DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR THE ENVIRONMENTAL ASSESSMENT:

REDUCING DOUBLE-CRESTED CORMORANT DAMAGE IN WISCONSIN

Across the United States, wildlife habitat has been substantially changed as the human population expands and more land is used to meet human needs. These human uses often come into conflict with the needs of wildlife, which increases the potential for negative human/wildlife interactions. Double-crested Cormorants (*Phalacrocorax auritus*; DCCOs) are one of the wildlife species that engage in activities that conflict with human activities and resource uses. Conflicts with DCCOs include but are not limited to DCCO foraging on fish at aquaculture facilities, DCCO foraging on populations of sport and forage fish, negative impacts of increasing DCCO populations on vegetation and habitat used by other wildlife, damage to private property from DCCO feces, and risks of aircraft collisions with DCCOs at or near airports. In response to agency concerns, and complaints from the public regarding DCCO damage in Wisconsin, the United States Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS); the United States Department of the Interior, Fish and Wildlife Service (USFWS); and the Wisconsin Department of Natural Resources (WDNR) prepared an environmental assessment (EA) evaluating ways by which the agencies may work together to reduce DCCO damage and conflicts in Wisconsin.

The EA documents the need for DCCO damage management (CDM) in Wisconsin including the need to reduce DCCO damage to property and public resources and risks to human health and safety from DCCOs. It assesses potential impacts on the human environment from various alternatives for responding to damage problems, including alternatives which involve the take of birds under the Double-crested Cormorant Public Resource Depredation Order (PRDO; 50 CFR 21.48). With the exception of projects with impacts that may exceed those analyzed in the EA, the analysis covers present and future CDM actions by WS, the USFWS, and the WDNR wherever they might be requested and needed within the State of Wisconsin.

WS was the lead agency in the preparation of the EA, and the USFWS (including the Migratory Bird Program, Gravel Island National Wildlife Refuge (NWR) and Green Bay NWR) and WDNR were cooperating agencies. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions may be categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). However, WS, the USFWS, and the WDNR decided to prepare an EA to assist in planning CDM activities. The EA was also intended to clearly communicate to the public the potential social and environmental impacts of alternative way to meet needs for such management in the State, including the potential cumulative impacts on DCCOs and other wildlife species. Comments from the public were reviewed to identify and address substantive issues and to ensure that all appropriate alternatives were considered in developing the analysis and subsequent decision

(Appendix A). This document establishes WS choice of a management alternative and determination regarding the environmental impacts of the selected alternative based on the analysis in the EA, public comments, and agency response to public comments.

The EA is tiered to the USFWS Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) on the management of DCCOs in the U.S. (USFWS 2003). WS was a formal cooperating agency on the FEIS and subsequently adopted the FEIS and issued its own ROD to support WS' program decisions for its involvement in the management of DCCO damage. As such, many of the issues addressed in the EA have been analyzed in the FEIS.

The preferred alternative (EA Alternative 1) is to implement an Integrated Wildlife Damage Management (IWDM) program for DCCOs on public and private lands in Wisconsin. The IWDM approach, commonly known as Integrated Pest Management (WS Directive 2.105) involves the use of a combination of methods to reduce wildlife damage. Wildlife damage management, used as part of the WS Decision Model, is not based on punishing offending animals, but as a means of reducing damage (Slate et al. 1992, USDA 1997 revised, WS Directive 2.201). Resource management agencies, organizations, associations, groups, and individuals have requested assistance with CDM to protect private property, aquaculture and natural resources, and reduce risks to human health and safety in Wisconsin. All wildlife damage management activities will be conducted in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973.

The agencies agreed that an integrated approach using nonlethal and lethal methods was best to resolve DCCO damage problems, but there were differences in management objectives between the WDNR and USFWS. The WDNR preferred a management plan which included the reduction of DCCO colony size on Hat, Jack, Spider and Pilot Islands to reduce perceived impacts on fish populations, and that addressed concerns that resource demands of the large DCCO colonies could cause some birds to seek new sites with more readily available food, nest sites and nest materials. However, Pilot and Spider Islands are part of the Green Bay and Gravel Island National Wildlife Refuges that were established specifically "as a preserve and breeding ground for native birds." (Executive Orders 1487, 1678). Spider Island has also been the site of an ongoing DCCO banding and observation study started in 1988. At the time the EA was written, the USFWS felt there was not sufficient justification for DCCO population reductions at island refuges specifically established to protect breeding birds, or for CDM activities that could disrupt ongoing DCCO research. The USFWS also emphasized the importance of having sites where CDM is not conducted to compare to sites with CDM to improve understanding of the impacts of CDM activities.

After additional review of material in the EA and responses to comments, the USFWS has reaffirmed its decision to not conduct CDM on Pilot or Spider Islands at this time although limited amounts of CDM for the protection of property or co-nesting species could be permitted in the future so long as the impacts do not exceed those analyzed in the EA (USFWS 2009, See "Affected Environment" section below for details). WS only conducts CDM at sites with consent of the landowner/manager. Consequently, WS will not conduct CDM on or near the NWR islands unless requested to do so by the USFWS.

AGENCY AUTHORITY

United Stated Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS). WS is the federal program authorized by law to reduce damage caused by wildlife (Act of March 2, 1931 (46 Stat. 1468; 7 U.S.C. 426-426b) as amended, and the Act of December 22, 1987 (101 Stat. 1329-331, 7 U.S.C. 426c)). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS responds to requests for assistance from individuals, organizations and agencies seeking to reduce damage or risk of damage caused by wildlife.

United States Fish and Wildlife Service (USFWS): The USFWS has the primary statutory authority, under the Migratory Bird Treaty Act, for managing migratory bird populations in the U.S. In response to persistent conflicts and complaints relating to DCCOs, in 2003 the USFWS in cooperation with WS completed the FEIS on the management of DCCOs in the U.S. (USFWS 2003). The selected management alternative included a Public Resource Depredation Order (PRDO) to facilitate management of DCCO damage to public resources.

The PRDO was established to reduce the actual occurrence, and/or minimize the risk, of adverse impacts of DCCOs to public resources. Public resources include fish (both free-swimming fish and stocks at Federal, State, and Tribal hatcheries that are intended for release in public waters), wildlife, plants, and their habitats. It authorizes WS, State fish and wildlife agencies, and Federally-recognized Tribes (acting only on tribal lands) to control DCCOs, without a Federal permit, in 24 States (AL, AR, FL, GA, IL, IN, IA, KS, KY, LA, MI, MN, MS, MO, NY, NC, OH, OK, SC, TN, TX, VT, WV, and WI). It authorizes control on "all lands and freshwaters." This includes private lands, but landowner permission is required. It protects "public resources," which are natural resources managed and conserved by public agencies, as opposed to private individuals.

The USFWS is responsible for ensuring that the actions of agencies authorized to act under the PRDO (1) do not threaten the long-term sustainability of regional DCCO populations, (2) do not adversely affect other bird species that nest with DCCOs, (3) do not adversely affect Federally-listed species, and (4) comply with the terms and conditions of the PRDO, including notification and reporting procedures.

The USFWS also administers the National Wildlife Refuge System, including Green Bay and Gravel Island NWRs. The fundamental mission of the National Wildlife Refuge System is wildlife conservation. Green Bay and Gravel Island NWRs were established specifically in 1912 and 1913 (Executive Orders 1487, 1678) "as a preserve and breeding ground for native birds." Plum and Pilot Island were transferred to the USFWS in 2007 to protect native and migratory bird habitat and endangered species habitat.

Wisconsin Department of Natural Resources (WDNR). The WDNR, under the direction of a Governor-appointed Natural Resources Board, is specifically charged by the Legislature with the management of the State's fish and wildlife resources. Although legal authorities of the Natural

Resources Board and the WDNR are expressed throughout Wisconsin Administrative Code (WAC), the primary statutory authorities include establishment of a system to protect, develop and use the forest, fish and game, lakes, streams, plant life, flowers, and other outdoor resources of the state (s. §§23.09 Wis. Stats.) and law enforcement authorities (s. §§23.10, s. 23.50, s. 29.001 and s. 29.921 Wis. Stats.).

CONSISTENCY

The analyses in the EA demonstrate that Alternative 1: 1) best addresses the needs and issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS and the cooperating agencies the best opportunity to reduce DCCO damage while providing low impacts on non-target species, and 4) reduces economic losses to aquaculture resources and other private property.

MONITORING

Wildlife Services, the USFWS (NWRs), and the WDNR will monitor the impacts of their management activities on DCCOs and non-target species that could be affected by CDM activities. The USFWS will also annually assess the impacts of the PRDO and DCCO depredation and scientific collecting permits to ensure that cumulative CDM activities do not adversely impact the long-term sustainability of regional DCCO populations, and that they are having minimal impacts on non-target wildlife species. This will be based on review of USFWS permit records and annual reports submitted by agencies and individuals authorized to take DCCOs under the PRDO combined with periodic population monitoring efforts. The EA will also be reviewed each year to ensure that there are no new needs, issues or impacts meriting additional analysis.

PUBLIC INVOLVEMENT

The draft EA was prepared and released to the public for a 35-day comment period in a legal notice placed in the Wisconsin State Journal August 19-21, 2008. A notice of availability of the EA for public comment was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. The USFWS Region 3 Regional Office issued a press release to news media in Wisconsin and provided a copy of the draft EA on their website (http://www.fws.gov/midwest/MidwestBird/cormorants.htm). Wildlife Services also made a copy of the EA available on their website at http://www.aphis.usda.gov/regulations/ws/ws_nepa_environmental_documents.shtml. A total of 258 comment letters were received on the EA. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the program. Responses to specific comments are included in Appendix A of this document and Chapter 6 of the EA. All comment letters are maintained at the Wildlife Services State Office in Sun Prairie, WI.

MAJOR ISSUES

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on DCCO populations
- Effects on other wildlife (and plant) species, including T&E species
- Effects on human health and safety
- Effects on aesthetic values
- Humaneness and animal welfare concerns of the methods used

AFFECTED ENVIRONMENT

Cormorant damage management activities may be conducted in and around public and private facilities and properties and at other sites where DCCOs may roost, loaf, feed, nest or otherwise occur. Examples of areas where CDM activities could be conducted include, but are not necessarily limited to: aquaculture facilities; fish hatcheries; lakes; ponds; rivers; swamps; marshes; islands; communally-owned homeowner/property owner association properties; boat marinas; natural areas; wildlife refuges; wildlife management areas; and airports and surrounding areas. The preferred alternative may be conducted on properties held in private, local government, state, federal, or tribal ownership once landowner permission has been obtained. WS could conduct CDM at any of the areas where DCCOs cause damage or risks to health and safety in the state, including any of the DCCO breeding sites currently identified throughout the state, with landowner permission (EA Appendix F). Some of the DCCO breeding sites where CDM may be conducted are mixed species colonies where CDM measures are intended to protect the vegetation including that used by co-nesting colonial waterbirds such as Great, Egrets, Great Blue Herons and Black-crowned Night-herons. However, the CDM methods have the potential to negatively impact other colonial nesting waterbirds, so the control measures proposed for these sites have been carefully evaluated and modified to minimize risks to and disturbance of co-nesting species. The preferred alternative includes plans to monitor the impact of CDM activities on co-nesting colonial waterbirds. Cormorant damage management activities would be discontinued and re-evaluated/redesigned if the activities appear to be having a substantial negative impact on co-nesting colonial waterbirds.

This EA analyzes potential effects of WS and cooperating agency CDM activities that will occur or could occur at private and public property sites or facilities within Wisconsin with specific analysis of activities proposed for DCCO breeding colonies in the Green Bay and Door County area. Based on the analyses in the EA and responses to public comments, the USFWS has reaffirmed its determination that CDM for the protection of fishery resources is not warranted at Pilot and Spider Islands at this time. However, because the purpose of the proposed action is to reduce damage and because the program's goals and directives are to provide services when requested and considered necessary, within the constraints of available funding and workforce, it is conceivable that other CDM efforts could occur within the NWRs (e.g., protection of property

or co-nesting species at Spider and Pilot Islands). The agencies are aware of the public interest in the issue of CDM on refuge lands for the protection of fishery resources, and will supplement the EA if the NWRs reconsider the decision to not conduct CDM on refuge lands for the protection of fish populations. Supplementing the EA pursuant to NEPA would include providing the public the opportunity to comment on the proposed action in the same manner as the public involvement process for the EA.

The Wisconsin DCCO Coordination Group will discuss all PRDO proposals. When considering whether a site is suitable or not for CDM, the agencies and coordination group will review the number and species of birds in the colony, the colony's longevity and stability, the colony's overall contribution to waterbird conservation in Wisconsin and the Great Lakes, and the nature of the DCCO damage being addressed.

ALTERNATIVES THAT WERE FULLY EVALUATED

The following five alternatives were developed to respond to the issues. Four additional alternatives were considered but not analyzed in detail (see Section 3.3). Each of the lead and cooperating agencies will make its own decision regarding the alternative to be selected. The alternative selected by each of the agencies may impact the alternatives available to the other agencies. Descriptions of each alternative, and a discussion of how the selection of each alternative by one agency affects the management actions of the other agencies is provided in Chapter 3 and Appendix E of the EA. A detailed discussion of the effects of the alternatives on the issues is described in Chapter 4 of the EA. The following is a summary of the alternatives.

Alternative 1. Integrated CDM Including Implementation of the PRDO (Preferred Alternative/No Action Alternative). As defined by the Council on Environmental Quality, the no action alternative can be interpreted as the continuation of current CDM practices. This alternative would continue and expand current CDM activities in Wisconsin that have included working under the PRDO and migratory bird permits (MBPs). An integrated wildlife damage management (IWDM) approach would be implemented to reduce DCCO damage to and conflicts with public resources, aquaculture, property, and human health and safety. The IWDM strategy would encompass the use and recommendation of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, target and non-target species, and the environment. Under this action, the lead and cooperating agencies could provide technical assistance and direct operational damage management, including non-lethal and lethal management methods by applying the WS Decision Model (Slate et al. 1992). When appropriate, physical exclusion, habitat modification, nest destruction, or harassment would be recommended and utilized to reduce damage. In other situations, birds would be removed by shooting, egg oiling/addling/destruction, or euthanasia following live capture. In determining the damage management strategy, preference would be given to practical and effective non-lethal methods. However, non-lethal methods may not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and lethal methods, or there could be instances where the application of lethal methods alone would be the most appropriate strategy.

The primary strength of this alternative and the IWDM approach is that it allows for access to the full range of CDM techniques when developing site-specific management plans. However, under this alternative, an agency could decide to only use a subset of the possible CDM methods for the management of DCCO damage at a specific site. For example, it would be possible to use only non-lethal techniques at specific sites. Selection of this alternative also does not obligate any agency to work to implement the WDNR management objectives at all sites under their jurisdiction. For example, the NWRs could choose to restrict their actions under this alternative to responding to and discouraging DCCO activity at any new NWR sites in the Door County Area and not conduct CDM at Pilot or Spider Islands.

Cormorant conflict management activities would be conducted in the State, when requested and funded, on private, public or tribal property, after receiving permission from the landowner/land manager. All management activities would comply with appropriate Federal, State, and local laws. The USFWS would be responsible for ensuring compliance with the PRDO and MBPs and that the long-term sustainability of regional DCCO populations is not threatened. Selection of this alternative by any of the agencies would not restrict the management options available to the other agencies.

Implementation of the PRDO: If this alternative is selected, the agencies could work to meet the management objectives set in Section 1.5.8 under the authorities established in the PRDO. Given that the USFWS has determined that no CDM will be conducted on Pilot and Spider Islands, primarily egg-oiling will be used to gradually reduce the DCCO populations in the Green Bay area (e.g., Hat, Jack and Cat Islands) over the course of several years. However, birds may be killed at these sites if oiling is not sufficient to meet management objectives. An adaptive management approach would be used that would include regular monitoring of the results and impacts of CDM efforts in Wisconsin and new information from the literature. Management methods and objectives will be adjusted as needed based on available information. This process would include review of the EA to determine if the analysis adequately addresses current conditions and plans. The EA will be supplemented or replaced as needed in accordance with APHIS and USFWS NEPA implementation procedures.

It is the agencies' determination that the resource protection objectives for Cat, Hat, and Jack Islands do not require an immediate reduction in DCCOs. Consequently the agencies feel they can use a slower, more conservative approach to achieving population reduction goals (e.g., egg oiling) as opposed to shooting adults which would result in more immediate reductions in DCCO numbers. This would allow the agencies to monitor the affected resources and adjust management actions gradually in response to new information. It is also hoped that using only egg-oiling and not shooting will minimize the disruption to DCCOs and the likelihood that birds will move to new sites.

On other sites such as Plum, Hog, and Lone Tree Islands, in the Green Bay Area and Miller's Bay Island in Lake Winnebago, that still have established trees and shrubs, a more aggressive approach involving the full range of available CDM methods may be used. Carcasses of DCCOs

killed for reduction of damage to public resources would be disposed of in landfills or used in research projects in accordance with applicable permits and State and Federal regulations.

Alternative 2. Only Non-lethal CDM by Federal Agencies. Under this alternative, Federal agencies would only use, recommend, or permit non-lethal techniques for CDM. WS would not assist with the site evaluations and completion of WS Form 37 required by the USFWS for a MBP. The USFWS would not issue MBPs for lethal techniques to resolve conflicts with DCCOs or research involving lethal CDM methods. The NWRs would not use or permit the use of lethal CDM on the refuges. Permits are not required from the USFWS for non-lethal CDM techniques so access to these methods would not change.

The USFWS FEIS on DCCO management permits PRDO actions that will result in the take of less than 10% of a DCCO colony (USFWS 2003). Decisions made by the USFWS in this EA cannot affect this type of CDM action on non-Federal land. The WDNR and tribes could still act to manage DCCOs under the PRDO and could use lethal methods to take up to 10% of the birds in a colony in combination with nonlethal methods to meet management objectives (Section 1.5.7) on non-Federal lands. Egg oiling involves killing the developing fetus and, as such, is a lethal CDM method. As with other lethal techniques, egg oiling could be used by the state and tribes, but would not be used by the Federal agencies, nor would it be used on Federal lands. The WDNR could also use egg and nest destruction and lethal take of up to 10% of the local colony to discourage DCCO colonization of new non-Federal sites in the Green Bay area, and when assisting the City of Oshkosh with DCCO management on Miller's Bay Island. However, lethal methods could not be used to discourage DCCO colonization of new sites on Federal lands in the Green Bay Area because that would require the approval of the USFWS NWRs. Overall management objectives for the CDM in Wisconsin would be as described for Alternative 1.

Alternative 3. Only Technical Assistance from Federal Agencies. The lead and cooperating agencies considered two ways to design this alternative. In the first design, the Federal agencies would not conduct operational CDM, but would grant permission to other agencies (WDNR, Tribes) to work on Federal land as a form of technical assistance. This alternative is similar to Alternative 1 and provides little new information to manage DCCO. In the second design, the Federal agencies would not conduct operational CDM and would not permit any CDM on Federal lands. The agencies selected this design for the EA because it allowed consideration of the impacts of an intermediate level of CDM not analyzed in any of the other alternatives and also allowed the agencies to consider the impacts of having CDM conducted at some but not all sites that were under consideration in Alternative 1. Analysis of the second design also gave the agencies the opportunity to address concerns of individuals opposed to CDM on the NWRs.

Under this alternative, Federal agencies would not conduct operational CDM in Wisconsin, and would provide only technical assistance. WS would assist with site evaluations and completion of WS Form 37 documents required by the USFWS for MBPs. Issuing permits is a type of technical assistance, so the USFWS would still be able to issue MBPs and grant approval for PRDO projects anticipated to take more than 10% of local DCCO population. However, operational CDM would not be conducted on Federal lands (e.g., the NWRs). Cormorant conflict management for the protection of public resources on nonfederal lands could only be

conducted by WDNR or the tribes, and would be the same as described for Alternative 1. WS would not be involved in operational CDM.

Alternative 4. No Federal CDM. Under this alternative, Federal agencies would not participate in CDM. WS would not conduct the consultations or complete the forms required by the USFWS to issue MBPs, and the USFWS would not issue MBPs. Non-lethal CDM techniques could be used without a permit. Information on CDM methods would be available through other sources such as USDA Agricultural Extension Service offices, USFWS, WDNR, universities, or pest control organizations.

As with Alternative 2, the USFWS would not grant approval for actions conducted under the PRDO that propose the take of more than 10% of the local DCCO population. Decisions made by the USFWS in this EA cannot affect this type of CDM action on non-Federal land. The WDNR and tribes could still act as action agencies under the PRDO and could use lethal methods to take up to 10% of local DCCO colonies in combination with nonlethal methods to try and meet management objectives (Section 1.5.7) on non-Federal lands. Selection of this alternative would not result in much change in the proposal to use egg oiling to achieve desired reductions in nesting DCCOs on Cat, Hat and Jack Islands. The WDNR could also use egg and nest destruction and lethal take of up to 10% of the local colony to discourage DCCO colonization of new sites in Green Bay that are not Federal lands and when assisting the City of Oshkosh with management of DCCO impacts on Miller's Bay Island. No CDM would be conducted at the NWRs because Federal agency (USFWS) approval would be needed for any activities at that location.

Alternative 5. Integrated CDM Program, Excluding Implementation of the PRDO. There was ongoing litigation regarding the USFWS EIS on management of DCCOs at the time the EA was written (USFWS 2003).[1] Consequently, the agencies developed this alternative which evaluates the impacts of implementing an integrated CDM program in the absence of the PRDO. Agency actions under this alternative would be identical to Alternative 1, with the exception that WS, WDNR, and tribe(s) would not conduct CDM under the PRDO. All CDM would be conducted under MBPs. As currently implemented by the action agencies, MBPs could be requested and issued for the reduction of DCCO impacts on sensitive species or their habitats (e.g., vegetation), but, with the exception of research projects, would generally not be requested or issued for birds taking free-swimming fish from public waters. The only projects proposed under the PRDO which include protection of fishery resources are those for the Door County Area and the Kewaunee River. WDNR management objectives in the Door County Area have also been established to prevent the establishment of new DCCO colonies at sites with vegetation used by other colonial waterbirds.

[1] A court decision has been subsequently issued in favor of the USFWS (05-2603-cv). We have retained this alternative because it provides valuable information on an intermediate level of CDM between that proposed in Alternative 1 (Preferred Alternative) and that proposed in Alternative 4 (No Federal CDM).

FINDING OF NO SIGNIFICANT IMPACT

Many of the issues analyzed in the EA were also covered in the FEIS (USFWS 2003). The analyses in the EA indicate that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of the preferred alternative (Alternative 1). I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Cormorant damage management as conducted by WS and the other action agencies in Wisconsin is not regional or national in scope. The impacts of cormorant management that are regional or national in scope have been addressed and analyzed in the FEIS.

2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of the action agencies' standard operating procedures and adherence to laws and regulations will further ensure that the agencies' activities do not harm the environment.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to CDM, this action is not highly controversial in terms of size, nature, or effect. Public controversy over cormorant management has been acknowledged and addressed in the FEIS and the EA.

5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks. The issue of uncertainty about effects of DCCO management in general has also been addressed in the FEIS.

6. The preferred alternative would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The EA discussed cumulative effects on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State. The FEIS analyzed the potential for significant cumulative impacts on national and regional DCCO populations and other species from implementing CDM activities and has determined that such impacts would not be significant.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources. If an individual activity with the potential to affect historic resources is planned under the selected alternative, then site-specific consultation as required by Section 106 of the NHPA would be conducted as necessary (Section 1.9.2 of EA).

9. The USFWS has determined that the proposed program would have no effect on or is not likely to adversely affect any Federally-listed threatened or endangered species. This determination is based upon the Intra-Service Biological Evaluations completed by the USFWS for the FEIS and an Informal Section 7 Consultation under the Endangered Species Act (ESA) between WS and the USFWS for this EA. WS and the other action agencies will abide by the conservation measures provided in the FEIS and the Section 7 Consultation for CDM in Wisconsin to avoid adverse impacts to Piping Plover, pitcher's thistle and dwarf lake iris. The Section 7 consultation for this EA also includes measures for the protection of Bald Eagles which are no longer listed as a Threatened species under the ESA but which do have special protections under the Bald and Golden Eagle Protection Act. Wildlife Services and the WDNR have also determined that the proposed program will not adversely affect any Wisconsin State-listed threatened or endangered species.

10. The proposed action would be in compliance with all Federal, State, and local laws.

DECISION AND RATIONALE

I have carefully reviewed the EA prepared for this proposal and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 - Integrated CDM Program, including implementation of the PRDO (Preferred Alternative) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 is selected because (1) it offers the greatest chance of maximizing effectiveness and providing benefits to public resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. The comments identified from public involvement were considered, and where appropriate, changes were made to the EA. The revisions that were made to the EA did not substantially change the analysis. Therefore, it is my decision to implement the preferred alternative as described in the EA.

Copies of the EA are available upon request from the the U.S. Fish and Wildlife Service, Division of Migratory Birds, 1 Federal Drive, Fort Snelling, MN 55111-4056 or on the USFWS Regional Office website at: http://www.fws.gov/midwest/MidwestBird/cormorants.htm. The EA

may also be obtained from the Wisconsin Wildlife Services Office, 732 Lois Dr., Sun Prairie, WI 53590, phone: (608) 837-2727, FAX: (608) 837-6754, or the WS website at: http://www.aphis.usda.gov/regulations/ws/ws_nepa_environmental_documents.shtml.

Charles S. Brown, Regional Director
USDA, APHIS, WS – Eastern Region

4/21/09
Date

APPENDIX A
RESPONSES TO COMMENTS

This appendix contains issues raised by the public during the comment period for this EA and the agencies' response to each of the issues. Material in this appendix is duplicated in Chapter 6 of the Final EA[2]. The agencies received 258 comment letters regarding the EA, 128 of which were copies of one of 3 form letters. Comments from the public are numbered and are written in bold text. The agencies' response follows each comment and is written in standard text.

The EA (Section 2.1.4) notes that the public reaction to wildlife damage management is variable and mixed because there are numerous philosophical, aesthetic, and personal attitudes and opinions about the aesthetic and utilitarian values of wildlife, and the best ways to reduce conflicts/problems between humans and wildlife. The diversity of opinions regarding wildlife and wildlife management was reflected in letters advocating for and against CDM and the proposed CDM program. Comments ranged from expressions of pleasure at the increase in DCCO numbers and the opinion that the increase was a sign of the improving health of the Great Lakes ecosystem to expressions of dismay at another adverse impact on the native ecosystem by a species perceived to be present in artificially high numbers because of the abundance of non-native fish for forage. Despite the diversity of values and opinions, the common theme in all the letters was the authors' passionate concern for the well-being and future of the state's natural resources, a concern shared by the lead and cooperating agencies.

1. Cormorants are a non-native invasive species. Why is this species federally protected? What good is a DCCO?

Double-crested Cormorants are native to North America and are listed as a protected species under the MBTA. The cormorant taxonomic family (*Phalacrocoracidae*) and 31 other families of birds were added to the List of Migratory Birds (birds protected under the MBTA) in 1972 as a result of an amendment to the 1936 "Convention between the United States of America and the United Mexican States for the Protection of Migratory Birds and Game Mammals" (23 U.S.T. 260, T.I.A.S. 7302). As noted in the EA (Section 1.5.1), and FEIS (USFWS 2003), DCCO populations declined sharply in the U.S. between 1940s and 1970s across the species' range, and, in Wisconsin, DCCOs were state-listed as an endangered or threatened species from 1972 – 1986. Given the relatively rapid recovery of the species, it is not surprising that their resurgence in recent years has been perceived by some individuals as an introduction of a new species.

DCCOs, as a predatory species, are an integral part of a diverse and healthy native ecosystem (USFWS 2003). However, protection under the MBTA does not preclude management of damage problems caused by DCCOs. The USFWS established the PRDO and issues MBPs to

[2] Chapter 6 of the EA is provided in this document instead of reprinting the entire EA to reduce costs and use of paper. Copies of the final EA may be obtained at the USFWS web site (http://www.fws.gov/midwest/MidwestBird/cormorants.htm), the WS website (http://www.aphis.usda.gov/regulations/ws/ws_nepa_environmental_documents.shtml) or by contacting USDA, APHIS, WS, 732 Lois Dr., Sun Prairie, WI 53901.

help resolve damage by DCCOs. The purpose of the EA was to determine if and how the agencies would use the PRDO and MBPs to address DCCO damage in Wisconsin.

2. EA fails to note positive impacts of DCCOs on other species.

The loss of trees and shrubs that can result from use by high densities of DCCOs may have negative impacts on tree-nesting species but does create opportunities for species which nest in open areas. The EA notes in Section 1.5.4 that some colonial waterbirds such as pelicans, Common Terns, and potentially Caspian Terns prefer sparsely vegetated substrates. However, DCCO impacts on these species are not always beneficial. At Leech Lake in Minnesota, high numbers of nesting DCCOs caused shifts in use of nesting area by gulls, which in turn moved into nesting areas used by Common Terns to the detriment of the terns despite nonlethal efforts to exclude the gulls from the tern nest sites (e.g., overhead wires and nest and egg destruction; USDA 2005). Koonz (2007) noted that in long-term established colonies, incidence of birds destroying eggs of birds disturbed during visits by researchers appeared to be lower in colonies where DCCO and pelican nests separated tern and gull nests. However, the statement was an informal observation and no formal studies have documented this impact. In the Great Lakes region nest predation by gulls has been observed in colonies where CDM is conducted and CDM programs have been modified to minimize egg destruction by gulls (USDA 2005, 2006*a*).

Koonz (2007) describes DCCOs as primary food finders, noting that species such as gulls, terns and pelicans have learned to follow foraging groups of DCCOs and take advantage of food (i.e., fish schools) brought to the surface in response to diving DCCOs. Some commenters who fish in the Door County and Green Bay area also reported seeing this behavior, expressing concern that DCCOs may have impacts on fish populations in excess of the food needed to support DCCOs. Inadequate data exist on the extent or frequency of this type of behavior, to quantify its impacts on co-feeding bird or fish populations. However, it should be noted that under the preferred alternative at least 5,000 pairs of nesting DCCOs plus juveniles and non-breeding birds and migrants would still be present in the Door County area. Consequently, opportunities for gulls, terns and pelicans to forage with DCCOs would not be eliminated

3. Commenter is concerned that DCCOs will spread to new sites and have adverse impacts on vegetation and tree and shrub-nesting species at the new locations. Some commenters expressed specific concerns about Plum and Hog Islands in Green Bay NWR

The agencies share this concern and while there may be some inland areas where DCCO colonies may become established or re-establish without causing substantive problems, one of the general management objectives of the proposed action is to prevent establishment of new DCCO colonies in the Green Bay/Door County Area at sites with tree and shrub-nesting colonial waterbirds, or sensitive vegetation[3] and bird species such as state or federally-listed threatened

[3] Protection of vegetation under the PRDO would be warranted if: the damage is deemed significant by the agency responsible for management of the vegetation; the vegetation comprises a unique or ecologically special vegetative community type (e.g., Carolinian forest); the vegetation provides important habitat for wildlife species of concern; the vegetation is important in preventing island erosion; and/or the vegetation includes Federal- or State-listed threatened or endangered plants.

and endangered species and USFWS Birds of Conservation Concern (Section 1.5.8.1, USFWS 2008).

4. DCCO numbers are at the highest levels in recorded history. There is no mention from early French explorers of large numbers of DCCOs.

There are several historical reports from the 1800s of DCCOs nesting, sometimes in high numbers, at inland lakes in Minnesota, Missouri, Ohio, Ontario, Manitoba and Saskatchewan (Mortensen and Ringle 2007, Wires and Cuthbert 2006). However, less information is available on nesting DCCOs in the Great Lakes (Wires and Cuthbert 2006). The first formal report of DCCOs nesting on the Great Lakes comes from an anecdotal report of nesting in 1913. However, anecdotal and circumstantial evidence would appear to indicate DCCOs were probably nesting on the Great Lakes in the 1800s. The EA provides a review of available information regarding current DCCO densities in Wisconsin. In general, most biologists agree that recent numbers of DCCOs nesting on the Great Lakes have been the highest in recorded history, although a 2007 survey indicated that the total number of nesting DCCOs in the Great Lakes may have declined slightly from 2005 numbers (C. Weseloh and F. Cuthbert, unubl. data, Weseloh et al. 2006, Wires and Cuthbert 2006).

5. Plan needs to consider re-establishing vegetation on affected islands. Adverse impacts from DCCOs on plants and other birds will take years to reverse and/or will be irreversible if not managed.

As noted in EA Section 1.5.8.2, the agencies do not plan to work to reestablish vegetation on Hat, Jack, Spider, Pilot or Cat Islands. As noted in Issue 1 above, sparsely vegetated nesting sites are preferred by some bird species and have their place in native ecosystems. Pelicans nest on Cat and Hat Islands and gulls nest on all 5 Islands. The agencies recognize that the pattern of bird colonization and vegetation alteration is a natural process, but, the agencies are also aware of the importance of trees and shrubs to some species of colonial waterbirds and the need to protect rare and/or sensitive plants and vegetative communities. The decision to not attempt to re-vegetate Cat, Hat, Jack, Spider, and Pilot islands, and the decision to act to prevent the establishment of new DCCO breeding colonies at forested sites in the Green Bay area were made to balance the needs of the various plant and bird species living in the area within the constraints of available time and resources. Even if the agencies were to decide to reestablish trees and shrubs on the islands, the number of other birds, especially gulls, on some islands would make re-vegetating the sites problematical unless action was taken to reduce nesting by gulls and DCCOs. For example, in 2007, Hat and Jack Islands supported colonies of approximately 1,500-1,800 breeding pairs of Herring Gulls and on Spider Island there were over 2,400 nesting pairs of Herring Gulls (EA Appendix F). Given that DCCOs are attracted to trees and shrubs for nesting (Hebert et al. 2005) when the option is available, protecting the vegetation while still retaining DCCO colonies on the islands, as is described for the preferred alternative could be very difficult and labor intensive. However, as noted for Responses 6 and 15 below, there is some natural vegetation regeneration at Spider Island. Monitoring of conditions at that location will provide

useful information on the reestablishment of trees and shrubs at sites with large DCCO colonies. It should be noted that although the agencies have decided to not reestablish trees and shrubs on the islands, their decision does not preclude the owners of private islands from undertaking efforts to establish new vegetation.

6. There is no other life on Pilot Island except DCCOs. The environment on Spider, Pilot, Cat, Hat and Jack Islands is too fragile to support DCCOs and any other living thing.

This statement is inaccurate. Appendix F of the EA provides information on other bird species co-nesting on the islands with DCCOs. Interestingly, USFWS personnel and volunteers working on Spider Island indicate that there is a resurgence of willow, aspen and dogwood at the site in spite of the fact that Spider Island has one of the oldest DCCO colonies in the Green Bay/Door County area (S. O'dell, USFWS Horicon NWR, pers. comm., K. Stromborg, pers. comm.). See also Response 5 above.

7. Concerned about potential DCCO impacts to private property including vegetation.

In general, under the chosen alternative, DCCO damage to private property could be addressed though the use of nonlethal methods which do not need a permit and, if needed, by requesting a MBP from the USFWS. Wildlife Services could provide technical assistance (advice) on CDM and, at the request of and with funding from the landowner, could also provide operational assistance with damage management. If DCCO activity on private property adversely impacts public resources as defined under the PRDO (e.g., fish populations, nesting habitat of bird species of concern), the WDNR may choose to work with the landowner to address the damage problem within context of the PRDO as has been the case with Hat and Jack Islands in Green Bay, and Miller's Bay Island and Long Tail Island in Lake Winnebago.

8. The financial possibilities of DCCO observation are not mentioned anywhere in EA. The spectacle of thousands of DCCOs accompanied by hundreds of pelicans and innumerable gulls is one that could be used to generate tourism revenue. Agencies should make some attempt to estimate other ecosystem values.

Although NEPA regulations do not require a formal monetized cost-benefit analysis (CFR 1502.23), the EA does provide available information on economic impacts of non-consumptive wildlife activities in Wisconsin (EA Section 1.5.4). In public comments, the aesthetic and non-consumptive use value of large colonies of DCCOs and co-nesting species varied considerably. Some individuals perceived the large groups of DCCOs as "menacing" or complained about the noise, odor and vegetation loss resulting from large colonial waterbird colonies. Other expressed their excitement and pleasure at knowing that native wildlife populations were healthy enough that they could be observed in such abundance. The EA Section 1.5.4 notes that non-consumptive uses of wildlife such as bird-watching contribute significantly to the state economy, but more site-specific information is not available. The USFWS has chosen to not allow DCCO colony reduction efforts on Pilot or Spider Islands, and CDM efforts at the remaining islands would leave a minimum of 500 breeding pairs (1,000 birds) per Island on Hat and Jack Islands and 1,000 pairs on Cat Island. These birds together with their young-of-the-year, non-breeding

birds and co-nesting species would still be available for birders who enjoy watching large colonies of DCCOs and co-nesting species. Consequently, there would still be opportunities to develop economic endeavors based on watching large colonies of DCCOs (this would have to be done at a distance to avoid disturbance to the birds).

9. EA uses impacts on vegetation and other birds as justification for reducing DCCO numbers in Lower Green Bay but provides no proof that DCCOs are having an adverse impact.

Section 1.5.4.1 shows the pattern of vegetation loss at Cat Island that was concurrent with increases in DCCO nesting at the Island. We realize that the presence of high numbers of other species such as gulls may have contributed to the loss of vegetation on Cat Island, but we think that loss of trees (especially the cottonwoods that were preferentially used by DCCOs during the initial years of their presence at the island) was likely linked to DCCO activity. Section 1.5.8.2 describes the WDNR' objectives for Lower Green Bay as follows, "The proposed goal for Lower Green Bay is to reduce the breeding population and associated demands on food resources and/or nest space to *minimize incentives for DCCO expansion* from 2.5 acre Cat Island onto Lone Tree Island and other forested habitat in Lower Green Bay. No new DCCO colonies are desired in this area. This management objective was established by the WDNR after consultation with agency and other biologists. It would allow for a viable DCCO population[4], should reduce DCCO demands on food resources and nesting space and should leave ample nesting space for other colonial waterbirds such as American White Pelicans.

10. The USFWS is preventing the state from doing something to manage DCCOs. Why does it take political pressure to force a response to a real scientific need? What is USFWS waiting for?

Each agency retains its own authority to make management decisions about DCCOs. The USFWS has authority for the management of migratory birds through the MBTA and oversees implementation of the PRDO. The USFWS is also charged with the management of the National Wildlife Refuges in Green Bay. The agencies agree that it is not unreasonable or contradictory for the threshold of action for a National Wildlife Refuge to differ from that of the WDNR, WS, or private property owners.

The fundamental mission of the National Wildlife Refuge System is wildlife conservation. Green Bay and Gravel Island National Wildlife Refuges were established specifically in 1912 and 1913 (Executive Orders 1487, 1678) "as a preserve and breeding ground for native birds." Plum and Pilot Island were transferred to the USFWS in 2007 to protect native and migratory bird habitat and endangered species habitat.

The WDNR has a broader directive to maintain a balance between the needs of fish and wildlife, recreational interests, commercial harvest, and environmental preservation. For example, the

[4] The number of breeding pairs nesting at Cat Island increased from 1,063 pairs in 1989 to 2,129 pairs in 1997 (Fig. 1-3).

Wisconsin Department of Natural Resources Lake Michigan Integrated Fisheries Management Plan (WDNR 2004) identified 4 goals for managing the fishery in Lake Michigan: 1) a diverse, balanced and healthy ecosystem, 2) a diverse multi-species sport fishery, 3) a sustainable commercial fishery, and 4) science-based management of Great Lakes Fisheries. WDNR DCCO management objectives for the Door County area were established to reduce DCCO foraging pressure on near-shore fisheries, specifically brown and rainbow trout. Managing for near-shore stocks of brown and rainbow trout is not within the legal authority of the USFWS and, thus, is not part of the Green Bay and Gravel Island National Wildlife Refuges' management objectives.

Consistent with the refuges' purposes to protect native migratory bird habitat and provide a preserve for breeding birds, refuge staff feel it is important to have some sites in the Green Bay area where CDM is not conducted. As units of the National Wildlife Refuge System, activities conducted on Green Bay and Gravel Island National Wildlife Refuges must meet sound science principles and effectively achieve management objectives.

Available data do not provide sufficient evidence that cormorants are the primary factor causing declines in the brown trout population in the Door County area to warrant action which would conflict with the Refuge's role "as a preserve and breeding ground for native birds" or the value of Spider and Pilot Islands as research sites where no CDM is conducted. Of particular concern to the Refuge is the lack of a dietary analysis to document what cormorants are eating in the Door County area and a quantitative assessment of the relative impacts of DCCOs (vs. other mortality factors) on the fish. In addition, as noted in the EA, it is the USFWS' desire to protect Spider Island from any form of disturbance which would jeopardize the long-term DCCO population study. The study results provide valuable information on DCCO population dynamics and may serve as a baseline to determine the impacts of CDM programs on DCCO breeding populations in the Great Lakes. The Service will continue working with the Wisconsin DCCO Coordination Group and consider future access for cormorant control if research reveals that cormorants are a primary factor in reducing fish populations in the Door County area. The agencies are aware of the public interest in the issue of CDM on refuge lands for the protection of fishery resources, and will supplement the EA, including providing opportunity for public involvement, if the NWRs reconsider the decision to not conduct CDM on refuge lands for the protection of fish populations.

Although the Refuges have determined that action to reduce DCCO numbers at Spider and Pilot Islands is not warranted at this time, the Refuge recognizes the need to protect sensitive plants and plant communities and to provide habitat for tree and shrub-nesting waterbirds (EA Section 1.5.8). Like the WDNR, the USFWS does not want new DCCO colonies at forested sites with tree and shrub-nesting colonial waterbirds and plans to use an integrated approach to prevent the establishment of new DCCO colonies in these areas. Two Islands, Plum Island and Hog Island in the Green Bay NWR, are of particular concern. The USFWS has already conducted activities to prevent the establishment of a DCCO breeding colony on Hog Island.

11. Is USFWS going to pay the state to help manage cormorants? Who's going to pay to reverse damage by DCCOs?

The USFWS is an oversight agency and is responsible for ensuring compliance with the MBTA and the PRDO regulations so that the long-term sustainability of regional DCCO populations is not threatened by CDM activities. The PRDO does not provide funding for the action agencies' CDM activities. When DCCO management is conducted on refuge lands (e.g., Hog Island), it is done by the USFWS acting as an agent of the WDNR. However, the work is paid for by the USFWS.

12. Commenter understands need for research. However, if new information indicates that reduction of DCCO numbers on Spider and Pilot Island is needed to protect nearby islands (Hog, Plum) or to protect fishery resources will the Refuge change its management plans for Spider and Pilot Islands?

Like the WDNR, the USFWS does not want new DCCO colonies established at forested sites with colonies of other tree and shrub-nesting colonial waterbirds and plans to use an integrated approach to prevent this (See Response 10 above and EA Sec. 1.5.8.3). The agencies propose to use an adaptive management approach in which management actions are monitored and adjusted in response to new data as they become available. If new information becomes available indicating that population reduction at Spider and Pilot Island would aid in protecting other Refuge islands, the USFWS and cooperating agencies could conduct CDM on Spider an Pilot Islands provided that the impacts do not exceed parameters analyzed in the EA.

13. Perhaps a controlled burn is needed to rid Pilot Island of the huge mess [dead and dying vegetation] and allow people to begin work on lighthouse. Work to repair/protect lighthouse and associated structures on Pilot Island is being impaired because access to the island is denied in order to protect DCCOs. We must act quickly to save anything on historic Pilot Island.

The USFWS recognizes the many ecological benefits of fire in restoring, maintaining, and enhancing refuge lands. Due to high moisture, isolation, and relatively small size, fire was not likely a major player in the natural disturbance regime of refuge islands. Using prescribed fire as a management tool is not consistent with current management objectives. Several species of migratory birds co-nest with cormorants at Pilot Island, including Great Blue Herons, Black-crowned Night-herons, and Herring Gulls. A prescribed burn has the potential to destroy the nests of co-nesting species and cause abandonment of co-nesting species. The refuge islands provide important stopover migration habitat for raptors and passerines. These islands are critical resting and feeding areas for exhausted birds during migration. The few remaining standing snags provide roosting habitat for a variety of migratory birds. In addition, destroying DCCO nests and removing nesting material by use of prescribed fire has potential to cause DCCO to abandon refuge islands and seek out other nearby vegetated islands (Plum and Hog). DCCOs show high fidelity to a colony site and often reuse same nests and nesting material (Hatch and Weseloh 1999).

The fundamental mission of the National Wildlife Refuge System is wildlife conservation. However, the USFWS also recognizes the importance of historical and cultural preservation. Accordingly, the USFWS formed a Friends Partnership Agreement with the Friends of Plum and Pilot Island (non-profit 501 (c)(3)) in 2008. The USFWS supports the variety of activities the Friends will undertake to stabilize and maintain the historic buildings and structures on Plum and Pilot Islands, while supporting the Service's mission and Green Bay National Wildlife Refuge. Stabilization work on the historic structures on Plum and Pilot Island is already under way. A professional engineering and architectural firm recently completed a stabilization plan for all buildings. Urgent repairs were made to the roof on the Pilot Island Lighthouse and to the Plum Island Life Saving Station and materials have been purchased to aid in stabilizing the buildings.

14. USFWS wants to continue research. Research can't be cheap. How much research is needed? Just look at two islands? The money would be better spent cleaning up and re-vegetating the islands.

The USFWS study is not investigating DCCO impacts to vegetation as the commenter implies. Gravel Island NWR (Spider Island) has been the site of a DCCO banding and observation study. Data from the banding study provides valuable information on DCCO movements, mortality rates and other facets of DCCO population dynamics (Seamans et al. 2008, Stromberg et al. 2008). The study began in 1988 and is still in progress. Because DCCOs can be long-lived, and the number of band re-sightings and recoveries is relatively small, a long-term study is needed. The objectives of this study are to 1) determine age of first nesting, 2) determine age specific survival rates and causes of mortality, 3) determine frequency of breeding by individuals and, 4) gain a better understanding of site fidelity and inter-colony movements. In 2008, the USFWS expanded the demographic study to include Green Bay NWR (Pilot Island) to investigate the issue of inter-colony movements. Addressing this issue will contribute valuable information with which to make informed management decisions in the future. The study results will provide data on DCCO population dynamics and may serve as a baseline to determine the impacts of CDM programs on DCCO breeding populations in the Great Lakes. The USFWS is committed to using scientific information to fulfill our mission and establish credibility with the public and conservation community.

The current vegetation on Spider and Pilot Islands does not comprise a unique or ecologically special vegetative community nor does it provide habitat for any state and federal species of concern. Disturbance caused by humans and the effects of colonial nesting birds will have lasting impacts to native vegetation. Vegetation that would return in the absence of colonial nesting birds will not be identical to historic vegetation. Furthermore, the vegetation will not comprise a unique or ecologically special vegetative community nor will the vegetation provide habitat for wildlife species of concern, or contribute to preventing island erosion. The NWR also recognizes destruction of woody vegetation on islands provides benefits to other colonial nesting bird species. American White Pelicans, Caspian Terns, and Common Terns, require bare or sparsely vegetated islands for nesting. These species are listed as state species of concern and state endangered in Wisconsin. Therefore, controlling cormorants on Spider and Pilot Islands on the basis of vegetation impacts is not justified. See also Responses 2 and 5 above.

Refuge staff will continue DCCO control efforts on Hog Island. The USFWS recognizes the need to protect sensitive plants and plant communities and to provide habitat for tree and shrub nesting waterbirds. This island often supports breeding colonies of Great Blue Herons, Black-crowned Night-herons, Herring Gulls, and Red-breasted Mergansers. The vegetation of this island is relatively healthy and a DCCO colony would cause substantial damage.

15. Spider Island had trees and no smell prior to expansion of the DCCO colony. Commenters have watched Spider Island change to pile of white rocks taken over by DCCOs.

Spider Island is part of Gravel Island National Wildlife Refuges and was established specifically in 1913 (from Executive Orders of W.H .Taft) "as a preserve and breeding ground for native birds." Because of the island's importance as nesting grounds, it received wilderness designation in 1970. The island is part of the nationwide system of wilderness areas and is protected under wilderness rules and regulations.

Vegetation loss on Spider Island cannot be attributed solely to DCCOs. Spider Island historically has been used by other colonial nesting species including Great Blue Herons, Black-crowned Night-herons, and Herring Gulls. Colonial nesting species often cause changes in vegetation composition at nesting sites. The DCCO population on Spider Island was the epicenter of the recovery of the state population in the 1980s and 1990s. The Spider Island colony continued to grow until 2005 but has since leveled off. Islands are very dynamic systems, changing shape and species compositions rapidly. Woody vegetation, 10-12 ft high of pioneering tree species (*Populus sp.*, *Salix sp.*) is being naturally re-established at Spider Island without DCCO control. See also Responses 5 and 6 above.

16. Pilot Island used to be a cool place to visit because of the lighthouse and the opportunity to see shipwrecks. People don't get this experience anymore because they see the DCCOs and associated mess and leave. Pilot Island could have more tourism if they'd get rid of the DCCOs, clean up the dead trees and rebuild the lighthouse.

The USFWS recognizes the importance of historical and cultural preservation, and respects the aesthetic values people have regarding the island and the lighthouse. The National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 and the Fish and Wildlife Service Policy (603 FW2) require development of compatibility determinations for all refuge uses. Any public use has to be compatible with the establishing purpose of the refuge. The USFWS will consider public uses for Green Bay NWR during the Comprehensive Conservation Planning Process. However, the Service does not anticipate any unrestricted public access will be allowed on Pilot Island due to its small size, the limited and treacherous access, and the need to ensure protection of breeding and migratory birds.

17. Cormorants are destroying the Pilot Island lighthouse.

Double-crested cormorants have likely contributed to the loss of vegetation at Pilot Island. However, the DCCOs are not nesting or roosting on the lighthouse so fecal material is not having a significant impact on the structure.

18. Refuge lands, by policy, are unmanaged and their waterbird colonies are protected from human disturbance.

This statement is not accurate. Management activities are conducted on USFWS Refuge lands to the extent that they are needed to achieve the purpose of the refuge, and can range from little to no direct manipulation of natural resources to more intensive management such as the use of water management devices in marshes and controlled burns in prairie areas. At Ottawa NWR Complex in Ohio, DCCO removals have been conducted annually at West Sister Island NWR since 2006 to maintain a balance between DCCOs and the needs of other colonial waterbirds that use the site (USDA 2006*a*). Like Gravel Island and Green Bay Islands NWRs, West Sister Island is also designated as a Wilderness Area. While it has been the general practice to minimize management of DCCOs on Spider and Pilot Islands, action has been taken to prevent DCCO colonization of Hog Island including nest and egg destruction.

19. USDA Wildlife Services should support the refuge and clearly communicate this support to the public and legislature.

WS only conducts CDM at sites with the consent of the land owner/land management agency and, consequently, respects the decision of the USFWS to not conduct CDM at Spider and Pilot Islands at this time. Furthermore, the EA at Section 4.1.2 notes that if the USFWS does not permit DCCO removal or egg oiling on Spider or Pilot islands, WS and the WDNR will support the Refuge's bird banding project by not conducting CDM activities near the islands unless approved by the USFWS.

20. Cormorants on Pilot Island need to be made uncomfortable, so policy of keeping people off Island may be wrong. Strictly controlled tours would prevent people from "disturbing" birds but might make DCCOs uncomfortable enough that they'd leave.

Please see Response 16 relative to public access to Pilot Island. The relatively small size of the islands and the interspersion of other non-target colonial waterbirds with DCCOs would make it extremely difficult to set up a visitation schedule that would be intrusive enough to get the DCCOs to leave without also having adverse impacts on the other birds that that also use the site. Disturbance of nesting DCCOs could also result in the death of DCCO eggs or chicks which would be contrary to the USFWS management and research goals for Pilot Island.

21. DCCOs are damaging sport and commercial fish populations. If something isn't done about DCCO foraging, sport fish populations (e.g., perch, walleye) will be wiped out. The DCCOs are preventing full recovery of the yellow perch population

The EA provides available information on the impacts of DCCOs on fish in Wisconsin, including yellow perch, in Section 1.5.3. Models using data from a DCCO food habits study conducted in lower Green Bay indicated that although high DCCO concentrations may have reduced the magnitude of the population increase that could result from a strong perch year class, there was no reason to believe that DCCOs were causing a decline in the perch population. The opportunistic foraging pattern of DCCOs makes it improbable that they will completely eliminate any naturally reproducing fish population. DCCOs are opportunistic foragers, and generally take species in proportion to their availability (Section 1.5.2.1). Consequently, when the abundance of a species declines, it makes up a decreasing proportion of the DCCO diet and other fish species make up a larger portion of the diet.

Cormorant impacts on fish populations vary depending on the species and location of the fish. Walleye catch from the Wisconsin waters of southern Green Bay has been generally increasing since 2002 (WDNR 2008). The walleye population in this area appears to be healthy and mortality is not excessive for any size class (WDNR 2008). In 2006, the WDNR was able to increase the number of yellow perch that can be taken by licensed sport fishermen in Green Bay. In 2006 and 2007, the WDNR also increased the yellow perch quota for commercial fishermen in Green Bay (WDNR 2008). Green Bay Yellow perch harvest in 2007 was down from 2006 but was still higher than had been observed from 1997-2005. However, data from recent years indicate that there is less recruitment into the yearling and older classes than would be expected given the improved perch reproduction (WDNR 2007a, 2008, See also Response 29. Information on mpacts of DCCOs on stocked brown trout is discussed in Section 1.5.3.2 and Responses 24, 34-36.

22. Introduction of zebra mussels has resulted in clearer water and made it easier for DCCOs to forage on whitefish spawning and feeding in shallow water. Now fishermen are not finding whitefish in these areas. There was a reduction in food for whitefish but the majority of the problem is DCCOs. The North Moonlight Bay area is the largest spawning ground for whitefish on the Great Lakes and DCCO control should be a priority in this area. Impacts of this change include reduced growth rates in whitefish and the more aggressive whitefish are now in deeper water disrupting the already stressed chub population by forcing them off their preferred spring and summer habitat.

While it is a fact that the water clarity has increased during the same time period that DCCO numbers have increased, it is the professional judgment of the WDNR Fisheries Biologists that lake whitefish and chub populations are largely unaffected by DCCO. Chubs typically inhabit water in excess of 300 feet and are unlikely to be directly impacted by DCCO. Historically, lake whitefish have seasonally inhabited water depths within reach of DCCO. However, lake whitefish across the Great Lakes Basin have made significant population level adjustments probably in response to food availability. Since the increase in water clarity and concurrent collapse of diporeia, a major diet item for whitefish, whitefish are typically inhabiting deeper water in the 100-200 feet range.

Lake Michigan is experiencing biomass declines of many fish (but not lake whitefish) and invertebrate species, and is thought to be from oligotrophication from quagga and zebra mussels

that is affecting the lower food web. Primary production is being shunted to the benthos and trapped there in the form of these mussels that few fish can consume. This is preventing energy from moving up to secondary production where is can be used by forage fish. Hence there are less forage fish to support predators. This is has been occurring in Lake Huron,(which is now more like Lake Superior), and has reduced fish biomass greatly there. It is possible that the lake, with so many mussels, cannot support the level of fish production it once did.

23. Individuals engaged in commercial fishing are reporting increased numbers of fish with scars and injuries from DCCOs. DCCOs also dive into pond and trap nets and kill and injure fish.

Lake whitefish caught in pound nets, which are open to the surface, are frequently "slashed" by DCCO. However, Craven and Lev (1987) also reported that the majority of loss of lake whitefish to DCCO was through the killing of fish in what is otherwise a live-capture device. Pound nets are intended to keep fish enclosed within the trap space, not to catch and restrain the fish in the mesh of the net. Since fish can swim freely in the pound net and are not supposed to be killed by the gear, the WDNR has a 5-day lifting requirement on this type of commercial gear. When DCCOs chase fish in pound nets they can become lodged in the mesh of the net and die. Because pound nets are not checked daily, the fish that are killed in the nets are often not suitable for sale by the time the gear is checked. Craven and Lev (1987) tested 9 devices for deterring DCCO perching on pound net posts and activity near pound nets. In general, DCCO adjusted to all devices within approximately 4 weeks. Problems with DCCO depredation are a major reason that the commercial industry has gotten away from using pound nets and is now using more trap nets which are not open to the surface for harvesting lake whitefish. Trap net use has also increased as the lake whitefish have moved deeper as pound nets are only fished in waters less than ~80 feet and most of the whitefish harvest is now from deeper waters where trap nets are still effective.

24. There is no science to prove DCCOs are responsible for the brown trout problems. The idea of picking out a single factor without considering alternative hypothesis is indefensible. Use of post hoc covariance analysis to examine the time course of harvest in two geographic areas of Wisconsin is statistically wrong. Data are correlational and do not demonstrate cause and effect and should not be used.

The analysis was conducted as a simple exploratory statistic to determine if there was a difference in the harvest rates over time between the two areas. As such it is an appropriate use of the test. The EA section 1.5.3.2 states quite clearly that the information is correlational and is not evidence of a cause and effect relationship implicating DCCOs. However, information of this nature can be used as a starting point for discussion and additional investigation. Additional discussion of factors which may also have adverse impacts on brown trout harvest rates is provided in Response 35. See also EA Section 2.2.5.

25. Washington Island economy depends on healthy fish stocks for sport and commercial fishermen. Fishing economy brings several million dollars a year to state economy. We

need to protect livelihoods of men and women who work in the sport or commercial fishing industries.

The economic importance of sport fishing activities to the Wisconsin economy is addressed in Section 1.5.3.2. In 2007, Wisconsin had 68 individuals licensed as commercial fishers on Lake Michigan (including Green Bay). All 68 were small businesses, or conduct fishing operations with other licensees as part of a small business – often a family business where commercial fishing licenses are held by 2 or more family members (WDNR 2007*b*). The WDNR recognizes the importance of fishing to the recreation and economy of the region and has established maintenance of a stable commercial fishery as a management priority in the Lake Michigan Fishery Management Plan (WDNR 2004). Concerns regarding the commercial and sport fishery are among the reasons the WDNR proposed CDM in the Door County area (Section 1.5.3.2).

26. Commenter is worried about DCCO impacts on fishery and natural resources in inland lakes.

The EA, Section 1.5.8.1, states that the agencies will manage colonization or increase of inland sites on a case-by-case basis. Historically, several inland sites supported DCCO colonies that were higher than current levels without reports of adverse impacts of DCCOs. CDM activities and ongoing DCCO population expansion may result in movement of some DCCOs to existing, historic or new inland sites. It seems likely that opportunities exist for the establishment or increase of inland colonies which would allow for increased opportunities to view and enjoy DCCOs without necessarily having the adverse impacts that are currently being addressed at large colonies in the Lower Green Bay/Door County Area. However, as noted for Lake Winnebago, some management of inland colonies may also be needed.

27. Could it be that we are responsible for current DCCO numbers through fish stocking and introduced species? Agencies should consider discontinuing all stocking of fish and support of aquaculture and let the DCCOs regulate their own numbers.

Factors believed to contribute to the increase in the Interior DCCO population include the protection of DCCOs under the Migratory Bird Treaty Act, reduction of the level of compounds such as DDT in the environment which were adversely impacting reproduction, and substantial increases in forage fish species in the Great Lakes during the late 1950s through the 1980s (USFWS 2003). Expansion of the aquaculture industry in the south provided additional food for over-wintering DCCOs. Consequently, adults may have reached breeding grounds in better condition which may also have contributed to increased productivity (USFWS 2003). The states are not stocking fish into the Great Lakes in sufficient quantity for the stocked fish to comprise a significant portion of DCCO diets, and many of the fish stocked are species which are open water pelagic predators and would only be available to DCCOs for a brief period of time immediately after stocking. Discontinuing WI fish stocking programs is unlikely to have a substantive impact on the DCCO population. The existence and support of southern aquaculture is outside the scope of the EA. However, it should be noted that ongoing depredation management programs in the southern states are limiting the availability of farmed fish to foraging DCCOs.

28. Commenter understands that predator fish have been introduced to Lake Michigan to control bait fish, but doesn't think this is working.

Predatory fish species such as salmon were introduced to the Great Lakes in response to declines in native predator fish populations and a surge in forage fish populations, especially invasive species such as alewife (WDNR 2004). In 1967, over 85% of the fish biomass in the Lake Michigan was comprised of alewife and over the next two years windrows of dead alewives washed up on Lake Michigan beaches. These were symptoms of an ecological system out of balance. Fish managers attempted to control the exotic alewives by stocking pelagic predators, which were also exotic to Lake Michigan. The introduction of pelagic predators to control alewife numbers was very successful (P. Peeters, WDNR, pers. comm.). State agencies are currently managing stocking rates, including decreasing stocking of some species to keep population of predator species in balance with available forage (WDNR 2004, 2007*a*, 2008).

29. There have been 5 or 6 years of above-average perch reproduction but fish haven't made it to adult status.

Yellow perch reproduction in Green Bay for 2002-2007 has been better than most years during 1992-2001 except 1998 when there was a strong year class (Fig. 6-1, WDNR 2008). During the 1990s, the Green Bay yellow perch population was depressed as a result of low reproductive success as measured by young of year numbers in late summer survey gear. More recently, young of year yellow perch numbers in the late summer surveys have been considerably higher. Reproduction was extremely high in 2003. However, yearling and older fish, especially from the 2003-2006 year classes, are not being detected in the WDNR surveys at rates that would be expected given improved reproduction in the population (Fig. 6-2). Fish aren't making it to a harvestable size even though there now appears to be adequate reproduction. This trend is typical of what might be expected if there is high mortality in young fish, usually from predation. The increase in mortality includes fish that are smaller than would generally be taken for human use, so over-harvest by the sport or commercial fishery is not a likely cause of the observed trend. DCCOs do readily forage on yearling and older fish as do other predators such as walleye (Meadows 2007, Fielder 2008). Density-dependent declines in survival related to competition for food and space can also cause this type of pattern. However, Green Bay has previously been able to support much larger perch populations. Even with declines in forage related to the introduced mussels, WDNR biologists believe it is unlikely that demands on resources are high enough that density dependent mortality is a major factor for the perch population. It seems likely that predation by DCCOs and/or other predators is responsible for the decline in recruitment of perch to older age classes.

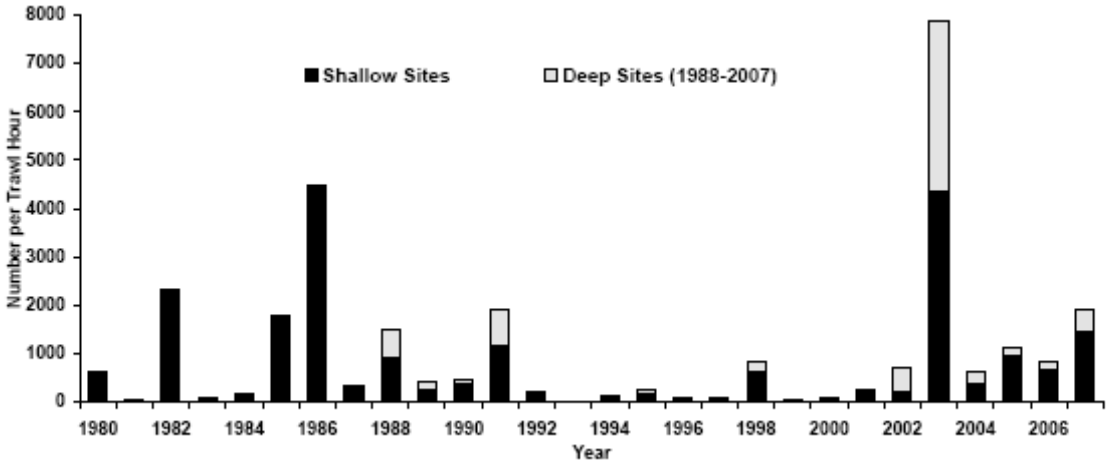

Figure 6-1. Relative abundance, weighted area average, of young of the year yellow perch collected during late summer index trawling surveys in Green Bay from 1980-2007 (WDNR 2008).

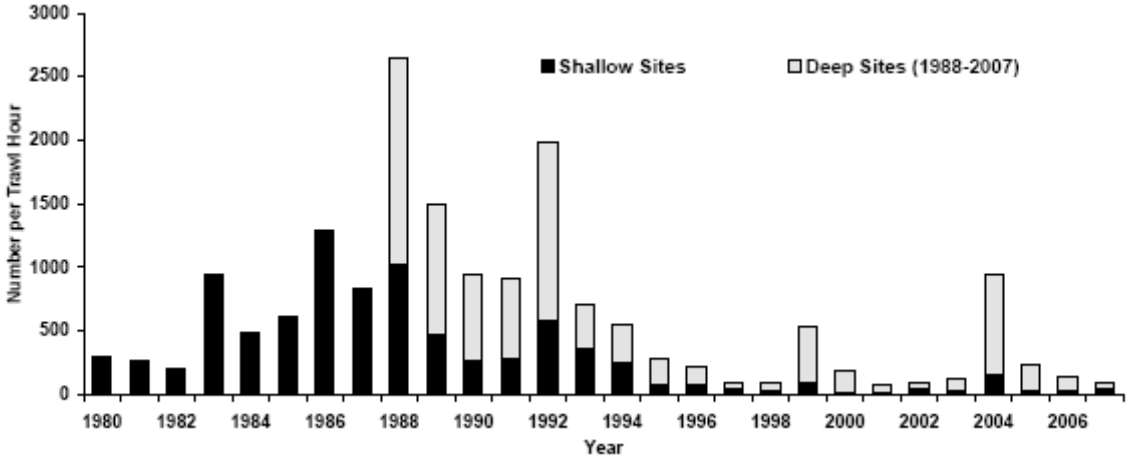

Figure 6-2. Relative abundance (weighted area average) of yearling and older yellow perch collected during late summer index trawling surveys in Green Bay from 1980-2007 (WDNR 2008).

30. Stocking efforts of WDNR and professional fishermen are being wasted because of DCCOs. Fishermen do not want to pay to raise DCCOs.

Presence of DCCOs is not resulting in unilateral failure of WDNR stocking efforts. To the extent practicable, the WDNR continues to employ nonlethal methods to reduce predation on newly stocked fish including adjusting the timing and location of releases to minimize exposure to DCCO predation (Section 1.5.3.2). Thanks, in part, to stocking efforts, Wisconsin has a world class off-shore trout and salmon fishery. In 2007, an estimated 645,000 trout and salmon were harvested from the Wisconsin waters of Lake Michigan including record harvest of Chinook

salmon and above-average harvest of coho salmon (WDNR 2008). The Great Lakes spotted musky reintroduction is supporting an increasingly popular sport fishery and years of lake trout reintroduction have resulted in a large population of adult lake trout in the mid-lake reef complex. Although data indicate problems with brown trout management in some portions of the state, brown trout fishing has been excellent in the southern part of the state including a popular winter fishery in Milwaukee.

31. Commenter saw large numbers of DCCOs and pelicans on Mississippi River near Lynxville in mid-September. Did these birds move inland from Green Bay? Are they having an adverse impact on the local fish population?

Given the timing of the observation, the majority of the birds were likely migrants and not bird breeding in the area. To date, there is no data indicating adverse impacts of DCCOs on the fishery.

32. Commenters are concerned about DCCO 'feeding frenzies" in areas where fish are stocked. Birds are coming up with game fish not young alewife.

Recently stocked fish are particularly vulnerable to bird predation because they are unfamiliar with the environment into which they were stocked and require some time to become acclimated. Research has documented that cormorants can adversely impact congregations of recently stocked salmonids (Modde et al. 1996, Ross and Johnston 1999). The WDNR has adjusted management practices to minimize the risk of DCCO predation on newly stocked fish including stocking fish before DCCOs return in spring (including stocking fish under the ice), holding fall stocking until DCCOs have migrated south, and, in some situations, changing stocking locations. However, tight budgets, transport costs, and the need to move fish out of the hatchery are making it increasingly difficult to implement these practices. Harassment and harassment reinforced with lethal removal of a limited number of birds have been used in other parts of the country to address problems with bird predation on newly stocked fish.

33. Is it better to let DCCOs get millions of perch and people not get any? Why do DCCOs get to eat as many perch as they want but people are limited to 10 per day? If there is no impact from DCCOs taking a huge amount of fish, why are we limiting sport and commercial harvest? If it's worth trying anything, (specifically limiting commercial and recreational harvest of perch) why aren't we limiting DCCO take too?

The issue of resource allocation is at the core of most management situations where humans and wildlife use the same resources. As noted in Response 21 above, people are getting yellow perch. Commercial and sport harvest limits in Green Bay have increased in recent years. Perch limit is 15/day in Green Bay and 5/day in Lake Michigan.

The DNR agrees that a fully integrated approach is needed to aid recovery of state fish populations and has proposed CDM as part of a larger effort to help increase fish populations which also includes limits on sport and commercial harvest. Additionally, fish removal by DCCOs may not have the same level of impact on the perch population as fish removal by

humans. DCCOs take smaller fish than are taken by people, although DCCOs are capable of taking larger fish too (Meadows 2007). Each year, a certain portion of the perch population dies of various causes including natural mortality. The probability that a younger fish will survive to reproductive age is lower than for older fish. Consequently there is a higher probability that death of a younger fish to DCCO predation will occur in lieu of (is compensatory to) other forms of mortality is higher than for older fish taken by sport and commercial fishing. Protection of older fish as happens through limits on human harvest reduces impacts on spawning stocks and allows adult fish to spawn multiple years in their lifetime (WDNR 2008).

34. EA fails to acknowledge Brown trout declines throughout the Great Lakes including areas without DCCOs. Brown trout decline has occurred throughout Lake Michigan even in areas without DCCO predation pressure. Why are we proposing to kill a native species to protect a non-native fish that is performing poorly even in areas without DCCOs? Why is the WDNR stocking fish species that are not adapted to the suite of natural predators?

In Section 1.5.3.2, the EA acknowledges that brown trout harvest has declined some even in areas that are not in proximity to large DCCO colonies but notes that the decline is greater for areas that are closer to the DCCO colonies. The WDNR Lake Michigan Fisheries Management Plan (WDNR 2004) was developed with pubic input and external agency review. Enhancement of diverse fishing opportunities, including near-shore fishing opportunities is established as a management objective in the plan. Establishment and monitoring of brown and rainbow trout are discussed in the WDNR plan as a means of achieving this objective. Although certain strains of brown trout have not been successful in some areas of Lake Michigan and Huron (Wills 2005, Johnson and Rakoczy 2004), the WDNR has been successful with brown trout in Green Bay and the Door County area until the early 1990s. More recently, brown trout management has remained quite successful in the southern parts of Wisconsin's jurisdiction on Lake Michigan (WDNR 2008) and believes that brown trout harvest rates in areas without DCCO colonies are strong enough to warrant ongoing management effort (P. Peeters, WDNR, pers. comm.).

35. EA needs to thoroughly examine alternative explanations for decline in brown trout. Other factors which have been proposed/ considered include inferior genetics of hatchery fish, lack of smelt for forage/lack of forage fish, impact of other exotic species, habitat conditions, and successful recovery of the walleye population in Green Bay.

Low brown trout harvest rates have been observed for the Green Bay and Lake Michigan sides of the Door County Peninsula. While it is true that predation of walleye on recently stocked brown trout could help explain some of the reduced brown trout harvests in the Bay of Green Bay, walleye predation is not a factor in Lake Michigan on the East side of the Door Peninsula as walleye are seldom found in Lake Michigan proper. Although other states have expressed concerns with various genetic strains that they have been using for Great Lakes stocking, there is no difference in the stocks of brown trout used by WDNR that would explain the different trends in harvest rates between areas with and without large DCCO colonies in Wisconsin's Lake Michigan jurisdiction. The decline in forage fish is lake-wide and also would not explain the observed difference in brown trout harvest in areas with and without large DCCO colonies.

Similarly, there are no currently known patterns in presence of exotic species or habitat conditions that would explain the observed pattern in brown trout harvest rates.

36. EA clearly points out lack of objective, scientific data to support action. The proposed decimation of a native bird species seems particularly egregious when not based on objective fact. Without documentation and credible data supporting the choice adopted for population goals, any management decision is arbitrary and capricious.

The agencies do not agree. The proposed action is not arbitrary or capricious. The agencies have considered every aspect of the problem that we thought, in our professional opinion, was important including the issue of other predatory fish impacts on perch populations raised by the commenter. The decision is not unlawful. "So long as an agency considers all relevant evidence, a factual finding is not arbitrary and capricious simply because conflicting evidence exists." (p35, Judge Castel's decision on Fund et al. v. Norton et al., March 2005). See EA Section 2.2.5. The analysis in Chapter 4 indicates that the proposed action will not jeopardize or result in the decimation of the state, regional or national DCCO population. The EA provides the data and science-based inference that were used to identify the sites where CDM may be conducted (Sections 1.5.3 and 1.5.8 and responses to comments). The emphasis on egg oiling to achieve population reduction at the Door County and Green Bay Islands is far less aggressive than the shooting programs employed by other Great Lakes states. The agencies believe that the more gradual DCCO population reductions that will result from egg oiling are appropriate given the nature of the problem and limitations of the existing information.

The problem with CDM for the protection of fishery resources is, and will continue to be, that the data necessary to fully explore these issues do not exist in many locations and/or will be very costly and likely take time (years) to obtain. In the FEIS, the USFWS stated that they "do not believe that agencies should have to wait until impacts occur and are proven with absolute certainty before they are allowed to manage DCCOs. While the agencies agree that having highly detailed information on each site prior to initiating CDM would be optimal, they also recognize that there are consequences to inaction in places where CDM is warranted including adverse impacts on fish populations, local fishing opportunities and associated industries, commercial fisheries and ecosystems. The adaptive management approach presented here allows agencies to take action to reduce adverse impacts while engaging in an ongoing process of data review and subsequent modification of management actions to ensure that the actions will not have substantial cumulative adverse impacts on DCCOs or non-target species.

37. The number of nesting DCCOs has remained relatively constant while perch population has rebounded. Walleye and bass fisheries have exploded and total biomass as counted by the trawls has increased. Surely this indicates there has been little or no adverse impact of DCCOs on total fisheries.

Impact of DCCOs on fish varies depending upon the species of fish. For example, walleye grow out of the size range generally preferred by DCCOs within a few years whereas yellow perch are within the size range commonly consumed by DCCOs for a much larger portion of their lives. Impacts on a healthy, relatively abundant and naturally reproducing bass population won't be the

same as impacts on a much more limited population of stocked trout. The increase in the yellow perch population is largely linked to the increase in reproduction starting with the 2003 year class. Fish from this year class comprised 42 and 39% of the open water sport harvest in 2006 and 2007, respectively (WDNR 2008). Fish from the 2003 year class also comprised 82% of fish harvested under the ice in 2007. Although reproduction rates in Green Bay have been good from 2003-2007, there has not been a commensurate increase of yearling and older yellow perch. If poor recruitment of perch into older age classes continues to occur there may be a resurgence of problems with the availability of yellow perch for sport harvest. See also Response 29.

38. Studies indicate that fish in large schools such as gizzard shad are not taken in a truly random fashion. Rather, members of schools carrying heaviest pollution load whose immune systems are compromised and are unable to synchronize their movements with those of the school are disproportionately taken by DCCOs. Viral Hemororragic Septicemia (VHS) has a neurological affect on fish. VHS is killed by temperatures in the gut of birds so it could be argued that DCCOs are a frontline defense against VHS.

It is true that fish which are sick or otherwise incapacitated are more vulnerable to predation. However, given the range of fish species vulnerable to this disease, and given that the fish shed the disease for some time prior to showing symptoms of the disease; it is highly unlikely that DCCO would have a substantive positive impact on the spread of VHS.

39. Fish species heavily represented in DCCO diets were introduced species, so DCCOs are helping to restore balance. By controlling DCCOs, you are protecting introduced species.

DCCOs are opportunistic foragers and take forage fish in proportion to their occurrence in the population. A high proportion of non-native fish in DCCO diets is indicative of a high proportion of non-native fish in the fish community. Reduction in local DCCO populations will result in reduction in feeding pressure on the fish community as a whole including desired and undesirable species. Just as DCCO foraging is unlikely to eliminate sport and commercial fish populations (Response 21); it is also unlikely to result in the elimination of invasive species.

40. Round gobies are especially vulnerable to DCCO predation because they are a territorial nest/egg predator. Territorial gobies are more vulnerable than non-territorial semi-pelagic species that may be more likely to flee site of attack. DCCOs may be providing a valuable service by removing invasive species.

There are no data to support the hypothesis presented above. Population data for Round Gobies also provides no evidence of a suppression of goby numbers by DCCOs. The U.S. Geological Survey report on prey fish populations in Lake Michigan for 2008 indicates that Round Goby population has increased exponentially from 2003 when they were first detected in the survey (Bunnell et al. 2008). In 2008, round gobies made up 18% of the total prey fish biomass in the survey and were captured at all survey transects and all depths sampled. WDNR forage trawling data appear to indicate a similar trend in Green Bay (WDNR 2008).

41. Now that resource has rebounded, citizens refuse to share the bounty with native species that have not been proven to cause lasting harm. Please don't reject the turnaround of the Bay by focusing on one small element.

We do not concur with this determination. Agency efforts to balance the demands of people and wildlife on the natural resources in the state do not constitute a rejection of improvements in some facets of the ecology of Green Bay. The proposed action is intended to maintain a viable DCCO population in the state while still allowing for commercial, recreational and aesthetic use and enjoyment of the state's natural resources. The proposed actions are not intended to eliminate DCCOs and DCCO foraging on fish, so it is also not accurate to depict the proposed action as a refusal to share fishery resources with wildlife. See also Response 1.

42. Real need for action is perceptions and attitudes of fish harvesters and not a documented case of damage to the fishery. Decision is solely motivated by a perceived problem based on attitudes of fish harvesters and a DNR dependent on fish harvesters for revenue. EA needs to clearly state that the objective of the proposed action is to manage conflict, not manage damage.

The conflict between human and wildlife uses of resources is at the heart of many wildlife damage situations. As stated in other responses to comments in this chapter, agencies do not agree that there is no information indicating that DCCOs may be having an adverse impact on fishery resources in some areas. What constitutes "sufficient" evidence to justify CDM is, to a certain extent, a question of values. Among stakeholders concerned with DCCO management, there is considerable disagreement over whether or not the proposed action is justified, with some individuals arguing for more or less CDM than is proposed in the EA. We also do not concur that protection of fishery resources is the sole need for action. As noted in Section 1.5.8, reasons for conducting CDM actions in Green Bay also include concerns about DCCO impacts on habitat and co-nesting species. The EA also provides examples of other types of damage caused by DCCOs which could be addressed by the agencies including damage to property and DCCO predation at aquaculture facilities.

43. The EA does not address the fact the decade long yellow perch reproductive failure was not an avian predation problem. Overharvesting, especially in winters 1989 and 1990, led to overly-high pressure on gravid female perch which contributed to the population problem. EA should acknowledge that the standard of harvest set during years of record perch abundance is a misleading target for normal conditions and cannot be consistently produced by any fisheries management program.

Section 1.5.3.1 clearly states that poor reproduction during the period of 1980 – 2002 was a major factor contributing to the decline in the perch population. However as noted in Response 29, there is current data indicating that although reproduction and the abundance of the adult stock in recent years has improved, biologists are not seeing expected increases in survival of perch to older age classes.

The WDNR is also aware that under current conditions unlimited perch harvest cannot be sustained by the population. Consequently, the state has established commercial and sport harvest limits as part of an integrated approach for the protection and enhancement of yellow perch populations. The program includes monitoring of the populations and regulatory mechanisms for adjusting harvest in response to changes in the perch population (WDNR 2004, 2008).

44. Brown trout and rainbow trout are managed in Lake Michigan as feral species under conditions analogous to livestock grazing on the open ranges of the 19th century.

We do not agree. Brown and rainbow trout are not private property stocked for the benefit of a limited number of private property owners, and there is no evidence that these species have been stocked at a rate detrimental to the Lake Michigan and Green Bay ecosystems. The WDNR is working to establish stocks of these fish to enhance public near-shore fishing opportunities. The stocking brown and rainbow trout to enhance near shore fisheries is specified in the Wisconsin Lake Michigan management plan which was developed with public review and input (WDNR 2004).

45. Argument that DCCOs may be preying on brown trout but that it would be undetectable by food habits study is flimsy to the point of being insulting.

The EA states that, given the relatively limited number of brown trout stocked by the WDNR in the Northern Door County area, even a very low rate of individual DCCO predation on brown tout could have an adverse impact on the population if the DCCO population is high. For example, using the DCCO population information in Section 1.5.2 and 1.5.3.2, there were approximately 28,000 breeding and nonbreeding DCCOs in the Door County area during the summer. If each of these birds consumed only 9 brown trout during the approximately 6 months they are present in the Door County area, it would account for approximately half of the roughly 500,000 brown trout stocked in the area by the WDNR. This estimate does not include any brown trout that may be taken by migrating birds, nor does it include an estimate of trout that may be taken to feed young of the year. A foraging rate of 9 brown trout in 6 months would only be a very small portion of the DCCO diet in a food habits study, but it would comprise a substantial portion of the fish stocked.

46. It is unacceptable to control a well adapted native species (DCCOs) to support a poorly adapted non-native species (brown trout). Spending money on this species is a waste when considered in context of broader ecosystem dynamics. Setting bird population numbers or management goals based on fishery goals is contrary to sound bird management and ecological principles.

The appropriateness of managing DCCOs for the protection of brown and rainbow trout is a value judgment that will vary depending on the values and perspectives of the individuals involved. The determination to spend money stocking brown and rainbow trout to enhance near shore fisheries is specified in the Wisconsin Lake Michigan management plan which was developed with public and outside agency review and input (WDNR 2004). Many of the

predatory fish populations in Lake Michigan are non-native species that were introduced to control over-abundant alewives whose populations exploded after the native lake trout was eliminate from Lake Michigan by overfishing and sea lamprey predation (Section 2.2.7). Managing predator species for the protection of prey species is not a new concept in the field of wildlife management. Local DCCO management programs for the enhancement of fish populations are in place in Michigan and Minnesota (USDA 2005, 2006*b*)

47. Adaptive management requires collection of data of high enough quality to inform decisions. These data do not currently exist and funding limits mean they may never be collected. At a minimum there should be a plan for data acquisition that would inform future management decision.

We agree that one of the primary challenges to CDM for the protection of fishery resources is that the data necessary to fully explore these issues don't exist in many locations and/or will be very costly and likely take time (years) to obtain. While the agencies agree that having highly detailed information on each site prior to initiating CDM would be optimal, they also recognize that there are consequences to inaction in places where CDM is warranted including adverse impacts on fish populations, local fishing opportunities and associated industries, commercial fisheries and ecosystems. The WDNR will continue to gather the fisheries data presented in the EA which have prompted agency concerns regarding impacts on fishery resources. The WDNR also initiated a trawl survey in Green Bay in 2003 to monitor forage fish populations this survey is just starting to provide information on forage fish population trends in Green Bay and may provide information relevant to CDM in the future. The agencies will continue to monitor DCCO populations and will coordinate information on regional and national DCCO population impacts. Additionally, as noted in Section 1.5.9, the agencies are working with the NWRC on alternative methods for detecting the presence of stocked fish in DCCO diets.

48. If DCCO impacts are not important enough to warrant WDNR redirection of management dollars reinforces the idea that there really isn't a significant management problem.

The availability of funding for a project, especially in tight economic times, is not an indicator of whether or not there is an issue that needs to be addressed. For example, available resources, including funding, are one of the reasons why some species which the USFWS has determined are warranted for listing under the ESA are precluded from listing at this time. It is also inaccurate to say that the WDNR has not reallocated resources for CDM since most CDM actions for the protection of public resources currently conducted in the state are paid for by the WDNR which has not received additional funding to conduct these actions.

49. EA wrongly assumes all fish are equal in terms of caloric density and that DCCO energy needs are the same everywhere.

We agree that fish species vary in their caloric density, and that the ideal situation would be to predict DCCO impacts using a more detailed model. However, sufficient data are not available to conduct this type of analysis for DCCOs in the Door County area. Data from the DCCO food

habits study conducted at Cat Island (Meadows 2007) may provide a better estimate of DCCO diets and food consumption in the Door County area than the figures from the literature because the Green Bay data are more likely to represent conditions and fish available to DCCOs in the Green Bay/Door County area. Plugging this information in to the equations provided in Section 1.5.3.2 yields the following conservative estimate of fish consumption by DCCOs in the Door County area. Average estimates of fish consumption from Meadows (2007) for chick rearing and chick independence periods were substituted for values for nestling and fledglings below.

Breeding adults

12,536 breeding pairs in the Door County Area in 2007 x 2 adults/pair x 0.7 lb fish/day x 182 days = **3,194,173 lbs**.

Non-breeding adults

12,536 breeding pairs in the Door County Area in 2007 x 0.6 (non-breeder/breeding pair ratio) x 0.7 lb fish/day x 182 days = **958,252 lbs**.

Nestlings

12,536 breeding pairs in the Door County Area in 2007 x 2 nestlings/nest (Meadows 2007) x 0.2 (Meadows 2007) x 56 days = **308,887 lbs**.

Fledglings

12,536 breeding pairs in the Door County Area in 2007 x 2 nestlings/nest x 0.5 lb fish/day x 49 days = **614,264 lbs**.

Total fish consumption in Door County Area = 5,075,576 lbs.

As with the initial calculations used in the EA, without food habits data for the Door County area, the exact impact of this level of fish removal is unclear. However, at current levels of DCCO foraging, fishery biologists with the WDNR are concerned about potential impacts of DCCO foraging on overall biomass production and the health of the fishery ecosystem. Although this estimate is less than the average annual commercial harvest of forage fish of 11.1 million pounds that prompted the WDNR to close the commercial alewife fishery, impacts of DCCO foraging are concentrated in a much smaller area than the commercial fishing harvest. Impacts of DCCO foraging may have a much greater impact on the local fishery around the colonies than the commercial harvest even though the DCCOs take less fish.

50. Why haven't the bass suffered like the trout?

Bass have a much larger naturally-reproducing population. As such, the bass population is better able to withstand DCCO foraging pressure. Additionally, the brown trout go through a brief

period of disorientation after stocking that makes them more vulnerable to DCCO predation, than the bass.

51. EA correctly notes that without data on the total fish biomass available in the Green Bay/Door county area, putting the estimated total fish consumption of the DCCO population in context is virtually impossible. No attempt is made to project what that 20 million pounds of fish would mean in terms of the real objective - producing more exotic Pacific Salmon in the sport harvest.

The EA clearly states the limitations of the available data. As noted in Response 28, predatory fish species such as salmon were introduced to the Great Lakes in response to declines in native predator fish populations and a surge in forage fish populations, especially invasive species such as alewife (WDNR 2004). The species were also selected and are currently managed to provide fishing opportunities (WDNR 2004). Fish population monitoring, and data on the number, size, and condition of predatory fish harvested are used to monitor the predator-prey relationships in the lake (WDNR 2008). Predatory fish stocking and harvest levels are adjusted as needed in order to maintain a balance between predator and forage fish populations (WDNR 2004). In 1991, prior to much of the expansion of the DCCO population in Green Bay/Door County area, the WDNR ended the commercial harvest of alewives which was averaging about 11.1 million pounds /year (1987-1991) because of concerns regarding the availability of forage fish for salmon. It is not surprising or inconsistent that the WDNR is concerned about the foraging demands of a predatory bird population that have subsequently come to approach that of the cancelled commercial harvest.

52. The complex interrelationships among the multitude of fish stocks virtually ensures that any compensatory mechanisms exist to buffer whatever effects avian predators might have. EA contains no evaluation of potential compensatory mechanisms but instead builds a one-sided argument in favor of CDM.

There are not always intrinsic compensatory mechanisms to buffer effects of an ecological perturbation and this is notably true of the Great Lakes ecosystem. One case in point would be the invasion of sea lamprey and how they lead to the extirpation of the native lake trout population in Lake Michigan. While the Lake Michigan ecosystem is complex and resilient, it is vulnerable to dramatic ecological shifts. It is the responsibility of resource management agencies to mitigate these perturbations within the purview of their statutory authority

53. Statement that "the use of nonnative species in the Great Lakes is often heralded as on the great natural resource management success stories of our time." is misleading because while some of the non-native species may provide some usefulness to humans, many invasive species are having an adverse impact.

We do not agree. In context, the statement refers to the introduction of predatory fish species that was initiated in response to declines in native predatory fish species and to the explosion of non-native alewives that were dying and rotting on the beaches each year.(Response 28). See also Section 2.2.4. However, for added clarity, the statement has been adjusted to read, “the

intentional introduction of nonnative predatory fish species in the Great Lakes is often heralded as one the great natural resource management success stories of our time."

54. EA says "health of fishery ecosystem" is objective of program (Page 22). Most definitions of healthy ecosystems include viable predator-prey relationships as an indicator of ecosystem health. EA is actually directed not at ecosystem health but one service - fish harvest not healthy ecosystem relationships.

The fish community in Lake Michigan is a highly perturbed (e.g., contaminants, introduced species) and intensively managed system (WDNR 2004, 2008). As noted in Response 28, predatory fish species such as salmon were introduced to the Great Lakes in part because declines in native predator fish populations and a surge in forage fish populations (e.g., alewife) had led to unbalanced predator/prey relationships in the lake (WDNR 2004). The surge in non-native forage fish species in the Great Lakes during the late 1950s through the 1980s and the increase in the southern aquaculture industry are among the factors that have lead to record high populations of nesting DCCOs (USFWS 2003). The WDNR is seeking to include management of DCCO foraging as another component of the overall Lake Michigan fishery management effort which includes managing for healthy predatory prey relationships and fishing opportunities for people (WDNR 2004).

55. The loss of vegetation on islands with DCCOs may be replaced by resurgent vegetation on Strawberry, Little Sister and other nearby islands that are enlarged because of the decline in lake level. If these new areas are used by colonial birds then there will be enough space for all birds to survive and thrive.

While low lake levels have resulted in increases in the size of some Green Bay islands, several factors limit the utility of these sites for tree-nesting bird species. The WDNR is concerned about the reliability of these areas as a habitat source. Just as years of low rainfall led to the creation of the islands, years of high rainfall could just as readily eliminate the newly created habitat. It will also take years for the tree and shrub vegetation preferred by some species to become well established at these locations. The statement also assumes that the DCCOs would not move to the newly created habitat and have adverse impacts in the new locations. CDM is already being conducted on Little Strawberry to protect vegetation at that site, and the reductions in colony size proposed in the EA are intended, in part to reduce resource demands at these locations and associated incentives for DCCOs to move to new locations.

56. If nothing is done about DCCOs then they may cause other birds and vegetation to become extinct.

In general, DCCOs only use a potion of the habitat occupied by sensitive bird and plant populations, so it is usually unlikely that DCCO activity would result in the extinction of any fish or plant species. However, increasing populations of DCCOs could result in sufficient local habitat changes that plants and birds may be extirpated from a particular site. If the site is critical to the species in question, loss of the habitat could have adverse impacts on a larger (e.g., statewide) scale. Risks are greater for plant communities than bird communities, because birds

can move to new locations. In Wisconsin, WDNR biologists are worried about the increasing number of DCCOs on Miller's Bay Island (aka. Monkey Island) in Lake Winnebago because the island, combined with others within the Lake Winnebago basin, supports the largest Great Egret nesting colony within the state, excluding the Mississippi River populations (Tim Lizotte, Summner Matteson, WDNR, and Tom Ziebell pers. comm.). Similarly, the USFWS is concerned about DCCO impacts to sensitive plant species on Hog Island including two state-listed species (Western fescue and elk sedge).

57. For 2006, USGS reported that for Great Lakes Fisheries, approximately 75% of the forage biomass is deepwater species that are normally not available for DCCOs. So DCCOs can only affect 25% of the forage fish biomass available to the exotic predatory fish species.

This is not an appropriate interpretation of the available data. The survey cited by the commenter is conducted to provide an estimate of forage fish biomass for all of Lake Michigan. This survey does not address the issue of forage fish biomass available in Green Bay. In contrast, WDNR' concerns relate to the impact of DCCOs on forage fish biomass in the area around the colonies where foraging by nesting DCCOs is greatest.

58. Concerned that potential adverse impacts on co-nesting nontarget species from CDM are understated. Despite careful efforts, it is impossible to enter a waterbird colony and leave no impact. Oiling on Cat is having a negative impact on co-nesting species on the island. Since oiling has started, fewer nontarget birds are using the site and the birds that remain are experiencing reduced reproduction. The ground nesting Great Egrets have deserted the site and moved to the north end of Lone Tree Island. The colony of White Pelicans is also shifting to Lone Tree and to Willow Island to the North. Productivity of pelicans, has dropped since oiling started from 1-1.5 young per nest attempt to a low of 0.25 per nest attempt in 2008. Productivity of pelicans on Lone Tree where there is no oiling has remained around 1 young per nest attempt. Pelican Eggs weren't oiled but oiling occurs during a critical sensitive period for the pelicans - hatching until a week-10 days from hatching while the chicks are still small enough to be vulnerable to gull predation.

Egg oiling on Cat Island is conducted with a WDNR wildlife biologist to help with counting DCCO eggs and nests and identification of non-DCCO nests. WS has never oiled an egret nest on Cat Island, but may have marked the nest with spray paint. The markings are used to keep track of which DCCO nests have been treated and may also be used to help WS keep track of which untreated nests have been counted. In 2008, WS did start to oil what may have been a black-crowned night heron nest, but only one egg was partially oiled and the oil was removed immediately. The nest was probably marked with spray paint, indicating oiling took place, when it actually did not.

It is the belief of WS biologists that the ground-nesting egrets have left Cat Island for preferred shrub habitat on Lone Tree Island. The egret colony on Lone Tree has increased since WS started conducting CDM at the site.

WS does not disagree that any visit to the colony results in at least some disturbance to nesting birds. However, the situation at Cat and Lone Tree Islands is far more complex than indicated in the comments. There are several other sources of disturbance that occur on Cat Island with equal or greater potential to disturb nesting pelicans. At this time, there is insufficient information to attribute differences in pelican nesting success to any one factor. Each year, multiple visits are made for research and monitoring of pelican nests and young, and pelicans on Cat Island are banded. These visits require the observer to come closer to the pelican nests than the crews conducting CDM. Banding birds requires handling individuals and may be highly disruptive to nesting birds. In contrast, WS deliberately does not oil the DCCO nests closest to the pelicans in order to minimize disturbance of the pelicans.

The pelican population at Lone Tree is increasing despite the fact that WS has conducted DCCO nest and egg destruction activities at that site and the fact that the small size of the island makes it harder for WS crews to stay away from Pelican nests. Informal observations from personnel conducting the CDM indicate that, because of the smaller size of Lone Tree Island, more pelicans leave their nests when boats approach and stay away from the nests for a longer period than during visits to Cat Island.

An additional unquantified factor which may also affect nest success on the islands is the impact of curious sightseers visiting the islands. Data from automatic camera systems at other DCCO colonies indicates that there may be far more visitors to the islands than previously understood (B. Doerr, NWRC, pers. comm.). The higher amount of sandy shore and relatively shallow approach to the island makes it easier to approach Cat Island by boat than Lone Tree Island which has a deeper, rocky approach to the island. Disease may also be a factor impacting pelicans, as avian botulism and other bird diseases have been documented on Cat Island.

At Cat Island, WS has collected data on Herring Gull predation on DCCO nests. In 2008, Herring Gull nest predation was observed at 108 total nests out of 5,310[5] nests with eggs present during 3 visits to oil eggs at Cat Island, or about 2% of total DCCO nests. This is likely an underestimate of the extent of gull predation since some predation may also occur after the crews leave the nests but before adults return. However, even if predation rates would double that recorded, this information would appear to indicate that the majority of nests on the island are not subject to gull predation during CDM visits.

59. Nest take-overs by colonial waterbird species are fairly common and are often facilitated by human disturbance. There have been no studies documenting adverse impacts of DCCO s on the islands, so the idea that reducing their numbers will benefit other species is speculative.

The PRDO allows agencies to take action in situations where there is a reasonable expectation that damage will occur. In the FEIS, the USFWS stated that they "do not believe that agencies should have to wait until impacts occur and are proven with absolute certainty before they are

[5] This is the sum of the nests observed during each of 3 egg-oiling visits. The same nest may be counted during multiple visits. This does not mean that there were 5,310 nesting pairs at Cat Island.

allowed to manage DCCOs. One of the benefits of the PRDO is that agencies in areas where risks of significant DCCO impacts are greatest are given more flexibility in taking action including preventive action." (USFWS 2003). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Section 1.5.4 provides information on adverse impacts of DCCOs on co-nesting species, including information on nest take-overs. Additionally, data collected at West Sister Island in Lake Erie documented shifts in distribution of co-nesting species such as Black-crowned Night Herons in response to increasing numbers of nesting DCCOs (USDA 2006*a*). Based on this information, the agencies believe there is reasonable expectation that increasing DCCO numbers at colonies with co-nesting colonial waterbirds could have adverse impacts on some species. See also Response 9.

60. EA lacks historical perspective, is selective in data used, and lacks holistic perspective of the perceived problems. There is no mention in the EA that one of the Strawberry islands was clear-cut in the 1930s with the intent of growing grapes. Did anyone object to that change? Cat Island started as a dredge dump site. Today it looks like it did when it was first created. Current conditions should be viewed in light of historic context. Recommends a complete historical survey of sites before they are managed

Public attitudes toward resources and resource management have changed significantly since the 1930s. Actions proposed in the EA are based on current resource uses and values. The fact that a site may have had different characteristics in the past does not preclude current owners/managers from seeking to maintain current conditions. See also response 61.

Historically, when colonial waterbird breeding colonies reached sufficient density that damage to the vegetation occurred and the site was no longer attractive to some species, the birds could move to new locations. Unfortunately, human population expansion and land use have limited the number of alternative sites available to colonial waterbirds and have placed sociological and biological constraints on the number of birds that can be supported at the remaining locations. The primary biological constraint is that many sites supporting colonial waterbirds must be managed to sustain a wide variety of plant and animal species indefinitely. This may make it necessary to manage bird populations at breeding sites at lower densities to prevent habitat damage and loss that historically would not have been a problem. Sociological considerations also limit the number of birds that will be tolerated in recreational areas and/or in close proximity to human habitation. The challenge for managers is to maintain healthy wildlife populations and their habitats within the constraints posed by human land uses and tolerance for wildlife.

61. EA fails to acknowledge role of other colonial bird species in history of habitat loss on islands. The loss of trees on Spider Island was caused by Great Blue Herons. A review of gull population changes compared to vegetation changes on Hog, Spider, and Gravel Islands and those of the upper Green Bay indicates Herring and Ring-billed Gulls have altered habitat at a magnitude far greater than the cormorants have in the last two decades. At Cat Island, the first tree nesting species on the site in 1976 were Black-crowned Night-Herons followed by a gull population that has reached as high as 2,000 pair. As the herons killed trees, the gulls killed ground vegetation. DCCOs started on the site in

the early 1980s. Eventually trees died and DCCOs moved to ground nesting in the early 1990s. Habitat changes were not just due to DCCOs.

We agree that large numbers of any colonial waterbird can cause changes in island vegetation and that some of the changes that have occurred are not solely attributable to DCCOs. The EA in Section 1.5.4 notes that other bird species contributed to habitat loss at some islands. However, DCCO impacts are often more profound than the other species because of DCCO colonies at many sites are greater in size than colonies of other tree and shrub-nesting colonial waterbirds. Much of the recent loss of trees and shrubs at some islands has been concurrent with recent increases in DCCO numbers at the site.

62. Agencies need to reduce DCCO population more than is proposed in the EA.

The management objectives set in the EA represent a balance between the importance of DCCOs as a native predator and their role in Wisconsin ecosystems and the desire to reduce adverse impacts of DCCOs on property, aquaculture, natural resources and human safety. The management actions that will be implemented also take into consideration the limitations of the data on DCCO impacts to fishery resources. The agencies will use an adaptive management approach and will continue to collect and review information on DCCO impacts and the impacts of CDM as it becomes available. If new information indicates a greater reduction in DCCO numbers (i.e., below 5,000 pair in the Green Bay/Door County Area) may be warranted or if cumulative annual lethal DCCO take in the state will exceed 6,600 birds, the EA and proposed alternatives will be revised pursuant to NEPA.

63. High numbers of DCCOs contaminate land and water with tons of feces that can contain dangerous organisms. Water contamination in Door County Area is likely due to DCCOs.

The issue of DCCO impacts on water quality is addressed in the FEIS, but available information on DCCO impacts on water quality is limited. Many factors can impact water quality including feces from other bird species and will vary depending on the site. At this time there are no data indicating that DCCOs have contributed to any water quality problems in the Door County area.

64. DCCO population has stabilized over the last 5 years.

Data on the size of the largest Green Bay/Door County colonies is provided in Fig. 1-3. This statement appears to be true for the colony on Spider Island. It may also be true to a lesser extent for Cat Island, however, interpretation of data from Cat Island is complicated by the fact that adult DCCOs from the Cat Island Colony were removed for a diet study conducted from 2004-2006, and egg oiling was initiated at the colony in 2006. This is not true for the colonies on Pilot, Jack, and Hat Islands, nor is it true for some inland colonies including the colonies on Lake Winnebago.

65. Title of EA assumes there is sufficient damage to warrant action.

This is incorrect. The title of the EA indicates that there were sufficient concerns about DCCO damage to warrant requests for WS assistance and/or USFWS permits for CDM. One of the alternatives considered involves no federal involvement in CDM in Wisconsin which would indicate that there was not sufficient DCCO damage to warrant federal involvement.

66. DCCO colonies are only affecting a small portion of Lake Michigan shoreline. The proposed action does not take into consideration the small portion of the fishery resource impacted by the proposed action.

There is evidence that the DCCO colonies may be adversely affecting the fishery resources in the Green Bay/Door County area. These impacts can have adverse effects on local sport and commercial fishing opportunities and associated businesses. As stated in the Lake Michigan Management Plan (WDNR 2004), WDNR objectives for the fishery in Lake Michigan and Green Bay include providing a diverse, multi-species sport fishery within the productive capacity of the lake and a stable commercial fishery. The absence of DCCO colonies in other areas of the state does not negate the impacts on the local community or absolve the WDNR from its commitment to provide fishing opportunities for individuals in the affected areas.

67. EA is irretrievably flawed because it began with a pre-determined outcome based on goals set by a single agency, WDNR.

This is not accurate. In Section 1.5.8, the EA reviews management objectives of the WDNR, USFWS Refuges, and general objectives agreed upon by all the agencies. The WDNR proposal for CDM was useful for the analysis because it defined the maximum level of CDM that was considered. However, several of the alternatives that could have been selected by the agencies would not have achieved the population reductions proposed by the WDNR. Additionally, in the final Decision, the USFWS has determined that CDM will not be conducted on Pilot and Spider Islands, which are not part of the management plan proposed by the WDNR.

68. EA cannot meet the requirements of Wisconsin Environmental Policy Act or Wisconsin Act 287 because population objectives are without substantive foundation. They are based on beliefs and correlations not solid data. Without objective measure of damage, a case cannot be made that the mandate of Act 287 has been efficiently addressed.

The issue of the adequacy of the available data on DCCO impacts to public resources has been addressed in multiple responses to issues listed previously in this chapter. The WEPA requires state agencies to consider the environmental effects of their actions to the extent possible under their other statutory authorities. It also establishes the principle that broad citizen participation should be part of environmental decision-making. The EA provides a thorough review of the potential environmental impacts of the proposed action using the best information available. The EA was made available for public review and comment. The WDNR also conducted its own public listening sessions prior to making its management recommendations to the Wisconsin Natural Resources Board. As such, these efforts meet the requirements of the WEPA.

Act 287 charges the WDNR, in cooperation with federal agencies, and compliance with the USFWS PRDO, to administer a program to control and manage DCCOs in order to reduce wildlife damage caused by DCCOs. The EA was prepared cooperatively by WS, the USFWS and the WDNR and addresses the management of all types of DCCO damage that may occur in the state including actions proposed under the PRDO. It is the WDNR' belief that this type of planning and cooperative effort was exactly what was intended by the act.

69. The idea that DCCOs pose a risk to aircraft is only speculation. There have been no DCCO strikes in Wisconsin.

Even though risks to aircraft and property damage may occur infrequently, they are a legitimate concern for the wildlife agencies and measures need to be taken to reduce the risk and damage. The civil and military aviation communities, including the FAA recognize that the threat to human health and safety from aircraft collisions with wildlife is increasing (Dolbeer 2000). Airport operators must exercise "due diligence" in managing wildlife hazards including assessing wildlife hazards at the airport and, if needed, implementing a wildlife hazard management plan (FAA regulations in CFR 14 Part 139.337; Dolbeer 2004). As stated in the EA, because of the size and body characteristics of DCCOs (Section 1.5.6), the consequences of an aircraft striking a DCCO can be catastrophic. The goal of airport wildlife hazard management programs is to prevent serious accidents from happening. It is unrealistic and inappropriate to contend that airport hazard reduction practices should wait until after a serious accident has occurred.

70. Shooting should be used to bring DCCO numbers down at colonies more quickly.

The problem with CDM for the protection of fishery resources is, and will continue to be, that the data necessary to fully explore these issues don't exist in many locations and/or will be very costly and likely take time (years) to obtain. The EA provides the data and science-based inference that were used to identify the sites where CDM may be conducted (Sections 1.5.3 and 1.5.8 and responses to comments). The emphasis on egg oiling to achieve population reduction at the Door County and Green Bay Islands is far less aggressive than the shooting programs employed by other Great Lakes states. The agencies believe that the more gradual DCCO population reductions that will result from egg oiling are appropriate given the nature of the problem and limitations of the existing information. More aggressive CDM programs including shooting will be used in situations where more rapid reduction of DCCO numbers is warranted to protect existing trees and shrubs.

71. People other than agency personnel should be allowed to shoot DCCOs. Double-crested cormorant problems could be solved with a regulated hunting season for DCCOs.

Use of regulated hunting to address conflicts with DCCOs was analyzed in the FEIS (USFWS 2003) and was not selected as the management alternative. Therefore, use of regulated hunting is not an option legally available for CDM at this time. The FEIS acknowledged that regulated hunting would be an economical way to kill numerous DCCOs at minimal expense to the government. However, reasons provided in the FEIS for not selecting regulated hunting

included: (1) concerns about monitoring and preventing adverse impacts on co-nesting and look-alike species; (2) the fact that birds taken during a hunting season might not be the ones causing problems, and (3) the agencies and numerous commenters had serious ethical reservations about permitting a non-traditional species to be hunted when it cannot be eaten or widely utilized.

72. Population reduction should not be limited to WI. The EA neglected to mention what neighboring states and Canada are doing.

Cormorant damage management programs in other states are outside the scope of the analysis. However, CDM is conducted in Michigan and Minnesota (USDA 2005, 2006*b*). Cumulative impacts on the DCCO population are monitored and managed by the USFWS under authority and guidelines established in the MBTA, the Aquaculture Depredation Order and the PRDO. The USFWS also sponsors an annual meeting in which U.S. and Canadian managers and research biologists exchange current information on DCCOs and DCCO management.

73. Has not seen evidence that killing and preventing DCCOs truly reduces their numbers. Data this individual has read indicates they merely relocate to other areas and rebound, sometimes in excess of original numbers.

Cormorant damage management programs which include shooting and egg oiling to reduce DCCO colony size are being conducted in several states including Minnesota, Michigan, and Ohio. Preliminary data from these areas indicate that the programs have been successful in reducing DCCO colony size in the Les Cheneaux Islands, MI (USDA 2006*b*), Leech Lake, Minnesota (Leech Lake Division of Resource Management 2008), and at West Sister Island, Ohio (USDA 2009).

74. Agencies should engage in habitat/nest destruction before DCCOs return to breeding grounds to resolve problem.

Habitat management and nest and egg destruction are among the methods used to discourage DCCO use of sites with tree and shrub vegetation. For example, the USFWS destroys nests of DCCOs attempting to colonize Hog Island. The USFWS strives to destroy nests before eggs are laid, but some eggs may also be destroyed. No DCCO chicks have hatched on Hog Island. Other habitat modifications such as removal of trees and shrubs have limited utility because DCCOs readily nest on the ground if tree and shrub sites are not available.

75. Egg oiling and other alternatives tried to date aren't working.

We do not agree. As noted in the EA it will likely take longer to reduce colony size when only egg oiling is used, but the technique can eventually result in a reduction in DCCO numbers. Data from the 2008 CDM activities in Wisconsin indicate the peak number of nests observed on Cat, Hat and Jack Islands was lower in 2008 than in 2007 (USDA 2008). At Hat and Cat Islands where egg oiling started in 2006, the peak number of nests counted also decreased between 2007 and 2008.

76. Agencies need to take action before individuals take matters into their own hands.

On Little Galloo Island in Lake Ontario in 1998 and on Little Charity Island in Saginaw Bay in 2000, hundreds of adult and juvenile DCCOs were illegally killed by individuals frustrated over the perceived impact of DCCOs on local fisheries. Individuals taking action outside the law cause harm not only to DCCOs, but to other species that nest with them. In the case of Little Charity Island, this included herons, egrets, gulls, and terns. The agencies are aware that some individuals are also extremely frustrated with the perceived impact of DCCOs on fisheries and the perceived failure of the agencies to address DCCO damage and that these individuals have considered illegal actions like those taken at Little Galloo and Little Charity Islands.

The U.S. Fish & Wildlife Service is the federal agency with primary management responsibility over all migratory birds in the United States, including DCCOs. Without a permit, killing of DCCOs, or any migratory bird or their eggs, is subject to penalties of the Federal Migratory Bird Treaty Act that include a $5,000 fine and/or six months imprisonment. It also protects nests and eggs. The 10 individuals found guilty of the incident at Little Galloo Island received sentences of up to two years' probation and six months of in-home confinement, plus up to $2,500 each in fines. The judge also ordered the men to make a cumulative contribution of $27,500 to the National Fish and Wildlife Foundation.

77. Please provide clarification of agency roles in DCCO management.

The USFWS has responsibility for management of Green Bay and Gravel Islands National Wildlife Refuges which include Pilot, Spider, Hog and Plum Islands. CDM activities may not be conducted at these sites without the consent of the USFWS. Refuge biologists monitor the DCCO populations at these locations.

The USFWS also has primary authority for the management of all DCCOs under the MBTA. The USFWS may grant permits for the take of DCCOs for research or to resolve problems with damage to property, human health and safety, and aquaculture resources. The USFWS has granted the tribes, WS, and state wildlife agencies authority to conduct limited amounts of CDM for the protection of public resources without permits under the PRDO. Actions undertaken to protect public resources which involve the lethal take of >10% of a local breeding population are subject to additional review by the USFWS. The USFWS has the authority to deny approval for PRDO actions. The USFWS monitors state, regional and national DCCO population data and summarizes reports on PRDO projects and DCCO take to help ensure that CDM actions do not jeopardize the DCCO population.

The WDNR has authority for management of the state's fish and wildlife resources. However, for migratory birds covered under the MBTA and federally-listed threatened or endangered species, the USFWS' authority supercedes that of the state. In general, the WDNR works collaboratively with the USFWS on management of migratory birds and federally listed threatened and endangered species. However, WDNR actions involving these species still need some level of authorization from the USFWS. The WDNR monitors the state DCCO population and CDM activities conducted in Wisconsin and may establish additional regulations for the

management of DCCOs in the state. However, the state's regulations cannot be less restrictive than those established by the USFWS.

WS does not have regulatory authority for the management of DCCOs. WS provides technical and operational assistance with CDM only when requested by the landowner/manager or appropriate regulatory agency. All WS CDM actions are conducted in accordance with authorization granted by the USFWS and WDNR.

78. Harassment is not acceptable because it would just move the problem to other areas.

The preferred alternative would allow for access to a full range of CDM methods to reduce damage by DCCOs to habitat. An integrated approach will allow us to select, evaluate, and refine the best method to address the problem. Problems with harassment moving DCCOs and DCCO problems are discussed in the Chapter 4 analysis of impacts of Alternative 3.

79. Agencies should consider introducing a natural predator to the islands.

This method was not considered because predators that would feed on DCCO eggs would likely also adversely impact other co-nesting species directly by preying on eggs and young of co-nesting birds or indirectly by causing species like DCCOs which can use the ground or trees for nesting to quit using ground nests thereby increasing pressure on and competition for nesting sites in vegetation.

80. Agencies should try nonlethal to see if it works before trying to kill thousands of DCCOs.

Use of nonlethal methods to resolve DCCO damage problems is included in the preferred alternative, and preference will be given to nonlethal methods where practical and effective. However, many nonlethal methods such as harassment and habitat management may not be suitable for use in mixed species colonies of colonial waterbirds because they may have adverse impacts on co-nesting species.

Egg oiling is classified as a lethal method because it involves killing the embryo in the egg, but it is considered by many animal welfare organizations to be preferable to lethal removal of adults and young of the year. At Cat, Hat, and Jack Islands, the agencies are attempting to achieve management objectives through the use of egg oiling. Shooting would only be used if the agencies are unable to achieve management objectives through the use of egg oiling. If successful (see Response 75) the use of egg oiling would prevent the need to shoot thousands of DCCOs.

81. EA needs a good definition of what constitutes a viable nesting colony.

The agencies interpret a viable nesting colony as one large and productive enough to sustain itself over time. If the population is reduced too far, there is the chance that the birds may leave the site in favor of one with more DCCOs. The exact number of nesting birds that constitutes a

viable colony varies depending on the site. In the EA, a colony is generally considered viable if there is evidence that, in the absence of CDM, the population has increased from the target level (e.g., 500 pairs per island on Hat and Jack Islands, and 1,000 pairs on Cat Island) in recent years or that the population has remained for several years at or near the target level.

82. Criteria for conducting CDM is so low, when won't the agencies conduct CDM?

Comment appears to focus on CDM actions conducted under the PRDO. In section 1.5.8.1, the EA notes that CDM activities may result in movement of some DCCOs to existing, historic or new inland sites. It seems likely that opportunities exist for the establishment or increase of inland colonies which would allow for increased opportunities to view and enjoy DCCOs without necessarily having the adverse impacts that are currently being addressed at large colonies in the Lower Green Bay/Door County Area. CDM would not be conducted in situations where the presence of DCCOs will not result in loss of sensitive vegetation (e.g., state listed species), loss of trees and shrubs that are used by other colonial waterbirds or adversely affect state or federally-listed birds. CDM actions will not be conducted for the protection of fishery resources unless there is adequate information to convince the agencies that DCCOs may be having an adverse impact on fishery resources (See also Responses 24, 35 and 36).

83. Since the document does mention that "humane" is a murky and contentious word it should be eliminated from the document altogether.

The EA acknowledges that there will be variations in interpretations of what constitutes a humane action based on individual values and beliefs regarding wildlife. The fact that there is not a universal definition of what constitutes a humane action does not mean that this isn't an issue important to individuals commenting on the EA or an important factor that needs to be considered by agency decision-makers.

84. Regardless of human desires, species composition on islands changes due to environmental (e.g., weather) or biological (e.g., colonial waterbirds) factors. Many species of wildlife alter the habitat they occupy and this is a natural process, enhancing carrying capacity for some species while reducing it for others. Double-crested cormorants play an important role as predators in ecosystems.

We agree that species composition, as well as population numbers and distribution, are in a constant state of change. During pre-settlement times, these processes were self-regulating. However, today because of the vastly altered landscape, management actions must sometimes be taken to keep species in balance with the available habitat, or to mitigate unacceptable damage to other species that are in decline due to loss of habitat. We believe that failure to manage DCCO impacts will result in an increasingly adverse effect on the habitat and co-nesting bird populations on the islands. The proposed action does not involve eliminating DCCOs or the important role they play in ecosystems, but rather is intended to use an adaptive management approach which will allow for continued support of DCCOs and other colonial waterbirds and their habitats.

85. People do not need to eat fish. DCCOS do. The EA proposes to punish DCCOs for doing what they have evolved to do. It is not appropriate to kill DCCOs when they are only engaging in a natural response to conditions we created.

CDM, whether lethal or nonlethal, is not intended to be a form of punishment, but rather is a means to alleviate damage problems. All organisms alter the environment they occupy as well as the species they share it with. The question being addressed in this EA is how to balance the competing demands on fish and habitat resources. This determination is based on cultural values, and economic interests as well as ecology and biology. For example, the Green Bay/Door County area could probably sustain current fish removal and probably even more by DCCOs, but the total fish biomass might decrease and/or the fish community could shift and not be of the species mix or size range of interest to humans. Similarly, depending upon the status of the species affected, many bird, vegetation and wildlife populations could sustain DCCO impacts, but the species composition and local ecosystem would shift. In an ideal world it would be nice to let nature take its course. We, however, do not live in an ideal world and humans have drastically altered the natural environment to the point that it no longer can function naturally or we are unwilling to let it do so.

Population and range expansions of certain wild species are environmental phenomena that can be either "natural", directly associated with human activities, or indirectly associated with human activities. DCCOs do have a long history of co-nesting with other colonial waterbird species, but when one species increases in numbers to a point that there is competition for nesting space or elimination of habitat, it can cause a detrimental effect on other species. We, as a society, may chose to give the species that are not doing as well extra protection that they would not receive under normal ecosystem processes.

86. By your own report, DCCOs have moved from inland colonies to Green Bay, now you propose controlling birds in Green Bay, to what end?

The purpose of the EA, as established in Chapter 1, is to manage damage caused by DCCOs. The EA states that survey data from 1995 indicate that inland populations have remained relatively stable or decreased while populations in the Bay have increased. This increase may be attributable to a statewide increase in the DCCO population or it is possible that some of the increase *might have* resulted from birds shifting from inland nest sites to sites in the Green Bay area. WS and the WDNR are receiving reports of increasing numbers of DCCOs at inland colonies including Lake Winnebago.

One of the general management objectives of the EA is to manage colonization or increase of inland sites on a case-by-case basis (Section 1.5.8.1). Historically, several inland sites supported DCCO colonies that were higher than current levels without reports of adverse impacts of DCCOs. CDM activities may result in movement of some DCCOs to existing, historic or new inland sites. It seems likely that opportunities exist for the establishment or increase of inland colonies which would allow for increased opportunities to view and enjoy DCCOs without necessarily having the adverse impacts that are currently being addressed at large colonies in the

Lower Green Bay/Door County Area. However, as noted for Lake Winnebago, some management of inland colonies may also be needed.

87. EA lacks long-term foresight. After terrorizing and killing thousands, perhaps millions of DCCOs will we still be spending copious amounts of time and money doing the exact same thing years from now? Proposals don't address root of problem, only symptoms.

The agencies have stated that they intend to use egg oiling and not the shooting of adults to reduce the DCCO colonies at Hat, Jack and Cat Islands unless egg oiling proves ineffective. Current data indicates that egg oiling is helping to reduce colonies at these sites (USDA 2008).

The agencies agree that unless the underlying factors that support large DCCO populations in the Green Bay/Door County Area are addressed, or CDM proves ineffective in achieving management goals and is discontinued, some level of regular maintenance will be needed to keep DCCO colonies near management objectives. However, the amount of effort needed to maintain a population at a lower level is likely to be considerably less than the effort required to reduce the populations at these sites.

Management alternatives which would address the cause of the DCCO population increase would be ideal. However, in this instance, there are few, if any, such alternatives. Factors which contributed to increases in Great Lakes DCCO populations include increases in populations of non-native forage fish, increase in Southern aquaculture which may have resulted in birds arriving at the breeding grounds in better physical condition, reductions in environmental contaminants and protections provided under the MBTA. A return to previous levels of contamination with chemicals such as DDT is unacceptable. Other than chemical control for sea lamprey, there are no other proven methods for controlling non-native fishes in the Great lakes, certainly not to levels that would impact DCCOs. Additionally, DCCOs are opportunistic predators that do not differentiate between native and non-native fish. They take whatever species are most abundant and easy to catch. With the current DCCO population, even if the agencies were able to reduce non-native fish populations, the reductions could have the undesired impact of increasing DCCO foraging pressure on native fish. Habitat alterations that may render sites unsuitable for DCCOs would likely also have adverse impacts on co-nesting species. Reduction in southern aquaculture industry is untenable and outside the scope of the EA. The remaining choice, a controlled reduction in protections of the MBTA, is, in a sense, what has occurred with the establishment of the PRDO.

88. There is no proof that DCCO removal would protect/enhance target fish populations. Given the complexity of the factors impacting Great Lakes fish populations, how can the agencies be sure the proposed actions will alleviate conflicts? The EA should try to quantify anticipated benefits.

The intent of the proposed program is not to manage fish populations, but is to manage DCCO damage to specific resources, including fisheries. We cannot be entirely sure that CDM activities will have the desired effect (although we are confident that they will) which is why the

principles of adaptive management are being used as CDM is implemented. The level of potential increase in fish populations will be dependent upon not only the reduction of DCCO predation on the resource, but also on environmental and human-induced factors that affect aquatic ecosystems and fish populations. The decision to continue the proposed action or terminate CDM will be reviewed annually and will ultimately depend on the magnitude of the extent of the potential fish population increase and the value Wisconsin citizens place on the increase.

89. The DCCO population can be expected to eventually outstrip its food supply, drop in numbers and eventually stabilize itself.

While this is true, the impacts that would occur to vegetation, local fish populations and co-nesting waterbird species before the DCCOs outstripped available food or habitat would be unacceptable. As discussed in the EA, historically, when colonial waterbird breeding colonies reached sufficient density that damage to the vegetation occurred and the site was no longer attractive to some species, the birds could move to new locations. Unfortunately, human population expansion and land use have limited the number of alternative sites available to colonial waterbirds and have placed sociological and biological constraints on the number of birds that can be supported at the remaining locations. The primary biological constraint is that many sites supporting colonial waterbirds must be managed to sustain a wide variety of plant and animal species indefinitely. This may make it necessary to manage bird populations at breeding sites at lower densities than were previously there to prevent habitat damage and loss that historically would not have been considered a problem.

90. DCCOs have colonized most if not all Green Bay islands

This is not true. There are still numerous islands in Green Bay which have not been colonized by breeding DCCOs including Adventure, Chambers, Green, Pirate, Sister, Horseshoe, Plum, Gravel, Detroit, Washington, Rock, Fish and Snake Islands. However, the agencies are aware that some of these islands are occasionally used by non-breeding and migrating birds.

APPENDIX B

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