

Appendix A: Environmental Assessment

Finding of No Significant Impact

Environmental Assessment and Comprehensive Conservation Plan for the Detroit River International Wildlife Refuge, Michigan

An Environmental Assessment has been prepared to identify management strategies to meet the conservation goals of the Detroit River International Wildlife Refuge (Refuge). The Environmental Assessment examined the environmental consequences that each management alternative could have on the quality of the physical, biological, and human environment, as required by the National Environmental Policy Act of 1969 (NEPA). The Environmental Assessment presented and evaluated three alternatives for managing fish, wildlife and plant habitats, as well as visitor services, on the Refuge over the course of the next 15 years:

Alternative 1 - The Current Situation (No Action)

The Current Direction alternative would move development of the Refuge along the path taken during the first year since establishment (calendar year 2002). This "No Action" alternative, required by the National Environmental Policy Act, does not imply that no pro-active measures will be taken on behalf of the Refuge. Habitat restoration and management would continue primarily through cooperative efforts. Land acquisition, especially of river island and coastal wetland habitats, would continue through donations, partnerships and special grants. Cooperative management agreements would be arranged with the owners of industrial properties along the river. Identification and/or cleanup of environmental contaminants would continue on existing refuge lands or lands actively considered for acquisition.

Alternative 2 - Leading through Partnerships (Preferred Action)

Under this alternative, the Refuge would seek to serve as a focal point for the many ongoing conservation efforts on the Detroit River and surrounding watersheds. The Service would continue direct habitat conservation efforts but with an emphasis on cooperative management instead of fee ownership. The refuge land base would grow primarily through management agreements with private industry and government agencies. Land acquisition, especially of river island and coastal wetland habitats, would continue through donations, partnerships and special grants. Developing effective partnerships for habitat conservation and environmental education would be the primary focus of the refuge staff.

Alternative 3 - Habitat Emphasis

Alternative 3 would focus on the accelerated need to conserve the last remnants of intact fish and wildlife habitats along the Detroit River and Lake Erie shoreline. This alternative would place a stronger emphasis on existing habitats than on restoration projects and environmental education programs. The Service would seek land acquisition funding through traditional sources such as congressional appropriations and the Migratory Bird Conservation Fund. In addition, the refuge staff and partners would invest the time necessary to pursue grants and private funding sources for land acquisition.

The alternative selected for implementation is *Alternative 2*. The strategies presented in the Comprehensive Conservation Plan (CCP) were developed as a direct result of the selection of this alternative.

For reasons presented above and below, and based on an evaluation of the information contained in the Environmental Assessment, we have determined that the action of adopting Alternative 2 as the management alternative for the Refuge is not a major federal action which would significantly affect the quality of the human environment, within the meaning of Section 102 (2)(c) of the National Environmental Policy Act of 1969.

Additional Reasons:

1. Future management actions will have a neutral or positive impact on the local economy.
2. This action will not have an adverse impact on threatened or endangered species.

Supporting References:

Environmental Assessment
Comprehensive Conservation Plan

ACTING
DIRECTOR



Regional Director

4/27/05
Date

Contents

Abstract.....	75
I. Purpose and Need for the Proposed Action	77
Decision Framework	77
Description of the Proposed Action	77
Authority, Legal Compliance and Compatibility	78
Scoping of the Issues	79
Issues and Concerns	79
Refuge Vision Statement	79
Refuge Goals	79
II. Description of Alternatives	81
Formulation of Alternatives	81
Alternative A: The Current Situation (No Action)	82
Alternative B: Leading through Partnerships (Preferred Action)	82
Alternative C: Habitat Emphasis	82
Alternatives Considered but Not Further Developed	83
III. Affected Environment	93
Threatened and Endangered Species	93
Cultural Resources	94
IV. Environmental Consequences	95
Issues Common to All Alternatives	95
Summary of Effects by Alternative	96
Alternative 1: The Current Situation (No Action)	97
Alternative 2: Leading through Partnerships (Preferred Action)	97
Alternative 3: Habitat Emphasis	101
Cumulative Impact Analysis	101
Migratory Birds	101
Coastal Wetlands.....	102
Habitat Restoration.....	102
V. List of Preparers	103
VI. Consultation and Coordination with the Public and Others	103
VII. References and Literature Cited	103
Table 1: Detroit River IWR Objectives and Strategies by Alternative.....	85-92
Table 2: Summary of Environmental Consequences for Management Alternatives for Detroit River IWR.....	99-101

Appendix A: Environmental Assessment

Environmental Assessment for the Detroit River International Wildlife Refuge

Comprehensive Conservation Plan

Abstract

The U.S. Fish and Wildlife Service (Service) is proposing implementation of a Comprehensive Conservation Plan (CCP) for the Detroit River International Wildlife Refuge in Wayne and Monroe Counties of Michigan. This Environmental Assessment considers the biological, environmental, and socioeconomic effects that implementing the CCP will have on the most significant issues and concerns identified during the planning process.

The purpose of the Plan is to:

- # Provide a clear statement of direction for future management of the Refuge.
- # Give Refuge neighbors, visitors, and the general public an understanding of the Service's management actions on and around the Refuge.
- # Ensure that the Refuge's management actions and programs are consistent with the mandates of the National Wildlife Refuge System.
- # Ensure that Refuge management is consistent with Federal, state and county plans.
- # Establish continuity in Refuge management.
- # Provide a basis for the development of budget requests for the Refuge's operation, maintenance, and capital improvement needs.

I. Purpose and Need for the Proposed Action

Purpose: The comprehensive conservation plan (CCP) will specify a specific course of action for management of Detroit River International Wildlife Refuge (IWR) over the next 15 years. The plan further outlines the steps that will be taken to protect, conserve and restore fish and wildlife habitats within the authorized Refuge boundary.

Need: The Detroit River IWR is a new addition to the Refuge System. Currently, the staff at Shiawassee National Wildlife Refuge (NWR), located in Saginaw, Michigan, has the responsibility of managing the Refuge for specific purposes outlined in law and to fulfill the mission of the National Wildlife Refuge System. A CCP for the Wyandotte NWR portion of the Refuge was completed in 2001. However, basic information necessary for effective management is lacking on the biological resources, remnant habitats, and environmental contamination within the new international wildlife refuge. A CCP is needed to address current management issues and propose a plan of action that the Service and its partners can use to achieve the future vision for the Refuge. In addition, the National Wildlife Refuge System Improvement Act of 1997 mandates that all national wildlife refuges will be managed in accordance with an approved CCP.

The critical needs for completing a CCP are:

- # Conserve remaining coastal wetland and island habitats of the lower Detroit River and western Lake Erie;
- # Restore degraded coastal habitats to benefit migratory birds;
- # Establish partnerships to and promote environmental education to increase public awareness of the Detroit River ecosystem and spur actions that lead to improved water and coastal habitat quality for wildlife, fish and plants.

Decision Framework

The Regional Director for the Great Lakes-Big Rivers Region of the U. S. Fish and Wildlife Service will use the Environmental Assessment (EA) to select one of three alternatives and determine whether the alternative selected will have significant environmental impacts requiring preparation of an environmental impact statement. Specifically, analysis and findings described in the CCP and in this EA will help the Regional Director decide whether to continue with current management at the Refuge (No Action) or whether to adopt the actions described in the Detroit River IWR Comprehensive Conservation Plan.

We recommend that the reader refer to the CCP for additional background information when reviewing this EA.

Description of the Proposed Action

The proposed action is to adopt and implement the Comprehensive Conservation Plan for Detroit River IWR. The CCP will serve as a management tool to be used by Refuge staff and partners in guiding the habitat management and public use activities on the Refuge. The document will guide management decisions and activities on the Refuge over the next 15 years. Staff from various programs of the Service, Michigan Department of Natural Resources (DNR), and many interested citizens contributed to the development of this plan.

Authority, Legal Compliance, and Compatibility

The Detroit River IWR was established by an Act of Congress that was signed into law by the President on December 21, 2001 (Public Law 107-91). The original authorized Refuge boundary included islands, coastal wetlands, marshes, shoals and riverfront lands along 18 miles of the lower Detroit River. The establishing Act included Mud Island and Grassy Island, lands already managed by the Service as Wyandotte NWR (394 acres). Section 4 of the Act states the following purposes for the new Detroit River IWR:

- # To protect the remaining high-quality fish and wildlife habitats of the Detroit River before they are lost to further development and to restore and enhance degraded wildlife habitats associated with the Detroit River.
- # To assist in international efforts to conserve, enhance, and restore the native aquatic and terrestrial community characteristics of the Detroit River (including associated fish, wildlife, and plant species) both in the United States and Canada.
- # To facilitate partnerships among the United States Fish and Wildlife Service, Canadian national and provincial authorities, State and local governments, local communities in the United States and in Canada, conservation organizations, and other non-Federal entities to promote public awareness of the resources of the Detroit River.

On May 19, 2003, Public Law 108-23, the Ottawa NWR Complex Expansion and Detroit River IWR Expansion Act, was signed by the President. The Act extends the authorized boundary of the Refuge along the Lake Erie coastline west to I-75 and south to the Ohio/Michigan border. The expansion area encompasses more than 7,500 acres, numerous coastal marshes and sensitive wetlands, as well as marinas and developed coastlines.

The former Wyandotte NWR was established by Public Law 87-119 on August 3, 1961 ... “to be maintained as a refuge and breeding place for migratory birds and other wildlife...”. Mud Island was added to Wyandotte NWR in January 2001 using the authority to accept donations of real property contained in the Fish and Wildlife Act of 1956 (16 U.S.C. 742f).

Authorities delegated by Congress, Federal regulations/guidelines, and executive orders guide the operation and the management of the Refuge and provide the framework for the Fish and Wildlife Service's proposed action. See Appendix F of the CCP for a summary of these laws and orders.

The National Wildlife Refuge System Improvement Act of 1997 determined that the National Wildlife Refuge System was created to conserve fish, wildlife, and plants and their habitats and this conservation mission has been facilitated by providing Americans with opportunities to participate in compatible wildlife-dependent uses. All recreational and secondary uses of the Detroit River IWR must be compatible with the purposes for which the Refuge was established. The term “compatible use” means a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.

The refuge manager must complete a compatibility determination prior to allowing such uses of refuge lands. Draft compatibility determinations were published for public review as part of the draft CCP. Appendix D of the CCP contains a list of compatibility determinations for existing or proposed uses on Refuge lands.

Scoping of the Issues

Scoping is the process of identifying opportunities and issues related to a proposed action. The Fish and Wildlife Service publicly announced that it was preparing a plan for the Detroit River IWR in June 2002. Several public issue-scoping events were held in local communities in the U.S. and Canada. See Chapter 2 of the CCP for details on the public scoping activity conducted for this plan.

Issues and Concerns

Through scoping, the Service identified issues and concerns related to management of the Refuge. These issues have been considered in the NEPA decision-making process and many have been developed into implementation strategies in the CCP.

This EA informs the public of the impact the proposed action will have on each of seven major issue categories. The CCP planning team selected these issue categories after organizing all of the issues/concerns/opportunities received during the public scoping process. All of these issues are discussed in the CCP and many of the goals and strategies contained in the CCP relate to one or more of the issue categories. The issues categories include Habitat Restoration, Management and Creation, Land Conservation, Contamination/Pollution, Functional Partnerships, Environmental Education, the Future of Hunting and Fishing, and Secondary Public Uses.

Refuge Vision Statement

The following vision statement was adapted from the publication “A Conservation Vision for the Lower Detroit River Ecosystem,” published by the Metropolitan Affairs Coalition (MAC) in 2001. The MAC vision statement was the product of a bi-national collaboration of local governments, businesses, and organizations. The CCP planning team, along with the CCP workshop participants, wanted to recognize this broad vision for the Detroit River. We reviewed the existing vision statement and revised it to be more specific to the Detroit River IWR:

“The Detroit River International Wildlife Refuge, including the Detroit River and Western Lake Erie Basin, will be a conservation region where a clean environment fosters the health and diversity of wildlife, fish, and plant resources through protection, creation of new habitats, management, and restoration of natural communities and habitats on public and private lands. Through effective management and partnering, the Refuge will provide outstanding opportunities for ‘quality of life’ benefits such as hunting, fishing, wildlife observation and environmental education, as well as ecological, economic, and cultural benefits, for present and future generations.”

Refuge Goals

The management alternatives presented in this environmental assessment will be measured and evaluated by their ability to meet the goals of the Refuge and address common issues. Eleven goals have been written for the Detroit River IWR. These goals were adopted, in part, from the MAC Conservation Vision document and goals of other national wildlife refuges in the Midwest. The Vision document listed a number of “supporting elements” that easily become goal statements for the new Refuge:

- # Establish functional partnerships involving communities, industries, governments, citizens, non-profit organizations and others to manage and promote the Refuge consistent with the plan’s vision statement and the Act

which created the Refuge. Provide an institutional framework to develop effective private or public partnerships for the purpose of sustainability.

- # The Refuge will facilitate and promote hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation as wildlife dependent recreational uses.
- # Visitors and local citizens demonstrate a strong conservation ethic that supports the Refuge and broad based environmental awareness.
- # Future development that occurs within surrounding watersheds that may impact the Refuge is well planned, environmentally sustainable, and reflects known best management practices.
- # People living or working within the Refuge watersheds will understand and appreciate the importance and ecological value of the Detroit River and Western Lake Erie, and their contributing watersheds, to fish and wildlife and to human quality of life.
- # The hunting and fishing heritage, cultural resources and cultural history of the Refuge are valued and preserved, and connect Refuge staff, visitors, and the community to the area's past.
- # Fish and wildlife communities are healthy, diverse and self-sustaining.
- # Reduce levels of toxic substances to a threshold that does not threaten or harm or adversely affect wildlife, fish or human health.
- # Economic development and redevelopment is environmentally sustainable, well planned, and aesthetically pleasing.
- # Restore beneficial uses of water resources in the Refuge.
- # Lands and waters within the Refuge are responsibly managed to resolve potentially conflicting uses.

II. Description of Alternatives

This section describes three alternatives considered by the CCP planning team and detailed in this Environmental Assessment.

Formulation of Alternatives

The CCP planning team developed three alternative management scenarios based on issues, concerns and opportunities presented during the public and internal scoping process. The issues that are discussed came from individuals, cooperating agencies, conservation organizations and Service staff.

Each of the management alternatives is designed to fit within the scope of operations of similar-sized refuges elsewhere in the Midwest. The alternatives were formulated under the assumption that staffing and budgets would grow slowly throughout the life of the plan. The Midwest Region of the U.S. Fish and Wildlife Service has requested additional funding from Congress to establish a Refuge office, including staff and equipment, in the vicinity of the Refuge boundary. The budget proposal includes hiring five essential staff members, leasing office space, and purchasing vehicles and small boats. This request must compete with other national budget priorities and start-up funding is not assured in any given year. However, for planning purposes, each of the three alternatives was developed under the assumption that funding will be forthcoming soon after the CCP is approved.

If an alternative calls for one program to increase significantly in size or scope, other Refuge programs would need to be reduced. However, we did provide for the possibility of additional private resources such as volunteers, grant funds, and partnerships to augment programs of the Refuge.

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 seven broad issue categories:

Habitat Restoration, Management and Creation: What level of habitat restoration and maintenance is appropriate given funding constraints and desired future conditions?

Land Conservation: What are the key areas within the Refuge boundary that may require protection? Many people have suggested reviewing the remaining natural islands and coastal wetlands in the area for conservation within the Refuge System.

Contamination/Pollution: How can we reduce the level of environmental contamination within the river ecosystem? Contamination issues also create unique management decisions, including whether recreational use should be prohibited on some existing Refuge lands.

Functional Partnerships: How to establish functional partnerships between a variety of interests including governments, non-profit groups and businesses?

Environmental Education: How to encourage support within the vast human population in southeast Michigan and provide education on the importance of habitat, and management of fish and wildlife populations within the Refuge?

Future of Hunting and Fishing: How to provide hunting and fishing within the Refuge without impacting critical needs of fish and wildlife?

Secondary Public Uses: How to manage lands and waters within the Refuge to resolve conflicts between wildlife habitat and conflicting recreational uses?

Alternative 1 – Current Direction

The Current Direction alternative would move development of the Refuge along the path taken during the first year since establishment (calendar year 2002). This “No Action” alternative, required by the National Environmental Policy Act, does not imply that no proactive measures will be taken on behalf of the Refuge. Habitat restoration and management would continue primarily through cooperative efforts. Land acquisition, especially of river island and coastal wetland habitats, would continue through donations, partnerships and special grants. Cooperative management agreements would be arranged with the owners of industrial properties along the river. Private landowners will continue to retain all rights to manage public access on their lands. Identification and/or cleanup of environmental contaminants would continue on existing Refuge lands or lands actively considered for acquisition.

New partnerships would be developed as the Refuge staff and resources continue to grow. The theme for environmental education would focus on the need for conserving migratory bird and fish habitats as well as the river ecosystem. Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge lands where it is safe and appropriate. Additional recreational uses would be limited due to the small size of Refuge land holdings and potential conflicts with wildlife-dependent priority uses.

Alternative 2 – Leading through Partnerships (Preferred Action)

Under this alternative, the Refuge would seek to serve as a focal point for the many ongoing conservation efforts on the Detroit River and surrounding watersheds. The Service would continue direct habitat conservation efforts but with an emphasis on cooperative management instead of fee ownership. The Refuge land base would grow primarily through management agreements with private industry and government agencies. Land acquisition, especially of river island and coastal wetland habitats, would continue through donations, partnerships and special grants, as well as traditional sources such as congressional appropriations and the Migratory Bird Conservation Fund.

Identification and/or cleanup of environmental contaminants would continue on existing Refuge lands or lands actively considered for acquisition. However, contaminant issues on private lands managed under agreement would be addressed only to the point where wildlife and human safety are a concern and the U.S. Fish and Wildlife Service does not become liable for costly cleanup measures.

Developing effective partnerships for habitat conservation and environmental education would be the primary focus of the Refuge staff. A major theme for environmental education would be the need for citizens to work together to enhance the Detroit River and Lake Erie ecosystems. Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge-owned lands where it is safe and appropriate. Private landowners would continue to retain all rights to manage public access on their lands. Additional recreational uses would be limited due to the small size of Refuge land holdings and potential conflicts with wildlife-dependent priority uses.

Alternative 3 – Habitat Emphasis

Alternative 3 would focus on the accelerated need to conserve the last remnants of intact fish and wildlife habitats along the Detroit River and Lake Erie shoreline. This alternative would place a stronger emphasis on conserving existing habitats than on restoration projects and environmental education programs. The Service would seek land acquisition

funding through traditional sources such as congressional appropriations and the Migratory Bird Conservation Fund. In addition, Refuge staff and partners would invest the time necessary to pursue grants and private funding sources for land acquisition.

Identification and/or clean-up of environmental contaminants would continue on existing Refuge lands or lands actively considered for acquisition. However, contaminant issues on private lands managed under agreement would be addressed only to the point where wildlife and human safety are a concern and the U.S. Fish and Wildlife Service does not become liable for costly cleanup measures.

Developing effective partnerships for habitat conservation would be the primary focus of the Refuge staff. A major theme for environmental education would be the need for citizens to work together to conserve the remaining open space along the Detroit River and Lake Erie. Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge-owned lands where it is safe and appropriate. Private landowners would continue to retain all rights to manage public access on their lands. Additional recreational uses, where deemed compatible with the purposes of the Refuge, would be considered on a case-by-case basis on Refuge land holdings.

Alternatives Considered But Not Recommended for Further Study

An additional alternative was considered but eliminated from further study. This alternative was originally proposed during development of the CCP for Wyandotte NWR. The proposal called for reconstruction of Grassy Island and other islands currently within the Refuge and enhancement of the associated marshes through major engineering projects. We concluded that such construction projects would not be feasible for the Service due to funding, jurisdiction and other constraints. It would be necessary to complete a major environmental and engineering study prior to implementing reconstructions. We concluded that the costs of studies and construction would not be justified for the expected, but limited, wildlife benefits.

Table 1: Detroit River IWR Objectives and Strategies by Alternative

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
<p>Goal 1: Establish functional partnerships involving communities, industries, governments, citizens, non-profit organizations and others to manage and promote the Refuge consistent with the plan's vision statement and the Act that created the Refuge. Provide an institutional framework to develop effective private or public partnerships for the purpose of sustainability.</p>		
<p>Objective 1: Annually, for a period of 5 years, identify and contact 10 potential partners to offer direct participation in Refuge programs. Partners will include local area schools, conservation and business organizations, and local governments.</p>	<p>Objective 1: Annually, for a period of 5 years, identify and contact 20 potential partners to offer direct participation in Refuge programs. Partners will include local area schools, conservation and business organizations, and local governments.</p>	<p>Same as Alternative A.</p>
<p>Objective 2: Establish a group of partners to coordinate, advise and integrate all environmental project proposals on or adjacent to Refuge-owned lands or properties managed under cooperative agreements. Strategies: Task groups will be designated by the working group. Include NGOs, business leaders, resource users, and recreational users. In one year, task groups will formulate their strategies and recommendations for habitat conservation and other programs. Note: Working group recommendations are subject to compatibility determination by the Refuge Manager.</p>	<p>Objective 2: Establish a working group or similar group, representing all partners, to coordinate, advise and integrate all environmental project proposals within the authorized boundary of the Refuge. Strategies: Task groups will be designated by the working group. Include NGOs, business leaders, resource users, and recreational users. In one year, task groups will formulate their strategies and recommendations for habitat conservation and other programs. Note: Working group recommendations are subject to compatibility determination by the Refuge Manager.</p>	<p>Same as Alternative A.</p>
<p>Objective 3: Develop a Friends of Detroit River IWR group and establish a volunteer program within 2 years. Strategy: Friends will provide a pool of volunteers to assist in environment education and outreach.</p>	<p>Objective 3: Develop a Friends of Detroit River IWR group within the first year. Strategy: Friends will provide a pool of volunteers to assist in environment education and research.</p>	<p>Objective 3: Develop a Friends of Detroit River IWR group within 2 years. Strategy: Friends will provide volunteers to assist in habitat restoration work.</p>

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
Goal 2: The Refuge will facilitate and promote hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation as wildlife-dependent uses.		
<p>Objective 1: Provide waterfowl hunting opportunities on Refuge lands and waters, subject to state and local regulations and public safety concerns, that meet the definition of quality in the FWS manual.</p> <p>Strategy: Issue a compatibility determination on whether to open waters surrounding Grassy Island for waterfowl hunting within 2 years of plan approval.</p>	Same as Alternative A.	Same as Alternative A.
<p>Objective 2: Allow fishing and hunting to the maximum extent, except where contaminant exposure, safety or sensitive species needs prohibit such uses.</p> <p>Strategy: Develop a leaflet identifying access locations for public hunting and fishing areas in the authorized Refuge boundary.</p>	Same as Alternative A.	Same as Alternative A.
<p>Objective 3: Annually, provide on-site environmental education and interpretive programs for 500 participants to increase the community's understanding and appreciation of the Refuge.</p> <p>Strategies: Visitation target will be reviewed as the Refuge staff and capabilities grow. Assist Wayne County in development of an administrative/interpretive facility at the former Daimler/Chrysler site in Trenton.</p>	<p>Objective 3: Annually, provide on-site environmental education programs for 1,000 participants to increase the community's understanding and appreciation of the Refuge.</p> <p>Strategies: Annual visitation target will be reviewed as partnerships and Refuge staffing grows. Assist Wayne County in development of an administrative/interpretive facility at the former Daimler/Chrysler site in Trenton.</p>	Same as Alternative A.
<p>Objective 4: Annually, provide on-site wildlife observation and photography opportunities for 500 visitors to increase public appreciation for the ecological value of the Detroit River and Lake Erie.</p>	<p>Objective 4: Annually, provide on-site wildlife observation and photography opportunities for 1,000 visitors to increase public appreciation for the ecological value of the Detroit River and Lake Erie.</p>	Same as Alternative A.

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
<p>Goal 3: Visitors and local citizens demonstrate a strong conservation ethic that supports the Refuge and broad-based environmental awareness.</p>		
<p>Objective 1: Within 4 years of CCP approval, develop an environmental education program about the Refuge and its role in the Great Lakes ecosystem that will reach 25 percent of the people in southeast Michigan. Strategies: Develop a logo/slogan (marking/ publicity campaign) Develop a school curriculum focused on the Refuge (include same in MEAP) test, mail leaflets to educators and school systems. frequently post upcoming education opportunities on the Refuge website. Workshops for local teachers, realtors, townships, county or city planning commissions. Publish a birding trail map highlighting key viewing areas within the Refuge. Develop photo blinds in various locations and encourage photo or video submissions to local media to promote the Refuge.</p>	<p>Objective 1: Within 2 years of CCP approval, develop an environmental education program about the Refuge and its role in the Great Lakes ecosystem that will reach 50 percent of the people in southeast Michigan. Strategies: Develop a logo/slogan. Include outreach to Essex County, Ontario, residents through appropriate Canadian partner organizations. Host an annual “Refuge Days” street fair involving all downriver communities. Print quarterly newsletters, use viewo and local cable TV programs. Develop school curriculum focused on the Refuge (include same in MEAP test), mail leaflets to educators and school systems. Frequently post upcoming educational opportunities on the Refuge website. Workshops for local teachers, realtors, townships, county or city planning commissions. Publish a birding trail map highlighting key viewing areas within the Refuge. Develop photo blinds in various locations and encourage photo or video submissions to local media to promote the Refuge.</p>	<p>Same as Alternative A, but with additional projects and interpretive themes related to habitat.</p>
<p>Objective 2: Within 10 years of plan approval, 25 percent of Refuge visitors will be able to explain a key environmental theme for the Refuge. The themes may include wetland ecology, human impact on the landscape, migratory bird corridors, habitat restoration, etc. Strategy: Measure success through periodic exit surveys.</p>	<p>Objective 2: Within 5 years of plan approval, 50 percent of visitors will be able to explain a key environmental theme for the Refuge. The themes may include wetland ecology, human impact on the landscape, migratory bird corridors, habitat restoration, etc. Strategy: Measure success through periodic exit surveys.</p>	<p>Same as Alternative A.</p>

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
<p>Objective 3: Within 10 years of plan approval, 20 percent of neighboring communities and businesses will express support for the Refuge through active promotion of Refuge facilities and events.</p> <p>Strategies: Develop methods to show support (street banners, posters, window decals, etc.) Working group to develop measures to judge which businesses or organizations should be publicly recognized.</p>	<p>Objective 3: Within 5 years of plan approval, 50 percent of neighboring communities and businesses will express support for the Refuge through active promotion of Refuge facilities and events.</p> <p>Strategies: Develop methods to show support (street banners, posters, window decals, etc.) Working group to develop measures to judge which businesses or organizations should be publicly recognized.</p>	
<p>Goal 4: Future development that occurs within surrounding watersheds that may impact the Refuge is well planned, environmentally sustainable, and reflects Best Management Practices.</p>		
<p>Objective 1: Within 2 years of plan approval, make the local, state and federal regulatory (permitting) agencies aware of the Refuge vision and goals.</p> <p>Strategy: Distribute Refuge brochures to regional and state headquarters of each agency.</p>	<p>Objective 1: Within 1 year of plan approval, make the local, state and federal regulatory (permitting) agencies aware of the Refuge vision and goals.</p> <p>Strategy: Distribute Refuge brochures to regional and state headquarters for each agency.</p>	<p>Objective 1: Within 2 years of plan approval, make the local, state and federal regulatory (permitting) agencies aware of the vision, goals and habitat-related programs available through the Refuge.</p>
<p>Objective 2: Within 3 years of plan approval, Refuge staff and partners are representing Refuge interests as participants in the Southeast Michigan Council of Governments (SEMCOG) and other regional planning boards.</p>	<p>Objective 2: Within 1 year of plan approval, Refuge staff and partners are representing Refuge interests as participants in the Southeast Michigan Council of Governments and other regional planning boards.</p>	<p>Same as Alternative A.</p>
	<p>Objective 3: By 2010, a formalized clearinghouse will be in place to provide streamlined review of all development proposed within the approved boundary. Service staff and the working group will determine representatives for this group.</p> <p>Note: The clearinghouse could be a group within SEMCOG that will review for representative agency and Refuge interests. Review will assure Best Management Practices and environmental sustainability.</p>	

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
<p>Goal 5: People living or working within the Refuge watershed will understand and appreciate the importance and ecological value of the Detroit River and Western Lake Erie, and their contributing watersheds to fish and wildlife and to human quality of life.</p>		
<p>Objective 1: Within 3 years of plan approval, all plan/planning commissions, township boards, city governments, and major landowners will have been informed as the importance of the Refuge and its associated waterway connectors as a migratory bird corridor and the importance of fish habitat to the Detroit River watershed. Strategy: Promotional materials will be placed in a public place of each neighboring township or city showcasing goals/objectives/vision of the Refuge.</p>	<p>Objective 1: Within 2 years of plan approval, all plan/planning commissions, township boards, city governments and major landowners will have been informed as to the importance of the Refuge and its associated waterway connectors as a migratory bird corridor and the importance of fish habitat to the Detroit River watershed. Strategy: At least one interpretive display, developed through partnership efforts, will be placed in a public place of each neighboring township or city showcasing goals/objectives/vision of the Refuge.</p>	<p>Same as Alternative A.</p>
<p>Objective 2: By 2008, 25 percent of local real estate agents and corporate relocation departments will include information about the Refuge in material promoting the area. Strategy: Distribute brochures and/or e-mail information to each agency.</p>	<p>Objective 2: By 2008, 50 percent of local real estate agents and corporate relocation departments will include information about the Refuge in material promoting the area. Strategy: Distribute brochures and/or e-mail information to each agency.</p>	
<p>Goal 6: The hunting and fishing heritage, cultural resources and cultural history of the Refuge are valued and preserved, and connect Refuge staff, visitors and the community to the area's past.</p>		
<p>Objective 1: Within 2 years after construction of the proposed visitor facility, 50 percent of visitors will be aware of key heritage values of the area. (River transportation, hunting, fishing.) Strategies: Refuge promotional and educational materials incorporate a section on heritage values. Ensure staff and volunteer training highlights these values. Link heritage information to other educational information available in the area.</p>	<p>Objective 1: Same as Alternative A.</p>	<p>Objective 1: Same as Alternative A.</p>

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
Goal 7: Fish and wildlife communities are healthy, diverse and self-sustaining.		
<p>Objective 1: By 2015, protect 20 percent of remaining coastal wetland and island habitat on public and private lands through fee, easements, and cooperative agreements. Strategy: High priority for Humbug Marsh Complex, Hennepin Marsh Ecosystem, and Conservation Crescent.</p>	<p>Objective 1: By 2015, protect 40 percent of remaining coastal wetland and island habitat on public and private lands through fee, easements, and cooperative agreements. Strategy: High priority for Humbug marsh Complex, Hennepin Marsh Ecosystem, and Conservation Crescent.</p>	<p>Objective 1: By 2015, protect 75 percent of all remaining habitat for Service trust species through fee or easements. Strategy: Priorities are the same as alternatives A and B, with additional forested and riparian lands to be identified.</p>
<p>Objective 2: Establish partnerships to identify and monitor populations of federal and state endangered and threatened species within the approved Refuge boundary and work to prevent the listing of additional species.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A.</p>
<p>Objective 3: By 2007, quantify the importance of habitats within the Refuge authorized boundary to migratory waterfowl with an emphasis on Regional Resource Conservation Priority Species such as Canvasback, Black Duck, Mallard and Blue-winged Teal.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A.</p>
<p>Objective 4: Participate in the restoration of lake sturgeon spawning in the Detroit River within 3 years of acquiring a permanent staff for the Refuge.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A.</p>

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
<p>Objective 5: Working with others, identify and prioritize areas best suited for restoration through partnership efforts (e.g. coastal wetlands, lakeplain prairies, forested wetlands, oak openings, and riparian buffers).</p> <p>Strategies: Review and consider linkage to remaining open space areas. (Manny, USGS map). Conduct Geographic Analysis Program (GAP). Restore native plant species identified as appropriate for the Refuge. Develop a native seed inventory and sources.</p>	<p>Same as Alternative A.</p>	<p>Objective 3: Within 3 years of plan approval, identify and prioritize areas best suited for restoration through Service efforts (e.g. coastal wetlands, lakeplain prairies, forested wetlands, oak openings, and riparian buffers).</p> <p>Strategies: Complete a habitat management concept plan covering all lands within the authorized Refuge boundary. Restore native plant species identified as appropriate for the Refuge. Develop a native seed inventory and sources.</p>
<p>Objective 6: Work cooperatively with all local government jurisdictions to advocate zoning and comprehensive land use planning that promotes no net loss and protection of existing habitat.</p> <p>Strategy: Refuge staff will attend scheduled planning and zoning meetings.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A.</p>
<p>Goal 8: Reduce levels of toxic substances to a threshold that does not threaten or harm or adversely affect wildlife, fish or human health.</p>		
<p>Objective 1: Within 3 years of plan approval, establish partnerships with state, federal, local agencies, nonprofits and industrial partners to facilitate creative solutions to contamination sources and liability issues based on intended future restoration and use.</p> <p>Strategy: Service contaminant specialists would select and coordinate with participants.</p>	<p>Objective 1: Within 1 year of plan approval, establish partnerships with state, federal, local agencies, nonprofits and industrial partners to facilitate creative solutions to contamination sources and liability issues based on intended future restoration and use.</p> <p>Strategy: Service contaminant specialists would select and coordinate with participants.</p>	<p>Same as Alternative A.</p>
<p>Objective 2: Within 2 years of identifying land parcels in priority order, and with the landowner's permission, complete a Level I environmental contaminants review on priority parcels.</p> <p>Strategy: Liability issues will be decided based upon DEQ/EPA criteria.</p>	<p>Same as Alternative A.</p>	<p>Same as Alternative A.</p>

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
Objective 3: Within 6 months of plan approval, identify mechanisms for addressing contaminant issues that may apply to less-than-fee-ownership situations (easements, leases, cooperative agreements).	Same as Alternative A.	Same as Alternative A.
	Objective 4: Monitor air quality within the Refuge directly, or through partnership effort, and present data to responsible entities.	
Goal 9: Economic development and redevelopment is environmental sustainable, well planned, and aesthetically pleasing.		
Objective 1: Within 5 years of plan approval, work with landowners, the business community and all local governments within the Refuge boundaries to implement a voluntary certification for developments that are environmentally sustainable, well planned and aesthetically pleasing. Strategies: Look at other organizations' certification processes, e.g. Wildlife Habitat Council and National Wildlife Federation. an example: conversion of coal-fired plants to gas. Within 1 year of developing the certification, meet with landowners, business and industry to inform them of the certification and encourage their participation and application.	Objective 1: Same as Alternative A, but within 3 years of plan approval.	Same as Alternative A.
Goal 10: Restore beneficial uses of water resources in the Refuge.		
Objective 1: By 2010, the Detroit River is removed from listing as an Area of concern under the International Joint Commission's Great Lakes Water Quality Agreement Protocol. Strategy: Refuge will be an active partner in the Detroit River Remedial Action Plan and Lake Erie Lakewide Area Management Plan.	Same as Alternative A.	Same as Alternative A.

Table 1: Detroit River IWR Objectives and Strategies by Alternative (Continued)

Alternative A: Current Direction (No Action)	Alternative B: Leading Through Partnerships (Preferred Alternative)	Alternative C: Habitat Emphasis
Goal 11: Lands and waters within the Refuge are responsibly managed to resolve potentially conflicting uses.		
<p>Objective 1: Within 5 years of plan approval, establish a Refuge program for environmental education and interpretation that emphasizes the need for compatible uses on Refuge lands and waters. Strategy: Message will emphasize how to reduce disturbance of resting and feeding migratory waterfowl.</p>	<p>Same as Alternative A.</p>	<p>Objective 1: Within 5 years of plan approval, establish a Refuge program for environmental education and interpretation that emphasizes the need for compatible uses on Refuge lands and waters. Strategy: Message will emphasize reducing wildlife disturbance through increasing the amount of habitat.</p>

III. Affected Environment

The Detroit River IWR lies within the Great Lakes Basin Ecosystem, a system shared with Canada and eight states. The ecosystem is made up of the world's largest freshwater body, which holds 18 percent of the world's supply of fresh water, covers 95,000 square miles, has 9,000 miles of shoreline, has over 5,000 tributaries, and has a drainage basin of 288,000 square miles. The Detroit River consists of a 32-mile-long channel bordered by a poorly drained clay lake plain. The River has 66 miles of Canadian shoreline, 79 miles of U.S. shoreline, five Canadian wetlands with 2,808 acres, and 16 U.S. wetlands with 3,415 acres.

Within the Great Lakes basin certain species have drawn special concern. Fish species of concern include lake trout, lake sturgeon, lake whitefish, walleye, Pacific salmon, and landlocked Atlantic salmon and their forage. There is concern about native mussel species that are being seriously impacted by zebra mussels. Thirty-one species of migratory non-game birds of management concern to the Service are found in the Great Lakes ecosystem.

The Detroit River wetlands provide spawning areas for 26 percent of the fish species in the Great Lakes and nursery areas for 20 percent of the species. Compared with other shoreline reaches in the Great Lakes, the Detroit River is above the 50th percentile for providing spawning and above the 75th percentile for nursery areas. One hundred species of breeding birds (approximately 50 percent of the breeding birds of Ontario) use the Detroit River wetlands along the Canadian shoreline.

In their evaluation of the importance of the Detroit River wetlands, the U.S. Environmental Protection Agency (EPA) and Environment Canada acknowledged that the general perception is that the Detroit River's large submergent vegetation beds provide important habitat for migrating waterfowl and nursery areas for fish. However, the agencies identified the wetlands along the Detroit River as deserving high priority not only because they serve as important habitat for a large number of fish and birds species, but especially because there are so few wetlands remaining in the area.

A more detailed description of the affected environment can be found in Chapter 3 of the CCP.

Threatened and Endangered Species

Several pairs of Bald Eagles, a federally-listed threatened species, nest and feed along the Detroit River and western Lake Erie basin. The Northern riffleshell, a federally-listed endangered mussel, has not been documented in the Detroit River but may occur on island shoals.

Two state-listed threatened species have been associated with Detroit River islands. The spotted turtle was recorded in the Michigan Natural Features Inventory in 1997, and the Common Tern was recorded in 1977.

Lake sturgeon once spawned on the rocky bottom in swift currents near Grassy Island and several other sites on the Detroit River. Today the fish is listed as "threatened" by 19 of the 20 states in its original range and by seven of the eight Great Lakes states, including Michigan. More information on sturgeon distribution and recovery efforts can be found in Chapter 3 or the CCP.

Cultural Resources

The Service has some information about cultural resources associated with that part of Refuge formerly known as the Wyandotte NWR in Wayne County. The Service has no information about cultural resources for the Refuge in Monroe County, but is attempting to obtain data. Presumably the situation for the new Refuge as a whole should be similar to the information presented in the "Overview Study of Archaeological and Cultural Values on Shiawassee, Michigan Islands, and Wyandotte National Wildlife Refuges in Saginaw, Charlevoix, Alpena, and Wayne Counties, Michigan," (Robertson 2000).

Grassy Island and Mamajuda Island are small, almost ephemeral islands in the Detroit River. Historic maps show substantial size and shape changes, and they likely have been affected by dredge spoil or other materials placed on the islands. Nevertheless, records indicate a seasonal fishing camp by an Indian woman prior to 1807 and Euro-American fisheries in the second half of the 19th century. Thus the islands, which are probably typical of others in the Detroit River, have had temporary human use and occupation from prehistoric times to the present. The only structure on the islands is an abandoned lighthouse.

Archeological records show evidence of 13 recorded archeological sites on the Michigan mainland within 2 miles of the two islands. One site is prehistoric and two are 19th century Indian culture; the remainders are 19th century Euro-American residences, cemeteries, a community, and an unknown historic site. Beyond that, however, southeast Michigan and western Ontario have archeological sites from the earliest recorded culture, the Paleoindian, through the Late Woodland periods when Europeans arrived.

Turmoil associated with arrival and westward advancement of Euro-Americans in the French and British colonies and the United States so disrupted Indian tribes in the area that virtually no connection can be made between prehistoric cultures found in the archeological record and historic tribes located in the area. Modern Indian tribes that may have cultural interest in the Refuge area include the Ottawa, Huron, Wyandotte, and Ojibwa. Other cultural groups may have interests in the cultural resources of the Refuge, but none have been identified.

As of January 2003, the National Register of Historic Places lists 209 sites, buildings, and districts within the City of Detroit. The list contains no prehistoric archeological properties.

Cultural resources are important parts of the Nation's heritage. The Service is committed to protecting valuable records of human interactions with each other and the landscape. Protection is accomplished in conjunction with the Service's mandate to protect fish, wildlife, and plant resources.

IV. Environmental Consequences

This section evaluates the potential impacts each alternative would have on the three issues that were identified in the CCP. Alternative 1, “Current Direction,” is the No Action alternative where the level of land management, public use, and outreach are projected into the foreseeable future and are based on currently proposed staff and operations funding. Alternative 2, “Leading through Partnerships,” is the preferred course of action and seeks to establish the Refuge as a focal point for cooperative land conservation and environmental education efforts. Refer to Chapter 4 of the CCP for specific objectives and strategies. Alternative 3, “Habitat Emphasis,” proposes to commit more Refuge staff and funding toward pro-active land conservation measures.

Specific environmental and social impacts of implementing each alternative are examined in the seven broad issue categories: habitat, functional partnerships, future of hunting and fishing, conflicting secondary uses, contamination/pollution, land conservation and environmental education. However, a few potential effects will be the same under each alternative and are summarized below:

Issues Common to All Alternatives

Environmental Justice

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Bill Clinton on February 11, 1994, to focus Federal attention 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 proposed management alternatives disproportionately place adverse environmental, economic, social, or health impacts on minority or low-income populations. The wildlife-dependent uses promoted under each alternative, such as fishing and environmental education, should have benefits for all local populations.

Archeological and Cultural Values

The consequences of each action alternative in terms of cultural resources are the same, but apply only to United States lands of this international Refuge. Lands within the Refuge boundary owned or otherwise controlled, managed, and administered by the Service come under the several Federal cultural resources laws (and executive orders and regulations), in addition to policies and procedures established by the Department of the Interior and the Service to implement the laws. Thus cultural resources on these lands receive protection and consideration that would not normally apply to private or other government lands.

Nevertheless, undertakings accomplished on the Refuge have the potential to impact cultural resources. The presence of cultural resources including historic properties cannot stop a Federal undertaking, the several laws require only that adverse impacts on historic properties be considered before irrevocable damage occurs.

Thus the Refuge Manager will, during early planning, provide the Regional Historic Preservation Officer (RHPO) a description and location of all undertakings (projects,

activities, routine maintenance and operations that affect ground and structures, and requests for permitted uses); and of alternatives being considered. The RHPO will analyze these undertakings for potential to affect historic properties and enter into consultation with the State Historic Preservation Officer and other parties as appropriate. The Refuge Manager will notify the public and local government officials to identify concerns about impacts by the undertaking; this notification will be at least equal to, preferably with, public notification accomplished for NEPA and compatibility.

Endangered Species

The Bald Eagle is the only known federal-listed (threatened) species to occur within the boundary of the Detroit River IWR. The northern riffleshell mussel, a federal-listed species, has not been documented but could possibly occur within the Detroit River. The lake sturgeon is a candidate species and research continues to determine their status in the river. The action of developing the Refuge under each alternative would have no significant negative impact on Bald Eagles, lake sturgeon, or northern riffleshell mussels. Existing contamination on Refuge lands, specifically Grassy Island, is not suspected to affect any of these species. Land conservation and restoration projects would improve habitat for these species. The actions proposed within all three alternatives would have “no effect” on federally listed species or their critical habitat.

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 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 to be considered in planning. The U.S. Department of Energy’s “*Carbon Sequestration Research and Development*” (U.S. DOE, 1999) defines carbon sequestration as “...the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere.”

The land is a tremendous force in carbon sequestration. Terrestrial biomes of all sorts – grasslands, forests, wetlands, tundra, perpetual ice and desert – are effective both in preventing carbon emission and acting as a biological “scrubber” of atmospheric carbon monoxide. The Department of Energy report’s conclusions noted that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere.

Safeguarding natural habitat for wildlife is the heart of any long range plan for national wildlife refuges. The actions proposed in this comprehensive conservation plan would conserve or restore land and water, and would thus enhance carbon sequestration. This in turn contributes positively to efforts to mitigate human-induced global climate changes.

Summary of Effects by Alternative

The following section describes the environmental consequences of adopting each Refuge management alternative. Table 2 addresses the likely outcomes for specific issues and is organized by seven broad issue categories.

Alternative 1 – Current Direction (No Action)

1. Habitat Restoration, Management and Creation

Habitat restoration and management would occur primarily through cooperative efforts with partners. Cooperative management agreements would be arranged with industrial property owners along the river. The result would be a net increase, up to 500 acres, of new lands restored or managed as fish and wildlife habitat.

2. Land Conservation

Land acquisition, primarily of river island and coastal wetland habitats, would occur through donations, partnerships and special grants. A net increase of up to 20 percent of remaining habitat would receive permanent conservation.

3. Contamination/Pollution

Identification and/or cleanup of environmental contaminants would focus on existing Refuge lands or lands actively considered for acquisition. Partnerships with government agencies and industrial property owners would result in reduced levels and dispersion of environmental toxins.

4. Functional Partnerships

New partnerships would be developed as the Refuge staff and resources continue to grow. Up to 10 potential partner organizations would be contacted each year. The establishment of a Friends of Detroit River IWR would provide a pool of volunteers and increase effectiveness of all Refuge programs.

5. Environmental Education

The theme for environmental education would focus on the need for conserving migratory bird and fish habitats as well as the river ecosystem. A visitor center, to be shared with other organizations, would dramatically increase the visibility of the Service and trust resources. Refuge promotional materials and displays would also contribute to new conservation efforts in the Detroit River watershed.

6. Future of Hunting and Fishing

Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge lands where it is safe and appropriate. The addition of new Refuge lands would increase hunting and fishing opportunities on the lower Detroit River and Lake Erie shorelines.

7. Secondary Public Uses

Recreational uses that are not dependent upon wildlife would be limited on Refuge-owned lands and waters. Restrictions or closures may be necessary due to the small size of Refuge land holdings and potential conflicts with wildlife-dependent priority uses.

Alternative 2 – Leading through Partnerships (Preferred Alternative)

1. Habitat Restoration, Management & Creation

Habitat restoration and management would occur primarily through cooperative efforts with partners. Cooperative management agreements would be arranged with industrial property owners along the river. A net increase of up to 2,000 acres would be restored or managed as fish and wildlife habitat.

2. Land Conservation

Land acquisition, primarily of river island and coastal wetland habitats, would occur through donations, partnerships and special grants. A net increase of up to 40 percent of remaining habitat would receive permanent conservation.

3. Contamination/Pollution

Identification and/or clean-up of environmental contaminants would focus on existing Refuge lands or lands actively considered for acquisition. Partnerships with government agencies and industrial property owners would result in reduced levels and dispersion of environmental toxins.

4. Functional Partnerships

New partnerships would be developed as the Refuge staff and resources continue to grow. Up to 10 potential partner organizations would be contacted each year. The establishment of a Friends of Detroit River IWR would provide a pool of volunteers and increase effectiveness of all Refuge programs.

5. Environmental Education

The theme for environmental education would focus on the need for conserving migratory bird and fish habitats as well as the river ecosystem. A visitor center, to be shared with other organizations, would dramatically increase the visibility of the Service and trust resources. Refuge promotional materials and displays would also contribute to new conservation efforts in the Detroit River watershed.

6. Future of Hunting and Fishing

Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge lands where it is safe and appropriate. The addition of new Refuge lands would increase hunting and fishing opportunities on the lower Detroit River and Lake Erie shorelines.

7. Secondary Public Uses

Recreational uses that are not dependent upon wildlife would be limited on Refuge-owned lands and waters. Restrictions or closures may be necessary due to the small size of Refuge land holdings and potential conflicts with wildlife-dependent priority uses.

Alternative 3 – Habitat Emphasis

1. Habitat Restoration, Management & Creation

Habitat restoration and management would occur primarily through cooperative efforts with partners. Cooperative management agreements would be arranged with industrial property owners along the river. The result would be a net increase, up to 1,000 acres, of new lands restored or managed as fish and wildlife habitat.

2. Land Conservation

Land acquisition, primarily of river island and coastal wetland habitats, would occur through donations, partnerships and special grants. A net increase of up to 75 percent of remaining habitat would receive permanent conservation.

3. Contamination/Pollution

Identification and/or clean-up of environmental contaminants would focus on existing Refuge lands or lands actively considered for acquisition. Partnerships with government agencies and industrial property owners would result in reduced levels and dispersion of environmental toxins.

4. Functional Partnerships

New partnerships would be developed as the Refuge staff and resources continue to grow. Up to 10 potential partner organizations would be contacted each year. The establishment of a Friends of Detroit River IWR would provide a pool of volunteers and increase effectiveness of all Refuge programs.

Table 2: Summary of Environmental Consequences for Management Alternatives for the Detroit River International Wildlife Refuge

Issues	Alternative 1 Current Management Direction (No Action)	Alternative 2 Leading Through Partnerships (Preferred Alternative)	Alternative 3 Habitat Emphasis
Habitat Restoration, Management and Creation			
All Habitat Types	Increased. up to 500 acres to be restored or managed for fish and wildlife.	Increased. Up to 2,000 acres to be restored or managed for fish and wildlife.	Increased. Up to 1,000 acres to be restored or managed for fish and wildlife.
Land Conservation			
Coastal Wetlands	Increased conservation. Up to 20 percent of remaining wetlands receive permanent conservation.	Increased conservation. Up to 40 percent of remaining wetlands receive permanent conservation.	Increased conservation. Up to 75 percent of remaining wetlands receive permanent conservation.
Islands	Increased. Up to 20 percent of remaining island habitats receive permanent conservation.	Increased. Up to 40 percent of remaining island habitats receive permanent conservation.	Increased. Up to 75 percent of remaining island habitats receive permanent conservation.
Wet Prairie	Stable or increased.	Stable or increased.	Increased restoration of prairie sites, especially in Monroe County.
Upland Forests	Stable.	Stable.	Increased. Trees will be planted on some new Refuge lands.
Contamination / Pollution			
	Stable to decreased. New partnerships with cities and industry will facilitate creative solutions.	Decreased. New partnerships with cities and industry will facilitate creative solutions.	Decreased. New partnerships with cities and industry will facilitate creative solutions.
Functional Partnerships			
	Increased. Up to 10 potential partner organizations contacted per year. Refuge Friends organization formed.	Increased. Up to 20 potential partner organizations contacted per year. Refuge Friends organization formed.	Increased. Up to 10 potential partner organizations contacted per year. Refuge Friends organization formed.
Environmental Education			

Table 2: Summary of Environmental Consequences for Management Alternatives for the Detroit River International Wildlife Refuge (Continued)

Issues	Alternative 1 Current Management Direction (No Action)	Alternative 2 Leading Through Partnerships (Preferred Alternative)	Alternative 3 Habitat Emphasis
	Increased. On-site education programs for up to 500 participants. Outreach to 25 percent of southeast Michigan residents.	Increased. On-site education programs for up to 1,000 participants. Outreach to 50 percent of southeast Michigan residents.	Increased. On-site education programs for up to 500 participants. Outreach to 25 percent of southeast Michigan residents.
Future of Hunting and Fishing			
	Stable to increased. Hunting and fishing opportunities may increase as lands are conserved or restored.	Stable to increased. Hunting and fishing opportunities may increase as lands are conserved or restored.	Stable to increased. Hunting and fishing opportunities may increase as lands are conserved or restored.
Conflicting Secondary Public Uses			
	Decreased. Lands and waters managed by the Refuge will be subject to the compatibility standard.	Decreased. Lands and waters managed by the Refuge will be subject to the compatibility standard.	Decreased. Lands and waters managed by the Refuge will be subject to the compatibility standard.

5. Environmental Education

The theme for environmental education would focus on the need for conserving migratory bird and fish habitats as well as the river ecosystem. A visitor center, to be shared with other organizations, would dramatically increase the visibility of the Service and trust resources. Refuge promotional materials and displays will also contribute to new conservation efforts in the Detroit River watershed.

6. Future of Hunting and Fishing

Wildlife-dependent recreational uses, including hunting and fishing, would be encouraged on Refuge lands where it is safe and appropriate. The addition of new Refuge lands would increase hunting and fishing opportunities on the lower Detroit River and Lake Erie shorelines.

7. Secondary Public Uses

Recreational uses that are not dependent upon wildlife would be limited on Refuge-owned lands and waters. Restrictions or closures may be necessary due to the small size of Refuge land holdings and potential conflicts with wildlife-dependent priority uses.

Cumulative Impact Analysis

“Cumulative impact” is the term that refers to impacts on the environment 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. In this section, the cumulative impacts of each of the three alternatives are discussed in terms of migratory birds, coastal wetland conservation, and habitat restoration.

Migratory Birds

The authorized Refuge boundary contains habitat important to numerous bird species including waterfowl, songbirds, marsh and wading birds, shorebirds, raptors, and upland game birds. Some of the factors relevant to migratory birds are offered in the following list; Chapter 3 of the CCP offers greater detail.

- # More than 300 species of birds use the Detroit River and Western Lake Erie during migration.
- # Twenty-nine species of waterfowl use the Detroit River, a crossroads of the Mississippi and Atlantic Flyways.
- # Extensive beds of aquatic vegetation, particularly wild celery, historically attracted large concentrations of divers, primarily Canvasback and Scaup.

The cumulative benefit of Alternative 2 and 3 would be the most positive because the habitat base increases and is enhanced, and management is intensified. Maintaining current management, and a slow growth in land holdings, as described in Alternative 1 (Current Direction) would have a neutral to slight benefit for migratory birds. If other U.S. agencies and organizations pursue land acquisition, and if those lands adjoin Service lands, each alternative provides an even greater benefit. The active land protection work of Canadian organizations such as the Essex Region Conservation Authority contribute to improved migratory bird population numbers.

Alternative 2 and 3 would have the most positive cumulative benefits for Bald Eagles, the only migratory bird species that is Federally-listed as threatened and nests on the Refuge. Bald Eagle numbers have been gradually increasing in the region and further land conservation measures would contribute to available food resources and nesting habitats.

Coastal Wetlands

Coastal wetlands along the Detroit River shoreline, on river islands, and along Lake Erie have been severely impacted by human activities. All alternatives would include acquisition and management of coastal wetland habitats.

- # More than 97 percent of wetlands in Michigan waters of the Detroit River have disappeared under shoreline modifications.
- # Ninety percent of the remnant U.S. wetlands in the Detroit River are found downstream of Grassy Island.
- # About 40 percent of these remnant wetlands are in Humbug Marsh and on small, undeveloped islands forming the “Conservation Crescent” around the southern tip of Grosse Ile.

Challenges to wetlands along the Detroit River and Lake Erie include:

- # Wetland loss from dredging, filling, and urban and industrial development.
- # Contamination by phosphates, heavy metals, oils, and PCBs, especially along the U.S. shoreline.
- # Vulnerability to invasive exotic species of plants, fish, and invertebrates
- # Many marshes are diked with accompanying problems of being isolated from the river.

The positive cumulative impact of alternatives 2 and 3 would be the greatest because of a focus on wetland acquisition. Reversing wetland losses would benefit the fisheries of the Detroit River and Lake Erie and maintain the status quo on filtering of water-borne pollutants. The positive benefits would be greater if the Michigan DNR, Canadian governments and non-government conservation organizations were also acquiring and enhancing wetlands, however the positive impacts would not be diminished if others did not pursue the same course.

Habitat Restoration

Numerous efforts are underway along the Detroit River to restore and manage natural shorelines, riparian wetlands, and island habitats. All alternatives would increase the amount of wetland, wet prairie and upland forest habitat within the Refuge boundary. River islands would be conserved to varying degrees with the most benefit deriving from Alternative 3.

Alternatives 2 and 3 could lead to the direct restoration of wild celery beds nearshore to islands. Wet prairie restorations that occur on new Refuge lands would use native vegetation and aggressive management techniques to eradicate non-native invasive species. The positive benefits would be greater if the Michigan DNR, Canadian governments and non-government conservation organizations were also acquiring and enhancing these habitats, however the positive impacts would not be diminished if others did not pursue the same course.

V. List of Preparers

Please see Appendix I of the CCP.

VI. Consultation and Coordination with the Public and Others

The Detroit River International Wildlife Refuge Comprehensive Conservation Plan and Environmental Assessment has been written with the participation of U.S. Fish and Wildlife Service and Michigan Department of Natural Resources staff, Refuge users and local communities. The CCP planning process began in April 2002 with the formation of a Refuge planning team. Subsequently, the planning team hosted a series of open houses in communities along the river. In October, individuals from state agencies, non-profit organizations, and others were invited to participate in a workshop to review and develop goals and objectives for the Refuge. The ideas generated at the open house events, at the workshop, and received in writing throughout the past year have provided valuable information for the authors of this plan. Please see Chapter 2 of the CCP for more information on the public scoping process.

VII. References and Literature Cited

Please see Appendix G of the CCP.

