Canada Goose Management Plan

Cultus Lake (Fraser Valley Regional District), BC

Prepared for:

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Executive Summary

The Fraser Valley Regional District would like to develop a strategic management plan to guide decisions regarding population control of Canada geese and mitigate conflicts caused by geese at Cultus Lake. During 2019 data were collected on abundance and distribution of geese. A pilot program of nest searches and egg-addling was also conducted. Results led to development of this document, ***Cultus Lake Canada Goose Management Plan*** which describes an approach to management of Canada geese at Cultus Lake.

1.0 Introduction

1.1 Document Intent

The intent of this document is to provide strategic guidance for management of Canada geese at Cultus Lake, particularly during nesting and moulting stages of geese lifecycles. Where Canada geese and management are discussed in this document, this refers to urban and rural Canada geese. These geese are often referred to as resident, non-migratory, or temperate nesting geese. Information provided in this document is based on best knowledge available at time of development. As part of the management process, recommendations in this document should be reviewed through an adaptive management process as new information becomes available.

1.2 Development of a Canada Goose Management Plan

The Fraser Valley Regional District (the District; FVRD) requested EBB Environmental Consulting (EBB) assist with assessment and management of Canada geese, particularly geese that seasonally occupy key park sites at Cultus Lake. The District is concerned that the goose population is increasing, and conflicts associated with health and safety, environmental degradation, and recreational experience are also increasing. The District would like to work with other park and community stakeholders to develop a strategic management plan to guide decisions regarding population control of nesting geese and mitigate conflicts caused by geese.

FVRD and Cultus Lake stakeholders (including BC Parks, Cultus Lake Park Board, stewards, residents and strata/cottage associations) require a comprehensive Canada Goose Management Plan, including ideas for communications/messaging and an egg addling protocol that will provide guidance on managing Canada geese and mitigating impacts from geese at the lake. Objectives include:

- Develop a knowledge base regarding seasonal goose use of Cultus Lake;
- Identify if Cultus Lake hosts key breeding and moulting areas;
- Provide options to reduce impacts to parks and recreational areas;
- Provide examples/ideas for a public information program to assist with messaging regarding goose management;
- Conduct a pilot nest search and egg-addling project;
- Provide an egg addling protocol document as a resource for future (volunteer) efforts.

1.3 Regulatory Context

Canada geese are regulated under the federal *Migratory Birds Convention Act* (1994) and pursuant regulations. Any interference with geese, nests, or eggs must be done with authorization from the Canadian Wildlife Service (CWS) of Environment and Climate Change Canada (ECCC). In addition, Canada geese use lands governed by various jurisdictions including Federal, Provincial, Municipal, First Nation, and private properties such as golf courses, schools, and agricultural lands. Goose

management activities are subject to by-laws and authorizations dependent on location and invasiveness of the management activities.

1.4 Population Status

The global population of Canada geese (*Branta canadensis*) and the smaller, closely related cackling geese (*Branta hutchinsii*) are comprised of 11 different subspecies (Banks et al. 2004). Subspecies have similar features, yet differences in physiology, behaviour and distribution are significant enough that unique management approaches must be considered for different groups.

Across Canada, many Canada and cackling goose subspecies (hereafter, collectively referred to as Canada geese or geese) do not have overlapping ranges and would not interact under natural conditions. However, this is not the case in southwestern British Columbia where management programs designed to boost Canada goose numbers caused the unintended creation of non-migratory resident populations with mixed-race hybrids.

Prior to the 1960's, Canada geese were considered migrants and summer visitants in British Columbia (Campbell et al. 1990). By the 1970's, however, goose numbers had increased through management programs aimed at providing sustainable hunting and viewing opportunities. Management programs focused on importing breeding stock and flightless young of large-bodied subspecies from outside British Columbia. Introduced geese came from as far as Minnesota and Ontario. Once outside their native ranges, translocated geese did not learn migratory patterns. In contrast, this mix of subspecies and their generations of offspring nested in their new habitats, conducting only protracted migrations, if any. Generations of offspring are hybrids of different stocks that were transplanted decades ago. These mixed-race hybrids would not occur in natural systems and do not fit into standard taxonomy.

At the time of relocations, the British Columbia landscape also changed. Urban and rural areas increased, and many areas were closed to hunting. Increased habitat with fewer population controls assisted Canada geese to become abundant in areas throughout the province. Today, many populations of Canada geese are largely perceived as problem wildlife due to their abundance, territorial behaviour during breeding season, crop damage, potential risks to human health and safety, fouling of grassy areas with droppings, fecal coliform contamination of public swimming areas, damage to lawns and green spaces, as well as other economic losses (Smith et al. 2005).

1.5 Goose Ecology

Geese prefer to graze on grass and are attracted to farmland and urban landscapes with manicured lawns (e.g., parks, schools and golf courses). Areas that have grass/water interfaces such as Cultus Lake are ideal locations for geese as they can forage and then quickly escape predation threats by exiting to water. This is particularly important when geese have goslings and/or are going through moult.

In southern British Columbia, Canada geese may begin nesting in March, but generally, egg-laying is initiated in April and can continue into late May. Canada geese usually build nests within sight of

water; however, will find alternative sites if necessary (Elphick *et al*. 2001, Environment Canada 2003). Preferred nesting locations are islands, including the tops of beaver lodges and floating mats of vegetation. First-time breeders exhibit high natal fidelity and will attempt to nest in the same area they were fledged (Mowbray *et al*. 2002). Geese will return to old nest sites, or nearby locations year after year.

Nests are generally simple, constructed from weeds, twigs and other local vegetation depending on local habitat (Figure 1). Females will use their bodies to make a depression in the vegetative mound and insulate it with down and feathers from her breast, resulting in a noticeable area of fewer feathers on the goose (brood patch).

Females are responsible for building nests and incubating eggs. During this time, the male will diligently "mate guard" ensuring other geese and predators do not disturb the female. Females typically lay 4-7 creamy white eggs (average is 5; total can be greater than 12) on consecutive days. They may also lay replacement eggs if original eggs are preyed upon, or the nest is destroyed early in incubation, which is approximately 25-27 days (Mowbray *et al*. 2002, Environment Canada 2003). Canada geese start nesting at 2 to 3 years and can live greater than 20 years. Birds will pair for life but may find a new mate if one dies.

Following nesting, geese go through a period of moult when they are flightless. They grow new flight feathers in preparation for fall migration. Geese are flightless for approximately 4 weeks in June and July (Figure 2). Prior to moult, they seek out areas of water for protection. Migratory geese migrate south in the fall after moult is completed and young birds are strong enough for the journey. Resident geese may conduct protracted migrations but stay close to their nesting areas.

Figure 1. Goose nests constructed with materials from different habitats: a) Cultus Lake shoreline, b) interior forest/wetland complex; c) Nanaimo rocky island, d) Kelowna industrial building

Figure 2. Goose in moult, growing new flight feathers

1.6 Canada Goose Management Area—Cultus Lake

Cultus Lake is situated in the Fraser Valley of Lower Mainland, BC., south of Chilliwack. It lies within the traditional territory of the Ts'elxweyéqw Tribe within the Stó:lō Territory of 'S'olh Témexw' (PlanCultus 2017). Cultus Lake and the surrounding region experience a mild Oceanic climate which supports strong agricultural, recreational and tourism sectors. Tourism is the leading economic driver at Cultus Lake.

The lake itself is 650 hectares and is the source of Sweltzer Creek, a red-listed watercourse known to support federally listed (endangered) spawning Sockeye Salmon (*Oncorrhyncus nerka*, Cultus population; Species at Risk Pubic Registry 2019).

The Cultus Lake area is comprised of the lake, the community of Cultus Lake and parks. The community of Cultus Lake is contained within regional Cultus Lake Park. Cultus Lake Provincial Park is an additional 2729 hectares of recreational park and conservation areas. The parks and community fall within the Fraser Valley Regional District Electoral Area H (Figure 3).

The community of Cultus Lake has a permanent resident population of approximately 1110 people (City of Chilliwack 2019). In the summer, the area hosts daily recreational users and campers. On any given day in the summer, the population can increase 6-8 times the residential number such that greater than one million visitors use Cultus Lake each year (PlanCultus 2017).

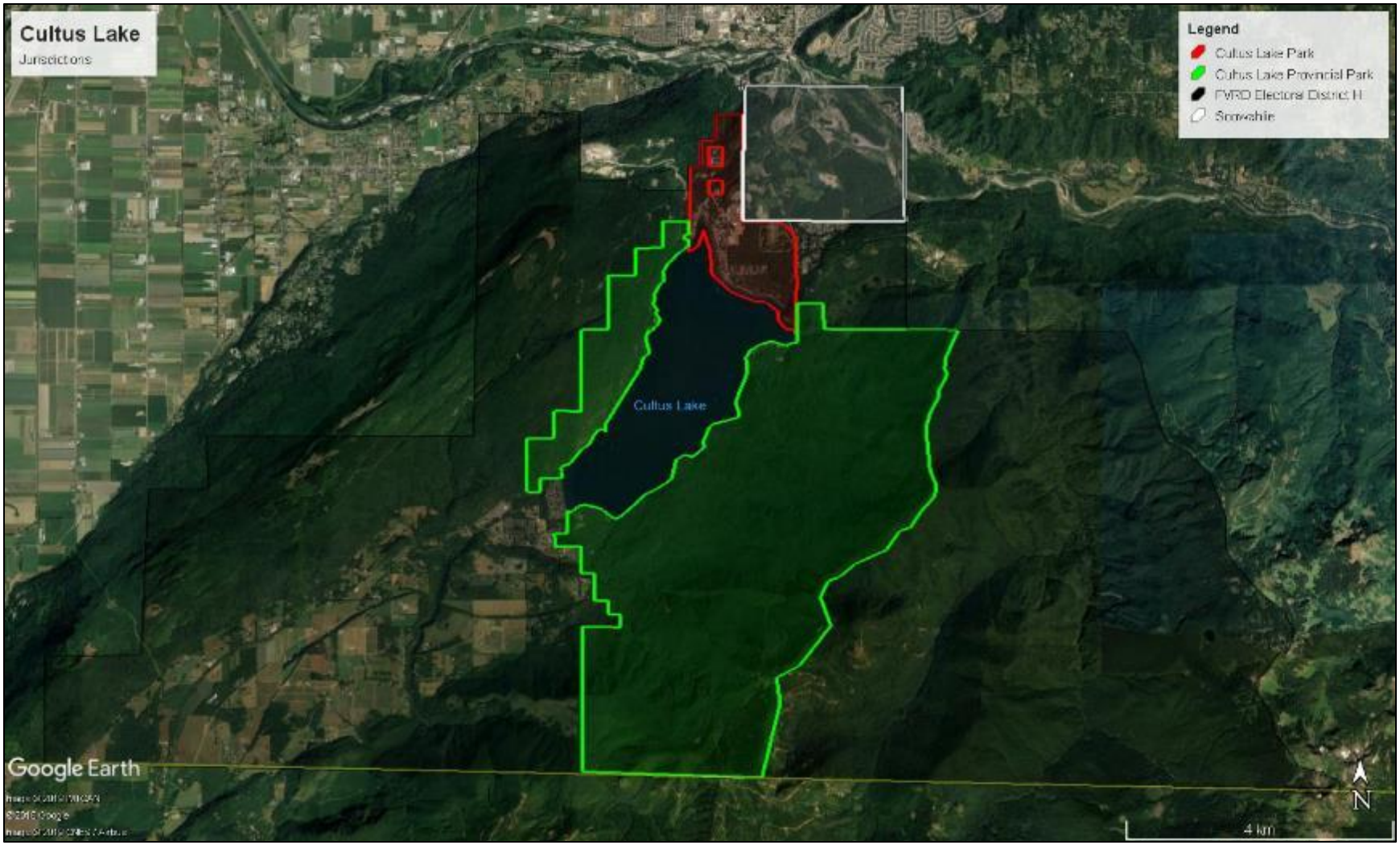

Figure 3. Cultus Lake and jurisdictional domains

2.0 Impacts of Canada Geese at Cultus Lake

At Cultus Lake the non-migratory Canada goose population is considered a public nuisance. They negatively impact natural park habitats and restoration projects, create conflicts with park users, and impact water quality. Costs for management create a burden on park budgets as well as to residents and other private landowners. Conflicts include:

- aggressive behaviour of territorial/nesting geese to park users;
- turf damage and fecal deposits on lawns, and park fields;
- fecal deposits in water contributing to increased coliform counts and swimming advisories;
- environmental degradation related to overgrazing of shoreline vegetation (e.g., loss of native vegetation and increased siltation) and fecal matter in water (e.g., increased pathogens and biological oxygen demand [BOD]);
- decreased biodiversity caused by aggressive territorial behaviour that prevents smaller, native waterfowl from nesting.

3.0 Management Goal

The FVRD has identified a need to manage Canada geese and mitigate impacts caused by geese at Cultus Lake. Strategies identified in this document should be implemented as pilot projects and evaluated for further implementation at Cultus Lake.

A key component to developing a management plan is identifying what level of Canada geese can be tolerated at Cultus Lake. This can be expressed as an absolute population number, or more practically, as a level of effort (likely expressed in dollars) that is acceptable to mitigate goose impacts. Once this level is established, the goose population should be managed to stay below this level.

4.0 Population Data

4.1 Historical Data

Christmas Bird Count data are not specifically available for Cultus Lake; however, data collected for the Chilliwack count circle suggests variability in regional use by wintering geese (Figure 4). The overall trend appears to be an increase with a five-year average (2014-18) of approximately 3800 birds. The growth curve suggests the beginning of exponential growth. Similarly, numbers of geese observed in the Harrison River and Abbotsford-Mission counts have increased (Figures 5-6), although fewer years of data are available.

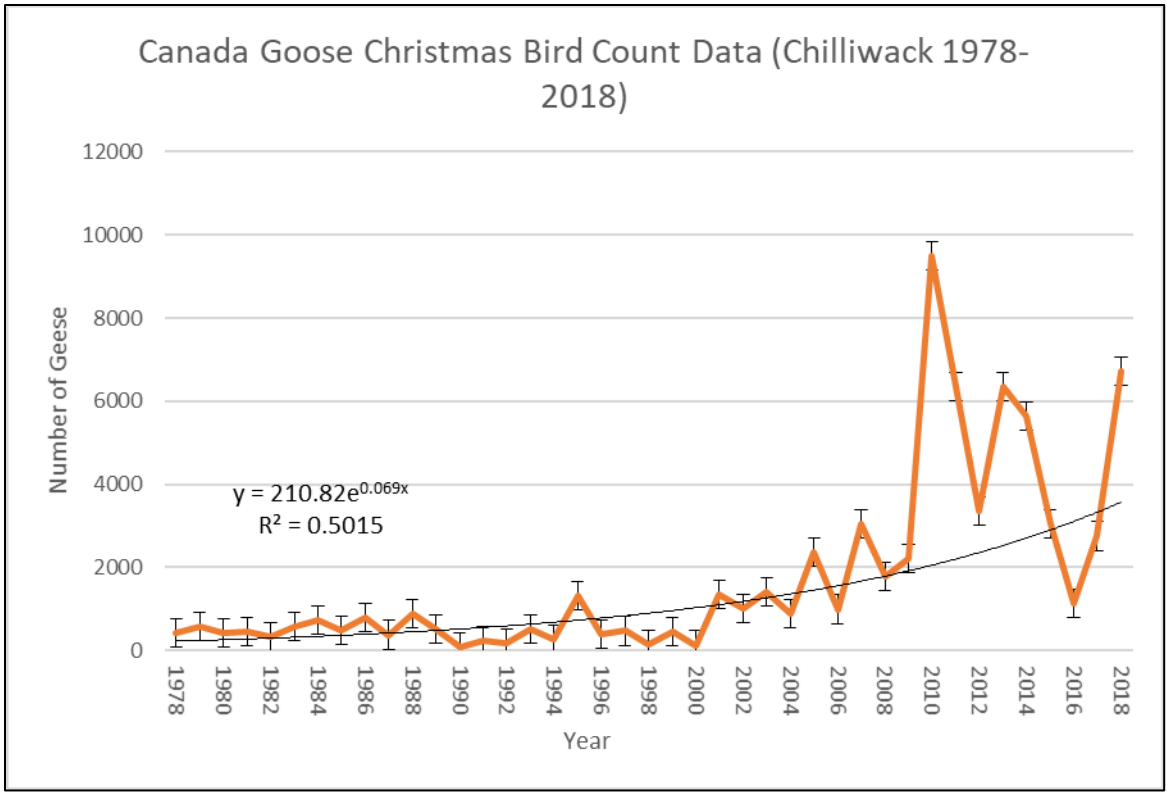

Figure 4. Chilliwack Christmas Bird Count Data (source: Audubon 2019)

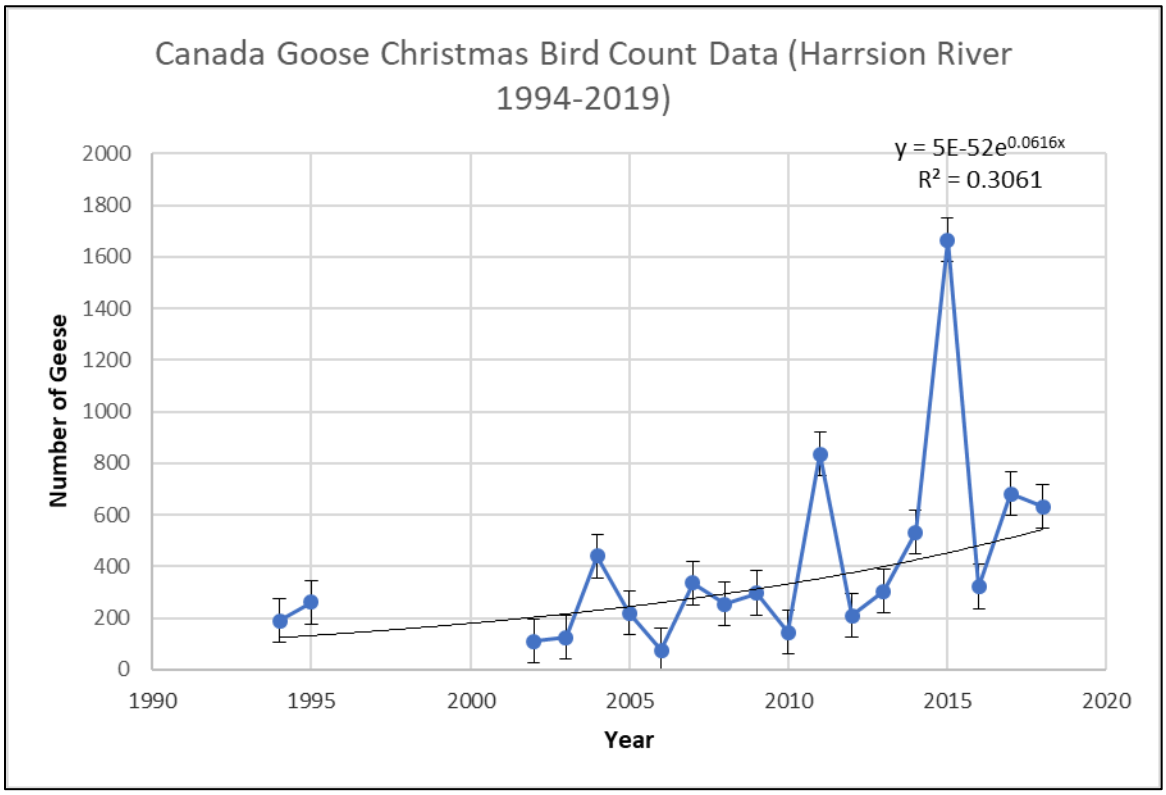

Figure 5. Harrison River Christmas Bird Count Data (source: Audubon 2019)

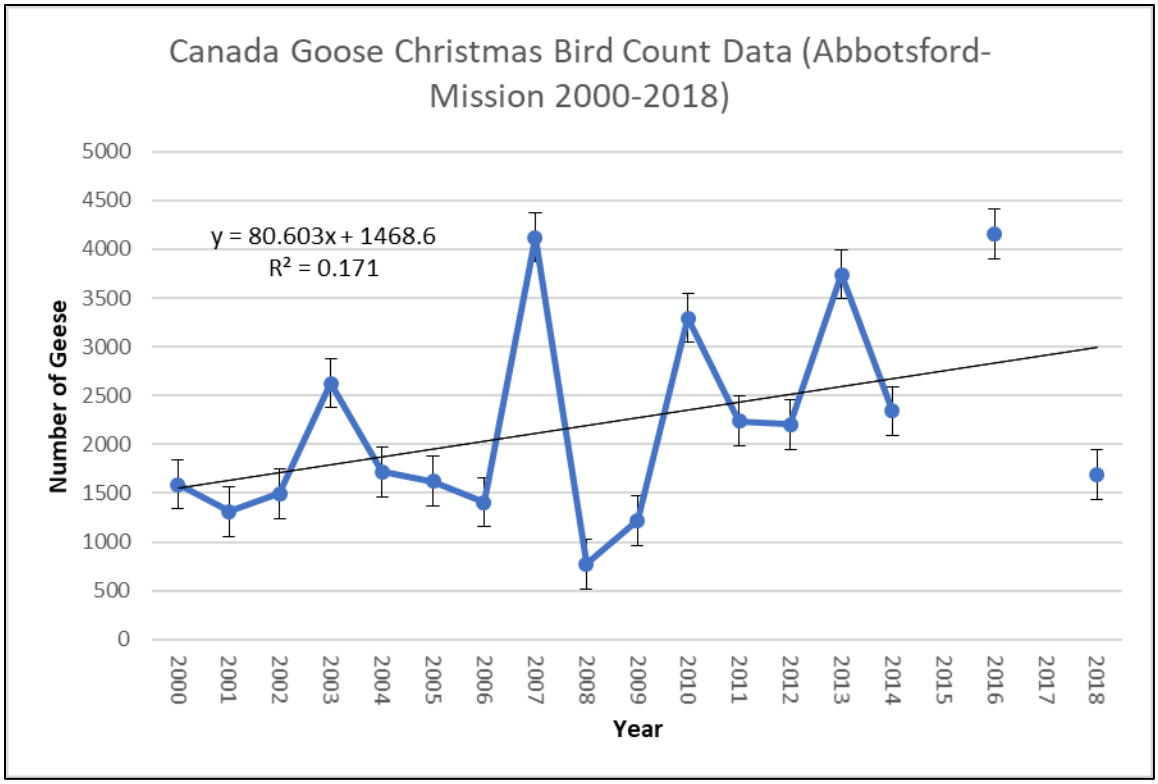

Figure 6. Abbotsford-Mission Christmas Bird Count Data (source: Audubon 2019)

4.2 2019 Volunteer Goose Surveys

Volunteers conducted goose surveys to construct a baseline of goose activity for Cultus Lake. Seasonal count data were collected during biologically meaningful periods (Figure 7):

- Nesting (April-May)
- Goslings (June)
- Moult (June)
- Migration (September).

Each survey was conducted on one day (April 6, June 1, July 10 and September 28) coordinated between several volunteers, each responsible for an area. Data included date, time, location, number of geese (differentiating adults and juveniles where feasible), habitat, and behaviour. Collected data were provided to Taryn Dixon of FVRD. She compiled the data and sent an excel file to EBB. EBB standardized the data and converted location descriptions into UTM coordinates for mapping.

4.3 Nest Surveys and Pilot Egg Addling Program

EBB conducted a pilot nest search and egg-addling program including developing a standardized addling protocol, GIS mapping of nest locations, and population estimates using volunteer data. EBB personnel conducted nest surveys on April 10, 17, 26 and May 10. A follow-up check was conducted on May 23 for one late nest.

Surveys were conducted on foot and by boat. Surveys were conducted in pairs. All shoreline areas of the lake were surveyed, including thoroughly walking Sweltzer creek, the northern shoreline, and all areas where pairs were reported by volunteers (April 6 survey data). EBB crew followed our standard egg-addling protocol which is provided as Appendix D: ***Cultus Lake Egg Addling Protocol.***

4.4 Field Data Results Summary

Data indicated that the breeding population consisted of up to 16 pairs. The June surveys indicated that an estimated 18% of the post-breeding population was comprised of goslings. This is approximately half the level that would be observed if addling had not occurred. The largest number of geese was observed in July during the moult (208 geese). Numbers during migration appeared variable (based on anecdotal observations) and was relatively low on the day of the count (31 geese).

Geese used several habitats but favoured the water/beach interface and most often were observed near the waterline on sand or grazing on lawn (Figure 8). Geese were observed on rocky outcrops during nesting, which agreed with addling data that had nests in these habitats.

EBB located 8 nests (39 eggs; Figure 9) during the nest search and addling program. Four of these were on islands in the pond at "the Cottages" (Figure 10). Table 1 details the nest data. Of the 16 potential pairs observed during early April, 8 nests were identified and addled. Goslings associated with 4 pairs were accounted for during the June survey. Up to an additional 4 pairs of geese may have nested elsewhere and/or failed.

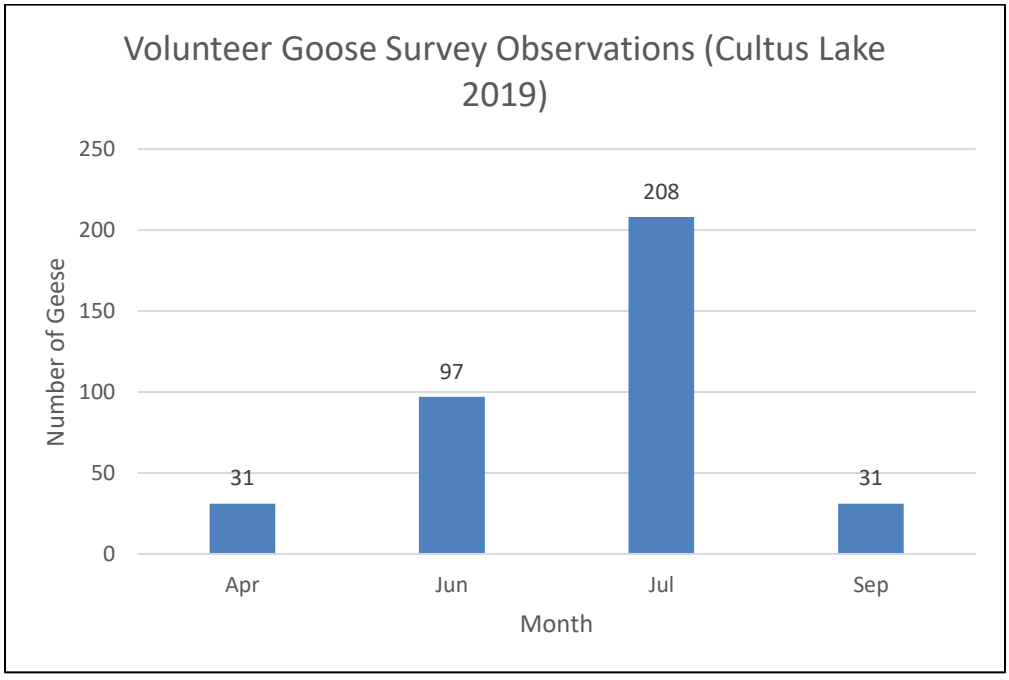

Figure 7. Seasonal Count Data from Volunteer Surveys (2019)

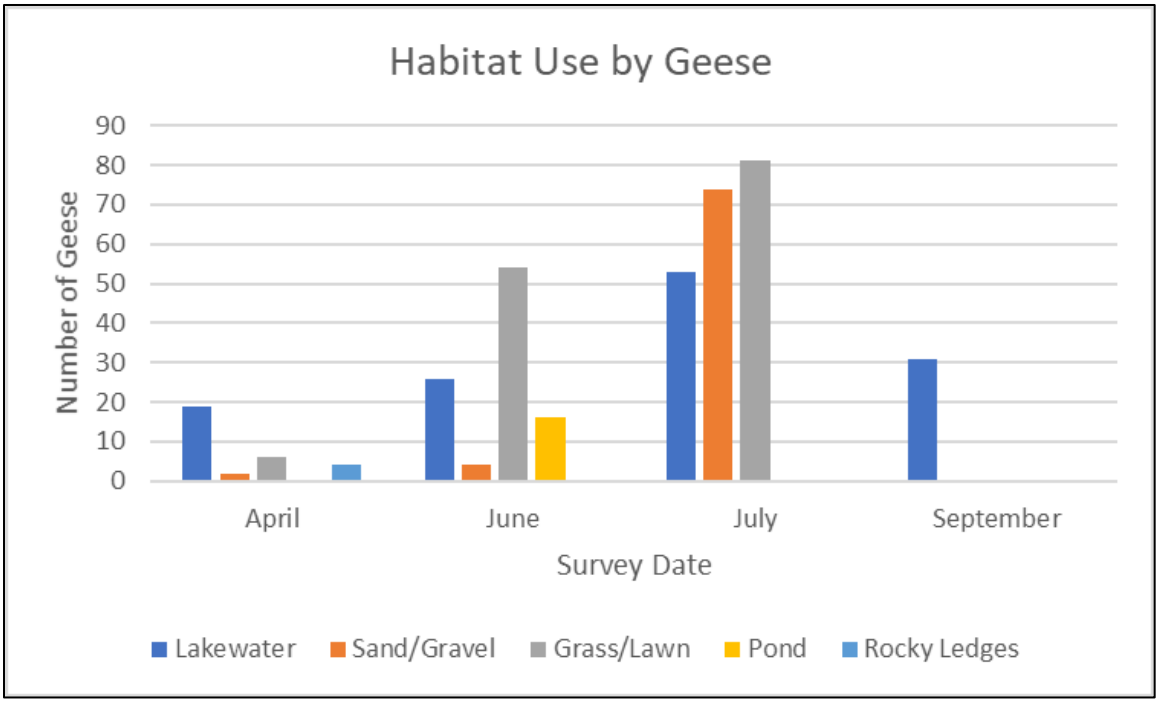

Figure 8. Habitat Use by Geese during Volunteer Surveys

Table 1. Cultus Lake Canada Goose Nest Sites.

Site	Nest Location	Zone	Easting	Northing	Total Eggs
Cottages at Cultus Lake	Pond Island	10	571901	5431553	7
Cottages at Cultus Lake	Pond Island	10	571905	5431536	7
Cottages at Cultus Lake	Pond Island	10	571908	5431547	5
Cultus Lake Provincial Park	Maple Bay Campsite	10	572611	5431804	5
Cultus Lake Provincial Park	East Bluffs	10	572741	5433021	5
Cultus Lake Provincial Park	East Bluffs	10	573522	5434273	5
Cottages at Cultus Lake	Pond Island	10	571891	5431536	4
Cottages at Cultus Lake	Pond Shoreline	10	571890	5431568	1
Total					**39**

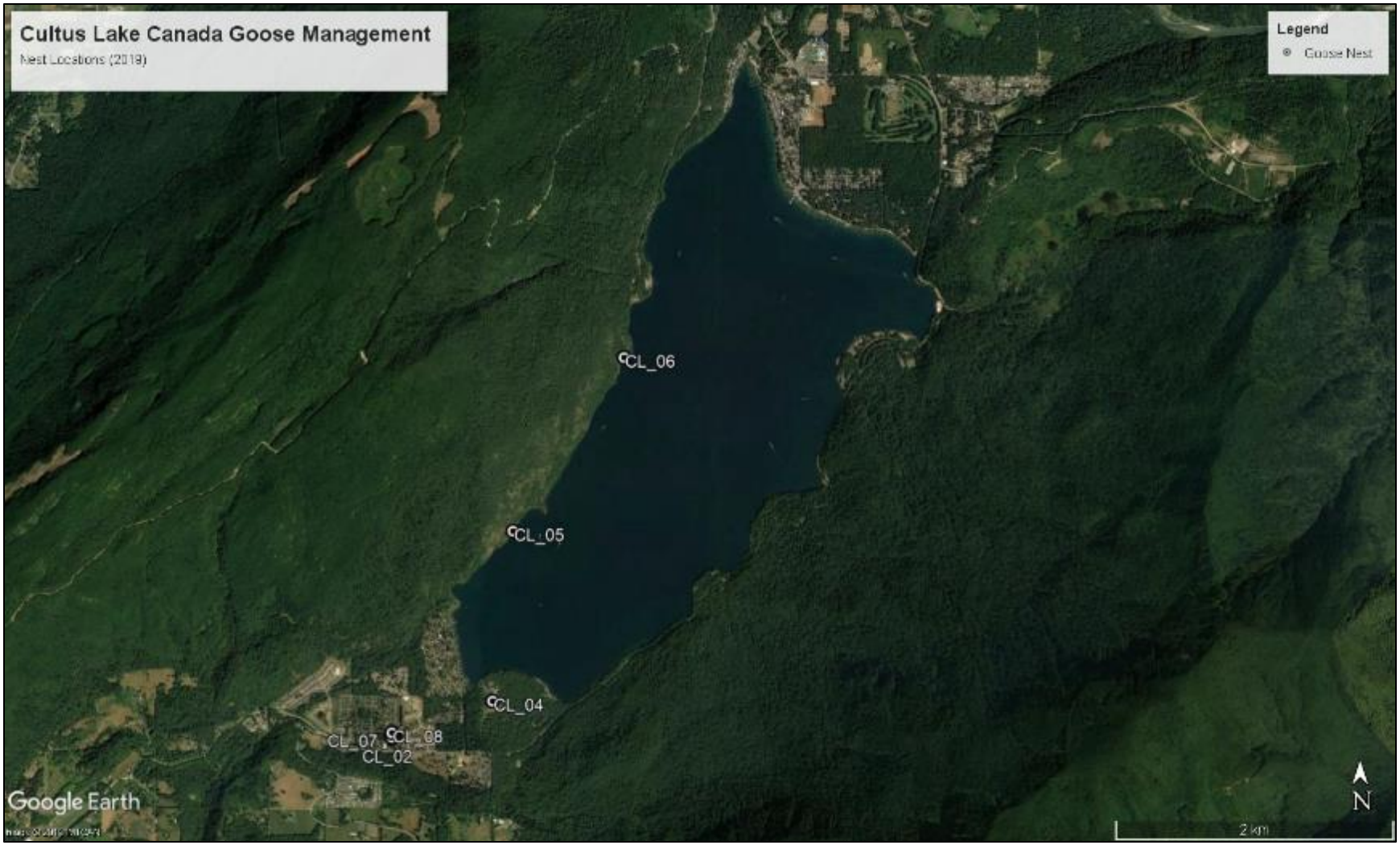

Figure 9. Canada Goose nest locations

Figure 10. Nest locations at "The Cottages" pond

4.5 Population Model

Baseline data collected this year can be used to predict population growth of nesting geese in upcoming years. Although moult hosted the largest population, a growing breeding population can quickly compound the nuisance. For example, taking mortality into account, a population with 18% goslings, as observed this year, will exhibit substantial annual growth. Figure 11 outlines population growth under two hypothetical management scenarios:

1. If no management/population control is done (status quo),
2. If egg addling is carried out annually such that the goslings comprise about 8% of the population by year 4 of an addling program.

Note "status quo" provides a conservative gosling estimate of 18%; if left unmanaged, the gosling estimate would likely be closer to 30-40% of the total population at the end of the nesting season.

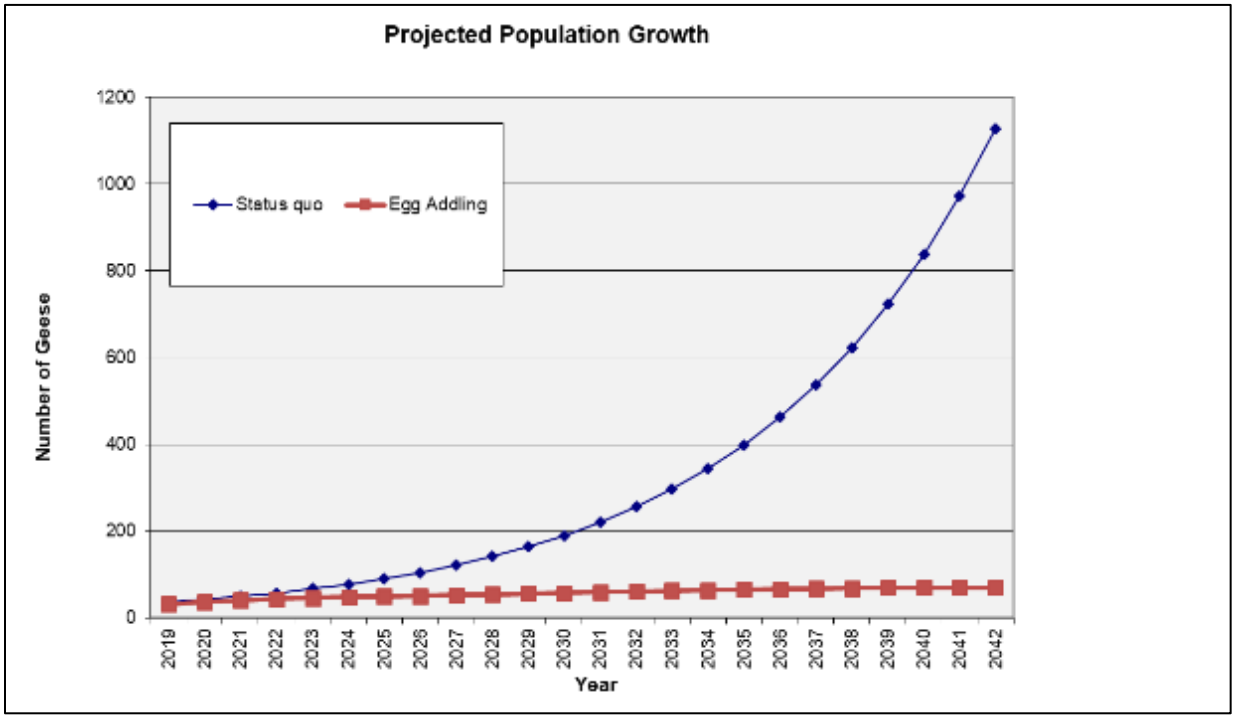

Figure 11. Projected Population Growth under Two Management Scenarios

5.0 Management

Goose population management at Cultus Lake should target nesting and moulting geese. The section below lists allowable mitigation techniques, followed by suggestions for implementation and specific recommended actions for Cultus Lake.

5.1 Mitigation Techniques

No single management tool will provide a solution for reducing Canada goose conflict. A management program must utilize a range of techniques that are seasonally timed to humanely and effectively control a goose population and its impacts. In general, to manage geese and reduce conflicts, FVRD and stakeholders must be aware of mitigation techniques allowable under the *Migratory Birds Regulations.* The ***Handbook, Canada and Cackling Geese: Management in Southern Canada*** is a federal document that outlines techniques allowable in Canada and is a good general resource. A summary of techniques allowable for Cultus Lake is provided below. Section 7 lists specific action recommendations for Cultus Lake.

5.1.1 Habitat Modification

Geese prefer to graze on lawns/grasses with open sight lines and access to water. Therefore, reducing grassy areas, planting hedgerows and shrubs, and breaking up access to water may reduce goose presence in specific areas. Other basic habitat modifications can reduce nesting at specific sites. For example, to reduce likelihood of geese nesting near buildings, eliminate any "bowl-like" features such as tires, planters, piles of leaves and debris, or coiled hoses. Permanent or temporary fencing installed prior to nesting can restrict movement of geese with young or in moult. Trialling different habitat modification techniques is a feasible way of identifying long term practices that would benefit Cultus Lake

5.1.2 Hazing/Scaring

Hazing can be an effective means of temporarily scaring geese away from a conflict area and can be useful in preventing geese from establishing in an area prior to nesting or moulting. The key to hazing is to prevent a routine to which geese become habituated and hazing no longer works. An unintended consequence of hazing geese can be the shift of geese from one location to another, thus diffusing and spreading the problem, instead of alleviating the problem.

Hazing techniques that do not require a federal permit include using noise (e.g., distress recordings, propane cannon, air horn), scare (e.g., laser lights, flashing tape) and chasing with a dog. Hazing techniques that require a permit include falcons, aircraft and firearms.

5.1.3 Temporary Relocation

Cultus Lake hosts a moult population, the majority of which do not appear to use the lake for the rest of the year. Temporary relocation is an option to move geese that are in moult (after nesting). Moulting geese can be collected, transported and temporarily relocated away from a site. This is an

excellent opportunity to band geese with leg-bands/markers so that information on the distribution of geese can be obtained. Limiting factors to relocation are finding a site that will accept geese and where regulators will allow geese. Relocation also requires a large amount of resources. Relocation guidelines are provided in ***Best Practices for Capturing, Transporting, and Caring for Relocated Canada Geese*** (Environment Canada 2011).

5.1.4 Population Control

Egg Addling

The most likely route towards curbing nesting population growth is addling. Egg addling is a relatively simple and humane tool for controlling reproductive output of Canada geese. To be effective, crews must be trained to systematically access nesting areas and addle eggs in such a way that geese will not attempt to re-nest. Crews must be thorough, ensuring all nests in a targeted area are included. Egg addling should occur in April and must be conducted with federal authorization. Field methodology should be consistent with the Handbook, ***Canada and Cackling Geese: Management in Southern Canada*** (Environment Canada 2010). Egg-addling is a long-term management option. Very few new geese enter the population, but population decrease from natural attrition of adults may take 15 years or more.

Damage Permits

CWS may issue damage permits to landowners to protect lands from damage caused by Canada geese. The two types of damage permits are:

1) Kill-to-support-scaring: issued when intent is not to reduce the goose population, but to protect lands through changing goose behaviour. Generally, conditions of these permits allow two geese per day to be killed with a shotgun. Carcasses are left on site to act as deterrents to other geese. In doing so, geese learn consequences of occupying areas where scaring techniques are used.

2) Kill-to-remove permit: issued if the land manager can demonstrate all other management practices have not been successful. The applicant is required to provide a management plan for the properties. The goal of this permit is to allow reduction in number of geese on land being damaged by geese. Method of killing is not limited to shotgun but is identified in the agency authorization and may be subject to review by an animal care/ethics committee. Guidelines are provided in the CWS handbook ***Best Practices for Killing Birds and Disposing of Carcasses: Canada Goose Management*** (Environment Canada 2011).

5.1.5 Population Monitoring

On-going monitoring allows assessment of population response in terms of growth, abundance and distribution on the landscape. Population monitoring should occur at key times: 1) spring pairs/nest surveys 2) post-nesting gosling surveys, and 3) moult distribution surveys. Population monitoring may be a requirement of some authorizations.

Summer moulting season is an optimal time to mark geese with leg bands. Leg bands allow individuals or cohorts of geese to be identified at remote distances and are a strong tool for population monitoring. Band data contributes to scientifically founded answers to specific population demographic questions.

6.0 Implementation

6.1 Evaluation

Implementation of techniques recommended in this document should be evaluated and a record of each technique maintained. Tracking data determines effectiveness of mitigation as well as contributing to evaluating overall success of the management program. Evaluation must consider implementation costs and program effectiveness. Evaluation should weigh feedback from staff, ease of logistics/implementation, costs, response from public, levels of goose damage, and impacts to the goose population.

6.2 Administration and Reporting

Each year, permits will be required for goose management activities. Regulatory agencies that grant authorizations will require documentation on results. Data collected during management activities must be compiled prior to evaluation. Reporting should be provided to any partners, so they are clearly aware of the process and results that each year of management has accomplished. These results are essential to prove and/or improve outcomes of specific strategies.

6.3 Communications

A critical part of goose management is an effective communications plan. Management of geese may be received by public at an emotional level rather than one that regards concerns for environment or health and safety.

FVRD/Cultus Lake should deliver consistent messaging regarding goose management and foster a culture that supports a well-planned, humane strategy. Messaging should encourage people to not interfere with management activities, not to feed birds, treat goslings like pets, etc. An example communications plan accompanies this document (Appendix C), but any program should be tailored and updated to ensure it reflects ongoing management culture and activities.

7.0 Recommended Actions

Going forward it is recommended that Cultus Lake:

- Identify specific partners in the Canada Goose management program and realistic expectations/resources from each partner;
- Establish a management level/population level that will be tolerated each season at the lake;
- Identify which mitigation techniques will be implemented over what timeframe;

- Determine monitoring and reporting protocols required for each mitigation technique,
- Provide communications to staff prior to management activities so that staff do not interfere or have concerns with management actions;

In general, it is recommended that management include:

- Reduce attractants by ensuring staff and public are not feeding geese (by-law enforcement), and garbage or other attractants are cleaned up;

- Train volunteers and continue with population control through annual egg addling, including careful record keeping—the number of nests will increase in the first few years as the volunteers becomes more familiar with the sites and people report nests (see below);

- Expand the egg-addling program to include nests identified by private citizens who provide permission to addle eggs on their properties—provide a contact where people can report nests and provide permission to access properties;

- Identify sites to implement pilot projects to test habitat modification. Work with each stakeholder so that efforts are coordinated, and results are shared. For example, BC Parks and Cultus Lake Pak Board have investigated options and already have some results. Potential options could include

    - installing retractable "beach barriers" to discourage geese from using beaches and shorelines during moult (See Appendix A);
    - installing temporary or permanent barriers (fences, hedging that geese cannot walk through) around park perimeters (see Appendix A)
    - experimenting with mowing regimes to see if geese do not use areas where grass has not been cut.

- Examine feasibility of hiring a contractor to haze geese at peak conflict sites ***prior*** to moult (e.g., at Main Beach). Hazing could include dogs, trained birds of prey, noise; laser lights (e.g. avian dissuader or similar product) or windmills (see Appendix A).

- Approach neighbouring jurisdictions, (e.g. Chilliwack, Agassiz, Abbotsford, Harrison), which may be able to share resources (e.g., addling costs, population counts). In general, working at a regional scale is a better means of controlling a large urban population of geese;

- Engage with/re-kindle the Lower Mainland Canada Goose Management Group to share management successes/failures and engage directly with regulators regarding updated management options and permitting processes;

- Engage with local hunting club to encourage ethical hunting of geese during hunting season (recognizing this does not specifically target resent geese).

- Conduct surveys of geese during moult to understand their distribution when they are flightless. Data can be used to determine feasibility and effort required to round-up geese for relocation;

- Monitor the population and the overall results of mitigation used each year. Use data to compare results of different techniques and across years so that management may be adapted and improved.

- Examine feasibility of lethal management options if this is an approach that FVRD would like to investigate. Regulators will be open to lethal options provided other mitigation has been attempted and scientifically founded arguments are provided with applications. Part of the feasibility assessment should be to determine if this an approach with which FVRD and stakeholders are comfortable, and, after working with neighbouring jurisdictions, how/if lethal options should be resourced, communicated and implemented.

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Appendix A
Examples of Mitigation

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Example 1: Temporary barrier at Como Lake, Coquitlam BC

Green snowfence is placed each year prior to moult to prevent geese from accessing the shoreline.

Example 2: Semi-permanent Barrier at Alta Lake, Whistler BC

Retractable nets have been installed at Alta Lake, Whistler BC. Parks staff roll up the nets in the morning and extend nets in the evening to prevent geese from accessing the shoreline. The black barrier (foreground) blocks the small space between the post and the wharf. The posts remain throughout the year, but the nets are seasonally removed.

Example 3: Permanent shoreline habitat modification, Penticton BC

Penticton underwent a waterfront revitalization project in 2015. The City incorporated features that assist in preventing geese from accessing shoreline parks from the water.

Before: Geese have unobstructed access between Okanagan Lake and park shoreline (June 2012; source Penticton Parks)

After: Plantings and fencing provide barriers that help prevent geese from accessing the shore. In addition, design and improved walkways are inviting to park users, including dog walkers, whose presence discourages geese from accessing the area. Since this photo (November 2015), the plantings have grown providing a stronger barrier.

Example 4: Scare Windmill, Naramata BC

This is one of several scare windmills that have been placed along Naramata's waterfront parks. They have been successful as part of the scare program, which also allows off-leash dog use of parks outside of peak hours and scaring of geese in early morning hours during beach clean-up.

Example 5: Communications

Creative signage prevents "sign blindness" where users no longer see or respect signs. Consistent messaging and noting consequences increase message effectiveness.

Appendix B
2019 Fieldwork Photographs

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Unobstructed access between water and grass in perfect habitat for geese.

Gap in snow fencing allows geese to easily access the lake.

Some nesting geese at Cultus Lake use rocky outcrops. These require a survey from water and may be boat access only.

Old springboard logged stumps provide “islands” for nesting

Islands in the Cottages pond provided habitat for majority of located nests

Appendix C
Sample Communications

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Cultus Lake Canada Goose Management Plan

Sample Communications Plan

Prepared by:
EBB Environmental Consulting Inc.

Table of Contents

1.0 Introduction

1.1 Goals of the Document

This document is intended to act as a resource and guide for the development of a communications program for the Cultus Lake Canada Goose Management Plan. The goals of the document are to define objectives of a communications plan associated with goose management and describe some options for the communications plan. The suggestions and examples in this document are intended to be a starting point and can be modified as the program matures.

2.0 Communications Plan

2.1 Objectives

A critical part of urban wildlife management of any species is an effective communications plan. This is particularly true of a conspicuous species such as Canada geese. Much of the general public are not aware of the origins of the southwestern BC goose population and perceive these birds to be native. Consequently, public have no way of realizing the geese are introduced, not migratory, and pose threats to environment and people.

Management of any species, particularly one that is visible, beautiful and named for the country, may be received by the public at an emotional level rather than one that regards concerns for health and safety or economic losses. Consequently, Cultus Lake requires a communications plan that delivers consistent messaging regarding goose management and fosters a culture that supports well-planned management that is intolerant of an environment that has caused an introduced species to thrive. Messaging provided to the public must address misconceptions associated with the Canada goose population, identify problems associated with resident geese and outline goals of the management strategy. In addition, messages should include tips for the public on how to contribute to goose management (e.g., do not feed the geese) so that the public can take some ownership of the issue.

2.2 Target Audience

The subject of Canada goose management will likely attract interest from a diverse audience. At one end of the spectrum, citizens will ardently and vocally express opposition to any form of management. At the opposite end of the spectrum, citizens may be supportive of immediately removing/reducing the Canada goose population, but not necessarily supportive of expending resources and time to research the goose population and associated impacts. Within the middle, people likely to be interested in learning about the Cultus Lake Canada Goose Management Plan will include:

- Park users;
- Naturalists and stewardship groups;
- Golf course superintendents;
- Park managers;
- Wildlife rescue/support groups;
- Homeowners, and
- Any citizens who have aggressive or high numbers of geese on or adjacent to their property.

Therefore information should be directed at this audience, and be comprehensive enough that individuals can make informed opinions on goose management, and access further resources should they want to learn more or participate in goose management activities.

2.3 Communications Plan Characteristics

No matter what the overall final Cultus Lake Canada Goose Management Plan looks like, opponents will exist. Opponents may try to discredit the strategy. Consequently, the communications plan should contain the following elements:

1) it must be "louder" than any misinformation that may be distributed (i.e., widespread and well-placed);
2) it must not contain any "grey areas"
3) it must be completely transparent;
4) it cannot be patronizing;
5) it must be consistent with other Cultus Lake messaging;
6) it must provide a point of contact for further information and resources; and
7) every message must have a supporting argument (e.g., scientific foundation).

3.0 Action Items

3.1 Identification of Project Tasks

Task 1: Management Strategy Branding

Cultus Lake should consider if the strategy would benefit from an identifiable logo. A logo is not essential, but could assist identification of the strategy as more than just an extension of any one parks operations program. This is particularly beneficial to a long-term program with multiple partners. The logo would be on all education materials and signs. The logo would not exclude the addition of contributing partner logos on materials or the website.

Task 2: Key messages.

Clear key messages must be identified. This should start with a mission statement and objectives for Cultus Lake goose management. Additional messages should be provided that relate directly to the public.

Suggestions:
Mission Statement

Providing a humane and regional approach for the reduction of conflicts and negative impacts resulting from non-migratory resident Canada geese using Cultus Lake.

Objectives

- To develop a knowledge base for Cultus Lake and any relevant stakeholders
- To inform the citizens of the origins of non-migratory resident geese and goose management
- To reduce Canada goose impacts on parks and recreational areas at the Lake

Messages for the general public

- Don't feed the geese!
    - Encourages geese to congregate in public parks;
    - Lose their instinctive wariness of people and;
    - Lose their natural ability to forage for native foods;
    - Consume foods (e.g. bread) with far less nutritional value than those they obtain naturally;
    - Teaches our children an incorrect message of not respecting wild animals and treating them like pets.

- Prevent geese from foraging (and pooping!) and nesting on your property.
    - Keep bird feed areas clean and off the ground;
    - Plant hedges or place fences between lawns and ponds or other water features;
    - Don't leave empty tires, planters or other "bowls" open in the spring (February-April) when they build nests;
    - Discuss the issue with your neighbours.

Task 3: Delivery options

The strategy should foster a culture that is intolerant of poor goose management. The following list provides options for delivery:

- Maintain a toll-free telephone line and email address or local point of contact to address questions, concerns and requests for further information;

- Develop a website or update the Cultus Lake and associated partner websites to reflect new public information messages;

- Draft press release content for release at key times to maintain public awareness of the program;
    - Prior to nesting season (goose-proof your property!)
    - During moult (high park user-goose conflict times);

- Develop a stand-alone self-explanatory table-top display for use at environmental forums,

- Develop a brochure as a handout/leave-behind piece to explain key elements of the program (see Appendix A);

- Develop simple "Don't feed the geese" handouts for use parks, community centres, or other public spaces that are not expensive to reproduce when needed.

- Develop and place signage in areas of active goose management
    - Conservation areas that promote biodiversity;
    - Parks where people feed the geese.

- As the program expands and possibly gains new partners, additional and consistent signage can support the momentum. In addition, signage assists members of the public to easily identify areas

that actively engage in goose management activities. Partners can be approached with requests to place signs or identify potential locations for signs.

- Provide education sessions/give talks to interested groups and potential partners on goose management

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APPENDIX

Examples of Brochures and Handouts from Similar Projects

Example 1. Brochure for the Okanagan Valley Goose Management Plan (Year 1)

Outside page

Get Involved: Help Control the Goose Population

1) Don't feed the geese! Feeding geese can lead to…

Increased risks to human health
Fecal matter in water (e.g. lakes and streams) leads to high levels of fecal coliform and pathogens such as *E. coli*, and *Salmonella*. Areas heavily populated with geese may experience swimming advisories. Excess feed may attract rats and other vermin.

Overpopulation
Parks and recreational areas are becoming overrun with geese (and their droppings); if left on their own, geese will occupy natural areas that have enough food.

Decreased environmental health
Large populations of geese contribute to overgrazing, trampled vegetation and soil erosion.

Geese becoming tame
Geese lose their natural fear of humans. Animals that retain their wild skills have the best chance for survival in urban or natural settings.

Dietary problems in geese
Most handouts, such as bread, have little nutritional value and can contribute to starvation. A natural diet is much healthier for geese. Allowing geese to forage on their own helps to ensure that they remain wild.

2) Report nest sites
Egg-addling is the most humane method of controlling goose numbers. Locating nests in such a large area is challenging. Help our field crews by reporting nests at 1-877-943-3209 or coordinator@okanagangooseplan.com.

3) Discuss the issue
Encourage your friends and neighbours not to feed Canada Geese and other wildlife; explain how encouraging geese to stay in urban areas has detrimental effects on our communities.

1-877-943-3209
coordinator@okanagangooseplan.com
www.okanagangooseplan.com

OKANAGAN VALLEY
GOOSE MANAGEMENT PROGRAM

Maintaining the balance between people and geese

Inside Page

Canada Goose Management

What? Canada Geese are large, distinctive waterfowl with black heads and necks and white cheek patches. Canada Geese may live longer than 20 years and mate for life.

Canada Goose

Why? There are too many geese! In the Okanagan Valley goose numbers are higher than ever. Nesting geese were not found in the Okanagan Valley until the 1960's when geese were relocated from other areas in British Columbia. Canada Geese have flourished using habitats such as beaches, parks and gardens that were never intended for geese. These "tame" geese have lost the ability to migrate.

Concerns for public health, the local economy, and the natural environment have prompted the development of management tools to find a balance between people and geese to comfortably coexist.

How?

Egg Addling: Locating nests and rendering the eggs nonviable.

Hazing: Temporarily scaring geese from target areas (e.g. beaches).

Habitat Modification: Using temporary or permanent barriers (e.g. fencing, hedges) to make habitats less goose-friendly.

Public Information: Providing information to the public on management strategies and tools to participate.

Wharf with Canada Goose Feces

Program Area

Where? The Okanagan Valley Goose Management Program extends from Vernon to Osoyoos.

The Okanagan Regional Goose Management Committee was formed in 1995 to minimize the impact of geese. It is a partnership comprised of members from the City of Kelowna, Regional District of the Central Okanagan, Greater Vernon Services, City of Penticton, Town of Osoyoos and District of Summerland. The Okanagan Valley Goose Management Program was implemented in 2007. The program includes public education, the reduction of geese in conflict areas, and population control methods.

Example 2. Draft brochure prepared for the Okanagan Valley Goose Management Program (prepared by Pulse Media Group).

Outside Page

Inside Page

THE AVERAGE CANADA GOOSE EATS 5 POUNDS PER DAY

GEESE DON'T JUST GRAZE, THEY RIP GRASS OUT FROM THE ROOTS DESTROYING IT COMPLETELY

OVERVIEW

Quite often people think of Canada Geese as birds that fly in a V, have a loud honk and really have no effect on their lives. Think again. Since the 1960's the Canada Goose population has been steadily on the rise and spiraling out of control.

Canada Geese are very adaptable to urban settings and thrive in habitats intended for human use such as beaches, parks and playing fields. Concerns for public health, the local economy and the natural environment have prompted the development of an Action Plan to help control problems associated with the rapidly increasing goose population in the Okanagan Valley.

WHO WE ARE

The Okanagan Valley Goose Management Program was formed in 1995 to address ways to minimize the impact of geese within an urban environment.

Since our inception, we have been actively involved in developing and executing an action plan created to manage the Okanagan Valley Canada Goose population and to reduce conflict between people and Canada Geese.

THE AVERAGE GOOSE DEFECATES 1.5 POUNDS PER DAY

100 GEESE X 1.5 POUNDS X 365 DAYS = 54,570 POUNDS OF GOOSE MANURE

FEEDING CANADA GEESE ADDS TO THE PROBLEM! URBAN PARKS AND RECREATIONAL AREAS ARE BECOMING OVERRUN WITH GEESE AND WATERFOWL

WHAT WE DO

Our program helps...

- Reduce the risk of potential human harm due to contamination of water and other public resources.
- Reduce the Okanagan Valley Canada Goose population to a naturally sustainable level.
- Encourage geese to re-establish more naturally instinctive behaviors.
- Educate the public on the importance of allowing geese to remain wild.

HOW CAN YOU HELP?

- Become aware and involved.
- Deter geese from using sensitive public areas.
- Make your contribution to the EGG-ADDLING program. Become a nest spotter. When you find a nest, call our office. (need phone number still)
- Monitor the number of geese in your area.
- Help raise our profile – tell your neighbours, tell your friends.
- Last but not least – PLEASE DON'T FEED THE GEESE!

Example 3. Brochure produced by the Audubon Society of Portland.

Outside Page

discouraged, for those who insist anyways, it is far preferable to feed foods consistent with a natural diet such as cracked corn or triple-duty game-bird chow.

5. Feeding waterfowl can lead to disease among waterfowl populations. Feeding of waterfowl can lead to aggressive behavior towards humans, especially among geese. Unconsumed bread and other "human foods" remain on the ground as nothing more than unsightly litter. Finally, waterfowl habituated to human handouts are more likely to take up residence and less likely to be successfully driven away from locations such as golf courses where they may not be welcomed by the human occupants. When such conflicts occur, it is inevitably the wildlife that loses in the end.

**Portions of this document taken from Massachusetts Audubon Society "Feeding Waterfowl" article.

Photo © Don Baccus

Audubon Society of Portland
Wildlife Care Center
5151 NW Cornell Road
Portland, OR 97210
Phone: 503-292-0304
9 am-5 pm - 7 days a week 365 days a year

Administration Offices
Phone: 503-292-6855
Fax: 503-292-1021
Hours: 9 am to 5 pm, Mon-Fri

Nature Store
Phone: 503-292-9493
Hours: 10 am to 6 pm, Mon-Sat
10 am to 5 pm, Sun

Sanctuaries
Every day, dawn to dusk

Rare Bird Alert
Phone: 503-292-6855

www.audubonportland.org

Living with Urban Wildlife

Photo © Jim Cruce

Please Don't Feed the Waterfowl

Inside Page

Feeding Waterfowl

FEEDING WATERFOWL

Feeding waterfowl can create many problems for the birds as well as for the environment. This practice is discouraged by Audubon Society of Portland. The notion that waterfowl cannot survive without human intervention is false. Ducks and geese have survived for thousands of years without handouts, and today many species of waterfowl are thriving. In fact, many of our urban parks are now over-populated with ducks and geese. Please enjoy our local waterfowl but view them from a distance and respect their wildness. By doing so, you will provide them with their best chance for survival.

Reasons not to feed waterfowl:

1. Feeding waterfowl can quickly lead to overpopulation problems at small urban and suburban parks. Left on their own, ducks and geese will occupy areas that provide sufficient natural food. When local resources are low or depleted, individuals will move to new locations. Increasingly, our urban and suburban parks are home to year-round resident populations of waterfowl that remain static because of the endless food supply provided by well-meaning humans. Many of our parks are plagued with sick and injured ducks that are a direct result of the intensive aggression and competition that occurs when waterfowl populations become concentrated. The Care Center receives dozens of severely injured female ducks each spring that have been attacked by gangs of aggressive drakes (male ducks). We also receive dozens of reports each spring of female mallards nesting far (sometimes more than a mile) from the nearest water source. This is a direct response to their inability to successfully incubate and raise young in our overpopulated parks.

2. Feeding waterfowl can lead to severe habitat degradation. Providing food quickly attracts concentrations of waterfowl beyond what the natural ecosystem can support. Large concentrations of waterfowl can reduce water quality and de-vegetate natural areas. Concentrating large populations of waterfowl into small natural areas is not a sustainable strategy. As numbers increase, natural forage will decrease and individuals will only become more dependent upon handouts.

Photo © Jim Cruce

3. Feeding can cause waterfowl to lose their natural fear of humans. For many wild animals, survival is

contingent upon maintaining a healthy fear of humans. Feeding waterfowl can quickly cause them to lose their instinctive sense of fear. While the food provider may have the best of intentions, the ducks still have to survive in a world filled with hazards. In an urban landscape full of dogs, cats, cars, and people, the duck or goose that maintains its innate wildness ultimately has the best chance for survival.

4. Feeding waterfowl can lead to dietary and nutritional problems for the birds. The age-old practice of feeding ducks and geese stale bread, pastries, cookies, and various other assorted types of junk food can cause significant health problems for these birds. Even when fed fresh, these highly processed foods provide little or no nutritional value and may actually contribute to starvation among waterfowl. Moldy foods can impact their health just as it does our own. Ducks and geese are far better off building their reserves by moving from location to location in search of a healthy natural diet than they are living on foods that we would never consider feeding to our children or our pets. Although all feeding is

Example 4. Draft of printable fact sheet

Go Wild in Cultus Lake

by helping wildlife stay that way! Feeding geese and other wildlife can be harmful to them and the environment.

5 Reasons not to feed geese

1. Local overpopulation leads to increased aggression and competition between geese and other waterfowl;
2. Large concentrations of geese can reduce water quality and denude natural vegetation
3. Feeding geese makes them dependent on hand-outs—the young in particular do not learn to forage for themselves
4. Bread, crackers, and other processed food offer no nutritional value to geese
5. Increased conflicts between people and geese

Please enjoy geese and other wildlife at a distance to improve their best chances of survival and reduce chances of conflict. To protect you, wildlife and the environment, Cultus Lake has a by-law banning feeding of waterfowl.

For more information call XXX XXX XX or see https://www.cultuslake.bc.ca/XXgoosemanagementXX

Appendix D
Nest Search and Egg Addling Protocol

Canada Goose Management Plan

Cultus Lake Egg Addling Protocol

Prepared by:
EBB Environmental Consulting Inc.

Executive Summary

This document provides the methodology and rationale for an annual egg-addling program as part of the Cultus Lake Canada Goose Management Plan. An addling program consists of pre-addling nest/pairs surveys in March followed by an intensive period of addling throughout April. Follow-up surveys are conducted in late May or early June depending on duration of the main addling season.

The Canadian Wildlife Service authorizes the use of shaking, oiling, and pinning to prevent eggs from hatching. In this document we refer to all sterilization techniques as "addling." Upon completion of the field program, results are submitted to the Canadian Wildlife Service per permit requirements.

Table of Contents

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1.0 Cultus Lake Canada Goose Management Plan

The Cultus Lake Canada Goose Management plan identified options to control and reduce the population of urban/temperate-nesting Canada Geese in the region. This specific document describes the protocol for an egg addling program, incorporating the field knowledge that was gained during 2019 field season.

2.0 Methodology

2.1 Coordination and Implementation of an Egg Addling Program

Egg-addling is a relatively simple, cost-effective and humane tool for controlling reproductive output of Canada Geese. To be effective, crews must be trained to access nesting areas and addle eggs in such a way that geese will not attempt to immediately re-nest. In addition, crews must be thorough, ensuring all nests in a targeted area are included. Many egg addling areas are within public view and crew members must be able to sensitively address questions or refer the public to other resources.

In addition to the actual addling, an addling program should include a yearly revised egg addling manual protocol (this document), mapping nest locations using GPS technology and maintaining records of nest sites and addling activities. Very important is obtaining necessary permits and reporting to the respective agencies that grant those authorizations (e.g., CWS and BC Parks).

2.2 Nest Identification

Prior to addling, nests must be located and identified as Canada Goose. This is best achieved by surveys in March during nest initiation. The nesting season is generally mid-March until mid-May but may be later or longer depending on environmental conditions.

Canada Geese usually build nests within the line of sight of water; however, geese like to nest in isolation and will find alternative sites if necessary (Elphick et al. 2001, Environment Canada 2003). Their preferred locations are on islands (e.g. on top of beaver lodges). Geese will return to old nest sites or nearby locations year after year. This knowledge is helpful for finding nests in successive years.

Nests are generally simple, constructed out of weeds, twigs and other local vegetation. Females will use their bodies to make a depression in the vegetative mound (Figure 1). The nest is insulated with goose down and feathers removed from the female's breast, resulting in a noticeable area of fewer feathers (the brood patch) on the female.

Females are responsible for building nests and incubating the eggs. During this time, the male will diligently mate guard ensuring other geese and predators do not disturb the female. A good indicator of a nearby nest is a lone male, particularly if he is in an alert posture with his head and neck extended, or as you approach, he lowers his head and neck in a threatening stance and hisses.

The female lays 4-7 (average 5) eggs on consecutive days. Eggs are creamy white, about 1.5 times the size of a chicken egg. She will initiate incubation when all the eggs are laid. Incubation lasts approximately 25-27 days (Mowbray et al. 2002, Environment Canada 2003).

Figure 1. Canada Goose Nest with Six Eggs (Photo: O. Busby)

2.3 Nest Surveys

Nest surveys are conducted during the last two weeks of March. In pairs, crew members survey lands (e.g. parks, playing fields, beach accesses) that they have permission to access. Nest sites from previous years are checked in addition to searching for new nest sites. Pairs and lone geese are identified, and nest searches conducted in these locations. Flocks of geese are noted, but these groups are not likely nesting yet or will not be nesting this season (e.g. migratory geese, have not reached breeding maturity or have lost a mate).

Where nests are located, the UTM coordinates are noted as well as a general description of the area so relocation is relatively simple. If a nest contains a clutch of eggs, the eggs are addled, marked and noted following the addling protocol.

2.4 Egg Addling

Egg addling is a technique used to control new geese from entering the population without harming existing geese. Addling prevents embryo development within an egg so that it does not hatch. Eggs are easily and humanely addled until about 14 days incubation (HSUS 2009). If there is concern that the eggs are older than this, a float test can be performed to estimate egg development (Section 2.4.1).

CWS allows shaking, pinning and oiling as addling techniques. (note: EBB crews typically shake—it is logistically simpler and simple to field verify). To addle with shaking, eggs are addled by vigorously shaking

each egg for about 30 seconds. However, for shaking to be most effective, eggs cannot be cold or in the first days of incubation. The yolks of cold or newly incubated eggs do not readily snap.
The second method is oiling. Each egg in a nest is coated with biodegradable 100% food grade corn oil. The coating of oil prevents gas exchange across the egg membrane so that the embryo will not develop. Eggs can be dipped into oil or sprayed with a non-aerosol trigger bottle.

Pinning is the use of a long pin (e.g., shirt pin) that is pierced through the shell and the inner membranes so that the fluid balance is disrupted, and the egg will not develop. EBB crews do not often use this technique as eggs can break or seep more easily, which can draw predators to the nest. If eggs are destroyed, a goose is more likely to re-clutch.

Egg addling is generally conducted throughout the month of April. Nests that were located during the nest surveys are visited first. Additional nests are located during the addling process and as the breeding season progresses. The field crew works in pairs (at minimum). One member of the crew moves the female goose or pair away from the nest; the other works at the nest. When the addling is completed, the geese will return unharmed to the nest. When the geese realize that the nest will not hatch, the nesting season is generally too far advanced to initiate a new clutch.

At each nesting site, particularly where there are multiple nests, a nest will be given a number in the field (e.g. 1,2,3, etc.). All the eggs in nest 1 will be marked with a "1" etc. This enables the crew to quickly identify new nests in the field and to ensure nests in high density areas are not missed. The number of eggs at each nest is also recorded. The crew member working at the nest addles the eggs. Each egg is marked with the nest number using a waterproof marker, addled, and returned to the nest. Both crewmembers leave for the next location. Additional notes can be recorded between nests, if necessary.

2.4.1 Float Test

A float test can be used to determine the incubation stage of an egg. The addling crew should take a bucket (and some water should the nest not be near a water source) if the incubation stage of the eggs is unknown. Eggs that do not float are less than two weeks old. Eggs that are older than two weeks will rise near the surface (Figure 2; HSUS 2009).

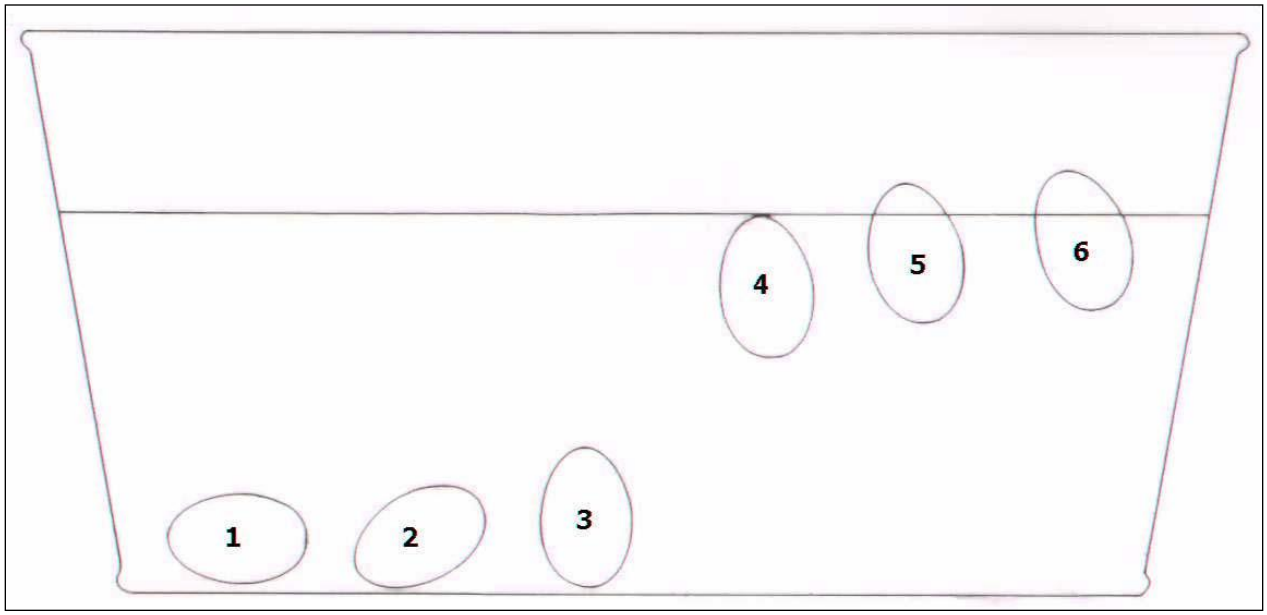

Figure 2. Cross section of a float test: Stages 1-3 represent eggs that have been incubated for less than two weeks. Stages 4-6 represent eggs that have been incubated 14-27 days. (Diagram from HSUS Canada Goose Egg Addling Protocol).

2.5 Administration

Egg addling may only be conducted under permit from the CWS. In addition, authorizations/permits are required to access and to addle on some lands (e.g. Provincial Parks, First Nation Lands, private lands). CWS requires records for location of nests, the date, and the number of eggs addled.

2.6 Population Monitoring

Follow-up surveys should be conducted to monitor addling success and the population composition. This provides an estimate of the proportion of young in the population.

3.0 Schedule

Table 1 identifies the components of the egg-addling program and the proposed schedule

Table 1. Summary of egg addling program schedule

Item	Proposed Date
Nest/Pairs Surveys	March
Addling	April to mid- May
Follow-up surveys (population monitoring)	June
Data to CWS and ORGMC	July
Evaluation of Addling Program	July
Permit application for following season	Winter

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