St. Louis River U.S. Steel Natural Resource Damage Assessment and Restoration

1854 Treaty Authority

Fond du Lac Band of Lake Superior Chippewa

National Oceanic and Atmospheric Administration

State of Minnesota

United States Fish and Wildlife Service

February 2023

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Outline

- St. Louis River U.S. Steel Site Overview
- Natural Resource Damage Assessment and Restoration
- St. Louis River U.S. Steel NRDAR
- Assessment Plan
- Public Process

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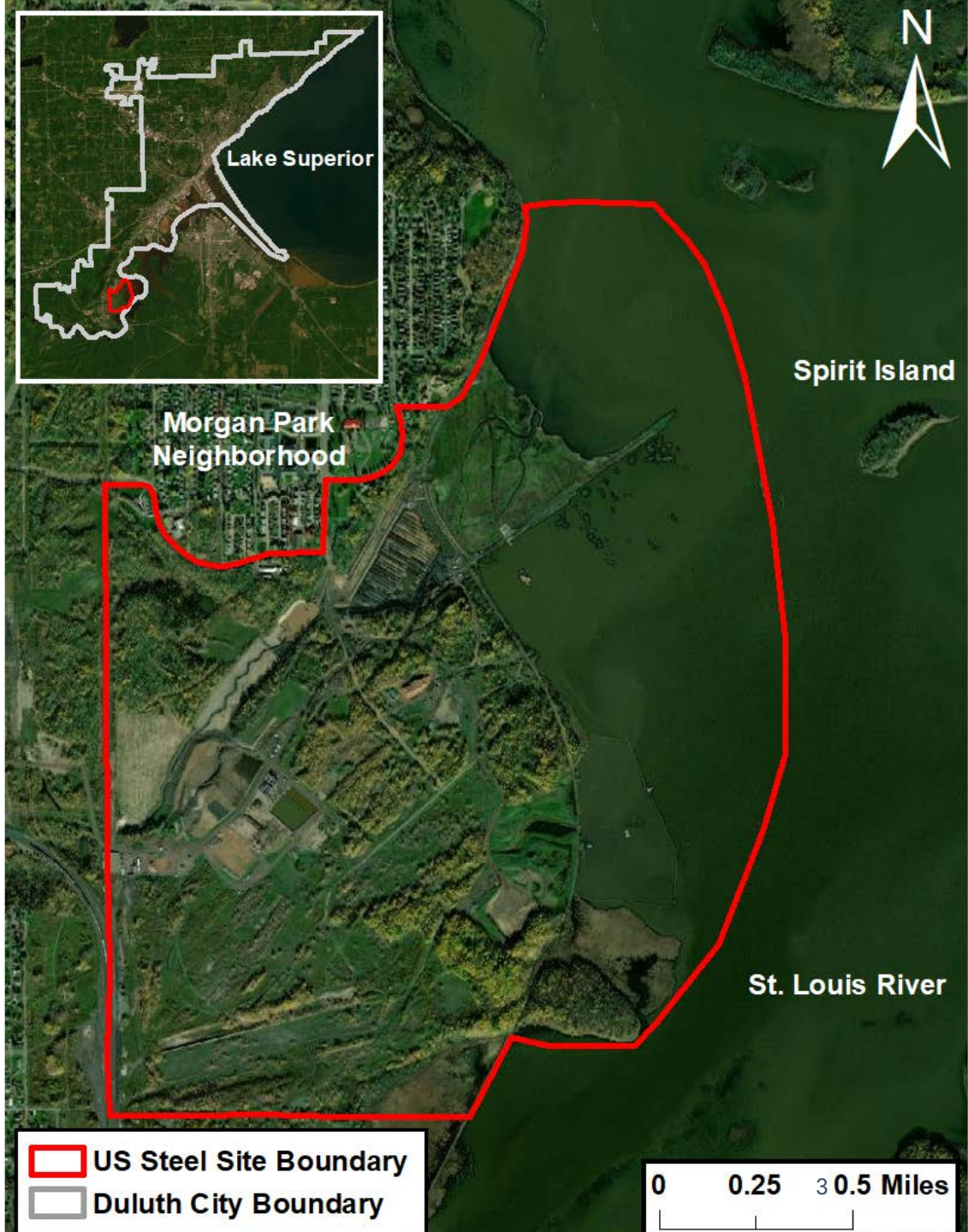
Site Overview

- > 900 acres of terrestrial and aquatic habitat
- Located in Duluth, MN along the St. Louis River
- Listed by the Environmental Protection Agency (EPA) and Minnesota Pollution Control Agency as a Superfund Site



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Site Overview

- Diverse habitats including forest, grass and shrubs, wetlands, and freshwater
- Supports variety of wildlife. Examples:
  - Invertebrates (soil and aquatic)
  - Fish (lake sturgeon, Northern pike)
  - Reptiles and amphibians (wood frog, snapping turtle)
  - Birds (great blue heron, songbirds)
  - Mammals (black bear, river otter, shrew)

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Site Recreational Use

- Recreational activities in the publicly accessible areas of the St. Louis River section of the Site include:
  - Fishing
  - Motorized and non-motorized boating
  - Wildlife viewing

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Site Tribal Use

Tribal members may use natural resources to an extent and in ways that are different from the general population.

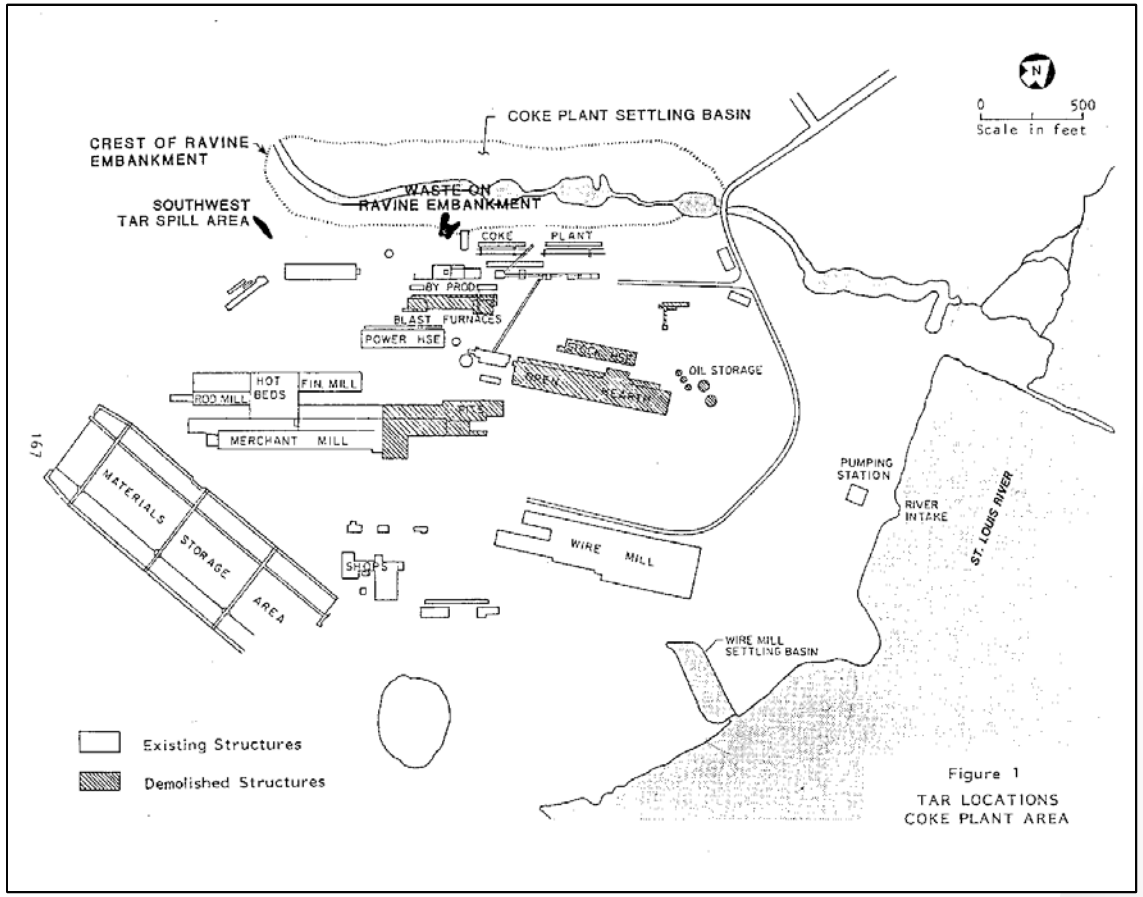
Relevant to the U.S. Steel Site, the St. Louis River estuary and its natural resources are of importance to the Anishinaabe (Ojibwe) people. It is located within ceded territories where treaty rights have been retained and provides essential cultural services. For example, the surface waters provide:

- Water supply for ceremonial activities and domestic uses
- River features for fishing and transportation
- Maintaining water quality and cleanliness
- Habitat for subsistence and utilitarian uses, as well as sacred animals and plants

Aerial image of Spirit Island

Site Operations

- U.S. Steel operations occurred from 1915 to 1986 including:
  - Coke production
  - Iron and steel making
  - Casting
  - Primary rolling and roughing
  - Hot and cold finishing
  - Galvanizing
- Operations at the facilities released contaminants into the environment, such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals (e.g., chromium, copper, lead, and mercury)



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Site Remediation

- Cleanup began in the 1980s including:
  - Removing contaminated soils
  - Dredging and capping contamination in waterbodies
  - Removing by-product tanks and pipelines
- Cleanup actions are on-going
- Sediment remediation is also occurring through the Great Lakes Legacy Act and the Spirit Lake Legacy Act Cleanup project, a joint U.S. Steel and EPA project

Natural Resource Damage Assessment and Restoration (NRDAR)

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What is NRDAR?

NRDAR is a process to determine the amount and type of restoration and/or dollars needed to compensate the public for injuries to natural resources resulting from the releases of hazardous substances into the environment.

Goal = Restoration of natural resources to the condition they would be in if the release of hazardous substances had not occurred

Compensation is calculated in projects or dollars necessary to restore injured resources.

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Natural Resources

Natural resources are:

- Land
- Fish
- Wildlife
- Biota
- Air
- Water
- Ground water
- Drinking water
- And other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any State or local government, any foreign government, and Native American tribe

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NRDAR Definitions

INJURY

Decrease in a resource's ability to provide services due to contamination.

Examples:

- Lower nesting success in birds
- Wetlands unable to support vegetation and biota
- Consumption advisories

Regulatory definition at 43 CFR § 11.14(v))

SERVICES

Physical and biological functions performed by natural resources, including human uses of those functions.

Examples:

- Nutrient cycling
- Provision of habitat
- Organism viability
- Fishing
- Boating
- Wildlife viewing

Regulatory definition at 43 CFR § 11.14(nn))

DAMAGES

Amount of money needed to restore resources to their baseline condition (i.e., condition without contamination) and compensate for interim losses.

Trustees seek these monies from parties responsible for contamination.

Regulatory definition at 43 CFR § 11.14(l))

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NRDAR Process

Preassessment Phase: Trustees review Site data to determine whether to proceed with an assessment.

Assessment Phase: Trustees develop and implement a plan to determine and quantify natural resource injury and damages.

Post-assessment Phase: Trustees develop and implement a restoration plan to restore injured natural resources and services.

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How is NRDAR different from cleanup?

NRDAR

- Restore natural resources to their baseline condition
  - Baseline is the condition that would have existed without the release of hazardous substances
- Compensate for natural resource injuries over time (past, present, and future)

CLEANUP / REMEDY

- Reduce or eliminate present and future threats to human health or environment from release of hazardous substances
- May not eliminate natural resource injuries caused by exposure

Natural Resource Trustees

Under CERCLA, NRDARs are conducted by federal and state agencies and tribes designated to act as ‘‘trustees’’ to bring claims on behalf of the public for the restoration of injured natural resources

- Trustees for the U.S. Steel NRDAR:

State of Minnesota through the Minnesota Pollution Control Agency and the Minnesota Department of Natural Resources

1854 Treaty Authority (governed by the Bois Forte Band of Chippewa and Grand Portage Band of Lake Superior Chippewa)

Fond du Lac Band of Lake Superior Chippewa

National Oceanic and Atmospheric Administration

U.S. Department of the Interior (represented by Fish and Wildlife Service and Bureau of Indian Affairs)

U.S. Steel NRDAR

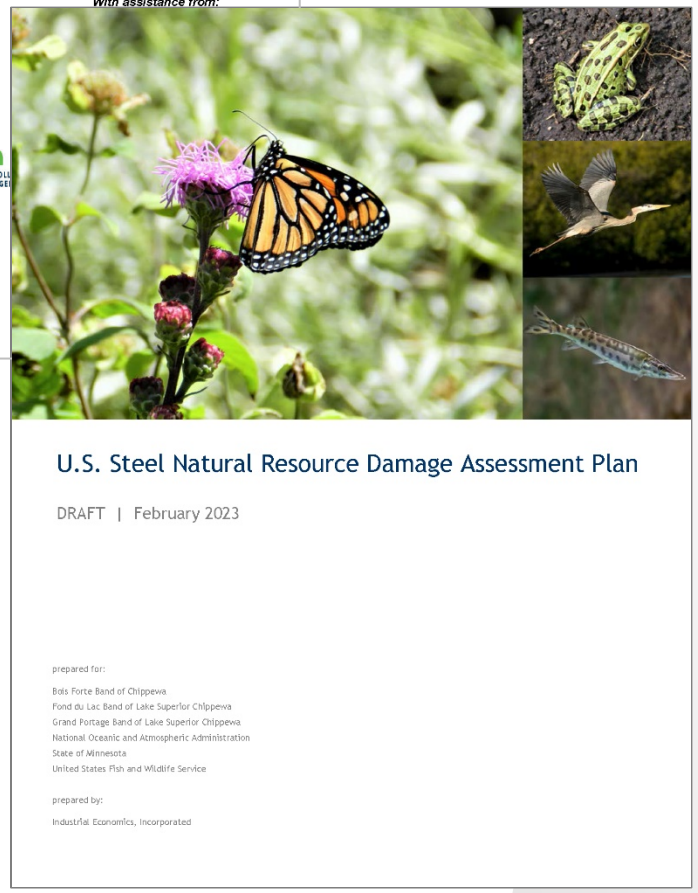
- The Trustees completed the Pre-assessment Phase in 2020 and determined a NRDAR was warranted
- The U.S. Steel NRDAR is currently in the assessment phase
  - Trustees released a draft Assessment Plan for public comment in February 2023
  - U.S. Steel is cooperating with the Trustees in the assessment


Preassessment Screen: U.S. Steel Site

Photo source: https://www.pca.state.mn.us/waste/st-louis-river-us-steel-superfund-site-photo-and-map-gallery

Prepared by:
1854 Treaty Authority (governed by the Bois Forte and Grand Portage Bands of Lake Superior Chippewa)
Fond du Lac Band of Lake Superior Chippewa
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency
United States Department of Commerce (represented by the National Oceanic and Atmospheric Administration)
United States Department of the Interior (represented by the Fish and Wildlife Service and Bureau of Indian Affairs)

With assistance from:


U.S. Steel Natural Resource Damage Assessment Plan

DRAFT | February 2023

prepared for:

Bois Forte Band of Chippewa
Fond du Lac Band of Lake Superior Chippewa
Grand Portage Band of Lake Superior Chippewa
National Oceanic and Atmospheric Administration
State of Minnesota
United States Fish and Wildlife Service

prepared by:

Industrial Economics, Incorporated

U.S. Steel Assessment Plan

U.S. Steel Assessment Plan

Purpose: Conduct assessment in a planned, systematic manner and at a reasonable cost

- Trustees will continue to review existing studies and data prior to undertaking any new data collection
- Where data are not sufficient, studies will be designed and implemented in phases to fill data gaps

The U.S. Steel Assessment Plan also:

Creates a comprehensive strategy for assessing natural resource injury and determining damages	Facilitates coordination between the Trustees and public	Assists with coordination between the NRDAR efforts and the remedial process (U.S. EPA and State of Minnesota)

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U.S. Steel Contaminants of Concern

To conduct the NRDAR efficiently and at a reasonable cost, the Trustees plan to select a subset of the more than a dozen contaminants measured at the Site.

At this time, the contaminants of concern (COCs) include:

- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Zinc
- Total PAHs
- Total PCBs

U.S. Steel Natural Resources

The Trustees are also focused on assessing injury to resources that are found within the Assessment Area, including the recreational and tribal services they provide:

- Sediment (categorized as a surface water resource)
- Soil (categorized as a geologic resource)
- Biological resources (invertebrates, fish, birds, and mammals)

Other resources may be considered by the Trustees as the assessment progresses

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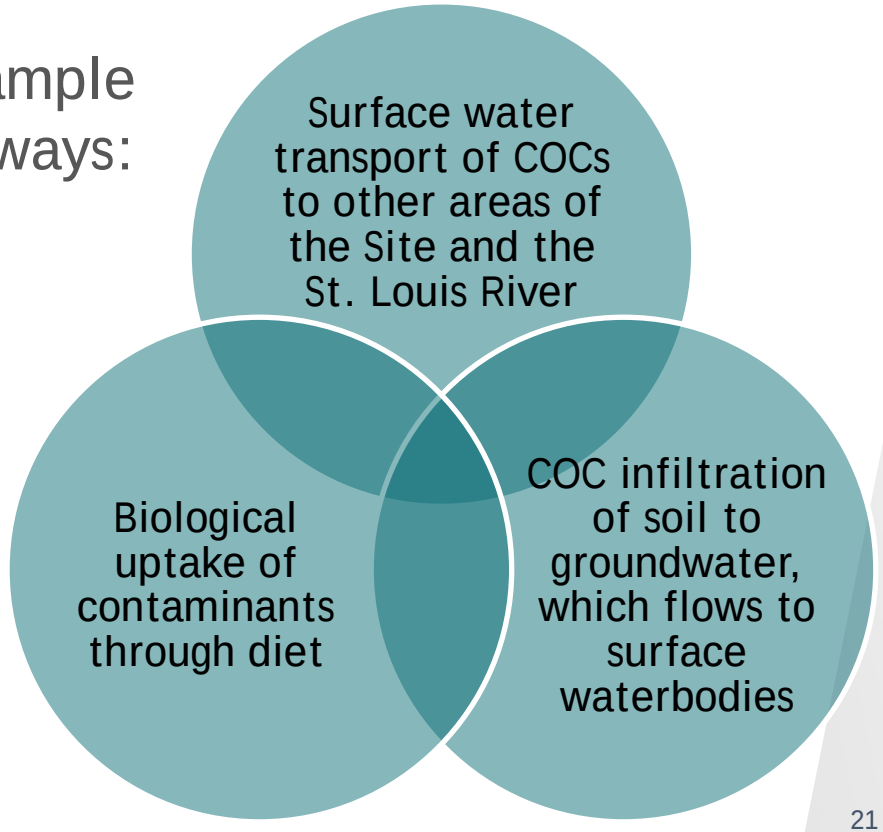
U.S. Steel Contaminant Pathways

The Trustees will document the environmental pathways from a known COC release to exposure of natural resources.

Example COC sources:

- Site facilities
- Settling basins
- Dredge spoil areas
- Oil and tar loading area
- Underground fuel tanks

Example pathways:



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Contaminant Exposure and Potential Injury: Aquatic Resources

Benthic Invertebrates

- Sediment contaminant concentrations exceed MPCA's Sediment Quality Targets (SQTs) for all COCs
- Site specific toxicity tests show reductions in survival of benthic invertebrates exposed to sediment from the Site

Fish

- Sediment PAH concentrations exceed levels at which adverse effects are observed in literature studies of fish reproduction and growth
- Sediment metal concentrations exceed levels shown to cause lethality in various fish species
- Fish consumption advisories in the St. Louis River

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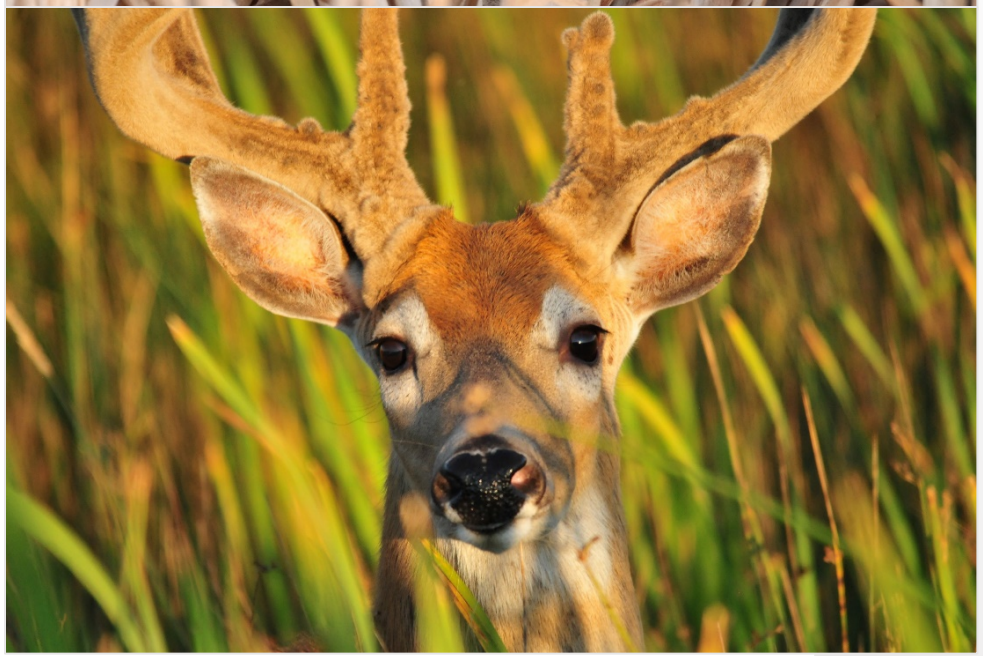
Contaminant Exposure and Potential Injury: Terrestrial Resources

Birds and Mammals

- Soil COC concentrations in exceedance of the U.S. EPA's Ecological Soil Screening Levels for arsenic, cadmium, chromium, copper, lead, nickel, zinc, and total PAHs
- Soil COC concentrations in exceedance of literature-based toxicity thresholds for mercury and total PAHs



Recreational Losses

Recreational losses are the result of lost and diminished public recreational use resulting from Site contamination. Recreational losses at the Site may be informed by:

- Fishing consumption advisories
- Swimming, wading, boating, and fishing warnings from 1994 to 2019

Tribal Losses


Photo Credit: 1854 Treaty Authority

Tribal service losses can encompass adverse changes to the Tribe's ability to exercise treaty rights and in three broad areas of the Tribes' natural resource-based uses including but not limited to:

- Economies (e.g., food, money, livelihoods)
- Traditional knowledge (e.g., languages, values, teachings)
- Spiritual values (e.g., ceremonies, sacred histories, places

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Natural Resource Damages Determination

Damages will be calculated as the cost to implement restoration and/or the lost value resulting from changes in human use due to injured natural resources.

- Trustees' proposed methods for damage determination:

Ecological	Equivalency analyses will scale ecological losses and the gains from ecological restoration projects over space and time in units of the affected resource(s)
Recreational	Benefits transfer will combine site-specific information with data from the literature to calculate lost value
Tribal	One or a combination of methods that assess changes in Tribal services, directly assess lost resource use, or apply equivalency analysis

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Potential Analyses and Studies

- Trustees identified and prioritized a list of discrete assessment activities that are expected to assist in determining and quantifying the scale of natural resource injury and restoration, including:
  - Ongoing review and analysis of existing information
  - Additional studies designed to address data gaps
- The analyses and studies are grouped by injury category:
  - Ecological
  - Recreational
  - Tribal
- The inclusion of a study within the Plan does not guarantee that it will be undertaken.

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Potential Analyses and Studies: Ecological Examples

Topic	Data Source	Objective and Rationale
Aquatic Habitat Type and Condition	Existing Information	Document habitat types and physical condition over time to set baseline and determine habitat characteristics and quality, considering past and future remedial actions. The review will inform injury and recovery calculations over time.
Exposure and toxicity of COCs to Songbirds	Field Study	Confirm exposure levels of Site songbirds using tissue/blood/feather sampling. Determine differences in reproductive and survival endpoints compared to reference areas through concurrent studies. This study would help with understanding the direct impacts of Site contamination on songbirds and inform the current service loss at the Site.

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Potential Analyses and Studies: Recreational Examples

Topic	Data Source	Objective and Rationale
FCAs and Recreational Use	Existing Information	Review available FCA and angler/creel survey information to document injury and characterize use levels. This study will establish basis for damages and potential magnitude of losses.
Revealed and/or Stated Preference Valuation Study	Survey	Collect additional data to estimate change in recreational activities and associated monetary values resulting from contamination-related restrictions in the Assessment Area. This study would inform Site-specific estimate of losses.

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Potential Analyses and Studies: Tribal Examples

Topic	Data Source	Objective and Rationale
Impacts of Contamination on Cultural Uses and Perceptions of Natural Resources	Existing Information	Use literature to qualitatively characterize Tribal members' diverse uses and perceptions of natural resources in the Assessment Area and impacts of contamination on those uses and perceptions. This study will establish baseline for tribal services; establish the nature, timing, and intensity of changes in behavior; and describe service losses. Literature is a fundamental source of historical information.
Spatial Dimensions of Resource Use and Perceptions of Contamination	Survey	Conduct participatory mapping workshop(s) to elicit information from Tribal members about: (1) geographic areas of importance and/or concern, (2) locations of resource access and use, (3) spatial relationships connecting resources and cultural practices, and (4) changes in access to resources or perceived changes in availability/quality of resources. This study will provide spatial information to more fully understand Tribal members' relationships with resources and impacts of contamination and provide geographic context that reflects unique senses of place of impacted Tribal communities.

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Public Process

- All of this information is presented in the draft Assessment Plan
  - Copies available at: https://www.fws.gov/project/st-louis-river-us-steel-duluth-minnesota-natural-resource-damage-assessment-and-restoration
- Public invited to review and comment from February 6 through March 23, 2023
- Comments must be submitted in writing via email or hard copy to:

Email: USSteelNRDAR_comments@fws.gov

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THANK YOU