

NONPOINT SOURCE MANAGEMENT PLAN
FOR
THE SAGINAW CHIPPEWA INDIAN TRIBE OF
MICHIGAN

PUBLIC REVIEW

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Prepared for - Saginaw Chippewa Indian Tribe
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ACRONYMS AND ABBREVIATIONS LIST

BIA	Bureau of Indian Affairs
BMP	Best Management Practices
CMDHD	Central Michigan District Health Department
CMU	Central Michigan University
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CWA	Clean Water Act
CWC	Chippewa Watershed Conservancy
EQIP	Environmental Quality Incentives Program
FMP	Forest Management Plan
FSA	Farm Service Agency
GAP	General Assistance Program
HD	Health Department
HUC	Hydrologic Unit Code
IHS	Indian Health Service
ITCM	Inter-tribal Council of Michigan's
MDARD	Michigan Department of Agriculture and Rural Development
MDEQ	Michigan Department of Environmental Quality
NBCR	North Branch Chippewa River
NPS	nonpoint source
NRCS	Natural Resources Conservation Service
RC&D	Resource, Conservation, and Development Councils
SBLC	Saginaw Basin Land Conservancy
SCIT	Saginaw Chippewa Indian Tribe
TAS	treatment as state
TDS	total dissolved solids
TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids
µg/L	micrograms per liter
U.S. EPA	United States Environmental Protection Agency

SECTION 1 – OVERVIEW

The Saginaw Chippewa Indian Tribe (SCIT) is actively pursuing grant eligibility under the federal Clean Water Act (CWA) section 319 to address nonpoint source (NPS) pollution within tribal boundaries. To qualify for section 319 funding, tribes must meet four criteria (EPA 2010):

1. Be a federally recognized tribe
2. Complete an approved CWA section 319(a) NPS assessment report
3. Complete an approved CWA section 319(b) NPS management program
4. Be CWA section 518(e) approved for treatment, similarly to a state (“treatment as a state” or TAS)

In 2012, the SCIT completed the NPS Assessment report that summarizes and characterizes the condition of tribal water resources. This document describes the NPS Management Program Plan that uses the information from the NPS Assessment report to identify the specific activities the SCIT, with technical and financial assistance from non-tribal partners, would like to implement to address NPS pollution and improve tribal water quality. Approval of the Management Plan, in conjunction with the NPS Assessment Report and TAS documentation, will allow the SCIT to pursue federal grant funding to implement structural and non-structural best management practices (BMPs) and reduce NPS pollution impacts.

The NPS Assessment Report characterized water quality within the SCIT’s tribal boundary as shown in Figure 1. Water quality data collected by the SCIT compared to target SCIT goals indicated elevated stream temperature, *E. Coli* bacteria levels, as well as sedimentation and erosion. Appendix A presents a summary of the NPS Assessment report findings by watershed.

Based on the results presented in the NPS Assessment report, the two watersheds considered high priority for BMP implementation are the North Branch Chippewa River and Saganing River. The Salt River is a priority for future monitoring. With an understanding of these identified NPS pollution concerns and priority watersheds, the SCIT and non-tribal partners can select and implement appropriate, targeted structural and non-structural BMPs throughout the Isabella Reservation. The SCIT currently collaborates with local agencies and organizations and will continue this collaboration to leverage established programs, effectively share resources, and minimize potential implementation redundancy or conflict.

The SCIT Legal Department is compiling the necessary information to satisfy TAS requirement.

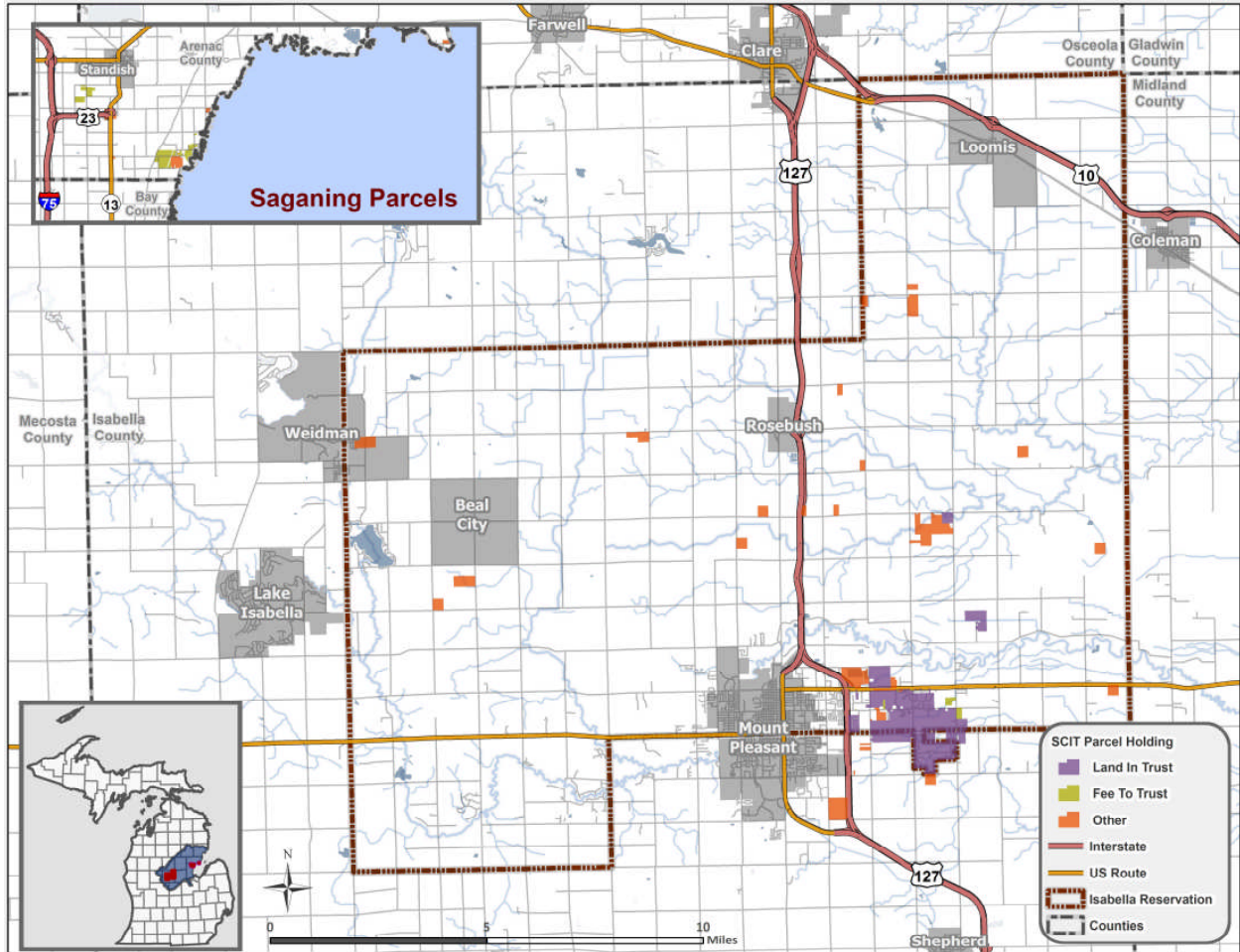


Figure 1. Location of SCIT Water Resources

SECTION 2 – INTRODUCTION

The primary goal of the SCIT NPS Management Program is to achieve tribal water quality goals and targets identified in the NPS Assessment report by controlling and preventing NPS pollution through a suite of implementation activities selected by tribal and key non-tribal partners. The NPS Management Program will be implemented within the boundaries of the reservation through a relatively seamless approach that considers pollution sources from both tribal (i.e., fee, trust, and other Indian land) and non-tribal land, and may impact off-reservation lands as well. Under this approach, tribal water quality staff will work in a cooperative, coordinated manner to identify nonpoint water pollution sources affecting tribal waters wherever they exist, whether on tribal lands or not. For NPS pollution originating on land owned by the tribe or individual tribal members, NPS Management Program staff will work with landowners to identify and implement appropriate NPS control measures through voluntary measures, cost-share funding from tribal and other sources, and, where necessary, protective measures established through tribal ordinance.

Where NPS pollution sources impacting tribal waters originate on private non-Indian land, program staff will work as appropriate with non-tribal resource agencies, stakeholders, and property owners to develop workable solutions to the NPS challenges identified. Where funding is needed (i.e., where landowners or cooperators are unable to implement NPS control measures using their own resources) tribal NPS Program staff will work cooperatively with tribal and non-tribal entities to identify relevant and available funding sources that can be leveraged to address the NPS issues regardless of where they are found.

It is important to note that the ongoing settlement negotiations between the SCIT and the State of Michigan will likely affect the applicability and enforceability of tribal ordinances on tribal versus non-tribal lands within the reservation boundaries. As a result, ordinances that focus solely on tribal lands will be the focus earlier in the NPS Management Program. Once the settlement negotiations are finalized, the SCIT can determine ordinance applicability and enforceability throughout the reservation.

To begin development of the NPS Management Program and initiate work to address the overarching NPS pollution reduction goals, the SCIT NPS Management Program proposes to use its Section 319 funding to address the following objectives:

- 1) Develop and implement an Involvement and Education Strategy that targets key NPS pollution-related behaviors and associated audiences
- 2) Develop a tribal ordinance that establishes standards, policies, and procedures for future development on tribal lands to prevent NPS pollution during construction (i.e., if less than one acre and not requiring coverage under an NPDES stormwater construction general permit) and after construction (i.e., all development not located within a regulated municipal separate storm sewer system [MS4] boundary), with an emphasis on effective stormwater management through infiltration, wetland protection, and riparian corridor restoration and protection
- 3) Implement agricultural, urban, and septic system BMPs to control NPS pollution in high priority areas defined using both water quality data and local watershed knowledge
- 4) Expand monitoring to develop baseline conditions for tribal waters lacking data to better characterize NPS pollution impacts and sources and support selection of targeted implementation activities.

Section 4 details further specific goals and objectives based on the results of the NPS Assessment report findings and stakeholder input.

Figure 2 shows the location of tribal waters and associated water quality monitoring locations. The SCIT NPS Management Program focuses on BMP implementation and strategies to address NPS pollution affecting tribal waters within tribal boundaries. However, as noted above, the SCIT recognizes the need to

collaborate with non-tribal partners to ensure that NPS pollution upstream of tribal waters is also effectively addressed. To date, the SCIT is actively involved in the Chippewa River Watershed group that has participation from key watershed partners at the federal, state, and local levels. Many of these partners also participate with the SCIT to address issues affecting the Saginaw River. To successfully implement the NPS Management Program, the SCIT intends to continue collaborating with key non-tribal partners on NPS issues affecting the Chippewa River watershed and the Saginaw River.

To ensure NPS Management Program goals are met, this NPS Management Program Plan identifies feasible and appropriate BMPs selected with tribal and key non-tribal partner input, a detailed schedule of management activities, appropriate programs, and partnership opportunities. The SCIT and key partners will take a watershed approach to implementation by regularly communicating about NPS issues and ensuring that upstream sources are effectively addressed by partners with an understanding that upstream NPS pollution contributions affect tribal water resources.

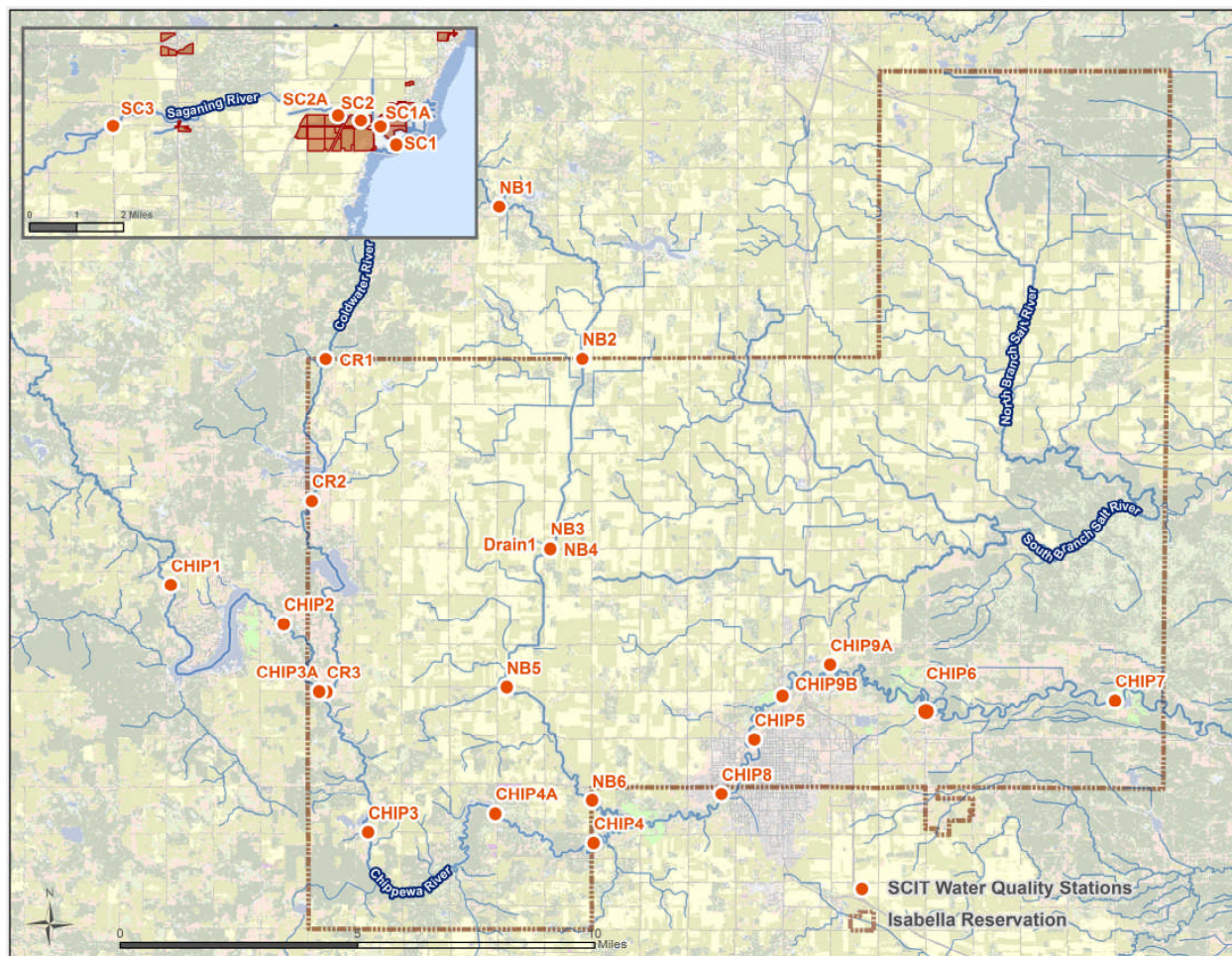


Figure 2. Location of tribal waters and associated water quality monitoring locations.

SECTION 3 – MANAGEMENT PLAN SUMMARY

This section describes the fundamental components of how the SCIT intends to implement the NPS Management Program. Discussions include how the SCIT will administer the NPS Management Program in the context of the existing tribal governance structure, tribal authority for the NPS Management Program, the process for working with local experts and partners on BMP geographic scale and selection, NPS Management Program monitoring and assessment activities, as well as coordinating reporting.

Implementing the NPS Management Program in the Existing Tribal Governance Structure

The SCIT’s Planning Department will have primary responsibility for NPS Management Program implementation. This department includes the planning director/community engineer, the tribal code compliance officer, an administrative assistant, an environmental specialist, an environmental response program specialist, a water quality specialist, and a water resource technician. The SCIT works with a variety of tribal college students, including two paid interns. This staff, under the direction of the Tribal Council, will administer the program with assistance from other tribal agencies and departments (e.g., construction, parks and recreation, utilities, education). The water quality specialist and water resource technician will be dedicated to administering the NPS Management Program in addition to their current duties. Their positions will be supported by CWA 319 and CWA 106 funding. Figure 3 illustrates the SCIT governance. Figures 4 and 5 illustrate the proposed program implementation in the context of the overall tribal government structure with participation from key non-tribal partners involved in Chippewa River watershed activities and Saganing River activities.

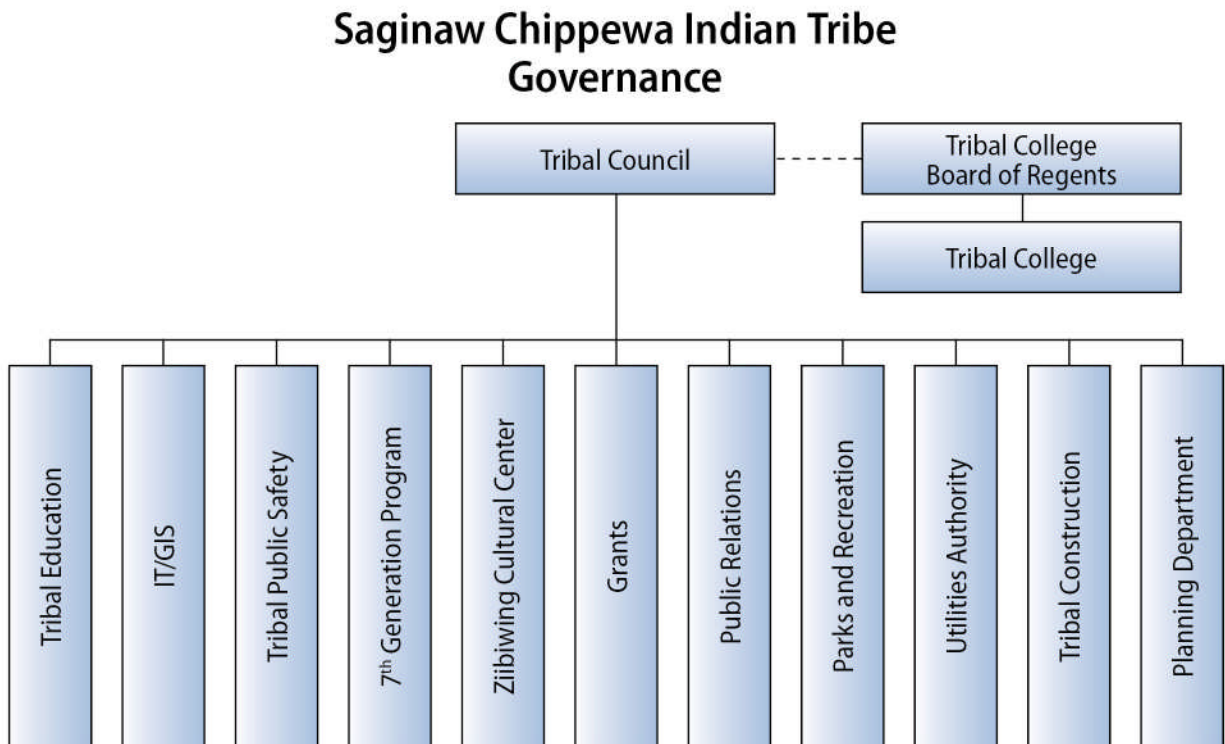


Figure 3. Saginaw Chippewa Indian Tribe governance highlighting key departments and programs that will play a role in the Tribal Nonpoint Source Management Program.

Saginaw Chippewa Indian Tribe Governance Related to NPS Management Program

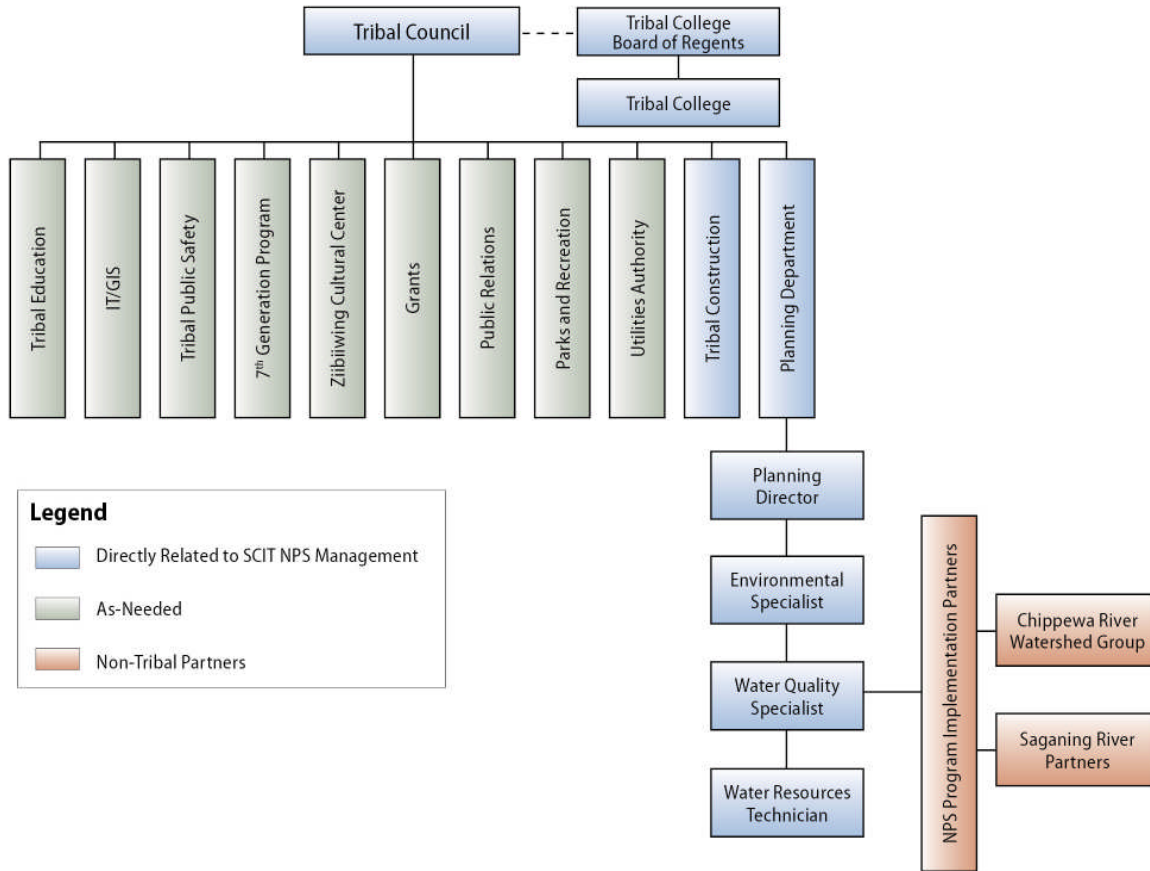


Figure 4. Anticipated roles and relationships among tribal departments and programs and non-tribal partners to implement the SCIT Nonpoint Source Management Program.

Saginaw Chippewa Indian Tribe Governance Related to NPS Management Program

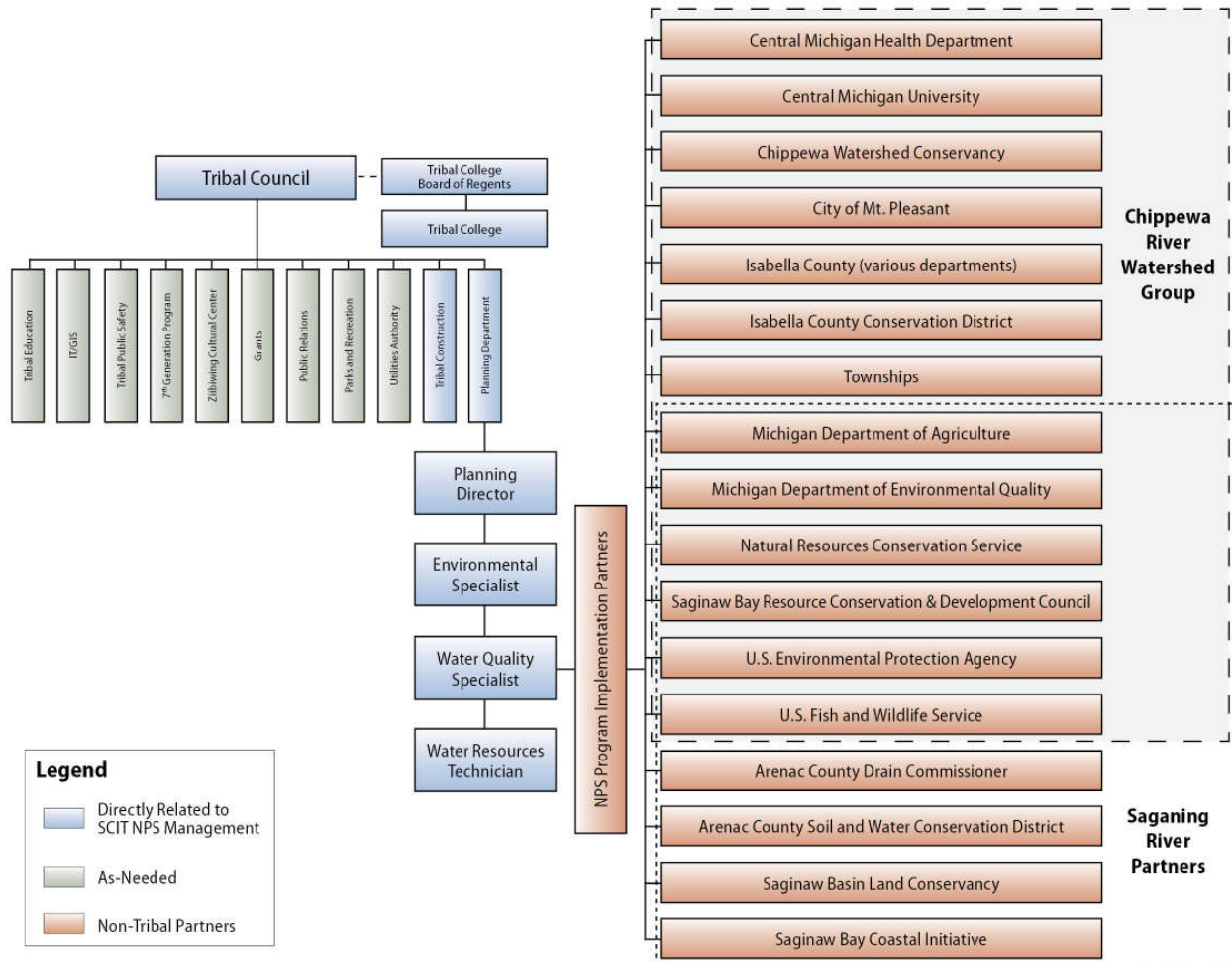


Figure 5. Detail on the non-tribal partners that will participate in the SCIT Nonpoint Source Management Program

Working with Local Partners to Select Appropriate BMPs

The SCIT Planning Department, in conjunction with a wide array of local experts and partners, collaborated to discuss and select of a suite of BMPs that have the potential to achieve the SCIT's goals and objectives. A working session for partners focused on the Chippewa River took place on December 17, 2012 at the SCIT Planning Department offices and another working session for partners focused on the Saganing River took place on December 18, 2012 at the Tribal Center. For the working sessions, partners were provided with fact sheets on each watershed based on the information contained in the NPS Assessment Report, as well as BMP selection worksheets. The SCIT Planning Department staff, as well as other tribal representatives, worked with local experts and partners to discuss additional existing BMP activities within and upstream of the Isabella Reservation, as well as the need for other BMPs to address water quality issues. The working sessions helped to verify information in the NPS Assessment Report, identify other ongoing work by local partners, and create a suite of priority BMPs. The NPS Assessment Report summary fact sheets are provided in Appendix A. A summary of each of the working sessions and participants is provided in Appendix B. A discussion of the suite of BMPs identified during these working sessions is provided in Section 4. The Tribal Council will approve the proposed suite of BMPs. Final BMP selection and program development depends on land ownership, jurisdiction, and funding.

NPS Management Program Monitoring and Assessment

Although the NPS Assessment Report indicates where many of the NPS pollution problems occur, it will be important to continue monitoring and to expand monitoring efforts to the unassessed subwatersheds. These monitoring efforts will be covered by the Clean Water Act section 106 funds. The SCIT will use the new data to assess the effectiveness of the Clean Water Act section 319 program and to re-prioritize areas for management. In addition, the SCIT will use section 319 funds to assess the effectiveness of innovative BMP projects. Table 1 provides an overview of the SCIT’s NPS Management Program monitoring and assessment activities, including the frequency and associated funding needs.

Table 1. NPS Management Program Monitoring and Assessment Activities

Activity	Frequency	Associated Funding Needs
Establish additional monitoring stations	Annually	CWA section 106 funds
Monitor effectiveness of BMPs	Project-dependent	2-4 hours per BMP per year
Reassess water quality data against SCIT goals and targets	Every five years	40 hours every 5 years
Review program priorities	Annually	20 hours per year
Review program process	Annually	20 hours per year
Review and revise NPS Management Program	Every five years	20 hours every 5 years

Funding plays a crucial role in overall NPS Management Program administration and BMP implementation. The SCIT’s Planning Department water quality activities, such as monitoring, are mostly grant funded. As a result, resources are often limited. It is possible that SCIT BMP priorities won’t always align with available funding. Funding under CWA Section 106, General Assistance Program (GAP), and Brownfields Section 128 (funds a position for the environmental emergency response program specialist) are currently used to develop environmental programs, monitor, and implement water pollution control projects. Continued reliance on outside sources of funding for NPS program implementation is expected.

NPS Management Program Coordinating Reporting

The success of the SCIT NPS Management Program relies on broad participation from a variety of tribal departments and non-tribal partners. As a result, it will be imperative to establish a system to share and document information related to NPS Management Program implementation over time. At this point in time, a formal framework for coordinated tracking and reporting does not exist. However, partners working on the Chippewa River watershed informally exchange information during regular watershed meetings. The goal for coordinated tracking and reporting to assist with NPS Management Program implementation will be to build on existing communication and information sharing to create a more formal framework to facilitate coordinated reporting of NPS management related activities. Coordinated reporting will seek to track the effectiveness measures identified for each proposed activity under each NPS category objective on a regular basis for interested partners and stakeholders.

SECTION 4 – MANAGEMENT PROGRAM

This section of the SCIT's NPS Management Program Plan provides details on the program scope, structure, and function. To provide context for proposed BMPs, this section also provides a brief overview of the NPS categories and subcategories.

Tribal water quality within the SCIT reservation boundaries is affected by several NPS categories, including agriculture, land disposal (septic systems), hydrologic/habitat modification, construction, and urban runoff. Table 2 presents the primary NPS categories and subcategories, with associated impacts and pollutants. Table 3 indicates which of the watersheds are affected by the NPS categories and subcategories.

Table 2. Primary NPS Categories and Subcategories Addressed by the SCIT NPS Management Program

NPS Categories and Subcategories	Associated Impacts/Pollutants	Affected Watershed				
		Coldwater River	Chippewa River	Salt River	North Branch Chippewa River	Saginaw River
Agriculture		X	X	X	X	X
Pasture Land	Sedimentation, erosion, bacteria, nutrient runoff	X	X	X	X	X
Crop Production (Surface Runoff, Manure management/land application, Tile drainage)	Sedimentation, erosion, Channelization, increased nitrates	X	X	X	X	X
Land Disposal		X	X	X	X	X
Failing and antiquated on-site wastewater systems	Elevated levels of bacteria and nutrients	X	X	X	X	X
Hydrologic/Habitat Modifications		X	X	X	X	X
Removal/Loss of riparian vegetation	Increased stream temperatures, erosion of banks, siltation of stream beds	X	X	X	X	X
Channelization	Increased erosion, sedimentation, altered hydrology		X	X	X	X
Streambank modification/destabilization	Increased streambank erosion, increased litter, increased bacteria, increased stream bed siltation		X	X	X	X
Decreased water levels (cause unknown)	Reduced/stagnant flows, siltation of stream beds					X
Construction (less than one acre)/Post-Construction			X			X
Unregulated Roads and Land Development	Stormwater runoff of sediment, nutrients, bacteria, increased sedimentation and erosion		X			X

NPS Categories and Subcategories	Associated Impacts/Pollutants	Affected Watershed				
		Coldwater River	Chippewa River	Salt River	North Branch Chippewa River	Saganing River
Urban Runoff		X	X			X
Unregulated Surface Runoff	Stormwater runoff of nutrients, bacteria, increased sedimentation and streambank erosion	X	X			X
Unregulated Storm Sewers	Stormwater runoff of sediment, nutrients, bacteria, increased sedimentation and erosion, groundwater pollutants	X	X			X

Table 3. Primary NPS Issues and Pollutants Addressed by the SCIT NPS Management Program

NPS Issues/ Pollutants of Concern	Affected Watershed				
	Coldwater River	Chippewa River	Salt River	North Branch Chippewa River	Saganing River
Dissolved Oxygen	X	X	X		X
Spring Temperature	X	X	X	X	X
Specific Conductivity	X	X	X	X	X
Turbidity	X	X	X	X	X
Total Dissolved Solids					X
Total Nitrogen		X	X	X	X
Total Phosphorus	X	X	X	X	X
<i>E. coli</i>	X	X	X	X	X
Groundwater Pollutants		X			X

The SCIT NPS Assessment Report identifies the North Branch Chippewa River and Saganing River as the highest priority subwatersheds for implementation activities. The North Branch Chippewa River is a priority due to the fact that *E. coli* levels in the main stem of the Chippewa River significantly increase after the confluence with the North Branch Chippewa River, with the Forest Drain as a critical area within the North Branch Chippewa River watershed. The Saganing River is a priority subwatershed due to the concerns in the change of flow over time for unexplained reasons and the streambank erosion concerns.

BMP Selection

The SCIT facilitated a working session with key federal, state, and local partners and experts in December 2012 to identify and refine a suite of BMPs to address NPS categories affecting each subwatershed. Details on the meeting agenda and participants are available in Appendix B. The rest of this section presents details on the BMPs identified during the working session under each NPS category. In addition, this section presents goals, objectives, structural or non-structural BMPs to meet the

objective, the implementation lead and, if applicable, key implementation partners. An overall implementation schedule for the proposed activities follows the NPS category-specific discussion. Appendix C provides cost and effectiveness information on many of the BMPs presented in this section to assist with future work plan development.

It is important to note that the SCIT and key federal, state, and local partners and experts identified education as an integral component of the SCIT's NPS Management Program. Before the SCIT and key non-tribal partners can encourage the use of BMPs, it will be necessary for the SCIT to educate tribal members and other reservation residents on the effects of NPS pollution, the necessary changes in behavior to reduce NPS pollution, and the wide array of benefits generated through BMP implementation. The BMPs presented under each NPS category will only be successful if key stakeholders within the SCIT's Isabella Reservation boundary, as well as upstream of the reservation, are educated and motivated to change NPS-related behaviors. Table 4 summarizes the education activities and target audiences that the SCIT may use to address each NPS category.

Table 4. NPS Education Activities

Activity	Target Audience
Develop and conduct Tribal staff training on NPS pollution and BMPs	SCIT Staff
Distribute educational materials on proper septic system maintenance to homes with septic systems	Septic System Owners
Educational workshops and outreach materials on NPS BMP implementation for agricultural landowners and farm land renters	Agricultural Landowners
Distribute educational materials to property owners on benefits of tree diversity, native vegetation, and recommended species as part of outreach and education strategy	Riparian Landowners
Provide soil and erosion control training to tribal staff and non-tribal staff involved in construction activities	Construction staff
Gather appropriate existing outreach materials and adapt for urban homeowners and businesses within tribal boundaries on types of unregulated urban NPS BMPs, including rain gardens, rain barrels, good housekeeping practices	Urban Homeowners and Business Owners
Distribute educational materials on types of unregulated urban NPS BMPs, including rain gardens, rain barrels, good housekeeping practices to urban homeowners and businesses	Urban Homeowners and Business Owners
Provide training on the use of rain barrels, rain gardens, and other green infrastructure practices to reduce NPS runoff pollutants and runoff volume	Residents and Business with impervious surfaces
Educational workshops and outreach materials for recreational water users on the importance of using public access locations and other public facilities to minimize streambank erosion, protect native riparian vegetation, and encourage proper waste management to decrease sedimentation, nutrients, and bacteria contributions from recreational activities	Recreational users

NPS Category: Agriculture

As discussed in the SCIT NPS Assessment Report, agriculture (e.g., crop production and livestock) constitutes approximately 55.2 percent of the land use on all of the Isabella Reservation including Saganing River parcels. Agricultural land use ranges from 1 to 85 percent of all land uses in the 12 digit HUC subwatersheds, with an average value of 37 percent. NPS pollutants from agricultural and livestock acreage include manure and fertilizer, as well as the potential for pesticides and herbicides. Pollutants are conveyed to surface waters through overland flow in all watersheds and through shallow groundwater in the Chippewa River watershed.

Crop Production

NPS pollutants from crop production activities on the reservation can include nutrients, sediment, bacteria, and pesticides. Runoff from cropped or fallow fields can contribute sediment, nutrients, and pesticides to surface waters. Pathogens can also enter surface waters in runoff from fields where agricultural producers land apply manure as a fertilizer. Agricultural areas within the SCIT Reservation boundary, as well as upstream, are assumed to rely on tile drainage due to poorly drained soils, which research has shown to contribute to increased dissolved nutrients such as nitrate and research has shown possible links to increases in *E. coli* (Sands 2010 and MPCA 2010).

The SCIT's long-term goal is to implement appropriate BMPs to minimize NPS contributions of nutrients and bacteria from crop production. In the near term, activities will focus on continued partnerships with Isabella and Arenac County Conservation Districts and NRCS that work with crop growers across the reservation. Discussions with these key non-tribal partners during the working session indicated that increases in commodity prices were creating an incentive for agricultural producers to discontinue conservation practices under CREP and put acreage back into production. Non-tribal partners identified a need for unique, short-term BMPs that don't require land to go out of production or could fill the gaps for agricultural producers that perceive CREP to have disadvantages or limitations. Both the Chippewa Watershed Conservancy and the Saginaw Basin Land Conservancy are working with the SCIT to identify and preserve key acreage in and around the SCIT's reservation boundary by creating permanent filter strip easements. The SCIT is committed to continue working with both land conservancy organizations to identify opportunities to create incentives for agricultural landowners and producers to create permanent filter strip easements.

Longer-term and ongoing activities will include developing a better understanding of the extent and impact of tile drainage on agricultural lands within the SCIT Reservation boundaries and addressing hydrologic and habitat modifications associated with agricultural practices, particularly the channelized area in the North Branch Chippewa River (south of Battle Road to the confluence of the Chippewa River in Vernon Township). In addition, longer-term activities will include implementing projects and monitoring to determine project effectiveness.

Pasture Land

During the working session, the SCIT's non-tribal partners identified agricultural parcels where livestock have stream access along the Chippewa River and the North Branch Chippewa River. NPS pollutants from pasture land on the reservation can include nutrients, sediment, bacteria, increased temperature, and low dissolved oxygen. Specific activities contributing these pollutants include the following:

- Grazing on stream banks, which can contribute to increased sediment loads from streambank erosion and removal of riparian vegetation, increased temperature (and corresponding decreases in dissolved oxygen) from removal of riparian vegetation, and increased nutrients and pathogens from manure deposition directly to surface waters and to riparian areas. Partners participating in the working sessions identified locations upstream of reservation boundaries and within reservation boundaries where livestock have access to streams.
- Confinement of livestock can create areas of concentrated nutrients and pathogens from animal manure and can contribute to increased erosion from removal of vegetation in the confinement area. Nutrients, pathogens, and sediment from these confinement areas can enter surface waters through runoff of stormwater and snowmelt.

The long-term goal is to eliminate NPS contributions to surface waters from pasture land to reduce bacteria and nutrient contributions, as well as reduce sedimentation and erosion. In the near term, activities will focus on continuing partnerships with the Isabella County Conservation District and NRCS to work with agricultural landowners and users across the reservation and identifying opportunities to implement projects to minimize grazing-related NPS contributions to surface waters. Longer-term and ongoing activities will include implementing projects and monitoring to determine project effectiveness. BMPs related to livestock will be site-specific and based on NRCS conservation practices and standards.

Table 5 presents the goals, objectives, and activities identified by the SCIT and non-tribal partners related to the agricultural NPS category. Addressing NPS pollution from agriculture is the SCIT's highest priority due to the extent of agricultural land use and the excessive levels of *E.coli*, total nitrogen, and pollutants associated with streambank erosion and loss of riparian vegetation.

Table 5. Goals, Objectives, and Activities for Agriculture

Goal for Agriculture NPS Category: Reduce bacteria, nutrients, and sedimentation/erosion contributions to tribal waters from agricultural activities including crop production and pasture land practices.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Objective 1: Create incentives for agricultural landowners and users to continue participating in conservation practices rather than putting more acreage into production					
Promote and maintain enrollment in CREP and EQIP	NRCS and FSA	County Conservation Districts	Throughout SCIT reservation	CWA section 319 NRCS Farm Bill	1) Acreage remaining out of production 2) Amount of new enrolled acreage
Create a program as an alternative to CREP/EQIP that would allow 5 ft or greater riparian buffers	SCIT	NRCS, FSA, County Conservation Districts	Initial focus on the NBCR and Saganing River	CWA section 319	Acreage enrolled in new program
Demonstration project to study potential use of silt fence and other low-cost, low-acreage BMPs	SCIT	NRCS County Conservation Districts	Initial focus on Saganing River	CWA section 319	1) Project implemented 2) Amount of acreage in production with load reductions
Objective 2: Keep livestock away from tribal waters across the reservation					
Work with landowners and users to identify appropriate BMPs (fencing, stream crossings, alternative watering systems)	County Conservation Districts	NRCS	Chippewa, NBCR, and other areas where livestock have access	CWA section 319 NRCS	Number of landowners interested in BMP implementation
Work with landowners and users to identify additional funding sources	County Conservation Districts	NRCS		CWA section 319	Amount of additional funding
Work with landowners and users to implement the identified BMPs	County Conservation Districts	NRCS		CWA section 319	Number of projects funded and implemented
Objective 3: Promote improved manure management and land application practices					
Provide training to agricultural land users on sensitive land application procedures	SCIT	NRCS County Conservation Districts	Reservation wide	CWA section 319	Number of training participants Surveyed changes in land application behavior
Create ordinance requiring use of setbacks from stream corridors where land application occurs	SCIT	NRCS County Conservation Districts	Tribal lands within reservation boundary	CWA section 319	1) Ordinance development and approval 2) Ordinance enforcement

Goal for Agriculture NPS Category: Reduce bacteria, nutrients, and sedimentation/erosion contributions to tribal waters from agricultural activities including crop production and pasture land practices.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
within reservation boundaries					activities
Objective 4: Restore hydrologic conditions and habitat					
Develop an agricultural tile drain inventory and identify opportunities to restore wetlands through tile breaks	SCIT	County Conservation Districts	Reservation wide	CWA section 319 College student interns NRCS	Completed inventory
Conduct wetland restoration project using tile breaks	SCIT	County Conservation Districts	Targeted areas	CWA section 319 Fee-In-Lieu-Of Mitigation	Number of wetland restoration projects
Develop riparian vegetation ordinance prohibiting removal of native streamside vegetation within reservation boundaries	SCIT	County Conservation Districts	Tribal lands within reservation boundary	CWA section 319 Tribal legal staff	1) Ordinance development and approval 2) Ordinance enforcement activities

NBCR= North Branch Chippewa River

Fee-in-Lieu of Mitigation= A fee-in-lieu program transfers responsibility for providing and maintaining mitigation to a program sponsor who receives funds to satisfy compensatory mitigation requirements aimed at the preservation, enhancement, or restoration of habitat and/or aquatic resources.

Tile breaks and wetland restoration can be accomplished through regulations including mitigation. A fee in-lieu program would allow flexibility and increased success in mitigating wetland restoration.

NPS Category: Land Disposal

Based on an area weighted estimate using 1992 and 1998 U.S. Census information on septic use, individual septic systems serve approximately 34percent of the population on the SCIT's Isabella Reservation. This is approximately 3,300 septic systems. Of these septic systems, 1.4 percent are potentially failing (NESC 1992 & 1998). Improper disposal of domestic sewage due to improperly installed, failing, or nonexistent septic systems or from discharge of redirected gray water can contribute nutrients and pathogens to surface waters. Septic systems that are properly designed and maintained should not serve as a source of contamination to surface waters; however, septic systems do fail for a variety of reasons.

During the December 2012 working session, the participating sanitarian from the Central Michigan District Health Department stated that an inventory of existing septic systems within the District's jurisdiction does not exist. The District's sanitary code, approved in 1997, focuses on permitting of new systems or failing systems, but does not include enforcement of system inspection and maintenance. Identification of failing septic systems is complaint-based. As a result, some older systems, poorly maintained systems, and systems that have been installed pre-1997 might have been done so without proper siting and design. These systems can contribute nutrients and pathogens to tribal waters. In addition, working session participants indicated that antiquated systems are also in use upstream from and within reservation boundaries. These systems are not designed to function like an actual septic system and, where they

exist, likely contribute bacteria and nutrients directly to tribal waters without any form of treatment. The District's sanitary code does not allow this type of approach to on-site wastewater management.

The SCIT's long-term goal is to continue to work with existing partners, including the Central Michigan District Health Department (CMDHD), the Inter-tribal Council of Michigan's (ITCM) sanitarians, the Indian Health Service (IHS), and the Bureau of Indian Affairs (BIA), to address failing and antiquated septic systems, with a focus on rehabilitating failing septic systems and relocating poorly sited systems. In the near term, activities will focus on improving the SCIT's access to information on septic system installation and failures on the Isabella Reservation and identifying resources for system rehabilitation or relocation. Long-term and ongoing activities will include rehabilitating and relocating systems and ensuring proper siting of new systems.

Table 6 presents the goals, objectives, and activities identified by the SCIT and non-tribal partners related to the land disposal NPS category. Addressing NPS pollution from the land disposal is the SCIT's second highest priority due to elevated *E.coli* levels throughout the Isabella Reservation, as well as elevated nutrient levels in the North Branch Chippewa River.

Table 6. Goals, Objectives, and Activities for Land Disposal

Goal for Land Disposal NPS Category: Reduce bacteria and nutrient contributions to tribal waters from failing and antiquated septic systems within the SCIT's Isabella Reservation.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Objective 1: Increase tribal awareness of the need for regular septic system maintenance and the hazards associated with failing septic systems.					
Create a database of all septic systems on the reservation. Septic systems will be identified by operator's name, address, and latitude/longitude.	SCIT (Planning Department and Utilities Authority)	CMDHD	Reservation wide	CWA section 319 IHS College student interns Local HD	Percent of reservation canvassed for information and entered into database
Distribute educational materials on proper septic system maintenance to homes with septic systems	SCIT (Planning Department and Utilities Authority)	CMDHD	Reservation wide	CWA section 319 Local HD MI Dept of Health EPA HQ	Number of septic system owners receiving educational materials
Create incentive program for regular maintenance (pumping) and self-reporting of failed and antiquated systems	SCIT (Planning Department and Utilities Authority)	CMDHD	Reservation wide	CWA section 319 TBD	1) Number of septic system owners using program to obtain maintenance services 2) Number of reported failed and antiquated septic systems through incentive program

Goal for Land Disposal NPS Category: Reduce bacteria and nutrient contributions to tribal waters from failing and antiquated septic systems within the SCIT's Isabella Reservation.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Review Ordinance 18 Utilities Authority and other tribal ordinances to determine potential ordinance updates to improve septic system inspection and maintenance authority	SCIT (Planning Department and Utilities Authority)	CMDHD IHS	Reservation wide	CWA section 319 Tribal legal staff IHS Local HD	1) Completed ordinance review 2) Ordinance updates
Objective 2: Rehabilitate failing individual septic systems or relocate poorly sited individual septic systems					
Establish criteria for determining and identifying poorly sited systems within Reservation boundaries	SCIT (Planning Department and Utilities Authority)	CMDHD IHS ITCM	Reservation wide	CWA section 319 EPA HQ protocols Local HD	Completed criteria
Identify high risk areas to prioritize system replacement	SCIT (Planning Department and Utilities Authority)	CMDHD IHS ITCM BIA	Reservation wide	CWA section 319 Planning Dept staff time Local HD	List of high risk areas
Identify sources of funding and technical assistance for septic system improvements.	SCIT (Planning Department and Utilities Authority)	CMDHD IHS ITCM BIA	Reservation wide	CWA section 319 TBD	List of funding and technical assistance sources
Objective 3: Ensure proper siting and environmental review for new septic system installation.					
Establish agreement with the CMDHD to share data and reports on new septic projects and any information related to failing septic systems within reservation boundaries	SCIT (Planning Department and Utilities Authority)	CMDHD	Reservation wide	CWA section 319 Potential In-kind	1) Agreement in place 2) Shared project information
Document procedures for using database to implement environmental review permits for new septic systems	SCIT (Planning Department and Utilities Authority)	CMDHD	Reservation wide	CWA section 319 Potential In-kind	1) Completed procedures 2) Number of permits reviewed/tracked in database

NPS Category: Hydrologic and Habitat Modifications

During sampling activities, the SCIT Water Quality Specialist and Water Resources Technician have observed areas of stream bank erosion and sloughing along Saganing River and the North Branch Chippewa River. The specific causes of the erosion have not been identified but they could include natural geomorphologic processes, channel modification, storm water runoff, and loss of riparian vegetation. Stream bank erosion can increase total suspended solids (TSS) loads in reservation surface waters. In the Saganing River and the North Branch Chippewa River, stream bank erosion could be contributing to high specific conductivity and elevated turbidity. Understanding the location of these areas and prioritizing them for stabilization can help to protect tribal waters from continued sedimentation, improve habitat for fish and wildlife, and prevent damage to adjacent land uses and unwanted meandering.

The December 2012 working session hosted by the SCIT raised the issue of loss of tree canopy due to infestation from ash borer. Elevated stream temperatures are commonly a result of the clearing of forested lands within the riparian zone. Previously shaded water surfaces are exposed to direct sunlight, thereby increasing temperatures. Tree removal due to ash borer infestation could contribute to elevated water temperatures observed in all monitored tribal waters. Restoring shade by increasing vegetation cover along the stream has been shown to effectively address this pollution concern.

Modifications to natural hydrology and habitat that result in decreased water levels and loss of natural riparian vegetation can lead to conditions for *Phragmites australis*, an aggressive non-native reed, to establish and dominate native vegetation in watersheds. Due to changes in water levels and loss of riparian vegetation, spread of Phragmites within the Saganing River watershed is a concern. Dense stands of Phragmites can spread and continue to choke out natural vegetation, as well as affect the hydrology of drains. The issue of Phragmites control was part of the December 2012 working session for the Saganing River, but Phragmites is not limited to this area.

In addition, the City of Mt. Pleasant Parks and Recreation representative shared concerns about erosion and damage to riparian vegetation from the public accessing the Chippewa River for fishing and tubing in areas where public access is not provided. The City of Mt. Pleasant is attempting to provide more access along trails to address this issue, but targeted education of recreational enthusiasts is key to preventing continued streambank degradation from undesired public use.

The SCIT works with the Chippewa Watershed Conservancy (CWC) and the Saginaw Basin Land Conservancy (SBLC) to protect and preserve high-quality riparian habitat in and around the reservation. The SCIT is committed to continuing this type of work with these land conservancies to protect habitat and prevent further habitat modification.

A significant concern for the SCIT is the Saganing River's decreased flow. As mentioned in the NPS Assessment Report, the river has experienced significantly diminished flow in the past decade. The U.S. Geological Survey informed the SCIT Water Quality Specialist that the Saganing River was a good walleye fishery as recent as the late 1990s. Historical flow information indicate that Saganing River used to be at least 4 feet deep. At present, the Saganing River is wadeable. The cause of the significant decrease in flow is unknown, although the SCIT and non-tribal partners familiar with the watershed hypothesize a variety of potential causes, including sedimentation, an upstream diversion, naturally-occurring rising and lifting in the region referred to as *glacial isostatic adjustment*, or climate change. Both the Arenac County Drain Commissioner's Office and the SCIT's Ziiibwing Cultural Center should have historical information on the flows in the Saganing River to help re-create a historical hydrologic record of this waterbody.

Dams are another hydrologic modification that the SCIT would like to further investigate. Specifically, there is an impoundment near the village of Weidman on the Coldwater River called Mill Pond. The SCIT Water Quality Specialist and Water Resources Technician suspect that Mill Pond might be multiple connected impoundments. It is possible that the Mill Pond impoundment(s) contribute to the elevated temperatures observed on the Coldwater River. Further investigation of this impoundment and potential hydrologic and habitat impacts is necessary.

The SCIT's long-term goal is to restore and protect hydrologic and habitat conditions of watersheds within the reservation boundary to reduce turbidity and temperature and restore flow, particularly in Saganing River. In the near term, activities will focus on inventorying and stabilizing stream banks, conducting a hydrologic study of the Saganing River to understand changes in flow, identifying opportunities to restore tree canopy, and educating the public on the importance of preserving native riparian vegetation. Long-term activities will include stabilizing priority stream banks and, if possible, restoring flow to the Saganing River.

Table 7 presents the goals, objectives, and activities identified by the SCIT and non-tribal partners related to the hydrologic/habitat modification NPS category. Addressing NPS pollution from hydrologic and habitat modification is one of the SCIT's second highest priorities due to elevated temperatures in all tribal waters, low flows in Saganing River, as well as elevated specific conductivity and turbidity in the North Branch Chippewa River and Saganing River.

Table 7. Goals, Objectives, and Activities for Hydrologic/Habitat Modification

Goal for Hydrologic/Habitat Modification NPS Category: Restore and protect hydrologic and habitat conditions of watersheds within the reservation boundary to reduce turbidity and temperature and restore flow, particularly in Saganing River					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Objective 1: Locate, map, characterize, and rank stream bank erosion sites					
Perform a field reconnaissance of surface waters within the reservation to identify and map stream bank erosion sites	SCIT (Planning Department)	County Conservation Districts	Initial focus on Saganing River and NBCR, eventually reservation wide	CWA section 319 College student interns Potential In-kind	Completed field work with mapped streambanks and erosion sites
Develop criteria for ranking all stream bank stabilization sites	SCIT (Planning Department)	County Conservation Districts	Initial focus on Saganing River and NBCR, eventually reservation wide	CWA section 319 Potential In-kind from NRCS Stream Visual Assessment Protocol	Completed criteria
Rank stream bank stabilization sites from high to low restoration priority	SCIT (Planning Department)	County Conservation Districts	Initial focus on Saganing River and NBCR, eventually reservation wide	CWA section 319 College student interns Potential In-kind from resource agencies	Prioritized list of sites
Identify outside funding sources for stream bank stabilization	SCIT (Planning Department)	County Conservation Districts	Initial focus on Saganing River and NBCR, eventually	CWA section 319 NRCS	List of funding sources

Goal for Hydrologic/Habitat Modification NPS Category: Restore and protect hydrologic and habitat conditions of watersheds within the reservation boundary to reduce turbidity and temperature and restore flow, particularly in Saganing River					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
			reservation wide		
Design stabilization plans for high-priority sites	SCIT (Planning Department)	County Conservation Districts	Targeted areas in Saganing River and NBCR	CWA section 319 TBD	Number of high-priority sites with plans
Contract to have stabilization activities completed	SCIT (Planning Department)	County Conservation Districts	Targeted areas in Saganing River and NBCR	CWA section 319 TBD	Number of projects implemented
Objective 2: Improve flow in the Saganing River based on understanding of changes to flow regime over time.					
Conduct a technical and cultural hydrogeologic study of the Saganing River to identify potential causes for change in flow regime	SCIT (Planning Department)	Arenac County Drain Commissioner Ziibwing Cultural Center USGS	Saganing River	CWA section 319 TBD	Completed study
Develop flow restoration action items based on findings of technical and cultural hydrogeologic study	SCIT (Planning Department)	Arenac County Drain Commissioner Ziibwing Cultural Center USGS	Saganing River	CWA section 319 TBD	Restoration action items
Implement flow restoration action items, if feasible	SCIT (Planning Department)	Arenac County Drain Commissioner Arenac County Conservation District	Saganing River	CWA section 319 TBD	1) Project implementation 2) Improved flow
Objective 3: Restore tree canopy with diverse, native trees to prevent future infestation by invasive species to reduce temperature along stream corridors, particularly where tree canopy has been diminished due to ash borer.					
Identify areas subject to ash tree removal and target areas for tree plantings	SCIT	City of Mt. Pleasant County Conservation Districts	TBD, based on studies	CWA section 319 College student interns Potential In-kind	Map/list of targeted areas

Goal for Hydrologic/Habitat Modification NPS Category: Restore and protect hydrologic and habitat conditions of watersheds within the reservation boundary to reduce turbidity and temperature and restore flow, particularly in Saganing River					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Identify appropriate tree species mix to restabilize stream and riparian areas to reduce erosion and sedimentation, as well as reduce stream temperature	SCIT	City of Mt. Pleasant County Conservation Districts	TBD, based on studies	CWA section 319 NRCS Michigan DNR	List of recommended tree species
Plant new trees in targeted areas	SCIT	City of Mt. Pleasant County Conservation Districts	TBD, based on studies	CWA section 319 Student interns Volunteers	Number of trees planted
Distribute educational materials to property owners on benefits of tree diversity, native vegetation, and recommended species as part of outreach and education strategy	SCIT	NRCS City of Mt. Pleasant County Conservation Districts	Reservation wide	CWA section 319 NRCS Forest Management Plan SCIT water resource staff Potential in-kind	Number of landowners receiving materials
Objective 4: Restore and protect native riparian habitat to reduce erosion and improve habitat health.					
Identify high-quality riparian acreage for protection via permanent conservation easements	SCIT	CWC SBLC	Reservation wide	CWA section 319 NRCS Potential in-kind Aerial photo analyses	List/map of potential parcels for conservation easements
Place high-quality riparian acreage into permanent conservation easements	SCIT	CWC SBLC	TBD, based on studies	CWA section 319 NRCS	Number of acres under permanent conservation easements
Identify areas with hydrologic and habitat modification that could promote spread of Phragmites affect health of natural riparian vegetation and wetland function	SCIT	Arenac County Drain Commissioners	Saganing River	CWA section 319 Potential In-kind from drain commission	Map/list of drains targeted for phragmites control

Goal for Hydrologic/Habitat Modification NPS Category: Restore and protect hydrologic and habitat conditions of watersheds within the reservation boundary to reduce turbidity and temperature and restore flow, particularly in Saganing River					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Conduct phragmites control in targeted areas	SCIT	Isabella and Arenac County Drain Commissioners	TBD, based on studies	CWA section 319 TBD	Number of drains with completed control projects
Objective 5: Determine hydrologic and habitat effects of Mill Pond on the Coldwater River.					
Conduct an assessment of the Mill Pond impoundment on the Coldwater River to determine structural integrity and hydrologic and water quality impacts, specifically related to temperature	SCIT	MDEQ Dam Safety Unit	Mill Pond	CWA section 319 MDEQ Dam Safety Drain Commissioner	Completed assessment
Address Mill Pond impoundment recommendations to improve habitat and hydrologic conditions	SCIT	MDEQ	Mill Pond	CWA section 319 Potential MDEQ in-kind	Number of implemented recommendations

NBCR= North Branch Chippewa River

NPS Category: Construction/Post-Construction

Storm water runoff from unregulated construction activities (i.e., those with less than one acre of disturbed area that do not require coverage under an NPDES stormwater construction general permit) can have a significant effect on water quality. As storm water flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. After construction, developed sites should have effective stormwater management controls, such as green infrastructure practices, in place to address both runoff quality and quantity from a site. These are required for sites located in a regulated MS4 area. Although no regulated MS4s are located within the reservation boundary, the tribe is interested in adopting appropriate post-construction runoff controls for all site development projects.

Polluted storm water runoff from developed sites, both during and post-construction, can harm or kill fish and other wildlife. Sedimentation can destroy aquatic habitat, and high volumes of runoff can cause stream bank erosion, which can contribute additional sediment to surface water.

Current and upcoming construction projects on the Isabella Reservation could increase sediment loads in tribal waters. The SCIT plans to develop areas of the reservation, but does not currently have a strategic plan laying out future development projects. It is the intention of SCIT to follow all policies and procedures developed under CWA 319 in future developments.

Discussions with the SCIT Construction Manager indicated that while construction projects use EPA and MDEQ construction BMPs as guidelines, there are no documented standards, policies, and procedures in place for tribal construction projects. In addition, the SCIT does not have documented standards, policies, and procedures in place to address post-construction runoff controls from developed sites. Documented standards and specification with plan review procedures and inspection protocols would help to ensure protection of tribal water resources during future development projects.

Addressing NPS pollutants from construction activities is a second-level priority for the SCIT's NPS Management Program. The SCIT's long-term goal is to integrate storm water and NPS pollution concerns into construction planning and building activities on the reservation to prevent sedimentation and ensure development projects incorporate effective stormwater management. In the near term, the SCIT will focus on developing and maintaining an inventory of construction activities across the reservation. Over the long term, the SCIT will conduct ongoing activities to require and encourage the use of storm water BMPs in construction projects. Specific objectives and activities to address these concerns are listed in Table 8.

Table 8. Goals, Objectives, and Activities for Construction

Goal for Construction NPS Category: Ensure tribal construction projects use effective NPS pollution controls to minimize sedimentation and other construction waste entering tribal waters.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Objective 1: Provide clear, consistent, documented soil and erosion control guidelines for all contractors to follow during construction activities to reduce sedimentation					
Develop a grading ordinance to require and enforce erosion and sediment control plan requirements	SCIT (Planning Department and Tribal Construction)	Arenac County and Isabella County Drain Commissioners	Reservation wide	CWA section 319 Potential In-kind from EPA HQ and MDEQ resources	Completed soil erosion and sedimentation ordinance
Provide soil and erosion control training to tribal staff and non-tribal staff involved in construction activities	SCIT (Planning Department and Tribal Construction)	Arenac County and Isabella County Drain Commissioners Road Commissions	Reservation wide	CWA section 319 Potential In-kind from EPA HQ resources and other key non-tribal partners	Number of training participants
Objective 2: Provide clear, consistent, documented standards and specifications for stormwater management associated with new and redevelopment to reduce NPS pollution post-development					
Develop standards and specification for new development that encourages infiltration and on-site stormwater management	SCIT (Planning Department)	Arenac County and Isabella County Drain Commissioners	Saganing River	CWA section 319 Potential In-kind from EPA and CWP resources	Completed and adopted standards and specifications
Provide training to Tribal Construction staff and	SCIT (Planning Department and Tribal Construction)	Arenac County and Isabella County Drain Commissioners	Reservation Wide	CWA section 319 Potential In-kind from	Number of training participants

Goal for Construction NPS Category: Ensure tribal construction projects use effective NPS pollution controls to minimize sedimentation and other construction waste entering tribal waters.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
contractors on new site design requirements and procedures				EPA HQ and CWP resources	
Objective 3: Locate, map, characterize, and rank stream road crossing sites					
Stream Road Crossing Inventory	SCIT (Planning Department and Tribal Construction)	Arenac County and Isabella County Road Commissions	Reservation Wide	CWA section 319 Potential in-kind	Completed Inventory

CWP Resources available online at: <http://cwp.org/>

NPS Category: Urban Runoff

There are several communities and developed areas within the Isabella Reservation including Mt. Pleasant, Weidman, Beal City, Loomis, and Rosebush. Stormwater runoff from communities and other developed areas flows overland and is channeled toward nearby surface waters. None of these communities and developed areas are subject to municipal separate storm sewer system (MS4) permit requirements under the NPDES Stormwater Program. While only 5.9 percent of the Isabella Reservation has impervious cover, stormwater runoff from these areas can contribute sediment, oil and grease, solid waste, nutrients, biochemical oxygen demand, toxic substances, and other pollutants to surface waters. Urban runoff can also alter natural stream hydrology and morphology causing increased sediment erosion. Bacteria contributions from urban runoff in residential areas, specifically from pet waste, could contribute to increased *E.coli* levels in tribal waters. Other sources of urban runoff include commercial areas, such as parking lots from retail stores, and industrial facilities that are not permitted under MDEQ's multi-sector general permit for industrial stormwater discharges. Management of urban runoff falls under the jurisdiction of the Isabella and Arenac County Drain Commissioners, the City of Mt. Pleasant's Engineering department, as well as local community ordinances.

Addressing NPS pollutants from urban runoff is a third-level priority for the SCIT NPS Management Program. The SCIT's long-term goal is to minimize the NPS pollutant contributions in urban runoff from residential, commercial, and industrial areas with a focus on potential sources of *E.coli* and sediment. In the near term, the SCIT will focus on educating urban populations on the impacts of urban runoff on tribal waters and on reviewing existing stormwater ordinances. Long-term and ongoing activities will include creating incentives to encourage the use of urban runoff BMPs, specifically green infrastructure to retrofit existing development where possible. Specific objectives and activities to address urban runoff are listed in Table 9.

Table 9. Goals, Objectives, and Activities for Urban Runoff

Goal for Urban Runoff NPS Category: Minimize the NPS pollutant contributions in urban runoff from residential, commercial, and industrial areas with a focus on potential sources of <i>E.coli</i> and sediment.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
Objective 1: Conduct targeted outreach on BMPs to improve the quality of storm water runoff in significant urban runoff drainages with an emphasis on homeowners and businesses.					
Gather appropriate existing outreach materials and adapt for urban homeowners and businesses within	SCIT (Planning Department)	Arenac County and Isabella County Drain Commissioners MDEQ CMU Tribal	Urban areas within reservation boundaries	Potential in-kind Tribal Planning Department staff	Tailored outreach materials for each key target audience

Goal for Urban Runoff NPS Category: Minimize the NPS pollutant contributions in urban runoff from residential, commercial, and industrial areas with a focus on potential sources of <i>E.coli</i> and sediment.					
Activity	Lead Entity	Partner	Suggested Location	Funding	Effectiveness Measure
tribal boundaries		Education Public Relations		MDEQ resources EPA HQ CWA section 319	
Distribute educational materials to urban homeowners and businesses	SCIT (Planning Department)	Arenac County and Isabella County Drain Commissioners MDEQ CMU Tribal Education Public Relations	Urban areas within reservation boundaries	Potential In-kind by SCIT Planning Department staff CWA section 319	1) Number of materials distributed 2) Changes in level of awareness about urban runoff 3) Changes in key behaviors
Objective 2: Promote the use of green infrastructure techniques for urban runoff management					
Provide training on the use of rain barrels, rain gardens, and other green infrastructure practices	SCIT (Planning Department)	Arenac County and Isabella County Drain Commissioners MDEQ CMU Tribal Education Public Relations	Urban areas within reservation boundaries	Potential In-kind resources from MDEQ and EPA HQ CWA section 319	Number of training participants
Review tribal and non-tribal stormwater codes and ordinances to identify potential barriers to green infrastructure approaches to stormwater management	SCIT (Planning Department)	County Drain Commissioners, County departments, Townships.	Reservation Wide	CWA section 319 TBD	Number of local participants in ordinance review, Number of implemented review recommendations

Administering the SCIT NPS Management Program: Available Programs and Partners

A wide range of local, state, and federal programs exist that the SCIT can consider using to help address NPS pollution on the Isabella Reservation. Table 10 presents an overview of these programs and the source of NPS pollution addressed by each program. Key partners include local, state, and federal agencies that could provide technical assistance, consult, aid in education, implement demonstration projects, or provide financial assistance to promote BMP implementation. Table 11 presents the core participants, the mission of these agencies and organizations, and the role during BMP selection and implementation.

Table 10. NPS Related Programs

NPS Related Program Description	NPS Category
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	Agriculture	Land Disposal	Hydrologic/Habitat Modifications	Construction	Urban
SCIT Planning Department. Staff from the SCIT Planning Department includes an environmental specialist, environmental response program specialist, a water quality specialist, and a water resource technician. This staff, under the direction of the tribal council and assisted by other tribal agencies (e.g., parks and recreation, utilities, education) is primarily responsible for developing and implementing the NPS pollution control program.	X	X	X	X	X
SCIT Water Quality and NPS Program. The water quality specialist and water resource technician will lead the development and implementations of the NPS pollution control program.	X	X	X		X
Bureau of Indian Affairs Water Resource Grants. This program, funded through the Indian Self-Determination and Education Assistance Act, provides grants for the collection and analysis of baseline data.	X				
Clean Water State Revolving Fund. The Clean Water SRF program was established to provide low-interest loans to governmental entities for clean water and NPS pollution control projects.	X	X	X		
Consolidated Water Facilities Construction Program. This program was established to provide grants and loans for water-related projects. The amount of funds available is dependent on the amount appropriated by the legislature and the amount of funds previously awarded.	X				
Corps of Engineers Section 404 Dredge and Fill Permit Program. This program regulates the discharge of fill or dredged material into lakes, rivers, and wetlands.	X				
Drinking Water State Revolving Fund. The Drinking Water SRF program was established to provide low-interest loans for drinking water projects. The amount of funds available is dependent on the amount of appropriations from the U.S. Congress and the amount of repayment of funds previously loaned.		X			
Michigan DEQ NPS Program. Michigan DEQ is responsible for addressing NPS issues on non-tribal lands in the areas surrounding SCIT lands. the SCIT has good relationships with state DEQ staff, and will communicate with them as needed to address common interests regarding NPS control measures which affect water quality on tribal lands.	X	X	X	X	X
Michigan DNR Gladwin Management Unit. Manages the 2,300 acres of state forest near Denver Township within the Isabella Reservation according to state requirements for timber sales. MDNR provides guidelines for timber sales on privately-owned forested lands.			X		
Natural Resources Conservation Service Farm Bill Programs. NRCS has several funding programs, including, Wetland Reserve Program, conservation of private grazing lands, the Farmland Protection Program, and the conservation farm option.	X				
USDA, FSA Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP). The CRP and CREP offer long-term rental payments and cost-share assistance to establish long-term, resource-conserving cover to reduce soil erosion and improve water quality.	X				

NPS Related Program Description	NPS Category				
	Agriculture	Land Disposal	Hydrologic/Habitat Modifications	Construction	Urban
USDA, NRCS Environmental Quality Incentives Program. EQIP was created to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible goals. The program offers technical, financial, and educational assistance for approved farm improvement practices	X				
USDA Rural Development Administration. The RDA supports the construction of new water and waste water systems and the improvement of existing systems	X	X			
USDA Sustainable Agriculture Research and Education. In the SARE program, the funding is aimed at reducing the use of chemical pesticides, fertilizers, and toxic materials in agricultural production.	X				
USDA, NRCS Forest Management Plan (FMP). The Environmental Quality Incentives Program (EQIP) has funding available to support the development of site-specific plans that are developed based on landowner's management objectives and professional expertise of a skilled forester to achieve long-term forest management goals.			X		
USEPA Section 106 Program. This program assists in establishing and maintaining adequate measures for preventing and controlling surface and groundwater pollution.	X	X	X		X
USEPA Section 319 Program. This program assists in implementing USEPA-approved section 319 NPS management programs.	X	X	X	X	X

Table 11. Core Participants, Mission, and Associated Role in SCIT NPS BMP Selection

Participant	Mission	Role in BMP Selection and Implementation
Saginaw Chippewa Indian Tribe		
Tribal Council	Authorizes activities and establishes policies.	Final approval of BMP selection
Planning Department	Oversees environmental protection efforts on lands within SCIT's jurisdiction, including surface water monitoring. Designs and manages needed construction projects, conduct and implement strategic and community master planning.	Lead role in final BMP selection, siting, coordination, and implementation
Water Quality and NPS Management Program	The water quality specialist and water resource technician oversee SCIT water quality monitoring and will lead the development and implementations of the NPS pollution control program.	Lead role in final BMP selection, siting, coordination, and implementation
Tribal Construction	Oversees construction planning, design, and execution of construction projects on within tribal boundaries	Participant in BMP selection, siting, and implementation

Participant	Mission	Role in BMP Selection and Implementation
Utilities Authority	Charged with supplying, treating and maintaining water delivery to the local tribal community; responsible for waste water treatment, wells, hydrants, towers and lift stations. Treats tribal wastewater to meet EPA standards	Participant in BMP selection and implementation, where applicable
Parks and Recreation	Provides recreational opportunities for the entire Tribe with collaboration throughout the community, including operation of the Saginaw Chippewa Indian Tribe Campground	Participant in BMP selection and implementation, where applicable Information and outreach sponsor
Housing Department	Provides the people of the SCIT Community with quality services, housing opportunities, and community development with the goal of perpetual self-sufficiency.	Participant in BMP selection and implementation, where applicable
Public Relations	Covers the daily events surrounding the Saginaw Chippewa Tribal Community	Participant in providing coverage on activities related to BMP selection and helping to implement BMPs, particularly those related to nonpoint source education
Grants	Oversee grant contracts for grant-funded tribal activities	Coordinate contracts for selected and funded BMPs as necessary
Ziibiwing Cultural Center	Provides cultural and educational information about the history of the Saginaw Chippewa Indian Tribe	Participant in BMP selection and implementation, particularly for BMPs related to nonpoint source education
7 th Generation Program	Promotes and perpetuates the Seventh Generation philosophy through ceremonies, cultural knowledge, wisdom and our relationship to the environment	Participant in BMP selection and implementation, particularly for BMPs related to nonpoint source education
Tribal Public Safety	Encompasses tribal fire and police departments	Participant in BMP selection and, as needed, implementation
Information Technology	Supports the varied technological needs of the Saginaw Chippewa Indian Tribe, including GIS mapping	Participant in BMP selection by providing mapping support
Tribal Education	Supports development of educated, confident, competitive, proficient citizens who excel in any venture they pursue while maintaining their rich Anishinaabe culture and language	Participant in BMP selection and implementation, particularly for BMPs related to nonpoint source education

Participant	Mission	Role in BMP Selection and Implementation
Tribal College	A two year college in Mt. Pleasant that provides access to higher education for the tribal community and expand educational and career opportunities.	Participant in BMP selection and implementation, particularly for BMPs related to nonpoint source education
Non-Tribal Partners		
Environmental Health Division, Central Michigan Health Department	Responsible for evaluating proposed building sites and issuing construction permits for sewage systems; plays a vital role in the planning of building sites. No municipality, township or other governing body shall issue a building permit for a premise requiring a sewage system before obtaining permission from the Health Officer.	Technical assistance
Chippewa Watershed Conservancy	Nonprofit conservation group working to protect open space and natural habitat in the counties of the Chippewa River Watershed in Central Michigan	Technical assistance, BMP education, identification of potential sites/parcels for BMP implementation
Isabella County Drain Commissioner	Administers Michigan laws related to flood protection, stormwater management, and erosion control within Isabella County	Technical assistance, consultation
Isabella County Conservation District	Works in partnership with USDA NRCS to address soil conservation issues	Technical assistance, consultation, landowner participation, and BMP education
City of Mt. Pleasant	Manages land and wastewater generated by the City of Mt. Pleasant within the Isabella Reservation boundary	Technical assistance, potential financial assistance
Arenac County Drain Commissioner	Administers Michigan laws related to flood protection, stormwater management, and erosion control within Arenac County	Technical assistance, consultation, landowner participation, and BMP education
Arenac County Soil Conservation District	Works in partnership with USDA NRCS to address soil conservation issues	Technical assistance, consultation
Saginaw Bay Resource Conservation & Development Council	Includes both Arenac and Isabella counties in service area. Current program objectives focus on improvement of quality of life achieved through natural resources conservation and community development which leads to sustainable communities, prudent use (development), and the management and conservation of natural resources.	Technical assistance, BMP education
Michigan Department of Agriculture and Rural Development (MDARD)	Priorities include assuring food safety, protecting animal and plant health, sustaining environmental stewardship, providing consumer protection, enabling rural development, and fostering efficient administrative operations.	Technical Assistance

Participant	Mission	Role in BMP Selection and Implementation
Michigan DEQ Nonpoint Source Program	State water agency responsible for addressing NPS issues in areas surrounding SCIT lands. Provides education, technical assistance, coordination, and other services.	Technical assistance, BMP education, consultation
Michigan DEQ NPDES Program	State water agency responsible for issuing permits to point sources of pollution. Regulates industrial and construction site stormwater discharges, conducts education and training programs.	Technical assistance, consultation
Michigan DNR Gladwin Forest Management Unit	Manages 220,000 acres of state land covering six counties including; Clare, Isabella, Gladwin, Midland, Arenac part of Iosco and Bay. These counties are covered by the Harrison, Gladwin, Sanford and Standish Field Offices.	Technical assistance, consultation
Saginaw Bay Watershed Initiative Network	Community-based voluntary initiative working to develop projects focused on agricultural pollution prevention, wildlife stewardship, water resources, and land use.	Potential financial assistance
Saginaw Basin Land Conservancy	Helps to preserve land and water quality across the Saginaw Basin; owns seven preserves and have conservation agreements with 61 private landowners	BMP education
East Michigan Council of Governments	Provides a regional forum for the counties of Arenac, Bay, Clare, Gladwin, Gratiot, Iosco, Isabella, Ogemaw, Roscommon, Sanilac, and Tuscola; including their individual townships, municipal governments, public universities, and the Saginaw Chippewa Indian Tribe to discuss issues of mutual interest and concern, and to develop recommendations and plans to address those issues.	Technical assistance, Education
Bureau of Indian Affairs	The Bureau of Indian Affairs (BIA) appropriates funds to tribes of Michigan under 25 CFR Part 150-250. Funds may be used for resource protection activities including water resources and environmental quality services. The BIA has access to Great Lakes Restoration Initiative funds that may be utilized for suitable SCIT projects.	Technical assistance, funding
Indian Health Service	The Indian Health Service (IHS) provides support to federally recognized tribes related to nonpoint source control. IHS can assist tribes with construction site assessments and septic system installations.	Engineering and technical assistance and funding for septic systems
Inter-Tribal Council of Michigan	The Inter-Tribal Council of Michigan, Inc. (MITC), Environmental Services Division, is organized to provide environmental and environmental health related technical assistance and consultation services. Environmental specialists from the council can work with SCIT on wastewater, municipal water, environmental permitting, and funding issues.	Technical assistance, consultation

Participant	Mission	Role in BMP Selection and Implementation
U.S. Department of Agriculture, Natural Resources Conservation Service	Works with landowners through conservation planning and assistance designed to benefit the soil, water, air, plants, and animals that result in productive lands and healthy ecosystems. Supports Resource, Conservation, and Development (RC&D) Councils	Technical and financial assistance, consultation
U.S. Department of Agriculture, Farm Service Agency	Works with agricultural landowners through conservation programs, such as the Conservation Reserve Program, to provide financial incentives to install specific conservation practices that help protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water.	Technical and financial assistance, consultation
U.S. Environmental Protection Agency Region 5	Oversight of water resources programs under the Clean Water Act in Michigan; administers the Section 319 Nonpoint Source Management program	Technical and financial assistance. Oversight of water resource monitoring and drinking water programs.
U.S. Army Corps of Engineers	Promoting water resource protection and ecosystem restoration in the Saginaw Bay watershed through Western Lake Huron watershed reconnaissance study.	Technical and financial assistance
U.S. Fish and Wildlife	Provide assistance to Tribes for development and implementation of programs that benefit fish and wildlife resources and their habitat, including: planning for wildlife and habitat conservation, fish and wildlife conservation and management actions, fish and wildlife related research, habitat mapping, field surveys and population monitoring, habitat protection, and public education.	Technical and financial assistance

Schedule for BMP Implementation

The initial five years of the SCIT NPS Management Program will focus on developing and implementing a comprehensive outreach and education program to support BMP implementation under all NPS categories, as well as development of tribal ordinances, standards, policies, and procedures. The initial five years will also focus on continued work with non-tribal partners for ongoing program implementation, particularly programs under the agriculture NPS category. Field reconnaissance related to streambank erosion will also be key in the initial phase of the NPS Management Program. Table 11 presents the five-year implementation schedule for the activities under each NPS category of the SCIT NPS Management Program.

Table 12. BMP Implementation Schedule for the SCIT NPS Management Program by NPS Category

BMP/Activity	NPS Management Program Year				
	Year 1	Year 2	Year 3	Year 4	Year 5
NPS Category: Agriculture					
Promote and maintain enrollment in CREP and EQIP	X	X	X	X	X
Create a program as an alternative to CREP/EQIP that would allow 5 ft riparian buffers and shorter time spans		X	X	X	X

BMP/Activity	NPS Management Program Year				
	Year 1	Year 2	Year 3	Year 4	Year 5
Demonstration project to study potential use of silt fence and other low-cost, low-acreage BMPs		X	X		
Work with landowners and users to identify appropriate BMPs (fencing, stream crossings, alternative watering systems)		X	X	X	X
Work with landowners and users to identify additional funding sources		X	X	X	X
Work with landowners and users to implement the identified BMPs			X	X	X
Provide training to agricultural land users on sensitive land application procedures	X	X	X	X	X
Create ordinance requiring use of setbacks from stream corridors where land application occurs on tribal land within reservation boundaries				X	X
Develop an agricultural tile drain inventory and identify opportunities to restore wetlands through tile breaks			X		
Conduct wetland restoration project using tile breaks					X
Develop riparian vegetation ordinance prohibiting removal of native streamside vegetation on tribal land					X
NPS Category: Land Disposal					
Create a database of all septic systems on the reservation		X			
Distribute educational materials on proper septic system maintenance to homes with septic systems	X				
Create incentive program for regular maintenance (pumping) and self-reporting of failed and antiquated systems		X			
Review Ordinance 18 Utilities Authority and other tribal ordinances to determine potential ordinance updates to improve septic system inspection and maintenance authority	X				
Establish criteria for determining and identifying poorly sited systems within Reservation boundaries	X				
Identify high risk areas to prioritize system replacement		X			
Identify sources of funding and technical assistance for septic system improvements.			X	X	X
Establish agreement with the CMDHD to share data and reports on new septic projects and any information related to failing septic systems within reservation boundaries	X				
Document procedures for using database to implement environmental review permits for new septic systems		X			
NPS Category: Hydrologic/Habitat Modification					
Perform a field reconnaissance of surface waters within the reservation to identify and map stream bank erosion sites			X	X	X
Develop criteria for ranking all stream bank stabilization sites			X		

BMP/Activity	NPS Management Program Year				
	Year 1	Year 2	Year 3	Year 4	Year 5
Rank stream bank stabilization sites from high to low restoration priority				X	
Identify outside funding sources for stream bank stabilization				X	
Design stabilization plans for high-priority sites				X	X
Contract to have stabilization activities completed				X	X
Conduct a technical and cultural hydrogeologic study of the Saganing River to identify potential causes for change in flow regime		X			
Develop flow restoration action items based on findings of technical and cultural hydrogeologic study			X		
Implement flow restoration action items, if feasible				X	
Identify areas subject to ash tree removal and target areas for tree plantings	X				
Identify appropriate tree species mix to avoid further infestations from invasives	X				
Plant new trees in targeted areas		X	X	X	X
Distribute educational materials to property owners on benefits of tree diversity, native vegetation, and recommended species as part of outreach and education strategy	X	X	X	X	X
Identify high-quality riparian acreage for protection via permanent conservation easements			X		
Place high-quality riparian acreage into permanent conservation easements				X	X
Identify areas with significant phragmites affecting drain function for removal, control, and revegetation	X				
Conduct phragmites control in targeted areas	X	X	X	X	X
Conduct an assessment of the Mill Pond impoundment on the Coldwater River to determine structural integrity and hydrologic and water quality impacts, specifically related to temperature			X		
Address Mill Pond impoundment recommendations to improve habitat and hydrologic conditions				X	
NPS Category: Construction					
Develop a grading ordinance to require and enforce erosion and sediment control plan requirements					X
Provide soil and erosion control training to tribal staff involved in construction activities		X			
Develop standards and specification for new development that encourages infiltration and on-site stormwater management	X				
Provide training to Tribal Construction staff and contractors on new site design requirements and procedures		X	X	X	X
Stream Road Crossing Inventory			X		
NPS Category: Urban Runoff					
Gather appropriate existing outreach materials and adapt for urban homeowners and businesses within tribal boundaries	X				
Distribute educational materials to urban homeowners and businesses	X	X	X	X	X

BMP/Activity	NPS Management Program Year				
	Year 1	Year 2	Year 3	Year 4	Year 5
Provide training on the use of rain barrels, rain gardens, and other green infrastructure practices		X	X	X	X
Review tribal and non-tribal stormwater codes and ordinances to identify potential barriers to green infrastructure approaches to stormwater management		X			

The SCIT and its local implementation partners will work with an adaptive management approach in mind, sampling from the CWA section 106 monitoring program will serve as a basis for assessing improvements in water quality, and will also serve as the basis for the need for additional implementation practices in the future. During Year 5 of the SCIT’s NPS Management Program, the Water Quality Specialist will work with tribal and non-tribal partners to conduct a comprehensive review of the overall program and make adjustments where needed. It is assumed that during Years 5-10 of the NPS Management Program, the SCIT will consider the development of tribal water quality standards to guide future assessments and help guide the direction of the NPS Management Program during the next decade.

Tribal Authority for Implementing the NPS Management Program

The legal authority for the administration of the SCIT NPS Management Program is outlined in the 319 Treatment-as-a-State application in Appendix D, and includes the 1937 *Corporate Charter of the Saginaw Chippewa Indian Tribe*, which establishes the SCIT as a federal corporation, and the SCIT’s *Constitution and By-Laws*, which describe the powers of the Tribal Council to manage economic affairs, promulgate and enforce ordinances, charter subordinate organizations, and adopt resolutions regulating internal matters. The SCIT has also entered into a *Memorandum of Understanding Regarding Conservation* with the state of Michigan’s Department of Natural Resources and Environment, to coordinate environmental management issues that transcend jurisdictional boundaries and involve multiple stakeholders, both public and private.

The SCIT’s NPS Management Program is in the early stages of development, and no Tribal ordinances currently exist that are specific to NPS management, although the SCIT does informally use EPA standards and guidance to address stormwater runoff when conducting development activities. The SCIT recognizes the importance of documenting standards, policies, and procedures to ensure effective NPS controls on tribal lands to ensure protection and restoration of tribal waters. Developing ordinances related to NPS management is a priority and considered a key need for a successful NPS Management Program.

SECTION 5 – PUBLIC NOTICE AND COMMENT

Achieving tribal water quality goals through the NPS Management Program will require the support and involvement from key tribal and non-tribal partners. Therefore, the SCIT provided several opportunities for stakeholders to participate in the development of the NPS Assessment Report and Management Program Plan.

As discussed in Section 3, key partners and stakeholders were invited to partake in workshops on December 17th and 18th to help prioritize and choose BMPs for the watersheds within the reservation. These workshops provided participants with the opportunity to comment on the findings of the draft NPS Assessment Report and identified additional watershed concerns and priorities based on local watershed knowledge. In addition, participants provided input on potential BMPs for each watershed to address specific sources of NPS pollution.

Both the NPS Assessment Report and Management Program Plan were made available for a 30-day public review and comment period starting on February 21, 2013 and ending March 25, 2013. [Insert information on public meeting format, location, participation and how the meetings were announced. Describe the level of participation and the nature of the feedback provided by stakeholders.] Appendix E contains public meeting announcements and an overview of the comments received on the draft NPS Assessment Report and Management Program Plan.

The SCIT is committed to providing continued opportunities for public participation in and feedback on the implementation of the NPS Management Program.

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APPENDICES

Appendix A: NPS Assessment Fact Sheets

Chippewa River

The Chippewa River is a major tributary to the Tittabawassee River which drains to the Saginaw River, traveling through the Isabella Reservation and the City of Mt. Pleasant. This waterbody is used for a drinking water supply by tribal members as well as for recreation including fishing, swimming, tubing, canoeing, and ceremonial activities.

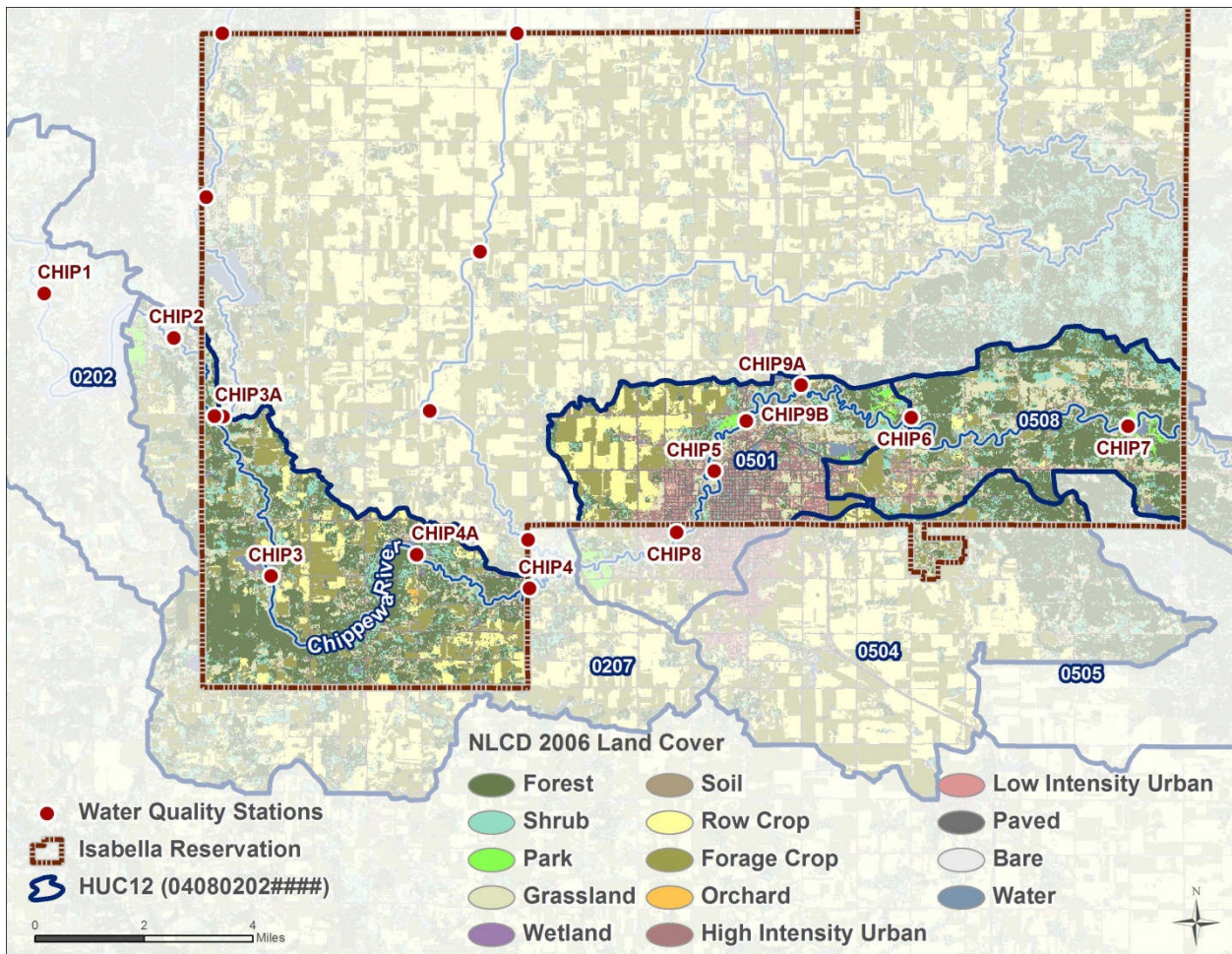


Figure 6. Chippewa River 12 digit HUCs within the Isabella Reservation.

The Chippewa River travels through six 12 digit HUCs within SCIT boundaries. SCIT samples the Chippewa River in four of these 12 digit HUCs, as shown in bold.

8-digit HUC 04080202	Chippewa River
• 040802020202	Lake Isabella-Chippewa River

- **040802020207** **Johnson Creek-Chippewa River**
- **040802020501** **Mission Creek-Chippewa River**
- 040802020504 Onion Creek
- 040802020505 Salt Creek
- **040802020508** **Dice Drain-Chippewa River**

Forests are the primary land use in the Chippewa River HUCs, constituting 36 percent of the area. Combined agricultural uses represent 26 percent of the landscape, while shrub and grassland comprise another 24 percent. Impervious surfaces cover 14 percent of the Chippewa River watershed. Mt. Pleasant is the largest impervious area in the Isabella Reservation and is home to the majority of the SCIT population.

Pollutants of Concern in the Chippewa River

Chippewa River Pollutants of Concern:
E. coli (**High**)
 Spring Temperature (**High**)
 Specific Conductivity (**Medium**)
 Dissolved Oxygen (**Low**)
 Total Nitrogen (**Low**)
 Total Phosphorus (**Low**)
 Turbidity (**Low**)

Several pollutants in the Chippewa River watershed were not meeting target SCIT goals at the sampled stations as shown in Table 12. The NPS Assessment Report found that the Chippewa River watershed has three primary sources of these NPS impairments: runoff from agricultural practices, urban runoff from Mt. Pleasant, and failing septic systems.

Table 13. Level of Goal Attainment at SCIT Chippewa River Sampling Stations

Site Number	D.O. (mg/l)	Temperature (degrees C)			Sp. Cond. (mS/cm)	Turbidity (NTUs)	TDS (mg/L)	TN (mg/L)	TP (µg/L)	E. Coli (CFU/100 mL)	
		April	May	Oct						30 day GM	NTE
		>13.3	>21.1	>17.8							
CHIP1		H			L					M	
CHIP2		H		L	L						
CHIP3A		H			L						
CHIP3		H			L						
CHIP4A		H			L	L					
CHIP4	L	H	L							L	L
CHIP8		H			L	L					
CHIP5	L	H			L	L		L		H	L
CHIP9B			L			L				M	L
CHIP9A		H			M	L					
CHIP6		H			L	L		L	L	M	L
CHIP7		H			L	L				M	L

H= High, M= Medium, L= Low, GM= geometric mean, NTE= Total body contact not to exceed standard

Implementation Activities in the Chippewa River

Several implementation activities are occurring in the Chippewa River watershed. The City of Mt. Pleasant has mapped the storm sewer outlets and has a stormwater management ordinance in place.

The city is a self-permitting soil erosion control agent. As a result, all construction projects have soil erosion control measures in place that are inspected on regular basis. New construction projects retain stormwater onsite and meter it into the storm system, giving sediment time to settle before entering the storm sewer system. The City does a routine cleaning of catch basins to ensure the sumps and the overall storm sewer system work properly.

Isabella County Parks and Recreation is involved with tree revegetation projects for the Chippewa River near the Boy Scout Camp and Meridian Park.

Mt. Pleasant's City Park's also have ongoing implementation efforts in place. The City is targeting reduced erosion in five city parks along the Chippewa River through the use of tree revegetations, riprap placement, and vegetative plantings. In addition the Parks are working with local businesses on an educational program for recreational river users about caring for the rivers health through proper river use.

The Isabella County Drain Commissioner submitted a grant in 2012 for a potential project to clean out the Onion Creek drain.

Potential BMPs to Address Nonpoint Source Pollution

Based on NPS Assessment Report findings, future implementation activities should include agricultural BMPs to reduce runoff, urban BMPs to address stormwater runoff in Mt. Pleasant, education and implementation to address failing septic systems, as well as monitoring and BMPs to address the loss of riparian canopy and high spring temperatures.

Priority NPS Management: Agriculture Urban Runoff (Mt. Pleasant) Failing Septic Systems Loss of Riparian Canopy

The highest priority BMPs are those intended to reduce loads of *E. coli* and additional monitoring to determine the reason for high spring temperatures in the Chippewa River. In addition, BMPs should target the reduction of specific conductivity and turbidity as well as nutrient loading and low dissolved oxygen. Ideal BMPs are those that can address a suite of these pollutants.

Table 14. Potential BMP Selection Worksheet for Chippewa River

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Agricultural				
Monitoring of AFOs				
Natural streamside vegetation education materials				
Riparian management technique demonstration project				
Riparian ordinance prohibiting removal of native streamside vegetation				
Alternative Watering Systems				
Cattle Exclusion from Streams/Fencing				
Constructed Wetlands				
Composting				
Cover Crops				
Critical Area Seeding				
Erosion Control Structures				
Filter Strips				
Grassed Waterways				
Grazing Land Management				
Proper Manure Handling, Collection and Disposal				
Riparian Buffers (200 ft wide)				
Streambank Stabilization				
Tillage Practices				
Urban				
Education and pollution prevention programs				
Encouraging better site design to decrease runoff				
Keeping stormwater conveyance channels clear of organic matter				
Ordinance Development				
Preventing erosion and controlling sediment from new construction				
Street and Parking Lot Sweeping				
Bio retention and Rain Gardens				

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Filter Strips and Buffers				
Maintaining and restoring riparian buffers				
Permeable Pavement				
Septic Systems				
Septic education for homeowners via pamphlets/folders				
Monitoring, Census of number of septic systems, number of failing septic systems				
Require periodic maintenance (pumping)				
Identify sources of funding and technical assistance for septic system improvements.				
Place new septic systems in appropriate locations				
Riparian Corridor				
Acquire critical streamside property				
Protecting and establishing waterway vegetation				
Riparian Management Zone				
Temperature Monitoring				
Additional BMPs Suggested by Tribal Partners				

North Branch Chippewa River

The North Branch Chippewa River begins in Isabella County and flows south towards Mt. Pleasant. It is a major tributary to the Chippewa River. A previous Section 319 project (*The North Branch Chippewa River 319 Watershed Project*) in the watershed found that an intensive network of agricultural drainage tiles combined with the subwatersheds clay soils and rolling topography lead to unstable flows and high water velocities on the North Branch Chippewa River (USEPA, 2012c).

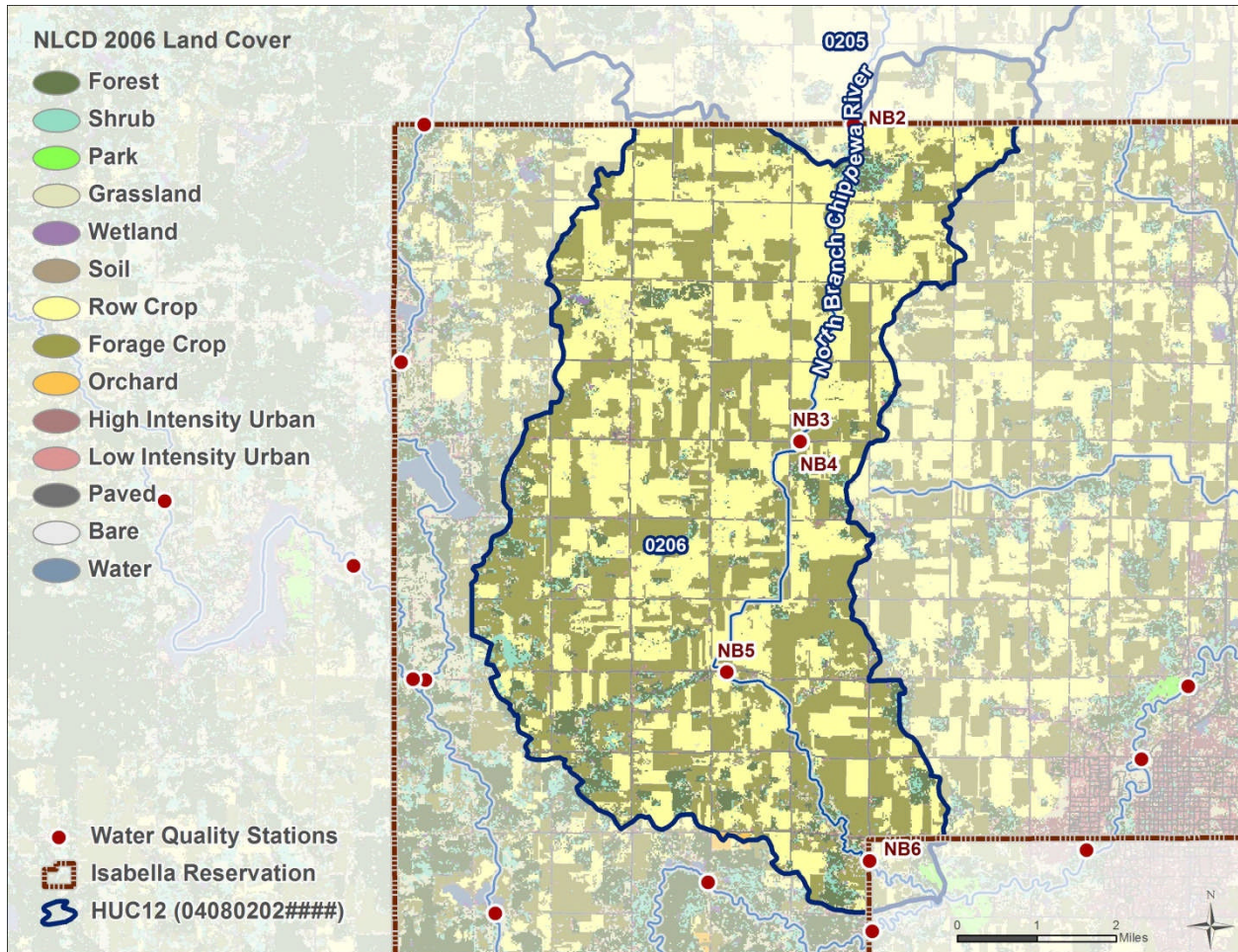


Figure 7. The North Branch Chippewa River Watershed within the Isabella Reservation.

The North Branch Chippewa River consists of two 12 digit HUCs (040802020205 and 040802020206) within the Isabella Reservation boundary. Agriculture is the primary land use in the North Branch Chippewa River watershed, constituting 84 percent of the area. Forests represent 7 percent of the landscape, while shrub and grassland comprise another 5 percent. Impervious surfaces cover 4 percent of the North Branch Chippewa River watershed.

Pollutants of Concern in the North Branch Chippewa River

North Branch Chippewa River
Pollutants of Concern:

- E. coli* (**High**)
- Specific Conductivity (**High**)
- Spring Temperature (**High**)
- Total Nitrogen (**High**)
- Total Phosphorus (**Medium**)
- Turbidity (**Medium**)

Several pollutants in the North Branch Chippewa River were not meeting target SCIT goals at the sampled stations as shown in Table 15. The NPS assessment report found that the North Branch Chippewa River watershed has two primary sources of these NPS impairments: runoff from agricultural practices and failing septic systems.

Table 15. Level of Goal Attainment at SCIT North Branch Chippewa River Sampling Stations.

Site Number	D.O. (mg/l)	Temperature (degrees C)			Sp. Cond. (mS/cm)	Turbidity (NTUs)	TDS (mg/L)	TN (mg/L)	TP (µg/L)	E. Coli (CFU/100 mL)	
		April	May	Oct						30 day GM	NTE
		<5	>13.3	>21.1							
NB1		H				L				L	L
NB2								L		M	L
NB3					H	L		M	L	M	L
NB6		H			H	M		H	M	H	H

Implementation Activities in the North Branch Chippewa River

The North Branch Chippewa project is featured in EPA’s Nonpoint Source Success Stories. This project resulted in 49 erosion control structures, over seven miles of fencing, numerous stream crossings, 24 acres of filter strips, a grassed waterway, 0.5 miles of diversions, an agricultural waste management system, over 17 acres of critical area seeding, and 2.7 miles of streambank stabilization that included seven in-stream check dams. All livestock in the North Branch of the Chippewa River are now restricted by fencing from access to the main tributaries. These structural practices have prevented 12,015 tons of sediment from entering the North Branch; they have also saved an estimated 6,248 pounds of phosphorus and 78 pounds of nitrogen.

The Isabella County Conservation District is currently developing a Section 319 watershed management plan that will be eligible to receive state funding for implementation projects in the North Branch Chippewa River watershed.

Potential BMPs to Address Nonpoint Source Pollution

Based on NPS Assessment Report findings, future implementation activities should include agricultural BMPs that will reduce runoff, education and implementation to address failing septic systems, along with monitoring and BMPs to address the loss of riparian canopy and high spring temperatures.

Priority NPS Management: Agriculture Failing Septic Systems Loss of Riparian Canopy
--

The highest priorities are BMPs to reduce *E. coli*, total nitrogen, and specific conductivity loads as well as additional monitoring to determine the reason for high spring temperatures in the North Branch Chippewa River. In addition BMPs should target the reduction of turbidity and total phosphorus. Ideal BMPs are those that can address a suite of these pollutants.

Table 16. Potential BMP Selection Worksheet for North Branch Chippewa River

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Agricultural				
Monitoring of AFOs				
Natural streamside vegetation education materials				
Riparian management technique demonstration project				
Riparian ordinance prohibiting removal of native streamside vegetation				
Alternative Watering Systems				
Cattle Exclusion from Streams/Fencing				
Constructed Wetlands				
Composting				
Cover Crops				
Critical Area Seeding				
Erosion Control Structures				
Filter Strips				
Grassed Waterways				
Grazing Land Management				
Proper Manure Handling, Collection and Disposal				
Riparian Buffers (200 ft wide)				
Streambank Stabilization				
Tillage Practices				
Septic Systems				
Septic education for homeowners via pamphlets/folders				
Monitoring, Census of number of septic systems, number of failing septic systems				
Require periodic maintenance (pumping)				
Identify sources of funding and technical assistance for septic system improvements.				
Place new septic systems in appropriate locations				
Riparian Corridor				

Acquire critical streamside property				
Protecting and establishing waterway vegetation				
Riparian Management Zone				
Temperature Monitoring				
Additional BMPs Suggested by Tribal Partners				

Coldwater River

The Coldwater River is a major tributary to the Chippewa River. Before entering Reservation boundaries Coldwater River travels through community of Weidman and an unnamed Lake the SCIT call Mill Pond. In the past the Coldwater River has been designated as a trout stream though its temperatures have recently exceeded coldwater stream recommendations.

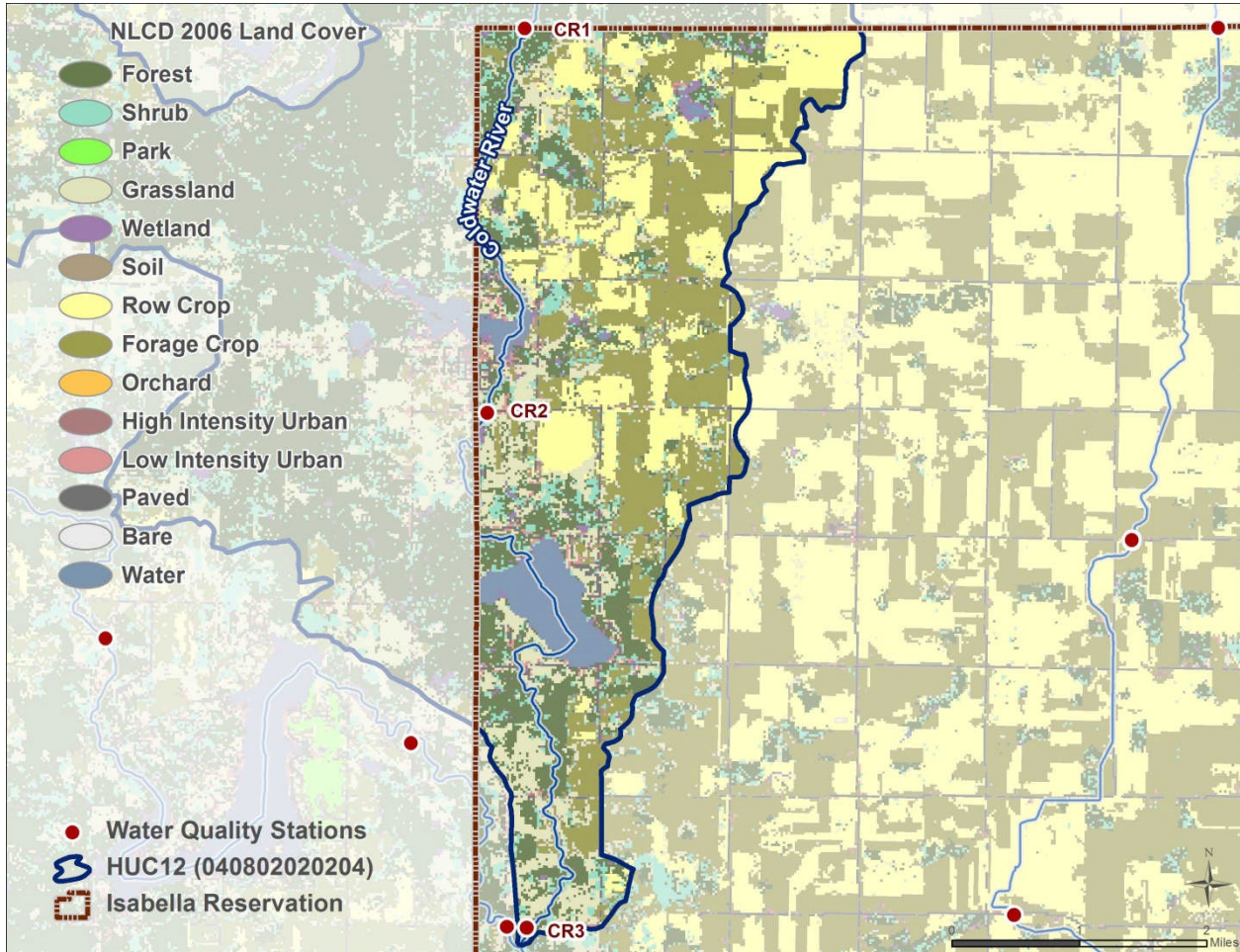


Figure 8. The Coldwater River Watershed within the Isabella Reservation.

The Coldwater River watershed consists of one 12 digit HUC (040802020204) within the Isabella Reservation boundary. Agriculture is the primary land use in the Coldwater River watershed, constituting 50 percent of the area. Forests represent 18 percent of the landscape, while shrub and grassland comprise another 20 percent. Impervious surfaces cover 4 percent of the Coldwater River watershed.

Pollutants of Concern in the Coldwater River

Coldwater River Pollutants of Concern:
Spring Temperature (**High**)
Dissolved Oxygen (**Low**)
E. coli (**Low**)
Specific Conductivity (**Low**)
Total Phosphorus (**Low**)
Turbidity (**Low**)

Several pollutants in Coldwater River were not meeting target SCIT goals at the sampled stations as shown in Table 17. The NPS Assessment Report found that the Coldwater River watershed has four primary sources of these NPS impairments: runoff from agricultural practices, urban runoff from the Weidman Community, failing septic systems, and natural sources from forest land cover.

Table 17. Level of Goal Attainment at SCIT Coldwater River Sampling Stations.

Site Number	D.O. (mg/l)	Temperature (degrees C)			Sp. Cond. (mS/cm)	Turbidity (NTUs)	TDS (mg/L)	TN (mg/L)	TP (µg/L)	E. Coli (CFU/100 mL)	
		April	May	Oct						30 day GM	NTE
		<5	>13.3	>21.1						>17.8	>0.5
CR1	L								L		
CR2		H									
CR3		H			L					L	L

Implementation Activities in the Coldwater River

There are no known existing BMPs for this waterbody. Upstream of the reservation a biota TMDL for a 3 mile segment of Coldwater River was approved in 2001. The TMDL recommended BMPs for erosion from muck farming and road crossings.

Potential BMPs to Address Nonpoint Source Pollution

Based on NPS Assessment Report findings, future implementation activities should include agricultural BMPs that will reduce runoff, urban BMPs to address stormwater runoff in Weidman, education and implementation to address failing septic systems, as well as monitoring and BMPs to address the loss of riparian canopy and high spring temperatures.

<p>Priority NPS Management: Agriculture Urban Runoff (Weidman) Failing Septic Systems Loss of Riparian Canopy</p>

The highest priority is monitoring to determine the reason for high spring temperatures in the Coldwater River. In addition BMPs should target the reduction of *E. coli*, specific conductivity, and turbidity as well as nutrient loading and low dissolved oxygen. Ideal BMPs are those that can address a suite of these pollutants.

Table 18. Potential BMP Selection Worksheet for Coldwater River

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Agricultural				
Monitoring of AFOs				
Natural streamside vegetation education materials				
Riparian management technique demonstration project				
Riparian ordinance prohibiting removal of native streamside vegetation				
Alternative Watering Systems				
Cattle Exclusion from Streams/Fencing				
Constructed Wetlands				
Composting				
Cover Crops				
Critical Area Seeding				
Erosion Control Structures				
Filter Strips				
Grassed Waterways				
Grazing Land Management				
Proper Manure Handling, Collection and Disposal				
Riparian Buffers (200 ft wide)				
Streambank Stabilization				
Tillage Practices				
Urban				
Education and pollution prevention programs				
Encouraging better site design to decrease runoff				
Keeping stormwater conveyance channels clear of organic matter				
Ordinance Development				
Preventing erosion and controlling sediment from new construction				
Street and Parking Lot Sweeping				

Bio retention and Rain Gardens				
Filter Strips and Buffers				
Maintaining and restoring riparian buffers				
Permeable Pavement				
Septic Systems				
Septic education for homeowners via pamphlets/folders				
Monitoring, Census of number of septic systems, number of failing septic systems				
Require periodic maintenance (pumping)				
Identify sources of funding and technical assistance for septic system improvements.				
Place new septic systems in appropriate locations				
Riparian Corridor				
Acquire critical streamside property				
Protecting and establishing waterway vegetation				
Riparian Management Zone				
Temperature Monitoring				
Additional BMPs Suggested by Tribal Partners				

Salt River

The Salt River watershed drains to the Tittabawassee River outside of the Isabella Reservation boundaries near Midland. The stream is not currently sampled by the SCIT.

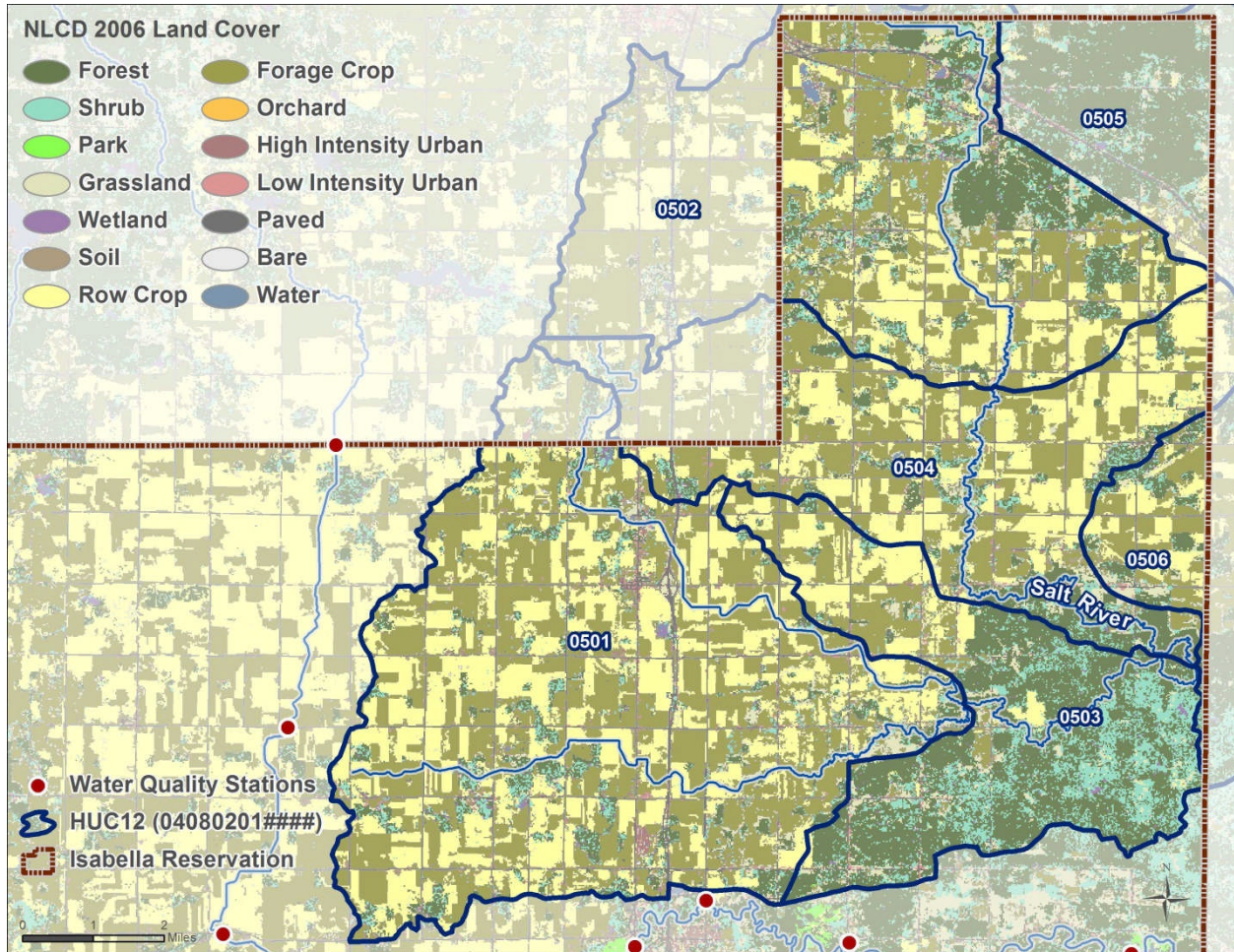


Figure 9. The Salt River Watershed within the Isabella Reservation.

The Salt River consists of six 12 digit HUCs within SCIT boundaries. None of these are currently sampled by SCIT.

8-digit HUC 04080201	Salt River
• 040802010501	Spring Creek-South Branch Salt River
• 040802010502	McDonald Drain-North Branch Salt River
• 040802010503	South Branch Salt River
• 040802010504	North Branch Salt River
• 040802010505	Bluff Creek
• 040802010506	Howard Creek-Salt River

Agriculture is the primary land use in the Salt River watershed, constituting 60 percent of the area. Forests represent 22 percent of the landscape, while shrub and grassland comprise another 14 percent. Impervious surfaces cover 5 percent of the Salt River watershed.

Pollutants of Concern in the Salt River

Likely Pollutants of Concern:

Dissolved Oxygen
E. coli
Specific Conductivity
Spring Temperature
Total Nitrogen
Total Phosphorus
Turbidity

Although the SCIT does not currently sample Salt River, it is assumed that several pollutants are likely not meeting targets. The watershed has similar land use activities as the other watersheds on the Reservation and likely has the same NPS pollutant concerns. The NPS Assessment Report suggests future monitoring of all SCIT parameters of concern to determine the level of NPS loadings found in Salt River. The Salt River watershed has two primary NPS sources: runoff from agricultural practices and failing septic

systems.

Implementation Activities in the Salt River

Information on Section 319 projects for the North and South Branch of the Salt River is limited due to the age of past projects. MDEQ staff can determine from old documentation that the North Branch Salt project included critical area treatment, fencing, stabilization, livestock crossing, and erosion control structures.

Potential BMPs to Address Nonpoint Source Pollution

Priority NPS Management:

Agriculture
Failing Septic Systems
Loss of Riparian Canopy

Based on NPS Assessment Report findings future implementation should include agricultural BMPs that will reduce runoff, education and implementation to address failing septic systems, along with monitoring and BMPs to address potential loss of riparian canopy and high spring temperatures. Ideal BMPs are those that can address a suite of these pollutants. Future monitoring and local

knowledge should guide BMP prioritization in the Salt River watershed.

Table 19. Potential BMP Selection Worksheet for Salt River

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Agricultural				
Monitoring of AFOs				
Natural streamside vegetation education materials				
Riparian management technique demonstration project				
Riparian ordinance prohibiting removal of native streamside vegetation				
Alternative Watering Systems				
Cattle Exclusion from Streams/Fencing				
Constructed Wetlands				
Composting				
Cover Crops				
Critical Area Seeding				
Erosion Control Structures				
Filter Strips				
Grassed Waterways				
Grazing Land Management				
Proper Manure Handling, Collection and Disposal				
Riparian Buffers (200 ft wide)				
Streambank Stabilization				
Tillage Practices				
Septic Systems				
Septic education for homeowners via pamphlets/folders				
Monitoring, Census of number of septic systems, number of failing septic systems				
Require periodic maintenance (pumping)				
Identify sources of funding and technical assistance for septic system improvements.				
Place new septic systems in appropriate locations				
Riparian Corridor				
Acquire critical streamside property				

Protecting and establishing waterway vegetation				
Riparian Management Zone				
Temperature Monitoring				
Additional BMPs Suggested by Tribal Partners				

Saganing River

The Saganing River travels through the SCIT Saganing parcels as it flows to the Saginaw Bay and then Lake Huron. The Saganing River watershed consists of one 12 digit HUC (040801020105) outside of the Isabella Reservation in Arenac County. Forests are the primary land use in the Saganing River watershed, constituting 46 percent of the area. Agricultural uses represent 32 percent of the landscape, while shrub and grassland comprise another 18 percent. Impervious surfaces cover 3 percent of the Saganing River watershed.

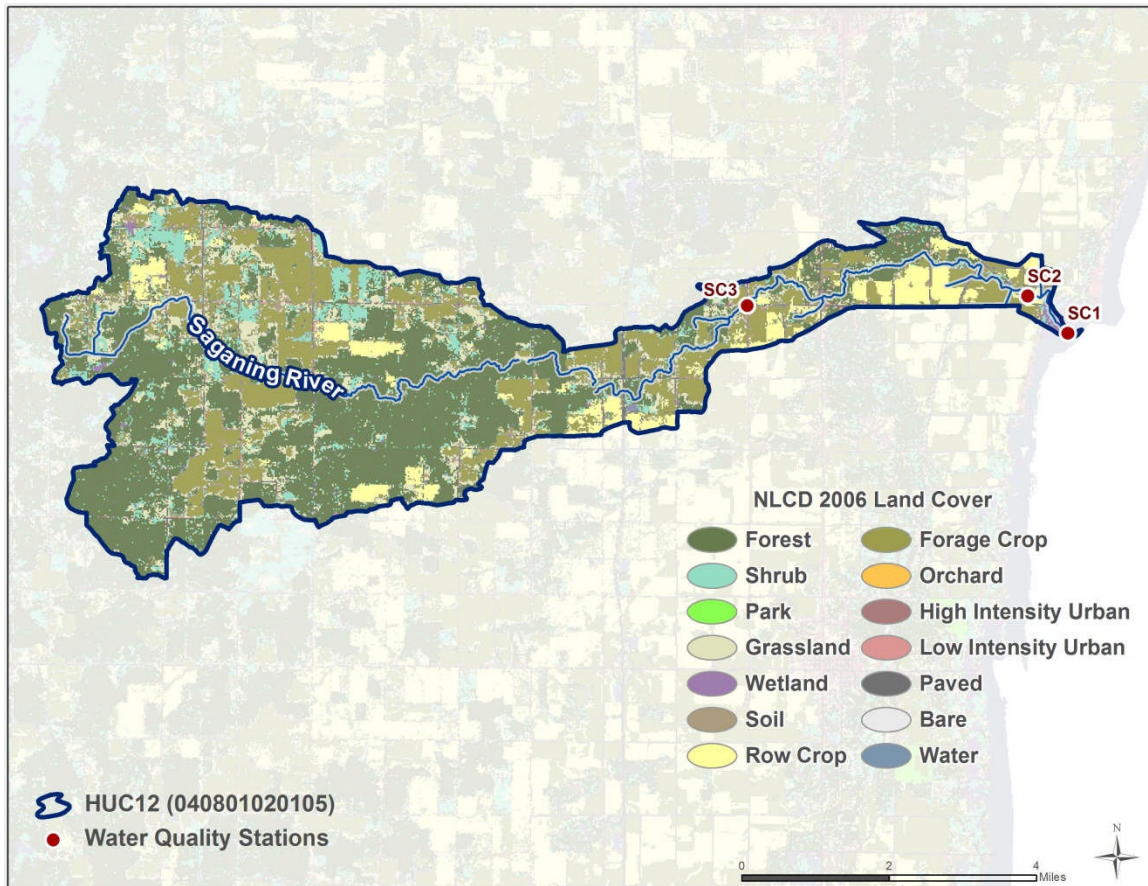


Figure 10. The Saganing River Watershed in Arenac County.

Pollutants of Concern in the Saganing River

Several pollutants on the Saganing River were not meeting target SCIT goals at the sampled stations as shown in Table 20. The NPS Assessment Report found that the Saganing River watershed has two primary sources of these NPS impairments: runoff from agricultural practices and failing septic systems. SCIT sampling and local knowledge provided also indicate that Saganing River flows are low. Upstream impoundments appear to be the source of low flows.

Table 20. Level of Goal Attainment at SCIT Saganing River Sampling Stations.

Site Number	D.O. (mg/l)	Temperature (degrees C)			Sp. Cond. (mS/cm)	Turbidity (NTUs)	TDS (mg/L)	TN (mg/L)	TP (µg/L)	<i>E. Coli</i> (CFU/100 mL)	
		April	May	Oct						30 day GM	NTE
		<5	>13.3	>21.1						>17.8	>0.5
SC3	L				H			L	L		
SC2	L	H			H	M		H	L		
SC1			L		H	L	L	H	L	H	L

Implementation Activities in the Saganing River

NRCS staff in Isabella County provided information on tribal lands enrolled in the Conservation Reserve Enhancement Program (CREP). In 2002, 6.7 acres of tribal land in Section 30 of Standish Township was enrolled in the CREP program, resulting in installation of filter strips, as well as riparian buffer. CREP contracts typically require a 10 to 15 year commitment; therefore, it is possible that the commitment on these practices is near expiration. In 2005, 2.2 acres of tribal land in Section 31 of Standish Township was also enrolled in the CREP program for filter strip installation. The two contracts for these practices, both located on the same farm, last until September 2020.

The Arenac County Drain Commissioner is working on the North Drain, west of the SCIT casino. This effort includes installation of rip-rap and other soil erosion control.

The Budd Inter-County Drain Board (Bay Drain) has been petitioned for cleanout/maintenance to remove backups near M-13 at the South County Line. This drain flows into the Saganing River and cleanout could result in higher flows from the drain to Saganing River.

Potential BMPs to Address Nonpoint Source Pollution

Based on NPS Assessment Report findings future implementation should include agricultural BMPs to reduce runoff, education and implementation to address failing septic systems, along with monitoring and BMPs to address the loss of riparian canopy and high spring temperatures.

The highest priority BMPs are those intended to reduce specific conductivity and turbidity loads associated with sediment erosion, as well as *E. coli* and total nitrogen loads. Additional monitoring to determine the reason for high spring temperatures in the Saganing River is also a high priority. In addition BMPs should target the reduction of total phosphorus and impairment associated with low dissolved oxygen and low flow. Ideal BMPs are those that can address a suite of these pollutants.

Table 21. Potential BMP Selection Worksheet for Saganing River

BMP Description by Source	Priority Ranking (1=H, 4=L)	Program/Partners/Participants	Suggested Locations	Notes
Agricultural				
Monitoring of AFOs				
Natural streamside vegetation education materials				
Riparian management technique demonstration project				
Riparian ordinance prohibiting removal of native streamside vegetation				
Alternative Watering Systems				
Cattle Exclusion from Streams/Fencing				
Constructed Wetlands				
Composting				
Cover Crops				
Critical Area Seeding				
Erosion Control Structures				
Filter Strips				
Grassed Waterways				
Grazing Land Management				
Proper Manure Handling, Collection and Disposal				
Riparian Buffers (200 ft wide)				
Streambank Stabilization				
Tillage Practices				
Septic Systems				
Septic education for homeowners via pamphlets/folders				
Monitoring, Census of number of septic systems, number of failing septic systems				
Require periodic maintenance (pumping)				
Identify sources of funding and technical assistance for septic system improvements.				
Place new septic systems in appropriate locations				

Riparian Corridor				
Acquire critical streamside property				
Protecting and establishing waterway vegetation				
Riparian Management Zone				
Temperature Monitoring				
Additional BMPs Suggested by Tribal Partners				

Appendix B: Working Session information (agenda, summary, participants)

**Saginaw Chippewa Indian Tribe
Section 319 Nonpoint Source Management Assessment Report and Program Management
Plan
Stakeholder Working Session Agenda
Monday, December 17, 2012**

- 1:00 pm **Welcome, Introductions, and Meeting Goals**
Carey Pauquette, Water Quality Specialist, Saginaw Chippewa Indian Tribe
- 1:15 pm **Discussion on NPS Assessment Report Summary and BMP Compilation**
(see Isabella Reservation Assessment Summary and BMP Fact Sheets for reference)
Facilitated by Tetra Tech
- 1:30 pm **Working Session: Waterbody-Specific BMP Identification and Prioritization**
(using table-top aerial maps and blank table shells provided in the Isabella Reservation Assessment Summary Fact Sheets)
- Chippewa River
 - North Branch Chippewa River
 - Coldwater River
 - Salt River
- Facilitated by Tetra Tech*
- 4:30 pm **Discussion on Nonpoint Source Management Program Plan Goals and Objectives**
Facilitated by Tetra Tech
- 4:45 pm **Action Items and Next Steps**
Facilitated by Tetra Tech
- 5:00 pm **Adjourn**

Chippewa River Watershed Meeting Summary Monday 12/17/2012

Chippewa River

Identified Current Implementation:

- 1) Union township has a longstanding stormwater management ordinance including a new wellhead protection plan
- 2) CMU has a swale and bioswale program in place (Contact Chris Bundy)
- 3) Chippewa has a grant for education

Identified Priority Areas:

- 1) Upstream Contributions including:
 - a) Cattle with direct access to the stream (airline rid)
 - b) Isabella Lake Dredging and drawdown
 - c) Gravel Field
- 2) Aquatic Invasives – Phragmites

- 3) Recreational use resulting in erosion (using improper river access)
- 4) Dams/Reservoirs with recreational users and insufficient facilities
- 5) Loss of ash trees
- 6) New upstream CAFO
- 7) Landfill

Identified Priority BMPs:

- 1) Riparian management and establishing native waterway vegetation (all watersheds)
- 2) Education of recreational users, agricultural users, urban users, college population (all watersheds)
- 3) Ordinance review, working with all stakeholders to ensure ordinances align with watershed goals (all watersheds)
- 4) Tree canopy inventory (All watersheds)
- 5) Bank sloughing inventory (all watersheds)

North Branch Chippewa River

Identified Current Implementation:

- 1) 32 acres in permanent easement

Identified Priority Areas:

- 1) South of Vernon Township/South of Battle to mouth – straight channels and high erosion
- 2) Tiles
- 3) Drains

Identified Priority BMPs:

- 1) Filter Strips
- 2) Permanent Easements
- 3) Tile Breaks
- 4) Tile Inventory
- 5) Infrared surveys of temperature sources
- 6) Erosion control structures
- 7) Ordinance Review- working within the communities to ensure all practices are linked to the same goals

Coldwater River

Identified Current Implementation:

- 1) 25 acres of preserved land including north Johnson Rd. and Coldwater Lake and Chippewa trail and Beal City Rd.

Identified Priority Areas:

- 1) Horse access to the river with a resulting muck pit near Weidman Rd.
- 2) Water Quality at bathing beach at Coldwater Park
- 3) Dam Failures/Structure Failures
- 4) Septic load to Mill Pond, antiquated septic systems on small properties
- 5) Loss of Ash Trees to Ash Borer
- 6) High bacteria at lakes including upstream lakes

Identified Priority BMPs:

- 1) Educational programs for agricultural users, urban users, septic users
- 2) Ordinance development and review for tribal lands, urban communities (Weidman), and septic systems. Coordinate local ordinances with common goal.
- 3) Replace and fix antiquated septic systems
- 4) Reestablish the riparian corridor including tree plantings, native plantings, and riparian management
- 5) Addressing structure failure at Lake Windoga
- 6) Alternative watering systems and fencing for animal exclusion from streams
- 7) Removal of Dam at Mill Pond

Salt River

Identified Current Implementation:

- 1) Two state section 319 reports have been completed for this watershed
- 2) Fencing and buffers were put in place in early 2000s

Identified Priority Areas:

- 1) Animal access
- 2) Potential Sediment contamination north of E. Hoey Rd.
- 3) Sedimentation and soil erosion
- 4) High turbidity
- 5) CMU has identified major geologic changes with the riparian channel having a variety of good and bad conditions

Identified Priority BMPs:

- 1) Filter Strips
- 2) Streambank Stabilization
- 3) Educational Programs
- 4) Monitoring

Summary

Stakeholders identified the need for streambank restoration watershed wide as well as the importance of acknowledging upstream partners and the need for a watershed approach to implementation.

Short Term and Long term goals were discussed and several additional objectives were suggested.

- 1) Add education and outreach programs to each source goals
- 2) Add streambank restoration watershed wide
- 3) Ordinance Review to ensure that all partners are supporting one another and watershed goals
- 4) Incorporating and promoting LID ordinances with onsite retention
- 5) Outreach on fertilizer use and leaf collections
- 6) Short term city riparian corridor erosion control
- 7) Long term ordinance for soil erosion, grading projects
- 8) Cross reference drain clearing schedule with monitored high temperatures

Meeting Attendees

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**Saginaw Chippewa Indian Tribe
Section 319 Nonpoint Source Management Assessment Report and Program Management
Plan
Stakeholder Working Session Agenda
Tuesday, December 18, 2012**

- 9:30 am **Welcome, Introductions, and Meeting Purpose**
Carey Pauquette, Water Quality Specialist, Saginaw Chippewa Indian Tribe
- 9:45 am **Discussion on NPS Assessment Report Summary and BMP Compilation**
(see Saganing River Assessment Summary and BMP Fact Sheets for reference)
Facilitated by Tetra Tech
- 10:00 am **Working Session: Waterbody-Specific BMP Identification and Prioritization**
(using table-top aerial maps and blank table shells provided in the Saganing
River Assessment Summary Fact Sheets)
Facilitated by Tetra Tech
- 11:30 am **Discussion on Nonpoint Source Management Program Plan Goals and
Objectives**
Facilitated by Tetra Tech
- 11:45 am **Action Items and Next Steps**
Facilitated by Tetra Tech
- 12:00 pm **Adjourn**

Saganing River Watershed Meeting Summary Tuesday 12/18/2012

Identified Current Implementation:

- 1) NRCS Filter Strips
- 2) Permanently Protected Land
- 3) Phragmites removal

Identified Priority Areas:

- 1) Diminished Flow
 - a) What is the source?
 - i. drainage practices
 - ii. glacial rebound
 - iii. sedimentation
 - iv. residential diversions
- 2) Erosion

Identified Priority BMPs:

- 1) Erosion Control Structures
- 2) Filter Strips, Permanent easements
- 3) Proper Manure Application
- 4) Streambank Stabilization
- 5) Education/Signage
- 6) Road Crossing Inventory

- 7) Silt Fencing on Ag land (Unique short term BMP with monitoring)
- 8) Tile Breaks
- 9) Ordinance Review with an eye towards flow restoration
- 10) Land conservancy, preserving the riparian corridor, acquiring critical streamside property
- 11) Invasive removal
- 12) Erosion inventory
- 13) Tributary and Drain inventory
- 14) Residential survey
- 15) Animal exclusion/fencing
- 16) Cover crops

Summary:

Goals include public education and watershed enthusiasm. There is a desire for this area to become an eco tourist area. There is a need to establish tribal stormwater standards and ordinances that align with the goal of water quality and further tribal development.

Meeting Attendees

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Appendix C: BMP Cost/Efficiency Information

Table 22. BMP Cost and Pollutant Removal Efficiencies

Type	Implementation Activity	Annualized Costs	Pollutant Reduction/Potential Effectiveness (%)*							
			Dissolved Oxygen	<i>E. coli</i>	Spring Temperature	Specific Conductivity	Turbidity	Total Dissolved Solids	Total Nitrogen	Total Phosphorus
Agricultural										
Monitoring	Monitoring of AFOs	Moderate		x						
Non Structural	Natural streamside vegetation education materials	Low			x		x			
	Riparian management technique demonstration project	High			x		x			
	Riparian ordinance prohibiting removal of native streamside vegetation	Moderate			x		x			
Structural	Alternative Watering Systems	\$3.15 per head of pastured cattle ^{1,2,15}		29 to 46 ¹⁵			x		x	x
	Cattle Exclusion from Streams/Fencing	\$2.50 - \$5.75 per head of		29 to 46 ¹⁵			x		x	x

Type	Implementation Activity	Annualized Costs	Pollutant Reduction/Potential Effectiveness (%)*							
			Dissolved Oxygen	<i>E. coli</i>	Spring Temperature	Specific Conductivity	Turbidity	Total Dissolved Solids	Total Nitrogen	Total Phosphorus
		pastured cattle ²								
Structural	Constructed Wetlands	\$2.50 per head of dairy cattle ³		92 ³		53 to 81 ₃ (TDS)		95 (ammonia) ³		x
	Composting	\$10.25 to \$94 per head of cattle ^{6,7,21,9}		Up to 99 ⁴		Up to 68 (sediment) ⁵				
	Cover Crops	\$19.25 per acre ^{10,11}				50 (soil and runoff losses) ¹²				
	Critical Area Seeding	Moderate				x				
	Erosion Control Structures	Variable				x				
	Filter Strips	\$4 to \$6 per head of cattle; \$25 per acre ^{16,17,18,2}		55 to 87 ^{13,14,15}		65 (sediment) ^{13,14,15}		70 ^{13,14,15}		x
	Grassed Waterways	\$0.05 to \$0.12 per head of cattle; \$2 to \$6 per acre ^{2,17,18,20}		5 ¹⁹		68 (TSS) ¹⁹		x		x
	Grazing Land Management	Variable		40-90 ^{15,21}		x		60 ¹⁵		x

Type	Implementation Activity	Annualized Costs	Pollutant Reduction/Potential Effectiveness (%)*							
			Dissolved Oxygen	<i>E. coli</i>	Spring Temperature	Specific Conductivity	Turbidity	Total Dissolved Solids	Total Nitrogen	Total Phosphorus
	Proper Manure Handling, Collection and Disposal	Variable		Up to 90-97 ^{15,22}						
Structural	Riparian Buffers (200 ft wide)	\$0.16 per ft of channel; \$130 per acre ^{23,26,27}		34 to 74 ²³			70 to 90 (sediment) ²⁴	74 ²⁵		x
	Streambank Stabilization	High			x		x			
	Tillage Practices	\$1.25 to \$2.25 per acre ^{5,28,29}					50-90 (sediment) ¹⁵	x		38-85 ^{15,28}
Urban										
Non Structural	Education and pollution prevention programs	Low		x			x	Moderate ³⁰		
	Encouraging better site design to decrease runoff	Low		x			x	x		x
	Keeping stormwater conveyance channels clear of organic matter	Moderate					x	x		x
	Ordinance Development	Moderate		x			x	x		x
	Preventing erosion and controlling sediment from	Low					x			

Type	Implementation Activity	Annualized Costs	Pollutant Reduction/Potential Effectiveness (%)*							
			Dissolved Oxygen	<i>E. coli</i>	Spring Temperature	Specific Conductivity	Turbidity	Total Dissolved Solids	Total Nitrogen	Total Phosphorus
	new construction									
	Street and Parking Lot Sweeping	Moderate					9-31 ³¹	3-7 ³¹	3-8 ³¹	
Structural	Bio retention and Rain Gardens	Moderate					59 (TSS) ³¹	46 ³¹	5 ³¹	
	Filter Strips and Buffers	High		37 ³¹			86 (TSS) ³¹	32 ³¹	59 ³¹	
	Maintaining and restoring riparian buffers	Moderate		x			x	x	x	
	Permeable Pavement	High					89 (TSS) ³¹	42 ³¹	65 ³¹	
Septic Systems										
Non-Structural	Septic education for homeowners via pamphlets/folders	Low		x				x	x	
	Monitoring, Census of number of septic systems, number of failing septic systems	Moderate		x				x	x	
	Require periodic maintenance (pumping)	Moderate		x				x	x	
	Identify sources of funding and technical assistance for septic system	Low		x				x	x	

Type	Implementation Activity	Annualized Costs	Pollutant Reduction/Potential Effectiveness (%)*							
			Dissolved Oxygen	<i>E. coli</i>	Spring Temperature	Specific Conductivity	Turbidity	Total Dissolved Solids	Total Nitrogen	Total Phosphorus
	improvements.									
Non-Structural	Place new septic systems in appropriate locations	High		x						
Hydrologic and Habitat Modifications										
Non Structural	Acquire critical streamside property	Moderate			x		x			
	Protecting and establishing waterway vegetation	Moderate			x		x			
	Riparian Management Zone	Moderate			x		x			
Monitoring	Temperature Monitoring	Moderate			x					

Notes

x= This BMP will target a reduction of that pollutants load, though potential reduction percentages are unknown

null=An empty table cell indicates that the BMP does not target that pollutant

¹Source: Marsh 2001

²Source: NRCS 2003

³Source: NRCS: 2002

⁴Source: Larney et.al. 2003

⁵Source: HRWCI 2005

⁶Source: CIAS 1996

⁷Source: University of Alberta 2000

⁹Source: USEPA 2001

¹⁰Source: Mannering et al. 1998

¹¹Source: Sample 2007

¹²Source: IAH 2002

¹³Source: Kalita 2000

¹⁴Source: Woerner et al. 2006

¹⁵Source: USEPA 2003

¹⁶Source: OSUE 1994

¹⁷Source: Weiss et al. 2007

¹⁸Source: USEPA 2002

¹⁹Source: Winer 2000

²⁰Source: Rouge River 2001

²¹Source: Government of Alberta 2007

²²Source: Meals and Braun 2006

²³Source: Wenger 1999

²⁴Source: NCSU 2002

²⁵Source: Dillaha et al 1989

²⁶Source: Wossink and Osmond 2001

²⁷Source: NCEEP 2004

²⁸Source: Czapar et al. 2006

²⁹Source: Al-Kaisi et al. 2000

³⁰Source: USEPA 1999

³¹Source: CWP 2007

Appendix D: Treatment as a State Documentation

[To be added]

Appendix E: Public Comments/Response

[To be added after public review]