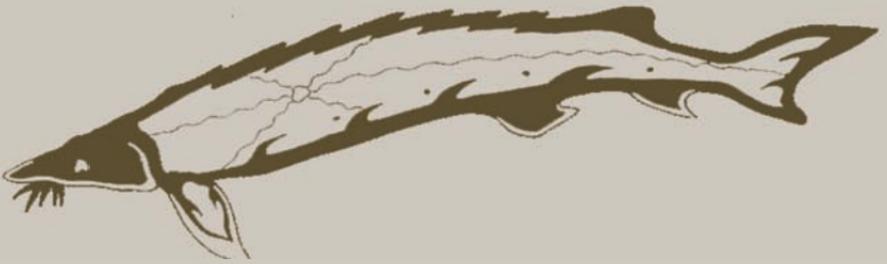


*Nmé
(Lake Sturgeon)*



*Stewardship Plan
for the
Big Manistee
River and
1836 Reservation*



*Little River Band
of Ottawa Indians*

Nmé Stewardship Plan



Contents

Executive Summary

Goals Toward Stewardship

Cultural Context

Biological Perspective

Issues and Objectives

*Issue 1: Genetic Conservation
and Stock Supplementation*

*Issue 2: Habitat Protection
and Enhancement*

Issue 3: Contaminants

Issue 4: Ecological Considerations

Issue 5: Law Enforcement and Harvest

*Issue 6: Public Involvement
and Cultural Education*

*Additional Assessment, Research
and Management Needs*

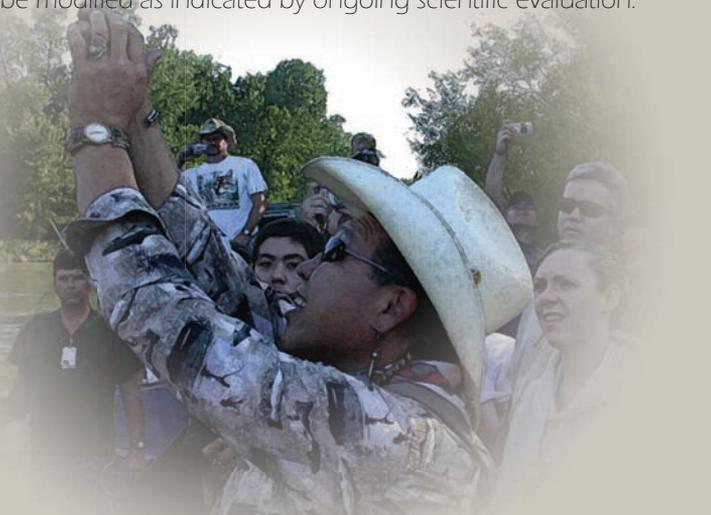
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The Big Manistee River watershed may once have held one of the largest nmé (sturgeon) populations in the Lake Michigan Basin. From time immemorial, the Anishinaabek revered the nmé and looked forward annually to the rite of spring when the Anishinaabek would reunite on the banks of the Big Manistee River for the nmé runs. Today, the nmé come back to the river not as a healthy component of either the river or Tribal culture. The nmé come back now embattled – only a few who can be called survivors. These reduced runs of nmé are cause for great disease among the Anishinaabek, yet these issues comprise much more than a single species of fish – they necessarily involve the breadth and scope of Anishinaabek culture, the cultures of all the People of the Great Lakes, the integrity of the Big Manistee watershed and the health of all species that live therein.

For nmé and the Big Manistee watershed to survive and to prosper once again, a paradigm shift is required – from management driven by anthropocentric concerns to a perspective of stewardship and harmony with the environment. Non-Indian fisheries management has focused on owning the fishery, where the resource is common property and owned by the entire populace (Nielsen 1999). Alternatively, the focus of the Anishinaabek has centered not on ownership, but harmony, where people do not own the land, air, or water; they are simply part of it. This indigenous philosophy requires profound respect for the environment we live in and the recognition that all things are connected.

This Stewardship Plan represents the Little River Band of Ottawa Indians' (LRBOI's) holistic management approach and addresses not only the Big Manistee River where the nmé return to spawn, but also the entire watershed and Great Lakes basin. The plan also addresses numerous issues that are facing the watershed, such as poor and degraded habitat and the continuing deterioration of the watershed; the river's fragmentation by hydroelectric dams that block migratory routes of fish; and the contamination of the watershed. Issues such as contamination are not merely a local issue, but must be considered a threat to the region, and any resolution must involve the input and participation of multiple, contiguous jurisdictions. The plan is aimed at rehabilitating and reclaiming nmé, and it also provides for the health and general improvement of the animal and plant Peoples that reside within the watershed. The LRBOI is convinced that by reclaiming the nmé to their rightful place within the watershed, balance will be brought to the river's other organisms. The stewardship of species, populations and ecosystems can be made more effective by understanding and protecting species like the nmé that require large areas and diverse habitat types to continue to thrive.

Finally, this plan will be adaptive; it is intended that the principles established herein be applied immediately and the nmé can begin to increase despite uncertainty over future supplemental or substitutive restoration strategies by the LRBOI or other management agencies. This plan defines issues, details actions to be implemented, and describes means to evaluate these actions. By applying an adaptive management strategy, the reclamation and restoration activities will be modified as indicated by ongoing scientific evaluation.



Goals Toward Stewardship

This plan incorporates both cultural and biological criteria for establishing goals for restoration of the Big Manistee River nmé population. An LRBOI Cultural Context Task Group, composed of Tribal members and Tribal government staff, addressed the cultural context. Tribal biologists developed the biological criteria to be consistent and ultimately driven by the cultural context. The LRBOI is currently participating in the Lake Michigan Lake Sturgeon Task Group that is charged with developing a management plan for sturgeon in the Lake Michigan Basin. Tribal staff developed the biological components of the LRBOI plan to harmonize with the basin-wide plan.

- ❖ Restore the harmony and connectivity between nmé and the Anishinaabek and bring them both back to the river
- ❖ Restore the nmé and reclaim the environment on which it depends for future generations of nmé and Anishinaabek in perpetuity
- ❖ Emphasize strategies that promote natural reproduction and a healthy watershed
- ❖ Protect Tribal sovereignty and Treaty rights

“It is an ancient fish; a person could only get knowledge from a large fish or mshíike (turtle) because they have been here long enough to see so much.”

-Jay Sam



Numeric Target Goals for Restoration

25-Year Target

Establish a self-sustaining, naturally reproducing nmé population, with at least 750 nmé capable of spawning, even though not all would spawn in a common year. The adult population would be comprised of females age 20-70, and males age 12-55.

7 Generation Target

Return the population to pre-1836 levels and/or to the contemporary carrying capacity of the Big Manistee River. The adult population would be comprised of females age 20-70, and males age 12-55.



"We are not introducing, we are rehabilitating...we are assisting and saving our mother, grandfather and cousin."

-Art deBres and Jay Sam

Cultural Context

The current methodology used in the science of ecology relies heavily upon the close examination of certain indicator species to effectively monitor the cohesive interrelationship that exists between the fauna and flora types of a particular region.

Indicator species such as the nmé can also be utilized to model the cultural and sustainable well-being of a given society, specifically the Woodlands Anishinaabek Culture of the Great Lakes region. Historical accounts demonstrate annual migration of Anishinaabek to specific areas that posed the greatest yield of resources. Regardless of the vast abundance of natural resources the Anishinaabek had within their grasp (pre-European contact), they still maintained a conservative approach to their harvesting practices, ever mindful that the balance of nature was (and still is) in a constant state of change. This ecological practice of the Anishinaabek is further illustrated by various seasonal Ceremonies initiated to appeal to their Manitos (higher powers) through profound reverence of songs, prayers, fasting and personal sacrifice for the bounty that would sustain them throughout the coming year.

Waste of life and resources was highly discouraged and is still believed by the Anishinaabek to bring shame and misfortune upon those responsible for such actions. With this in mind, it is not difficult to imagine the level of sorrow the Anishinaabek certainly must have felt while witnessing the ravenous demise of the species that they had relied upon since the beginning of time. Compounding this emotional turmoil even further, they were forced (through the necessity of survival) to competitively participate in the demise of their own cultural indicators through the means of hunting, trapping and fishing to provide for their families and community. Since that time, cultural indicator species such as woodlands caribou, elk, buffalo, timber wolf, grayling, nmé and others have been over-harvested to the brink of extinction. Sadly, only a handful of the Anishinaabe cultural indicator species still exist.

Despite the continuing effects of pollution, irresponsible hunting, fishing and gathering practices, exotic species, and depleted habitats, a few of the Anishinaabe cultural indicator species do persist. This is evident in the annual return of the nmé to the river and the return of the wolf to the Northern Lower Peninsula of Michigan. Herein lies the hope for the restoration of the culture and its People to their rightful place along the Manistee.



“Bringing back the sturgeon is bringing back our cultural heritage.”
-Patrick Wilson

The cultural importance of the nmé to the LRBOI can be captured by listening to the voice of the Anishinaabek. The following section includes this "voice" of the members and their families, collected over weeks, years, and some through generations.

Nmé are part of our spiritual and cultural identity.

The annual nmé return and its celebration by our Peoples assure the renewal and continuation of human and all other life.

Historically, we were wealthy/healthy Peoples because of sustenance based, in part, on nmé.

The Creator put the nmé in the Big Manistee River. The nmé and the rivers they use are part of our sense of place. The Creator put us here where the nmé return. We are obliged to remain and protect this place.

As a food source for thousands of years, nmé continue to be a vital, albeit currently diminished, aspect of our nutritional health.

Because the LRBOI population is growing (returning to pre-1836 levels), the needs for nmé are more important than ever.

The annual return of the nmé allows the transfer of traditional values from generation to generation.

Without nmé returning to our rivers and streams, we would lose an indicator species and an important part of our culture.

"Our ancestors are here with us; if it were not meant to be, none of us would be here right now. The biologists were sent to us for a reason. The motivation for others (agencies) is not always there for the sturgeon; it is there for the Tribe."
- Don Stone

"The grandfather fish (sturgeon), and its relatives the undermouth fish (sucker), they would sacrifice themselves during the sucker moon so the people would have food until the other crops were available." - Jay Sam

"These fish were here when our ancestors were here." - Don Stone

"This is a rare fish, rare clan. Decline of the sturgeon has corresponded with decline in sturgeon clan families. Only a few sturgeon clan families are known around here." - Kenny Pheasant

"They are important part of people's lives, how they lived, and their lives as Anishinaabek people. These are symbols of Anishinaabek clans." - Jimmie Mitchell

"The sturgeon were so big they would be distributed amongst the community for use. The harvesters would keep some of the fish for themselves and also share with other families." - John Koon

"There were different places on the river that were set for sturgeon clans. People used to stay where the birch bark was. They would catch fish with nets. There were specific areas for sucker sturgeon runs." - Jimmie Mitchell

"The clan mothers and the older clan women who were fish clan from up North and this area they did ceremonies each spring as part of the cycle when fish came in. In February and March, there would be a big rumble; it would be the ice on the river. The women would go down to do ceremony on the river." - Jay Sam

"The people marked areas where sturgeon clan would fish. The families probably had prayer houses there. There were many Odawa people who were Waabano lodge people." - Beverly Thierien

"The sturgeon were the buffalo of the Odawa people." - Jimmie Mitchell

"When I was young, they used to talk about the sturgeon being harvested like grayling." - Jay Sam

"(Because sturgeon populations were depleted) You will not have the privilege to catch this fish." - Jerome Pheasant, speaking to his son many years ago

Biological Perspective

Historical Perspective

The nmé is one of the most unique fishes in the Great Lakes. The nmé is the largest and longest-lived, and displays delayed maturity, high fecundity, and low natural mortality in adults compared to other fish species. Historically, these traits were advantageous to the nmé because they buffered extreme environmental conditions and fluctuations. Under extreme anthropogenic pressures, such as habitat destruction and over-fishing, these traits have not been advantageous for rebounding small, remnant populations. Nevertheless, the nmé's very existence may be attributed to these life-history traits. Preceding the 1880's, the nmé was one of the most numerous fishes recorded in the commercial catch records (Auer 1999).

The Big Manistee River population is believed to have been one of the largest in the Lake Michigan Basin. Beginning in the 1890's, however, the Great Lakes suffered a dramatic decline in sturgeon and populations decreased to less than one percent of their historical abundance (Tody 1974). Reasons for the decline were similar amongst the Great Lakes tributaries: habitat destruction, elimination of migratory routes, and over-harvest. Each of these factors contributed substantially to the decline of nmé in the Big Manistee River.

Population Status

The Big Manistee River maintains a remnant population of nmé and, even though it is very small, it is believed to be the largest on the eastern shoreline of Lake Michigan. It is estimated that approximately 21-66 nmé enter the Big Manistee River each year to spawn (Lallaman 2008). In 2002, the LRBOI documented natural reproduction by capturing larvae. Additionally, the LRBOI have captured nmé larvae annually during drift surveys. Other LRBOI studies documented recruitment to the juvenile stage in the Big Manistee River (Chiotti 2004).

Life-History Attributes

Manistee Lake is a known staging area for nmé prior to upriver spawning (Lallaman 2003). Through telemetry studies, nmé have been observed residing in Manistee Lake for extended periods, both pre- and post-spawning, with a majority of contacts located in the northeastern bay of Manistee Lake. This aggregation may be due to the increased forage available compared to the southern end of Manistee Lake, where the shoreline is predominantly industry and contains contaminated sediments, and low macroinvertebrate densities (Rediske et al. 2001, Ogren 2004, Damstra 2007). Spawners from the Manistee system have been observed frequenting Green Bay as evidenced by recapturing of marked fish and by stock determination through analysis of genetic material collected in Green Bay.

Annually in late April, when water temperatures range between 8-14°C, nmé begin their spawning migration from Manistee Lake to the Big Manistee River (Yeomans 2002). At approximately 11°C, spawning usually begins. Fertilized nmé eggs are adhesive and attach to rocky substrates and, depending on water temperature, incubate over a 6-10 day period. Newly hatched fry begin drifting downstream at night approximately 11-17 days after spawning (Auer and Baker 2003, Chiotti 2004).



There are two known nmé spawning sites on the Big Manistee River: Suicide Bend (1.4 rkm below Tippy Dam) and the Old Bridge Pool (8.8 rkm below Tippy Dam). Spawning seems to occur annually at Suicide Bend as eggs have been documented, and larvae have been captured just below the site (Chiotti et al. 2008). Even though eggs have been captured periodically at Old Bridge Pool, it is unknown whether spawning occurs annually.

Since 2002, the LRBOI Natural Resources Department has collected larvae annually during May and June at Sawdust Hole (rkm 3 below Tippy Dam). Research in other remnant nmé stocks has shown that larvae drift quickly downstream after hatching, with a portion of the young fish remaining in the upper part of the river and drifting later in the year (Auer and Baker 2002, Holtgren and Auer 2004). Even though this pattern may be consistent with the Big Manistee River nmé, it has also been observed that some juveniles reside in the Big Manistee River through their second year of life (Chiotti 2004). The young nmé use areas of the river where the river bottom is mixed with pea gravel and sand (Chiotti 2004, Holtgren and Auer 2004). It is unknown whether the juvenile nmé reside in Manistee Lake or Lake Michigan after they immediately leave the Big Manistee River. LRBOI staff and commercial fishers have captured juvenile nmé in assessment gear and commercial nets in Lake Michigan just outside of the Manistee and Ludington ports.

Big Manistee River Perspective

The Big Manistee River watershed has suffered the abuse of extreme habitat destruction due to poor forestry management practices, such as clear-cutting, numerous rollways, and subsequent log drives that were conducted during the 1800's. The logging industry caused considerable change in riparian vegetation which led to severe bank erosion and, potentially, the warming of river water and the altering of flow regimes. Increased sedimentation into the river likely covered nmé and other fish spawning and nursery areas and severely decreased macroinvertebrate abundance and species diversity. The removal of large woody debris for navigation likely resulted in an unstable river bottom and the removal of natural sediment basins and habitat for animals. The 1918 installation of Tippy Dam eliminated access of nmé to historic spawning grounds and altered flow regimes. The river below Tippy Dam has been the focus of numerous habitat improvement initiatives which have begun to restore critical habitat.

"The sturgeon teaches certain aspects to the People...when they come back, the People will come back."

-Jay Sam and Jimmie Mitchell



Issues and Objectives

Genetic Conservation and Stocking

Remnant populations of nmé within the Great Lakes Basin exhibit unique genetic structuring that suggests reproductive isolation (DeHaan 2003). This genetic structuring implies a high degree of philopatry – tendency to return to a specific area – to their natal streams and emphasizes the importance of considering imprinting and homing when selecting an intervention technique, such as stocking. Because of this unique genetic structuring, genetic conservation within small remnant stocks, such as the Big Manistee River, is a high priority (Zollweg et al. 2003, Holtgren et al. 2007). Even though the nmé population in the Big Manistee River is numerically depressed, it does not display decreased genetic diversity or higher levels of relatedness compared to larger populations (DeHaan 2003). This suggests that using river-specific, locally adapted stocks (progeny collected from the Big Manistee River) to rehabilitate these stocks is not only possible, but preferred.

Since 2004, the LRBOI has operated a streamside rearing facility (SRF) on the Big Manistee River and stocked fin-gerling nmé. This approach is unique from traditional stocking practices insofar as larvae are collected and reared in their natal water source, replete with natural temperature and water chemistry attributes. The Tribe adopted this approach because the fish would not be removed from their natal water source and it may maintain imprinting. The LRBOI is evaluating this strategy to determine if it presents an appropriate rehabilitation option and maintains appropriate performance and genetic attributes of the nmé population.

Genetic Conservation and Stocking Objectives

- ❖ Rear and release up to 1000 sturgeon per year from the Big Manistee River streamside rearing facility; no more than 10% of larvae/eggs should be collected
- ❖ Reared fish will be released at locations where wild juvenile nmé have been captured or observed previously in the Big Manistee River
- ❖ At a minimum, streamside rearing will occur annually until:
 1. A target goal of 750 fish capable of spawning is estimated to have been achieved; and
 2. The SRF has continued operations for at least 10 years to accommodate all current female nmé within the population capable of spawning since they may spawn only every 3 to 9 years
- ❖ Tag all SRF-reared fish so they may be individually identified after stocking
- ❖ Collect tissue samples from YOY and age 1 wild and reared Big Manistee River nmé to estimate numbers of contributing adults from progeny genotype arrays and estimate if parental contribution is distributed similarly between wild and reared cohorts
- ❖ Evaluate the effects that stocking SRF-reared fish has on the Manistee population
- ❖ Determine relative contribution of wild- versus SRF-reared nmé
- ❖ Estimate spawning site fidelity between SRF-reared and wild-reared fish



LRBOI streamside rearing facility

Habitat Protection and Enhancement

Maintaining and enhancing quality habitat for all life-stages of nmé is critical for long-term viability of the Big Manistee River population. The LRBOI recognizes the importance of working with other agencies and landowners to protect habitat and the watershed. The US Forest Service (USFS) is a primary landowner in the lower Big Manistee River Watershed, and Tribal efforts will continue with the USFS to co-manage the watershed resources. The State of Michigan has a Lake Sturgeon Management Plan that outlines sturgeon restoration strategies. The Tribes and the State of Michigan have entered into an agreement (2007 Inland Consent Decree) that allows for collaborative fishery restoration, reclamation and enhancement projects. A collaborative effort toward lake sturgeon restoration will be developed. An important component of this plan is to guide decisions toward increasing in-river habitat and to use a watershed scale when maintaining, rehabilitating and reclaiming nmé habitat. These efforts will be focused on the protection of upland and riparian habitats and will concurrently improve in-river processes and water quality.

Currently, suitable habitat for spawning appears to be a limiting factor in rehabilitating the Big Manistee River nmé population. Hydroelectric dams on the river have forced nmé to alter their historical migrational routes and have degraded habitat. Ensuring a natural flow regime and replacing habitat currently blocked by dams is an essential component to providing an appropriate amount of habitat for spawning fish, eggs, larvae and juvenile fish. Habitat restoration may need to include fish passage around barriers at all life-stages. Nmé habitat will be assessed to clearly identify the loss of historical habitat, currently available habitat, and areas that may be enhanced or reclaimed. Habitat preservation and enhancement is already an important component of Tribal natural resources activities.

Habitat Protection and Enhancement Objectives

- ❖ Determine locations and assess habitat where nmé are currently spawning
- ❖ Define potential nmé spawning sites and characterize sites for their restoration suitability
- ❖ Promote old growth forest for riparian management and maintain current levels of large woody debris in the river
- ❖ Protect benthic habitat in northeast Manistee Lake where nmé are known to stage before their spawning migration
- ❖ Identify and restore areas with sub-optimal forage base in Manistee Lake
- ❖ Ensure protection of nmé when dredging occurs in Manistee Lake and the river channel to Lake Michigan
- ❖ Describe movement patterns and residency of each nmé life-stage to help time construction activities that may affect water quality
- ❖ Characterize habitat used during early-life stages and protect and enhance
- ❖ Maintain run-of-river flows during re-licensing or any modification of operation of the hydroelectric facility
- ❖ Decrease sedimentation in watershed by improving eroding streambanks, failing road-stream crossings, and degraded recreational access areas
- ❖ Work collaboratively with other Tribes, the USFS and State of Michigan to protect habitat by maintaining the Memorandum of Understanding joined by the LRBOI and Forest Service and the Inland Consent Decree joined by the State of Michigan and LRBOI



Issues and Objectives

Contaminants

The level of contaminants in Big Manistee River nmé has relatively high concentrations of heavy metals and PCB's. Contaminants are concentrated in fish like nmé because of their slow growth, prolonged age, and feeding habits. Concerns exist regarding the future consumption of nmé. Anishinaabek peoples historically consumed nmé for subsistence and ceremonial purposes. If these cultural practices need to be discontinued because of the contaminant levels found in nmé, Anishinaabek culture would be attenuated.

Contaminant Objectives

- ❖ Apply the Tribe's standardized fish tissue testing protocols to include testing on any nmé incidentally killed or collected by law enforcement agents
- ❖ Determine contaminant levels for nmé in the Big Manistee River watershed
- ❖ Use risk assessment to determine consumption guidance for current contaminant levels
- ❖ Identify, reduce and/or eliminate contaminants discharging into the Big Manistee River watershed
- ❖ Work in conjunction with the Environmental Protection Agency, State of Michigan Fish and Wildlife Service and other Great Lakes agencies on regional contamination issues
- ❖ Recognize the effects of air deposition on contaminant loads in the watershed; be active at the regional scale in minimizing the risks of airborne contaminants

Ecological Considerations

Since the 1836 Treaty of Washington, the fish community has changed dramatically in the Big Manistee River watershed. Invasive exotics, such as the sea lamprey (*Petromyzon marinus*), round goby (*Neogobius melanostomus*), rusty crayfish (*Orconectes rusticus*) and zebra mussel (*Dreissena polymorpha*) may pose obstruction to rehabilitation efforts.

Additionally, the State of Michigan has introduced non-native trout and salmon species in the Big Manistee River with heavy stocking of rainbow and brown trout since the 1940's. These intentional introductions may compete for resources and may prey on drifting nmé larvae.

Ecological Objectives

- ❖ Determine impact of invasive exotics, such as round goby and rusty crayfish, on nmé eggs and drifting larvae
- ❖ Determine effects of salmonid stocking on nmé survival, paying special attention to the drifting larval stage; evaluate timing of salmonid stocking to determine possible minimum impact on nmé larvae survival
- ❖ Work collaboratively with management agencies to decrease negative ecological interactions between nmé and non-native fish





Law Enforcement and Harvest

Protecting the Big Manistee River nmé population from illegal harvest or harassment is critical for rehabilitation and, ultimately, for sustainability of the stock. The LRBOI Law Enforcement is committed to protecting the nmé resource and habitat through proactive patrolling and information sharing with other agencies. Law enforcement can also assist in protecting the nmé by collecting biological data through cooperation with natural resource staff and other appropriate agencies.

Even though subsistence and commercial harvest of nmé will likely not be implemented for many years, this plan encompasses a return to such harvests as a long-term strategy. Historically, the Anishinaabek cultural and spiritual identity was inextricably intertwined with the annual harvest of the Big Manistee River nmé. The subsistence use of nmé will continue in the future as the population of nmé becomes healthy. The LRBOI and Michigan DNR shall collaboratively determine a harvestable size for the Big Manistee River nmé population by establishing the minimum stock size for harvest.

Law Enforcement Objectives

- ❖ Ensure adequate enforcement protection is given to congregating nmé during spawning migrations into the Big Manistee River watershed
- ❖ Current focus areas are Manistee Lake, Old Bridge Pool, Suicide Bend, and Tunk Hole

Harvest Objectives

- ❖ Determine minimum stock size appropriate for maintaining a subsistence and ceremonial fishery

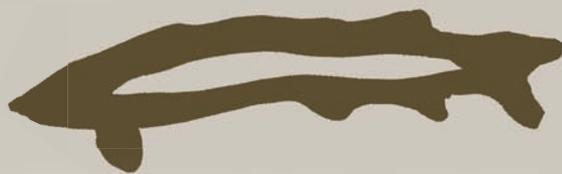
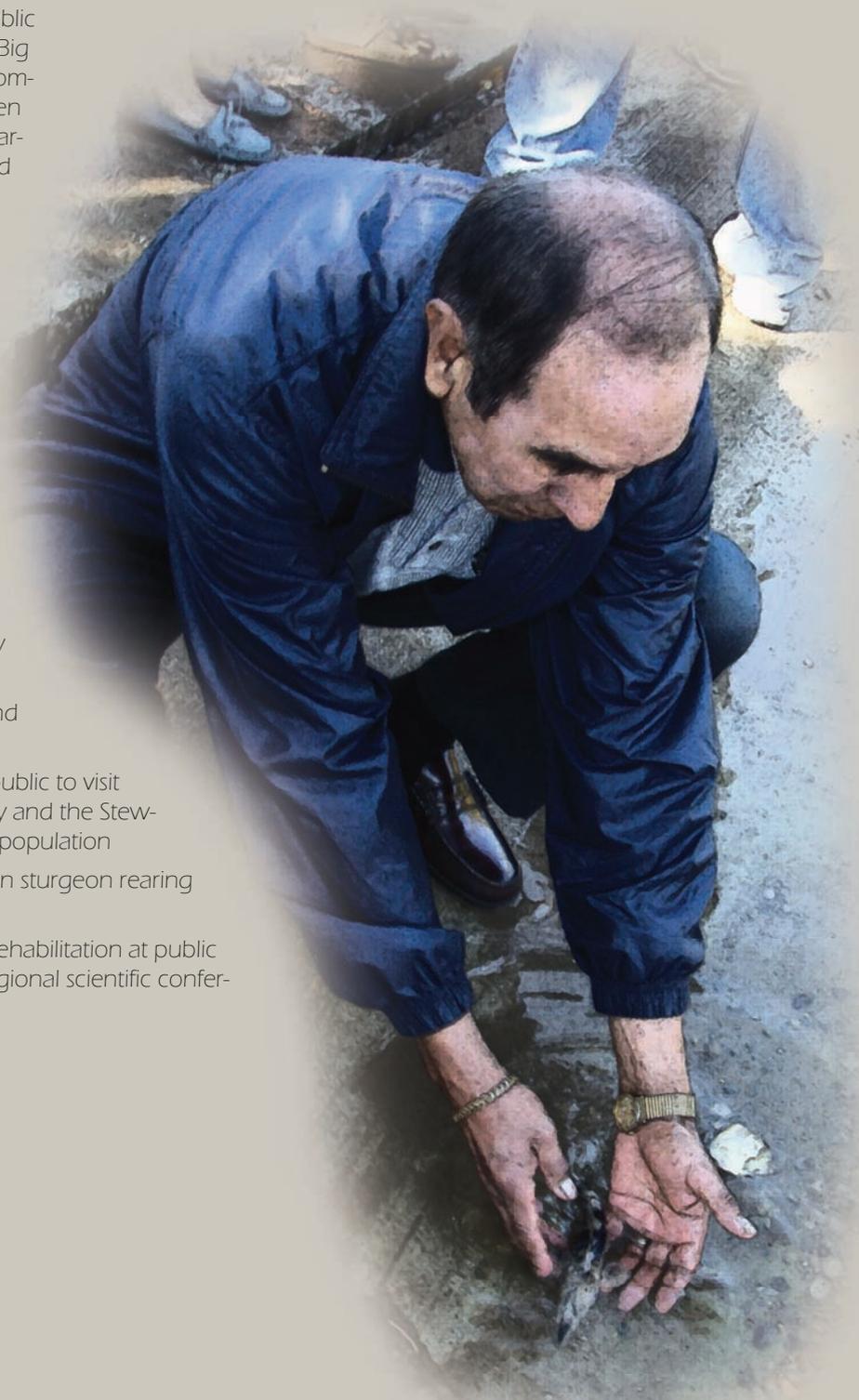


Public Education and Involvement

The Tribe acknowledges the importance of public involvement in successful rehabilitation of the Big Manistee River nmé population. Developing communication and information exchange between all interested parties shall be a priority. Events targeted for cultural education shall be developed and conducted annually.

Public Education and Involvement Objectives

- ❖ Host an annual nmé release ceremony; fish reared in the streamside rearing facility will be released with Tribal and community involvement
- ❖ Develop a Tribal brochure about the Nmé Stewardship Plan outlining the cultural relevance of the nmé, importance to the Big Manistee River watershed, stewardship strategies, and details about the unique life-history
- ❖ Distribute brochures and educational material throughout the community and through media sources
- ❖ Maintain annual open houses for the public to visit and learn about the nmé rearing facility and the Stewardship Plan for the Big Manistee River population
- ❖ Encourage local schools to participate in sturgeon rearing practices by conducting field trips
- ❖ Present findings of nmé research and rehabilitation at public meetings, schools, and national and regional scientific conferences



“When putting the sturgeon back in the river, I felt it was one of the most meaningful acts the LRBOI has done. It was very emotional.”

-Marcella Leusby

Additional Assessment, Research and Management Needs

- ❖ Continue larval drift surveys and use larval abundance as a surrogate for natural reproduction
- ❖ Develop an index of relative abundance for juvenile nmé residing in the Big Manistee River
- ❖ Encourage commercial fisherman to participate in nmé assessments; all commercially licensed fishers will have nmé reporting kits on their vessel and shall report capture
- ❖ Great Lakes assessments conducted by the LRBOI staff will document capture of all nmé in assessment gear
- ❖ Continue collaboration with management agencies and universities to identify the genetic diversity within the local stock
- ❖ Estimate the historical abundance and extent and range of nmé in the Big Manistee River Watershed
- ❖ Continue growth comparison between SRF-reared nmé and wild-reared nmé
- ❖ Continue evaluation of streamside-reared and wild nmé habitat use and selection, movement patterns, river residency time and dispersal
- ❖ Implement inter-agency task group to continue efforts to create the Tunk Hole nmé spawning site
- ❖ Periodically monitor and estimate adult population size
- ❖ Fully implement sturgeon provisions detailed in 2007 Inland Consent Decree with State of Michigan

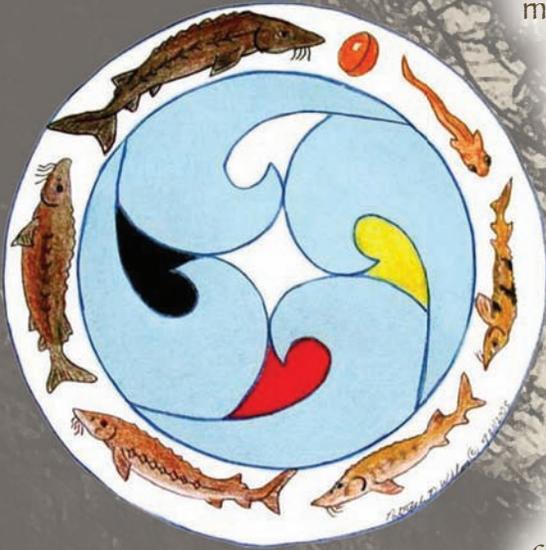
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Message from the Sturgeon Logo Artist:

“When I became involved with the sturgeon program, I discovered they (LRBOI Natural Resources Department) had a novel approach to rehabilitate the sturgeon population. That approach inspired me and caught my imagination. I felt the program was ahead of its time and needed a special logo to highlight how important the program was. The elements in the sturgeon logo reflect the long-term goals of the Stewardship Plan. What appears to be a life-cycle at first glance is actually seven generations. Caring for the next “Seven Generations: is one of our traditional teachings. There are the four colors of the four directions and there are four waves which represent the four seasons in Michigan.”

-Patrick Wilson



This plan developed by the LRBOI Natural Resources Department and the Nmé Cultural Context Task Group.

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“There is no greater respect for “Mother Earth” than when you are able to release a sturgeon with your own hands. There is a heart felt joy as you release the young sturgeon swim down the river knowing that someday there will be thousands of sturgeon swimming upriver to spawn.”

-Patrick Wilson