

Requester

Approvers

SECTION: SECTION I - ITEMS FOR AUTHORITY ACTION

CONFIDENTIAL: No

**Item**

TO: Chair and Members of the Authority  
Meeting #4/08, May 23, 2008

FROM: Nick Saccone, Director, Restoration Services

RE: MANAGEMENT OF DOUBLE-CRESTED CORMORANTS AT TOMMY  
THOMPSON PARK

KEY ISSUE: Management concerns regarding Double-crested Cormorants at Tommy  
Thompson Park.

**RECOMMENDATION**

**THAT staff be directed to continue to work with the cormorant advisory group to assist Toronto and Region Conservation Authority (TRCA) in addressing management concerns regarding colonial waterbirds at Tommy Thompson Park (TTP);**

**THAT staff be directed to work with the Ontario Ministry of Natural Resources, Canadian Wildlife Service and any other required regulatory agency to seek approval for the 2008 management strategy for colonial waterbirds at TTP;**

**THAT staff be directed to implement the proposed management strategy for 2008;**

**That staff be directed to continue to actively participate in local, regional and binational committees/working groups addressing the management and protection of colonial waterbirds;**

**AND FURTHER THAT staff report back to the Authority next year regarding the management of Double-crested Cormorants at Tommy Thompson Park.**

**BACKGROUND**

In 1959, the Toronto Harbour Commissioners (now known as the Toronto Port Authority) began construction of a spit of land at the base of Leslie Street in the City of Toronto. From 1959 until present day, a combination of lakefilling and dredging activities has created the current configuration of Tommy Thompson Park. TTP extends 5 kilometres into Lake Ontario and occupies an area of approximately 260 hectares of combined land and water.

Tommy Thompson Park has evolved into a significant feature along the shore of Lake Ontario. It is home to diverse bird, fish, reptile, amphibian, mammal and vegetation communities, which has resulted in TTP being formally designated as a Globally Significant Important Bird Area (IBA) and an Environmentally Significant Area (ESA #120). The international IBA designation demonstrates the significance of TTP both nationally and globally. As an ESA, TTP is

recognized as supporting an unusually high diversity of biological communities.

Double-crested Cormorants (DCCO) populations in the Great Lakes declined dramatically in the 1960 and '70s, primarily because of toxic contaminants, such as DDT, which caused thinning of eggshells and other health problems, leading to reproductive failure. Due to new regulations, increased enforcement and public awareness, toxic contaminants were significantly reduced by the 1980s, and cormorant populations have made a dramatic and successful recovery.

Double-crested Cormorants began colonizing Tommy Thompson Park in 1990, when six nests were built in cottonwood trees at the end of Peninsula B. By 2007, there were 7,240 nesting pairs, representing a population of about 28,235 individuals including chicks, on Peninsulas A, B and C (Figure 1).

The DCCO colony at TTP has now become the largest known colony of cormorants on the Great Lakes, and represents 32% of the total population nesting in the Lake Ontario basin. The colonies of Double-crested Cormorants and other waterbirds, including Black-crowned Night-Herons (BCNH), Ring-billed Gulls and Common Terns, are one of the reasons it is celebrated an important ecological site of global significance.

In 1992, the master plan and Environmental Assessment for TTP was completed, providing direction for the development of the park. The goals of the master plan are:

- to conserve and manage the natural resources and environmentally significant areas;
- to provide a unique, water-oriented open space which will assist in meeting regional needs;
- to develop public awareness regarding the significance of the Lake Ontario waterfront and Tommy Thompson Park.

Tommy Thompson Park has also become a unique place for a variety of human activities, attracting well over 250,000 visitors a year. These visitors only access the park on weekends and holidays, and represent a very broad range of activities and interests including birdwatchers, naturalists, cyclists, in-line skaters, pleasure walkers, joggers, researchers and students.

In 1990 TRCA staff initiated a detailed monitoring program to track DCCO growth and expansion, impacts on vegetation cover and the dynamic interactions on other colonial bird nesting species. Staff has used this data and knowledge as the foundation for: participation in a binational Great Lakes Area Working Group on Colonial Waterbirds (GLAWGCW), presentations at international conferences, and working with the scientific and research community. The data collected since the early 1990s has been recognized by other agencies/institutions as one of most complete and comprehensive data sets on DCCO on the Great Lakes.

Some of the key conclusions of the research are:

- Cormorant nesting has resulted in the loss or degradation of about 24% of the forest habitat available at TTP.
- Peninsula A is now devoid of forest cover.
- Peninsula B has lost all the trees at the tip and most of the remaining trees are in poor

health and expected to die within the next few years.

- Tree health is rapidly declining on Peninsula C.
- Average annual population increase was about 19% between 1998 and 2007.
- The expansion of DCCOs has displaced BCNHs from their primary nesting areas into marginal areas which are prone to disturbance by park users.
- Based on the rapid growth of the cormorant colony since 1990, it is expected that, if no management measures are undertaken, the population will continue to grow and cormorants will move into new areas to nest such as Peninsula D.

TRCA celebrates the presence of cormorants at TTP and values their contribution to the biodiversity of the park. However, concerns have been raised about the impacts of cormorants on tree health and biodiversity at TTP. To address these concerns, and to ensure the objectives of the master plan are addressed, TRCA embarked on a process to involve stakeholders and the public in assessing the need for management and developing a strategy for cormorants at TTP.

The goal of the process is to achieve a balance between the continued existence of a healthy, thriving cormorant colony and the other ecological, educational, scientific and recreational values of Tommy Thompson Park.

The objectives are:

- a) Increase public knowledge, awareness and appreciation of colonial waterbirds.
- b) Deter cormorants from nesting on Peninsula D.
- c) Limit further loss of tree canopy on the peninsulas beyond the existing cormorant colonies.
- d) Continue research on colonial waterbirds in an urban wilderness context.

A cormorant advisory group of stakeholders and experts, including conservationists, academics and interest groups from across the spectrum was established to provide advice and input. The advisory group met on January 24, February 19 and April 23, 2008. Members of the advisory group include:

**TRCA**  
Restoration Services

**Federal/Provincial**  
Canadian Wildlife Service  
Ontario Ministry of Natural Resources  
Toronto Port Authority  
Transport Canada

**City of Toronto**  
Parks, Forestry and Recreation

**Academia**  
University of Toronto  
York University

### **Interest Groups / Stakeholders**

Aquatic Park Sailing Club

Cormorant Defenders International:

Animal Alliance of Canada

Canadians for Snow Geese

Earthroots

Zoocheck Canada

Friends of the Spit

Ontario Nature

Toronto Island Residents

Toronto Ornithological Club.

The following organizations are not members of the cormorant advisory group, but have been provided with all of the advisory group communications:

- City of Toronto Public Health;
- Local Enhancement and Appreciation of Forests (LEAF);
- Outer Harbour Sailing Federation;
- Ontario Society for Prevention of Cruelty to Animals (OSPCA).

Discussions with the cormorant advisory group have been extremely valuable, resulting in:

- Better understanding of the range of values that TTP represents to different stakeholders.
- Improved understanding of the significance and values associated with waterbird colonies.
- Development and refinement of the goal and objectives.
- General agreement that some form of management is necessary, providing that the methods are humane to cormorants and do not affect other wildlife at TTP.
- Refinement of proposed management techniques for use on each of the four peninsulas.
- Advice on consultation with the public.

Most members of the advisory group agreed that action should be taken to contain the spread of the cormorant colonies. There was general support for most of the 2008 management program proposed by TRCA. Advisory group members agreed that pre-nesting deterrence, post-breeding deterrence, enhanced ground-nesting and habitat restoration are all appropriate techniques, as long as the methods are humane to cormorants and do not affect other wildlife.

Some advisory group members do not support the proposed research on egg-oiling. They believe that:

- egg oiling does not effectively control population growth;
- egg oiling of ground nests will encourage increased tree nesting;
- egg oiling will have harmful effects on cormorant behaviour and health;
- egg oiling may have adverse effects on other colonial nesting bird species;
- research is not needed because there is enough information already about effects of egg oiling;

The proposed egg-oiling research is specifically designed to address these perceived concerns.

A web-page devoted to cormorants at TTP was launched on March 3, 2008 at <http://www.trca.on.ca/cormorants>. It includes background information on cormorants at TTP, advisory group meeting notes, the public meeting presentation and report, and links to relevant resources.

The public meeting on April 3, 2008 was attended by approximately 80 participants, comprised mainly of members of stakeholder groups. Participants were invited to discuss the goal, objectives, potential methods and application of the methods in discussions at ten round-tables facilitated by TRCA staff. TRCA also received 42 individual comments from public meeting attendees as well as individuals who were not able to attend. A report from the public meeting was prepared and posted on the TRCA website. The report summarizes the individual opinions and round table discussions. Participants expressed support for the consultative, transparent process that TRCA is undertaking. There was considerable support for the overall goal, but also some concern that “balance” can be interpreted in different ways. Most people endorsed the objectives to increase public knowledge, awareness and appreciation of colonial waterbirds and to continue research. There was considerable support for deterring cormorants from nesting on Peninsula D, if the least intrusive methods are used. There was a range of opinions on whether to limit further loss of tree canopy on the other peninsulas, and on methods to accomplish this. Overall recommendations regarding the methods were to ensure the humane treatment of cormorants and avoid disturbance of other species. There were some misunderstandings concerning the purpose and effects of some of the methods and it was noted that egg oiling had the least amount of support.

In order to solicit more input from the public about the cormorant colonies at TTP, staff prepared a fact sheet and comment sheet for participants at the Spring Bird Festival which was held on May 10, 2008. Park users had the opportunity to view the cormorant colonies and learn more about cormorants at TTP from TRCA staff. Visitors had the opportunity to express their views via a survey and comment sheet. The survey was given to 25 people who had just taken a tour of the Peninsula C colony or who had listened to staff interpret the TTP colony. Every person surveyed supported the overall goal of the strategy. When asked if they supported management of the cormorant colony at TTP, 75% did agree with management while 25% did not agree. Of all the people surveyed, 12.5% supported management only if egg oiling was not used. A number of participants expressed the importance of education about the situation; one person even indicated that this process had changed their opinion in favour of management.

TRCA has a long standing commitment to colonial waterbird research and management at TTP. Since 1984 TRCA, under permit of the Canadian Wildlife Service (CWS) and the Ministry of Natural Resources, has engaged in a Ring-billed Gull management program at TTP. The program was initiated in consultation, and under direction of the provincial and federal agencies, as well as local municipal and interested stakeholders. The program was initiated to address concerns including:

- airport flight safety hazards;
- economic damage to agricultural industry;
- outdoor nuisance management issues;
- displacement of other significant species such as Common and Caspian Terns;
- vegetation growth impairments;

- water quality concerns.

The goal of the Ring-billed Gull program is to restrict gull nesting and breeding to the western peninsulas, and maintain a gull population of an approximate maximum of 50,000 nesting pairs. Management techniques include the use of deterrents, vegetation management, exclosure creation and egg oiling. The program has been successful at addressing the concerns regarding the impacts of the Ring-billed Gull colonies, and the population has been maintained at approximately 30,000 nesting pairs.

TRCA also uses egg oiling as a management technique for Canada Geese and Mute Swans. The Canada Goose Management Program addresses problems caused by geese and Mute Swans in urban settings such as: fouling of public lands, water quality impairment, safety concerns when driving or flying and aggressiveness towards humans during breeding, nesting and brood season. Mute Swans are an introduced species that often disrupt or displace native marsh birds and cause a decline in marsh vegetation due to their voracious appetite. This program uses a variety of techniques to discourage Canada Geese from waterfront parks and utilizes egg oiling as part of a strategy to limit reproduction. Under permit from CWS over 2096 Canada Goose nests containing 8,892 eggs have been treated and 149 Mute Swan nests containing 847 eggs have been treated since the start of the program in 1998.

The DCCO colony at TTP is one of the only colonies on the Great Lakes that is not, or has not, been actively managed at some time. To date the TRCA has not engaged in population control of cormorants at TTP.

## **RATIONALE**

An extremely high level of concern has been expressed regarding DCCO populations and their management. Concerns have been raised from both sides of the issue, on the one hand calling for management, and on the other hand for protection of the birds and their nesting colonies. TRCA has an obligation to manage Tommy Thompson Park as directed by the Master Plan for Tommy Thompson Park as approved under the Environmental Assessment Act. To meet the intent of the Master Plan, TRCA staff feel that there is a strong rationale for undertaking a strategic approach to the management of Double-crested Cormorants at Tommy Thompson Park.

Since November 2007, TRCA has involved stakeholders and the public in assessing the need for management and developing a strategy for cormorants at TTP. Generally, throughout the process there has been agreement that some form of management is necessary and appropriate, providing that the methods are humane to cormorants and do not affect other wildlife. Consensus was reached among advisory group members, and the public on a number of matters, however the use of egg oiling as a management technique continues to raise concerns.

Egg oiling is a common management tool used on cormorant colonies throughout North America, however there are no published studies which examine the behavioral responses of cormorants on the nest after egg oiling takes place. The proposed research project by York University (see below) has been designed to specifically address potential behavioral responses to a management scenario that includes egg oiling. The results of this study will provide valuable information about the appropriateness of egg oiling as a technique to assist in

achieving the goal and objectives of Double-crested Cormorant management at Tommy Thompson Park.

The TRCA staff has therefore developed the following strategic approach to the management of cormorants at TTP for the 2008 season.

## **DETAILS OF WORK TO BE DONE**

### Goal and Objectives

The goal of the management strategy is to achieve a balance between the continued existence of a healthy, thriving cormorant colony and the other ecological, educational, scientific and recreational values of Tommy Thompson Park. The specific objectives of the strategy are to:

- a) Increase public knowledge, awareness and appreciation of colonial waterbirds.
- b) Deter cormorants from nesting on Peninsula D.
- c) Limit further loss of tree canopy on the peninsulas beyond the existing cormorant colonies
- d) Continue research on colonial waterbirds in an urban wilderness context.

### Increasing Public Knowledge, Awareness and Appreciation

TRCA will seek all opportunities to increase public awareness and appreciation of Double-crested cormorants and other colonial waterbirds at TTP. A varied approach will be used including, but not limited to:

- Public meetings
- TRCA website
- Annual Spring Bird Festival (May 10, 2008)
- Development of interpretive signage
- Improving opportunities to view colonial waterbirds, including cormorants using viewing blinds and platforms
- Conducting tours with schools and interest groups
- Presenting information at conferences and forums
- Participation in working groups on colonial waterbirds.

Information signs at strategic locations that request people to refrain from entering the colonial waterbird colonies during the nesting season are already in place to discourage the public from disturbing the bird colonies. Additional interpretive signs will be installed to educate park visitors on colonial waterbirds and their habitats. Researcher disturbance associated with TRCA and partner research programs will be controlled to reduce overall disruption.

### Proposed 2008 Strategic Approach

TRCA proposes to utilize a variety of techniques in an integrated adaptive management approach to achieve the goals and objectives for the 2008 strategy. The following matrix (Table 1) outlines the techniques and strategies at specific locations of the site, and helps to provide insight regarding the relationships between the different techniques. Management techniques do not include lethal culling. Egg oiling will not be undertaken for management purposes in 2008, however a research project to assess any impacts of oiling on adult birds is proposed.

The TTP cormorant colony currently occupies three of the four forested peninsulas of the park comprising three cormorant sub-colonies (Figure 1). Peninsulas A and B are considered Cormorant Conservation Zones where cormorant nesting and roosting is encouraged and enhanced. Efforts in 2008 will focus on enhancing ground nesting opportunities for the 2009 season, habitat restoration to delineate and buffer the colonies, providing safe loafing areas for 2008, and promoting research.

Peninsula C is the most recently colonized area and also contains the largest cormorant sub-colony and the largest Black-crowned Night-Heron population at TTP. The 2008 strategic approach on Peninsula C will focus on post-breeding deterrents to reduce stress on the trees, habitat restoration to delineate and buffer the colonies and continued research on raccoon predation on cormorant and night-heron nests. Peninsula D is the only forested peninsula not occupied by colonial waterbird species. Management efforts in 2008 will focus on habitat restoration and on deterring cormorants from nesting and loafing on Peninsula D.

**TABLE 1. Strategic Approach Matrix for 2008**

<b>Method</b>	<b>Peninsula A</b>	<b>Peninsula B</b>	<b>Peninsula C</b>	<b>Peninsula D</b>
Pre-nesting Deterrents				*
Post-Breeding Deterrents			*	*
Enhanced Ground Nesting	*	*		
Egg Oiling Research		*		
Habitat Restoration	*	*	*	*

Pre-nesting deterrents

A variety of humane deterrence methods that minimize disturbance to other wildlife will be utilized to discourage cormorants from nesting on Peninsula D. The techniques utilized will be employed on an increasing scale of activity, with preference given to the least intrusive means needed. The scale would follow the following order:

- i) Human presence for recreation, research and education purposes
- ii) Active harassment of birds by people
- iii) Predator decoys and scarecrows
- iv) Inactive nest removal
- v) Noise bangers and other auditory techniques.

Increased activity associated with Peninsula D trail improvements, Tommy Thompson Park Bird Research Station activities, and staff presence is favoured over the other techniques. However, if presence alone does not deter nesting activities, deterrence would progress to active techniques including whistling, arm waving, running and shouting. Activity could be increased to carrying three meter poles to move low tree branches, and tap on trees. Poles would not contact any cormorants or nests. If nesting attempts persist, then artificial predators including owls, raccoons, hawks, and scarecrows will be placed in the trees in and near the nesting locations.



If nesting attempts still persist additional sections may be added to the poles, increasing their length and actively used to remove newly placed nesting material. Poles will not be used on nests where eggs are present, or where cormorants refuse to leave the nest, and will not be come into contact with any cormorants. Noise bangers are the least preferred technique for pre-nesting deterrents, however staff believe that noise bangers will not be needed as pre-nesting deterrents in 2008.

After the nesting season has ended and fledgling cormorants are feeding independently, post-breeding deterrents will be employed on the tip of Peninsula C and Peninsula D to reduce the effects of cormorant loafing (or resting) on trees. Deterrents will not be used on Peninsula's A and B. Displaced Cormorants will be encouraged to loaf on the Conservation Zones of Peninsulas A and B. To help achieve this, disturbance to Peninsulas A and B will be minimized and closely monitored by TRCA staff. Since these areas already support cormorant colonies, and field data indicates large loafing areas are currently available, staff believe cormorants will readily use these peninsulas for post-breeding loafing.

A variety of deterrence methods will be utilized that are humane for cormorants and minimize disturbance to other wildlife. The techniques utilized will be employed on an increasing scale of activity, with preference given to the least intrusive means needed. The scale will follow the following order:

- i) Human presence for recreation, research and education purposes
- ii) Active harassment of birds by people
- iii) Predator decoys and scarecrows
- iv) Noise bangers and other auditory techniques.

Human presence is the most favoured technique, however, if presence alone does not deter loafing activities, deterrence would progress to active techniques as stated above in the techniques for pre-nesting deterrents. In all cases deterrents would be humane and minimize the impact to other wildlife.

If loafing still persists, deterrence methods will progress to the use of auditory techniques. Noise bangers are the least preferred technique for post-breeding deterrents and if needed will be used with sparingly and with caution in a consistent manner. Staff will monitor the effectiveness of the auditory techniques, as well as their effects on other species and will discontinue use if undesirable effects are documented.

#### Enhanced ground nesting

In addition to encouraging post-breeding loafing on Peninsulas A and B, these areas will also receive enhanced ground nesting for the 2009 breeding season. The strategic approach includes enhancement of ground nesting opportunities through the placement of woody nest material, as well as the creation of artificially constructed nesting areas. Further ground nest enhancements may also include the use of cormorant decoys and auditory breeding calls to attract cormorants to the ground nesting area. Predator exclosures may also be created to ensure ground nesting success in certain areas until the establishment of the ground nesting colony. Work will be completed during the fall and winter of 2008 to increase the ground nesting cormorant population in 2009.

### Egg oiling

An experimental egg oiling research project will be undertaken by Dr. Gail Fraser from the Faculty of Environmental Studies, York University. The research will be carried out in partnership with TRCA, and with approval of the Ministry of Natural Resources, Canadian Wildlife Service and the York University Animal Care Committee. There are three primary objectives of this study, the first is to examine if egg oiling causes immediate nest desertion by ground nesting cormorants. The second is to examine the effects of oiling on the nesting behaviours of adults. The third is to quantify the impacts of all disturbances, including investigator disturbance, on ground nesting cormorants. An additional objective is to examine the effects of banding adults captured on the nest, on nest attendance and behaviours.

The research project will adopt a conservative approach to limit negative impacts to the Double-crested Cormorant colonies at TTP. Daedol 50 NF mineral oil will be the oiling substance. This oil, approved by the Food and Drug Administration, breaks down quite rapidly, and is the most commonly used oil for the management of cormorants, Ring-billed Gulls, and Canada Geese. A treatment of 30 nests will be oiled, and compared to 30 nests that will be sprayed with water, and to a control group of 30 nests that will not be manipulated in the experiment. Detailed behavioral responses will be documented, quantified, and tracked throughout the breeding season. The research will also include a review of all other projects where oiling has been utilized as a management technique.

### Habitat restoration

Habitat restoration activities will occur in areas of the peninsulas that are not currently occupied by colonial nesting waterbirds. The base of the peninsulas, and areas within the peninsulas that are not occupied by colonial birds, will be restored using site appropriate vegetation and soil amendments where necessary. Vegetation quadrats will be planted with a variety of species and monitored to assess the efficacy of the restoration and improve future endeavours. Habitat restoration and enhancement activities will also help delineate the extent of the current cormorant colonies and buffer the colonies from disturbance. Targeted improvements also include the addition of native shrubs along the Embayment B shoreline to encourage Black-crowned Night-Heron nesting. Plantings of willow fascines and appropriate shrubs will occur along portions of the shoreline provide additional shoreline stability. Habitat restoration activities will occur in fall 2008 and early spring 2009, so the bird colonies are not disturbed.

### Monitoring, Research, and Reporting

Annual nest census data for cormorants, night-herons and other colonial waterbirds will be undertaken in late May using a combination of staff and volunteers. As in past years, the census will identify the nesting populations of cormorants and other waterbirds, as well as their spatial nesting distribution within the peninsulas at Tommy Thompson Park. Some members of the Advisory Group expressed an interest in observing the annual monitoring program and TRCA staff will facilitate visits to the colony during monitoring activities.

Annual tree health surveys will be undertaken in late August/early September to document changes in the health and condition of nest trees within the three peninsulas at TTP.

A summary report of all components of the strategic approach will be completed and circulated to all regulatory agencies and the advisory group, and will be posted for public review upon completion of the 2008 season. This report will outline all approaches employed

in the 2008 season including the methods used, their relative effectiveness, results of the egg oiling research, and the results of the annual monitoring program. This information will provide a basis for the development of the 2009 strategy using an integrated adaptive management approach.

The next meeting of the cormorant advisory group will be held in fall 2008, after the completion of the 2008 summary report. This meeting will provide an opportunity to review the results of the 2008 season and discuss whether any changes are needed for 2009. The public will also be informed and consulted before the 2009 season.

#### **FINANCIAL DETAILS**

Funds are available in the Tommy Thompson Park Interim Management account 210-19 and the Tommy Thompson Park Double Crested Cormorant Account 210-25 in the approved 2008 budget.

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**Date: May, 2008**

**Attachments: 1**

Attachment 1

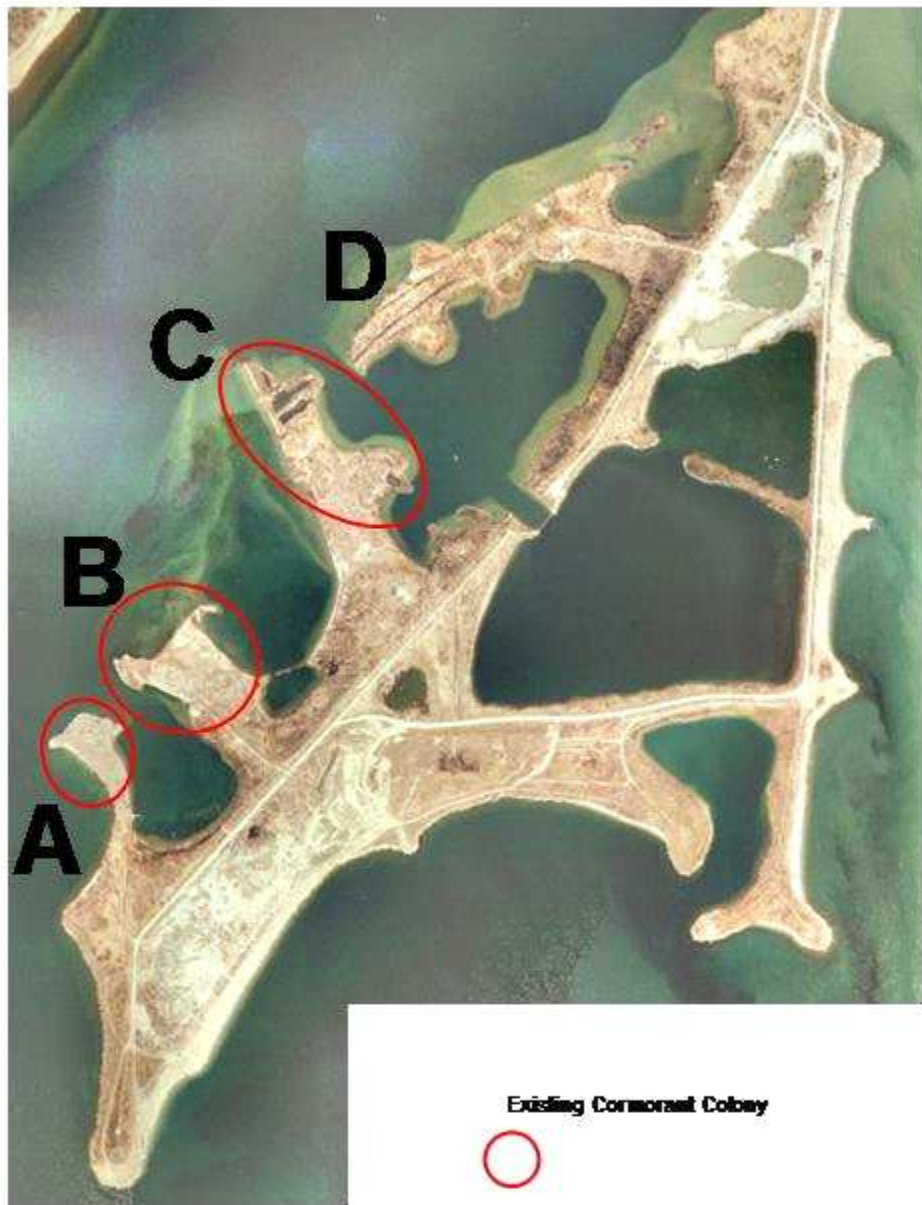


Figure 1. TTP Peninsulas and Cormorant Colonies