Fishery Management Plan

Gile Flowage, Iron County, Wisconsin

December, 2005

Prepared by:

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And

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FOREWORD AND ACKNOWLEDGMENTS

This is a long-term strategic plan that will guide our fishery management efforts on the Gile Flowage for many years to come. We believe a good fishery management plan must be based upon a shared vision that can be acquired only after fishery managers and committed stakeholders have discussed angler preferences in light of what each aquatic ecosystem is capable of producing. We believe the goals of a good plan must reflect that shared vision, and that measurable objectives must be set so we know whether chosen strategies have succeeded or failed. We believe in making good tries and learning from failure. Part of that process involves amending strategic plans when failure dictates that we either develop more realistic objectives or change our strategies to achieve them. Hopefully this plan will be updated as needed in the decades that follow.

We call this a "long-term strategic plan" because the goals and objectives are relatively timeless, and because we have neither the wisdom nor the authority to commit DNR or partner resources to a specific multiple-year operational schedule of funding and action. Each year will bring its own fiscal constraints and operational priorities, so we must remain flexible in our implementation of proposed actions. Because there are so many complex and inter-related strategies, we have chosen not to secure statewide DNR approval at this time. We will do our best to justify actions we believe necessary to realize our shared vision as time and circumstances permit. We promise only to consult this plan at least once annually as we allocate our time and resources to the many important projects before us.

We want to thank Cathy Techtmann and the Friends of the Gile for hosting our local stakeholder visioning session in Hurley on April 29, 2004. Their continued support for this process and this plan has given us the energy and enthusiasm needed to aggressively pursue implementation and to expand this process to other lakes in Iron County and the Upper Chippewa Basin.

We also want to thank the 25 local stakeholders who gave up an entire evening in order to help us develop the vision that forms the backbone of this plan. We are very pleased to incorporate their input at this appropriate stage in the planning process; and we look forward to their continued support for the actions we believe will be necessary to achieve the shared vision. We can settle for nothing less in an area where the quality of fishing means so much to our livelihoods and our quality of life.

-- Jeff Roth and Dave Neuswanger

BACKGROUND

Habitat Characteristics and Productivity

The Gile Flowage is a relatively shallow 3,384-acre reservoir located in northeastern Iron County within the Lake Superior watershed. The 26-mile shoreline is characterized by numerous protected bays and large outcroppings of exposed bedrock. Maximum depth is approximately 25 feet, while most of the bays and sub-impoundments are less than 10 feet deep. There are several islands of various sizes throughout the flowage. Surrounding lands include 1,050 acres owned by Xcel Energy and 110 acres owned by Iron County.

The flowage is fed by the West Fork of the Montreal River and six other tributary streams. The water is stained dark brown; color values range between 60 and 75 platinum-cobalt units. Summer Secchi disk visibility ranges from 4.3 to 6.6 feet. Water hardness averages 22 ppm (parts per million) as $CaCO_3$, and alkalinity averages 17 ppm as $CaCO_3$. The water is slightly alkaline with an average pH of 7.1. The flowage is considered mesotrophic (moderate level of biological productivity). Summer total phosphorus concentration ranges from 13 to 32 ppb (parts per billion) and averages 25 ppb. The ratio of total nitrogen to total phosphorus indicates that production by algae is limited by the amount of phosphorus available. Summer chlorophyll *a* concentration ranges from 3.0 to 6.9 ppb and averages 5.2 ppb. Bottom substrate consists of 40% sand, 35% gravel/rubble, 15% silt and 10% boulder/bedrock. Aquatic vegetation is relatively sparse. In a 1994 survey, 85% of the littoral area (near-shore shallows) contained no aquatic vegetation. The index of fisheries-valuable aquatic plants was only 11 -- the lowest value of eight northern Wisconsin flowages surveyed. The Gile Flowage does not stratify thermally, and dissolved oxygen is sufficient for fish survival at all depths throughout the year.

Complex littoral habitat, including aquatic vegetation, is rather limited because of summer and winter drawdowns conducted by Xcel Energy to facilitate hydroelectric power production downstream. The predominant gravel and boulder substrates provide ample habitat to all life stages of smallmouth bass and walleye, which are the principal gamefish species in this lake. But hiding cover is sparse for small life stages of other species and is limited mostly to submersed woody material and crevices created by the numerous boulder outcroppings.

Human Development and Public Access

The flowage started filling in 1941 after Lake Superior District Power Company (merged into Northern States Power and now Xcel Energy) built a dam 30 feet high and 1100 feet long in 1940 on the West Fork of the Montreal River. The flowage serves as a water retention reservoir for downstream hydroelectric facilities at Saxon Falls and Superior Falls on the Montreal River. Water levels are usually controlled by a sluice gate 6 feet wide and 5 feet high; but during periods of high flow, a tainter gate 16 feet wide and 12 feet high can be opened also. In 1936 the Public Service Commission established a full pool elevation of 1490 feet above mean sea level and allowed for a maximum drawdown of 15 feet. Water levels vary considerably and are manipulated in response to seasonal precipitation and demands of the two downstream hydroelectric operations. Under authority of Section 401 of the federal Clean Water Act, DNR has ordered that a minimum downstream flow be maintained at 10 cubic feet per second in order to ensure downstream water quality. Since 1984, a typical annual water level regime would include a gradual summer drawdown beginning in early May and averaging 6 feet by October. Refilling generally occurs in late fall in order to store water for winter hydroelectric production. Winter drawdown begins in early December and typically averages 7-8 feet by early March. Refilling is usually achieved by early May.

Public access is provided by two primary boat landings with concrete launches. The "Gile Landing" on the north shore in the town of Gile is owned and maintained by Iron County. The "State Landing" off CTH "C" is owned and maintained by the State of Wisconsin. Two smaller landings on the west shore are suitable for smaller watercraft and are owned and maintained by Iron County.

There are no active resorts or commercial enterprises on the small portion of the Gile Flowage not owned by Xcel Energy or Iron County. The only fishing resort on the flowage was Margandos Resort, which was subdivided by the early 1980s. A private boat rental operated at the Gile Landing before the 1970s is no longer in business. Past and present policy of Xcel Energy is to leave the shoreline in its natural condition.

Historical Perspective on the Fishery

When first created in the early 1940s, the fishery of the Gile Flowage was comprised mainly of muskellunge and a variety of other secondary species native to the Montreal River system. During the late 1940s, a variety of fish species including bluegill, largemouth bass, white sucker and various minnow species were introduced. Active management began during the mid 1950s with a musky tagging study, angler creel survey, and numerous walleye and musky stockings. All stocking was discontinued from 1955 through 1966, at which time annual musky stocking resumed. The first complete fish survey was completed in 1973 when walleye clearly were the predominate gamefish. Smallmouth bass were introduced in 1985 and have since joined walleye as important contributors to the overall fishery.

The Gile Flowage has a history of supporting a quality-size panfish fishery. Panfish have never been documented to be numerous, but average size of the predominate panfish species (black crappie, pumpkinseed and rock bass) has been exceptional. In fact, the current Wisconsin State Record black crappie was caught in 1967 in the Gile Flowage; it weighed 4 pounds, 8 ounces.

The Gile Flowage lies within the Ceded Territory where the fishery is shared with Ojibwe tribal harvesters. Historically, the Lac du Flambeau and Bad River tribes both declared their intent to harvest fish. Tribal harvest began in 1987 and continued sporadically through 1994. Since 1994, the average annual spearing harvest has been approximately 350 walleyes (only 0.1 per acre), harvested mainly by members of the Lac du Flambeau Tribe.

Aquatic Community Overview

Walleye and smallmouth bass are the principal gamefish species in the Gile Flowage, and both populations are self-sustaining. Several comprehensive walleye evaluations have shown that adult walleye density typically averages 2 to 3 fish per acre – lower than average among waters with natural reproduction in the Ceded Territory. After a 1993 survey revealed that density and size structure were not meeting expectations, a more restrictive regulation was recommended and became effective in 1997 – a five-fish daily bag limit, of which only one fish over 14 inches could be harvested. Smallmouth bass were first introduced in 1985 to provide an additional gamefish in what appeared to be ideal habitat for that species. "Smallies" were stocked for three consecutive years and protected by special harvest regulations – a two-fish daily bag limit and 15-inch minimum length limit. Since then, smallmouth bass have maintained a viable population through natural reproduction alone. In recent years, a high-quality smallmouth bass fishery has developed and become well-known throughout the region and the State.

Muskellunge and northern pike contribute a trophy aspect to the Gile Flowage fishery. A 40-inch minimum length limit on musky was implemented in 1992 in order to enhance trophy potential and promote natural reproduction. Unfortunately, low recruitment has continued due to limited musky spawning and nursery habitat and competition with northern pike. Therefore, stocking will be essential if a musky fishery is to be maintained. Northern pike are self-sustaining. They provide high catch rates of moderate-sized fish. The Gile is one of the few waters in Iron County with a demonstrated capacity to produce an occasional trophy-sized pike.

Black crappie dominate the panfish fishery of the Gile Flowage. Historically, crappies have provided exceptional fishing opportunities. Local anglers report phenomenal fishing for large numbers of big crappies in the 1950s. Other members of the panfish community include bluegill, rock bass, yellow perch, and pumpkinseed. These species are particularly impacted by over-winter drawdowns that limit aquatic vegetative growth and concentrate the young into a reduced pool where they are highly vulnerable to predators. As a result, few survive, and panfish population densities are relatively low in comparison with other waters. Because there are so few panfish, they grow fast and attain exceptional sizes.

The Gile Flowage is the first inland lake in Wisconsin to be invaded by the spiny water flea. Discovered in 2003, a public awareness program and intensive monitoring of this invasive species was implemented immediately. Spiny water flea is an exotic species of zooplankton native to northern Europe that is predaceous, feeding on other zooplankton. They have long spiny tails that prevent them from being consumed by juvenile fish. The potential risk of this exotic zooplankter to the fish community is its ability to create shifts in native zooplankton populations and possibly impact survival and recruitment of juvenile fishes. Total impacts on the fish community cannot be predicted at this time.

A Vision for the Gile Flowage Fishery

On April 29, 2004, DNR representatives Jeff Roth and Dave Neuswanger met with 25 local stakeholders who were willing to volunteer their time to help develop a long-term vision for the Gile Flowage fishery. Objectives of the meeting were to prioritize species of interest, and then to identify for those species the relative importance of numbers versus size and catch versus harvest. Attention was then focused on identifying the desired conditions (goals and objectives) that appear in this plan. Actual verbiage of goals and objectives was developed by consensus of local stakeholders in consultation with Jeff Roth, who served as technical advisor to the group on what was possible. However, no attention was given to methods for achieving goals and objectives (management strategies such as harvest regulations, fish stockings, and habitat preservation or enhancement). It was understood and generally agreed that professional fishery managers would select the most appropriate strategies once goals and objectives had been developed by local stakeholders and adjusted to incorporate what is known about statewide angler preference and the capacity of the Gile Flowage to produce what is desired.

Detailed results of the visioning session appear in the Appendix. In summary, local stakeholders in the Gile Flowage fishery ranked walleyes first among species of interest, and they were determined to maintain a moderately high density of walleye while improving existing size structure. This emphasis on walleye is consistent with statewide angler priorities, so efforts to achieve walleye population objectives will assume a prominent role in future management.

Also similar to statewide anglers, local stakeholders had moderate to high interest in creating and maintaining good fishing for panfish, particularly yellow perch. Local stakeholders were practically unanimous in their stated preference for balance between numbers and sizes of panfish, including black crappie. And they were willing to forego maximum sustainable harvest if necessary to achieve that balance. Despite the overall desire for balance, local stakeholders chose goals and objectives for yellow perch and bluegill that emphasized size over number.

Muskellunge were quite important to most local Gile Flowage stakeholders. And while participants exhibited a strong preference for catch-and-release musky fishing, most preferred a balance in the population between numbers and size. They were not interested in a strictly "numbers" fishery, nor were they interested in a strictly "trophy" fishery for muskellunge.

Local Gile Flowage stakeholders were not uniformly enthused about their world-class fishery for smallmouth bass. While several participants indicated moderate to high interest in smallmouth, over half had little or no interest; and the latter group actually had animosity toward smallmouth bass because of perceived competition with walleye and interference with walleye fishing activity (i.e., catching "annoying" smallmouths while trying to catch preferred walleyes). Local attitudes toward smallmouth seemed to be based more upon personal angling preference than on concerns for income generated by tourist participation in the smallmouth bass fishery. This may have been different if more business owners had participated in our visioning session. Because local stakeholders had a different view of smallmouth bass than the average Wisconsin angler, we sought to find a compromise between the two.

Northern pike were of little interest to Gile Flowage stakeholders, probably because the average size of pike caught is considered undesirable. Few if any of the participants were aware of the trophy-sized pike that inhabit the flowage.

Despite a unique population of memorable-size rock bass, only a few local stakeholders held these fish in any esteem. A general disdain for rock bass seems to be common throughout the region, despite excellent size structure, palatability comparable with other panfish species, and relative ease of capture.

Spiny Water Fleas

Discussions during the visioning session focused on the type of fishery desired by local stakeholders; therefore little information was available to address questions or discuss options relative to the spiny water flea invasion. But because the Gile Flowage is the first inland water body in Wisconsin to be invaded by this exotic species, and because it could have a direct impact on the quality of the fishery, special mention of "what to do" is warranted here. One stakeholder suggestion was to conduct an extended summer drawdown to "flush" the system. However, such a strategy is unproven, and an extended summer drawdown is inconsistent with strategies needed to achieve overall fishery management goals and objectives.

After the visioning session, we contacted Minnesota DNR in order to learn about their experience with spiny water fleas, which first appeared in several Duluth area lakes in the late 1980s. Fishery Biologist John Lindgren shared some interesting and highly relevant case history information. Of particular relevance to us is the history of Fish Lake, a hydropower/recreation flowage located approximately 10 miles north of Duluth. It is owned and managed by Minnesota Power under license from the Federal Energy Regulatory Commission. It is remarkably similar to the Gile Flowage in size (3,500 acres), basin morphometry (relatively shallow), and productivity (mesotrophic).

In the drought year of 1988, UW-Superior Professor Mary Balcer discovered spiny water fleas in Fish Lake. Terrestrial vegetation that developed during the drought period was inundated the following year as the lake returned to normal pool elevation, providing ideal conditions for the survival of large year classes of young bluegill and black crappie. As cohorts of these sunfishes grew large enough to consume large numbers of zooplankton, spiny water fleas disappeared altogether in Fish Lake, and they have not been seen there since. Of course, nobody can prove that the sudden abundance of sunfishes caused the demise of spiny water fleas in Fish Lake, but spiny water fleas persist to this day in more oligotrophic lakes in the Duluth area where sunfish density is much lower.

Historically, Fish Lake was subject to the same dramatic 8-foot over-winter drawdowns experienced on the Gile, so survival of young sunfish was limited. Concurrent with the end of the 1988 drought and the demise of the spiny water flea, recreation and property development interests prevailed upon Minnesota Power to begin managing Fish Lake water levels in a more fishery-friendly manner. The 8-foot over-winter drawdowns were reduced to 4 feet. At this level of fluctuation, permanent beds of macrophytes became established, allowing young sunfish to survive in sufficient numbers to maintain healthy populations and prevent the return of spiny water fleas.

This case history provides hope that a combination of water level and panfish population management may allow us to eradicate spiny water fleas in the Gile Flowage, and in so doing, reduce the risk of spread to other important waters where similar control options may not exist.

GOAL 1: A walleye population of moderate to high density with a high proportion of quality-size fish and a presence of memorable-size fish.

Objective 1.1: 4 to 6 adult walleye per acre in spring population estimates

Objective 1.2: Of all walleye 10 inches and longer captured by fyke netting in early spring, 40-60% should be 15 inches or longer (PSD = 40-60%) and 1-3% should be 25 inches or longer (RSD-25 = 1-3%).

Walleye Status and Management Strategies:

Adult walleye density was estimated to be 2.6 fish per acre in spring of 2003 – higher than our 1993 estimate of 1.8 adults per acre, but still far below our management plan objective of 4 to 6 adults per acre. Size structure was in the desired range as reflected by the proportion of stock-size fish over 15 inches long (PSD = 48%), but the proportion of memorable-size fish was lower than desired (RSD-25 = 0.4%).

Improvements to the walleye fishery will hinge upon natural reproduction (survival to age 1) and recruitment (survival to a "stock" size of 10 inches). Walleye reproduction in the Gile Flowage has been monitored annually since 1984. Walleye spawning habitat is excellent. Two years of remarkably high walleye reproduction occurred in 1988 (256 age-0 walleyes per mile of shoreline in a fall electrofishing survey) and 1994 (321 age-0 walleyes per mile). Since 1994, reproduction has been at or below the 20-year average of 75 age-0 walleyes per mile. Young walleyes in the Gile Flowage survive at a substantially lower rate from the end of their first year to the end of their second year (16%) than young walleyes in the average northern Wisconsin lake with natural reproduction (28%; Table 1).

Table 1. Natural reproduction (age 0+) and recruitment (age 1+) of walleye in the Gile Flowage and 654 other lakes in northern Wisconsin as reflected by average fall electrofishing capture rates (CPE = number captured per mile of shoreline) from 1984 through 2003.

	Average Age 0+ CPE	**Average Age 1+ CPE**	**Survival (%) Age 0+ to Age 1+**
Gile Flowage	75	12	16
654 Lakes in the Northern Region	35	10	28

Excessive over-winter drawdowns may be at least partially responsible for poor survival of young walleyes, due either to entrainment (passage of young walleyes downstream through the dam) or increased predation by adult walleyes (cannibalism) facilitated by the 58% reduction in winter pool area. The sustainable improvement in walleye density necessary to achieve Objective 1.1 is believed possible only if over-winter drawdowns can be moderated. Negotiations with Xcel Energy should be initiated in order to explore the possibility of a trial period during which over-winter drawdowns are reduced to a level less damaging to walleye recruitment and the overall fishery.

During the past six years, we have tried to improve walleye population size structure by limiting the harvest to 1 fish daily longer than 14 inches within the overall daily bag limit (usually 3 depending upon tribal declaration and harvest). The proportion of fish over 15 inches long in the adult population increased from 33% in 1993 to 50% in 2003. However, ten years of comprehensive survey data reveal no change in the proportion of walleyes over 18 or 25 inches long during that time period. Sometimes populations of slow-growing fish need several years to respond to regulation changes. Because of this potential lag effect and the fact that local stakeholders clearly prefer a balance between walleye numbers and sizes (Table A2), we recommend that the "one-over-14" regulation be retained through at least 2008. At that time, a thorough evaluation should be made and regulation changes considered if density and size structure objectives for walleye remain unmet.

GOAL 2: A muskellunge population of moderate density with a moderate proportion of memorable-size fish.

Objective 2.1: 0.2 to 0.3 adult muskellunge per acre in population estimates

Objective 2.2: Of all muskellunge 20 inches and longer captured by fyke netting in early spring, 15-25% should be 40 inches or longer (RSD-40 = 15-25%).

Muskellunge Status and Management Strategies:

Natural reproduction and recruitment of muskellunge has not been documented in the Gile Flowage. Sparcity of macrophytes is probably a major factor limiting the survival of young fish. In the absence of natural recruitment, muskellunge density can be controlled by stocking. For several decades (1950-1994), muskellunge were stocked almost annually at densities between 0.2 and 1.5 fall fingerlings per full-pool acre. Since 1994, muskellunge have been stocked five times (96, 98, 00, 01, 03) at a reduced average density of 0.7 fall fingerling per full-pool acre per stocking event, due to concerns about the forage base in a lake that loses half its surface area twice annually. In our most recent survey in 2003, muskellunge density was estimated at a low 0.1 adult per acre – less than half the desired number under Objective 1.1. This raises questions about entrainment through the dam and also indicates that additional stocking may be warranted. However, we lack good techniques to assess the abundance of preferred prey for muskellunge and are concerned that over-stocking could lead to a decline in body condition and growth rate of existing adults. Until we have better methods for assessing the adequacy of prey, and until we determine how changes in water level management may affect the muskellunge population, we recommend a conservative stocking density and frequency of 0.5 muskellunge per full-pool acre (1,692 fish) every other year.

The minimum length limit for muskellunge was increased from 34 inches to 40 inches in 1992. A pre-impact survey performed in 1993 revealed that only 10% of adult muskellunge were 40 inches or longer. After 10 years under the higher length limit, a 2003 survey revealed that 25% of adult muskellunge were 40 inches or longer – at the top end of the desired range under Objective 2.2. Because this size structure objective is being met under the 40-inch minimum length limit, we recommend no change in muskellunge harvest regulation at this time.

GOALS 3-5: PANFISH

The Gile Flowage panfish community – comprised of black crappie, bluegill, pumpkinseed, and yellow perch – is similar to other flowages where fluctuating water levels often have devastating impacts on reproduction and recruitment of young. Extended periods of drying and freezing of the littoral zone greatly inhibit the growth of aquatic plants needed by panfish – particularly bluegill and pumpkinseed – as nursery habitat. Also, the loss of a significant volume of water twice annually concentrates young panfish into a much-reduced pool, increasing their vulnerability to predation by walleye, smallmouth bass, northern pike, muskellunge, and even adult black crappie. This combination of factors effectively reduces the carrying capacity of the flowage for panfish.

Two strategies are proposed that may help us to achieve all the objectives under Goals 3-5 in addition to eradicating spiny water fleas before they can spread to other waters in Wisconsin. First, moderation of drawdowns would benefit the entire fish community of the Gile Flowage, but particularly the panfish community. Therefore, we propose to negotiate with Xcel Energy for summer and winter drawdowns that are limited to no greater than 4 feet except during times of extreme drought or energy emergency. Concurrent with improved water level management, we feel that special harvest regulations are necessary to achieve panfish population objectives and to help eradicate spiny water fleas. Therefore, we recommend a reduced daily bag limit of 10 for all panfish combined (black crappie, bluegill, pumpkinseed, and yellow perch) and a minimum length limit of 10 inches for black crappie. Individual species objectives and current status are presented below.

GOAL 3: A yellow perch population of low density with a high proportion of preferred-size fish.

Objective 3.1: Currently we lack an effective method to assess yellow perch abundance. Until an assessment tool is developed, we will consider a fykenet capture rate of 1-5 perch per net-night to be somewhat indicative of the desired low density.

Objective 3.2: Of all yellow perch 5 inches and longer captured by fyke netting in early spring, 15-25% should be 10 inches or longer (RSD-10 = 15-25%).

Yellow Perch Status and Management Strategies:

Yellow perch were more important to local stakeholders than we would have predicted based upon our somewhat subjective assessment of low perch population density. However, we lack scientific data on the yellow perch population of the Gile Flowage. Obtaining meaningful information about relative abundance and size structure will be important in determining whether yellow perch objectives have been achieved. Late spring fyke netting and/or fall electro-fishing effort might provide meaningful baseline data. Creel survey information gathered in 2003 offers some insight into the status of the perch fishery. During the open water and ice fishing seasons, we estimated that anglers fished a total of 863 hours (0.2 hour per acre) specifically for perch, indicating very low targeted fishing pressure. An estimated 37 perch were harvested at a mean length of 9.9 inches.

In our judgment, the objectives identified in this plan are achievable and should stand until further data becomes available to suggest otherwise. Some may desire higher perch density, but we do not believe higher density is attainable in light of our plan to increase density of walleye -- the primary predator on perch.

GOAL 4: A black crappie population of moderate density with a high proportion of preferred-size fish.

Objective 4.1: Currently we lack an effective method to assess black crappie abundance. Until an assessment tool is developed, we will consider a late spring or mid fall fykenet capture rate of 5-10 black crappie per net-night to be somewhat indicative of the desired moderate density.

Objective 4.2: Of all black crappie 5 inches and longer captured by fyke netting in late spring or mid fall, 30-50% should be 10 inches or longer (RSD-10 = 30-50%).

Black Crappie Status and Management Strategies:

Past spring fyke netting, targeting panfish, resulted in a black crappie capture rate of 5 fish per net-night – reflecting a density on the lower end of our objective range. Size structure was exceptional (RSD-10 = 66%) -- so high, in fact, that recruitment problems were indicated. In our 2003 creel survey, the average size of harvested black crappie was 12.5 inches.

Obviously, the Gile Flowage supports a crappie fishery with exceptional size structure. However, we are concerned about the future ability of the flowage to support this fine fishery. Estimated total fishing pressure more than doubled in the last decade, from the relatively low level of 5.0 hours per acre in 1993 to 10.6 hours per acre in 2003. Angling pressure is likely to increase in the future, and over-exploitation is a very real concern. Therefore, the reduced daily bag limit recommended earlier for all panfish combined, along with the 10-inch minimum length limit for crappie, will be essential to meeting our crappie population objectives on a sustainable basis.

GOAL 5: A bluegill population of low to moderate density with a high proportion of preferred-size fish.

Objective 5.1: Currently we lack an effective method to assess bluegill abundance. Until an assessment tool is developed, we will consider a late spring or mid fall fykenet capture rate of 5-15 bluegill per net-night to be somewhat indicative of the desired density. (This was increased after the visioning session in light of our need to stop the invasion of spiny water fleas.)

Objective 5.2: Of all bluegill 3 inches and longer captured by fyke netting in late spring or mid fall, 40-60% should be 8 inches or longer (RSD-8 = 40-60%).

Bluegill Status and Management Strategies:

The panfish community changed between 1993 and 2003. Sampling protocol differed in those surveys, but bluegill were the least abundant panfish species in 1993 fyke nets and the most abundant in 2003. Furthermore, no bluegill were reported as caught by anglers during the 1993 creel survey, but an estimated 190 bluegills were harvested by anglers during 2003, at which time they were the most abundant panfish species harvested. We do not know what caused this shift to bluegill dominance among panfish species in the fyke net catch, but it is important to note that overall panfish abundance still seems relatively low.

In light of our determination to eradicate spiny water fleas from the Gile Flowage, it is important to include bluegill in the proposed reduced daily bag limit for panfish. Of all species in the Gile, bluegill may have the greatest potential to eradicate an invasive species of zooplankton, provided we can create conditions conducive to the survival of young bluegill and prevent adult bluegill from being over-harvested. Furthermore, we propose to transfer adult bluegill from other area waters to the Gile Flowage as time and budgets allow in order to further enhance this fishery and to help eradicate spiny water fleas.

GOAL 6: A smallmouth bass population of low to moderate density with a high proportion of memorable-size fish.

Objective 6.1: Electrofishing capture rates for 7-inch and longer smallmouth bass of 20-40 per hour during the bass spawning season.

Objective 6.2: Of all smallmouth bass 7 inches and longer captured by electrofishing during the bass spawning season, 5-15% should be 18 inches or longer (RSD-18 = 5-15%).

Smallmouth Bass Status and Management Strategies:

Smallmouth bass were introduced to the Gile Flowage in 1985 in order to diversify the sport fishery and capitalize on what was considered to be ideal habitat for smallmouths. Special regulations (15-inch minimum length limit and reduced daily bag of 2) were implemented in order to minimize harvest as smallmouth became established.

Our 1993 assessment concluded that smallmouth bass had become self-sustaining at a density of 1.2 per acre for all fish longer than 7.0 inches. Growth rates were above average and population size structure was good. Smallmouth bass were providing exceptional angling opportunities, so the special harvest regulations were retained. We believe the relative abundance of smallmouth bass has increased over the past decade, based upon an increase in electrofishing capture rate of stock-size fish (≥7 inches) from 43 per hour in 1993 to 61 per hour in 2003.

In recent years the Gile Flowage has gained a statewide reputation as a premier smallmouth bass fishery. It has become a travel destination for anglers seeking high-quality bass fishing in a scenic environment. Local anglers, however, seem less than enthused about the smallmouth bass fishery (see visioning session summary), based partially upon an assumption that smallmouths are responsible for inhibiting walleye production. But fishery researchers have not documented significant repression of walleye populations by smallmouth bass. In fact, the two species coexist well within their native range, probably because they occupy somewhat different ecological niches. Smallmouth bass feed primarily upon crayfish in rock rubble near woody or vegetative cover, while adult walleyes feed primarily upon yellow perch, suckers and other fish in a wide variety of habitats.

Though we believe smallmouth bass are not limiting our ability to achieve walleye population objectives on the Gile Flowage, we wish to acknowledge the strongly expressed preference of local stakeholders for walleye over smallmouth bass. We feel the best compromise between those who feel there are too many smallmouth bass and those local and non-local stakeholders who want to continue having a special smallmouth bass fishery will involve a change is harvest regulation.

Therefore, we propose a daily bag limit of 3 and a slot length limit of 14 to 18 inches for smallmouth bass, restricting harvest to only 1 fish daily over 18 inches long. This would allow harvest of fish under 14 inches and over 18 inches long while protecting preferred- and memorable-size fish for smallmouth enthusiasts to enjoy catching and releasing. We believe increased harvest bass less than 14 inches long will allow us to attain Objective 6.1. Based upon historical good growth and condition, Gile Flowage smallmouths should have no problem growing rapidly through the protected length range, allowing us to achieve Objective 6.2. We will recommend that this regulation change proposal be considered at the spring hearings of the Conservation Congress in April of 2007.

APPENDIX

Results of Visioning Session for Stakeholders in the Fishery of the Gile Flowage in Iron County, Wisconsin

Date: April 29, 2004
Time: 6:00 p.m. to 9:00 p.m.
Place: Iron County Courthouse in Hurley, Wisconsin
Facilitator: Dave Neuswanger, Fisheries Supervisor, Upper Chippewa Basin, WDNR
Technical Advisor: Jeff Roth, Senior Fisheries Biologist, Iron/Ashland Counties, WDNR
Profile of 25 Participants:

Lakeside Landowners – 11
Area Anglers – 8
Fishing Guides – 1
Business Owners – 2
Swimmers and Kayakers – 3

Table A1. Levels of sport fishing interest among visioning session participants in Gile Flowage fish species nominated for consideration.

Fish Species Nominated	Level of Participant Fishing Interest			
	High	Medium	Low	None
Walleye	16	1	0	0
Yellow Perch	13	1	2	0
Muskellunge	10	3	4	0
Black Crappie	9	8	0	0
Bluegill	8	5	3	0
Pumpkinseed	7	5	3	0
Smallmouth Bass	2	4	7	1
Rock Bass	2	4	9	0
Northern Pike	1	1	11	0

Table A2. Preferences for numbers versus size and catch versus harvest among visioning session participants for fish species perceived to be most important at the Gile Flowage.

Important Fish Species	Preference for Numbers versus Size			Preference for Catch-and-Release versus Harvest		
	Emphasis on Number over Size	Prefer Balance	Emphasis on Size over Number	Emphasis on Catch and Release	Prefer Balance	Emphasis on Maximum Sustainable Harvest
Walleye	0	14	3	3	14	0
Yellow Perch	0	17	0	0	17	0
Muskellunge	1	7	2	8	2	0
Black Crappie	0	15	0	1	13	0
Bluegill	0	11	0	0	11	0
Smallmouth Bass	0	0	5	4	2	2