Red Lake Band of Chippewa
Wetland Program Plan

2016-2020

Red Lake Band of Chippewa Indians in Minnesota

Red Lake DNR Office

US Environmental Protection Agency-Region V

Wetland Program Development Grant

Project Period: 2016-2020

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Introduction

This report details a conservation plan for the wetlands within the Red Lake Band of Chippewa Indian Reservation (RLIR) in northern Minnesota. The RLIR is one of two closed Reservations in the United States and contains the largest land base in EPA Region 5 that is entirely under Tribal ownership. The Red Lake Band (RLB) owns 59% of all Indian land in Region 5, and total land holdings are in excess of 835,000 acres consisting of approximately 308,000 acres of forest, 241,000 acres of lakes, 541,000 acres of wetlands, and over 371 miles of rivers and streams. Wetlands are classified into five types: emergent, wet meadows, scrub-shrub, forested, and a various combination of the previous four. A large portion of the wetland acreage is part of the largest expanse of peatlands in the conterminous United States. The Red Lake Band, partnered with the United States Environmental Protection Agency (US EPA), is responsible for the protection of Red Lake, the 6th largest freshwater lake in the United States.

Historically, the RLB has been deeply connected to the Reservation's land and water resources. Wetlands on the Reservation provide members with a suite of different uses expanding from a subsistence cycle of hunting, fishing, and gathering of resources (e.g. 'manomin' or wild rice) to cultural and medicinal purposes.

Outside of being culturally significant, wetlands also have major benefits affecting water quality and wildlife habitat that are also valuable to the RLB. Today, the fishery on Lower Red Lake is one of the largest sources of income to Tribal members. The health of the fishery can be linked to 10 rivers and streams having above average water quality pouring into Lower Red Lake. Also, shallow lakes and ephemeral ponds host a variety of (semi)aquatic species that attract local fur and bait trappers. Wetlands within the Reservation serve as nesting and roosting sites for waterfowl located within the Mississippi and western Atlantic flyways. The abundance of wetlands acts as a buffer system to combat flooding and an active filtration system for pollutants trying to enter the relatively high water table.

In developing a Wetland Program Plan (WPP), the US EPA recommends that states and tribes to utilize the US EPA Core Elements Framework (CEF). This framework defines four broad elements of a comprehensive wetland program. The four Core Elements set by the US EPA include the following:

1. Monitoring and Assessment
2. Regulatory Activities including 401 Certification
3. Voluntary Restoration and Protection
4. Water Quality Standards for Wetlands

Core Element 1: Monitoring and Assessment

Goals

1. Maintain/Update a Comprehensive Inventory of Wetlands

Objective 1. ***Develop a High Resolution Updated Wetland Inventory to Establish Reference Conditions on the RLIR:***

Currently, the best wetlands layer for the Reservation is a National Wetland Inventory (NWI) database which is nearly 30 years old. Since the development of the NWI, technological improvements have been made with high resolution imagery of infrared, false color, and topographic photography. With the use of LiDAR and updated imagery, wetlands are now easier to identify after data manipulation using a Geographic Information System (GIS) in partnership with ArcMap. The Minnesota Department of Natural Resources (DNR) is in the process of updating the NWI and will be completed by 2020 for a statewide layer. However, the Band has decided to develop higher resolution imagery in a shorter time window for high development potential areas of the Reservation

Task 1: **Use ArcMap to digitize an updated wetland inventory:**

Rather than wait until 2020 the Red Lake DNR chose to begin updating a high priority geographic region of the Reservation designated for development in the immediate future. Evaluation of baseline wetland area will determine the extent of the RLB's wetlands and act as a reference for comparison with predicted wetland losses due to potential changes associated with climate change. In cooperation with Beltrami Country, the RLB purchased spring leaf-off aerial photography that was flown in 2014. Digitizing the Reservation's wetlands was made possible by using a Compound Topographic Index (CTI) algorithm and data processing of the high resolution aerial photographs to extract any possible wet features in ArcMap. The CTI is a steady state wetness index which is commonly used to quantify topographic control on hydrological processes. This index takes into account the slope of the landscape and the contributing area (catchment) per unit width orthogonal to the flow direction. Analysis of this photography in 2015-2016 resulted in an updated wetland inventory. Referencing high resolution aerial photography in GIS, the RL DNR has processed approximately 40% of the Reservation (the priority area mentioned above) which is about 225 square miles (144,000 acres); this value does not include the Red Lakes. Mapping the remaining wetlands (60%) will be completed when funds become available. Funding to update the RLIR wetland inventory has come from a grant by US EPA to initialize a Wetland Program Development Work Plan.

Task 2: Verify wetland extent via ground truthing:

Ground truthing in the field will verify the accuracy of the complex algorithm used to manipulate aerial photos in ArcMap. This effort, which we expect to have completed by 2020, will validate the wetland mapping procedures when using imagery independently. The updated Red Lake Wetlands Inventory will allow for the determination of baseline wetland conditions and will enable the Band to better analyze changes in wetland condition and extent due to climate change.

2. Maintain Chemical and Biological Conditions and Wetland Extent on the Reservation.

Objective 1. Monitor Wetland Chemistry and Biology to Establish Reference Conditions for the Development of Water Quality Standards:

Over the past decade, extensive monitoring and research has been performed on the Reservation's type 5 open water wetlands. The RL DNR has plans to expand monitoring to all feasible wetland types using procedures similar to those conducted by the MN DNR and the MN Pollution Control Agency (MPCA) when funding becomes available.

Task 1: Use monitoring data to evaluate wetland condition/function to inform decision-making:

Currently, only type 5 open water wetlands are available to evaluate wetland condition and function. The RL DNR is actively working on evaluating type 5 wetlands to determine appropriate reference conditions in these systems. Determining reference conditions will allow for the development of appropriate water quality standards which will aid in the decision-making processes involved in managing and protecting the Reservation's resource.

Task 2: Expand monitoring of wetland conditions to additional sites and multiple years to assess greater geographical extent and trends associated with climate change:

The RL DNR has plans to expand wetland monitoring to additional wetland types when funds become available. Included in the expanded monitoring will be the assessment of flora and fauna along with chemical and physical parameters of water, soil composition, and mineral type. Monitoring multiple parameters, especially wetland extent and biological indicators, over multiple years could provide the Tribe with valuable information on climate change. Monitoring wetland condition will follow similar procedures used by the MN DNR and the MPCA.

Objective 2. Monitor Wetland Extent and Maintain Wetland Inventory:

Monitoring wetland extent and maintaining an updated wetland inventory will be a crucial process in establishing reference conditions. Over the past 3 years the RL DNR has worked to complete data collection (leaf-off high resolution aerial photography), analysis, and mapping of a large portion of reservation lands with high potential for development. Maintaining this wetland database and assessing any changes associated with climate change will be a valuable management tool. Additionally, any wetland violations will be immediately verifiable using this dataset.

Task 1: Maintain a wetland database by establishing a geographical rotating assessment of wetland extent:

Separating the existing wetland database into smaller "tiles" will allow for a periodic rotating maintenance schedule. The database is too large to update annually and would require a significant level of funding. However, assessing wetland extent on a 10 year rotating schedule allows for flexibility in both timing and funding.

Goal 1: Maintain/Update a Comprehensive Inventory of Wetlands								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Develop a High Resolution Updated Wetland Inventory to Establish Reference Conditions on the RLIR								
	Use ArcMap to digitize an updated wetland inventory	X		X		X	MNDNR, MPCA, NRCS	EPA, RLB
	Verify wetland extent via ground truthing	X	X	X	X	X	MPCA	EPA, RLB
Goal 2: Maintain Chemical and Biological Conditions and Wetland Extent on the RLIR								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Monitor Wetland Chemistry and Biology to Establish Reference Conditions for the Development of Water Quality Standards								
	Use monitoring data to evaluate wetland condition/function to inform decision-making	X	X				MNDNR, MPCA, NRCS	EPA, RLB
	Expand monitoring of wetland conditions to additional sites and multiple years to assess greater geographical extent and trends associated with climate change	X	X	X	X	X	MPCA, NRCS	EPA, RLB
Monitor Wetland Extent and Maintain Wetland Inventory								
	Maintain a wetland database by establishing a geographical rotating assessment of wetland extent	X		X		X		EPA, RLB

Core Element 2: Regulatory Activities including 401 Certification

Goals

1. Develop Regulations that will Protect Lakes, Streams, and Wetlands

Objective 1. ***Lead a Planning Committee:***

Working with multiple development and construction departments on the Reservation will be crucial in the early stages of developing a shoreline ordinance to protect lakes, stream, and wetlands on the RLIR. A recent housing development plan was brought forth to the Tribal Council; currently there are limited guidelines in place to protect water resources from construction processes. Leading a planning committee will provide useful insight to other departments on recommended guidelines that should be use during all construction processes around wetlands.

Task 1: Establish what the Tribe defines as a wetland

It is paramount to determine what the RLB defines as a wetland. Wetlands on the Reservation are culturally and biologically significant to the Tribe; however it is the Tribe's responsibility to determine what is considered a wetland for protection purposes.

Task 2: Determine uniform regulations that must be met by all development and construction departments:

The RL DNR will lead a planning committee with the Red Lake Housing Authority (RLHA) and Planning Departments (RLP) to develop guidelines that must be met during the construction of new housing developments and roads to protect wetlands. This planning committee will provide valuable information on the importance of wetlands and offer a chance for other departments to comment on possible guidelines. Also, working with other departments on the Reservation will help determine the wetland size allowed to be filled for development.

Task 3: Gain acceptance from the Tribal Code Committee:

Once uniform regulations are determined, the RL DNR will meet with the Tribal Code Committee to propose new construction guidelines that are associated with construction sites near wetlands.

Objective 2. ***Draft and Implement a Shoreline Ordinance:***

Developing and implementing a shoreline ordinance will be an important tool for managing and protecting wetlands on the Reservation during all construction processes. This ordinance will act as a crucial buffering system for pollutants trying to enter wetlands.

Task 1: Gain approval of a working shoreline ordinance from the Planning Committee:

The RL DNR will develop a draft, in partnership with other Red Lake Departments, of a shoreline ordinance that addresses current issues associated with construction sites near wetlands. The draft will be submitted to the planning committee for review.

Task 2: Gain Tribal Council's approval of the shoreline ordinance:
The RL DNR will submit a shoreline ordinance draft to the Tribal Council to gain their approval. After Tribal Council's acceptance, the shoreline ordinance will become a legal document used to protect the Tribe's wetlands.

2. 401 Certification

Objective 1. ***Water Quality Authority:***
The St. Paul District of the United States Army Corps of Engineers (USACE) administers the Section 404 program in most of Minnesota. Currently, the RLB does not have 401 certification authority to accept whether or not Section 404 is following the Tribe's WQS. Without this authority the Tribe cannot regulate constructions practices that may affect the Reservation's water quality.

Task 1: Acquire 401 certification authority during the approval of the RLB's 303(c) application to the EPA:
The RL DNR Water Resources is in the process of acquiring 401 certification authority which coincides with the RLB's 303(c) (TAS) application that is waiting to be approved by the US EPA. After gaining certification, the Tribe will be able to regulate construction processes that may affect the Reservation's water quality.

Task 2: Establish a Section 404 coordinator to work in cooperation with the USACE:
In the future, if funding becomes available, it is likely that a water resources professional incorporate Section 404 into their daily routine to work in cooperation with the USACE to regulate dredge and fill of wetlands due to road and home building expansions on the Reservation. The RL DNR does not have the funding capabilities currently to regulate the legal processes associated with Section 404.

Goal 1: Develop Regulations that will Protect Lakes, Streams, and Wetlands								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Lead a Planning Committee								
	Establish what the Tribe defines as a wetland	X					BIA, RLHA, RL Planning	EPA, RLB
	Determine uniform regulations that must be met by all development and construction departments	X	X				BIA, RLHA, RL Planning	EPA, RLB
	Gain acceptance from the Tribal Code Committee		X				RLHA, RL Planning	EPA, RLB
Draft and Implement a Shoreline Ordinance								
	Gain approval of a working shoreline ordinance from the planning committee		X					EPA, RLB
	Gain Tribal Council's approval of the shoreline ordinance		X					EPA, RLB
Goal 2: 401 Certification								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Water Quality Authority								
	Acquire 401 certification authority during the approval of the RLB's 303c application to the EPA	X					BIA, EPA	BIA, EPA, RLB
	Incorporate Section 404 duties into daily work routine to assist the USACE				X	X	USACE	EPA, RLB, USACE

Core Element 3: Restoration and Protection

Goals

1. No Net Loss of Wetland Extent

Objective 1. Establish Restoration Goals:

Having restoration goals in place will provide the RL DNR with guidelines in the event of wetland degradation. Depending on the severity, these goals will act as benchmarks the RL DNR must reach when monitoring a restored wetland.

Task 1: Develop restoration procedures:

A collaborative effort between the RL DNR Water Resources, MPCA, and NRCS will be necessary in order to develop restoration procedures for wetlands on the Reservation. A multi-agency approach to develop wetland restoration procedures will provide valuable expertise on the appropriate actions needed to successfully restore a wetland. Establishing guidelines for wetland restoration could expedite planning procedures on how to restore a wetland.

Task 2: Impaired wetland selection process:

After the development of the restoration procedures, the RL DNR Water Resources division will consider watershed planning, wildlife habitat, and other objectives when developing a selection process for restoration and protection sites. Each impaired wetland site will be ranked based on the severity, cost, and outcome objectives.

Goal 1: No Net Loss of Wetland Extent								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Establish Restoration Goals								
	Develop restoration procedures	X	X				MNDNR, MPCA, NRCS	EPA, RLB
	Impaired wetland selection process		X	X			MNDNR, MPCA, NRCS	EPA, RLB

Core Element 4: Wetland Water Quality Standards

Goals

1. Implement Wetland Water Quality Standards

Objective 1. Analyze Wetland Data:

Over the past decade, extensive monitoring and research has been performed on the Reservation's type 5 open water wetlands. Data collected from these studies will be used to determine baseline conditions and an appropriate wetland WQS for these sites. In order to maintain this data, monitoring type 5 wetlands will continue on a five to ten year rotation. The RL DNR Water Resources has plans to expand their monitoring efforts to all feasible wetland types to achieve an accurate WQS for wetlands. Data analysis by the RL DNR Water Resources division will determine the threshold for each parameter monitored. Setting thresholds on physical and chemical parameters would warn the RL DNR when wetlands are in their early stages of impairment.

Task 1: Develop a monitoring strategy for all feasible wetlands:

As mentioned above, the RL DNR Water Resources has plans to expand their monitoring efforts to all feasible wetland types. A collaborative effort with other tribal and state agencies will be necessary to come up with a monitoring strategy for all feasible wetlands. Expanding our monitoring effort to other wetland types will increase the accuracy of the RL DNR's wetland WQS.

Objective 2. Establish Wetland Water Quality Standards:

A development of wetland-specific WQS for biological and chemical criteria will provide the RL DNR a foundation for establishing reference wetland conditions. Currently, there are limited guidelines or criteria in place in determining what reference conditions consist of. Analysis of wetland data from all feasible wetland types will be used to determine appropriate wetland WQS. The wetland WQS will ensure that wetlands are treated as waters within the Tribal water quality program.

Task 1: Draft a working document for wetland water quality standards:

Wetland WQS that ensures wetlands are treated as waters within the Tribal water quality program will be submitted to the RL Tribal Council and the USEPA for approval. The draft will contain biological and chemical criteria that must be maintained when monitoring wetlands. Wetland WQS will also act as guidelines that must be followed in the US EPA Section 401 during new construction efforts.

Goal 1: Implement Wetland Water Quality Standards								
Objectives	Actions	2016	2017	2018	2019	2020	Possible Partners	Potential Funding
Analyze Wetland Data								
	Develop a monitoring strategy for all feasible wetlands	X	X				MNDNR, MPCA, NRCS	EPA, RLB
Establish Wetland Water Quality Standards								
	Draft a working document for wetland water quality standards		X	X			MNDNR, MPCA, NRCS	EPA, RLB