Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2015 Work Plan

Date of Report: October 15, 2014

Date of Next Status Update Report: November 15, 2015

Date of Work Plan Approval:

Project Completion Date: June 30, 2017

Does this submission include an amendment request? No

PROJECT TITLE: Assessing Contaminants in Minnesota Loons and Pelicans – Phase III

Project Manager: Carrol Henderson

Organization: Minnesota Department of Natural Resources

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Location: Statewide

Total ENRTF Project Budget:		
	ENRTF Appropriation:	**$141,000**
	Amount Spent:	**$0**
	Balance:	**$141,000**

Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 03j

Appropriation Language:
$141,000 the first year is from the trust fund to the commissioner of natural resources to continue to assess the potential impact of petroleum, dispersants, and heavy metal contaminants from the Deepwater Horizon oil spill in the Gulf of Mexico on the wintering habitat of Minnesota's common loons and white pelicans using radiotelemetry, geolocators, and contaminant analysis.

I. PROJECT TITLE: Assessing Contaminants in Minnesota Loons and Pelicans – Phase III

II. PROJECT STATEMENT: Since April 2010, the Deepwater Horizon oil spill has taken on significant dimensions because of direct mortality and possible long term impacts on Minnesota-origin Common loons and American white pelicans. Petroleum contaminants (PAH) and toxic dispersants (DOSS) released into the Gulf of Mexico cause continuing exposure to loons and pelicans that winter in the Gulf of Mexico. PAH stands for Polycyclic Aromatic Hydrocarbons. They are petroleum contaminants that are carcinogenic, mutagenic, and teratogenic. DOSS stands for Dioctyl Sodium Sulfosuccinate. Known commercially as "Corexit", from 800,000 to 1,000,000 gallons of Corexit were dispersed onto oil slicks in the Gulf. It did not break down the oil. It only made it sink. DOSS is reported by the Environmental Protection Agency to cause respiratory, nervous system, liver, kidney, and blood disorders. It is carcinogenic and causes hormone disruption.

Minnesota has the largest breeding population of both loons (12,000 adult loons in the state) and American white pelicans (22,000 breeding pairs) in the continental United States. This presents a national stewardship responsibility to look after the long term health of and survival of those populations.

Loons hatched in Minnesota in the summers of 2008 and 2009 were in the Gulf when the oil spill occurred, and young pelicans hatched in 2009 were also present in the Gulf when the oil spill occurred. Subadult loons do not return to Minnesota until the beginning of their third year, and they typically do not begin breeding until their fifth year. Young American white pelicans do not return to Minnesota until spring of their second year. The Deepwater Horizon oil spill caused the death of approximately 200 Common loons and continuing contamination may be affecting their long term survival and reproduction at sublethal levels. This study is directed at learning the extent of those long term damages.

ENRTF funding in 2011 provided three years of field studies in which telemetry showed that, in addition to the impacts on juvenile loons, adult loons from Minnesota subsequently migrated to winter in the area affected by the oil spill. Analyses of loon and pelican blood, tissue, egg, and bill knob samples revealed that a significant percentage of loons and pelicans from Minnesota had picked up both oil and dispersant contaminants in the Gulf. This may be causing long term sublethal impacts including reproductive failure, population declines, or reduced longevity in these long-lived species. Five activities are proposed over the next two years to continue assessing pollutant levels, migration patterns, and population trends for loons and, to a lesser extent, white pelicans.

The data collection on American white pelicans relating to PAH and DOSS contaminants in eggs and bill knobs and migration and wintering movements will be completed through the activities of Phases I and II of this project. No further research on white pelicans is proposed for Phase III at this time.

This information will be used by the US Fish and Wildlife Service in development of their federal court case based on the Natural Resources Damage and Restoration (NRDAR) process under the Oil Pollution Act to reimburse states for the loss of wildlife due to oil spills. This data and other information previously gathered in this ENRTF study will likely result in a significant settlement to the State of Minnesota for damages to loons and pelicans, with the proceeds to be used for future loon and waterbird restoration and management purposes over a 15 year period.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of November 15, 2015:

Project Status as of April 15, 2016:

Project Status as of September 15, 2016:

Project Status as of April 15, 2017:

Overall Project Outcomes and Results:

IV. PROJECT ACTIVITIES AND OUTCOMES:

Activity 1: Migration patterns and wintering distribution of juvenile common loons. Budget: $74,000

Description: The US Geological Survey was contracted in Phase 2 of this project for their biologists and a wildlife veterinarian to capture 15 juvenile loons by nightlighting in the summer of 2014. In August, 2014, 15 loons were captured and surgically outfitted with internal satellite transmitters and outfitted with geolocators on their leg bands to monitor their subsequent migration and movements. Little is known about how juvenile loons utilize the Gulf of Mexico in their first two years of life. This has become an extremely important part of this study because it documents the wintering sites in the Gulf of Mexico that have been most directly impacted by the Deepwater Horizon oil spill. Loons will subsequently tracked over the next two years and eventually recaptured to obtain data collected on the geolocators which includes the depths to which the loons dive while feeding. This activity will extend the tracking and monitoring efforts that are currently funded under Phase II of this project. It will also allow for retrieving any satellite transmitters on juvenile loons that die prematurely and allow them to be placed on additional loons to allow for a larger ultimate project sample size of satellite monitored loons.

Summary Budget Information for Activity 1:

ENRTF Budget:	**$ 74,000**
Amount Spent:	**$ 0**
Balance:	**$ 74,000**

Activity Completion Date:

Outcome	Completion Date	Budget
1. Monitor satellite transmitter data for 15 juvenile loons for migration, wintering area identification, movements and survival through 2018.	April 15, 2017	$ 55,000
2. Recover geolocator tags via carcass recovery or recapture in Minnesota to download data and produce final report.	April 15, 2017	$ 19,000

Project Status as of November 15, 2015:

Project Status as of April 15, 2016:

Project Status as of September 15, 2016:

Project Status as of April 15, 2017:

Overall Project Outcomes and Results:

Activity 2: Loon tissue contaminant analysis. Budget: $ 67,000

Description: Contract with the University of Connecticut to analyze loon feather samples collected by US Geological Survey biologists for both PAH and DOSS contaminants to verify levels of PAH and DOSS detected in blood samples from the same loons. The U of Connecticut will also analyze blood samples taken from live loons captured by USGS staff in the course of placing or recovering geolocators and satellite transmitters. They will also analyze blood and fatty tissue samples of loons found dead in Minnesota for PAH and DOSS.

This analysis will be carried out by the Center for Environmental Sciences and Engineering at the University of Connecticut because that facility has been doing the analysis of PAH and DOSS samples in wildlife contaminated by the Deep Horizon oil spill for federal agencies and research institutions. It is important that the results obtained for Minnesota's loons to be consistent with the results obtained with other samples from the oil spill to strengthen the evidence that will be necessary to present for federal litigation related to upcoming NRDAR proceedings. The U of Connecticut also has access to original samples of oil spilled during the Deep Horizon incident so that unique PAH and DOSS features found in MN can be matched to the "fingerprint" characteristics of the oil spill petroleum and dispersant. That is why a Minnesota-based firm was not identified to carry out this analysis.

Summary Budget Information for Activity 2:

ENRTF Budget	**$**	**67,000**
Amount Spent:	**$**	**0**
Balance:	**$**	**67,000**

Activity Completion Date:

Outcome	Completion Date	Budget
1. Analyze for PAH and DOSS in 215 samples of loon blood, feathers, eggs, and fatty tissues and provide results to the MN DNR and USGS.	June 30, 2017	$ 67,000

Project Status as of November 15, 2015:

Project Status as of April 15, 2016:

Project Status as of September 15, 2016:

Project Status as of April 15, 2017:

Overall Project Outcomes and Results:

V. DISSEMINATION:

Description: Results of this project will continue to be shared with the LCCMR staff and members and with the public as information and results become available. Results will also be shared with the USFWS Restoration Program Manager, Deepwater Horizon NRDAR Field Office, Fairhope, Alabama, so that the results of this research can be incorporated into the federal court case that is being prepared by the USFWS against BP to reimburse the State of Minnesota for damages done to Minnesota's common loon and white pelican populations by the Deepwater Horizon oil spill. Results and updates will also be shared with local, state, and national media as the opportunity presents itself.

Project Status as of November 15, 2015:

Project Status as of April 15, 2016:

Project Status as of September 15, 2016:

Project Status as of April 15, 2017:

Overall Project Outcomes and Results:

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget Overview:

Budget Category	$ Amount	Overview Explanation
Professional/Technical/Service Contracts:	$	
USGS, Activity 1	$ 74,000	Loon monitoring and telemetry
UConn, Activity 2	$ 67,000	Analysis of loon tissues for contaminants
TOTAL ENRTF BUDGET:	**$ 141,000**	

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than $5,000: N/A

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: N/A

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: 1 (staff salary from USGS -No DNR staff)

B. Other Funds:

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
Non-state			
USGS senior loon biologist salary match $10,000	$ 10,000	$ 0	Project management, implementation and report preparation
State			
DNR Nongame Wildlife Program supervisor-15% time for two years.	$ 15,000	$ 0	Project management, supervision, planning, and report preparation
TOTAL OTHER FUNDS:	**$ 25,000**	**$ 0**	

VII. PROJECT STRATEGY:

A. Project Partners: US Geological Survey, University of Connecticut Center for Environmental Sciences, MN Pollution Control Agency, and DNR Nongame Wildlife Program

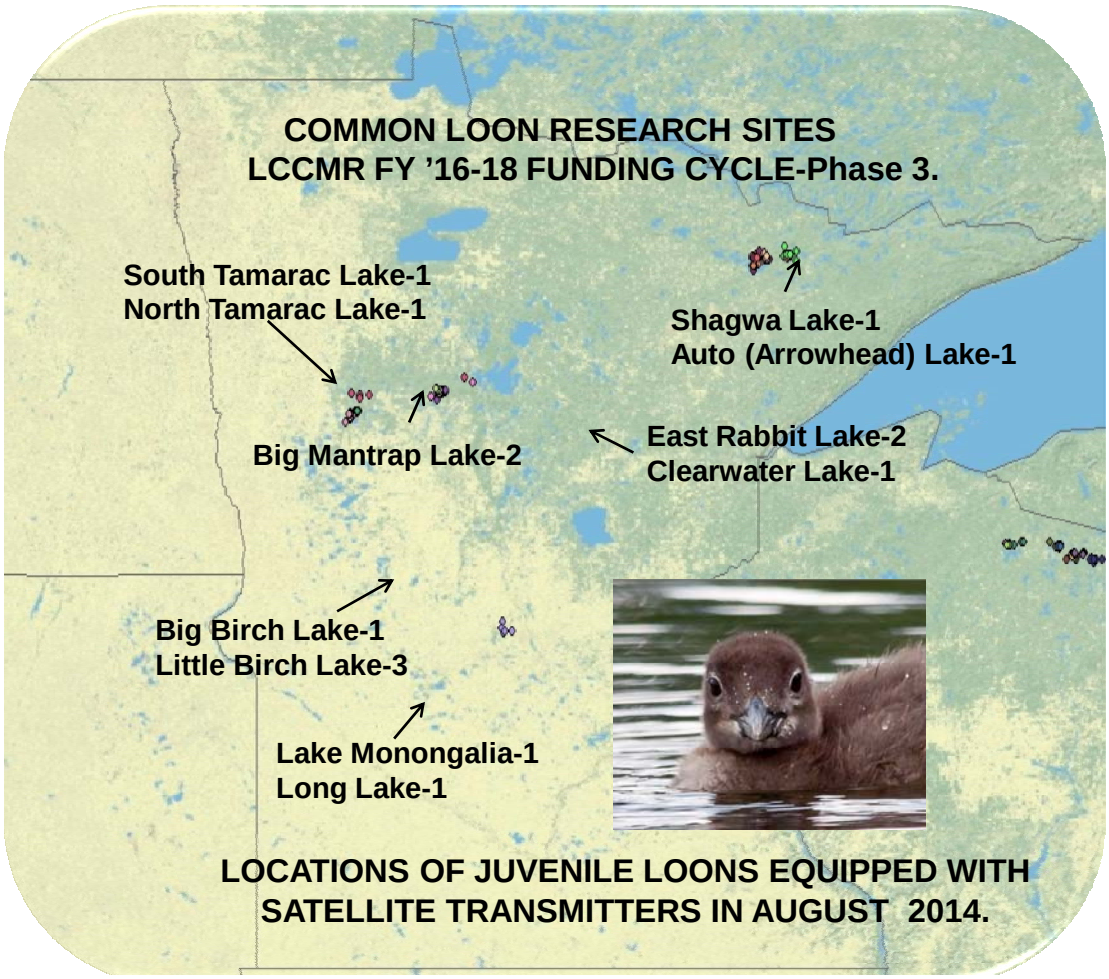
B. Project Impact and Long-term Strategy: The goal of this project is to assess the immediate and long term impacts that may affect Minnesota's population of loons and pelicans as a result of the DeepWater Horizon oil spill that occurred in 2010. The oil spill caused direct mortality to birdlife in the Gulf of Mexico including loons and pelicans. It may also have caused long term sublethal effects that could reduce reproductive potential or longetivity for these long-lived birds. This project is part of a 10-year long term strategy to quantify negative long term impacts so that this information can be used by the US Fish and Wildlife Service in developing a federal court case that according to guidelines of the Natural Resources Damages and Restoration Act which will potentially result in award of damages from BP to the State of Minnesota over a 15 year period for restoration and management of loons and pelicans to the extent that they were affected by the oil spill.

C. Funding History:

Funding Source and Use of Funds	Funding Timeframe	M.L.2011 (fy 12-13)	M.L.2014	M.L.2015	$ Amount
ENRTF Appropriation		$ 250,000	$ 260,000	$ 141,000	$ 651,000

VIII. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS: N/A

IX. VISUAL COMPONENT or MAP(S):



X. RESEARCH ADDENDUM: N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted no later than November 15, 2015, April 15, 2016, September 15, 2016, and April 15, 2017. A final report and associated products will be submitted between June 30 and August 15, 2017.

Environment and Natural Resources Trust Fund
M.L. 2015 Project Budget

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Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 03j
Project Manager: Carrol L. Henderson
Organization: Minnesota Department of Natural Resources
M.L. 2015 ENRTF Appropriation: $ 141,000
Project Length and Completion Date: 2 Years, June 30, 2017
Date of Report: October 15, 2014

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	USGS loon satellite tracking and geolocator retrieval and reporting			UConn contaminant analysis & reporting of loon blood, feathers, eggs, & fat tissues				**TOTAL BUDGET**
Professional/Technical/Service Contracts								
US Geological Survey: Collaborative Agreement to monitor the location and status of loons equipped with satellite transmitters and recapture loons equipped with geolocators. Post satellite info on USGS website.	$74,000	$0	$74,000	$0	$0	$0	$74,000	$74,000
University of Connecticut: Contract for analysis 216 loon tissues (blood, eggs, feathers, and fat) for PAH and DOSS contaminants and provide reports to the MNDNR.				$67,000	$0	$67,000	$67,000	$67,000
COLUMN TOTAL	**$74,000**	**$0**	**$74,000**	**$67,000**	**$0**	**$67,000**	**$141,000**	**$141,000**