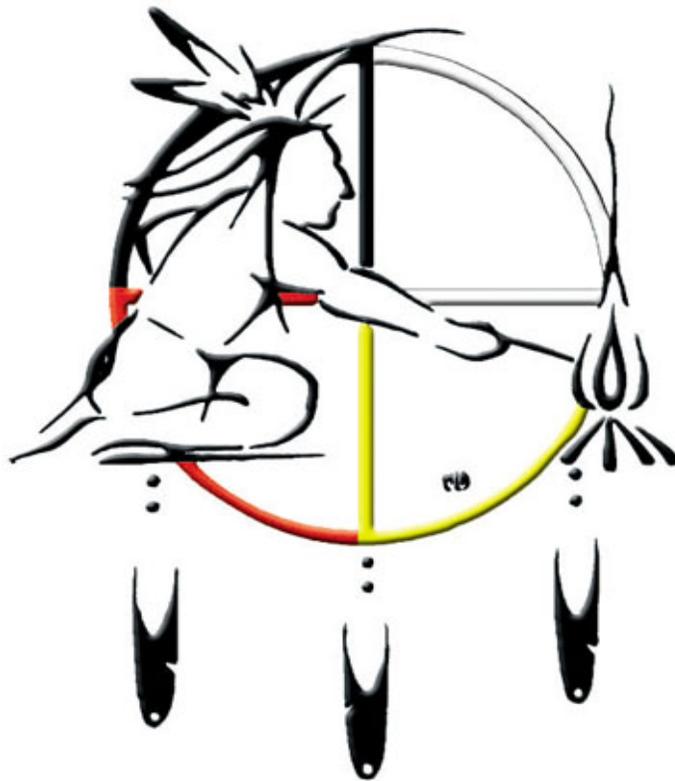


Forest County Potawatomi Community

Natural Resources Department

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Keepers of the Fire

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Department Personnel

| <u>Name</u> | <u>Position</u> | <u>Phone</u> |
|-------------------------|--|--------------|
| Lawrence Daniels | Natural Resources Administrator/Land Use Manager | 478 - 7213 |
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| Bill Alloway | Environmental Technician | 478 - 7222 |
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| Frances "Nitty" Shepard | Solid Waste Crew Manager and Crew Member | 478 - 7330 |
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Natural Resources Department

Department Staff Participate in In-house Meetings

Staff participated in the FCPC Land Use Session on January 14, 2010 and shared the needs of the Department, specifically access issues to parcels of Tribal land through County, State or Forest Service lands.

Comment Letters Submitted to Townships of Lincoln, Wabeno, Blackwell and Laona on 2010 Comprehensive Plans

The Department provided comments to the Lincoln Township's Comprehensive Plan in July 2009 and then did the same for the towns of Wabeno, Laona and Blackwell in February 2010. The purpose of the comments was to insure that the Forest County Potawatomi Community lands and programs were accounted for, including the Reservations Class I redesignation and inclusion of tribal lands within the township.

Staff Changes within Natural Resources Department

There have been some changes in staff within the Department beginning with Nate Guldán, former Water Resources Program Director accepting the position of Environmental Program Director that was vacated by Elizabeth "Beth" Rogers in January.



Kirk Lambrecht, the former Aquatic Biologist, accepted the position of Water Resources Director vacated by Nate Guldán.

Interviews to fill the Aquatic Biologist position are scheduled for early May, and a Wildlife Resources Program Director position was added to the Department and will be filled in late May.



Department Staff Prepare TEA for USEPA

The USEPA is required by the Clean Air Act, the Clean Water Act and other environmental laws to provide technical assistance to the Tribes to enable them to meet the standards set by the federal laws. Tribal Environmental Agreements (TEAs), help the USEPA insure they are fulfilling their duties to Tribal Governments and are renewed every two years. Tribes submit the document listing the status of various programs on the Reservations and where their needs lay. The USEPA then reviews the document and responds with activities they can do to help the Tribe. The FCPC TEA was submitted to the USEPA in January with a list of projects and needed assistance from EPA and EPA returned the document in February with a list of services they could provide to the Tribe to assist with projects. The TEA also enables the USEPA to project an estimate of what the funding needs of tribal environmental programs may.

Department Staff Participate in DOE Community Energy Grant Project

Department staff have been asked to participate as part of the Core Planning Group and as environmental specialists in meetings discussing the implementation of the DOE Community Energy Grant Project that was awarded to the Tribe in January 2010. The project is under a very tight timeline and requires attendance at weekly meetings lasting half a day. Department staff have been able to provide input on subjects related to solid waste and recycling estimates, air pollution and permitting concerns and NEPA review requirements.

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Winter Fisherees

Devil's Lake Fisheree – February 6, 2010



And the Winners are..

ADULTS

| CATEGORY | WINNER | PLACE | SIZE |
|----------|-----------------|-----------------|--------|
| Bass | Jaime Tuckwab | 1 st | 14 |
| Bass | Jason Spaude | 2 nd | 13 7/8 |
| Bass | Dave Vanzile | 3 rd | 13 2/8 |
| | | | |
| Bluegill | Biscano Alloway | 1 st | 9 3/16 |
| Bluegill | Louie Spaude | 2 nd | 6 3/8 |
| | | | |
| Crappie | Jason Spaude | 1 st | 11 |
| Crappie | Sheila Houle | 2 nd | 10 7/8 |
| Crappie | Joe Brown | 3 rd | 10 ½ |

KIDS

| CATEGORY | WINNER | PLACE | SIZE |
|----------|-----------------|-----------------|---------|
| Bass | Hunter Tuckwab | 1 st | 13 3/8 |
| Bass | Tehya Vanzile | 2 nd | 12 7/8 |
| Bass | Monique Tuckwab | 3 rd | 12 9/16 |
| | | | |
| Bluegill | Monique Tuckwab | 1 st | 7 1/8 |
| Bluegill | Monique Tuckwab | 2 nd | 6 7/16 |
| Bluegill | Blake Adler | 3 rd | 6 5/16 |
| | | | |
| Crappie | Nick Rosemark | 1 st | 10 5/8 |
| Crappie | Lily Vanzile | 2 nd | 9 ¾ |
| Crappie | Blake Adler | 3 rd | 9 ¼ |

Bug Lake Fisheree – March 6, 2010

It was a good thing the weather was beautiful on Saturday March 6 for the Bug Lake Fisheree because the fishing was less than spectacular. Only 5 fish were registered throughout the day. Jason Spaude managed to drill his hole in a spot that held a bunch of perch as he swept the perch category and ended up taking home close to a dozen perch. He also won a Huminbird Ice Flasher by catching the largest fish of the day, and 11-Inch Perch. Frankie Shepard managed to hook into a bass and Tori Shepard landed a sunfish to take home the only prizes awarded in the Kids Category.

The lake was stocked with trout last spring, although the U.S. Fish and wildlife service were only able to deliver about 900 trout. In past years, the lake has received close to 2,000 trout annually and a request was submitted for 2,000 trout again for this spring. Hopefully we receive close to this amount and the fishing improves next year.

And the Winners are..

ADULTS

| CATEGORY | WINNER | PLACE | SIZE |
|----------|--------------|-----------------|---------|
| Perch | Jason Spaude | 1 st | 11 |
| Perch | Jason Spaude | 2 nd | 10 5/16 |
| Perch | Jason Spaude | 3rd | 9 7/8 |

KIDS

| CATEGORY | WINNER | PLACE | SIZE |
|----------|-----------------|-----------------|--------|
| Bass | Frankie Shepard | 1 st | 8 ¾ |
| Sunfish | Tori Shepard | 1st | 6 1/16 |



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Forest County Potawatomi Community — Natural Resources Department

Torpee Creek Culvert Replacement and Stream Habitat Improvement Project



Introduction

In February, 2010 the Water Resources Program submitted a grant proposal to the Bureau of Indian Affairs (BIA) for Great Lakes Restoration Initiative (GLRI) funding to replace the Torpee Creek culvert system along Hwy 32 between Wabeno and Carter. In February FCPC Natural Resources and Utilities staff met with personnel from the Wisconsin Department of Transportation (WisDOT) and the United States Forest Service (USFS) to discuss the possibility of a culvert replacement project.

Problem

The current culvert structure is set well above the true elevation of the stream bed, is undersized, and is impounding water. This impounding effect is responsible for increased stream temperatures and decline in brook trout habitat. When the water is impounded silt particles readily drop out of the water column and collect on the stream bottom covering the natural substrate. In some locations just upstream of the culvert so much silt has accumulated over the years that the stream is not even wadeable. Together, the dark silt covering the stream bottom and impounded water allows the sun to more easily heat the water during summer months ultimately making this section of stream less inhabitable for native brook trout. The existing culvert structure was installed around 1970; thus, the stream has been impounded for the last 38 to 47 years.

Background

Torpee Creek resides within the Lake Michigan basin and is an important native brook trout fishery. It's listed by the Wisconsin Department of Natural Resources as a Class II trout fishery. Electrofishing surveys conducted downstream of the Highway 32 culverts by the U.S. Fish and Wildlife Service and the FCPC have shown an abundance of brook trout with 168 individuals sampled in 2005. While upstream of the culvert, FCPC electrofishing surveys produced only 10 individuals in 2008 and just one in 2009. In general, the downstream half of this stream is the more prolific brook trout fishery.

The culvert structure is located entirely within the boundaries of the Reservation, WisDOT is entitled to the right-of-way, and the USFS is largest land holder along Torpee Creek. Both WisDOT and USFS understand the effect the culvert is having on the Torpee Creek ecosystem and fully support this project.

Purpose

The purpose of this project is to replace the current culvert structure with one that accounts for Torpee Creek's natural stream morphology and flow regime. This will eliminate any impounding of water, allow the stream to relocate back to its natural bed, ultimately cool water temperatures and improve habitat for brook trout. Furthermore, the new culvert will provide proper passage for fish and other aquatic organisms. In addition, the replacement of the current culvert structure will essentially create a foundation for future in-stream and riparian habitat improvements that will lead to more successful advancements in the native brook trout fishery.

Project Status

In February water staff met with representatives from the BIA to discuss the project proposal and requested funds totaling \$375,000. The tribe was awarded \$100,000 for FY' 2010 to design and plan the project with the understanding that an additional \$275,000 will be distributed to complete the construction phase in FY' 2011. USFS is supporting this project by conducting the stream surveys, hydrologic modeling, and wetland delineations. WisDOT is

assisting with soil surveys, utilities surveys, and project planning. The FCPC Natural Resources Department will be the lead agency for project management and coordination, will assist or lead in all aspects, and ensure the best possible structure is finally installed.

Looking Ahead

All preliminary surveys will be completed in May and the design phase and project plans will wrap up by November 2010. Construction is planned to take place in the summer of 2011.

If you have any questions or concerns regarding this project please contact Kirk Lambrecht, FCPC Water Resources Program Director, 715-478-4824, kirk.lambrecht@fcpotawatomi-nsn.gov.

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Air Monitoring Program Activities

Air Site Equipment Status

Operations at the Air Monitoring Site went well again this quarter, with the exception of the usual minor problems associated with bad weather. Trouble shooting was done on the Vaporous Mercury Analyzer, the Belfort Rain Gauge, and the heater in the Mercury Deposition Collector. All problems were corrected and/or repaired by the Air Monitoring Specialist, and no repair bills were incurred by the tribe.

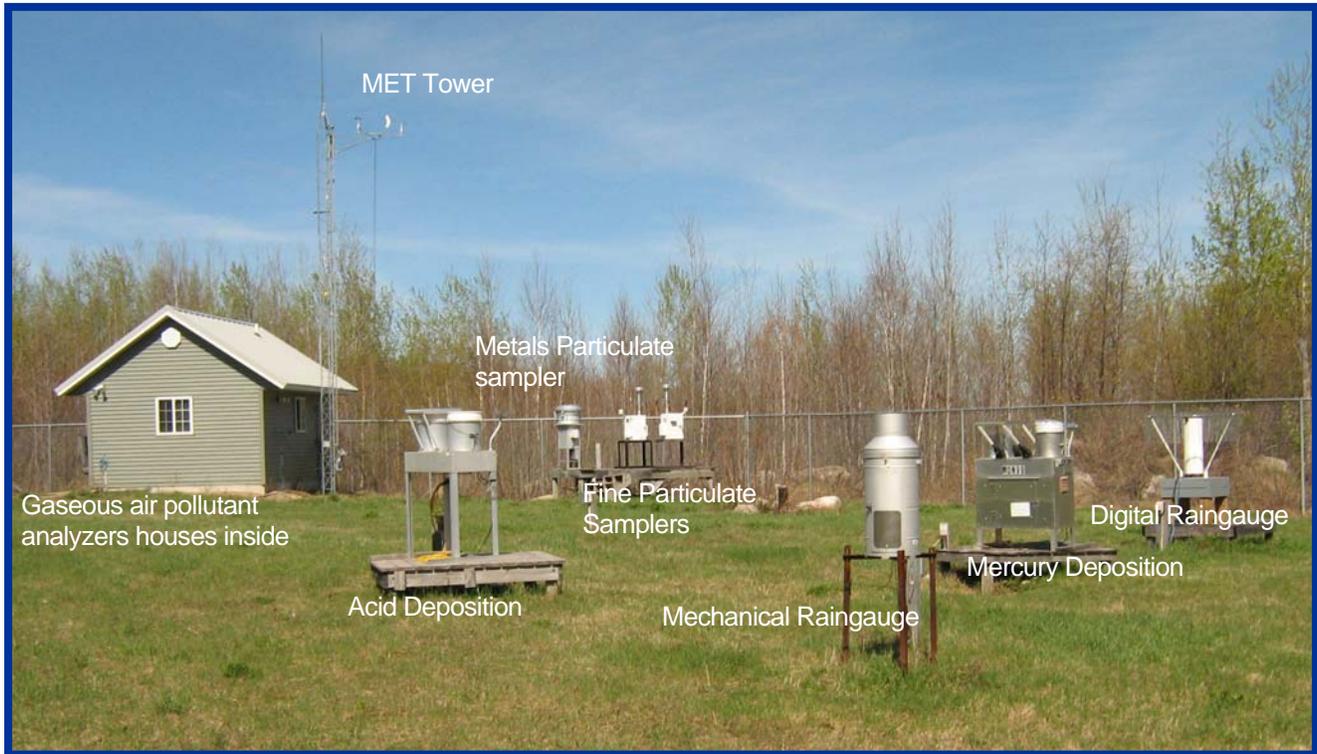
All audits were passed, and annual maintenance was performed on the Ozone and Sulfur Dioxide analyzers. Both instruments appear to be in good working order, and in excellent condition considering their age. A site was also cleared near the MET Tower to allow for more accurate sighting of the north orientation of the wind direction sensor.

The NOX analyzer went online this quarter, and is currently collecting data. The analyzer and its calibrator appear to be good reliable instruments. They should provide us with the information we need to establish a base line for oxides of nitrogen in the air. So far, our air appears to be very clean in regards to this parameter. This will help us protect our air quality in the future, should it begin to become more polluted.



Site Visits

We had a site visit this quarter from a foreign exchange student from Germany. The WDNR technician who conducts our audits asked if we could show this student and her host family our Air Site. She is the daughter of a manufacturer of pellet stoves in Germany, and is interested in a career involving air monitoring. She was very impressed with the work we do, and hopefully, will make a career choice to improve air quality in her country.



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Forest County Potawatomi Community — Natural Resources Department

Air Resources Program Activities

Treatment In The Same Manner As A State (TAS)

The final application for Treatment In The Same Manner As A State (TAS) under the Clean Air Act (CAA) was submitted to the USEPA in July. The application seeks authorization from the federal government for a number of things, including a reduced matching funds requirement on the federal air quality grant; the right to receive and comment on state issued air pollution permits for sources locating within 50 miles of the Reservation; and the right to review and comment on air pollution permits issued in neighboring states whose emission sources may be adding to the degradation of air quality on the FCPC Reservation.

The most recent update from staff within the Chicago EPA office is that the public notice will be in the Forest Republican by May of 2010 and the goal for completion and approval of the TAS application is set for the end of June, 2010.

Class I and WDNR Agreement

Meetings continued between the FCPC Air Program and Legal Department staff and the WDNR this quarter to finalize the details of the 1999 Class I Agreement between the Tribe and the State. The new state regulation being drafted incorporates the FCPC Class I redesignation into the State's Air Quality Implementation Plan (SIP).

The Wisconsin Department of Natural Resources Board voted 4/28/2010 to move the SIP rule forward to the hearing and public comment stage. Following the hearing, the Board will vote to forward the rule to the Legislature where the State congress will weigh in on the rule. It is hoped that the packet will be ready for the State legislature by early fall, and if approved, the revised SIP will then be sent to the USEPA for final approval.

Forest County Highway Department Proposed Asphalt Plant Move to Otter Creek Gravel Pit

In 2005, the Forest County Highway Department had talked about moving their hot mix asphalt plant to the Otter Creek Gravel Pit located at Hwy 8/32 and Otter Creek Road with hopes of completing the move by 2007. At the hearings held in Crandon in 2005 by the Town of Lincoln Zoning Committee issuing the Conditional Use Permit, the FCPC Air and Legal staff presented concerns over the proposed relocation and the probably impacts it would have on the air monitoring station and the data being collected there. The permit was issued to the County, however, the move did not take place.

Since then, the pit where the asphalt plant has been located for the past 10 years or more, has been “used up” as far as gravel supplies go, and the land was sold to WPS for use as a electric transfer station. The County plant has remained at the site with permission from WPS and has been hauling gravel from the Otter Creek Pit to the Crandon pit/plant. However, the cost of hauling the gravel has been increasing and the County is once again considering moving the asphalt plant to the Otter Creek Pit to reduce their operations costs and to keep their rates competitive with private contractors.

The FCPC Executive Council met with the County Commissioners and Town of Lincoln Board in April, 2009 to ask to be kept in the loop with regard to activities that the Township and/or County had planned. As a result of this meeting, the Council was informed that the County was once again considering relocating the asphalt plant to the Otter Creek Pit. The Executive Council directed a FCPC team to work with the County Highway Department to brainstorm possible alternatives to the proposed Otter Creek relocation. The team consists of the Utilities Director, Forester and Air Program Director and the first brainstorming session with the Highway Department is scheduled for April.



More Threats to Air Monitoring Station

The FCPC air program received notice in mid-March that plans were in the works to site a 345 foot telecommunications tower on County property located directly adjacent to the FCPC Air Monitoring Station.

The FCPC air monitoring station has been in operation since 2002 and the Tribe, as well as the USEPA and the WDNR, have devoted significant resources to this station, expending more than \$500,000.00 toward the site preparation, construction and implementation. The station collects data in strict adherence with rules and guidelines set by the USEPA in order to ensure that the data is of the highest quality for use in determining whether the Reservation is in attainment with the USEPAs standards for pollutants. These rules and guidelines require that the area around the air monitoring site be free of obstructions. The general rule of thumb is that an object or obstruction be at least two times its height away from the samplers/collectors.

The proposed tower location at Potawatomi Trail and Tower Road would not allow the adequate distance required by the federal monitoring regulations and in addition, would pose a visual impact to cultural sites located within $\frac{3}{4}$ mile of the tower. The FCPC legal team is preparing a letter informing the inquiring party of the issues related to this proposed location.



Application Submitted for 2010 USEPA Air Grant

The FCPC air program was awarded the 2010 Clean Air Act Section 103 grant for April 1, 2010 to March 31, 2011 to continue air monitoring activities and Class I air protection activities. The award totals \$103,000.00 and covers approximately half of the annual program costs.

While the grant is no longer treated as a competitive grant, not every tribe that applies for it is awarded funds. The FCPC has received the 103 air grant award annually since 2002, which has been crucial to building the air monitoring program and the internal capacity to manage air quality issues for the FCPC.

The First Major Air Pollution Source Permit Application Under FCPC's Class I Redesignation Received

As a Class I designated area, the FCPC is entitled by law to receive notification of any large new or modified pollution sources located within 62 miles of the Reservation that apply for an air pollution permit. In March of this year, the FCPC air program received the first notification of a large pollution source looking for an air pollution permit from the state of Wisconsin since the Class I Redesignation in April of 2008. The Domtar facility, a paper manufacturer located in Rothschild outside of Wausau, in partnership with WE Energies, has plans to construct a biomass-fueled power plant capable of producing 50 megawatts of electricity for the plant. The plant will operate using wood, waste wood and sawdust, reducing its need for coal-generated energy. While particulate pollution is greater with the burning of wood biomass for energy, other pollutants such as sulfur dioxide, oxides of nitrogen and mercury are significantly lower than burning coal.

The FCPC air and legal team will review the permit application and participate in negotiations between the State and WE Energies/Domtar to insure that potential impacts from the facility to the natural and cultural resources within FCPC Class I area are alleviated before the facility begins operation. Prior to Class I redesignation, the only power allowed the Tribe was the ability to provide comment on proposed facilities such as this. However, with Class I designation, the Tribe is allowed at the table and in discussions with the State as the permit is being drafted, enabling the Tribe a stronger voice in protecting its resources and the health of its people.

FCPC Air Monitoring Site Part of USEPA Nation-wide Monitoring Network Assessment

While the USEPA is busy reviewing and revising each of the National Ambient Air Quality Standards (NAAQS) for the pollutants ozone, particulates, sulfur dioxide, carbon monoxide, lead and nitrogen dioxide, they are also assessing the air pollution monitoring network to determine where there are holes and where there is duplication of effort.

States are required by law to monitor for the pollutants for which the USEPA has established standards to insure that pollution levels are not exceeded. Federal regulations determine which monitors are needed where and it is up to the states to comply. Tribes on the other hand are not required to monitor ambient air quality however, many tribes, in an effort to demonstrate self-determination and exercise control over the quality of the air in and around their Reservations, have established air monitoring programs. And while some tribes may only monitor for one pollutant or greatest concern, other tribes, such as the FCPC have extensive monitoring programs that monitor for several air pollutants.

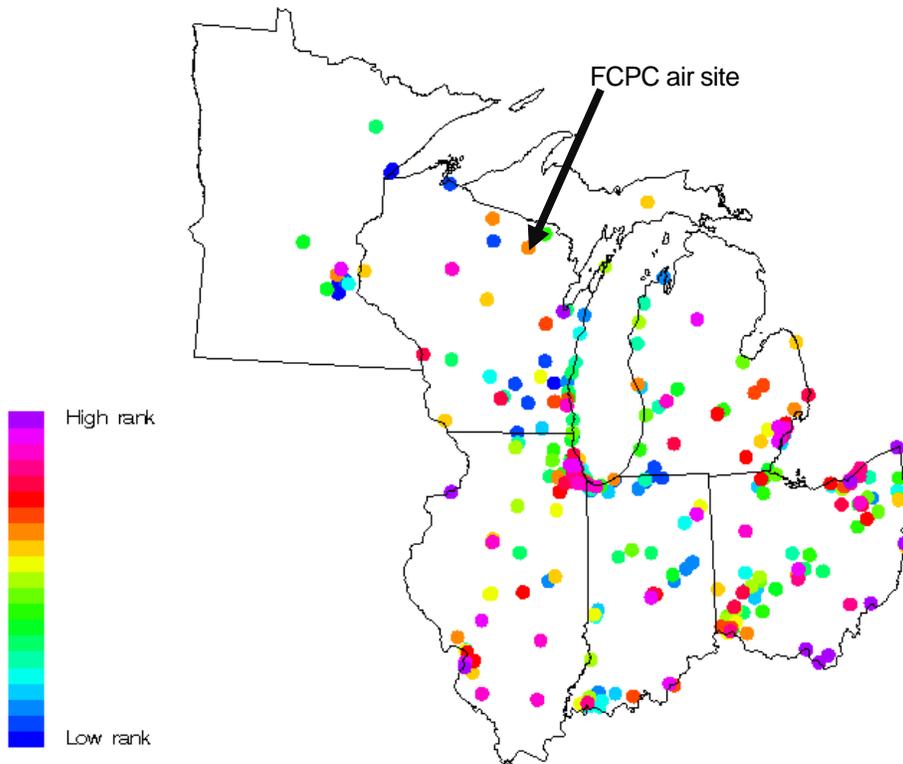
Data collected at these monitoring sites must comply with standard procedures and protocols set by the USEPA that ensure that the data is accurate and of the highest quality – defensible in a court of law. The data gathered throughout the country by states, local governments and tribes is used to determine trends in pollution levels and whether an area is meeting or not meeting the standard for each pollutant.

The data collected at the FCPC air site is recognized by the USEPA and the state of Wisconsin as high quality and is being used by both governments in making air quality determinations. In some cases, because of the pristine nature of the air in Forest County, the FCPC air site is being used as the “background” site to which data from other sites is being compared, such as with lead and vaporous mercury.

Early evaluations of the national network have revealed a hole in Northeastern Wisconsin for continuous particulate monitors. While the state of Wisconsin struggles with not having enough funding to meet all the monitoring requirements imposed on them by the USEPA, the FCPC has an opportunity to fill in the gap by adding continuous particulate sampling to its operations.

It is an honor to be recognized by other air quality professionals as a competent and respected air monitoring operation.

Monitor Rankings by Need



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Solid Waste

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WHAT'S NEW AT SOLID WASTE?

Trailer Demolition Project

The Solid Waste crew was requested by a Tribal Member to dispose of a mobile home which was no longer fit for anyone to live in. Rather than demolish the mobile home at the residence where it was located, it was moved to the Solid Waste / Recycling Transfer Station where it could be dismantled with the possibility of being able to recycle some of the building material. The Solid Waste crew used the program's John Deere 410 D backhoe fitted with a custom built plate that had a trailer ball mounted on it to pull the mobile home the 2.5 miles to the transfer station.

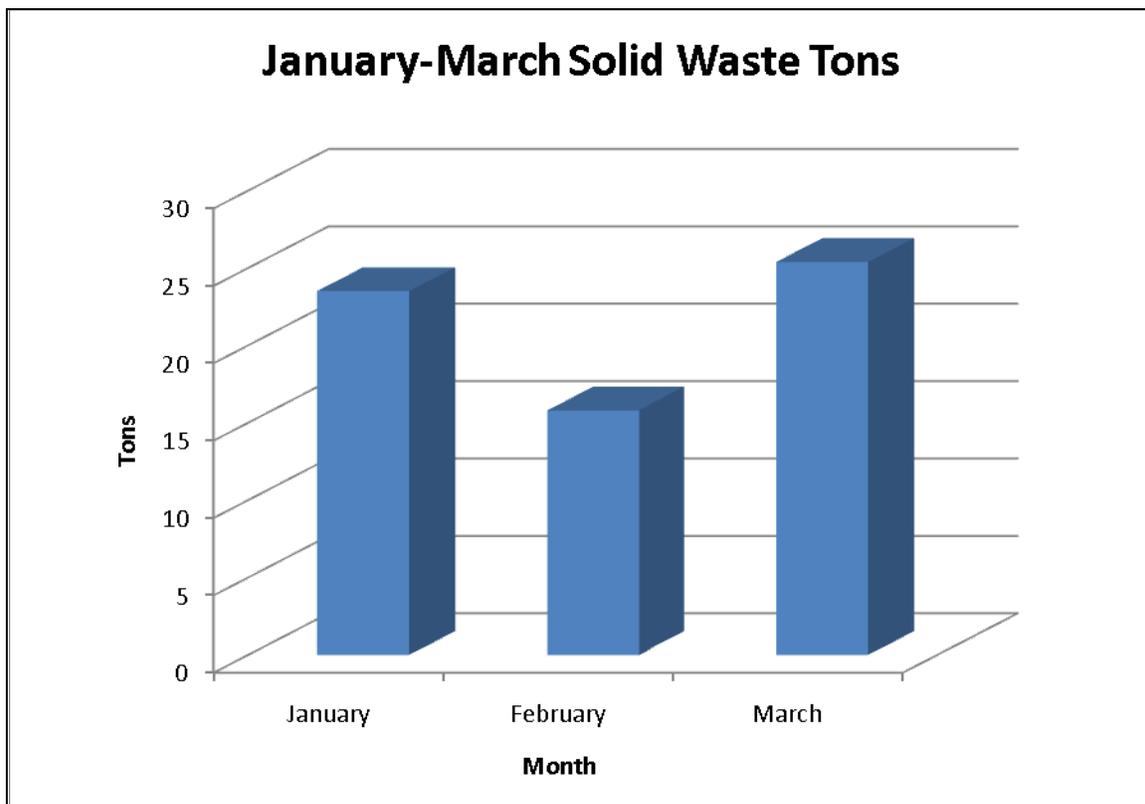


Open Dumps Cleanup

The Solid Waste Program intends to use a portion of the Environmental Management Program funds to cleanup the four open dumps on the Reservation. Earlier this year a Request for Proposal was developed to send to cleanup contractors to locate the best qualified contractor for the cleanup project. The selected contractor will develop a cleanup plan which must be approved by the Natural Resources Department before doing the actual cleanup. The project is anticipated to start by the end of June.

Waste Stream Report

The total tonnages of solid waste collected from residential homes for the first quarter of 2010 was 64.7 tons. This is compared to 66.92 tons collected during the first quarter of 2009.



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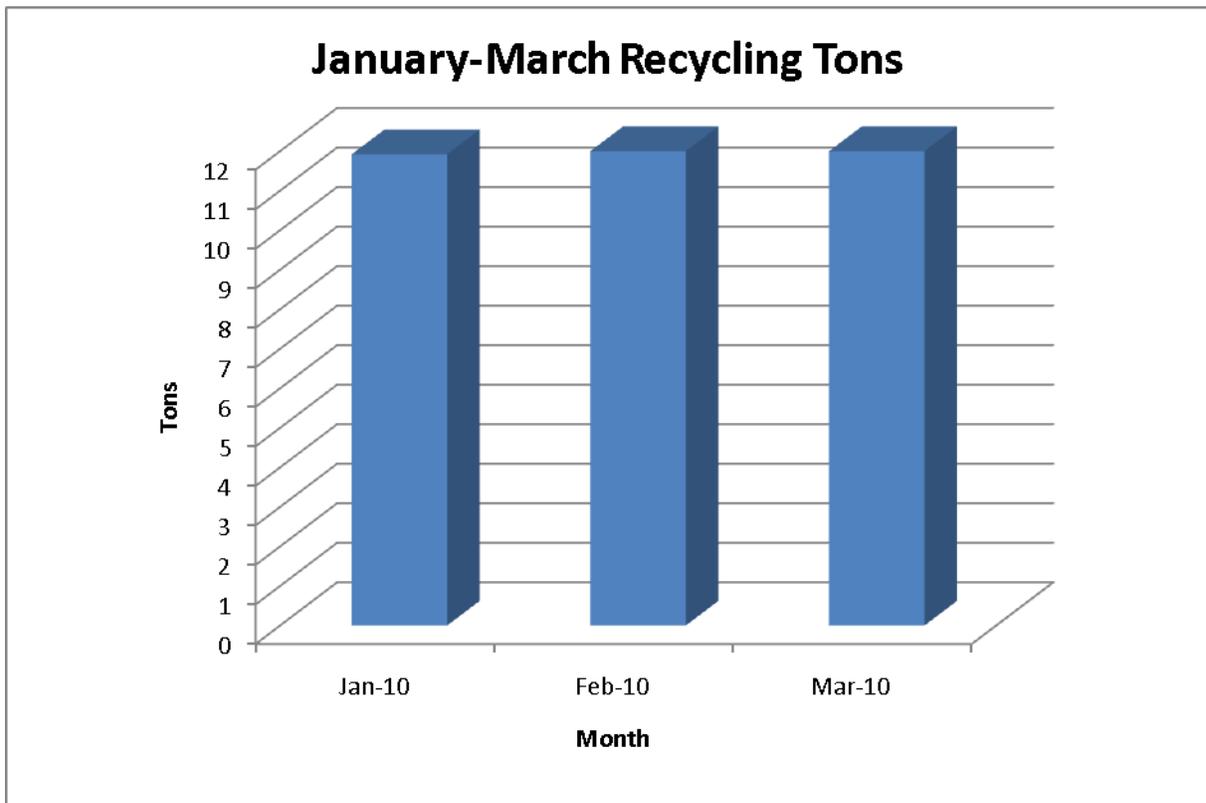


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RECYCLING

How Much is Getting Recycled

A total of 36.23 tons of recyclables were processed in the 1st quarter of 2010. During the 1st quarter of 2009 a total of 36.34 tons were recycled. Typically, on a month to month basis, the amount of recyclable material produced by the households on the Reservation tends to remain fairly consistent.



Other Recycling Activity

The Solid Waste Program recycles many other household, automotive and office items during daily activities. The program recycles the following items:

Fluorescent lamps

Waste batteries

White goods (refrigerators, stoves, microwave ovens, etc.)

Electronic waste (computers, televisions and other electronic devices)

Waste paint

Household hazardous waste

Used motor oil and oil filters

Used antifreeze

Used motor oil, oil filters and antifreeze are recycled by Rock Oil from Stratford, WI. The rest of items are taken to Oneida County Solid Waste where they are separated and delivered to various processors where they are recycled. Recyclable items are stored Solid Waste until there is a large enough load to haul to Oneida. The following items were recycled in January:

338 Fluorescent lamps

159 pounds of household batteries.

1 refrigerator

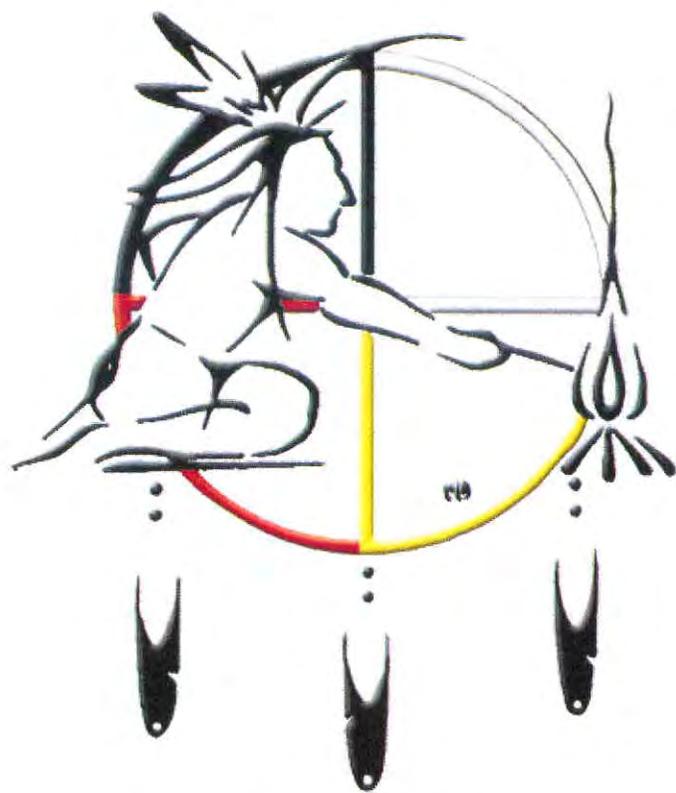
2 microwave ovens

1 television

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Keepers of the Fire

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| <u>Name</u> | <u>Position</u> | <u>Phone</u> |
|-------------------------|--|--------------|
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| Joe Cebe | Air Monitoring Specialist | 478 - 4435 |
| Bill Alloway | Environmental Technician | 478 - 7222 |
| Danielle Fatta | Receptionist/File Clerk | 478 - 7222 |
| Frank Shepard | Natural Resources LTE | 478-4942 |
| Heather Stricker | Wildlife Resources Program Director | 478 - 4196 |
| Frances "Nitty" Shepard | Solid Waste Crew Manager and Crew Member | 480 - 7330 |
| Tony Daniels | Solid Waste Crew Member | 478 - 7330 |
| Greg Kitchell | Solid Waste Crew Member | 479 - 7330 |
| Phillip Wamego | Solid Waste Crew Member | 479 - 7330 |

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New Employee Introduction

Wildlife Resources Program Director



*Immobilized adult bobcat in
northern Michigan*

Boozhoo! My name is Heather Stricker, I began my position as Wildlife Resources Program Director on June 28, 2010. I am excited to be a member of the Natural Resources Department and am honored to have been given the opportunity to conserve, protect, and manage the Tribe's important wildlife resources.

I received a Bachelor's degree in Animal Ecology from Iowa State University. I also hold a Master's degree in Conservation Biology from Central Michigan University where I studied gray wolf recolonization and wolf habitat. In the past, I have worked as a wildlife researcher studying bobcat ecology in Iowa and Canada lynx re-establishment in Colorado. Most recently, I come from northern Michigan where I was the Research Associate on a project studying the effects of predators (wolves, coyotes, bobcats, and black bear), habitat, and winter weather on the white-tailed deer herd.

I spend extracurricular time participating as a board member and Communications Coordinator for the Native Peoples Wildlife Management Working Group of The Wildlife Society and coordinate a professional development grants program for native students entering the wildlife/natural resources field. Through this group I have also worked on issues regarding the restoration of bison herds to tribal lands, inclusion of Traditional Ecological Knowledge in contemporary resource management, and management of tribal natural resources in the face of climate change, political change, and cultural change.

In my free time, I enjoy photography, traveling, mountain biking, and time with my dog Takoda.

Description of Duties

As the Wildlife Resources Program Director, I will plan and implement studies to study wildlife populations, habitat use and availability, and species inventories. Using the information gathered about the wildlife that exist on Tribal lands and the habitats that they use, I will be able to develop habitat improvement projects that benefit wildlife, particularly threatened, endangered, and culturally significant species. Other projects may include monitoring population levels of species of interest,

I will also be developing a number of community outreach activities, including children's educational programs to learn about animals, backyard wildlife habitat improvement, and opportunities for tribal members to participate in wildlife research activities. I look forward to working with the membership and addressing the wildlife concerns that face Forest County Potawatomi lands.



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Lake Clean-Up

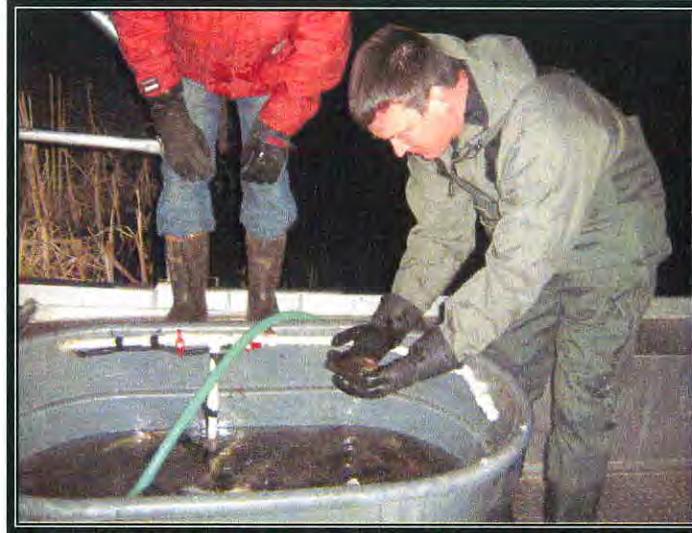
On June 2nd employees of the Natural Resources Department assisted by two members of Economic Support's work experience program participated in a lake clean-up event. The 10 member clean-up party tackled trash removal at three lakes including Bug, Devil's, and Cloud. This is the 3rd consecutive year for the lake clean-up event. The most common items removed from the lakes included worm containers, soda cans and bottles, and general food packaging items. We were able to remove two sunken boats from Cloud Lake. In total, approximately 2¹/₂ dump truck loads of trash were hauled from the lakes.



**One of the two wooden boats
being loaded into a dump truck**

VHS

On the nights of April 20 and 21, the Forest County Potawatomi Community Natural Resources Department partnered with the United States Fish & Wildlife Service to conduct electro-fishing surveys on Bug, Devil's, King and Cloud Lakes and collect fish samples to test for Viral Hemorrhagic Septicemia (VHS). A total of 495 fish were collected and shipped to the University of Minnesota – College of Veterinary Medicine. The sampled fish consisted of several largemouth bass, bluegill, pumpkinseed, yellow perch, rock bass and bluntnose minnows. All of the 495 fish specimens sampled tested negative for VHS infection.



Frank Shepard working up the fish.

VHS is an invasive fish virus that can be very deadly to many of the common fish species found in Wisconsin. The virus particles first infect a fish's gill tissues and then move to their internal organs and blood vessels. These blood vessels become weak, which can cause hemorrhages (bleeding) in the internal organs, muscles and skin of the infected fish. VHS symptoms include such things as hemorrhaging, bulging eyes, bloated abdomens and unusual behavior. However, VHS has very similar symptoms to many other fish diseases and therefore must be confirmed by laboratory testing. While this disease can have a dramatic impact on fish communities, VHS has not been found to have a negative effect on humans.

Mercury Fish Tissue

In combination with the VHS testing, electrofishing methods were also used to collect fish for mercury contamination. We collected a total of 136 fish from King, Cloud, Bug, and Devil's Lakes. Game fish species representing a typical angler's catch were culled from the sample and included: walleye, bluegill, largemouth bass, pumpkinseed, black crappie, northern pike, rock bass, white sucker, yellow perch, and rainbow trout. One fillet with scales from each fish was frozen and shipped on ice to Test America in Burlington, Vermont for analysis. Results will be summarized and the brochure will be updated this winter.

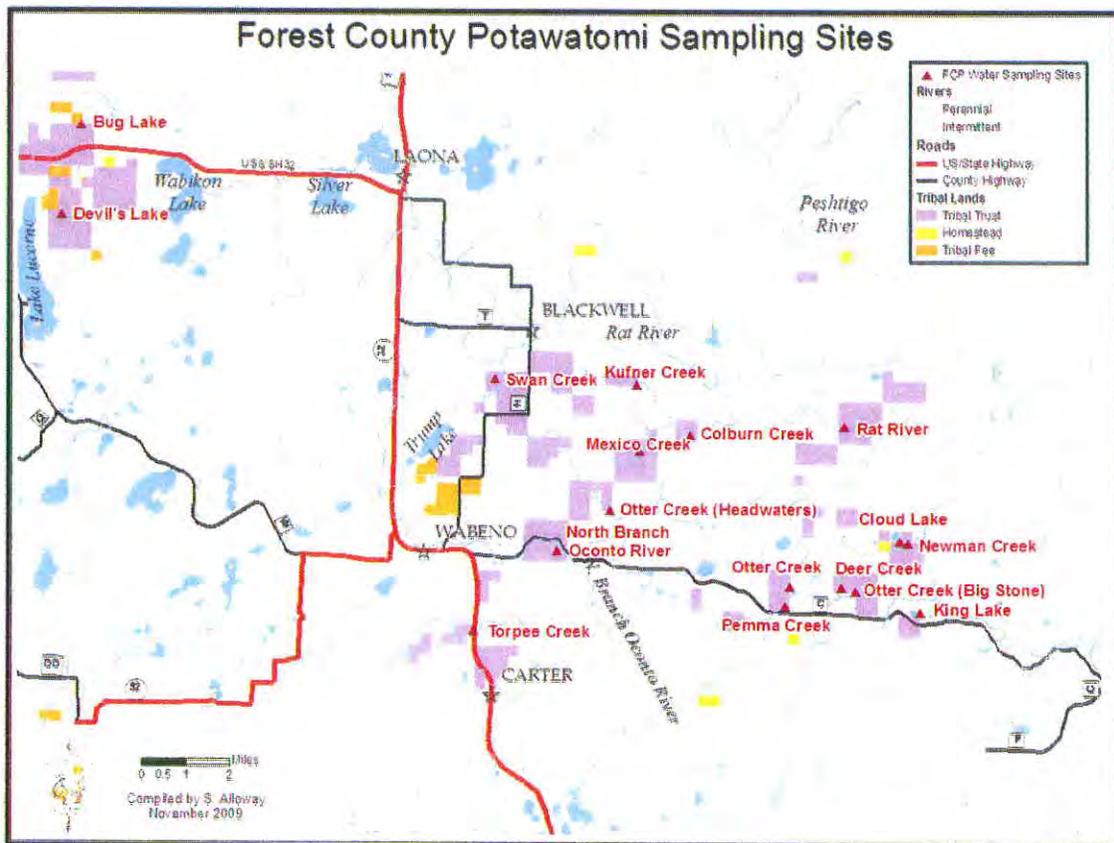
Mercury biomagnifies from the bottom of the food chain to the top. Fish that eat other fish have a greater potential to accumulate mercury in their tissue (i.e. walleye). Mercury affects the human nervous system and can damage the developing brains of children as well as their behavior and ability to learn. In adults, too much mercury can result in a loss of coordination and it can also affect vision, hearing, and speech. The most sensitive population to mercury contamination include unborn children, children under fifteen, women who plan to become pregnant or are pregnant and nursing. The human body can reduce mercury levels so personal regulation of fish consumption may help to reduce mercury levels in one's body.

In the past the Water Program has distributed a brochure offering guidelines to safely consume fish with mercury contamination. That brochure was based on fish collected in 2006,

this year's sampling will be used to update consumption guidelines and begin to track any possible trends of mercury levels found in fish tissue. We will collect fish tissue for mercury testing every 4-5 years in order to keep tribal members informed of how to safely consume fish from lakes on the Reservation.

Stream Macroinvertebrate Sampling

In May of this year the Water Resources Program staff once again sampled 13 stream locations. We have been conducting macroinvertebrate sampling each May since 2006. Aquatic macroinvertebrates are small animals without backbones and are generally visible with the naked eye. They include things like crayfish, tiny insects, worms, snails, clams, and freshwater sponges. Their presence or absence can reflect a stream's water quality and general health. Most aquatic macroinvertebrates such as immature insects live for 1 or more years in streams, integrating the effects of environmental stressors over time. Aquatic macroinvertebrates live within the stream so they may be exposed to both short and long-term pollution. This is important when assessing water quality and long term pollution events within a stream.



FCPC Stream and Lake Monitoring Locations.

At each stream location we collect samples from riffle habitat with swift flowing waters. If riffle habitat was not available then submerged roots and over hanging vegetation were sampled. A fine mesh net shaped like the letter "D" is positioned so that it catches any

macroinvertebrates that detach from the stream bottom or rootmat that is kicked or shaken. Samples are preserved in jars using isopropyl alcohol and transported back to the lab at the Natural Resources Department building. From there the samples are sorted and identified by the Water Program's staff or sent to an aquatic macroinvertebrate specialist for proper id.

We use a biotic index and multiple metrics to interpret macroinvertebrate community data. The Hilsenshoff Biotic Index (HBI) is used as an indicator of low dissolved oxygen resulting from organic pollution. The other metrics used include the following:

1. Total abundance – sum of all individuals in a sample
2. Taxonomic richness – total number of taxa (families, genera, species, etc.)
3. Sample evenness – the relative distribution of individuals amongst taxa
4. Percent EPT – the percentage of the sample's total abundance comprised of Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies)
5. Percent scrapers – the percentage of the sample's total abundance comprised of individuals that feed on periphyton (diatoms) and attached microscopic plants and animals
6. Percent shredders – the percentage of the sample's total abundance comprised of individuals that feed on coarse particulate organic matter (leaf and fine woody material)
7. Dominance – the percentage of the total number of individuals in the five most abundant families

In general, when environmental degradation increases within a stream there is a corresponding decrease in pollution sensitive macroinvertebrate species and an increase in pollution tolerant species. The macroinvertebrate data when combined with our habitat and fish data allows for a comprehensive assessment of stream health. This year's data has not yet been compiled, but we will make sure this data is summarized in the quarterly report following compilation. This will be the final year of the baseline monitoring program for 10 of the 13 sties. In the future these 10 sites will be sampled less frequently with results being compared against baseline information.

Fyke-Netting

On April 26, 2010 Water Resource Program biologists initiated their annual fyke-netting survey by sampling Bug Lake and Devil's Lake. Each year two lakes are surveyed, last year it was King Lake and Cloud Lake. The survey occurs over an 11 night period. The sampling design allows us to estimate adult populations of resident fishes through utilization of a mark-and-recapture method. Fish sampled are marked by clipping the dorsal portion of the caudal fin and released unharmed; later in the survey, if the fish is recaptured it can be identified and recorded. In addition to population estimates, scale samples are collected from the first 10 fish of each 10 millimeter length category of each species sampled, this data will allow us to estimate ages and generate growth rates among the fish in Tribal lakes.

In Bug Lake we sampled the following four species of fish: northern pike, yellow perch, largemouth bass, and pumpkinseed. Yellow perch and pumpkinseed comprised a

majority of the sample. Many of the yellow perch were of keeper size and a few approached the 13" category.

In Devil's Lake we sampled black crappie, bluegill, and yellow perch. Bluegills and black crappie were the most prevalent species in the lake. Black crappies stocked in previous years are starting to approach the 10 inch category. Bluegills 7-9 inches in length are very common. Largemouth bass are abundant in Devil's Lake but did not appear in the sample because of their excellent ability to avoid the nets.

Population estimates and age data have not yet been finalized due to an intense field season; however, the resulting population estimates and age data will be reported in the coming months.



Nate Guldan holding a very healthy northern pike from Bug Lake.

Stream Temperature Monitoring

Stream temperature loggers were again placed at stream monitoring locations. The temperature loggers record stream temperature every 10 minutes. The loggers will be collected in fall and the data will be used to classify the stream as cold (less than 71.6°F, cool (71.6 - 75.2°F), or warmwater (greater than 75.2°F). Temperature data can assist with identifying a stream stressors and help in predicting biotic community assemblages such as fish and macroinvertebrates. For example, streams classified as coldwater are more likely to sustain species like brook trout and mottled sculpins and those which are warmwater are more likely to contain rock bass or green sunfish. In addition, a long-term data set could prove beneficial in tracking the effects of global climate change on natural stream systems on the Reservation.

Below is a summary of stream temperature data that includes maximum daily mean water temperatures (degrees Fahrenheit) measured at 13 monitoring locations between May 25 to September 30, 2006-2009. The majority of streams that exhibit cooler water temperatures are known to support wild populations of brook trout.

| Stream Name | Maximum Daily Mean Temperatures (°F) | | | |
|---------------------------|---|-------|------|------|
| | 2006 | 2007 | 2008 | 2009 |
| Colburn Creek | 68.8 | 67.3 | 65.7 | 67.1 |
| Deer Creek | -- | -- | 64.0 | 62.9 |
| Kufner Creek | -- | -- | 62.7 | 64.5 |
| Mexico Creek | -- | -- | 57.2 | 53.6 |
| Newman Creek | 72.3 | 70.1 | 68.1 | 69.9 |
| North Branch Oconto River | 74.0 | 72.7 | 68.9 | 71.6 |
| Otter Creek (Headwaters) | 73.1 | 73.1 | 71.7 | 73.4 |
| Otter Creek (Middle) | 80.8 | 79.9 | -- | 79.4 |
| Otter Creek (Big Stone) | 79.0 | 78.8 | 77.6 | 79.3 |
| Pemma Creek | 65.1 | 61.5 | 61.1 | 61.7 |
| Swan Creek | 71.4 | 68.76 | 68.0 | 61.6 |
| Torpee Creek | -- | 76.7 | 75.5 | 77.5 |
| Rat River | 80.3 | 80.2 | 78.4 | 80.2 |

Otter Creek Stream Restoration Surveys

This spring the Wisconsin Tribal Conservation Advisory Council (WTCAC) awarded the FCPC Water Program \$17,961 to complete a design of Otter Creek to restore the stream channel and improve habitat for fish. The channel has been widened through past beaver activity and subsequently sand and silt has accumulated in the channel through deposition. In June, Water Program staff assisted with surveys led by Inter-Fluve, Inc. to collect information that will be used in the restoration design to improve fish habitat. When the design is complete this fall the Water Program will be able to compete for funds to reconstruct the stream channel for cool water fish species. The potential project will also preserve adjacent open water areas as wetland habitat for waterfowl and other riparian animals.

Torpee Creek Culvert Replacement Project

In May the Tribe was awarded \$100,000 to develop a design to replace the culverts at Torpee Creek and State Highway 32 between Carter and Wabeno. The award was the result of a grant proposal submitted to the BIA for Great Lakes Restoration Initiative program funding. The intent of the GLRI program is to improve aquatic habitats in the Great Lakes and their watersheds. The current culverts will likely be replaced with a single span bridge or a large bottomless box culvert. The replacement structure will restore the stream's natural flow regime and improve habitat conditions for brook trout. The design will be completed this winter and construction is planned for the summer of

2011. The Water Program is teaming up with the Wisconsin Department of Transportation and the United States Forest Service to complete this project.

Stream Habitat Surveys

In June stream habitat assessments were carried out at 13 monitoring locations. For 10 of these sites this was the final year for baseline monitoring and they may not be sampled again for another 5 years unless alteration to habitat warrants sampling. The primary goal of conducting habitat assessments is to describe the relative quality and quantity of habitat available for fish in a given reach. In addition, these surveys are useful for predicting fish communities, monitoring trends, and identifying impairments or limiting factors.

Sites are scored according to the quality of riparian and instream habitat. Some of the habitat components that are measured include the following: maximum depth, depth of fine particles, substrate composition, the degree of substrate embeddedness, aquatic plant coverage, woody structure, boulders, and percent canopy cover. These habitat components are then summarized and scored. Some of the summary metrics include: width:depth ratio, riffle :riffle ratio, bend:bend ratio, cover for fish, percent channelization, riparian buffer width, bank erosion, rocky substrate, pool area, and fine sediments.

Habitat data from 2010 has already been summarized and 8 sites were classified as excellent and 5 were classified as good. In most cases variation at a site between years is due to the availability of instream cover which is often influenced by seasonality and water level.

Cloud Lake Boat Landing Restoration

In June, JFNew and Associates completed their initial surveys of the existing makeshift landing at Cloud Lake. This information will provide enough detail to produce a design to restore the landing area. Restoration will involve regrading and planting the eroding banks of the current landing, preserving a small sandy area near the water's edge as a recreational beach, and installing two natural stone walkways extending down to the beach. This work will take place in the fall of 2011 in conjunction with the construction of the new boat landing.

Matt Steinbach, Aquatic Biologist

My name is Matt Steinbach and I began my position as Aquatic Biologist on June 1, 2010. I am thrilled to have the opportunity to join the Forest County Potawatomi Natural Resources Department staff and to contribute my ideas and services to the Water Resources Department, while assisting in the preservation, management and enhancement of all FCP aquatic ecosystems.

I am a 2009 graduate of the University of Wisconsin - River Falls, where I earned a Bachelor of Science Degree in Conservation, with minors in Biology, as well as Geographical Information Systems and Cartography. Most Recently, I served as a Fisheries Technician with the Wisconsin Department of Natural Resources in Black River Falls where I was responsible for assessing the fish, plant and aquatic insect populations of area lakes, rivers

and streams, as well as the health of these water bodies' habitats. I also assisted the Regional Fisheries Biologist in conducting stream restoration on several area coldwater trout streams. In addition, I participated in the collection of water quality data, fish scale aging and analyzing as well as a variety of database management tasks. I have also been previously employed by the Clark County Planning, Zoning, Surveying and Land Information Department in Neillsville, WI. During my time as a Surveying Intern and GIS/Addressing Specialist, I learned a great deal about land surveying and Geographical Information Systems and their applications. I was responsible for assisting the Clark County Surveyor in establishing section corners and delineating parcel boundaries for county land sales. I was also responsible for collecting the GPS coordinates of all recognized addresses throughout the county and recording them into a database for future Emergency Services use.

As a child growing up in Central Wisconsin, my favorite time of the year was always the vacations that my family was able to make to Northern Wisconsin. Therefore, when I decided to pursue a career as aquatic biologist, my goal was to eventually find employment in Northern Wisconsin. To be able to serve as the aquatic biologist for the Forest County Potawatomi Community is truly a dream come true. I look forward to providing my knowledge and service to the FCP Natural Resources Department and all FCP tribal members for many years to come.



Matt Steinbach raising a quality northern pike.

Forest County Potawatomi Community

Natural Resources Department

General Council Quarterly Report
April-June 2010

Air

April - June
2010



Forest County Potawatomi Community — Natural Resources Department

Air Monitoring Program Activities

Air Site Equipment Status

Operations at the Air Monitoring Site were a bit challenging this quarter, with issues related to bad weather, and some miscommunication with WDNR.

A Low Level Audit for Ozone was failed on April 29th, although the Normal Level Audit was passed. The Low Level Audit is a check of the instruments ability to monitor at extremely low levels of Ozone. This level is far below the level we calibrate and monitor at. No data will be lost due to this audit.

The Snow Storm on May 8th caused a prolonged loss of power to all instruments, and proved troublesome for the precipitation collectors as well. Luckily, everything was back up and running within 2 days, and only a minimal amount of data was lost. Most importantly though, nothing was damaged. Storms can be expensive at times.

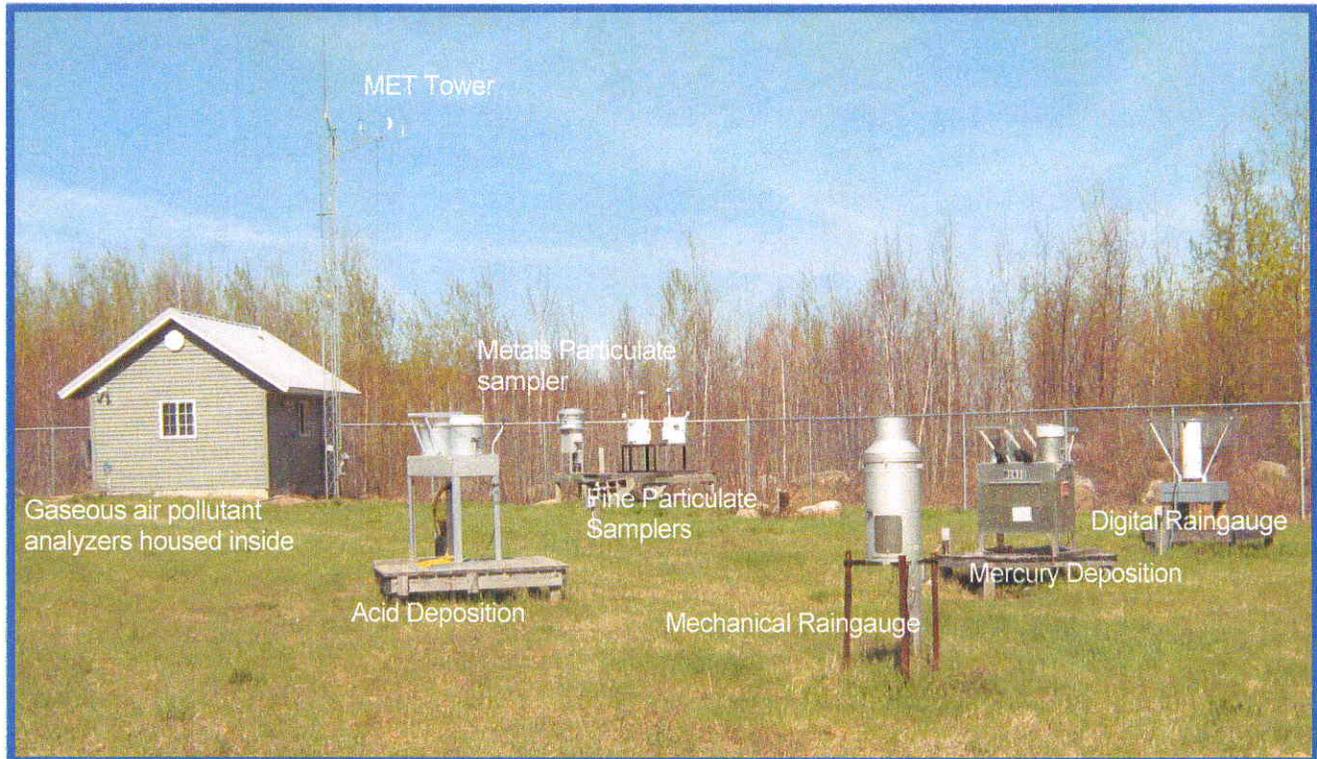
On June 1st the sample pump failed on the Sulfur Dioxide analyzer. It was replaced and brought back online with 2 days of data lost, and only incurred the cost of the rebuilt pump it was replaced with.

We discontinued use of one of the fine particulate samplers this quarter. It will be replaced with a new one that monitors continually. The WDNR is shifting to this type of monitor, and we would like our data to be on the same level as the state. We also started a monthly one point flow check of the coarse particulate sampler which should reduce the chance of data loss with that instrument as well.

On June 28th the new NOX Analyzer was calibrated by WDNR staff. The prior calibration from April was found to be missing documentation, and after consulting with WDNR staff, the person performing the calibration had only "roughed it in". This was a result of miscommunication between the Air Monitoring Specialist and the WDNR staff providing the training. A two month loss of data resulted, which could add an extra year of operation to achieve the baseline we are trying to establish. Although this is an unfortunate set back, it usually takes about a year to bring up a new instrument, and this will give us the needed time to work out any bugs, as well as become more familiar with the instrument itself, and the WDNR protocols associated with it.

Site Visits

EPA Region 5 project officers visited our site this quarter. They are always impressed with the Air Site, and the Air Program in general.



Apr-June
2010



Forest County Potawatomi Community — Natural Resources Department

Air Resources Program Activities

Permits

- **MIN permit** - Palmer, MI. The engineers for MIN have incorporated all that FCPC requested of them in their permit application and have addressed all questions and concerns to our satisfaction. We should be able to close the file on this permit.
- **DOMTAR permit** - Rothschild, WI. A list of concerns was sent to WDNR regarding the initial permit application submitted to WDNR by DOMTAR for a biomass generator at their facility. We have not yet received any further communications from WDNR. An email from FCPC Air, inquiring on the status of the permit has not yet received a response.

Grants

- Additional dollars were made available in the air grant program, with FCPC receiving 2,000. A work plan was submitted along with necessary paperwork and the additional dollars should be received shortly.
- Completed the Close-out report for the EPA 103 Air Quality Grant 2006-2009. It is ready for legal review. Close out forms have been approved by legal and submitted to EPA.

Meetings

- The Air Program Director participated in conference calls pertaining to the Community Showcase Grant application that the AG's office is submitting, providing input on the potential for weatherization, energy conservation outreach and education, and potentially a Sustainability/Energy staff person for the Tribe.

- The Air Program Director attended the WTCAC and WisTOC meeting in Baraboo, sitting in for Nate Guldan. Discussions revolved around the environmental needs of Tribes within Wisconsin and the Region and where the help of EPA and other government agencies is needed. The EPA Region 5 Administration Susan Hedman was present.
- The Air Program Director and Monitoring Specialist attended the annual National Tribal Forum on Air Quality in Albuquerque, NM and participated in workgroups to provide input on how EPA can better assist Tribes, particularly regarding the upcoming NSR Tribal Minor Source Air Pollution Permitting rule that is expected to be final sometime in January, 2011.

General Information

WMC and the Wisconsin Paper Council objected to a portion of the Class I SIP rule changes during the comment period for the WDNR proposed rule. Working with FCPC legal and WDNR, adjustments to the language of the rule were made for the final rule which will be submitted no later than the end of July. The MOU, map and list of potential additional Class I parcels - mutually agreed to by both parties, was finalized and is to be included as part of the rule package.

Forest County Potawatomi Community

Natural Resources Department

General Council Quarterly Report
April-June 2010

Solid Waste

April - June
2010



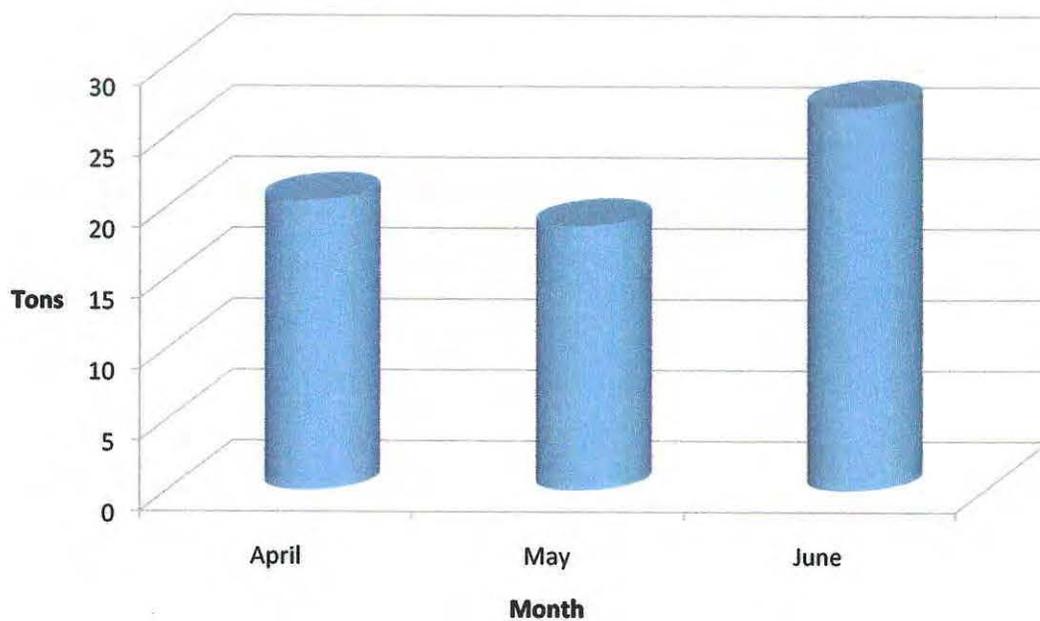
Forest County Potawatomi Community — Natural Resources Department

WHAT'S NEW AT SOLID WASTE?

Waste Stream Report

The total tonnages of solid waste collected from residential homes for the second quarter of 2010 was 66.14 tons. This is compared to 70 tons collected during the second quarter of 2009.

April - June 2010 Solid Waste Tons



April - June
2010



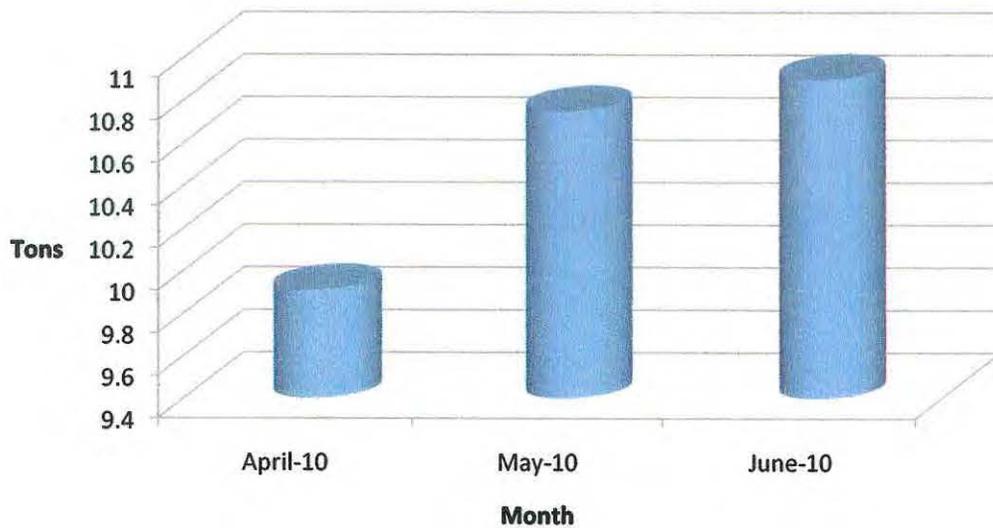
Forest County Potawatomi Community — Natural Resources Department

RECYCLING

How Much is Getting Recycled

A total of 31.56 tons of recyclables were processed in the second quarter of 2010. During the second quarter of 2009 a total of 37.5 tons were recycled. Typically, on a month to month basis, the amount of recyclable material produced by the households on the Reservation tends to remain fairly consistent.

April - June Recycling Tons



July-Sept.
2010



Forest County Potawatomi Community — Natural Resources Department

Air Monitoring Program Activities

Air Site Equipment Status

It was a busy quarter for operations at the Air Monitoring Site, with many troubleshooting issues, and new equipment arriving. All the equipment failures were repaired in-house by the Air Monitoring Specialist, with a minimum of down time and cost.

The motor on the particulate sampler, sampling for metals, burned out twice this quarter, and was rebuilt with parts donated by the WDNR. The sampler is now running smoothly.

A pump failed on the Ozone analyzer, and was replaced with a rebuilt one on the same day. A minimum of data was lost.

A lamp failed on the Vaporous Mercury analyzer, and was replaced with a new one. After the optimization process and burn in period, the analyzer was back on line. About three days of data were lost.

The Solar Radiation sensor had been sent out for recertification and was put back online this quarter.

The Data Acquisition System was updated by WDNR personnel this quarter. This was done at no cost to the Tribe. All went fairly well, with a few minor glitches yet to be worked out.

A new continuous monitoring particulate sampler was received this quarter, and hopefully will be installed and operational by January 1st.

July - Sept
2010



Forest County Potawatomi Community— Natural Resources Department

Air Resources Program Activities

Air Pollution Permit Applications Submitted to WDNR.

- **WE Energies/DOMTAR Biomass permit** - Rothschild, WI.
FCPC requested that an analysis be performed to determine if the pollutant levels could potentially impact any of the resources of concern on the Reservation. The analysis was conducted and predicted pollutant levels were determined to be below the thresholds provided by FCPC, indicating that sensitive resources would not be jeopardized. Communications continue between the State and WE Energies as the permitting process continues, and FCPC will continue to review portions of the application as they are submitted and provide comment where necessary.
- **Flambeau River Biofuels permit** – Park Falls, WI
The air program received word from the WDNR that a new pollution source was submitting a permit for a Biofuels facility locating in Park Falls, WI – within the 100 km Class I parameter. The application is expected soon and will be reviewed by air staff and contracted professionals.

Grants

The call for applications for the 2011 grant year for EPA's Clean Air Act (CAA) Grant went out on September 30th. Air staff will be working on the application so it is ready for submittal by the November 30th deadline.

In the past, beginning in 2003, the FCPC air program was funded through Section 103 of the CAA. Funding under Section 103 is specifically for *projects*, such as starting an air monitoring program. Once the program is started and going strong, funding should shift to Section 105 *program* funding, however, the 105 grant requires that the Tribe match the funds by 40%, that is unless you have TAS status (Treatment in the Same Manner as a State) under the CAA, in which case the match is only 5%. The Tribe submitted its application for TAS in June of 2009 and on September 30th, 2010 FCPC received approval for TAS, just in time for the 2011 grant application cycle.

Class I Process Continues But Nears the End

Because FCPC's Class I was modified in the Tribe's 1999 Class I Agreement with the WDNR that resulted from the dispute resolution process, it isn't a "typical" Class I area such as other Class I areas within the region – i.e. Seney National Wildlife Refuge in Michigan and Rainbow Lake Wilderness in Bayfield County, Wisconsin. Therefore, the WDNR was required by the USEPA to revise its State Implementation Plan (SIP) to include the FCPC unique Class I area.

The revision process required that the State make a ruling on the how the details of air pollution permitting would be carried out that enable FCPC Air Program staff to be aware of such permit applications for new pollution sources when they came in, and be able to participate in the permitting discussions between the State and the Source. The rule was drafted over a 2 year period with a team consisting of staff from the WDNR and FCPC air and legal departments and professional contractors. The rule was proposed in June 2010, after which 2 comments were received, one from Wisconsin Paper Council (WPC) and one from the Wisconsin Manufacturer's and Commerce (WMC) questioning the distance from FCPC parcels.

The final rule, with clarifications to WMC and WPC's concerns was approved by the State Legislature in late August and the MOU accompanying the rule was signed by FCPC Chairman Gus Frank And WDNR Secretary Matthew Frank on October 7, 2010.

The packet that includes the proposed changes to the State's SIP is now ready for submittal to the USEPA for approval. It is anticipated that the proposed SIP changes will meet little resistance from the USEPA and should be approved, finalizing the Class I redesignation with the state of Wisconsin.

Treatment In The Same Manner As A State (TAS)

The final application for Treatment In The Same Manner As A State (TAS) under the Clean Air Act (CAA) was approved on September 30, 2010, 15 months after being submitted to the USEPA. The new status provides authorization from the federal government for a number of things, including a reduced matching funds requirement on the federal air quality grant; the right to receive and comment on state issued air pollution permits, specifically for renewal of permits for existing sources within 50 miles of the Reservation; and the right to review and comment on air pollution permits issued in neighboring states whose emission sources may be adding to the degradation of air quality on the FCPC Reservation, resulting in non-attainment of the federal National Ambient Air Quality Standards (NAAQS).

Threats to Air Monitoring Station Evaded – Cell Tower Proposed Location Changed

The FCPC air program received notice in mid-March that plans were in the works to site a 345 foot telecommunications tower on County property located directly adjacent to the FCPC Air Monitoring Station.

Rules and guidelines require that the area around the air monitoring site be free of obstructions. The general rule of thumb is that an object or obstruction be at least two times its height away from the samplers/collectors. The proposed tower location at Potawatomi Trail and Tower Road would not have allowed the adequate distance required by the federal monitoring regulations and in addition, would have posed a visual impact to cultural sites located within $\frac{3}{4}$ mile of the tower. The FCPC legal worked with the Telecommunications provider and alternative location sites were sought.

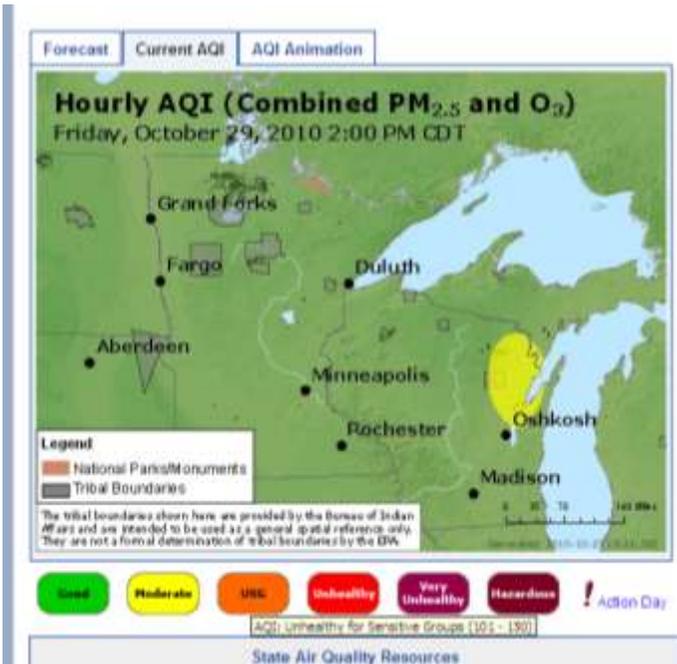
Air Quality Forecasting Available Soon on FCPC Webpage.

With the new upgraded FCPC webpage, the Natural Resources Department page will have a new look and will include lots of information on what the programs are doing, as well as links to important sites, including USEPA's AirNow page.



The USEPA has developed an air quality evaluation and forecasting system that allows the public determine if the quality of the air in their area is healthy on any particular day, or if they should refrain from outdoor activity, particularly if an individual's health is already compromised by breathing or heart conditions. This system is called the Air Quality Index and it rates air quality in an area by evaluating real-time data from air quality monitors located across the country, **including at the FCPC air monitoring site**, and posts it online for anyone to see.

The system uses ozone data and data from particulate samplers that measure the amount and size of airborne particles. While ozone levels tend to be higher in warm summer months, particulate levels are often high in cold winter months when there is a lot of wood burning activity and stagnant air masses, allowing particles to accumulate in an area.



| Air Quality Index (AQI) Values | Levels of Health Concern | Colors |
|--------------------------------|--------------------------------|---------------------------------|
| When the AQI is in this range: | ...air quality conditions are: | ...as symbolized by this color: |
| 0-50 | Good | Green |
| 51-100 | Moderate | Yellow |
| 101-150 | Unhealthy for Sensitive Groups | Orange |
| 151-200 | Unhealthy | Red |
| 201-300 | Very Unhealthy | Purple |
| 301-500 | Hazardous | Maroon |

The FCPC air monitoring site has had an ozone analyzer since 2004 that runs continuously, 24 hours a day. The data is downloaded from the FCPC site every hour by phone to the WDNR where the information is used to determine air quality in this region and to forecast air quality.

The particulate sampler currently operating at the FCPC site samples the air only one day for 24 hours, once every 6 days, and then the filters are sent to the lab for analysis. This makes using the particulate data impossible to use for assessing current air quality or for forecasting. As of January of 2011, the FCPC air monitoring program will be adding a continuous particulate sampler that will sample for particulate matter 24 hours a day, 365 days of the year, and will enable the Tribe to contribute fully to the AQI system with both real-time ozone and particulate sampling.

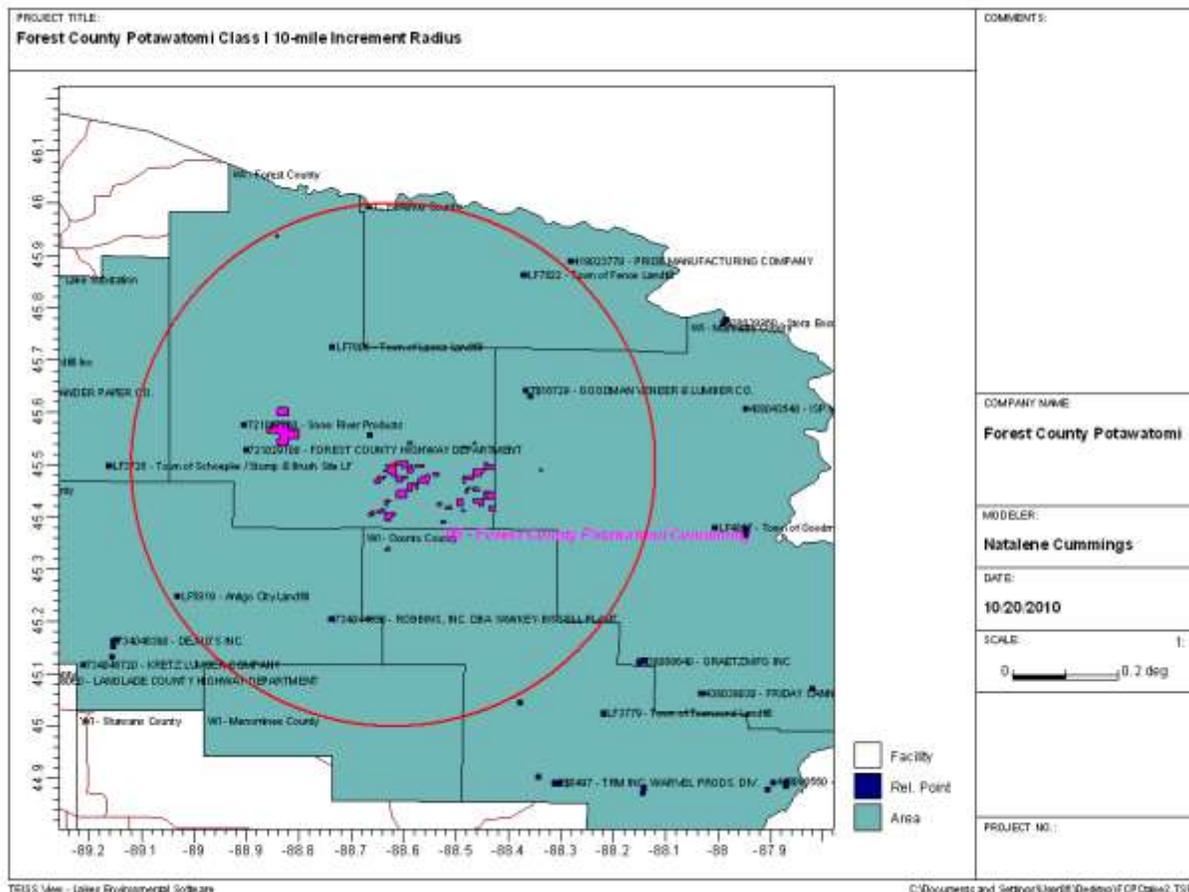
Elevated levels of pollutant, ozone or particulates (fine particles) make it especially difficult to breathe, especially for individuals whose respiratory systems are already compromised, or who suffer from heart conditions. In the near future, the air program plans to erect AQI flags at the Stone Lake Government campus and in Carter that will display the AQI color for the day. With the AQI link on the upgraded FCPC webpage, and the AQI flags on display within the Community, individuals will be better informed of air quality conditions within the region and when to take measures to limit exposure to higher pollutant levels when needed.

Meetings/Training

EMISSIONS INVENTORY TRAINING

The Air Program Director attended ITEP (Institute for Tribal Environmental Professionals) course on how to use their Tribal Emission's Inventory Software. Emission Inventories are essential for anyone managing air quality. By assessing the sources both on the Reservation and off, knowing where the source is located in relation to dominate weather patterns and

having a fair estimation of the amount of any one pollutant that is being released by the various pollution sources, managers have a better idea of which sources may have the greatest impacts and work towards minimizing them. For instance, if while conducting an emissions inventory it becomes apparent that particulate is the most prevalent pollutant and that the biggest contributor of particulate pollution in the area is burn barrels, greater effort can be put towards trying to reduce the number burn barrels being used through outreach and education programs and through regulation if the problem is serious enough. The Tribal Emissions Inventory Software assists in conducting inventories by containing all of the conversion factors necessary



to estimate emissions both from a facility (a point sources) and from a non-point sources such as dirt roads. It also allows for creating maps and graphs that provide visual interpretations of pollution sources and potential impacts. Plans to begin the inventory are set for January of 2011 with the goal of completing this huge effort by December of the same year.

July-Sept.
2010

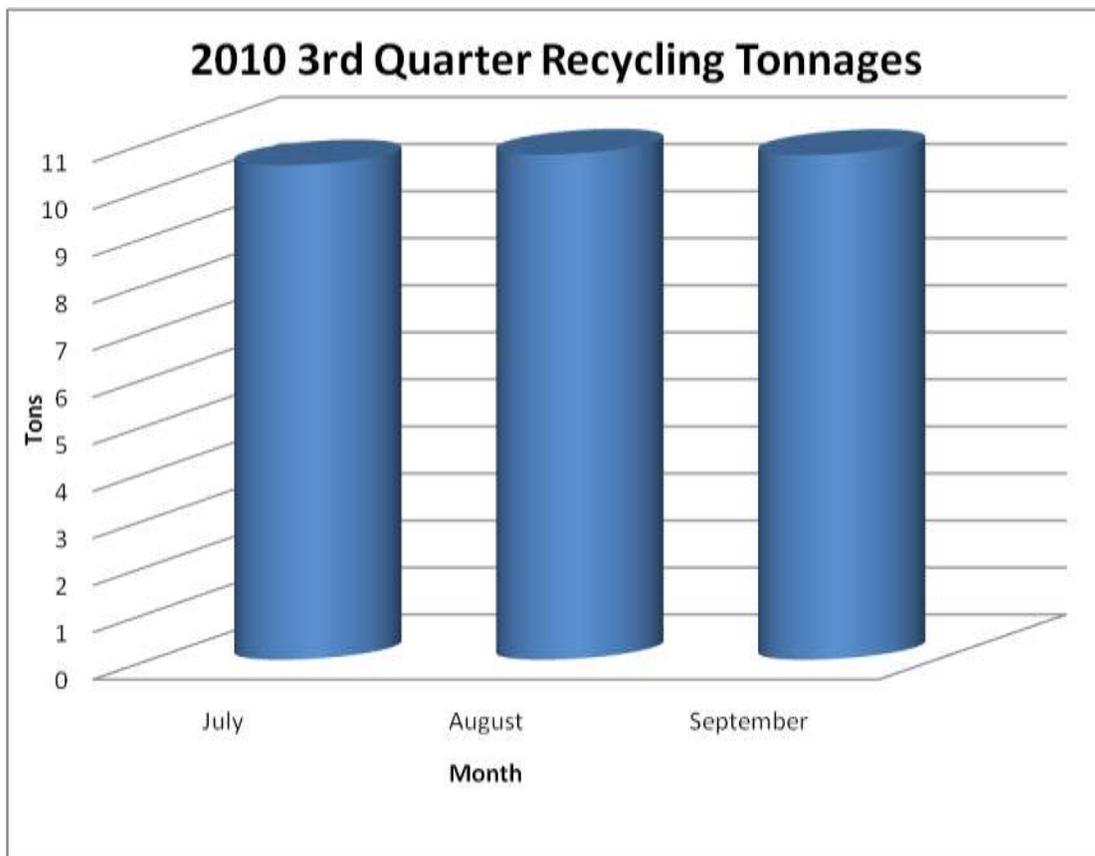


Forest County Potawatomi Community — Natural Resources Department

RECYCLING

How Much is Getting Recycled

A total of 32 tons of recyclables were processed in the third quarter of 2010. During the third quarter of 2009, 37.9 tons of material was recycled.



July-Sept.
2010



Forest County Potawatomi Community — Natural Resources Department

WHAT'S NEW AT SOLID WASTE?

Solid Waste Improvements

The Solid Waste Program accepted bids from three contractors for the improvement of the solid waste facility. Flannery Contracting was awarded the contract for the improvements. The improvements included an expansion of the unimproved area west of the building and the installation of fencing. The area west of the building was cut down to the same grade as the rest of the lot and then it was graveled and compacted. The result is a very stable surface for placement of the municipal solid waste and recycling dumpsters. Fencing was then installed around the improved area to help prevent nuisance animals such as bears from getting into the garbage dumpsters and removing the bagged garbage, tearing open the bags and spreading the garbage out over large areas.



Open Dumps Cleanup

The Solid Waste Program also accepted bids from three contractors for the cleanup the four illegal open dumps present on Reservation lands. Once again Flannery Contracting was awarded the contract for the cleanup. This resulted in the removal of approximately 650 cubic yards of waste debris from the dumps, two of which were located in the Stone Lake area and two located on Indian Market Road in the town of Wabeno, WI. The origin of the dumps can be traced back to time before the creation of the Solid Waste Program when there was no satisfactory way for people to dispose of their garbage. It was simply dumped in convenient, out of the way places that people had access to. The creation of the Solid Waste Program, which provides curb-side pickup of trash on the Reservation, eliminated the need for people to create open dumps to dispose of household trash.



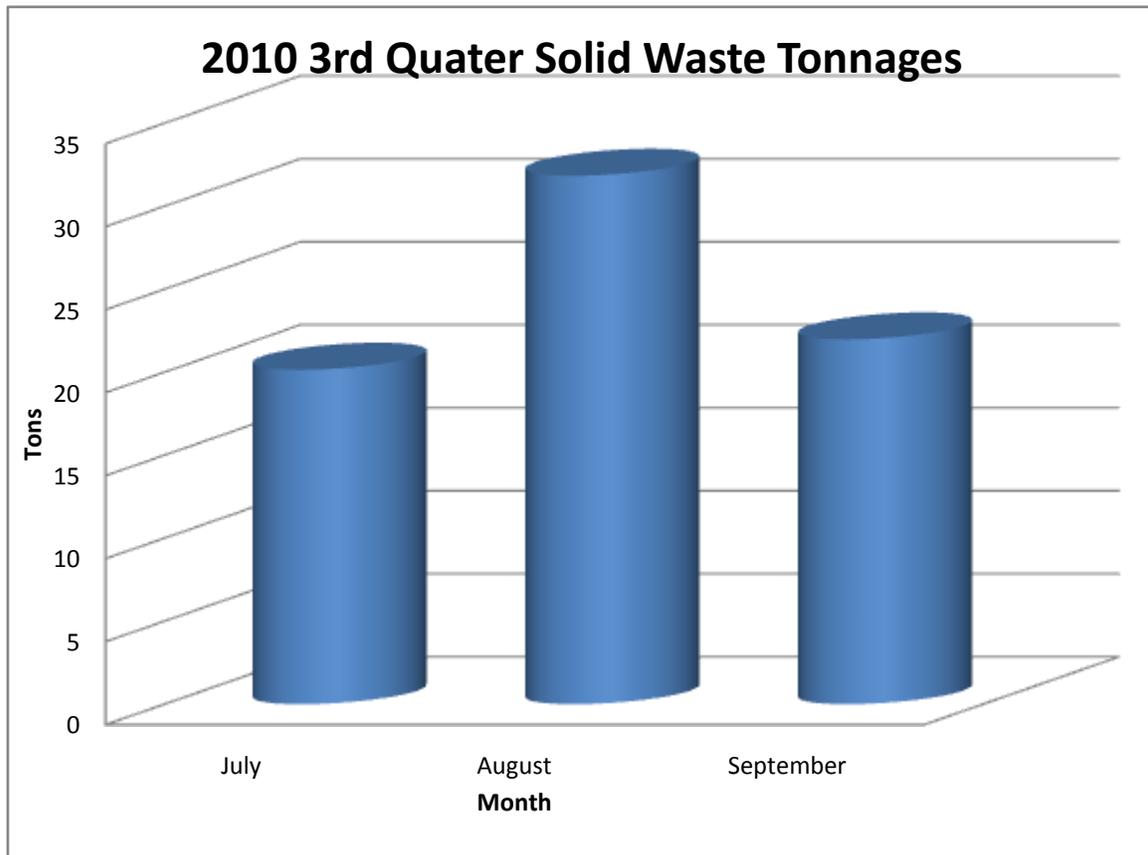
Open Dump Site before Cleanup



Open Dump Site after Cleanup

Waste Stream Report

The Solid Waste Program processed a total of 73.97 tons of municipal solid waste during the third quarter of 2010. This tonnage is slightly down from 80.24 tons processed in the third quarter of 2009.



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Forest County Potawatomi Community — Natural Resources Department

AIR RESOURCES PROGRAM

Air Pollution Permit Applications Submitted to WDNR.



Air pollution permit applications received last quarter for the both the **Flambeau River Biofuels project** in Park Falls, WI, and the **WE Energies Domtar Biomass Project** in Rothschild, WI have been reviewed and meet Class I requirements. This means that the emissions coming from the new pollution sources are low enough by the time they reach the FCPC Reservation to meet standards, and that they shouldn't impact any of the natural or cultural resources identified on tribal lands.

Actively Participating in Federal Policymaking



A number of policies affecting air pollution have been proposed by the U.S. Environmental Protection Agency this past quarter, including a rule aimed at minimizing hazardous emission from coal and oil-fired electric generation facilities, and controlling pollutants from upwind sources located in neighboring states that affect the quality of air in downwind states.

The FCPC air staff, with assistance from the legal department, has participated with other Tribes on calls with the USEPA to discuss issues related to these proposed rules and to offer the Tribal perspective. Tribal input on proposed rules has been successfully incorporated into the final version of many rules and is a clear demonstration of the enormous value that participating in consultations with the federal government and submitting comment letters on proposed rules has.

Other Accomplishments within the Quarter

- Completed and submitted the required Quality Assurance Project Plans to the US Environmental Protection Agency for air monitoring activities at the FCPC air site.
- Participated in planning meetings for the new C-store, providing input on minimizing potential air quality impacts.
- Attended monthly meetings held by the Oneida County Mining Oversight Committee for the proposed Lynne Mine project.
- Updated the Memorandum of Understanding (MOU) with the Wisconsin Department of Natural Resources (WDNR) for assistance with operating the FCPC air monitoring site.
- Completed training to begin conducting an Emissions Inventory for the FCPC Reservation in 2011.

AIR MONITORING

Air Site Equipment Status



The Air Monitoring Site received its latest addition to its instrumentation lineup this quarter. A BAM 1020 Continuous Particulate Monitor was received in October.

BAM stands for Beta Attenuation Monitor, and represents the latest advancement in technology for this type of instrument. It utilizes a small Carbon 14 element to emit a constant source of high energy electrons known as beta rays. This energy source

should never need replacement. Previous methods of detection used energy sources that had fairly short life spans, and in addition to being costly, were also generally considered hazardous waste upon disposal.

The new BAM will provide us with continuous hourly readings of particulate levels in the 2.5 micron size range. This small size particulate can accumulate deep in the lungs, and is absorbed into the blood stream. Particulate of this size generally represents the metals and air toxics portion of any given particulate sample. The continuous readings of this instrument will better enable us to examine wind direction to determine the various sources emitting it.

We should have the BAM online in January.

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WHAT'S NEW AT SOLID WASTE?

Open Dumps Cleanup

Nationwide, about 1,100 open dumps scar Indian lands, with 142 dumps considered high threat sites, according to the Indian Health Service. These dump sites could cause health problems for people living near these pollution sources. They also pose risks to the environment itself.

In the past, before the creation of modern municipal solid waste disposal, open dumping was the only way to dispose of household waste and these dumps were often created near communities. Modern solid waste disposal practices eliminated the need for these dump sites and the clean-up of many of them was done with assistance from the Federal Government.

There were four of these open dumps present on the Reservation and for many years people disposed of large amounts of household garbage and debris at these sites. Using grant money from the Bureau of Indian Affairs, the Solid Waste Program hired a contractor to clean up the open dumps and return the land to conditions that existed before the dumping began.



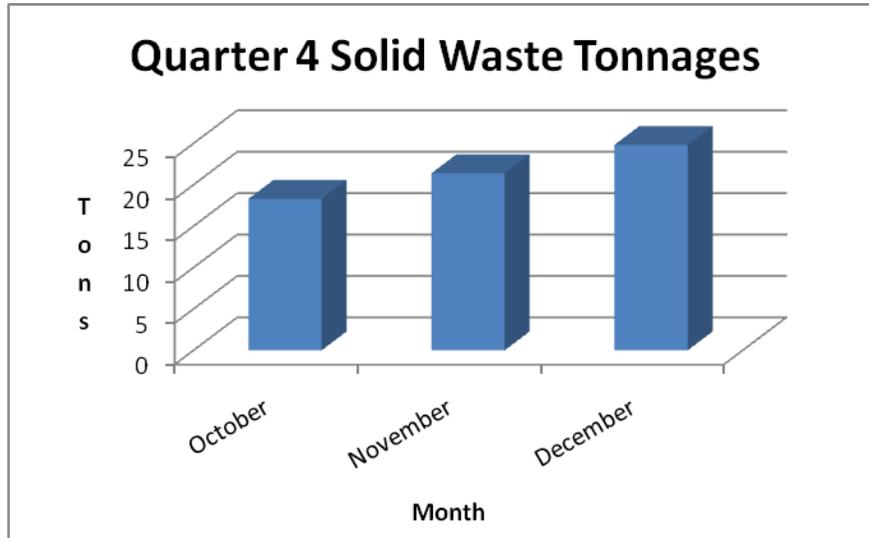
Open Dump Site before Clean Up



Open Dump Site after Clean Up

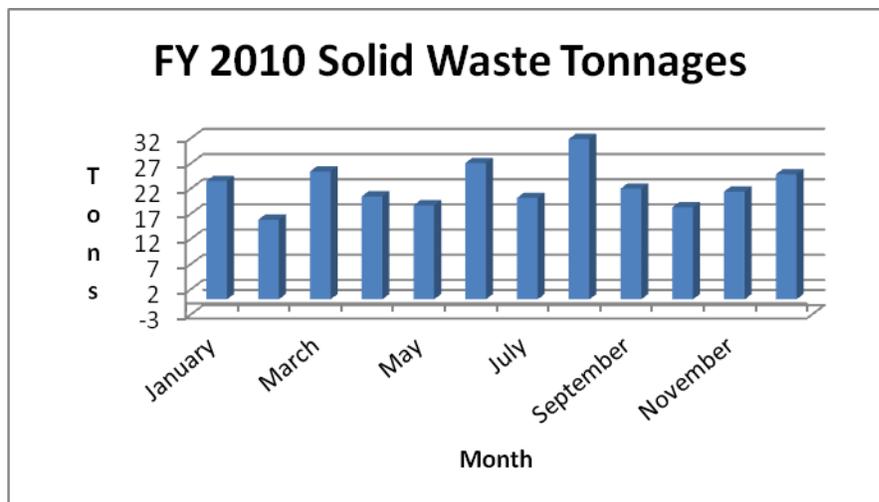
Solid Waste Disposal

The Solid Waste Program processed a total of 64.53 tons of municipal solid waste during the fourth quarter of 2010. This tonnage is slightly down from 73.97 tons processed in the third quarter of 2010.



2010 Annual Solid Waste Disposal

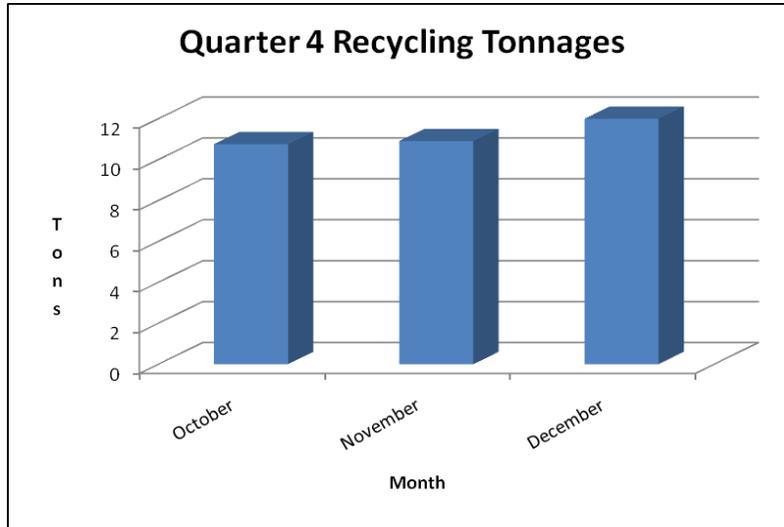
269.34 tons of municipal solid waste were collected and processed during 2010. When compared to the 280.51 tons for 2009, there was less solid waste collected and processed during the calendar year 2010.



RECYCLING

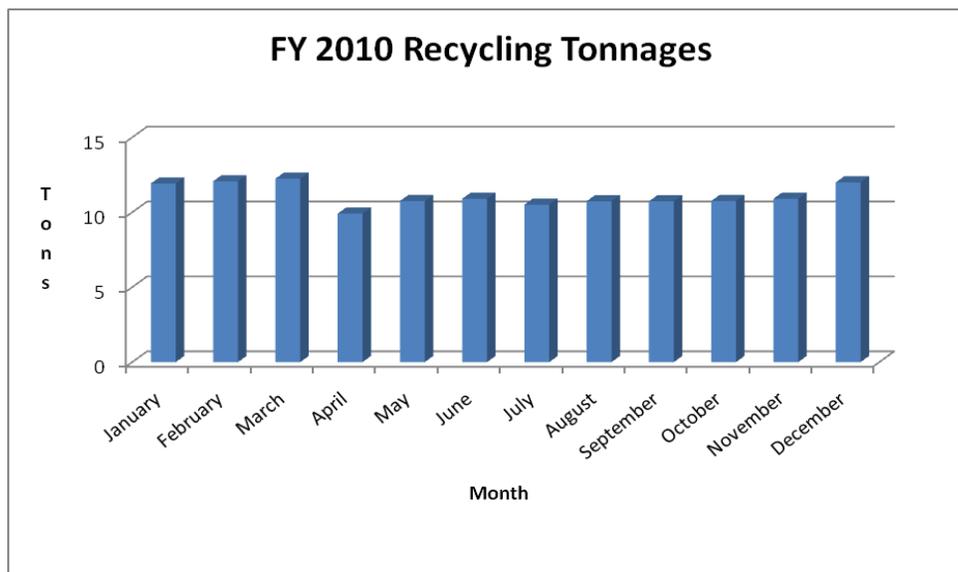
How Much is Getting Recycled

A total of 33.64 tons of recyclables were collected and recycled in the fourth quarter of 2010. During the fourth quarter of 2009, 38 tons of recyclables were recycled.



Annual Recycling

The Solid Waste Program recycled a total of 133.4 tons of cardboard, paper, glass, aluminum, plastic and tin during 2010. These tonnages are down from the total of 152.7 tons recycled for the 2009.



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WATER RESOURCES

2010 Fish Population Assessments

Project Description:

Fish population assessments are conducted in each of the four major lakes on the Reservation every other year. Bug Lake and Devil's Lake were sampled in 2006, 2008, and 2010. Cloud Lake and King Lake were sampled in 2007 & 2009 and will be sampled again in 2011. Fish are collected using nets called fyke nets. Small fish are not captured by these nets because the mesh is too large and small fish are able to swim right through them. We sample for small fish in the fall of the year using mini-fyke nets.

The nets are checked every day and the tail fin of each fish captured is clipped. (Don't worry, this doesn't hurt the fish and the fin will grow back). Clipping the tail fin allows us to determine if the fish was caught for the first time or if we had already captured the fish that given year. Based on the number of total fish captured, and the number of fish recaptured, it is possible to calculate the estimated population of each fish species in each lake. Length and weight of each fish is also recorded and a few scales are removed. Scales can be used to determine the age of the fish. The scales have growth rings on them that can be counted (similar to the rings in the stump of a tree).

By conducting population assessments every other year, trends in the population of fish in these lakes can be observed to ensure that the lakes are continuing to support healthy populations of fish and to monitor the success of fish stocking. The results from the Bug Lake and Devil's Lake surveys in 2009 are discussed below; the results for Cloud Lake and King Lake were discussed in previous reports.

Bug Lake 2010:

The population assessment of Bug Lake occurred from April 27 - May 7, 2010. Three species of fish were collected during the survey. These species were northern pike, pumpkinseed, and yellow perch. Information was collected on all the fish captured (Table 1). The lake contained some very nice size yellow perch, with many of them greater than 9 inches in length. There were also several large northern pike collected during the survey.

In 2010, it was only possible to estimate the population of pumpkinseed and yellow perch (Table 2), because we did not recapture enough northern pike to

accurately estimate their population. Please note that small fish are able to swim through the net which is why very few or no extremely small fish are captured during these surveys. Thus, these population estimates are only estimates of fish that are large enough to be caught in the nets. Many more small fish are likely present in the lakes. The population estimate for yellow perch in 2010 was similar to previous population estimates (Table 2); however the population estimate of pumpkinseed continues to decrease. We will continue to monitor the population in the future to ensure that there is not a serious problem with the pumpkinseed population in Bug Lake.

Table 1 Bug Lake 2010

| | Number of Fish Caught in Each Category (inches) | | | | | | | | |
|---------------|---|-------|-------|--------|---------|---------|---------|---------|-----|
| | 0 - 5 | 5 - 7 | 7 - 9 | 9 - 12 | 12 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | >30 |
| Northern Pike | | | | | | 5 | 2 | | 3 |
| Pumpkinseed | 37 | 30 | 12 | | | | | | |
| Yellow Perch | | 27 | 76 | 99 | 3 | | | | |

Table 2 Bug Lake Population Estimates 2006, 2008 & 2010

| <i>Species</i> | | 2006 | 2008 | 2010 |
|---------------------|------------------------------|-------------|-------------|-------------|
| Pumpkinseed | <i>Population Estimate</i> | 530 | 185 | 133 |
| | <i>95% Confidence Limits</i> | 268 - 1247 | 73 - 740 | 83 - 228 |
| Yellow Perch | <i>Population Estimate</i> | 182 | 347 | 210 |
| | <i>95% Confidence Limits</i> | 147 - 237 | 304 - 403 | 170 - 275 |



Kirk Lambrecht (above) and Nate Guldán (right) holding two quality Northern Pike from Bug Lake.



Above: Kirk Lambrecht (left) and Jason Spaude (right) removing several Yellow Perch and Pumpkinseed from the Bug Lake fyke nets.



Devil's Lake 2010:

The population assessment of Devil's Lake occurred from April 27 - May 7, 2010. Three species of fish were collected during the survey. The species were black crappie, bluegill, and yellow perch. Information was collected on all the fish captured (Table 3).

Table 3 Devil's Lake 2010

| | Number of Fish Caught in Each Category (inches) | | | | | | | | |
|---------------|---|-------|-------|--------|---------|---------|---------|---------|-----|
| | 0 - 5 | 5 - 7 | 7 - 9 | 9 - 12 | 12 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | >30 |
| Black Crappie | 21 | 93 | 46 | 55 | | | | | |
| Bluegill | 57 | 314 | 438 | 80 | | | | | |
| Yellow Perch | | 1 | 2 | 5 | | | | | |

In 2010, it was only possible to estimate the population of black crappie and bluegill in Devil's Lake (Table 4), because an insufficient number of yellow perch were recaptured during the sampling period to calculate an accurate population estimate. Please note that small fish are able to swim through the net which is why very few or no extremely small fish are captured during these surveys. Thus, the population estimates are estimates of fish that are large enough to be caught in the nets. Many more small fish are likely present in the lake. The population estimates for black crappie and bluegill were much lower in 2010 than in 2008, but were comparable to 2006 estimates. The water temperatures during the sampling period may have caused the increased population estimates in 2008. Devil's Lake appears to have a very healthy population of bluegills greater than 7 inches in length.

Table 4 Devil's Lake Population Estimates 2006, 2008 & 2010

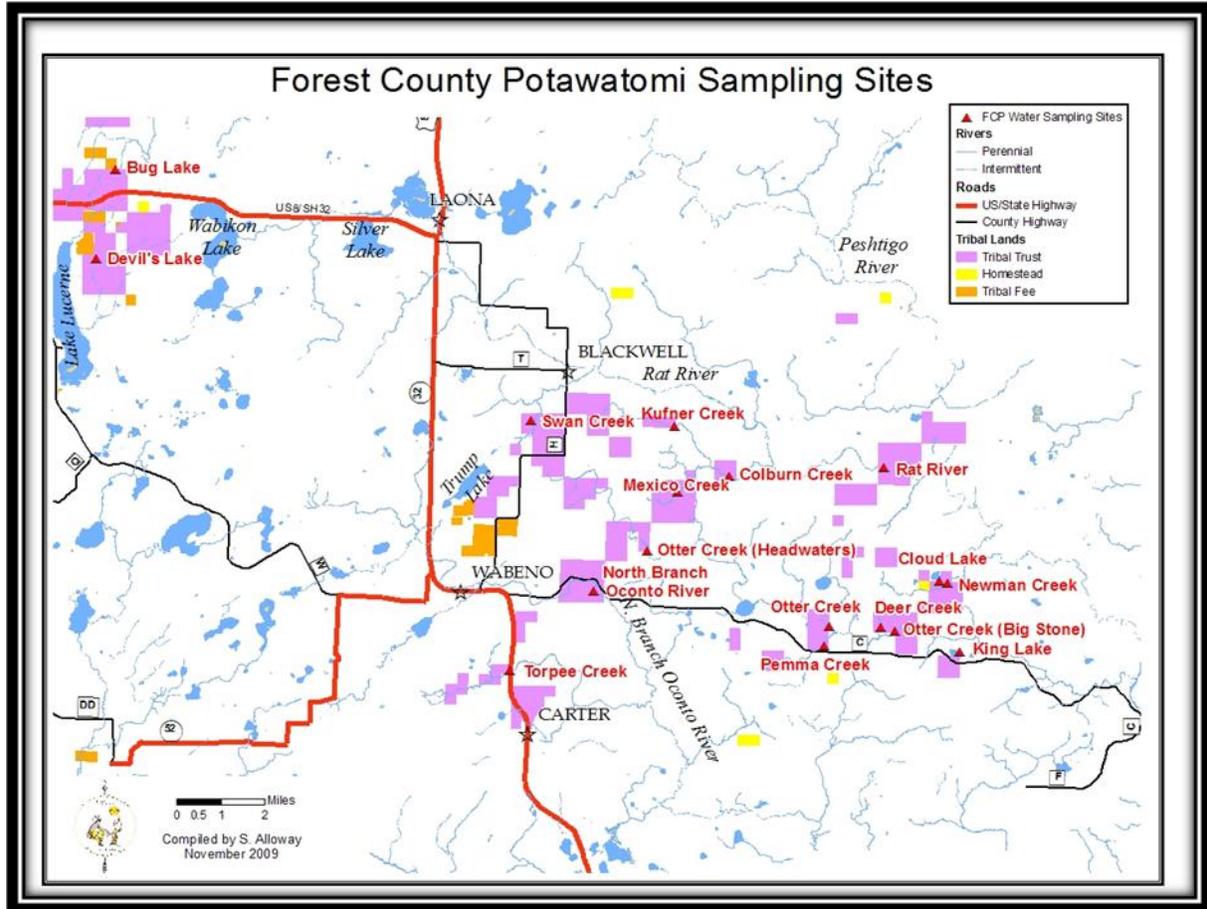
| <i>Species</i> | | <i>2006</i> | <i>2008</i> | <i>2010</i> |
|----------------------|------------------------------|-------------|-------------|-------------|
| Black Crappie | <i>Population Estimate</i> | 66 | 1204 | 577 |
| | <i>95% Confidence Limits</i> | 37 - 134 | 998 - 1517 | 427 - 891 |
| Bluegill | <i>Population Estimate</i> | 3136 | 7394 | 3313 |
| | <i>95% Confidence Limits</i> | 2299 - 4931 | 6447 - 8667 | 2759 - 4147 |
| Yellow Perch | <i>Population Estimate</i> | 28 | 23 | - |
| | <i>95% Confidence Limits</i> | 5 - 280 | 17 - 34 | - |

2010 Stream Fish Surveys

Project Description:

Beginning in 2003, fish stream surveys have been conducted on an annual basis in streams on the Reservation. In 2003, sampling began at Colburn Creek, Newman Creek, North Branch Oconto River, Otter Creek (Headwaters), and Rat River. In 2006, we began sampling Otter Creek, Otter Creek (Big Stone), Pemma Creek, and Swan Creek. Finally, in 2008 we added Deer Creek, Kufner Creek, Mexico Creek, and Torpee Creek. Fish are sampled with either a backpack electrofishing unit or a towed barge electrofisher. An electric current is discharged into the water,

which temporarily stuns the fish so they can be netted. Fish species, weight, and length are recorded for further analysis.



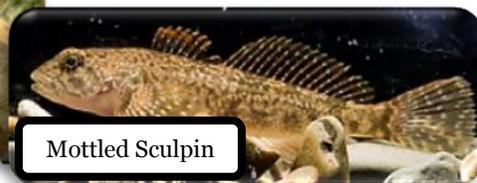
Fish Species Present on the Reservation:

Thirty-four different species of fish have been documented in the streams on the Reservation throughout these surveys. A specimen of each species was preserved in isopropyl alcohol and is currently stored at the Natural Resources Building. If anyone is interested in seeing them, please feel free to stop by. Below is a list of the fish observed for the first time in 2010: brook stickleback and pearl dace in Deer Creek; creek chub in Kufner Creek; blackchin shiner and common shiner in Newman Creek; golden shiner in Otter Creek; pearl dace in Otter Creek (Headwaters).

Colburn Creek

- Blacknose Dace
- Brook Trout
- Brown Trout
- Central Mudminnow
- Creek Chub
- Hornyhead Chub
- Longnose Dace

- Mottled Sculpin
- Pearl Dace



Deer Creek

Brook Stickleback
Finescale Dace
Northern Redbelly Dace
Pearl Dace

Kufner Creek

Brook Trout
Central Mudminnow
Creek Chub
Mottled Sculpin

Mexico Creek

Brook Trout
Mottled Sculpin

Newman Creek

Blackchin Shiner
Blacknose Dace
Blacknose Shiner
Brassy Minnow
Brook Stickleback
Central Mudminnow
Common Shiner
Creek Chub
Fathead Minnow
Finescale Dace
Golden Shiner
Green Sunfish
Hornyhead Chub
Iowa Darter
Mottled Sculpin
Northern Redbelly Dace
Pearl Dace
Rock Bass

North Branch Oconto River

Black Bullhead
Black Crappie
Blacknose Dace
Brook Trout
Central Mudminnow
Common Shiner
Creek Chub
Hornyhead Chub
Johnny Darter
Largemouth Bass
Longnose Dace
Mottled Sculpin
Pearl Dace
Rainbow Trout
White Sucker
Yellow Perch

Otter Creek

Black Bullhead
Blacknose Dace
Blacknose Shiner
Bluegill
Brassy Minnow
Brook Trout
Central Mudminnow
Common Shiner
Creek Chub
Finescale Dace
Golden Shiner
Hornyhead Chub
Johnny Darter
Largemouth Bass
Longnose Dace
Northern Pike
Northern Redbelly Dace
Pearl Dace
Pumpkinseed
Rock Bass
White Sucker



Largemouth Bass



Smallmouth Bass



Brook Trout

Otter Creek (Big Stone)

Black Bullhead
Blacknose Dace
Blacknose Shiner
Bluegill
Brassy Minnow
Central Mudminnow
Common Shiner
Creek Chub
Hornyhead Chub
Johnny Darter
Largemouth Bass
Longnose Dace
Northern Redbelly Dace
Pumpkinseed
Rock Bass
White Sucker

Otter Creek (Headwaters)

Blacknose Dace
Brook Stickleback
Brook Trout
Central Mudminnow
Common Shiner
Creek Chub
Finescale Dace
Hornyhead Chub
Mottled Sculpin
Pearl Dace

Pemma Creek

Brook Trout
Central Mudminnow
Creek Chub
Finescale Dace
Hornyhead Chub
Mottled Sculpin
Pearl Dace

Rat River

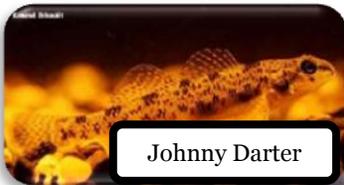
Black Bullhead
Blacknose Dace
Blacknose Shiner
Bluntnose Minnow
Brook Trout
Brown Trout
Central Mudminnow
Common Shiner
Creek Chub
Green Sunfish
Hornyhead Chub
Johnny Darter
Longnose Dace
Mottled Sculpin
Northern Hog Sucker
Rock Bass
Smallmouth Bass
White Sucker

Swan Creek

Brook Trout
Central Mudminnow

Torpee Creek

Blacknose Dace
Blacknose Shiner
Brassy Minnow
Brook Stickleback
Brook Trout
Central Mudminnow
Creek Chub
Fathead Minnow
Finescale Dace
Mottled Sculpin
Northern Redbelly Dace
Pearl Dace
White Sucker



Johnny Darter



Northern Redbelly Dace



Longnose Dace

Brook Trout Size Structure:

In 2010 we collected 315 brook trout from 7 different stream locations. Many of the fish were small juvenile fish, but some of the fish captured were adults (see table below) with the largest being 9.21 inches. A brown trout which was 13.9 inches was also captured in Rat River.

Table 1 Brook Trout Size Structure:

| <i>Stream</i> | Number of Brook Trout in Each Category (inches) | | | | | | |
|----------------------------------|--|-------|-------|-------|-------|-------|--------|
| | 0 - 4 | 4 - 5 | 5 - 6 | 6 - 7 | 7 - 8 | 8 - 9 | 9 - 10 |
| Colburn Creek | 7 | 2 | 20 | 18 | 6 | 3 | 1 |
| Kufner Creek | 2 | | | 3 | 2 | | |
| Mexico Creek | 37 | 4 | 3 | | 1 | | |
| North Branch Oconto River | 10 | 2 | 51 | 63 | 10 | 4 | 1 |
| Otter Creek (Headwaters) | 1 | 2 | 1 | 2 | | | |
| Pemma Creek | 9 | | | 1 | | | |
| Swan Creek | 30 | 6 | 7 | 5 | 1 | | |

Table 2 Index of Biotic Integrity (IBI) Scores:

| <i>Stream</i> | <i>IBI Type</i> | <i>IBI Score</i> | | | | | | | |
|----------------------------------|-----------------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Colburn Creek | Coldwater | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 60 |
| Deer Creek | Coldwater | | | | | | 40 | 40 | 40 |
| Kufner Creek | Coldwater | | | | | | 90 | 70 | 60 |
| Mexico Creek | Coldwater | | | | | | 100 | 100 | 100 |
| Newman Creek | Coldwater | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 50 |
| North Branch Oconto River | Coldwater | 80 | 100 | 90 | 80 | 70 | 90 | 100 | 80 |
| Otter Creek | Warmwater | | | | 42 | 34 | 34 | 57 | 42 |
| Otter Creek (Big Stone) | Warmwater | | | | 39 | 42 | 47 | 45 | 52 |
| Otter Creek (Headwaters) | Coldwater | 40 | 40 | 50 | 40 | 40 | 40 | 40 | 40 |
| Pemma Creek | Coldwater | | | | 50 | 60 | 90 | 70 | 60 |
| Rat River | Warmwater | 47 | 17 | 37 | 59 | 57 | 72 | 62 | 52 |
| Swan Creek | Coldwater | | | | 90 | 90 | 90 | 90 | 90 |
| Torpee Creek | Coldwater | | | | | | 60 | 60 | 20 |

The Index of Biotic Integrity (IBI) is a calculation based on the species of fish found in each stream. The IBI calculation can tell us how the fish population in the stream is doing and can indicate if there are problems with the stream such as water pollution or habitat degradation. A different IBI is calculated for warmwater streams and coldwater streams because the species of fish present in each of these types of streams would be expected to be different.

For the coldwater IBI, a score of 100 - 90 is considered excellent, 80 - 60 good, 50 - 30 fair, 20 - 10 poor, and 0 very poor. For the warmwater IBI, a score of 100 - 65 is considered excellent, 64 - 50 good, 49 - 30 fair, 29 - 20 poor, and 19 - 0 very poor.

Stream Temperature Monitoring

Stream temperature loggers were again placed at stream monitoring locations. The temperature loggers record stream temperature every 10 minutes. The loggers were collected in October and the data was used to classify the stream as cold (less than 71.6°F, cool (71.6 - 75.2°F), or warmwater (greater than 75.2°F). Temperature data can assist with identifying a stream stressors and help in predicting biotic community assemblages such as fish and macroinvertebrates. For example, streams classified as coldwater are more likely to sustain species like brook trout and mottled sculpins and those which are warmwater are more likely to contain rock bass or green sunfish. In addition, a long-term data set could prove beneficial in tracking the effects of global climate change on natural stream systems on the Reservation.

Below is a summary of stream temperature data that includes maximum daily mean water temperatures (degrees Fahrenheit) measured at 13 monitoring locations between May 25 to September 30, 2006-2010. The majority of streams that exhibit cooler water temperatures are known to support wild populations of brook trout.

| | Maximum Daily Mean Temperatures (°F) | | | | |
|----------------------------------|---|-------------|-------------|-------------|-------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 |
| Colburn Creek | 68.8 | 67.3 | 65.7 | 67.1 | 67.0 |
| Deer Creek | -- | -- | 64.0 | 62.9 | 66.7 |
| Kufner Creek | -- | -- | 62.7 | 64.5 | 64.5 |
| Mexico Creek | -- | -- | 57.2 | 53.6 | 59.8 |
| Newman Creek | 72.3 | 70.1 | 68.1 | 69.9 | 70.0 |
| North Branch Oconto River | 74.0 | 72.7 | 68.9 | 71.6 | 72.6 |
| Otter Creek (Headwaters) | 73.1 | 73.1 | 71.7 | 73.4 | 74.2 |
| Otter Creek (Middle) | 80.8 | 79.9 | -- | 79.4 | 81.9 |
| Otter Creek (Big Stone) | 79.0 | 78.8 | 77.6 | 79.3 | 80.0 |
| Pemma Creek | 65.1 | 61.5 | 61.1 | 61.7 | 63.2 |
| Swan Creek | 71.4 | 68.76 | 68.0 | 61.6 | 63.7 |
| Torpee Creek | -- | 76.7 | 75.5 | 77.5 | 78.5 |
| Rat River | 80.3 | 80.2 | 78.4 | 80.2 | 78.9 |

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Wildlife Resources Program

CWD Surveillance Wrap-Up

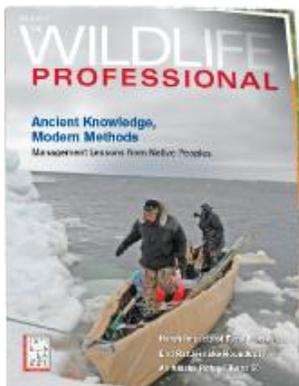


The Forest County Potawatomi Community's Wildlife Resources Program has wrapped up this year's Chronic Wasting Disease Surveillance Program. Chronic Wasting Disease (CWD) is a transmissible neurological (brain and nervous system) disease found in deer, elk, and moose that causes an infected animal to begin to lose bodily functions and display abnormal behavior such as staggering or standing with very poor posture. Deer

may carry head and ears lower, have an exaggerated wide stance, and have excessive salivation or drooling. The animal may appear in poor bodily condition. It is important to note that even deer which appear healthy may have CWD and infected animals do not necessarily show symptoms until later progressions of the disease.

Hunters who participated in the sampling were entered into a drawing to win a European mount and venison of a red deer from the FCPC red deer ranch. The program will resume again next fall and the Wildlife Resources Program will again be accepting sample submissions from deer hunters for testing.

Wildlife and Tribes: Reaching Out



FCPC Wildlife Resources Program Director contributed an article to the magazine "The Wildlife Professional", a publication by the professional accreditation organization The Wildlife Society. The entire issue of The Wildlife Professional was dedicated to highlighting tribal wildlife management across the nation. The Wildlife Society has well over 9,000 members internationally and this issue represents an excellent opportunity to reach wildlife professionals worldwide. For the full article and issue, visit:

www.fcpotawatomi.com/wildliferesources.

White-Tailed Deer Herd Structure Pilot Survey

During 13-28 September 2010, Forest County Potawatomi Community Natural Resources Department conducted a pilot study on deer herd structure on FCPC land using remote-sensor digital game cameras. Cameras ($n = 19$) were deployed at different sites (Figure 1) for a period of 7 days each. Sites were pre-baited for 1 week with approximately 5 gallons of shelled corn, and rebaited before the 7 day survey period. Cameras were set to take 2 pictures every event, with events spaced 5 minutes apart. Unique bucks were distinguished by antler characteristics. Deer herd characteristics were calculated based on Demarais et al. 2000. Calculations are not intended to be an estimate of the total deer population on FCPC land, rather to estimate sex structure and provide a baseline for monitoring future trends.

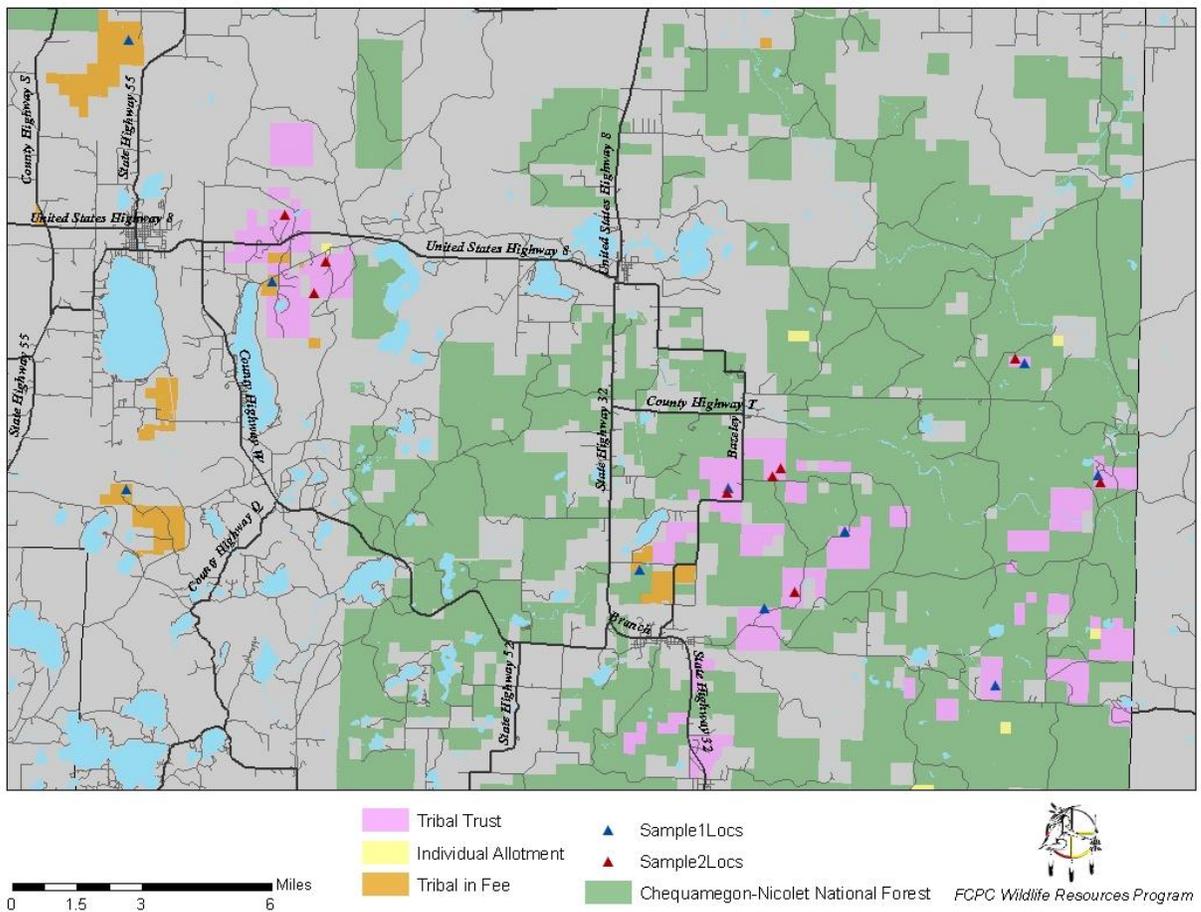


Figure 1. Placement of two rounds of camera traps ($n = 19$) for 7 day intervals, 13-28 September 2010.

Results

Camera surveys yielded a total of 1,422 photographs of deer. Among these, 854 were does and 405 were bucks (Table 1). Because female fawns could no longer be distinguished from does due to lack of spots, buck fawns were grouped into the total buck count as, presumably, doe fawns are counted in doe numbers. Among males, 34 unique bucks were identified by antler characteristics. This is likely a very conservative estimate as males lacking distinguishing features (such as spike bucks) could not be counted as unique individuals.

Table 1. Summary of deer detected during fall 2010 pilot deer camera survey.

| Totals | <i>n</i> |
|--------------|----------|
| Deer Photos | 1422 |
| Doe Photos | 854 |
| Buck Photos | 405 |
| Unique Bucks | 34 |

Table 2. Estimates of population characteristics (Demarais et al. 2000) of white-tailed deer on FCPC land.

| Target | Calculation I | = | Calculation II | = | Estimate |
|-------------------|--------------------|---|----------------|---|----------|
| Bucks | | = | 34 x 2.22 | = | 75.48 |
| Does | 427 x 0.17 = 72.59 | = | 73 x 2.22 | = | 162 |
| Buck to doe ratio | | = | 34:73 | = | 1 : 2.15 |

Calculations are useful for preliminary estimates of sex ratios among white-tailed deer populations in and around FCPC land. Initial calculations estimate approximately a 2:1 doe to buck population. ***Caution should be used when interpreting these results however, as there may be differences in wariness among bucks versus does in approaching baited camera sites, and there is likely statistical bias due to low sample size.***

Discussion and Future Improvements

This pilot study was intended to identify potential future problems and develop a baseline for monitoring trends. ***The data presented here should not be interpreted as representative of the entire herd or population in this area, as statistical bias likely exists.*** Further data over greater spatial and temporal spaces needs to be generated and more sophisticated statistics determining confidence intervals should be developed.

Deer behavior may also play a role in differences in detection rates between males and females, which may affect sex ratio estimates. White-tailed deer social structure usually centers on two basic social groups: matriarchal groups which are composed of a maternal doe, her fawns, and female offspring from previous years; and bachelor groups of adult males (> 1 year old) of varying size. During rut, males may break off from these bachelor groups to find females, which may explain differences in detected male and female groups from a stationary camera. Additionally, sex-specific groups are typically isolated socially, geographically, or temporally (McCullough et al. 1989) so timing and location of cameras may play a role in detecting these groups. It is because of this random chance detection that one year of sampling should not be interpreted as solid results, and several years of sampling using various field sampling methods should be employed before a rigorous conclusion can be made.

With future funding, the FCPC Wildlife Program should be able to acquire more infrared remote game cameras, thereby increasing the number and distribution of survey sites. Further surveys will strive to place 1 camera per 100 acres, based on accuracy assessments by Demarais et al. (2000). If this density is not possible, cameras will be set at 1 per 200 acres. Cameras will be left out for a period of 10 days, and surveys will be started earlier in the season (mid-August) to increase odds of detecting fawn recruitment and fawn sex structure. Camera studies may also be augmented with spotlight surveys and hunter harvest, which may help determine sex ratios and herd size.

