystal, Elmore, Groton-North). These lakes provide good feeding habitat for non-breeders, have limited natural nest sites available, and, in most cases, would require major educational and cooperative efforts with landowners in order to place nesting rafts.

Lead Poisoning, Monofilament Fishing Line Entanglement, and Fishing Gear Ingestion: The Vermont legislature passed a law in May 2004 banning the sale and use of lead sinkers ½ ounce or less, beginning in 2006 and 2007, respectively. This action was a major step to reduce the threat of lead fishing gear to loons and other water birds. Since 1984, 20 of 50 adult loons found dead in Vermont have died from lead poisoning and 9 of 50 from complications with fishing hooks, line, or nets. In 2008, 2 of 3 adult loons sent to Tufts University had ingested lead fishing gear. One of these objects was a lead jig, which was not included in the recent legislation. One additional adult has not yet been necropsied. Fishing gear will likely persist as a problem for Vermont’s loon population, annually affecting a small number of birds.

VFWD, VCE, VINS, USFWS, Audubon Vermont, and other organizations will continue to collaboratively promote public awareness about the dangers of lead sinkers to loons and other waterbirds and to encourage the use of non-toxic alternatives. The VLRP will also continue to educate people about the threats caused by monofilament fishing line and fishhooks, by asking anglers to reel-in when loons are nearby and to properly dispose of fishing line. Mark Scott of the VFWD coordinated outreach efforts about the lead fishing gear ban.

Environmental Contaminants: We have documented MeHg levels in Vermont’s loons and associated water bodies through the capture/banding program and analysis of abandoned eggs. From 1997-2008, various loon tissues (blood, feathers, and eggs) have been collected from 50 Vermont lakes and ponds.

Researchers from BRI and USFWS estimate that 13% of Vermont’s loons are at a high or extra high risk of MeHg exposure (Evers 2003). Specific water bodies of concern include Bald Hill, Island, McConnell, and Wolcott ponds, and Mollys Falls and Somerset reservoirs, where adult loons had moderate MeHg feather and/or blood concentrations. MeHg concentrations in feathers indicate chronic body burdens; elevated levels indicate a steady accumulation over time. Other water bodies of concern include Green River and Moore reservoirs, Holland Pond, and Shadow Lake (Concord), where MeHg levels in recovered eggs were high in some years. Egg MeHg is more difficult to interpret since it may reflect the female’s body burden and not necessarily the Hg uptake from prey on the nesting lake for that year. For a more complete discussion of mercury contamination see the 2000 and 2006 annual reports.

Predation: Predation is a probable cause of egg and chick loss. Likelihood of egg or chick predation may be increased by human disturbance and intraspecific competition, which can keep adult loons off the nest or away from chicks. Without visible evidence of nest predation, however, the cause of egg loss must be considered unknown. Eggs disappeared from 10 nests in 2007 and 8 in 2008, in addition to the 6 nests that had evidence of predation in 2007-8. In 2008, lake residents observed a Bald Eagle taking a chick from Norton Pond and possibly a mink carrying a chick on Newark Pond.

Intraspecific Competition: It is likely that extraterritorial loons interact with most breeding pairs at some time. In 2008, extraterritorial loons might have caused up to 5 pairs to forego nesting, and been responsible for the possible loss of at least 5 chicks. These rates are similar to 2007, but are higher than previous years and might account for the small decline in chicks surviving per territorial pair in 2008 compared to the past several years.

Disease: Botulism continues to be an increasing source of waterbird mortality, including loons, on Lake Erie and Lake Ontario during fall migration. In 2006 and 2007, loons were found dead from botulism on Lake Michigan and Lake Huron. Thousands of loons have been found dead since the late 1990s. Biologists and toxicologists from Canada and the United States are trying to understand why the outbreaks have been so severe. To date, no botulism outbreaks have been documented in Vermont, on Lake Champlain, or in eastern New York. However, there have been localized population declines on Squam Lake and Lake Umbagog in New Hampshire, the ultimate causes of which are unknown.

RECOMMENDATIONS

Increases in the total loon population and numbers of nesting pairs since the mid-1990s provide evidence that conservation efforts have aided the loon recovery process in Vermont, in spite of threats such as MeHg contamination and lead fishing gear. Increasing numbers of territorial pairs and ponds with more consistent loon activity indicate a potential for further growth in the breeding population. The invaluable assistance of volunteer observers, camp owners, VFWD biologists and game wardens, and Vermont State Park and Green Mountain National Forest staff have greatly enhanced the effectiveness of statewide loon conservation efforts. Monitoring and management efforts, participation of volunteers, education of lake-users, and water level management should continue to be the primary tools for ensuring success of Vermont's breeding loons.

Implementation of the comprehensive Vermont Loon Recovery Plan (Borden and Rimmer 1998) has been ongoing and has helped the VLRP realize its population recovery goals. The majority of the short-term, high priority goals have been implemented since the mid-1990s. The post-delisting monitoring and management plan addresses continued threats to loons in Vermont and the species' dependence on the VLRP's management and educational efforts. It should be emphasized that over 50% of the breeding loons in Vermont have directly benefited from VLRP management programs, and that many of these pairs would likely fail without such assistance. The Vermont Loon Recovery Plan will continue to help guide loon conservation efforts in the future. In 2008, the first study on the effectiveness of nest warning signs was conducted and preliminary results indicated that these signs are highly effective in increasing nest success rates in Vermont. Further analysis of the data collected along with expansion of the assessment to other northeast states should help clarify which type of nests benefit most from the use of this management tool.

For 2009, the VLRP website (www.vtecostudies.org) will be updated to include improved information on volunteering and more information on threats to loons, loon natural history, and results of loon conservation efforts in Vermont and the region.

With most short-term goals from the Recovery Plan having been achieved, the VLRP must now address the Plan's long-term, medium priority actions while monitoring potential changes due to delisting and the lead sinker ban. Many of the actions and recommendations below have been in place for several years, but resources of time and money have limited their implementation. These include:

1. An initiative involved contacting the Vermont Land Trust, the Vermont Housing and Conservation Board, and the Vermont Nature Conservancy about the use of conservation easements and land acquisition to permanently protect nest sites.
2. Once a protocol is developed for both the donation and purchase of conservation easements, landowners should be approached with information about the program. An explicit protocol for the acquisition and/or long-term conservation of nest sites should be developed, so that opportunities can be quickly acted upon.

3. We would like to provide more detailed training packets for adopt-a-lake volunteers. Funding was turned down in two recent proposals.
4. Development of a comprehensive database in conjunction with the LPC in New Hampshire and BRI in Maine would allow us to better assess and summarize Vermont's loon population trends, share and compare data with New Hampshire and Maine, develop a detailed population viability assessment for Vermont, and more efficiently coordinate volunteers.
5. Other future initiatives to consider should focus on improving the awareness of lake users on busy lakes. Actions could include (a) developing an information sheet and set of management protocols for loon breeding lakes, especially those requiring intensive management and education, and (b) developing permanent displays at State Parks and at kiosks on busy lakes.
6. A better understanding of Vermont's loon population dynamics would be gained by more closely examining the annual Loonwatch data, including creation of a database for all loon survey data.

The VLRP will continue its involvement with the Northeast Loon Study Working Group (NELSWG), a coalition of state and federal agency representatives, universities, non-profit organizations, and other interested parties addressing the conservation problems of loons in eastern North America. This is a valuable partnership and forum for information exchange.

Acknowledgments

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Volunteer assistance: We extend special thanks to the more than 200 Loonwatch and adopt-a-lake volunteers who care so deeply about Vermont's loons. We received assistance from dozens of lakeshore owners in reporting loon sightings and allowing access to lakes. Numerous volunteers and State Park staff helped distribute loon conservation fact sheets. Volunteers and staff spent hundreds of hours monitoring and attempting to catch loons in distress over the past several years (e.g., those caught in fishing line/lures/hooks, landing on too-small ponds, or found dead).

Vermont Wildlife Action Plan: The efforts of VFWD staff and many contributing partners resulted in the formal acceptance of the congressionally mandated Vermont Wildlife Action Plan in November 2005. The plan draws attention to the 323 Species of Greatest Conservation Need in Vermont, including the Common Loon. Now that the Common Loon has been removed from the Vermont Endangered and Threatened Species list due to many years of dedicated monitoring and management of this species, the Vermont Wildlife Action Plan provides for continued attention to our natural heritage. For more information, visit http://www.vtfishandwildlife.com/SWG_home.cfm.

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Figure 1a. Common Loon Nesting and Territorial Pairs in Vermont

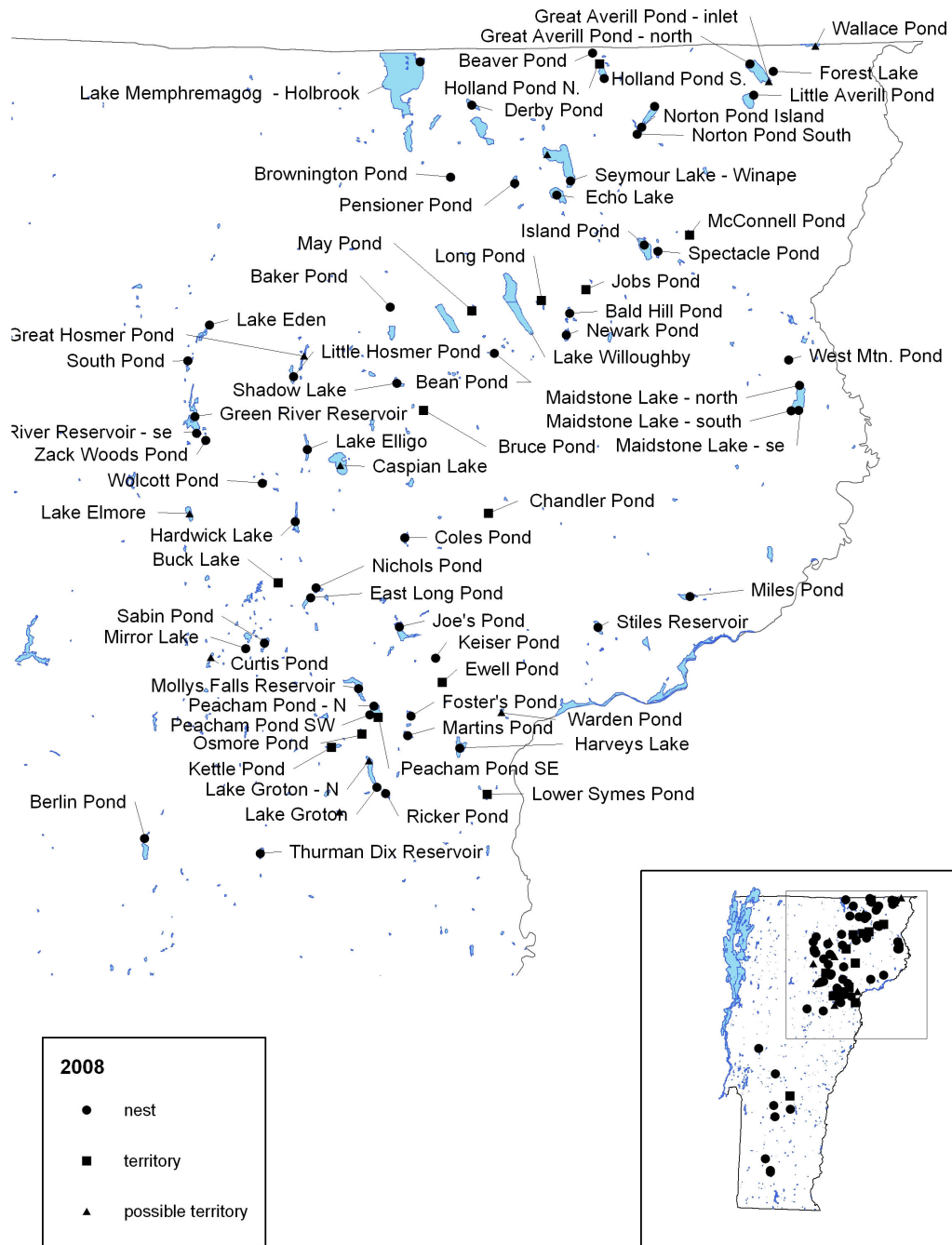


Figure 1 (b). Common Loon Nesting and Territorial Pairs in Vermont

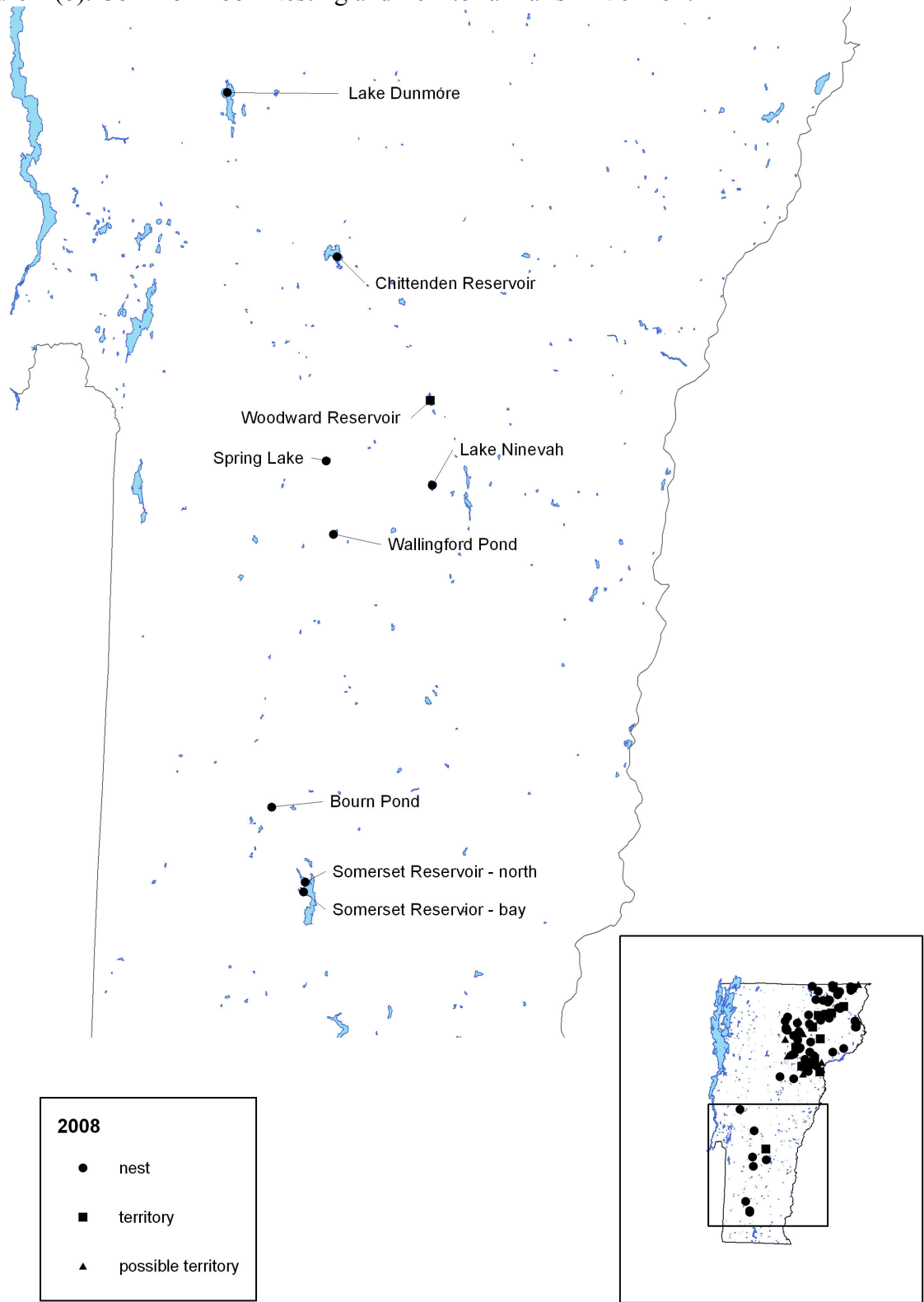


Figure 2. Summary of Common Loon breeding activity in Vermont, 1978-2008

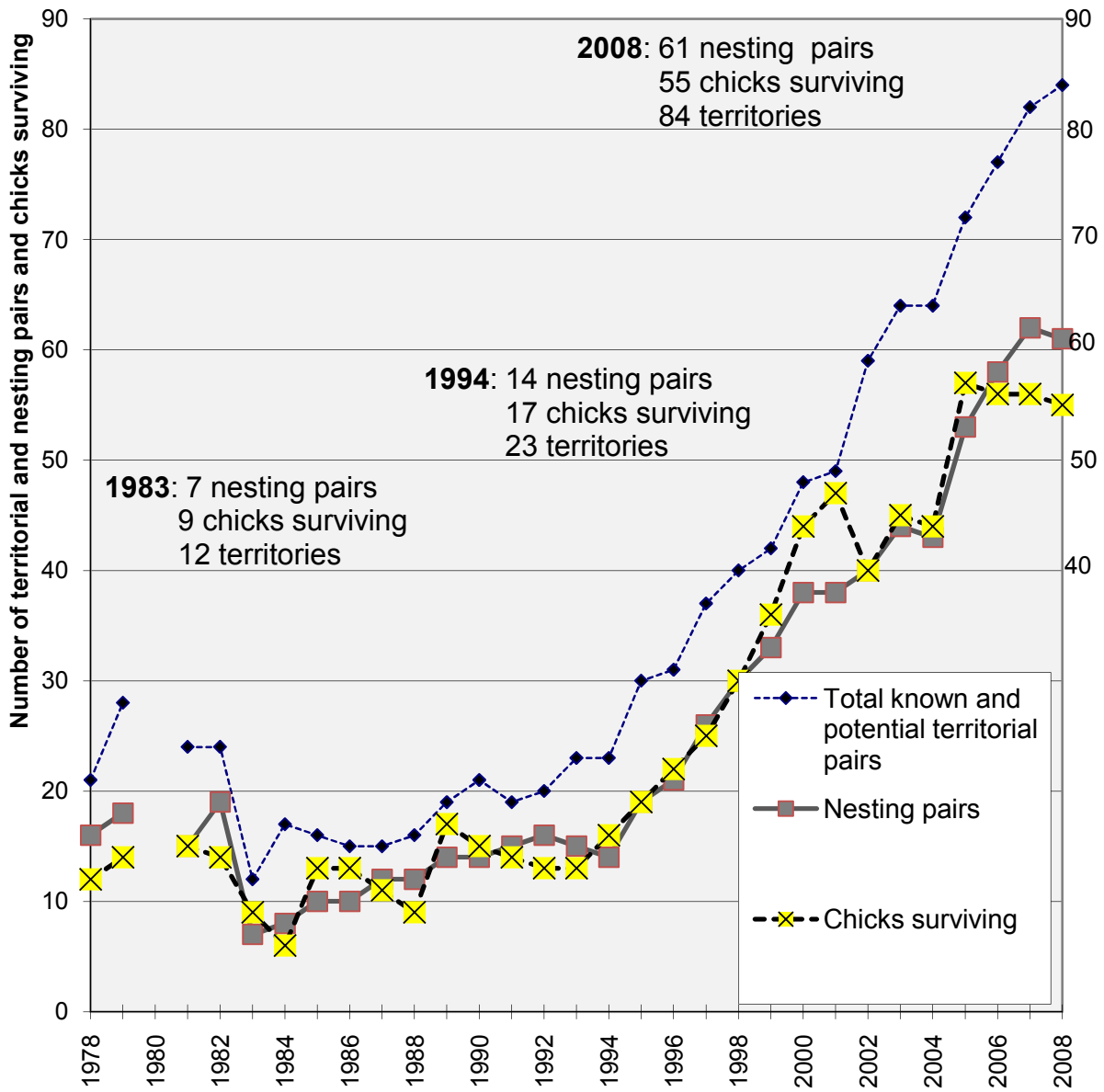


Figure 3. Vermont Loonwatch Results, 1983-2008
 (an annual statewide loon census on the third Saturday of July)

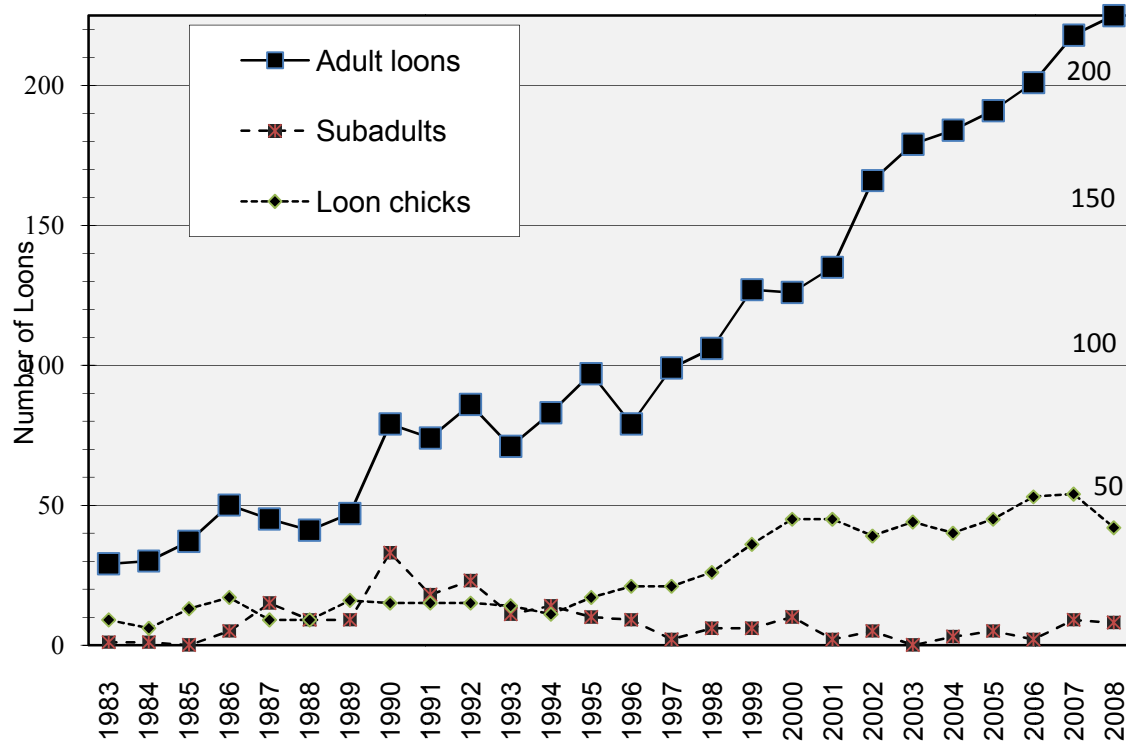


Figure 4. Causes of adult Common Loon mortality in Vermont

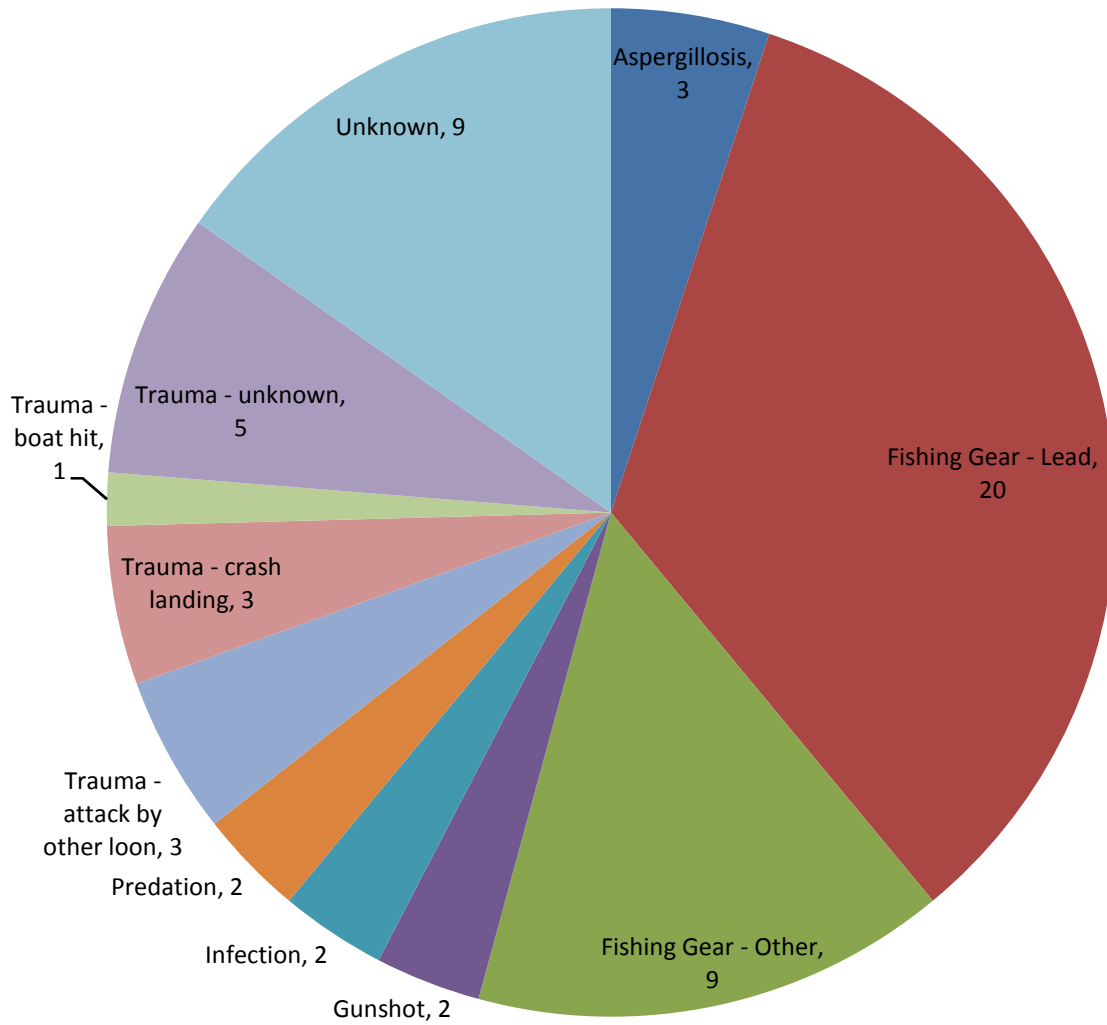


Table 1. Summary of Common Loon breeding activity in Vermont, 2008

Nesting pairs: 61 Known territorial pairs: 75 Potential territorial pairs: 11 Total territorials pairs: 86

Chicks hatched: 75 Chicks surviving: 55

North East Kingdom Region

Breeding Pairs

1 Bald Hill P.....	1 chick from shoreline nest (first natural nest); chick disappeared
2 Bean P.....	1 chick from re-nest; first nest abandoned
3 Beaver P.....	2 chicks from traditional island nest
4 Brownington P.....	Shoreline nest abandoned (new location); incubated too long
5 * Derby P.....	1 chick from shoreline nest; 1st recorded nest
6 Echo L. (Charleston).....	2 chicks from nesting raft; first time raft was used; 1 chick survived
7 Forest L.....	2 chicks from nesting raft; both chicks disappeared (intruder loons)
8 Great Averill L.-North.....	1 chick from nesting raft
9 Holland P.-South.....	1 chick from marsh nest
10 Island P.....	1 chick from traditional island nest
11 Little Averill L.-West.....	2 chicks from nesting raft
12 Maidstone L.-North.....	1 chick from shoreline nest; chick killed by boat hit
13 Maidstone L.-South.....	1 chick from traditional island nest; chick disappeared
14 * Maidstone L.-SE.....	1 chick from island nest; 1st recorded nest
15 L. Memphremagog-.....	2 chicks from unknown location; both chicks John River disappeared; last nested on Bell Island in 2004
16 Miles P.....	1 chick from nesting raft
17 Newark P.....	1 chick from re-nest; 1 chick disappeared from first nest (possible mink predation)
18 Norton P.-Island.....	1 chick from traditional island nest; chick disappeared (intruder loons)
19 * Norton P.-North.....	Shoreline nest depredated (raccoon); 1st recorded nest
20 Norton P.-South.....	1 chick from nesting raft; chick disappeared (bald eagle)
21 Pensioner P.....	Island nest flooded
22 Seymour L.-Winape.....	Nest raft abandoned; incubated too long
23 Shadow L.....	Shoreline nest flooded (new location) (Concord)
24 Spectacle P.....	2 chicks from nesting raft
25 Stiles Res.....	1 chick from marsh nest
26 West Mountain P.....	Traditional shoreline log nest abandoned

Known Territorial Pairs - Northeast Kingdom (5)

Holland P.-North.....	Pair present; nested in 2006
Jobs P.....	Pair present; built nest in 2006 but not used
Long P.....	Pair present; nested in 2007
May P.....	Pair present; nested in 2007
McConnell P.....	Pair present; nested in 2007

Potential Territorial Pairs - Northeast Kingdom (4)

Crystal L. (new)	Seymour L.-West
Great Averill L.-Inlet	Wallace P.

North Central Region

Breeding Pairs

27 Baker P.....	2 chicks from traditional marsh nest; 1 chick survived
28 Berlin P.....	2 chicks from island nest
29 Coles P.....	2 chicks from marsh nest
30 East Long P.....	Island nest abandoned
31 L. Eden.....	2 chicks from nesting raft
32 L. Eligo.....	1 chick from marsh nest (new location); 1 non-breeding adult found dead
33 Fosters P.....	2 chicks from nesting raft
34 Green River Res.-N.....	Island nest flooded
35 Green River Res.-SE.....	Island nest abandoned
36 L. Groton-South.....	2 chicks from nesting raft; 1 chick survived
37 Hardwick L.....	2 chicks from nesting raft
38 Harveys L.....	Shoreline nest abandoned
39 Joe's P.....	1 chick from nesting raft
40 Keiser P.....	2 chicks from traditional shoreline nest
41 Little Hosmer P.....	1 chick from re-nest on small island; first nest abandoned
42 Martins P.....	2 chicks from nesting raft
43 Molly's Falls Res.....	2 chicks from nesting raft
44 Nichols P.....	1 chick from nesting raft

North Central Region (continued)

Breeding Pairs

45 No. 10 P. (Mirror L.).....	2 chicks from nesting raft; 1 chick survived
46 Peacham P.-North.....	2 chicks from island nest
47 Peacham P.-SW.....	2 chicks from marsh nest
48 Ricker P.....	1 chick from nesting raft; 1 non-breeding adult found dead
49 South P.....	2 chicks from raft nest; 1 chick survived
50 Thurman Dix Res.....	1 chick from island re-nest (new location); chick did not survive; first nest abandoned
51 Wolcott P.....	1 chick from marsh nest; chick did not survive
52 Woodbury L.....	1 chick from nesting raft (first surviving chick)
53 Zack Woods P.....	1 chick from island nest

Known Territorial Pairs - North Central (8)

Bruce P.....	Pair present; failed nest in 2007
Buck L.....	Pair present; nested in 2003
Chandler P.....	Pair present; failed nest in 2007
Ewell P.....	Pair present; nested in 2006
Kettle P.....	Pair present; failed nest in 2007
Lower Symes P.....	Pair present; nested in 2007
Osmore P.....	Pair present; failed nest in 2007
Peacham P.-SE.....	Pair present; failed nest in 2007

Potential Territorial Pairs - North Central (7)

Caspian L.	L. Groton-North
Curtis P.	Noyes P. (new)
L. Elmore	Warden P.
Great Hosmer P. (new)	

Central and Southern Regions

Breeding Pairs

54 Bourn P.....	1 chick from traditional island nest
55 Chittenden Res.....	1 chick from nesting raft
56 L. Dunmore.....	2 chicks from island nest; 1 chick survived
57 L. Ninevah.....	2 chicks from island nest
58 Somerset Res.-.....	2 chicks from traditional large island nest Dandeneau Bay
59 Somerset Res.-.....	2 chicks from nesting raft; 1 chick survived; first time raft was used North Islands
60 Spring L.....	Nesting raft abandoned; incubated too long
61 Wallingford P.....	Shoreline nest abandoned; incubated too long

Known Territorial Pairs - Central (1)

Woodward Res.....	Pair not present in May (possibly on Kent P.); pair present in June and July; nested in 2007
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Lost Territories (2)

L. Memphremagog.....	Occasional pair activity but not consistent - Holbrook Bay
L. Fairlee.....	Single loons only

* Indicates first recorded nest

Lakes to watch for future pair activity

(Some pair activity observed, but either intermittent or too few surveys to determine if potential territory)

L. Carmi	Kent P. (pair in May, then gone)
Center P.	L. Memphremagog (Holbrook Bay)
Comerford Res.	Moore Res.
Daniels P.	L. Morey
Dog P.	Neal P.
L. Dunmore (2nd pair)	Nelson P. (adult found dead)
L. Fairlee	Pigeon P.
Flagg P. (chicks reported, not confirmed)	L. Rescue
Greenwood P.	Salem L.
Grout P.	Shadow L. (Glover)
Halls P.	Silver L./Sugar Hill Res. (Leicester)
Hardwood P. (chicks reported, not confirmed)	Somerset Res.-NE
	L. Willoughby
	Wapanacki P.

Table 2. Summary of population changes and reproductive success of Common Loons in Vermont, 1979-2008.

Year	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08
TOTAL territorial pairs	28	0	24	24	12	17	16	15	15	16	19	21	19	20	23	23	30	31	37	40	42	48	49	59	64	64	72	77	82	86
Known terr. prs.	21	--	18	19	9	12	11	12	13	13	16	17	16	18	17	21	22	24	29	34	39	44	44	49	53	57	60	65	71	75
Potential terr. prs.	7	--	6	5	3	5	4	3	3	3	3	4	3	2	6	2	8	7	8	6	3	4	5	10	7	12	12	11	11	
Nesting pairs	18	--	15	19	7	8	10	10	12	12	14	14	15	16	15	14	19	21	26	30	33	38	38	40	44	43	53	58	62	61
Successful pairs	12	--	11	12	5	6	8	9	9	7	10	9	10	10	11	13	15	14	21	23	25	36	34	34	38	34	47	44	47	49
Chicks hatched	--	--	--	--	10	7	--	16	12	11	19	18	16	15	18	20	21	25	32	37	41	56	56	52	62	54	68	66	71	75
Chicks surviving through August	14	--	15	14	9	6	13	11	9	9	17	15	14	13	13	17	19	22	25	30	36	44	47	40	45	44	57	56	56	55
Chicks surviving per nesting pair	0.78	--	1.00	0.74	1.29	0.75	1.30	0.92	0.75	1.21	1.07	0.93	0.81	0.87	1.21	1.00	1.05	0.96	1.00	1.09	1.16	1.24	1.00	1.02	1.02	1.08	0.97	0.90	0.90	
Chicks surviving per total territorial pair	0.50	--	0.63	0.58	0.75	0.35	0.81	0.87	0.73	0.56	0.89	0.71	0.74	0.65	0.57	0.74	0.63	0.71	0.68	0.75	0.86	0.92	0.96	0.68	0.70	0.69	0.79	0.73	0.68	0.64
% chick survival	--	--	--	--	90%	86%	--	81%	92%	82%	89%	83%	88%	87%	72%	85%	90%	88%	78%	81%	88%	79%	84%	77%	73%	81%	84%	85%	79%	73%
Lakes with nesting pairs	17	--	14	19	7	8	10	10	11	11	13	13	14	15	14	14	18	21	25	29	32	36	38	41	39	49	52	57	54	

Loonwatch results^{a,b} (statewide annual survey)

Number of adults	--	--	--	--	29	30	37	50	45	41	47	79	74	86	71	83	97	79	99	106	127	126	135	166	179	184	191	201	218	225
Number of chicks	--	--	--	--	9	16	13	17	9	9	16	15	15	15	14	11	17	21	21	26	36	45	45	39	44	40	45	53	54	42
Number of subadults	8	--	11	6	7	1	0	5	15	9	9	33	18	23	11	14	10	9	2	6	6	10	2	5	0	3	5	2	9	8
Number of lakes surveyed																					150	107	131	133	123	98	122	133	148	148
Number of lakes occupied																										68	69	84	86	84

^a The number of lakes surveyed for Loonwatch increased in 1999. It is possible survey adult loon counts during the mid-1990s were slightly lower.

^b Data since 2002 do not include Lake Champlain survey results, because of the large-scale survey effort conducted in that year.

On July 19 and 20 in 2002, 28 adult and 18 subadult loons were counted in non-overlap regions on Lake Champlain.

Table 3. Common Loon territories, nesting success, productivity, and recent breeding history in Vermont by location over 31 year period, 1978-2008

Site	years w/ terr. pr.	years nested	years w/ chicks	total # surv. chicks	mean annual # surviving chicks per nesting yrs.	mean annual # surviving chicks per territory yrs.	2006			2007			2008		
							Status	Nest Type	Surv. Ch.	Status	Nest Type	Surv. Ch.	Status	Nest Type	Surv. Ch.
Baker P	4	4	4	7	1.75	1.75	breed	shore	2	breed	shore	2	breed	shore	1
Bald Hill P	11	8	7	7	0.88	0.64	breed	raft	1	terr			breed	shore	0
Bean P	4	4	4	5	1.25	1.25	breed	shore	1	breed	island	2	breed	island	1
Beaver P	27	27	24	30	1.11	1.11	breed	island	1	breed	island	1	breed	island	2
Berlin P	11	7	6	9	1.29	0.82	breed	unknow	1	breed	shore	1	breed	island	2
Bourn P	10	7	7	6	0.86	0.60	breed	island	1	breed	island	1	breed	island	1
Branch P	2	1	1	1	1.00	0.50							(0-1 adult)		
Brownington P	10	7	2	4	0.57	0.40	breed	raft	fail nest	breed	shore	fail nest	breed	shore	fail nest
Bruce P	3	1	0		0.00	0.00	potential	terr		breed	shore	fail nest	terr		
Buck L	12	5	3	4	0.80	0.33	terr			terr			terr		
Caspian L	9	1	0	0	0.00	0.00	potential	terr		potential	terr		potential	terr	
Cat's Bow P	1	1	1	1	1.00	1.00									
Champlain L	2	2	0	0	0.00	0.00	report of chick - N. Ferrisburgh; not confirmed								
Chandler P	3	1	0		0.00	0.00	potential	terr		breed	shore	fail nest	terr		
Chittenden Res	4	4	2	2	0.50	0.50	breed	raft	fail nest	breed	raft	1	breed	raft	1
Coles P	13	11	10	14	1.27	1.08	breed	island	1	breed	shore	2	breed	shore	2
Crystal L	3						(1-3 adults)			(1-3 adults)			potential	terr	
Curtis P	2						potential			potential			potential	terr	
Derby P	2	1	1	1	1.00	0.50				potential	terr		breed	shore	1
Dunmore L	2	2	2	2	1.00	1.00				breed	island	1	breed	island	1
East Long P	29	26	17	21	0.81	0.72	terr			terr			breed	island	fail nest
Echo L (Charleston)	4	4	2	2	0.50	0.50	breed	shore	fail nest	breed	shore	fail nest	breed	raft	1
Eden L	8	5	4	5	1.00	0.63	breed	raft	1	breed	raft	1	breed	raft	2
Eligo L	7	7	5	5	0.71	0.71	breed	island	1	breed	island	1	breed	shore	1
Elmore L	3						potential	terr		potential	terr		potential	terr	
Ewell P	9	2	2	1	0.50	0.11	breed	shore	1	terr			terr		
Fairlee L	1									potential	terr		(1 adult)		
Flagg P													(chicks reported)		
Forest L	17	15	12	17	1.13	1.00	breed	raft	2	breed	raft	fail nest	breed	raft	0
Fosters P	6	6	6	8	1.33	1.33	breed	raft	1	breed	raft	2	breed	raft	2
Gale Meadows P	3	2	0	0	0.00	0.00				(1-2 adults)			(0 adults)		
Great Averill L - Inlet	3						potential	terr		potential	terr		potential	terr	
Great Averill L - North	16	15	9	10	0.67	0.63	breed	raft	2	breed	shore	fail nest	breed	raft	1
Great Hosmer P	1												potential	terr	
Green River Res - NW	31	30	23	34	1.13	1.10	breed	island	1	breed	island	2	breed	island	fail nest
Green River Res - SE	2	2	1	1	0.50	0.50				breed	island	1	breed	island	fail nest
Greenwood L	5	1	1	1	1.00	0.20	potential	terr		(0-2 adults)			(0-2 adults)		
Groton L - North	2									potential	terr		potential	terr	
Groton L - South	10	9	8	11	1.22	1.10	breed	raft	2	breed	raft	1	breed	raft	1
Hardwick L	7	6	6	9	1.50	1.29	breed	raft	1	breed	raft	2	breed	raft	2
Hardwood P	18	10	9	11	1.10	0.61				(0-2 adults)			(chicks reported)		
Harveys L	3	2	0	0	0.00	0.00	breed	shore	fail nest	terr			breed	shore	fail nest
Holland P - North	3	1	0	0	0.00	0.00	breed	shore	fail nest	terr			terr		
Holland P - South	29	16	9	11	0.69	0.38	breed	raft	fail nest	breed	raft	fail nest	breed	island	1
Island P	11	9	7	9	1.00	0.82	breed	island	0	breed	island	fail nest	breed	island	1
Jobs P	11	4	3	3	0.75	0.27	terr			terr			terr		
Joe's P	15	9	9	10	1.11	0.67	breed	raft	1	breed	raft	1	breed	raft	1
Keiser P	4	4	4	5	1.25	1.25	breed	shore	1	breed	shore	1	breed	shore	2
Kettle P	23	19	13	18	0.95	0.78	breed	raft	1	breed	shore	fail nest	terr		
Knapp Brook P	1	1	1	1	1.00	1.00	breed	island	1	(0-1 adult)			(0 adults)		
Little Averill L - East	1						(2 adults)			(1 adult)			(1-2 adults)		
Little Averill L - West	31	23	14	21	0.91	0.68	terr			terr			breed	raft	2
Little Hosmer P	12	10	6	5	0.50	0.42	breed	island	fail nest	breed	island	1	breed	island	1

(continued next page)

Table 3 (continued) Common Loon breeding history in Vermont by location

Site	years w/ terr. pr.	years nested	years w/ chicks	total # surv. chicks	mean annual # surviving chicks per nesting yrs.	mean annual # surviving chicks per territory yrs.	2006			2007			2008		
							Status	Nest Type	Surv. Ch.	Status	Nest Type	Surv. Ch.	Status	Nest Type	Surv. Ch.
Long P (Greensboro)	1						(0-1 adult)			(0-1 adult)			(0 adults)		
Long P (Westmore)	13	10	9	12	1.20	0.92	breed	island	1	breed	island	2	terr		
Lower Symes P	8	7	7	11	1.57	1.38	breed	shore	2	breed	shore	1	terr		
Maidstone L - North	5	4	3	1	0.25	0.20	breed	shore	fail nest	breed	shore	1	breed	shore	0
Maidstone L - SE	2	1	1	1	1.00	0.50				potential terr			breed	island	1
Maidstone L - South	31	27	26	31	1.15	1.00	breed	island	1	breed	island	0	breed	island	0
Marshfield P	1						potential terr			(0-1 adult)			(0 adults)		
Martins P	14	12	12	16	1.33	1.14	breed	raft	1	breed	raft	0	breed	raft	2
May P	22	19	17	24	1.26	1.09	breed	shore	2	breed	shore	1	terr		
McConnell P	23	15	11	15	1.00	0.65	breed	raft	1	breed	unknown	2	terr		
Memphramagog L - Bell Is./John R.	6	3	2	1	0.33	0.17	(0-2 adults)			(0-2 adults)			breed	shore?	0
Memphramagog L - Holbrook Bay	5						potential terr			potential terr			(1-2 adults)		
Miles P	23	16	12	16	1.00	0.70	terr			breed	raft	2	breed	raft	1
Molly's Falls Res	23	14	13	18	1.29	0.78	breed	raft	1	breed	raft	1	breed	raft	2
Moore Res - Roaring Brook	8	4	3	0	0.00	0.00	lost terr			(0-1 adult)			(1 adult)		
Neal P	4						potential terr			(1 adult)			(0-2 adults)		
Nelson P							(1-3 adults)			(0-3 adults)			(0-2 adults)		
Newark P	26	19	12	16	0.84	0.62	breed	island	fail nest	breed	island	2	breed	island	1
Nichols P	12	10	8	9	0.90	0.75	breed	raft	1	breed	raft	fail nest	breed	raft	1
Ninevah L	14	14	12	15	1.07	1.07	breed	island	2	breed	island	1	breed	island	2
No. 10 P (Mirror)	10	3	3	4	1.33	0.40	breed	raft	1	breed	raft	2	breed	raft	1
Norton P Island	31	30	24	31	1.03	1.00	breed	island	1	terr			breed	island	0
Norton P North	1	1	0	0	0.00	0.00							breed	shore	fail nest
Norton P South	11	9	9	12	1.33	1.09	breed	raft	1	breed	raft	1	breed	raft	0
Notch P	2									(0-1 adult)			(0 adults)		
Noyes P	4	1	0	0	0.00	0.00				(1-2 adults)			potential terr		
Osmore P	9	2	1	0	0.00	0.00	(0-2 adults)			breed	shore	fail nest	terr		
Peacham P North	31	31	26	33	1.06	1.06	breed	island	2	breed	island	2	breed	island	2
Peacham P SE	3	2	0	0	0.00	0.00	breed	shorelin	fail nest	breed	shore	fail nest	terr		
Peacham P SW	24	22	17	21	0.95	0.88	breed	shorelin	2	breed	shore	0	breed	shore	2
Pensioner	4	2	1	1	0.50	0.25	potential terr			breed	island	1	breed	island	fail nest
Pigeon P	8	1	0	0	0.00	0.00	lost terr			(1-2 adults)			(1-2 adults)		
Ricker P	8	6	5	6	1.00	0.75	breed	raft	fail nest	breed	raft	2	breed	raft	1
Salem L	2						(0-2 adults)			(0-1 adult)			(0-2 adults)		
Seymour L - West	5	1	1	2	2.00	0.40	terr			(1-3 adults)			potential terr		
Seymour L - Winape	16	11	9	12	1.09	0.75	breed	raft	1	breed	raft	0	breed	raft	fail nest
Shadow L (Concord)	2	2	0	0	0.00	0.00				breed	shore	fail nest	breed	shore	fail nest
Somerset Res -Dandeneau Bay	30	27	21	26	0.96	0.87	breed	island	2	breed	island	1	breed	island	2
Somerset Res North Islands	7	7	5	6	0.86	0.86	breed	island	1	breed	island	1	breed	raft	1
Somerset Res South	1						(0-2 adults)			(1-3 adults)			(1-2 adults)		
South P	14	11	9	11	1.00	0.79	terr			breed	island	fail nest	breed	raft	1
Spectacle P	22	14	12	17	1.21	0.77	breed	raft	2	breed	raft	2	breed	raft	2
Spring L	8	7	4	5	0.71	0.63	breed	raft	1	breed	raft	fail nest	breed	raft	fail nest
Stiles Res	9	8	6	8	1.00	0.89	breed	shorelin	fail nest	breed	shore	1	breed	shore	1
Thurman Dix Res	29	28	24	28	1.00	0.97	breed	island	1	breed	island	1	breed	island	0
Turtle P	2	2	0	0	0.00	0.00	(0-1 adult)			(0-1 adult)			(0-1 adult)		
Wallingford P	9	9	6	9	1.00	1.00	breed	shorelin	0	breed	shore	2	breed	shore	fail nest
Wapanacki P	1						potential terr			(1 adult)			(0-2 adults)		
Warden P	2									potential terr			potential terr		
Waterbury Res	4	3	1	1	0.33	0.25				(0-1 adult)			(0-1 adult)		
West Mountain P	11	10	6	4	0.40	0.36	breed	shorelin	fail nest	breed	shore	0	breed	shore	fail nest
Willoughby L	4						potential terr			(2-5 adults)			(2-5 adults)		
Wolcott P	21	17	16	22	1.29	1.05	breed	shorelin	1	breed	shore	1	breed	shore	0
Woodbury L	6	2	2	1	0.50	0.17	(0-2 adults)			breed	raft	0	breed	raft	1
Woodward Res	4	3	1	1	0.33	0.25	breed	island	fail nest	breed	island	1	terr		
Zack Woods P	15	13	12	19	1.46	1.27	breed	island	2	breed	island	1	breed	island	1

Table 4. Causes of Common Loon Mortality in Vermont 1989-2008

* Only chicks sent to Tufts University were included in table.

Year	Lake / Location	Town	Age	Sex	Cause	Comments
1989	Berlin	Berlin	adult	Unknown	Trauma - unknown	
1991	NA	Woodstock	adult	Unknown	Fishing gear - lead	
1991	Woodbury	Woodbury	adult	Male	Fishing gear - lead	
1993	Newark	Newark	chick	Unknown	Fishing gear - monofilament	
1993	Newark	Newark	adult	Unknown	Trauma - attack by other loon	
1994	Stratton	Sunderland	adult	Unknown	Fishing gear - lead	
1995	Morey	Fairlee	adult	Unknown	Fishing gear - lead	
1995	NA - roadside	South Royalton	adult	Unknown	Fishing gear	
1995	Rescue	Ludlow	adult	Unknown	Fishing gear - fishhook	Also had aspergillosis.
1995	Zack Woods	Hyde Park	adult	Male	Fishing gear - lead	
1996	Green River	Hyde Park	adult	Unknown	Fishing gear - lead	
1996	Island	Brighton	adult	Unknown	Fishing gear - lead	
1997	Newark	Newark	adult	Unknown	Fishing gear - lead	
1997	Seymour	Morgan	adult	Unknown	Aspergillosis	
1998	Great Averill	Averill	adult	Unknown	Fishing gear - monofilament	Septic pneumonia contributing factor.
1998	Ninevah	Mt. Holly	chick	Unknown	Trauma - sibling rivalry	
1998	Peacham	Peacham	adult	Unknown	Infection - bacterial	
1998	Wolcott	Wolcott	chick	Unknown	Unknown	
1999	Coles	Walden	chick	Unknown	Fishing gear - fishhook	Purposefully hooked; septemia (infection) final cause of death.
1999	Kettle	Groton	adult	Unknown	Fishing gear - lead	
1999	Long	Westmore	adult	Unknown	Gunshot	Found alive on shore.
1999	NA - White River (Bethel)	White River, Bethel	adult	Unknown	Trauma - crash landing	Found along White River.
1999	Norton	Norton	adult	Unknown	Infection - bacterial	
1999	Seymour	Morgan	adult	Unknown	Trauma - unknown	Possible attack by other loon reported.
1999	Zack Woods	Hyde Park	chick	Unknown	Trauma - unknown	Possible crash landing.
2000	Island	Brighton	adult	Unknown	Trauma - unknown	Also had old fishhook found internally.
2000	Job's	Westmore	adult	Unknown	Fishing gear - lead	
2000	Martin's	Peacham	adult	Female	Trauma - attack by other loon	
2000	Molly's Falls	Cabot	adult	Unknown	Fishing gear - lead	
2000	NA	Williamstown	juvenile	Male	Trauma - crash landing	
2001	Island	Brighton	adult	Male	Fishing gear - lead	
2001	Kent	Killingtong	adult	Male	Fishing gear - lead	
2001	NA - roadside	Mt. Holly	adult	Male	Fishing gear - monofilament and trauma	Found near road.
2001	South	Marlboro	adult	Female	Fishing gear - lead	
2001	Spring	Shrewsbury	adult	Male	Fishing gear - lead	
2002	East Long	Woodbury	chick	Unknown	Unknown	Found dead floating in water (5-6 weeks old).
2002	Groton	Groton	chick	Unknown	Trauma - boat hit	
2002	NA - roadside	Waitsfield	adult	Unknown	Trauma - crash landing	Likely flew into powerline and hit by car.
2002	NA - roadside	Poultney	adult	Unknown	Trauma - crash landing	Found along road.
2002	Peacham - north cove	Peacham	chick	Unknown	Trauma - attack by other loon	
2003	Molly's Falls	Cabot	adult	Female	Trauma - unknown	
2003	South	Eden	adult	Female	Gunshot	
2003	Willoughby	Westmore	adult	Unknown	Unknown - not retrieved	
2003	Wolcott	Wolcott	adult	Unknown	Fishing gear - lead	Major fights observed between adults prior to being found dead.
2004	Green River	Hyde Park	adult	Unknown	Trauma - unknown - not analyzed	
2004	Lakota	Barnard	adult	Male	Fishing gear - lead	

(continued next page)

Table 4 (continued) Causes of Common Loon Mortality in Vermont 1989-2008

Year	Lake / Location	Town	Age	Sex	Cause	Comments
2004	Memphremagog - Eagle Point area	Derby	adult	Unknown	Aspergillosis	Found dead in marsh. Broken mandible.
2005	Baker	Barton	chick	Unknown	Unknown	Found on shore (10 weeks old).
2005	Holland	Holland	adult	Unknown	Unknown - poor body condition	Attacked by other loon; poor body condition prevented necropsy.
2005	Island	Brighton	adult	Male	Fishing gear - lead	Loon was attacked by other loons before beaching itself.
2005	Isle La Motte	Isle La Motte	adult	Unknown	Trauma - boat hit	
2005	Ricker	Groton	chick	Female	Trauma - boat hit	3-4 weeks old.
2005	Seymour	Morgan	adult	Unknown	Trauma - attack by other loon	
2005	Thurman Dix	Orange	chick	Unknown	Unknown	Failed to leave nest.
2005	Ticklenaked	Ryegate	adult	Unknown	Fishing gear - lead	
2006	Champlain - Button Bay	Addison	adult	Unknown	Aspergillosis	
2006	Champlain - Missiquoi	Swanton	subadult	Unknown	Fishing gear - gill net	Drowned in gill net being used for research.
2006	Champlain - North Hero	North Hero	adult	Unknown	Unknown - not analyzed	Found dead on shore.
2006	Dunmore	Salisbury	subadult	Unknown	Unknown - not analyzed	Found decomposed on shore.
2006	East Long	Woodbury	adult	Unknown	Fishing gear - monofilament present, ultimate cause unknown	Banded as chick on Mollys Falls Res. in 2000.
2006	Island	Brighton	subadult	Unknown	Unknown - not analyzed	Found decomposed on shore.
2006	Joe's	Cabot	chick	Unknown	Unknown - not analyzed	Died after being abandoned by adults.
2006	Nichols	Woodbury	adult	Male	Fishing gear - monofilament / malnutrition	4 capture attempts unsuccessful.
2006	Peacham	Peacham	adult	Unknown	Fishing gear - lead	Loon was attacked by other loons before beaching itself.
2007	Champlain - Ferrisburgh	Ferrisburgh	adult	Unknown	Predation (Bald Eagle) - not analyzed	Loon trapped in ice.
2007	Champlain - Ferrisburgh	Ferrisburgh	adult	Unknown	Predation (Bald Eagle) - not analyzed	Loon trapped in ice.
2007	Clyde	Newport	adult	Unknown	Fishing gear - monofilament / not analyzed	Ingested fishing line.
2007	Dunmore	Salisbury	subadult	Unknown	Fishing gear - monofilament / not analyzed	Ingested fishing line.
2007	Willougby	Westmore	adult	Female	Unknown - not analyzed	Found dead on shore.
2008	Eligo	Greensboro	adult	Unknown	Unknown - not analyzed	Found dead on shore.
2008	Maidstone - N	Maidstone	chick	Male	Trauma - boat hit	Observed being attacked by adult loon.
2008	Nelson	Woodbury	adult	Unknown	Unknown - not analyzed	Found dead on shore.
2008	Ricker	Groton	adult	Unknown	Unknown - not analyzed	Found dead on shore.
2008	South	Eden	chick	Unknown	Unknown - not analyzed	Found dead on shore (8 weeks old). Lethargic the week prior.