

Appendix A: Environmental Assessment

ENVIRONMENTAL ASSESSMENT FOR IMPLEMENTATION OF COMPREHENSIVE CONSERVATION PLAN FOR GREAT LAKES ISLAND NATIONAL WILDLIFE REFUGES (GRAVEL ISLAND, GREEN BAY, HARBOR ISLAND, HURON, AND MICHIGAN ISLANDS)

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Abstract: The U.S. Fish and Wildlife Service (FWS, Service) is proposing to implement a Comprehensive Conservation Plan (CCP) for five Great Lakes island refuges located in Lake Huron, Lake Michigan, and Lake Superior. This Environmental Assessment (EA) considers the biological, environmental, and socioeconomic effects that implementing the CCP (which is the preferred alternative in this assessment), or an alternative, would have on the issues and concerns identified during the planning process. The purpose of the proposed action is to establish the management direction for the refuge for the next 15 years. The management action will be achieved by implementing a detailed set of goals, objectives, and strategies described in the CCP.

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Throughout this document, five national wildlife refuges (NWRs, refuges) are discussed individually—such as the Gravel Island NWR or the Green Bay NWR. This document also discusses all five NWRs collectively as one entity and when doing so, refers to the group as the “Great Lakes islands refuges” or “Great Lakes islands NWRs.”

Chapter 1: Purpose and Need

1.1 Background

The purpose of the proposed action is to specify a 15-year management direction for islands in the Great Lakes that are managed as part of the National Wildlife Refuge System (NWRS, Refuge System). This management direction will be described in detail through a set of goals, objectives, and strategies in a CCP.

The islands in Michigan waters consist of three refuges that are managed by two Service field stations:

1.1.1 Shiawassee NWR

Michigan Islands NWR consisting, in part, of four islands in Lake Huron (Big Charity, Little Charity, Scarecrow, and Thunder Bay) are managed by the staff at Shiawassee NWR located in Saginaw, MI.

1.1.2 Seney NWR

Three island refuges in Lake Huron, Lake Michigan and Lake Superior are managed by the staff at Seney NWR located on the Upper Peninsula of Michigan. These island refuges are Harbor Island NWR (Lake Huron), Huron NWR (Lake Superior), and additional portions of Michigan Islands NWR (Hat, Shoe, Pismire, and Gull Islands in Lake Michigan).

The island refuges in Wisconsin waters are Gravel Island NWR and Green Bay NWR. The refuges consist of five islands in Lake Michigan off the tip of the Door County Peninsula (Gravel, Hog, Pilot, Plum and Spider Islands). These refuges are managed by the staff at Horicon NWR located in Mayville, WI.

We prepared this EA using guidelines established under the National Environmental Policy Act (NEPA) of 1969. NEPA requires us to examine the effects of proposed actions on the natural and human environment. In the following sections we describe three alternatives for future management of refuge islands, the environmental consequences of each alternative, and our preferred management direction. We have selected our preferred alternative based on environmental consequences and the ability to achieve the purpose of each refuge.

1.2 Purpose and Need for Action

The purpose of the proposed action is to specify management directions for all Great Lakes island refuges over the coming 15 years. These management directions will be described in detail through a distinct set of goals, objectives, and strategies in a CCP.

The action is needed because adequate, long-term management direction does not currently exist for these islands. Management is now guided by various general policies and short-term plans. The action is also needed to address current management issues and to satisfy the legislative mandates of the National Wildlife Refuge System Improvement Act of 1997, which requires the preparation of a CCP for all national wildlife refuge system lands in the United States.

This EA will present three management alternatives for the future of the Great Lakes islands refuges. The preferred alternative will be selected based on its ability to meet identified goals. These goals may also be considered as the primary need for action. Common goals for the refuges were developed by the planning team and encompass all aspects of management, including wildlife management, habitat management, and public use. Each of the management alternatives described in this EA will be able to at least minimally achieve these goals.

1.3 Great Lakes Islands Refuges Goals

1.3.1 Ecosystem Goal

Protect and maintain natural ecological communities to promote a healthy functioning ecosystem and identify future scenarios for Great Lakes islands ecosystems

1.3.2 Wildlife Goal

Protect, restore and maintain a natural diversity of fish and wildlife native to the Great Lakes, with an emphasis on Service Resource Conservation Priority Species.

1.3.3 Habitat Goal

Perpetuate the biological diversity and integrity of native plant communities to sustain high quality habitat for migratory birds, fish, and endangered species.

1.3.4 People Goal

Communicate and work in partnership with communities, governments, and appropriate organizations throughout the Great Lakes watershed to understand and appreciate the island ecosystems of the Great Lakes and further the mission of the Refuge System. Protect the cultural resources and cultural history of the refuges to assure historical preservation and connect refuge staff, visitors, and the community to the area's past.

1.4 Vision Statement

Management of Great Lakes islands refuges will reflect the mission of the National Wildlife Refuge System by conserving in perpetuity a rich mosaic of island habitats and, enabling nesting and migrating birds, and other wildlife of conservation concern in the Great Lakes, to thrive here. With the help of our conservation partners, we will apply sound, scientific principles and adaptive management strategies to sustain the long-term health and integrity of Great Lakes habitats; expand community outreach and environmental education and interpretation programs; and, stimulate visitors to embrace stewardship of natural resources.

1.5 Decision Framework

The Regional Director for the Midwest Region (Region 3 of the Service) will need to make two decisions based on this EA: 1) select an alternative future management, and 2) determine if the selected alternative is a major federal action significantly affecting the quality of the human environment, thus requiring preparation of an Environmental Impact Statement. The planning team has recommended Alternative C (Enhanced Management to Promote Natural Integrity and

Public Stewardship) to the Regional Director. The CCP was developed for implementation based on this recommendation.

1.6 Authority, Legal Compliance, and Compatibility

The Refuge System includes federal lands managed primarily to provide habitat for a diversity of fish, wildlife, and plant species. National wildlife refuges are established under many different authorities and funding sources for a variety of purposes. The purposes of the individual island refuges were derived primarily from the laws and executive orders that established them. Appendix C of the CCP contain a list of the key laws, orders, and regulations that provide a framework for the proposed action.

1.7 Scoping of the Issues

The CCP planning process began in February 2009 and included internal discussions and a series of public open houses held in communities near the island refuges. See Chapter 2 in the CCP for details of the issue scoping process.

1.7.1 Great Lakes Islands Refuges Issues, Concerns, and Opportunities

The following list of issue topics was generated by internal refuge scoping, the public open house sessions, and program reviews.

Double-crested Cormorant Management: Strong feelings among some for population reduction measures in Green Bay and the Beaver Island chain.

Access: Plum and Pilot Islands were added to the Green Bay NWR in 2007. Many people are requesting access to Plum Island for kayak and motor boat landings and hiking on trails. Some people requested advertising Harbor Island as part of a kayak trail and establishing boat docks and hiking trails, while others had an opposing view to retain the status quo.

Island Acquisition: Several comments were received about adding specific islands in private ownership to the refuge system. What criteria should be used for adding islands to the existing refuge system?

Cultural Resources: Will cultural resource sites, especially the lighthouses, receive adequate care, restoration and protection into the future?

Visitor Services: Should additional wildlife-dependent recreation opportunities be made available, or are the existing opportunities for wildlife observation and photography, hunting, and environmental education and interpretation adequate?

Chapter 2: Description of the Alternatives

2.1 Formulation of Alternatives

Based on the issues, concerns, and opportunities we heard during the scoping process, the planning team developed three alternative management scenarios that could be used for the Great Lakes islands refuges. These alternatives and the consequences of adopting each are presented in the EA. The alternatives were formulated under the assumption that staffing and budgets would remain constant or grow slowly throughout the life of the plan.

The alternative descriptions presented below provide a general overview of management direction. However, many details of management remain on an island-specific basis and will be described in Chapter 4: Environmental Consequences. For example, seasonal access restrictions and wildlife population control measures will vary from island to island based on specific resource concerns.

The three management alternatives were developed to address most of the issues, concerns, and opportunities identified during the CCP planning process. Specific impacts of implementing each alternative will be examined in five broad issue categories:

Island Acquisition: Should new islands be added to the existing refuge system?

Migratory Birds: What role do the islands that support colonies of nesting waterbirds play in the surrounding ecosystem? Are the colonies adequately protected from invasive species and human influences?

Cultural Resources: Will cultural resource sites, especially the lighthouses, receive adequate care, restoration, and protection into the future?

Access: Should the refuges provide more or fewer public access opportunities?

Visitor Services: Should additional wildlife-dependent recreation opportunities be made available, or are the existing opportunities for wildlife observation and photography, hunting, and environmental education and interpretation adequate?

2.2 Management Alternatives

2.2.1 Alternative A: Current Direction to Maintain Natural Integrity (No Action)

The current management direction of all Great Lakes islands NWRs would be maintained under this alternative. For NEPA purposes, this is referred to as the “No Action” alternative, a misnomer as some changes will occur over the next 15 years.

New islands will be added as opportunities and funding arises up to a total of 5,000 acres. Protection measures will primarily include transfers from other government agencies and fee purchase from federal appropriations. Site-specific actions would be taken to manage overpopulations of colonial nesting waterbirds, particularly Double-crested Cormorants, when compatible with approved joint agency plans and only if desirable co-nesting waterbirds are not negatively impacted. Efforts would be made to prevent the introduction of invasive or noxious plant and animal species.

Islands within Congressionally-designated Wilderness will be managed according to the wilderness policy of the Service. Refuge management activities will meet the “minimum requirement” for administering the area as wilderness as necessary to accomplish the purposes of the refuge. Cultural resources related to maritime navigation will be inventoried, restored, and protected in cooperation with non-profit organizations and state historic preservation offices.

Visitor facilities such as boat landings, signs, and trails will be very limited or not supplied on some islands. Environmental interpretation will focus on the uniqueness of Great Lakes island ecosystems and cultural resources.

2.2.2 Alternative B: Minimal Management to Preserve Wilderness Qualities

Alternative B would focus management actions to retain the wilderness character of each island to the extent practical. Public access and visitor services would be kept to a minimal level in order to reduce visual and habitat impacts.

New islands will be added as opportunities and funding arises, up to a total of 14,500 acres. Protection measures will primarily include transfers from other government agencies and fee purchase from federal appropriations. Site-specific actions would be taken to manage overpopulations of colonial nesting waterbirds, particularly Double-crested Cormorants, when compatible with approved joint agency plans and only if desirable co-nesting waterbirds are not negatively impacted. Efforts would be made to prevent the introduction of invasive or noxious plant and animal species.

Some islands will remain closed to entry except by special use permit. Islands within Congressionally-designated Wilderness will be managed according to the wilderness policy of the Service. Refuge management activities will meet the “minimum requirement” for administering the area as wilderness and necessary to accomplish the purposes of the refuge. Cultural resources related to maritime navigation will be inventoried, restored, and protected in cooperation with non-profit organizations and state historic preservation offices.

In general, visitors will be encouraged to minimize their impact on these fragile island habitats. Boat landing facilities will be very limited or not supplied on some islands. Environmental interpretation will focus on the wilderness qualities of Great Lakes islands.

2.2.3 Alternative C: Enhanced Management to Promote Natural Integrity and Public Stewardship (Preferred Alternative)

Alternative C would provide for the growth of the island refuges and more opportunities for compatible recreational use.

Up to 14,133 acres of new island habitats would be pursued under this alternative. Protection measures will include transfers from other government agencies, donations, and fee simple and conservation easement purchase from federal and private funding sources. Site-specific actions would be taken to control overpopulations of colonial nesting waterbirds, particularly Double-crested Cormorants, when compatible with approved joint agency plans and only if desirable co-nesting waterbirds are not negatively impacted. Efforts would be made to prevent the introduction of invasive or noxious plant and animal species.

Islands within Congressionally-designated Wilderness will be managed according to the wilderness policy of the Service. Efforts would be made to prevent the introduction of invasive or noxious plant and animal species. Cultural resources related to maritime navigation will be inventoried, restored, and protected in cooperation with non-profit organizations and state historic preservation offices.

In general, visitors will be encouraged to minimize their impact on these fragile island habitats. However, new visitor facilities and seasonal programs will be considered on some islands. New facilities may include marked trails and designated boat landings. Environmental interpretation will focus on the uniqueness of Great Lakes island ecosystems and cultural resources.

Chapter 3: Affected Environment

This chapter includes a brief overview of the affected environments of the Great Lakes islands refuges. More details are contained in Chapter 3 of the CCP itself.

3.1 Introduction

3.1.1 General Island Geological and Ecological Background

Michigan and Wisconsin are fortunate to have many islands that form a “waterscape” unlike any found elsewhere in the world. Of the three Upper Great Lakes (Huron, Michigan, and Superior), there exists approximately 200 islands within the confines of the states in Lake Huron, 76 in Lake Michigan, and 175 in Lake Superior (not counting 86 in the St. Mary’s River) (Soule, 1993).

The glacial history of island chains differs across the Upper Great Lakes. Glacial till overlying limestone bedrock forms the bulk of the Beaver Island group in northern Lake Michigan, although Pismire Island (part of Michigan Islands NWR) is an example of a sand and gravel bar island. Conversely, most islands in Lake Superior are formed of igneous and metamorphic bedrock, with the Huron Islands (of Huron NWR) being the result of granite upthrusts (Soule, 1993).

Post-glacial history of these islands also varies. National Wildlife Refuge System (NWRS, Refuge System) records indicate that many of the islands of Michigan Islands NWR were either impacted by human habitation (Gull Island) or by other uses (e.g., Hat Island was used as bombing range prior to refuge establishment) (Gates, 1950). Likewise, Huron NWR and Harbor Island NWR have had a history of human disturbance and manipulations (e.g., buildings are or were on both these refuges).

3.2 Archeological and Cultural Values

Several of the lighthouses and associated buildings on the islands (West Huron, Plum and Pilot Islands) have been placed on the National Register of Historic Places. No other historic or prehistoric sites have been identified as eligible for the National Register. See Chapter 3 of the CCP for more details.

3.3 Social and Economic Context

Now the Great Lakes basin is home to more than one-tenth of the population of the United States and one-quarter of the population of Canada. Some of the world’s largest concentrations of industrial capacity are located in the Great Lakes Region. Nearly 25 percent of the total Canadian agricultural production and 7 percent of the American production are located in the basin. The United States considers the Great Lakes a fourth seacoast, and the Great Lakes Region is a dominant factor in the Canadian industrial economy.

3.4 Natural Resources

Habitats, wildlife species, and endangered species of each individual island refuge are described in Chapter 3 of the CCP. Also, lists of species for specific islands can be found in Appendix D.

3.5 Visitor Services

The National Wildlife Refuge System Improvement Act of 1997 emphasizes wildlife management and that all prospective public uses on any given unit of the Refuge System must be compatible with the wildlife-related purposes before they can be allowed. The Improvement Act also identifies six priority uses of national wildlife refuges that in most cases are considered compatible uses: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Opportunities to participate in all of these wildlife-dependent activities exist on the island refuges.

Chapter 4: Environmental Consequences

4.1 Effects Common to All Alternatives

Specific environmental and social impacts of implementing each alternative are compared in table A-1 within the broad categories of wildlife, habitat, and people. However, several potential effects will be very similar under each alternative and are summarized below:

4.1.1 Environmental Justice

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Clinton on February 11, 1994. Its purpose was to focus the attention of federal agencies on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment.

None of the management alternatives for the five refuges described in this EA would disproportionately place any adverse environmental, economic, social, or health impacts on minority and low-income populations. The percentage of minorities in Door County, Wisconsin and the Upper Peninsula of Michigan is lower than in Michigan and Wisconsin (and much lower than the United States). Average incomes and poverty rates within the counties are comparable to other rural counties in the state. Public use activities that would be offered under each of the alternatives would be available to any visitor regardless of race, ethnicity, or income level.

4.1.2 Climate Change Impacts

The U.S. Department of the Interior issued an order in January 2001 requiring federal agencies under its direction that have land management responsibilities to consider potential climate change impacts as part of long range planning endeavors. The increase of carbon dioxide (CO²) within the earth’s atmosphere has been linked to the gradual rise in surface temperature commonly referred to as global warming. In relation to comprehensive conservation planning for national wildlife refuges, carbon sequestration constitutes the primary climate-related impact that refuges can affect in a small way. The U.S. Department of Energy’s “Carbon Sequestration Research and Development” defines carbon sequestration as “. . . the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere.”

See Chapter 3 of the CCP for more detail on potential climate change impacts in the Great Lakes Region.

4.1.3 Cultural Resources

The Service is responsible for managing archeological and historic sites found on national wildlife refuges. Known cultural resources occur on several islands, and there may be undiscovered cultural resources awaiting discovery. Under each of the alternatives evaluated in

this EA, refuge management would ensure compliance with relevant federal laws and regulations, particularly Section 106 of the National Historic Preservation Act. Prior to all habitat and facility projects, appropriate efforts will be made to identify cultural resources within the area of potential impact by contacting the Regional Historic Preservation Officer.

4.1.4 Fire Management

Many of the islands are small and sparsely vegetated with little or no history of wildfires. However, on islands containing forests, brush or dense grasslands the use of prescribed fire may be beneficial to habitat or the protection of historic structures. In the future, management ignited wildland fire maybe used to reduce hazardous fuel loads, control invasive vegetation, and mimic natural disturbance patterns to enhance and maintain wildlife habitat.

4.1.5 Other Common Effects

None of the alternatives would have more than negligible—or at most minor—effects on soils, topography, noise levels, land use patterns in and around the refuge, transportation and traffic, waste management, human health and safety, or visual resources.

4.2 Cumulative Environmental Impacts Analysis

“Cumulative environmental impacts” refer to effects that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Land parcels under the jurisdiction of the Great Lakes islands refuges are relatively small and scattered over many counties. No cumulative impacts have been identified for actions suggested in this EA.

Table A-1: Comparison of Environmental Consequences by Management Alternative

Issues	Alternative A: Current Direction to Maintain Natural Integrity (No Action)	Alternative B: Minimal Management to Preserve Wilderness Qualities	Alternative C: Enhanced Management to Promote Natural Integrity and Public Stewardship (Preferred)
Goal 1: Ecosystem – Protect and maintain natural ecological communities to promote a healthy functioning ecosystem and identify future scenarios for Great Lakes islands ecosystems			
<i>Island Acquisition</i>	Conserve up to 150 acres of island habitat through full purchase, easements or transfer.	Conserve up to 5,000 acres of island habitat through full purchase, easements or transfer.	Conserve up to 14,133 acres of island habitat through full purchase, easements or transfer.
<i>Climate Change</i>	See Common to All Alternatives	Same as A.	Same as A.
Goal 2: Wildlife – Protect, restore and maintain a natural diversity of fish and wildlife native to the Great Lakes, with an emphasis on Service Resource Conservation Priority Species.			
<i>Migratory Bird Populations</i>	Natural fluctuation of colonial waterbird nesting populations. Opportunistic use by migrating songbirds.	Same as A.	Increase in nesting waterbird populations due to active protection measures and control of non-target species.
<i>Over-abundant Wildlife Species</i>	Decrease in Double-crested Cormorant populations on most islands with colonies. Stable to decrease in white-tailed deer numbers, where present.	Stable to slight increase in Double-crested Cormorant populations on most islands with colonies. Stable to increase in white-tailed deer numbers, where present.	Decrease in Double-crested Cormorant populations on most islands with colonies. Stable to decrease in white-tailed deer numbers, where present.
<i>Exotic and Invasive Species Control</i>	Reduce non-native Mute Swan populations through active control measures (Green Bay NWR only).	Increase monitoring of invasive plants and control infestations.	Same as A & B.
Goal 3: Habitat – Perpetuate the biological diversity and integrity of native plant communities to sustain high quality habitat for migratory birds, fish, and endangered species.			
<i>Rare Habitats</i>	Stable. Protect Great Lakes Alvar communities (~100 acres) on islands containing this globally-rare habitat.	Same as A.	Increase in protected Great Lakes alvar communities on islands containing this globally-rare habitat. Increase will occur through island acquisition.
Goal 4: People – Communicate and work in partnership with communities, governments, and appropriate organizations throughout the Great Lakes watershed to understand and appreciate the island ecosystems of the Great Lakes and further the mission of the Refuge System.			
<i>Public Access</i>	Stable to slight increase due to new access opportunities on Plum and Harbor Islands.	Stable. Public access will be kept to a minimum to enhance wilderness appreciation.	Same as A plus new access options at Harbor Island NWR and islands acquired in the future.
<i>Environmental Education and Outreach</i>	Slight increase due to new opportunities on Plum and Harbor Islands.	Same as A.	Same as A plus new opportunities at Huron NWR and islands acquired in the future.
Goal 5: Cultural Resources – Protect the cultural resources and cultural history of the refuges to assure historical preservation and connect refuge staff, visitors, and the community to the area's past.			
<i>Protection of Cultural Resources</i>	Slight increase due to historic building restoration efforts at Huron NWR and Plum and Pilot Islands.	Stable to slight increase due to historic building restoration efforts at Huron NWR and Plum and Pilot Islands.	Same as A with new protection or restoration efforts on islands acquired in the future.

Chapter 5: List of Preparers

5.1 Refuge Staff

Michigan Islands NWR (Shiawassee NWR)

Steve Kahl, Refuge Manager

Gravel Island NWR and Green Bay NWR

Patti Meyers, Former Refuge Manager

Sadie O'Dell, Wildlife Biologist

Michigan Islands NWR (Seney NWR), Harbor Island NWR, and Huron NWR

Mark Vaniman, Refuge Manager

Greg Corace, Forester

Greg McClellan, Assistant Refuge Manager

5.2 Regional Office Staff

Gary Muehlenhardt, Wildlife Biologist/Refuge Planner, Region 3, USFWS

Gabriel DeAlessio, Biologist-GIS, Region 3, USFWS

James Myster, Regional Historic Preservation Officer, Region 3, USFWS

Mark Hogeboom, Writer/Editor, Region 3, USFWS

Chapter 6: Consultation and Coordination with Stakeholders

The refuge and regional planning staffs have conducted extensive consultation and coordination over three years with stakeholders in developing the CCP and EA for the Great Lakes islands refuges. In the course of scoping and other meetings, the Service consulted with more than 200 individuals representing Michigan and Wisconsin DNRs, conservation organizations, neighboring communities, and other stakeholders. See Chapter 2 of the CCP for a more detailed description of the process.