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RECOMMENDATIONS FOR THE GREAT LAKES BASIN

by
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Bighead Carp:

Poised to Invade the Great Lakes

EXECUTIVE SUMMARY:
RECOMMENDATIONS

Coastal Habitat and Fish Passage

In accordance with Section 2.7 of the Oceans Act of 2000, I recommend:

1. Increased protection of ecologically important areas, such as wetlands and riparian zones in the Great Lakes basin, from urban development, logging, mining, agriculture, and other uses that degrade habitat for fish and wildlife,
2. Increasing the rate of wetland restoration in the Great Lakes and elsewhere, and
3. Either eliminating, where possible, barriers to passage of fish and other aquatic organisms, or modifying barriers to allow passage of those organisms to their habitats.

Chemical Pollution

In accordance with Section 2.3 of the Oceans Act of 2000, I recommend:

1. Full implementation of best land use management practices in all watersheds to reduce nonpoint source chemical and nutrient pollution and minimize erosion,
2. Sustained and increased efforts to minimize point source and air and water pollution of the Great Lakes basin and the Nation, by reviewing the protectiveness of water quality standards and revising those standards to achieve full protectiveness of aquatic and terrestrial species,
3. Increased effort to clean up contaminated sediments in Great Lakes bays, harbors, and estuaries, especially at the 43 most highly degraded areas in the Great Lakes Basin which have been designated by the as the International Joint Commission as Areas of Concern, and at Superfund sites and other contaminated sites on the shoreline and in the Basin, and
4. Closer and more timely coordination and cooperation among the various natural resource management and cleanup agencies to identify sources and effects of pollution, and achieve relevant and effective cleanups and environmental restorations.

Aquatic Nuisance Species

To prevent additional natural resource damage from invasive species in the Great Lakes and Mississippi River ecosystems, and in accordance with Section 2.3 of the Oceans Act of 2000, I recommend:

1. A mandatory ballast water management program for all ships entering U.S. ports and the Great Lakes, so that risk of species invasion via ballast water is greatly reduced,
2. Prevention of introduction of aquatic invasive species into the U.S. via other pathways,
3. A strengthened program for early detection and monitoring for aquatic nuisance species,
4. Enhanced ability to rapidly respond to invading species by eradicating them before they become well established in the U.S.,
5. Either equipping the Chicago Canal electrical barrier with a backup generator or connecting the barrier to a second power grid, which would virtually eliminate the possibility of the barrier becoming inoperable because of power loss,
6. Convening an International Panel of Experts to recommend the best approach to preventing the exchange of exotic organisms between the Great Lakes and Mississippi River basins, and make recommendations to Congress and the President on how to proceed.

INTRODUCTION

Good morning. My name is Bill Hartwig, and I am the Regional Director for the upper Midwest region of the U.S. Fish and Wildlife Service (Service). The region encompasses the states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin.

The Service works with others to conserve, protect, and enhance fish, wildlife, plants and their habitats for the sustained benefit of the American people. Our agency enforces Federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, and manages the National Wildlife Refuge System. We also work to restore populations of nationally significant fishes, and conserve and restore fish and wildlife habitat.

I appreciate this opportunity to discuss natural resource issues that are important to the people who live in my Region, as well as the rest of the nation, and Canada. The dedicated men and women that I oversee in the region are working with many private and public organizations and partners to solve problems related to these issues.

The Great Lakes contain the world's largest system of surface freshwater, which constitutes 90 percent of our nation's supply and 20 percent of the global supply. The Great Lakes coastline is our nation's fourth largest, and the Great Lakes Basin supports the livelihood and activities of 10 percent of the U.S. and 25 percent of the Canadian people. The environmental and economic vitality of the Great Lakes depend on the ecological health of the lakes, which the Service and our partners measure by the health of fish and wildlife populations and habitats.

A Great Lakes commercial fisherman once said that the heaviest net that he ever lifted was one that was empty. Commercial fishing and angling were tremendously productive and economically important both regionally and nationally in the first half of the Twentieth Century. However, fisheries declined sharply in the second half of the Century. The fisherman who made this observation was one of many who lifted empty nets in the 1950s and 60s, when Great Lakes fishery resources were devastated by overharvest, habitat destruction, chemical pollution, and the invasion of non-native aquatic species.

Because of time limitations, I will focus today on three topics of great concern to those who live here in the Great Lakes Basin. The nation should be concerned also. The three topics are coastal habitat, chemical pollution, and biological pollution. I selected these three topics because habitat destruction and species invasions are seen as the most frequent causes of the recent extinction of species in the United States.

As I have said, our agency is entrusted with the protection of native species under the Endangered Species Act. One of the core missions of the Service is to conserve native fish and wildlife for the ecological, recreational, and economic benefits that they provide. That conservation effort requires us to address issues that relate to coastal habitat and to chemical and biological pollution.

Coastal Habitat and Fish Passage

Habitat destruction is one of the most serious causes of extinction and population declines of aquatic species. As one example of aquatic habitat loss, 115 million acres --52 percent -- of wetlands have been destroyed in the lower 48 states. Currently about 59,000 wetland acres are

destroyed annually. Also, millions of culverts, dikes, water diversions, dams, and other artificial barriers have been constructed in the United States for irrigation, flood control, electrical generation, drinking water, and transportation. These barriers impede and redirect river flows, which also prevents fish from accessing important habitat needed to spawn, survive through the early critical months of life, feed, avoid predators, grow, and mature.

Although coastal ecosystems comprise only about 10 percent of our nation's land area, coastal habitats support a far larger percentage of the nation's migratory songbirds, migrating and wintering waterfowl, fishes, and Threatened and Endangered species. Population projections show that our coastlines will continue to receive the majority of our nation's growth and development. This will result in increased stresses on coastal habitats, and to native plant and animal populations. The Service is committed to working with our many partners to ensure the protection and enhancement of coastal habitats and their fish and wildlife inhabitants.

The Service plays an important national role in preserving habitat quality and diversity through the National Wildlife Refuge system. The system comprises 95-million acres that we manage for the conservation of plant, wildlife, and aquatic resources. In the Great Lakes, logging, mining, agriculture, urbanization, and wetland draining and filling severely damaged nearshore and tributary habitats. To conserve and restore coastal habitats and aquatic resources in the Great Lakes and elsewhere, the Service has developed the Coastal Program and the Fish Passage Program. Partners in the Coastal Program work to:

-- Provide coastal communities with assessment tools to identify priority habitats for protection and restoration,
-- Conserve pristine coastal habitats through voluntary conservation easements and land acquisition,
-- Restore degraded coastal habitats,
-- Facilitate conservation alliances that multiply the impact of taxpayers' dollars, and
-- Either eliminate or modify barriers to passage by fish and other aquatic organisms.

Ironically, barriers to fish passage also delay or prevent recovery of fish populations following degradation of habitat caused by either creation of the barriers themselves or by pollution. Water diversion to irrigate lands reduces flow, and sometimes flow is so reduced that native aquatic life cannot survive. Even after water levels rise, dams prevent fish and other aquatic life from recolonizing native habitats. Dams also prevent the natural flows of water necessary to maintain the composition of spawning habitats and nutrients supplies to downstream habitats. Reservoirs increase water temperature and provide habitat for nonnative fish that compete with, or prey on, native species. These changes have led to severely reduced native fish populations. Some populations are extinct, and others are threatened.

Partners in the Fish Passage Program remove barriers, retrofit culverts, build fishways and document the resulting increases of fish and other aquatic species. Fish passage projects benefit people, fish, and other wildlife. Sport anglers and commercial fishermen gain from larger fish populations. Completed fish passage projects are benefiting 50 endangered and threatened species, and are helping prevent others from being listed. In the U.S., fish access to more than 3,000 miles of river habitat and 20,000 acres of wetland habitat has been restored.

Much is being done is to continue the protection and restoration of Great Lakes, coastal, and river habitat for birds and aquatic life in the Great Lakes basin. However, much more needs to

be done to protect and enhance habitat for native species that are important, rare, and either Threatened or Endangered.

Therefore, in accordance with Section 2.7 of the Oceans Act of 2000, I recommend:

-- Increased protection of ecologically important areas – such as wetlands and riparian zones in the Great Lakes basin -- from urban development, logging, mining, agriculture, and other uses that degrade habitat for fish and wildlife,
-- Increasing the rate of wetland restoration in the Great Lakes and elsewhere, and
-- Either eliminating, where possible, barriers to passage of fish and other aquatic organisms, or modifying barriers to allow passage of those organisms to their habitats.

Chemical Pollution

Chemical pollution of the Great Lakes is another serious cause of extinctions and declines in fish. Degradation of water quality resulted in Lake Erie being declared a dead lake in the 1960s, and caused the Cuyahoga River to catch fire in the 1930s, 1950s, and 1960s.

Toxic chemicals have profoundly affected Great Lakes ecosystems. These chemicals accumulate through food webs and have affected the health of humans and animals including bald eagles, osprey, mink, and lake trout. Species like Lake Erie's blue pike is extinct, in part, as the result of pollution.

Actions resulting from the Clean Water Act and Endangered Species Act helped bring back the bald eagle from near extinction in the Great Lakes. Also, the Service and its partners have ended the long journey to restore lake trout populations in Lake Superior. These are remarkable achievements!

However, the Service and our partners remain concerned about persistent, toxic chemicals, because some continue to be released into the environment, and some continue to be released from contaminated Great Lakes sediments into the food web. Those contaminants accumulate through the food web at concentrations that adversely affect fish and wildlife species. Particularly affected are those that occupy similar levels in the food web as man, or that inhabit harbors, estuaries, and rivers with highly contaminated watersheds and sediments.

Protective water quality standards are important for the conservation and enhancement of fish, wildlife, and their habitats, and for the sustained benefit of the American people. The Service will continue to work with other Federal agencies, States, Tribes, and local communities to develop water quality standards that protect our natural resources from toxic substances like mercury, dioxins, furans, and PCBs that greatly impact environmental and human health.

The Service will also continue to work with our partners to investigate the effects of contamination, determine actions necessary to cleanup and restore habitats, and seek compensation from liable parties so that restorations can be achieved. When toxic substances have entered the Great Lakes, the Service and our partners implement the Natural Resource Damage Assessment and Restoration Program (NRDA) to identify the effects of these substances and seek damages from responsible parties. The fines received from responsible parties are used for the sole purpose of restoring degraded habitats. One success story from NRDA is for the

Saginaw River and Bay in Michigan, where PCBs were discharged beginning in the 1940s. Restoration costs have been recovered for that pollution, and efforts are underway to clean up and restore habitat. However, dozens of other contaminated sites remain and must be dealt with. The Service will also continue to assist the U.S. Environmental Protection Agency and the States in cleanup activities, so that we can continue the record of successes achieved under NRDA.

Much work needs to be done to prevent additional pollution, and to clean up areas so polluted that the contamination continues to impact natural resources and man. In accordance with Section 2.3 of the Oceans Act of 2000, I recommend the following.

-- Full implementation of the best land-use management practices is needed in all watersheds to reduce nonpoint source chemical and nutrient pollution, and to minimize erosion.
-- Sustained and increased efforts are needed to minimize point source and air and water pollution of the Great Lakes Basin and the Nation. This can be achieved by reviewing the effectiveness of water quality standards, and revising those standards to achieve full protection of aquatic and terrestrial species.
– Increased effort is needed to clean up contaminated sediments in Great Lakes bays, harbors, and estuaries. These efforts should especially be directed at the 43 most highly degraded areas in the Great Lakes basin that have been designated by the as the International Joint Commission as Areas of Concern, and at Superfund sites and other contaminated sites on the shoreline and in the Great Lakes Basin.
-- Closer and more timely coordination and cooperation is needed among the various natural resource management and cleanup agencies, so that we can identify sources and the effects of pollution, and achieve relevant and effective cleanups and environmental restorations.

Invasive Species

Biological pollution results from the intentional and inadvertent releases of non-native species. More than 160 non-native plants and animals have become established in the Great Lakes. Undoubtedly, many more species invaded the Great Lakes but did not establish self-sustaining populations. Prevention and control of invasive species continues to be a high priority of the Service. Invaders that became established have been implicated in causing population declines and habitat degradation. Up to 46 percent of the plants and animals Federally listed as Endangered have been negatively affected by invasive species.

One way that man has modified North American aquatic ecosystems has been by constructing waterways that connect once separate watersheds. Since the early 1900s, waterways have been dug that now connect the Hudson Bay, Atlantic, Great Lakes, and Mississippi River watersheds. These waterways are revolving doors that have allowed species like the sea lamprey and alewife to swim from the Atlantic watershed to the Great Lakes, and species such as the round goby and zebra mussel to invade the Great Lakes and then the Mississippi River Basin.

Four fish species known as Asian carp pose the greatest threat to expand within the Great Lakes through the Chicago Ship and Sanitary Canal, which connects the Great Lakes and Mississippi River watersheds. The National Invasive Species Act of 1996 authorized the U.S.

Army Corps of Engineers to determine the feasibility of constructing a barrier to aquatic nuisance species in the Canal as a demonstration project. An interagency advisory panel recommended an electrical barrier as the most practical first step for slowing the interchange of non-native fish between the two basins. That barrier was constructed about 28 miles downstream from Lake Michigan, became operational in April 2002, and is expected to remain operational for another one and a half years. However, the effectiveness of the barrier at stopping the spread of invasive species is unknown, and must be evaluated.

When I talk about Asian carps, I specifically mean the grass, bighead, silver, and black carps. The grass carp has already invaded the Great Lakes watershed. The grass carp is a vegetation feeder, and is likely to affect Great Lake harbors, bays, rivers, and estuaries, which are already highly perturbed systems. Two specimens of bighead carp, which were probably released into the Great Lakes, have been captured in Lake Erie near Buffalo, New York. Bighead carp and a similar species, the silver carp, may compete with native Great Lakes fishes like bloater and lake herring by consuming large quantities of zooplankton. Bighead and silver carp are known to be within one day's swim of the Chicago Canal barrier, and may have either reached the barrier or passed through it. The black carp could threaten our natural resources because it prefers to eat freshwater mussels and snails, which are the most imperiled group of animals in the United States.

The Service is reviewing available information on black carp. The result of that review will determine whether to list the species as injurious under the Lacey Act, which would prohibit interstate shipments and additional importation into the United States.

It is imperative that: the aquatic nuisance species barrier in the Chicago Canal continues to operate, a backup power source be found to prevent barrier power failure, and that the barrier's effectiveness at blocking the Great Lakes invasion by Asian carps be adequately evaluated. It is unlikely that any single barrier type is 100 percent effective at blocking the movement of all invading species. Therefore, other barrier types should be evaluated as quickly as possible to be used either in conjunction with the existing barrier, or to replace the barrier after it becomes inoperable within the projected one and a half years.

I agree with the International Joint Commission, Chicago's Mayor Daley, and others that the U.S. needs a solution to prevent aquatic nuisance species invasions, and control established populations of those species.

One of my greatest immediate concerns is that the existing electric barrier in the Chicago Canal may have a remaining life expectancy of only about one and a half years, and it may take that long to construct a second barrier. When the existing barrier fails, it must be shut down to replace the electric cables that conduct the electric field into the water. Therefore, it is imperative that action is quickly taken to begin construction of a second aquatic nuisance species barrier in the Chicago Canal, so that the second barrier is completed before the existing barrier fails.

To prevent additional natural resource damage from invasive species in the Great Lakes and Mississippi River ecosystems, and in accordance with Section 2.3 of the Oceans Act of 2000, I

recommend:

- -- A mandatory ballast water management program for all ships entering U.S. ports and the Great Lakes, so that risk of species invasion via ballast water is greatly reduced,
- -- Prevention of introduction of aquatic invasive species into the U.S. via other pathways,
- -- A strengthened program for early detection and monitoring for aquatic nuisance species,
- -- Enhanced ability to rapidly respond to invading species by eradicating them before they become well established in the U.S.,
- -- Either equipping the Chicago Canal electrical barrier with a backup generator or connecting the barrier to a second power grid, which would virtually eliminate the possibility of the barrier becoming inoperable because of power loss, and
- -- Convening an International Panel of Experts to recommend the best approach to preventing the exchange of exotic organisms between the Great Lakes and Mississippi River basins, and make recommendations to Congress and the President on how to proceed.

Final Remarks

The large number of people and amount of industry in the Great Lakes basin has caused water quality degradation and damage to fish, wildlife, and plant populations and their habitats. Restoration of those natural resources should be elevated to a higher National priority than it has been previously. We have taken the Great Lakes for granted for too long.

The effects of long-term pollution will require a long-term commitment to clean up. The Service will continue to help develop water quality standards that benefit natural resources and people, and we will help repair environmental damages through our Natural Resource Damage Assessment Program.

Thousands of acres of Great Lakes wetlands were drained, so we need to either restore or replace those wetlands at a faster rate than we have in the last two decades. Dams were built and culverts were improperly placed causing fish habitat fracturing, which has resulted in fish population declines. We must reconnect fish populations with their native habitats. The Service will work with our Great Lakes partners to protect and restore coastal and river habitats through our Coastal and Fish Passage Programs.

I will close my testimony by stating that one of the most severe threats currently facing the Great Lakes is the invasion by injurious and nuisance species. We must increase efforts to prevent species invasions, exterminate and control populations that become established, and limit their spread via waterways that connect watersheds. Just as extinction of species is forever, so to is establishment of these invaders.

Thank you for the opportunity to discuss issues important to the people and natural resources of the Great Lakes basin and the Nation. I will be happy to answer your questions.