

**Management of Double-crested Cormorants to Protect Public Resources in New York**  
**STATEMENT OF FINDINGS**

prepared March 18, 2004

revised May 14, 2004

The New York State Department of Environmental Conservation (DEC) Division of Fish, Wildlife and Marine Resources (DFWMR) has reviewed the relevant potential impacts of the proposed action described below, and concluded that they are within the scope of a Final Environmental Impact Statement (FEIS) prepared by the U.S. Department of Interior Fish and Wildlife Service (USFWS 2003), in accordance with the National Environmental Policy Act. DFWMR has prepared this statement of findings, in accordance with State Environmental Quality Review (SEQR) regulations (6 NYCRR Part 617, § 617.15), based on the federal FEIS, as discussed below.

**Summary of the Action:**

The Division of Fish, Wildlife and Marine Resources (DFWMR), in cooperation with U.S. Department of Agriculture (USDA) Wildlife Services, plans to carry out integrated double-crested cormorant (*Phalacrocorax auritis*) management programs to alleviate and prevent conflicts with public resources at specific problem areas in New York. Cormorant populations have increased in abundance to the point where they are impacting other colonial-nesting waterbird species and economically important recreational fisheries in some areas of New York. Population control efforts (i.e., egg-oiling, nest destruction, hazing, habitat modification, exclusion techniques, and limited lethal removal of birds) during the past 10 years have helped reduce these conflicts, but further action is needed. DFWMR plans to expand cormorant management, as described below, in four areas of New York (eastern Lake Ontario, Oneida Lake, Buffalo Harbor/Niagara River, and Lake Champlain), beginning in spring 2004. Actions will include more extensive egg-oiling and nest destruction, non-lethal deterrents to nesting, spring and fall hazing on Oneida Lake and other nearby lakes, and limited lethal take of up to 700 birds statewide to complement and increase effectiveness of other measures. For the most part, this will be a continuation of measures used in the past, except that DFWMR plans to increase use of lethal control measures (i.e., shooting or live-trapping and euthanizing birds) in some situations. Lethal removal of up to 800 cormorants statewide will have a negligible impact on the total population in New York (1.9% of 43,000 birds) or upstate only (2.9% of 28,000 birds).

**Location:**

Probable locations and approximate numbers of cormorant nests to be affected and/or birds expected to be killed include, but are not limited to, the following: eastern Lake Ontario - up to 5,000 nests and 300 birds (on Little Galloo, Bass, Calf and Gull Islands); Oneida Lake - 400 nests and 150 birds (on Long, Wantry, and Little Islands, and other areas on the lake); Buffalo Harbor/Niagara River - 600 nests and 150 birds (at Reef Lighthouse, North Breakwater, and Motor and Strawberry Islands); and Lake Champlain - 3,000 nests and 50 birds (on Four Brothers Islands and other areas on the lake). Additional take of nests (up to 200) and/or birds (up to 150) may occur in these or other inland waters (e.g, St. Lawrence River, Onondaga and Cross Lakes), but the total statewide take will not exceed 9,000 initial nests or 800 birds without prior amendment of these findings.

Municipalities where actions would (or may) occur include: Jefferson County (Towns of Henderson and Hounsfield); Oswego County (Towns of Constantia and West Monroe); Oneida County (Towns of Vienna and Verona); Onondaga County (Towns of Geddes, Salina and Lysander); Erie County (Towns of Grand Island and Tonawanda, City of Buffalo); Clinton County (Towns of Plattsburgh and Peru); and Essex County (Towns of Chesterfield and Willsboro).

**Purpose and Need for Action:**

The double-crested cormorant (*Phalacrocorax auritis*) is a large, fish-eating waterbird native to North America. Cormorants were nearly extirpated as a result of environmental contaminants and human persecution, but they have rebounded dramatically over the past 30 years as a result of water quality improvements (including reduction in pesticide residues such as DDT which interfered with reproduction), increased food availability in breeding and wintering areas, and protection afforded by amendments to the federal Migratory Bird Treaty Act in 1972.

Although cormorants are native to North America, the species was first documented breeding in New York in 1945, when 14 nests were found on Gull Island in eastern Lake Ontario. It is believed that this was the result of eastward range expansion from the northern prairies across the Great Lakes early in the 20<sup>th</sup> century. By 2003, there were more than 10,000 pairs confirmed nesting at more than 20 locations in New York State (Fig 1). In addition to nesting pairs, there are large numbers of non-breeders (e.g., sub-adult birds) in the population, as well as new birds produced each year. DFWMR estimates the total number of cormorants in New York State to be approximately 43,000 birds (Appendix A).

Cormorant populations have increased in abundance to the point where they are impacting other colonial-nesting waterbird species and economically important recreational fisheries in some areas of New York. Cormorants threaten the existence of other colonial-nesting waterbirds, especially upstate, by physically taking over nest sites or by destroying woody vegetation that is essential for nesting. Affected species include common tern (*Sterna hirundo*), black-crowned night heron (*Nycticorax nycticorax*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*). Other potentially affected species that nest in or near areas used by cormorants include Caspian tern (*Sterna caspia*) and glossy ibis (*Plegadis falcinellus*). In addition, New York anglers and public officials are concerned about impacts of cormorants on fish stocks important for recreation and local economies, especially in eastern Lake Ontario and Oneida Lake. DEC and Cornell University have conducted long-term studies linking cormorants to declines in walleye and yellow perch in Oneida Lake and smallmouth bass in eastern Lake Ontario. Without active and effective management, existing problems will persist and cormorant populations will continue to grow and cause additional adverse impacts to these public resources.

In response to concerns about conflicts with other colonial-nesting birds, DEC initiated cormorant control measures at several locations (i.e., eastern Lake Ontario, Oneida Lake and Niagara River) during the 1990s. Activities primarily involved nest destruction, egg-oiling (spraying 100% corn oil on eggs to prevent hatching), and non-lethal measures to prevent nesting in critical areas. To reduce impacts of migrating cormorants on fish in Oneida Lake, USDA Wildlife Services has conducted an intensive fall cormorant hazing program, in cooperation with DEC, since 1998. In addition, a limited number of cormorants (approximately

200 birds during 1998-2003) were killed by DEC staff or cooperators at various locations for research purposes (e.g., for food habits studies and incidental mortality during banding) (Appendix B).

The proposed cormorant management program, as described below, will help reduce conflicts between cormorants and a variety of important public resources, including other colonial waterbirds, warmwater fisheries, and vegetation that provides habitat for other species. Effective management of cormorants in New York will benefit these important public resources, enhance environmental conditions at nesting areas, and complement other DFWMR efforts to manage sustainable fish and wildlife populations.

**Detailed Description of the Action:**

A description of actions planned for specific problem areas in New York, to be conducted annually beginning in spring 2004, is provided below.

*Eastern Lake Ontario* - Cormorants currently attempt to nest on 4 islands in the New York waters of eastern Lake Ontario. Since 1994, DFWMR has attempted to prevent establishment of nests on Gull, Bass and Calf Islands, and restrict nesting to Little Galloo Island (LGI). In 2003, there were an estimated 4,251 nests on LGI (down from a peak of 8,410 in 1996) and approximately 35 successful nests on Bass Island. A population goal of 1,500 pairs on LGI was established through a public involvement process in 1999, so DFWMR has conducted an extensive egg-oiling program on LGI since then to prevent reproduction, with nearly 99% success. All accessible nests on other islands have been removed, resulting in little or no reproductive success. However, some nests have been inaccessible and some birds have re-nested numerous times after their nests were destroyed.

Plans for 2004 include continuation of egg-oiling on LGI, destruction of all accessible nests on other islands, and limited take (by shooting) of up to 150 cormorants nesting in trees too high to remove their nests or that persist in rebuilding destroyed nests. In addition, a limited take (by shooting) of birds nesting on LGI is planned to determine if this technique can be used to remove cormorants without adversely affecting other waterbirds nesting on the island. Total take of cormorants in the New York portion of eastern Lake Ontario will not exceed 300 birds in 2004, from a nesting population of 4,000+ pairs (8,000+ birds). Intensive hazing programs or other non-lethal deterrents to nesting or foraging in this area were judged to be impractical and not cost-effective, in addition to concerns that displacing several thousand cormorants from LGI could impact public resources in other areas where protective measures are not in place (e.g., common tern nesting sites on the St. Lawrence River).

Egg-oiling to prevent cormorant reproduction on LGI will be conducted during 2-4 visits per year during the nesting season (May-June). A small crew (2-6 people) of DFWMR staff or cooperators (e.g., USDA Wildlife Services staff) will walk through the nesting colony and spray 100% corn oil on all eggs in every accessible cormorant nest on the island. Participants will be trained to distinguish cormorant nests from nests of other species to ensure that non-target species are not affected. The number of visits will be reduced from past years (up to 6 egg-oiling visits, plus additional research visits for food habits studies, banding, etc.) to minimize potential disturbance of other nesting species. To date, DFWMR has observed no adverse impacts of cormorant egg-oiling activities on populations of any other bird species nesting on LGI.

Cormorant nest destruction will occur on all other islands in eastern Lake Ontario to prevent establishment and reproduction. This will be carried out on up to 10 visits (as needed to ensure success) to Gull, Bass and Calf Islands during the nesting season (May-June). Destruction involves simple removal and discarding (on site) of all accessible cormorant nesting material, including any eggs present. Nests found in trees may be knocked down with the aid of a long pole, water cannon, or shotgun blast using non-toxic shot. Effort will be made to avoid killing birds when the objective is simply to remove nests from tall trees. However, where nests are too tall to reach by the above means, or when birds persist at re-building destroyed nests, then some cormorants may be killed in the manner described below. To date, nest removal activities have not adversely impacted populations of any other bird species (e.g., black-crowned night heron, ring-billed gull) nesting on these islands.

Up to 300 nesting cormorants may be killed by DFWMR staff or cooperators in eastern Lake Ontario in 2004. This would include birds that may be shot to prevent nesting on islands other than Little Galloo, in addition to birds taken from LGI to evaluate effectiveness of shooting to remove cormorants nesting on LGI. Wherever shooting occurs, it will be done in a safe, effective and humane manner, using a small caliber rifle or shotgun with non-toxic shot, on no more than four occasions during the nesting season. Prior to shooting, field staff will ensure that no persons, watercraft, dwellings, or other occupied structures are in the line of fire within the normal expected range of firearm(s) used. During any shooting (to remove birds or nesting material), staff will document timing, duration, success, and behavioral response of other colonial waterbirds nesting nearby. If nest abandonment or other response by other species are noted, shooting activities will be immediately modified or curtailed to ensure that no significant effects on annual productivity of those species result. For example, if noise becomes a concern, field staff can use a “metro barrel” (with or without special sub-sonic shot) to reduce potential disturbance associated with shooting.

***Oneida Lake and vicinity*** - Cormorants currently attempt to nest on 3 islands in Oneida Lake, which DFWMR has managed since the 1980s to maintain a diversity of nesting waterbirds, and to especially protect breeding common terns. In 2003, there were approximately 300 nesting pairs of cormorants (similar to 1995-2002) on Little Island. Cormorants were kept off the other islands by exclusion devices (e.g., grid wires, mylar tape) and nest destruction. Egg-oiling has also been done since 1997 to limit cormorant reproduction, but approximately 100 nests per year have been allowed to hatch, in part to facilitate food habits studies. In 2003, DFWMR convened a group of waterbird biologists and a citizen task force to establish a population goal for the lake; the final recommendation was for a population of not more than 100 birds. To meet this objective, USDA Wildlife Services, in cooperation with DFWMR, will initiate a spring (pre-nesting) hazing program in 2004, continue egg-oiling and nest destruction, and take a limited number of cormorants (by shooting or live-trapping and euthanizing birds) to make hazing more effective and to prevent cormorants from “pioneering” new nesting areas on the lake. Total take is expected to be no more than 150 birds from a population of 600+ birds normally on Oneida Lake. An intensive fall hazing program will be continued for the 7<sup>th</sup> year to disperse cormorants from Oneida Lake during migration. The fall hazing program will begin in early August 2004, as it did in 2003, and may include a limited take of birds that resist hazing measures.

Management of cormorants associated with Oneida Lake will include measures to prevent displaced birds from pioneering to new nesting locations on other lakes in the vicinity (e.g.,

Onondaga and Cross Lakes) and to minimize potential impacts on public resources in other areas.

Cormorant nest destruction will occur on all Oneida Lake islands, especially when found nesting close to common terns or other colonial waterbird species, and to prevent displaced birds from pioneering to new nesting locations on the lake. A minimum of 20 cormorant nests will be left on Long Island to maintain presence of some birds throughout the breeding season. However, all eggs in these nests will be oiled to prevent hatching. Nest destruction will be carried out on 3-5 visits to the islands during the nesting season (May-June). Destruction involves simple removal and discarding (on site) of all accessible cormorant nesting material, including any eggs present. Nests found in trees may be knocked down with the aid of a long pole, water cannon, or shotgun blast using non-toxic shot. Effort will be made to avoid killing birds when the objective is simply to remove nests from tall trees. However, where nests are too tall to reach by the above means, or when birds persist at re-building destroyed nests, then some cormorants may be killed in the manner described below. To date, cormorant nest removal activities have not disrupted or adversely impacted populations of any other bird species nesting on islands in Oneida Lake.

Egg-oiling to prevent cormorant reproduction will be done in all nests that are allowed to remain on Long Island (Oneida Lake). Oiling will be conducted during 2-4 visits per year during May and June. A small crew (2-6 people) of DFWMR staff or cooperators (e.g., Cornell University researchers, USDA Wildlife Services staff) will walk through the nesting area and spray 100% corn oil on all eggs in every accessible cormorant nest. Participants will be trained to distinguish cormorant nests from nests of other species to ensure that non-target species are not affected. The number of visits will be restricted to minimize potential disturbance of other nesting species. To date, DFWMR has observed no adverse impacts of cormorant egg-oiling activities on populations of any other bird species nesting in this area.

An experimental and intensive cormorant hazing program is planned for Oneida Lake during spring 2004. The objective will be to limit the number of cormorants on the lake to no more than 100 birds, as recommended by a citizen task force in summer 2003. Hazing will begin at "ice out" in early April until small groups of common terns (i.e.,  $\geq 15$  birds) first arrive on the lake, typically in early May. Hazing will resume approximately two weeks later, after most of the common terns have established their nests. A variety of methods will be used to reduce the number of cormorants roosting, loafing, feeding and nesting on Oneida Lake. Methods likely to be employed include pyrotechnics, chasing birds with boats, "scary-man" effigies, predator eye balloons, Electronic Guard, mylar tape, hand held lasers, propane cannons, and exclusion with fencing or grid wires at key nesting sites. Researchers from Cornell University will monitor nesting common terns in the area to assess potential impacts of the hazing program on their reproductive success in 2004.

A fall hazing program will also be conducted on Oneida Lake, as has been done since 1998, to minimize fall migration stopover of cormorants on the lake. Hazing will begin in early August, as it did in 2003, when migrant cormorants typically arrive on the lake, and continue through September. A variety of methods will be used to reduce the number of cormorants roosting, loafing, and feeding on the lake. Methods would be similar to methods listed for spring hazing. No adverse effects were noted during 2003. However, hazing may move birds to other nearby lakes where they could impact other public resources. Consequently, USDA Wildlife Services

staff will monitor cormorant numbers on other central New York lakes (i.e., Onondaga, Cross, Cazenovia, Otisco and Skaneateles Lakes) during the hazing periods and may employ hazing methods, including limited lethal take (by shooting) on Onondaga or Cross Lakes, if deemed necessary to prevent impacts on local fish stocks by cormorants displaced from Oneida Lake.

Up to 150 cormorants may be killed in the Oneida Lake area (including other lakes noted above) in 2004. Some of this will be accomplished by shooting during spring and fall hazing programs, to reinforce or complement non-lethal measures. Some birds may also be shot during the nesting season to reduce the number of nesting birds or, if necessary, to prevent cormorants displaced from traditional nesting islands from establishing nests in tall trees elsewhere around the lake. Wherever shooting occurs, it will be done in a safe, effective and humane manner, using a small caliber rifle or shotgun with non-toxic shot. Prior to shooting, field staff will ensure that no persons, watercraft, dwellings, or other occupied structures are in the line of fire within the normal expected range of firearm(s) used. During any shooting (to remove birds or nesting material), staff will document timing, duration, success, and behavioral response of other colonial waterbirds nesting nearby. If nest abandonment or other response by other species are noted, shooting activities will be immediately modified or curtailed to ensure that no significant effects on annual productivity of those species result. For example, if noise becomes a concern, field staff can use a “metro barrel” (with or without special sub-sonic shot) to reduce potential disturbance associated with shooting.

A limited number of cormorants may also be captured using padded foothold traps set at nest sites on Oneida Lake, and any captured birds would be euthanized using carbon dioxide. This capture method has been successfully used in the past to facilitate banding cormorants for research purposes, with infrequent occurrences of injury to the birds.

***Buffalo Harbor/Niagara River*** - Cormorants currently nest at 6 locations in the Buffalo Harbor and Niagara River area. This population grew from 7 pairs in 1992 to more than 600 pairs in 2003, and they now threaten to displace nesting common terns in the Buffalo Harbor area as well as an unique colony of great blue herons, black-crowned night herons and great egrets on Strawberry and Motor Islands in the Niagara River. In recent years, DFWMR staff destroyed all accessible nests on the river islands and in 2003 staff shot 7 birds nesting high in trees. Plans for 2004 include continued nest destruction and limited take (by shooting) of up to 150 birds to prevent cormorants from nesting on the river islands. A nest management (i.e., egg-oiling or removal) program will be initiated at Buffalo Harbor sites to limit further growth of this population and to protect common tern nesting sites. Specific population goals have not been established, but would include protection of critical vegetation on Strawberry Island, where a \$1,000,000 Environmental Bond Act restoration project was completed in 2002. To date, potential impacts on local fish populations have not been an issue in this area.

Egg-oiling to prevent cormorant reproduction will be done at all cormorant nesting sites in the Buffalo Harbor area. Oiling will be conducted during 3-5 visits per year, during May and June. A small crew (2-6 people) of DFWMR staff or cooperators (e.g., local waterbird researchers, USDA Wildlife Services staff) will walk through each nesting area and spray 100% corn oil on all eggs in every accessible cormorant nest on the North Breakwater and Sandspit, and in approximately 50% of all nests on the Reef Lighthouse. Participants will be trained to distinguish cormorant nests from nests of other species to ensure that non-target species are not

affected. The number of visits will be restricted to minimize potential disturbance of other nesting species. To date, DFWMR staff have observed no adverse impacts of cormorant egg-oiling activities on populations of any other bird species nesting in other areas of the state.

Cormorant nest destruction will occur on the river islands and other locations when cormorants are found nesting close to common terns or to reduce competition with other colonial waterbird species. This will be carried out on 3-5 visits to nesting areas during May and June. Nest destruction involves simple removal and discarding (on site) of all accessible cormorant nesting material, including any eggs present. Nests found in trees may be knocked down with the aid of a long pole, water cannon, or shotgun blast using non-toxic shot. Effort will be made to avoid killing birds when the objective is simply to remove nests from tall trees. However, where nests are too tall to reach by the above means, or when birds persist at re-building destroyed nests, some cormorants may be killed in the manner described below. To date, nest removal activities have not adversely impacted populations of any other bird species (e.g., black-crowned night heron, great egret) nesting on the river islands.

Up to 150 cormorants may be killed in the Buffalo Harbor/Niagara River area in 2004. This would be done principally to prevent nesting on islands in the Niagara River. Shooting would be done with a small caliber rifle or shotgun using non-toxic shot, on no more than six occasions during the nesting season. Wherever shooting occurs, it will be done in a safe, effective and humane manner, with a primary objective of avoiding disturbance of other nesting species. Prior to shooting, field staff will also ensure that no persons, watercraft, dwellings, or other occupied structures are in the line of fire within the normal expected range of firearm(s) used. During any shooting (to remove birds or nesting material), staff will document timing, duration, success, and behavioral response of other colonial waterbirds nesting nearby. If nest abandonment or other response by other species are noted, shooting activities will be immediately modified or curtailed to ensure that no significant effects on annual productivity of those species result. For example, if noise becomes a concern, field staff can use a "metro barrel" (with or without special sub-sonic shot) to reduce potential disturbance associated with shooting.

***Lake Champlain*** - Cormorants currently nest at 2 locations on the New York portion of Lake Champlain and on a pair of islands in Vermont. To date, DFWMR has not been actively involved in cormorant management on the lake other than cooperative research by the University of Vermont. In 2003, there was a record number of approximately 2,829 nesting pairs in the New York portion of Lake Champlain. Nearly all (2,779 nests) occurred on Four Brothers Islands, a Nature Conservancy (TNC) property that is home to several other colonial waterbird species. Plans for 2004 include initiation of an egg-oiling program and nest destruction, pending approval and cooperation from TNC, and possibly a limited take (by shooting) of cormorants to prevent pioneering onto other islands or areas used by other colonial bird species. Total take of birds is expected to be no more than 50 birds. DEC is currently developing the Champlain Islands Unit Management Plan, which will state that expansion of a nesting cormorant population onto State-owned islands in Lake Champlain will not be acceptable and that all nests will be destroyed when discovered.

Egg-oiling to prevent cormorant reproduction may be conducted on Four Brothers Islands during 2-4 visits per year, during May-June. A small crew (2-6 people) of DFWMR staff or cooperators (e.g., University of Vermont researchers, USDA Wildlife Services staff) will walk through the

nesting colony and spray 100% corn oil on all eggs in every accessible cormorant nest on these islands. Participants will be trained to distinguish cormorant nests from nests of other species to ensure that non-target species are not affected. The number of visits will be restricted to minimize potential disturbance of other nesting species. To date, DFWMR has observed no adverse impacts of cormorant egg-oiling activities on populations of any other bird species nesting in other areas of the state.

Cormorant nest destruction may occur on two of the Four Brothers Islands and any other State-owned islands in Lake Champlain, to prevent establishment of new nesting sites and reproduction. This will be carried out on 2-4 visits to the islands during the nesting season (May-June). Destruction involves simple removal and discarding (on site) of all accessible cormorant nesting material, including any eggs present. Nests found in trees may be knocked down with the aid of a long pole, water cannon, or shotgun blast using non-toxic shot only. Effort will be made to avoid killing birds when the objective is simply to remove nests from tall trees. However, where nests are too tall to reach by the above means, or when birds persist at re-building destroyed nests, then some cormorants may be killed in the manner described below.

Up to 50 cormorants may be killed in the New York portion of Lake Champlain in 2004. This would be done principally to prevent cormorants from nesting on two of the Four Brothers Islands or other islands in the lake. Shooting would be done with a small caliber rifle or shotgun using non-toxic shot, on no more than four occasions during the nesting season. Wherever shooting occurs, it will be done in a safe, effective and humane manner, with a primary objective of avoiding disturbance of other nesting species. Prior to shooting, field staff will also ensure that no persons, watercraft, dwellings, or other occupied structures are in the line of fire within the normal expected range of firearm(s) used. During any shooting (to remove birds or nesting material), staff will document timing, duration, success, and behavioral response of other colonial waterbirds nesting nearby. If nest abandonment or other response by other species are noted, shooting activities will be immediately modified or curtailed to ensure that no significant effects on annual productivity of those species result. For example, if noise becomes a concern, field staff can use a "metro barrel" (with or without special sub-sonic shot) to reduce potential disturbance associated with shooting.

***Long Island/New York City*** - In 2001, there were approximately 2,230 pairs of cormorants at 10 nesting locations in the Marine District of Long Island and New York City. Populations in this area have been relatively stable in recent years, although nesting locations have changed over time. No population control measures have been employed in this area and the birds seem to have coexisted with other colonial waterbird species for more than 20 years. Concerns have been raised about possible impacts on marine fish populations, but impacts have not been documented. No population management activities are planned for this area in 2004.

***Other Areas*** - Smaller numbers of cormorants nest in other areas of the state, but the threat to public resources does not appear to require immediate action. However, if potential conflicts become evident, some actions, similar to what is planned elsewhere, may be implemented. One very likely area for future management is the St. Lawrence River, where a growing population comprised of 114 pairs of cormorants nesting on 3 New York islands, and another 2,380 pairs nesting on nearby islands in Ontario, Canada, in 2003, has become a concern. If this population continues to expand, potential conflicts with common terns and important warmwater fisheries in

the river may warrant control measures. Since most of the cormorant nesting colonies along the St Lawrence River are located on Canadian islands, cooperation and coordination with the Province of Ontario will be necessary to ensure effective management of this population.

Elsewhere, seasonal hazing programs, including limited take (by shooting) of birds, may be employed on lakes in central New York (discussed earlier along with Oneida Lake), where large numbers of cormorants congregate after the breeding season or during migration. Cormorant numbers are increasing on some New York City water supply reservoirs, but no actions by DFWMR are planned. Total take of cormorants during fall hazing programs statewide, including Oneida Lake, would be no more than 150 birds.

Any cormorant management activities (e.g., egg-oiling, nest destruction, shooting birds) that occur in other upstate areas will be done in a manner consistent with that described for the four primary areas described above.

### **The Federal EIS and Public Resource Depredation Order:**

Until recently, all activities involving “take” of nests, eggs or live juvenile or adult cormorants required special “depredation” permits or other special purpose permits (e.g., salvage permits, scientific collection permits) from the U.S. Fish and Wildlife Service (USFWS), issued annually on a case-by-case basis. The federal permit process was inefficient and unresponsive to management needs and gave DEC little or no authority to decide and implement the best approach. Furthermore, USFWS would only issue cormorant control permits to protect other migratory bird species, but not to reduce impacts on sport fish.

In fall 2003, USFWS established a new rule (50 CFR 21.48) titled “Depredation Order for Double-crested Cormorants to Protect Public Resources”, hereafter referred to as the “public resource depredation order” or PRDO. The PRDO allows state wildlife agencies, tribal governments, and USDA Wildlife Services to manage cormorants on lands and freshwaters to protect public resources, including fisheries, other migratory birds or wildlife, and plants, without having to obtain individual annual permits. However, states must first notify USFWS of their intent to act in accordance with the PRDO, and they must comply with specific annual monitoring and reporting requirements. DFWMR supported adoption of this rule, and staff now plan to use this new authority to more effectively manage cormorant impacts on fish and wildlife resources beginning in 2004.

In October 2003, USFWS published a Final Environmental Impact Statement (FEIS) pertaining to establishment of the PRDO and resulting actions by the states. The FEIS provided the basis for USFWS’ adoption of the PRDO which authorizes 24 states to implement a variety of cormorant management activities. A Notice of Intent to prepare an EIS was published in November 1999 and 10 public scoping meetings were held in spring 2000, including three in New York (Watertown, Syracuse, and Long Island). A draft EIS was published in December 2001 with a 100-day public comment period. Ten public hearings, including two in New York (Watertown, Syracuse) were held in early 2002. Furthermore, the EIS specifically examined ongoing cormorant management activities and studies in New York that documented impacts of cormorants on fish populations. In March 2003, a proposed rule was published to establish regulations implementing the proposed action identified in the DEIS (i.e., the PRDO). In August 2003, the notice of availability for the FEIS was published, followed by a 30-day comment

period. Copies of the FEIS can be obtained from: Shauna Hanisch, EIS Project Manager, U.S. Fish and Wildlife Service, Division of Migratory Bird Management, 4401 N. Fairfax Drive MS-MBSP-4107, Arlington, Virginia, 22203, phone (703) 358-1714.

On October 8, 2003, the final rule establishing the Public Resource Depredation Order was published in the Federal Register, with the following summary of environmental consequences of the action: “Our environmental analysis indicates that the action will cause the estimated take of <160,000 DCCOs [double-crested cormorants], which is not predicted to have a significant negative impact on regional or continental DCCO populations; will cause localized disturbances to other birds but these can be minimized by taking preventive measures, leading to the action having beneficial effects overall; will help reduce localized fishery and vegetation impacts; will not adversely affect any Federally listed species; is likely to help reduce localized water quality impacts; will help reduce depredation of aquaculture and hatchery stock; is not likely to significantly benefit recreational fishing economies or commercial fishing; may indirectly reduce property damages; and will have variable effects on existence and aesthetic values, depending on perspective.” Copies of the final rule can be viewed by browsing the table of contents for the October 8, 2003 Federal Register at: <http://www.gpoaccess.gov/fr/browse.html>.

### **Summary of Findings:**

The primary environmental impact of the proposed action is a reduction in double-crested cormorant numbers and productivity in specific areas of New York, to alleviate conflicts between this species and public resources, including other colonial-nesting waterbirds, important warmwater fisheries, and vegetation. DFWMR has reviewed the relevant impacts of the proposed action and concluded that it is within the scope of, and consistent with, the FEIS described above and prepared in accordance with the National Environmental Policy Act. SEQR regulations (6 NYCRR Part 617, §617.15) state that: “When a draft and final EIS for an action has been duly prepared under the National Environmental Policy Act of 1969, an agency has no obligation to prepare an additional EIS under this Part, provided that the federal EIS is sufficient to make findings under Section 617.11 of this Part.” DFWMR has prepared this statement of findings based on the federal FEIS, as discussed below.

1. DFWMR’s proposed actions are within the scope of, and consistent with, the Proposed Action in the federal FEIS. In October 2003, USFWS published a Final Environmental Impact Statement (FEIS) pertaining to establishment of the PRDO and resulting action by the states. The FEIS specifically considered and addressed the types of actions and impacts anticipated in New York (USFWS 2003). As noted on page 21, Table 6 (under the Proposed Action: Public Resource Depredation Order) in the FEIS, the following actions are allowed without a permit: take of nests, eggs, adults and young; harassment of adults and young; and management on public and private lands.

Furthermore, on pages 55-57, the FEIS states that a PRDO “...would likely result in a marked increase in the annual mortality of adult and/or juvenile DCCOs..” In fact, USFWS assumed that about 4,140 DCCOs would be killed annually in each participating state under this alternative (p. 56). USFWS also noted that adoption of the PRDO could result in moderate reductions in annual recruitment of DCCOs at some colonies by means of egg-oiling, egg destruction, or nest destruction.

2. The federal EIS considered a full range of alternatives and potential environmental impacts of cormorant management. The FEIS examined six distinct alternatives, including: 1) continue current cormorant management practices; 2) implement only non-lethal management techniques; 3) expand current cormorant damage management lethal techniques; 4) establish a new depredation order to address public resource conflicts; 5) reduce regional cormorant populations; and 6) establish frameworks for a cormorant hunting season. The environmental analysis considered potential impacts of each alternative on 1) cormorant populations; 2) fish; 3) other birds; 4) vegetation; 5) Federally-listed Threatened and Endangered Species; 6) water quality and human health; 7) economic environment; 8) fish hatcheries and environmental justice; 9) property losses; and 10) existence and aesthetic values. The FEIS specifically reviewed ongoing cormorant management activities and studies in New York that documented impacts of cormorants on fish populations. Interested parties in New York State were afforded ample opportunity to comment on the federal FEIS and the resulting rule, so it seems unlikely that a substantively different set of alternatives or potential impacts would be identified through development of a supplemental EIS by DFWMR.
3. Previous Environmental Assessments for cormorant management in New York have not identified any significant adverse environmental impacts. DFWMR staff and cooperators have been involved in cormorant management activities in New York State for many years. DFWMR and USFWS have prepared various site-specific Environmental Assessments or Negative Declarations for previous cormorant management work in New York, to comply with SEQR and/or NEPA. Those previous assessments, noted below, have consistently identified no significant adverse environmental impacts.

Specifically, work in eastern Lake Ontario has been covered by a Final Environmental Assessment prepared by USFWS (1999a), an Environmental Impact Statement prepared by DFWMR (2000), and annual documentation to the files indicating continued review of management activities to comply with SEQR. Egg-oiling and/or nest destruction at Oneida Lake and the Niagara River have been covered by a federal “Categorical Exclusion” allowing the annual issuance of USFWS depredation permits to DFWMR for these control activities. Fall hazing programs on Oneida Lake have been covered by Negative Declarations prepared in 1998 and 2003. Nest destruction activities on the Niagara River also have been covered by a Negative Declaration prepared in 1998 with annual review of management activities to comply with SEQR. Cormorant management work on Lake Champlain (Vermont) has been covered by a Final Environmental Assessment prepared by USFWS (1999b).

USDA Wildlife Services will be a cooperator in some of the cormorant management activities planned for 2004, especially on Oneida Lake, where they have carried out the fall hazing program since 1998. USDA recently completed a comprehensive Environmental Assessment covering their involvement in cormorant management in New York, which considered the full range of management actions planned by DFWMR and environmental consequences of alternatives. They concluded that an integrated cormorant management approach, using a combination of non-lethal and lethal management techniques (e.g., physical exclusion, habitat modification, harassment, shooting, trapping, egg addling/destruction, nest destruction, or trap and euthanasia),

consistent with actions proposed by DFWMR, was the preferred alternative. Furthermore, the EA concluded that no significant cumulative environmental impacts were expected from this or any of the alternatives considered. USDA was also a cooperating agency in the preparation of the federal FEIS, and they have prepared their own Record of Decision in compliance with NEPA. USDA's decision is to implement the public resource depredation order and participate in development of regional population objectives to reduce damages associated with cormorants, because in their opinion, that combination of alternatives would best fulfill its statutory mission and responsibilities.

4. Past experience with cormorant management in New York has not identified any unavoidable adverse environmental impacts. For the most part, DFWMR's proposed actions are similar to those used in the past. Management of cormorants, including egg-oiling, nest destruction, habitat modification, physical barriers, and intensive non-lethal hazing has been occurring in some areas of New York since the mid to late 1990s. The principal actions planned will continue to be extensive egg-oiling and nest destruction to limit annual reproductive success and prevent further growth of cormorant populations in selected areas of upstate New York. The most notable change in practices from previous years is that DFWMR is planning to use lethal control measures (i.e., shooting or live-trapping and euthanizing birds) in some situations, and intensive cormorant hazing activities will begin during spring on Oneida Lake. In the past, a limited number of cormorants (approximately 200 birds during 1998-2003, Appendix B) have been killed by DEC staff or cooperators for various purposes (e.g., for food habits studies, incidental mortality during banding) and intensive hazing activities have been conducted on Oneida Lake during late summer and fall.

For most of the last decade, DFWMR and USDA Wildlife Services have been actively involved in cormorant management in New York State. Based on the data we have collected on cormorant populations, research on fishery impacts, and experience managing nesting colonial waterbirds in New York, it is the professional judgement of DFWMR staff that no significant adverse impacts have resulted from any of these activities to date. Furthermore, no complaints or evidence of actual adverse effects have been reported by the public as a result of our cormorant management activities. From this, as well as the analysis presented in the federal FEIS, DFWMR concludes that adverse effects have not occurred and are not likely to occur as a result of our proposed actions. DFWMR does not anticipate any new or different potential impacts than were considered in the past, and appropriate monitoring and controls will be in place to ensure that any potential adverse impacts are avoided.

5. The impact on the statewide cormorant population in New York will be small. DFWMR's cormorant management activities will not have a significant impact on statewide cormorant abundance in New York for many years, although some local population reductions or redistribution will likely occur. In summer 2003, the total number of cormorants in New York State was estimated to be approximately 43,000 birds, including approximately 28,000 in upstate New York (Appendix A). Extensive egg-oiling and nest destruction will have no direct or immediate impact on the existing population, although the reduced production of young annually should help slow

population growth and lead to a gradual population reduction if continued for several years. Lethal removal of up to 800 cormorants statewide will have a negligible impact on the total population in New York (1.9%) or upstate only (2.9%). This is far below levels of take assumed by USFWS in their EIS (i.e., 4,140 birds per state) when it established the PRDO, which allows a take of up to 10% of any breeding colony without further authorization, and allows even greater take, as long as 30-day advance notice and rationale are provided. In some locations (i.e., Oneida Lake, Niagara River, Bass Island), as noted in the Description of the Action, DFWMR or cooperators may take more than 10% of a breeding colony (depending how USFWS defines a “colony”), as follows: Oneida Lake - up to 150 birds (25%) from a colony that typically consists of 600+ birds; up to 150 birds ( $\geq 50\%$ , as needed to prevent successful nesting) from Strawberry and Motor Islands where at least 120 pairs attempted to nest in early 2004; and up to 150 birds ( $\approx 10\%$ , as needed to prevent successful nesting) from Bass Island and Gull Islands, where approximately 750 pairs attempted to nest in early 2004. In addition, DFWMR will take some number of birds, as needed, to prevent any “pioneering” of new nesting sites by cormorants as a result of natural population expansion or management activities. DFWMR will notify USFWS of such plans at least 30 days in advance, as required by the PRDO.

6. Cormorants will not be eliminated from any local area. Cormorants will not be eliminated from any area as a result of management. Management objectives for all areas include maintenance of at least a minimum viable breeding population. For example, the long-term management objective for Little Galloo Island is 1,500 nesting pairs; the objective for Oneida Lake is at least 20 pairs (but no more than 100 birds); and the long-term objective for Lake Champlain is 300-600 pairs. Experience has shown that it would be very difficult to eliminate cormorants from any established breeding area, due to their large populations, site fidelity, and ability to move readily within and among areas. Thus, it is almost certain that cormorants will continue to occur at all sites, albeit in reduced numbers, even with very intensive management efforts.
7. Cormorant viewing opportunities will not be eliminated. Management of local cormorant breeding populations will not eliminate public opportunities to observe this species. Cormorant numbers will be reduced in some areas, but some birds will undoubtedly remain in all managed areas and provide ample opportunities for viewing, photography, nature study and other aesthetic benefits. Cormorants also occur at a growing number of unmanaged locations in New York (e.g., Long Island), so control measures in problem areas will have no adverse effect on viewing opportunities in many areas. In fact, reducing cormorant numbers in problem areas may increase public acceptance and appreciation of these birds, especially in areas where conflicts do occur.
8. Removal of cormorants would not alter a natural environmental setting. Cormorants have had deleterious impacts on natural vegetation in nesting areas across the state. Actions taken to limit or reduce numbers of nesting birds will help prevent further damage to natural vegetation that is important nesting habitat for other colonial waterbird species, that helps stabilize island substrates, and that people value for aesthetic reasons. In addition, cormorants have only recently become established in such large numbers that these adverse impacts are occurring. Cormorants were first documented breeding in New

York in 1945, when 14 nests were found on Gull Island in eastern Lake Ontario. As recently as 1985, there were only about 3,000 nesting pairs at six locations in New York. Any reduction in cormorant numbers from current levels would restore numbers to levels that occurred some time in the recent past.

9. Cormorant management will have a positive effect on the local environment. Cormorants are currently impacting a variety of important public resources, including other colonial waterbirds, warmwater fisheries, and vegetation that provides habitat for other species, helps resist erosion and has aesthetic value. Effective management of cormorants in New York will benefit these important public resources, enhance environmental conditions at nesting areas, and complement other DFWMR efforts to manage sustainable fish and wildlife populations.
10. Non-target species will not be adversely affected. A primary purpose of our cormorant management efforts is to maintain or enhance nesting populations of co-occurring bird species, especially common tern, black-crowned night heron, great egret, great blue heron and glossy ibis. Consequently, DFWMR and cooperators will limit disturbance of these other species during management activities to ensure that they continue to nest and successfully reproduce in affected areas. DFWMR has done this successfully for many years. In addition, DFWMR will monitor populations of co-occurring species to evaluate effectiveness of the program and to ensure that non-target species are not being adversely affected. A special graduate research study by Cornell University will continue to evaluate effects of cormorant hazing activities on common terns nesting on Oneida Lake. No Federally listed (e.g., piping plover, bald eagle) or similar-looking non-target species (e.g., anhinga, neotropic cormorant) occur regularly, if at all, in the any of the affected areas in New York State.
11. Cormorant management actions are consistent with New York's coastal management policies. State actions must be consistent with coastal policies defined in New York's Coastal Management Program. Eastern Lake Ontario and the Buffalo Harbor/Niagara River areas are within New York's coastal area, so a consistency determination was made for cormorant management in those areas.

Three of the 44 coastal policies are applicable to the proposed actions:

Policy 4. Strengthen the economic base of smaller harbor areas by encouraging the development and enhancement of those traditional uses and activities which have provided such areas with a unique identity;

Policy 7. Significant coastal fish and wildlife habitats will be protected, preserved and where practical, restored to maintain their viability as habitats; and

Policy 9. Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources.

Relative to Policies 4 and 9, the proposed management of cormorants is intended to increase smallmouth bass stocks in eastern Lake Ontario so they are better able to support the area's traditional bass fishery. This would reasonably be expected to expand recreational fishing beyond current levels, thus maintaining the traditional economic base. Under Policy 9, the proposed action may also increase the area's value for recreational birding by maintaining or enhancing diversity of the waterbird community in all affected areas. As noted earlier, DFWMR's cormorant management activities should enhance efforts to improve access to, or appreciation of, the diversity of waterbirds and the important habitats they depend on in coastal areas.

Relative to Policy 7, cormorant management is intended and expected to restore or maintain viability of nesting habitats for other colonial waterbirds in New York's coastal area, including designated significant coastal fish and wildlife habitats, e.g., Little Gallo Island; Strawberry and Motor Islands. Limiting or reducing cormorant numbers in areas wherever they co-exist with other nesting colonial birds will help protect, preserve, and in some cases restore habitat, while maintaining viable cormorant populations as a component of the local avifauna.

Consequently, DFWMR has determined that cormorant management, as described in this document, is consistent with New York's coastal management policies. Coastal Management Program staff in the New York Department of State concur with that determination and advised that formal certification was not necessary unless major habitat modifications were to occur on any sites located in New York's coastal area (B. Kennedy, pers. commun.).

12. “Non-lethal” alternatives, if successful, would have similar impacts on cormorant numbers at managed sites. A variety of techniques have been, and will continue to be, used by DFWMR and USDA to alleviate impacts of cormorants on public resources. Included among these techniques are many “non-lethal” measures to disperse cormorants or prevent nesting, such as noisemakers, lasers, fencing, grid wires over nesting areas, balloons, streamers, fencing, and mylar tape. These measures can provide relief in some situations but they are sometimes impractical, ineffective, too costly, or incompatible with desired uses of the affected lands or waters. Moreover, use of non-lethal alternatives alone, if successful, would have the same effect on the local environment as lethal methods, except that cormorants displaced by non-lethal measures may impact public resources or private property elsewhere. For example, hazing and nest removal efforts on Strawberry Island (Niagara River) may have caused birds to nest higher in trees on Motor Island where they were inaccessible for egg-oiling or nest destruction. Although DFWMR plans to continue use of non-lethal techniques, we will also use shooting or trapping and euthanasia as an integral part of our cormorant management program. Shooting will help reinforce non-lethal measures, provide samples for research, and help assess feasibility and effectiveness of shooting on a larger scale in the future if necessary. DFWMR, USFWS, and USDA Wildlife Services staff familiar with these areas all agree that an integrated cormorant management program, including some lethal control measures, is the most effective way to alleviate conflicts caused by these birds, with the least potential impact on other areas.

13. Monitoring and research will continue. DFWMR plans to continue a variety long-term studies of cormorant ecology, including population dynamics, movements, food habits and response to management activities, as well as fish stock assessments and colonial waterbird monitoring, in all affected areas, in order to evaluate success of our efforts.
14. Management effects are reversible. If, for any reason, management to control or reduce cormorant numbers is perceived to have had an adverse environmental impact, local populations at specific areas could be easily restored by cessation of management activities.

**Additional Information and Considerations:**

In addition to the findings discussed above, DFWMR considered additional issues in developing and evaluating its plans for management of double-crested cormorants in upstate New York. These are briefly summarized below.

1. There is local public support for reducing the cormorant population in these areas. There is little disagreement that cormorants are overabundant at the specific areas of New York where management is planned. Around eastern Lake Ontario and Oneida Lake in particular, where impacts on fish are a major concern, there has been extensive public outreach and stakeholder input on this issue. In both areas, many local elected officials, homeowner associations, anglers, and environmental organizations have indicated support for management to limit or reduce cormorant populations.
2. Cormorants would be humanely captured and/or killed. Most lethal take of cormorants would be done by shooting individual birds at or near breeding colonies or loafing/roosting sites. A smaller number of nesting birds may be live-captured using padded foothold traps set at nest sites, with any captured birds euthanized using carbon dioxide. This capture method has been successfully used in the past to facilitate banding cormorants for research purposes, with infrequent occurrences of injury to the birds. In all cases, DFWMR or USDA Wildlife Services staff would be directly involved, and would kill birds as quickly as possible.
3. Any birds killed would be disposed of in accordance with state and federal regulations. New York State's solid and hazardous waste regulations (NYCRR, Parts 360 and 370) establish the criteria and thresholds for proper disposal of waste, including dead animals. Any cormorants taken under the provisions of the federal PRDO must be either donated for scientific/educational use, buried, or incinerated. Although only a limited number of cormorants are likely to be taken, disposal of carcasses not used for scientific or educational purposes must comply with state regulations. Because cormorants are a top predator, they tend to bio-accumulate some persistent contaminants found in the environment. A review of available information relative to contaminant loads of cormorants has determined that they may be considered a form of solid, but not hazardous waste. Necessary carcass disposition resulting from any take occurring under the PRDO will be therefore be in compliance with NYCRR Part 360.

**For Further Information:**

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### Appendix A. Estimated Number of Double-crested Cormorants in New York

There are several ways in which to derive total or breeding population estimates for double-crested cormorants in New York. Breeding pair estimates are obtained annually, and in recent years have averaged approximately 10,500 pairs. To calculate a total population estimate, DFWMR assumed that 5,500 are reproducing (untreated) nests and 5,000 were non-reproducing (treated) nests due to current management practices. DFWMR also assumed a fledging rate of 1.8 young per nest, and survival rates of 0.5, 0.75, and 0.85 for birds aged 0, 1 and 2+ years, respectively.

	Nests	Birds
Non-reproducing Nests (NRN)	5,000	10,000
Reproducing Nests (RN)	5,500	11,000
Young of Year (YOY = 1.8*RN)	na	9,900
Age 1 (A1 = 0.5*YOY)	na	4,950
Age 2 (A2 = 0.75*A1)	na	3,713
Age 3+ (new breeders; A3 = 0.85*A2)	na	3,156
Total (estimated current population)	10,500	42,718

These estimates yield a total summer population estimate of 42,718 cormorants in New York State. Approximately 2,500 nesting pairs occur in coastal areas around Long Island, where no management is planned. Subtracting these from the statewide totals above, yields an estimated 27,846 total birds in upstate New York.

## Appendix B. Past Take of Double-crested Cormorants in New York

A limited number of cormorants have been killed by DFWMR staff or cooperators in conjunction with research and management activities in past years. That “take” of cormorants has been reported annually to USFWS as a condition of various permits authorizing those activities. A summary of the total take of adult and juvenile cormorants known to have occurred during 1998-2003 appears below:

Location	Year	No. Birds Killed	Method of Take	Purpose
Lake Ontario	1998	98	shotgun	diet studies
Lake Ontario	2001	1	capture mortality	banding
Lake Ontario	2002	1	capture mortality	banding
Oneida Lake	1998	4	capture/euthanize	fall hazing
Oneida Lake	2000	1	capture mortality	banding
Oneida Lake	2001	15	shotgun	diet studies
Oneida Lake	2002	18	shotgun	diet studies
Oneida Lake	2002	4	capture mortality	banding
Oneida Lake	2003	4	shotgun	diet studies
Oneida Lake	2003	8	capture mortality	banding
Oneida Lake	2003	23	shotgun	disease surveys
Niagara River	2003	7	shotgun	depredation
Lake Champlain	2001	17	shotgun	diet studies
Lake Champlain	2002	17	shotgun	diet studies
Lake Champlain	2003	NA	shotgun	disease outbreak
<b>TOTAL</b>	<b>1998-2003</b>	<b>218</b>	<b>all methods</b>	<b>various</b>

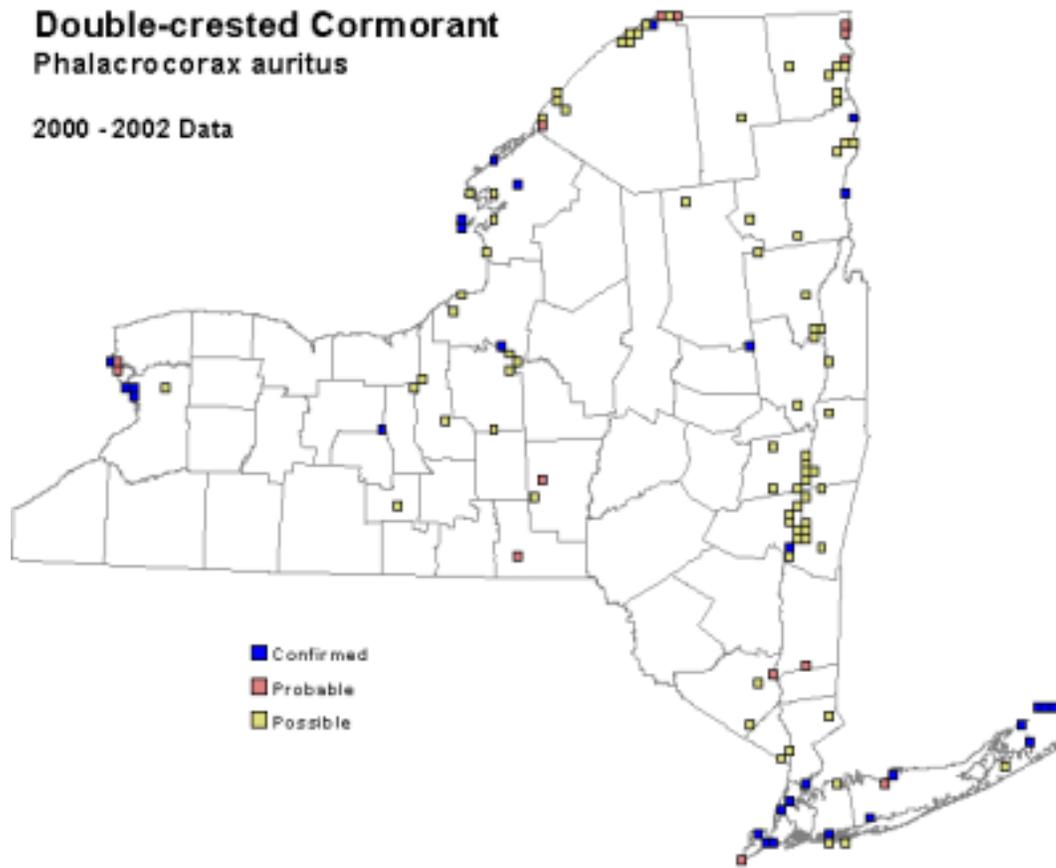


Figure 1. Breeding distribution of double-crested cormorants in New York, based on preliminary data from the Breeding Bird Atlas (<http://www.dec.state.ny.us/apps/bba/results/index.cfm>).