



FEDERAL HATCHERIES AND THE RESTORATION OF THE GREAT LAKES FISHERY

**Statement of Gerald A. Barnhart, Chairman
Great Lakes Fishery Commission**

**House Subcommittee on Fisheries and Oceans
Wayne Gilchrest, Chairman
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INTRODUCTION: THE IMPORTANCE OF FEDERAL HATCHERIES

Mr. Chairman and members of the committee, thank you for the opportunity to appear before you to discuss the importance of federal fish hatcheries in the Great Lakes basin. My name is Gerry Barnhart. I am the chair of the Great Lakes Fishery Commission. I was appointed to the commission by President Bush in 2003. I am also the Director of Fish, Wildlife, and Marine Resources for the New York State Department of Environmental Conservation.

As you know, the Great Lakes fishery is extremely valuable to the people of the United States and Canada. Worth more than \$7 billion annually to the United States alone, the fishery attracts millions of anglers, supports tens of thousands of jobs, and is the very essence of what we value about the Great Lakes resource. Indeed, the Great Lakes and its fishery are some of the most defining features of our region; they are worthy of our protection and restoration. President Bush has made the restoration of the Great Lakes a top priority by issuing an executive order last May, calling for the development of a comprehensive restoration plan. In issuing this order, the President set in motion a large-scale effort to identify restoration needs, an effort in which the Great Lakes Fishery Commission is actively participating. Federal fish hatcheries, as I will describe in detail, are integral to the restoration of the Great Lakes.

The Great Lakes have been impacted tremendously over the decades and need our help. Water quality degradation, habitat loss, and human stresses on the environment have all taken their toll on the ecosystem. The stresses we have imposed during the past century or more caused lake trout, the top predator, to be extirpated in four of the five Great Lakes, caused the extinction of several important native species like blue pike and ciscoes, and left the fishery in a vulnerable state. Perhaps most damaging to the system are invasive species. The sea lamprey was the first high-profile species to invade the Great Lakes when it was discovered in Lake Ontario in 1835. The impact of the sea lamprey on the fish communities was devastating. Many other exotic, invasive species have been introduced to the system—a total of more than 160—and many of these species have been quite destructive. Zebra mussels, ruffe, round gobies, and spiny water fleas are just a few of the invasive species that continue to undermine the health of the Great Lakes fishery.

The Great Lakes Fishery Commission is extremely grateful for the legislation (H.R. 1591) introduced by Mr. Gilchrest to address the invasive species problem, because controlling invasive species is absolutely essential to fisheries restoration. The commission urges its immediate passage.

I would also like to commend President Bush, Assistant Secretary John Turner of the State Department, and Assistant Secretary Judge Craig Manson of the Department of Interior, for their leadership in the sea lamprey

control program. The President's budget contains additional funds for the control of sea lampreys, an invasive pest we can manage. As my testimony will describe, the Great Lakes require both sea lamprey control and hatcheries for successful fishery restoration. After all, it would make little sense to undertake stocking if sea lampreys simply devoured the fish. The President's budget for sea lamprey is a strong complement to the hatchery program and I urge its support.

In spite of the challenges we face, there is much good news about Great Lakes fisheries. Restoration of the Great Lakes fishery is the shared goal of all agencies on the Great Lakes. Agencies have and are implementing plans to reach these goals. While still stressed, today's fishery is vibrant. Management must be done carefully; restoration efforts must be on-going. U.S. Federal agencies and federal hatcheries are critical to both management and restoration of the Great Lakes fishery.

Let me tell you a little about our organization and how the Great Lakes fishery is managed. The Great Lakes Fishery Commission—which I chair—was established in 1955 by the Canadian and U.S. *Convention on Great Lakes Fisheries*. The convention established the binational cooperation that exists on the Great Lakes today. Under the convention, the commission has the responsibility to control the invasive sea lamprey, coordinate fisheries research, make recommendations to governments about how to sustain our shared fisheries and to help agencies formulate and achieve common fishery objectives.

The commission plays a leading role in coordinating management of the Great Lakes fishery. Eight states, the province of Ontario, and several tribes border the lakes. In the United States, the state boundaries extend to the international boundary; in Canada, the Province of Ontario owns the lake and river beds. The tribes have on-reservation authority and ceded authority in some waters. Thus, each of these non-federal jurisdictions has the primary right to manage its portion of the resource. Clearly, without some method of coordination, management of this shared resource would be highly chaotic. The method of coordination derives from a document entitled *A Joint Strategic Plan for Management of Great Lakes Fisheries*. This plan was signed by the jurisdictions in 1981 (the tribes signed the plan in 1989). Facilitation of this plan is the duty of the Great Lakes Fishery Commission. Federal agencies, including the U.S. Fish and Wildlife Service (Service), the U.S. Geological Survey, Fisheries and Oceans Canada, and the National Oceanic and Atmospheric Administration all participate. Through the plan, all agencies, both federal and non-federal alike, work together to develop, articulate, and implement shared fishery management objectives. While Great Lakes fishery management is complex jurisdictionally and politically, the development and implementation of shared fishery objectives are highly coordinated.

Shared fishery management objectives exist for each of the Great Lakes. These objectives reflect the consensus of fishery managers about what needs to occur to attain the desired fish communities. These objectives—known as Fish Community Objectives—include, among many other things, plans for the restoration of the lakes' native species. Key to achieving many of the stated fish community objectives are fish hatcheries. State hatcheries largely support sport fisheries; federal fish hatcheries largely support the restoration of native species. Collectively, this inter-jurisdictional hatchery system, along with sea lamprey control, is the foundation for Great Lakes fishery management and restoration.

A few years ago, the Sportfishing and Boating Partnership Council reviewed the National Fish Hatchery System. In that review, the council recommended that "Fish from the [National Fish Hatchery System] must be used in ways defined in and guided by management plans that identify goals and objectives for stocked fish and post-stocking criteria to measure their success." We in the Great Lakes region are proud that our rehabilitation efforts are guided by cooperative plans that were developed through a scientifically based, rigorous process in consort with public input. All agencies on the Great Lakes, including the U.S. Fish and Wildlife Service, remain committed to these plans. The subcommittee should be assured that the contributions of the U.S. Fish and Wildlife Service are valued and consistent with the goals of the shared fish community objectives of the Great Lakes basin.

Seven federal fish hatcheries, operated by the U.S. Fish and Wildlife Service, provide fish for the myriad restoration initiatives of the Great Lakes fishery. Those hatcheries are the Iron River and Genoa National Fish Hatcheries (NFH) in Wisconsin; the Jordan River, Pendills Creek NFHs, and Sullivan Creek NFHs in Michigan; the Allegheny NFH in Pennsylvania; and the Saratoga NFH in Wyoming. In addition, the Service cooperates with others, including the Keweenaw Bay Indian Tribal Fish Hatchery in Michigan, to rear fish. The hatcheries have been in operation for decades and support the collective efforts by the Great Lakes states, tribes, and federal agencies to restore native species. These hatcheries produce such species as lake trout, lake sturgeon, and brook trout for

restoration efforts and provide millions of fish eggs for other hatcheries. More broadly, federal hatcheries contribute to fishery education (they are popular places to visit) and are on the leading-edge using the newest methods to rear healthy, disease-free fish.

Federal fish hatcheries are important to the Great Lakes. Because Great Lakes fishery management is so cooperative and coordinated, each participant plays a meaningful role in working toward the achievement of fishery management objectives. Below, I elaborate on the role of federal hatcheries and provide some thoughts about the current condition of the hatchery system.

LAKE TROUT RESTORATION: MADE POSSIBLE WITH HATCHERY HELP

Lake trout is the top native predator in the Great Lakes food web and is a part of the natural ecosystem that was, at one time, relatively stable and healthy. Lake trout were also important to the humans of the region. Literature from the time of European colonization of the Great Lakes describe how lake trout sustained Native communities. As the region became settled and developed, lake trout became an important component of a lucrative commercial fishery. Fishing for lake trout and other fish species was a way of life for many communities along the shores of the Great Lakes.

Sea lampreys changed everything. Sea lampreys entered the Great Lakes through shipping canals and, having no predators in the system, quickly devastated fish populations and disrupted the aquatic systems. Sea lampreys attach to fish with a suction cup mouth, rasp through the scales and skin with a file-like tongue, and feed on the fish's blood and body fluids, usually killing its host. No species suffered more than the lake trout, the sea lamprey's preferred prey. After sea lampreys entered the lakes, abundances of lake trout fell precipitously. The species was essentially eliminated from four of the five Great Lakes (limited numbers remained in Lake Superior and parts of Georgian Bay in Lake Huron) and commercial fisheries that depended on lake trout were driven out of business. While sea lampreys alone did not devastate the lake trout, sea lampreys sealed their fate.

Recognizing the critical importance of vigorous, stable fish communities to the economic and environmental health of the region, the fishery management agencies in 1950 embarked on a major effort to restore the native lake trout to the Great Lakes. Over the ensuing decades—and continuing to this day—restoration of lake trout was based on three activities: controlling sea lampreys, limiting lake trout harvest, and stocking. The Great Lakes Fishery Commission and its partners developed and delivered (and continues to deliver) sea lamprey control. The state, tribal and provincial management agencies regulated (and continue to regulate) harvest quotas to protect lake trout. And the U.S. Fish and Wildlife Service provided (and continues to provide) hatchery-reared lake trout for the stocking efforts in U.S. waters. Clearly, the efforts to restore lake trout are highly coordinated, well conceived, and absolutely dependent on each player doing its part.

While lake trout restoration efforts exist in each of the five Great Lakes, nowhere has success been more evident than in Lake Superior. There are several strains of lake trout that are well adapted to the deep, cold waters. Sea lampreys had an enormous impact on the fish of Lake Superior, but the commission's control program has reduced sea lamprey populations by 90%. Commercial harvest of lake trout exists, but harvest is now limited to ensure sustainability. Together, sea lamprey control and lake trout regulation allow for the fish in the lake to survive long enough to reproduce.

Hatcheries have been the critical third component of the lake trout recovery initiative. Lake trout stocking began in Lake Superior in 1950 on a small scale and increased substantially starting in 1957. Since 1957, more than 100 million young lake trout have been stocked into Lake Superior. The purpose of stocking has been to increase the numbers of lake trout, improve the chances of survival and reproduction, and shore-up existing stocks. Lake trout stocked into Lake Superior have been reared by Iron River, Pendlills Creek, Sullivan Creek, and Jordan River NFHs over the years.

These hatcheries contributed significantly to the overall lake trout recovery effort in Lake Superior. They were able to meet the demand for lake trout, they provided a reliable supply of healthy fish, they provided leadership in developing new fish culture technologies, and they ensured the supply of fish eggs for other restoration efforts in the Great Lakes. Personnel from the hatcheries and the U.S. Fish and Wildlife Service coordinated their activities with the non-federal entities on Lake Superior and were valued participants in the restoration effort.

In 1996, the management agencies on Lake Superior recognized that lake trout were naturally reproducing at levels where stocking would no longer be needed in most areas of the lake. With the return of self-sustainable lake trout populations, authorities eliminated stocking of federally-reared lake trout in U.S. waters from the Apostle Islands in Wisconsin eastward to Grand Marais, Michigan. Similarly, a number of areas in Ontario waters of Lake Superior showed improvements in lake trout populations such that stocking was reduced to about a third of what it was in the 1980s.

Since this momentous milestone in 1996, and the commensurate reduction in stocking, we have seen additional success. Lake trout are self-sustaining at levels in the remaining areas where they are stocked—primarily Minnesota and Ontario waters—such that stocking should cease all together in Lake Superior in the very near future.

The return of self-sustaining lake trout populations in Lake Superior is a major victory for the Great Lakes ecosystem. The effort began more than fifty years ago and involved concerted efforts on the part of all management agencies on the lake. This fishery restoration success would not have been possible without the integral role played by US federal fish hatcheries.

Moreover, the recovery of lake trout in Lake Superior is indicative of what is possible in the other lakes. While success elsewhere has not been as dramatic as in Lake Superior, there are encouraging signs of natural reproduction in lakes Huron and Ontario. Significant restoration of lake trout has occurred only in those Great Lakes waters where restoration stocking targets have been achieved. Even with the elimination of stocking in most of Lake Superior, additional lake trout from federal hatcheries will be required to reach restoration stocking targets in the other lakes. Today, the hatcheries are only able to provide 4 million fish annually, despite needs of 14 million fish. New hatcheries would be needed to fill this gap. The success of lake trout restoration throughout the Great Lakes basin will depend on federal hatcheries and the success in Lake Superior provides renewed hope for our ongoing efforts.

FUTURE IMPORTANCE OF HATCHERIES

Restoration of other species native to the Great Lakes is, of course, of paramount importance. A healthy ecosystem is one that is composed of self-sustaining populations of native species. Healthy fish communities can provide significant environmental and economic benefits. Interest in the reintroduction of extirpated species is strong among management agencies and the public.

Although there are many efforts underway to restore native fish populations to the Great Lakes, I will focus on three fish—lake sturgeon, ciscoes, and brook trout, as the success of their restoration efforts will likely depend on federal hatcheries.

Lake Sturgeon: Lake sturgeon are native to the Great Lakes. They are a long-lived, large fish that were once exploited commercially on a large scale. Sturgeon populations declined significantly in the Great Lakes due to overfishing and habitat loss. Since lake sturgeon spawn in tributaries, their spawning potential is significantly harmed by dams and loss of stream habitat.

Fish community objectives for each the Great Lakes call for the rehabilitation of lake sturgeon. As with lake trout, rehabilitation will require cooperation among all the management jurisdictions. Elements of rehabilitation include: harvest regulation, habitat protection, fish passage, and hatchery propagation.

Federal hatcheries could be important to lake sturgeon rehabilitation. Already, states throughout the Great Lakes basin rear and stock limited numbers of lake sturgeon for localized rehabilitation purposes. In addition, the Genoa National Fish Hatchery in Wisconsin provides fingerling lake sturgeon for stocking. The U.S. Fish and Wildlife Service and the State of Wisconsin collaborate on rearing lake sturgeon, where the state provides sturgeon eggs to the Service and the Service provides the state with other species, such as smallmouth bass and native mussels. Together, the stocking efforts provide the foundation for lake sturgeon rehabilitation. The value of federal hatcheries in this effort is the ability of the hatcheries to produce high-quality fish and to complement ongoing restoration efforts.

Ciscoes: Seven species of ciscoes—fish of the whitefish family—are native to the Great Lakes. Today, only four species remain—the [lake] cisco, shortjaw, kiyi, and hoyi (bloater). As is the case with many other native species in the system, water quality degradation, habitat loss, sea lamprey predation, and overfishing contributed to the decline (and in some cases, extinction) of ciscoes. This is a significant loss as ciscoes not only supported a valuable commercial fishery, but also served as a source of food for the top predators like lake trout and, now, salmon.

The state, provincial, tribal, and federal agencies of the Great Lakes basin agree that ciscoes must be protected and restored. Currently, the bloater is being considered for reintroduction into Lake Ontario. The reintroduction of bloaters in Lake Ontario is expected to create more interest in reintroducing the shortjaw cisco into lakes Michigan, Huron, and Erie, the kiyi into Michigan, Huron, and Ontario, and the [lake] cisco into Michigan, Huron (central waters) and Erie. Pending the development and adoption of restoration plans, the contributions of federal hatcheries will be integral to the success of these restoration efforts.

Brook Trout: Brook trout are a highly valued species in the Great Lakes basin. Although brook trout are commonly thought of as river-dwelling, one form spends part of its life in the open waters of Lake Superior. This migratory brook trout—known as “coaster brook trout”—was once abundant and popular with anglers. By the middle part of the 20th century, however, coaster brook trout were all but extirpated, due to habitat loss and overexploitation.

The U.S. Fish and Wildlife Service, the state of Wisconsin, and the other management agencies on Lake Superior have been working together to restore coaster brook trout. The foundation of this restoration effort has been stocking, along with habitat restoration; federal hatcheries will play a key role. Moreover, in producing the fish for stocking, hatcheries will have to pay very close attention to the strain reared, as the management agencies recommend preserving the genetic integrity of the natural fish.

MASS MARKING TO IMPROVE HATCHERY OPERATIONS

One of the main purposes of federal hatcheries is to bolster the stocks of native fishes to improve natural reproduction. The goal is to stock sufficiently large numbers of fish in the lakes of those strains (genetic variety) that best survive and reproduce. Implicit in this goal is the need to know the number of naturally produced fish versus the number of hatchery-reared fish. After all, fishery managers need to know the extent to which stocking is needed and which of the hatchery products is best suited to fishery restoration.

One of the main ways agencies can distinguish between a stocked and a wild fish is whether the fish has a fin clip or a tag. Managers know with certainty that fish with clipped fins or tags have been raised in hatcheries as the fish, obviously, have been handled. Unfortunately for managers, an unclipped or untagged fish may or may not have been hatchery-reared, as clipping and tagging is not done on every hatchery fish. Where clipping and tagging occur, they are largely local activities rather than lakewide. Clipping and tagging is labor-intensive (and therefore costly) and handling stresses the fish.

The single largest difficulty in evaluating progress of restoration is the lack of information on the current status of natural reproduction. This lack of information highlights the need for coordinated lakewide programs to assess natural reproduction. This information could be used by agencies to make decisions regarding stocking.

Hatchery operations, and the efforts to restore native species, would be significantly improved by the incorporation of “mass marking” technologies into hatchery operations. Currently, the technology exists to quickly and efficiently clip and tag *every* fish stocked into the Great Lakes. This clipping and tagging can be done without human contact. This technology is used in the Pacific Northwest in their salmon stocking programs, where, by law, all fish stocked must be marked.

Recognizing the significant potential for mass-marking technology to revolutionize hatchery operations and restoration efforts in the Great Lakes basin, the management agencies hosted a demonstration of mass marking technologies last summer at federal and state hatcheries in Wisconsin and Michigan. During the demonstration, fishery managers and the public witnessed hundreds of thousands of fish being marked and tagged and learned about the potential application of this cutting-edge technology in the Great Lakes basin. Subsequent to the demonstrations, the fishery management agencies of the Great Lakes basin discussed the application of the

technology to the Great Lakes and endorsed pursuing the acquisition and application of a mass-marking system, through the Fish and Wildlife Service fisheries program, for the Great Lakes basin.

Mass marking of fish stocked in the Great Lakes basin makes sense because it provides managers with a better understanding of the ratio of hatchery to wild fish, which is needed to make informed stocking decisions. Furthermore, it would help the people who fish the Great Lakes know if the fish they catch are wild or hatchery (thus allowing for different regulations instead of blanket regulations). The management agencies and the Great Lakes Fishery Commission are currently pursuing the funds to purchase and implement mass-marking and would greatly appreciate the support of the subcommittee for these efforts.

CURRENT CAPABILITIES OF FEDERAL HATCHERIES IN THE GREAT LAKES

In this testimony, I have stressed the importance of federal fish hatcheries in the restoration of the Great Lakes fisheries. The federal hatcheries are a major part of our collective, cooperative efforts to protect some of our most valued species in the Great Lakes including lake trout, lake sturgeon, brook trout, and ciscoes, just to name a few. Without the hatcheries, we would not have achieved our current successes nor would we be entertaining future restoration.

With that in mind, the Great Lakes Fishery Commission has grown quite concerned about the current state of the federal hatchery system and has come to question whether the U.S. Fish and Wildlife Service will have the capability to continue its partnership with the management agencies on the Great Lakes. The commission has reason to be concerned: funding for the national fish hatchery system had declined by more than 15 percent between 1992 and 1999, and, even with the project specific increases over the past few years, has not kept up with the annual inflation rates, despite the need for increased capacity; at least 14 million fish are needed annually for restoration efforts, yet the federal hatcheries are only able to provide 4 million fish; Great Lakes hatcheries average over 50 years in age, and have unmet maintenance needs that may begin to impact their missions; the U.S. Fish and Wildlife Services does not have the needed funds to adequately evaluate hatchery propagated species; A new Aquatic Animal Health Policy has been adopted, but lack funding has prevented its implementation; and the Service is not able to keep pace with uncontrollable expenses (e.g., COLA, benefits increases) at its hatcheries.

In addition, we understand it may require \$25 to \$30 million in construction and up to \$2 million in operational funding in the Great Lakes for the Fish and Wildlife Service will to adhere to its responsibilities under the *U.S. v MI* Consent Decree with the State of Michigan and the tribes. Under the agreement, the signatory agencies have committed to management activities that will restore and make available to Native fishers lake trout in Michigan's tribal waters. These management activities include harvest regulations, sea lamprey control, and stocking. Should the federal hatchery system in the Great Lakes basin fail to deliver in its support for lake trout restoration, the Consent Decree could be seriously undermined.

The erosion of federal fish-rearing capacity at the hatcheries could be a significant limitation on the success of fisheries rehabilitation if current trends are not reversed.

CONCLUSION

The Great Lakes fishery is a defining feature of the region, quite valuable to the people. While the fishery has been stressed, and while we have lost some species, rehabilitation efforts are resolute and are showing results. But, as with all natural resource management, our work is far from finished.

The National Fish Hatchery System is vitally important to the Great Lakes. It is a major part of the management regime. Without the fish produced in these hatcheries, the collective efforts to rehabilitate the fishery would be acutely weakened. Because hatcheries have played a key role in past successes, they will be called upon as restoration efforts move into the future. As chair of the Great Lakes Fishery Commission, I hope that the budget and infrastructure problems will be corrected so that the U.S. Fish and Wildlife Service can continue to fulfill its mission and continue to collaborate with the management agencies in restoration of the Great Lakes ecosystem.