

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF WISCONSIN
MILWAUKEE DIVISION

UNITED STATES OF AMERICA and
STATE OF WISCONSIN,

Plaintiffs,

v.

TECUMSEH PRODUCTS COMPANY,
THOMAS INDUSTRIES, INC., and
WISCONSIN PUBLIC SERVICE
CORPORATION

Defendants.

CIVIL ACTION NO. 2:17-cv-1728

**CONSENT DECREE
WITH TECUMSEH PRODUCTS COMPANY**

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I. BACKGROUND

A. The United States of America (“United States”), on behalf of the Secretary of the United States Department of the Interior (“DOI”) and the Secretary of the United States Department of Commerce (“Commerce”), and the State of Wisconsin (“Wisconsin” or the “State”), at the request of the Governor of Wisconsin and on behalf of the Wisconsin Department of Natural Resources (“WDNR”), filed a complaint in this action pursuant to Section 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, (“CERCLA”), 42 U.S.C. § 9607.

B. The complaint alleges that defendant Tecumseh Products Company (or “Settling Defendant”) is liable under CERCLA for damages for injury to, destruction of, or loss of natural resources resulting from the release of hazardous substances at or from the Sheboygan River and Harbor Superfund Site in Sheboygan, Wisconsin (the “Site”).

C. Pursuant to Executive Order 12580 and the National Contingency Plan, 40 C.F.R. Part 300, DOI, through the United States Fish and Wildlife Service (“FWS”), and Commerce, through the National Oceanic and Atmospheric Administration (“NOAA”), have been delegated authority to act on behalf of the public as the Federal Trustees for natural resources impacted by the release of hazardous substances at or from the Site.

D. The Governor of Wisconsin has designated WDNR to act as the State Trustee for natural resources impacted by the release of hazardous substances at or from the Site.

E. The Federal Trustees and the State Trustee have formed a Trustee Council to coordinate Natural Resource Damages related activities associated with the Site.

F. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, the United States Environmental Protection Agency (“EPA”) placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on May 21, 1986.

G. In response to the release or threatened release of hazardous substances at or from the Site, EPA undertook response actions at the Site pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and may undertake additional response actions in the future. In performing response actions at the Site, EPA has incurred response costs and will incur additional response costs in the future.

H. Settling Defendant previously resolved claims asserted by the United States against it for injunctive relief and reimbursement of response costs incurred or to be incurred for response actions taken or to be taken at or in connection with the release or threatened release of hazardous substances at or from the Site pursuant to a Consent Decree for the Upper River Work on the Sheboygan River and a Consent Decree for the Lower River Work on the Sheboygan River entered in *United States v. Tecumseh Products Co., et al.*, No. 1:03-cv-00401-WCG (E.D. Wisc.) on May 12, 2004 and August 15, 2011, respectively. These consent decrees, however, expressly reserved the United States' claim for "liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments."

I. Settling Defendant has entered into a Funding Reimbursement Agreement ("FRA") with Sheboygan County (the "County") to reimburse the County through a promissory note for \$1,295,500 in costs the County incurred for the acquisition and preservation of certain real property associated with the proposed Amsterdam Dunes NRD project. The promissory note shall be effective upon the lodging of this Consent Decree. The FRA further required the grant of a conservation easement to be recorded by the County. The Conservation Easement, attached hereto as Appendix D, was so recorded on July 9, 2015. The Trustees are not parties to the FRA and statements contained in Paragraph 3 of the FRA regarding how the Trustees may utilize funds obtained through this settlement are not binding on the Trustees nor enforceable

under this Consent Decree. A copy of the FRA between Settling Defendant and Sheboygan County is attached as Appendix E to this Consent Decree.

J. By entry into this Consent Decree, Settling Defendant does not admit any liability to Plaintiffs arising out of the transactions or occurrences alleged in the complaint.

K. The Parties to this Consent Decree recognize, and the Court by entering this Consent Decree finds, that this Consent Decree: (i) has been negotiated by the Parties in good faith; (ii) will avoid prolonged and complicated litigation among the Parties; (iii) will expedite natural resource protection and restoration actions to be performed by the Trustees; and (iv) is fair, reasonable, and in the public interest.

NOW, THEREFORE, with the consent of the Parties to this Decree, it is hereby ORDERED, ADJUDGED, and DECREED:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and Sections 107 and 113(b) of CERCLA, 42 U.S.C. §§ 9607 and 9613(b). The Court also has personal jurisdiction over Settling Defendant. Solely for the purposes of this Consent Decree and the underlying complaint, Settling Defendant waives all objections and defenses that it may have to jurisdiction of the Court or to venue in this District. Settling Defendant shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree is binding upon the United States and the State, and upon Settling Defendant and its successors and assigns. Any change in ownership or corporate or other legal status, including, but not limited to, any transfer of assets or real or personal property,

shall in no way alter the status or responsibilities of Settling Defendant under this Consent Decree.

IV. DEFINITIONS

3. Unless otherwise expressly provided in this Consent Decree, terms used in this Consent Decree that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or its appendices, the following definitions shall apply:

a. “Amsterdam Dunes” shall mean the proposed Amsterdam Dunes NRD restoration project property, a legal description of which is appended to this Consent Decree as Appendix F.

b. “Amended Conservation Easement” shall mean the Amendment to the Grant of Conservation Easement attached hereto as Appendix C.

c. “CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675.

d. “Commerce” shall mean the United States Department of Commerce and any successor departments, agencies, or instrumentalities.

e. “Consent Decree” shall mean this Consent Decree and all appendices attached hereto (listed in Section XIV (Integration / Appendices)). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

f. “Conservation Easement” shall mean the Grant of Conservation Easement attached as Appendix D hereto.

g. “County” shall mean Sheboygan County, Wisconsin.

h. “DARR Fund” shall mean NOAA’s Damage Assessment and Restoration Revolving Fund.

i. “Date of Lodging” shall mean the date the proposed Consent Decree is filed with the Court as an attachment to a Notice of Lodging of Consent Decree, pending public comment as required in Section XVII (Lodging and Opportunity for Public Comment).

j. “Day” or “day” shall mean a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal or State holiday, the period shall run until the close of business of the next working day.

k. “DOI” shall mean the United States Department of the Interior and any successor departments, agencies, or instrumentalities.

l. “DOJ” shall mean the U.S. Department of Justice and any successor departments, agencies, or instrumentalities.

m. “Effective Date” shall mean the effective date of this Consent Decree as provided by Section XV of this Consent Decree (Effective Date and Retention of Jurisdiction).

n. “EPA” shall mean the U.S. Environmental Protection Agency and any successor departments, agencies, or instrumentalities.

o. “Funding Reimbursement Agreement” or “FRA” shall mean the agreement between Settling Defendant and the County to reimburse the County for certain sums incurred for the acquisition and preservation of certain real property associated with Amsterdam Dunes, including the First Amendment to Funding Reimbursement Agreement. The FRA is attached hereto as Appendix E.

p. “Interest” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The

applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at

<https://www.epa.gov/superfund/superfund-interest-rates>.

q. “National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

r. “Natural Resource” or “Natural Resources” shall mean land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources, belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States or the State.

s. “Natural Resource Damages” shall mean any damages recoverable by the United States or the State on behalf of the public, for injury to, destruction of, loss of, loss of use of, or impairment of Natural Resources at the Site as a result of a release of hazardous substances, including, but not limited to: (i) the reasonable costs of assessing such injury, destruction, or loss or impairment arising from or relating to such a release; (ii) the costs of restoration, rehabilitation, or replacement of injured or lost natural resources or of acquisition of equivalent resources; (iii) the costs of planning such restoration activities; (iv) compensation for injury, destruction, loss, loss of use, or impairment of natural resources; and (v) each of the categories of recoverable damages described in 43 C.F.R. § 11.15.

t. “NRDAR Fund” shall mean DOI’s Natural Resource Damage Assessment and Restoration Fund.

u. “Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral or an upper case letter.

v. “Parties” shall mean the United States, the State of Wisconsin, and Settling Defendant.

w. “Plaintiffs” shall mean the United States and the State of Wisconsin.

x. “RCRA” shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992, also known as the Resource Conservation and Recovery Act.

y. “Section” shall mean a portion of this Consent Decree identified by a Roman numeral.

z. “Settling Defendant” shall mean Tecumseh Products Company.

aa. “Settling Defendant’s Related Parties” or “Related Parties” shall mean: (i) Settling Defendant’s parents, successors, and assigns, but only to the extent that the alleged liability of such person is based solely on the alleged liability of Settling Defendant; (ii) Settling Defendant’s and Related Parties’ former or current officers, directors, employees, or shareholders, but only to the extent that the alleged liability of such person is based on acts or omissions which occurred in the scope of the person’s employment or capacity as an officer, director, employee, or shareholder of Settling Defendant or a Related Party; and (iii) Settling Defendant’s liability insurers, but only to the extent that any such insurer may be alleged derivatively liable in a direct action under Wis. Stat. § 632.24 based on the conduct of Settling Defendant.

bb. “Site” shall mean the Sheboygan River and Harbor Superfund Site, encompassing approximately 14 river miles, located in east-central Wisconsin, Latitude 43.75, Longitude 87.7, and running through the City of Sheboygan Falls, the Village of Kohler, and the City of Sheboygan, Sheboygan County, Wisconsin, and depicted generally on the map attached as Appendix A. The portion of the river included in the Site extends from the Sheboygan Falls Dam through the Outer Harbor area on the western shore of Lake Michigan. Also included in

the Site are floodplain soils adjacent to the river and soil and groundwater on the former Tecumseh Products Plant adjacent to the river in Sheboygan Falls, and all areas in proximity to the river, floodplain soils, and former Tecumseh Products Plant necessary for implementation of the remedial action set forth in the May 12, 2000 Record of Decision.

cc. “State” shall mean the State of Wisconsin.

dd. “Subparagraph” shall mean a portion of this Consent Decree identified by a lower case letter or an Arabic numeral in parentheses.

ee. “Trustees” shall mean DOI acting through FWS, Commerce acting through NOAA, and WDNR.

ff. “United States” shall mean the United States of America and each department, agency, and instrumentality of the United States, including Commerce, DOI, and EPA.

gg. “WDNR” shall mean the Wisconsin Department of Natural Resources and any successor departments or agencies of the State.

V. STATEMENT OF PURPOSE

4. By entering into this Consent Decree, the mutual objectives of the Parties are for Settling Defendant (i) to contribute to the restoration, replacement, or acquisition of the equivalent of the natural resources allegedly injured, destroyed, or lost as a result of hazardous substance releases at and from the Site; (ii) to reimburse natural resource damage assessment costs incurred by FWS, NOAA, and WDNR; and (iii) to resolve its alleged civil liability for Natural Resource Damages as provided herein.

VI. PAYMENTS BY SETTLING DEFENDANT

5. Initial Payment into the Court Registry Account for Assessment Costs and for Trustee-Sponsored Natural Resource Restoration Projects. Within 45 Days after the Date of

Lodging of this Consent Decree, Settling Defendant shall pay \$980,375 into an interest-bearing Court Registry Account of the United States District Court for the Eastern District of Wisconsin.

6. Disbursements from the Court Registry Account. At any time after the Effective Date, funds deposited into the Court Registry Account under Paragraph 5 of this Consent Decree (and all accrued interest on such funds) shall be disbursed pursuant to one or more separate Withdrawal Orders entered by the Court, which shall provide for:

a. disbursement of \$670,000 to the United States, to be directed as follows:
(i) \$350,000 to be applied toward natural resource damage assessment costs incurred by DOI;
and (ii) \$320,000 to be applied toward natural resource damage assessment costs incurred by Commerce;

b. disbursement of \$25,000 to the State as partial reimbursement for natural resource damage assessment costs incurred by the State, to be applied directly towards preservation or restoration projects; and

c. disbursement of all remaining funds in the Court Registry Account to the United States to be deposited in a segregated sub-account within the NRDAR Fund, to be managed by DOI for the joint benefit and use of the Trustees to pay for Trustee-sponsored natural resource restoration projects in accordance with Section VII.

7. Subsequent Payment for Trustee-Sponsored Natural Resource Restoration Projects. Settling Defendant shall also make a payment of \$1,530,375 within one year and 45 Days after the Date of Lodging of this Consent Decree (“Second Payment Date”).

a. If the Second Payment Date falls after the Effective Date, payment shall be made by FedWire Electronic Funds Transfer (“EFT”) to the U.S. Department of Justice account in accordance with current EFT procedures, referencing USAO File Number 2017V00722, and DOJ Case Number 90-11-2-06440/1. Payment shall be made in accordance

with instructions provided to Settling Defendant by the Financial Litigation Unit of the United States Attorney's Office for the Eastern District of Wisconsin following entry of the Consent Decree. Any payments received by the Department of Justice after 4:00 p.m. (Eastern Time) will be credited on the next business day.

b. If the Second Payment Date falls before the Effective Date, payment shall be made into the account established Pursuant to Paragraph 5 and shall be subject to disbursement pursuant to Paragraph 6.c.

c. If prior to the Second Payment Date the Court has declined to approve this Consent Decree and a Party has voided this agreement pursuant to Paragraph 40, then Settling Defendant shall not be obligated to make a payment under this Paragraph 7.

8. The amount paid by Settling Defendant pursuant to Paragraph 7.a or, upon disbursement, Paragraph 7.b shall be deposited in a segregated sub-account within the NRDAR Fund, to be managed by DOI for the joint benefit and use of the Trustees to pay for Trustee-sponsored natural resource restoration projects in accordance with Section VII.

9. Funding Reimbursement Agreement. In accordance with the Funding Reimbursement Agreement attached hereto as Appendix E, Settling Defendant shall reimburse the County for \$1,295,500 incurred for the acquisition and preservation of real property associated with the proposed Amsterdam Dunes NRD restoration project. As set forth in the FRA, Settling Defendant's payment shall take the form of a promissory note which shall be effective upon the Date of Lodging of this Consent Decree.

10. Notice of Payment. Upon making any payment under Paragraph 5 or 7, Settling Defendant shall send written notice that payment has been made to:

Chief, Environmental Enforcement Section
U.S. Department of Justice
DJ #90-11-2-06440/1
P.O. Box 7611
Washington, DC 20044-7611

Assistant Solicitor, Branch of Environmental Restoration
U.S. Department of the Interior
MS-5311
Washington, DC 20240

Grant Blumberg, Attorney-Advisor
National Oceanic and Atmospheric Administration
Office of General Counsel
1315 East-West Highway, Room 15832
Silver Spring, MD 20910

Lorraine C. Stoltzfus
Assistant Attorney General
Wisconsin Department of Justice
P.O. Box 7857
Madison, WI 53707-7857

11. Non-Compliance with Payment Obligations.

a. Interest. In the event any payment required pursuant to Paragraph 5 or Paragraph 7 is not made when due, Settling Defendant shall pay Interest on the unpaid balance commencing on the payment due date and accruing through the date of full payment.

b. Stipulated Damages. In addition to the interest required to be paid under the preceding Subparagraph, if any payment required pursuant to Paragraph 5 or Paragraph 7 is not made when due, Settling Defendant shall also pay stipulated damages of \$1,500 per day through the date of full payment.

c. Payment of Interest and Stipulated Damages. Any Interest payments under Subparagraph 11.a shall be paid in the same manner as the overdue principal amount, and shall be directed to the same fund or account as the overdue principal amount. Any stipulated damages payments under Subparagraph 11.b shall be paid to the United States in accordance with payment instructions provided by the Financial Litigation Unit of the United States

Attorney's Office for the Eastern District of Wisconsin, and shall be deposited in the United States Treasury.

12. Refund from Court Registry Account. In the event that, pursuant to Paragraph 40, the Court should decline to approve this Consent Decree and any Party voids this agreement, the funds in the Court Registry Account shall be returned to Settling Defendant with accrued interest.

VII. TRUSTEE-SPONSORED NATURAL RESOURCE RESTORATION PROJECTS

13. Management and Application of Funds. All funds deposited in a segregated sub-account within the NRDAR Fund under Paragraphs 6.c and 8 shall be managed by DOI for the joint benefit and use of the Trustees to pay for Trustee-sponsored natural resource restoration efforts in accordance with this Consent Decree. All such funds shall be applied toward the costs of restoration, rehabilitation, or replacement of injured natural resources, or acquisition of equivalent resources, including but not limited to any administrative costs and expenses necessary for, and incidental to, restoration, rehabilitation, replacement, or acquisition of equivalent resources planning, and any restoration, rehabilitation, replacement, or acquisition of equivalent resources undertaken.

14. Restoration Planning. The Trustees have prepared a draft Restoration Plan describing how the funds dedicated to Trustee-sponsored natural resource restoration efforts under this Section will be used. As provided by 42 U.S.C. § 9611(i) and 43 C.F.R. § 11.93, the Plan identifies how funds will be used for restoration, rehabilitation, replacement, or acquisition of equivalent resources. The Plan also identifies how funds will be used to address services lost to the public until restoration, rehabilitation, replacement, or acquisition of equivalent resources is completed. A copy of the draft Restoration Plan is attached as Appendix B to this Consent Decree.

15. Decisions regarding any use or expenditure of funds under this Section shall be made by the Trustees, acting through the Trustee Council. Settling Defendant shall not be entitled to dispute, in any forum or proceeding, any decision relating to use of funds or restoration efforts under this Section.

VIII. CONSERVATION EASEMENT

16. Amsterdam Dunes Amended Conservation Easement. Within 30 Days of the Effective Date, Settling Defendant shall take all actions necessary to ensure that the Amended Conservation Easement, attached hereto as Appendix C is executed and recorded with the Register of Deeds, Sheboygan County, Wisconsin.

17. Stipulated Penalties. Settling Defendant shall be liable for a stipulated penalty of \$500 per day for any delayed compliance or noncompliance with Paragraph 16 above.

IX. COVENANTS NOT TO SUE BY THE PLAINTIFFS

18. Covenants by the United States to Settling Defendant. Except as specifically provided by Paragraph 21 (General Reservations by the United States and the State) and Paragraph 22 (Special Reservations by the United States and the State Regarding Natural Resource Damages), the United States covenants not to sue or to take administrative action against Settling Defendant or its Related Parties pursuant to CERCLA Section 107, 42 U.S.C. § 9607, for Natural Resource Damages relating to the Site. This covenant not to sue shall take effect upon the Effective Date of this Consent Decree. This covenant not to sue is conditioned upon the satisfactory performance by Settling Defendant of its obligations under this Consent Decree. This covenant not to sue extends only to Settling Defendant and its Related Parties and does not extend to any other person.

19. Covenants by the State. Except as specifically provided by Paragraph 21 (General Reservations by the United States and the State) and Paragraph 22 (Special

Reservations by the United States and the State Regarding Natural Resource Damages), the State covenants not to sue or to take administrative action against Settling Defendant and its Related Parties for Natural Resource Damages relating to the Site pursuant to CERCLA Section 107, 42 U.S.C. § 9607, or Wisconsin statutory or common law. This covenant not to sue shall take effect upon the Effective Date of this Consent Decree. This covenant not to sue Settling Defendant and its Related Parties is conditioned upon the satisfactory performance by Settling Defendant of its obligations under this Consent Decree. This covenant not to sue extends only to Settling Defendant and its Related Parties and does not extend to any other person.

20. Nothing in this Consent Decree shall affect any covenants not to sue provided to Settling Defendant by the May 12, 2004 and August 15, 2011 consent decrees entered in *United States v. Tecumseh Products Co., et al.*, No. 1:03-cv-00401-WCG (E.D. Wisc.).

X. RESERVATION OF RIGHTS BY PLAINTIFFS

21. General Reservations by the United States and the State. The United States and the State reserve, and this Consent Decree is without prejudice to, all rights against Settling Defendant and with respect to all matters not expressly included within Paragraphs 18 (Covenants by the United States) and Paragraph 19 (Covenants by the State). Notwithstanding any other provisions of this Consent Decree, the United States and the State reserve all rights against Settling Defendant with respect to:

- a. claims based on a failure by Settling Defendant to meet a requirement of this Consent Decree;
- b. criminal liability;
- c. liability based on the ownership or operation of the Site by Settling Defendant when such ownership or operation commences after signature of this Consent Decree by Settling Defendant;

d. liability based on Settling Defendant's transportation, treatment, storage, or disposal, or arrangement for transportation, treatment, storage, or disposal of a hazardous substance or a solid waste at or in connection with the Site, after signature of this Consent Decree by Settling Defendant;

e. liability arising from the past, present, or future disposal, release or threat of release of a hazardous substance, pollutant, or contaminant outside of the Site; and

f. liability for damages for injury to, destruction of, or loss of natural resources resulting from releases or threatened releases of hazardous substances outside of the Site.

22. Special Reservations by the United States and the State Regarding Natural Resource Damages. Notwithstanding any other provision of this Consent Decree, the United States and the State reserve the right to institute proceedings against Settling Defendant in this action or in a new action seeking recovery of Natural Resource Damages, including costs of damages assessment, based on:

a. conditions with respect to the Site, unknown to the Trustees as of the Date of Lodging of this Consent Decree, that result in releases of hazardous substances that contribute to injury to, destruction of, or loss of Natural Resources ("Unknown Conditions"); or

b. information received by the Trustees after the Date of Lodging of this Consent Decree which indicates that releases of hazardous substances at the Site have resulted in injury to, destruction of, or loss of Natural Resources of a type or future persistence that was unknown to the Trustees as of the Date of Lodging of this Consent Decree ("New Information").

23. For purposes of Paragraph 22, the conditions and information known to the Trustees on the Date of Lodging shall include the conditions and information set forth in any sampling data and any other data or information in the possession and control of the Trustees at

any time prior to the Date of Lodging and any evaluation by the United States or the State of such data or information, including the contents of EPA's Administrative Record for the Site and documents generated by or provided to EPA relating to response actions at the Site, as of the Date of Lodging. Each of the following shall not be considered to be Unknown Conditions or New Information within the meaning of Paragraph 22: (1) an increase solely in the Trustees' assessment of the magnitude of a known injury to, destruction of, or loss of Natural Resources or in the resulting Natural Resource Damages; and (2) injury to, destruction of, or loss of Natural Resources at the Site, arising from the re-exposure, re-suspension, or migration by natural causes or entities other than Settling Defendant of hazardous substances known to be present in the sediments at the Site.

XI. COVENANTS BY SETTLING DEFENDANT

24. Covenants by Settling Defendant.

a. Settling Defendant covenants not to sue and agrees not to assert any claims or causes of action against the United States or the State, or their contractors or employees, with respect to the Site, including Natural Resource Damages, and this Consent Decree, including but not limited to:

(1) any direct or indirect claim for reimbursement of any payment from the EPA Hazardous Substance Superfund based on Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;

(2) any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Wisconsin Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law; or

(3) any claim pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law relating to the Site, including Natural Resource Damages.

b. Except as provided in Paragraph 30 (waiver of claim-splitting defenses), these covenants shall not apply in the event the United States or the State brings a cause of action or issues an order pursuant to any of the reservations set forth in Section IX (Reservations of Rights by United States and the State), other than in Paragraph 21.a (liability for failure to meet a requirement of the Consent Decree) or 21.b (criminal liability), but only to the extent that Settling Defendant's claims arise from the same response action, response costs, or damages that the United States or the State is seeking pursuant to the applicable reservation.

25. Nothing in this Consent Decree shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. 300.700(d).

XII. EFFECT OF SETTLEMENT / CONTRIBUTION PROTECTION

26. Except as provided in the provisions concerning Settling Defendant's Related Parties, nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. Except as provided in the provisions concerning Settling Defendant's Related Parties, each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto. Nothing in this Consent Decree diminishes the right of the United States or the State, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to

obtain additional Natural Resource Damages, response costs, or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

27. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially-approved settlement for purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), and that Settling Defendant is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), or as may be otherwise provided by law, for “matters addressed” in this Consent Decree. The “matters addressed” in this Consent Decree are Natural Resource Damages incurred or to be incurred, at or in connection with the Site. If, however, the United States or the State exercises rights under the reservations in Section X (Reservations of Rights by Plaintiffs), other than in Paragraph 21.a (liability for failure to meet a requirement of the Consent Decree) or 21.b (criminal liability), the “matters addressed” in this Consent Decree will no longer include those Natural Resource Damages within the scope of the exercised reservation.

28. The Parties further agree, and by entering this Consent Decree this Court finds, that the complaint filed by the United States and the State in this action is a civil action within the meaning of Section 113(f)(1) of CERCLA, 42 U.S.C. § 9613(f)(1), and that this Consent Decree constitutes a judicially-approved settlement pursuant to which Settling Defendant has, as of the Effective Date, resolved liability to the United States and the State within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

29. Settling Defendant shall, with respect to any suit or claim brought by it for matters related to this Consent Decree, notify the persons identified in Section XIII (Notices) in writing no later than 60 days prior to the initiation of such suit or claim. Settling Defendant also shall, with respect to any suit or claim brought against it for matters related to this Consent

Decree, notify the persons identified in Section XIII (Notices) in writing within 10 days after service of the complaint or claim upon it. In addition, Settling Defendant shall notify the persons identified in Section XIII (Notices) within 10 days after service or receipt of any Motion for Summary Judgment, and within 10 days after receipt of any order from a court setting a case for trial, for matters related to this Consent Decree.

30. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, recovery of response costs or Natural Resource Damages, or other relief relating to the Site, Settling Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the Covenants by the United States or the State set forth in Section IX.

XIII. NOTICES

31. Whenever, under the terms of this Consent Decree, notice is required to be given or a document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Except as otherwise provided, notice to a Party by email (if that option is provided below) or by regular mail in accordance with this Section satisfies any notice requirement of the Consent Decree regarding such Party.

As to the United States:

As to the Department of Justice:

eescasemanagement.enrd@usdoj.gov

EES Case Management Unit
U.S. Department of Justice
Environment and Natural Resources Division
P.O. Box 7611
Washington, DC 20044-7611
Re: DJ # 90-11-06440/1

As to the Department of Interior:

Assistant Solicitor, Branch of Environmental Remediation
Office of the Solicitor
Division of Parks and Wildlife
U.S. Department of the Interior
1849 C Street, NW, MS-5311
Washington, DC 20240

As to National Oceanic and Atmospheric Administration:

Grant Blumberg, Attorney-Advisor
National Oceanic and Atmospheric Administration
Office of General Counsel
1315 East-West Highway, Room 15832
Silver Spring, MD 20910

As to the Environmental Protection Agency:

Director, Superfund Division
U.S. Environmental Protection Agency
Region 5
77 West Jackson Blvd.
Chicago, IL 60604

As to the State of Wisconsin:

Department of Natural Resources
P.O. Box 7921
Madison, WI 53707-7921

Lorraine C. Stoltzfus
Assistant Attorney General
Wisconsin Department of Justice
P.O. Box 7857
Madison, WI 53707

As to Tecumseh:

Carrie Williamson
Tecumseh Products Company
5683 Hines Drive
Ann Arbor, MI 48108

and

David G. Mandelbaum
Greenberg Traurig, LLP
2700 Two Commerce Square
2001 Market Street
Philadelphia, PA 19103

XIV. INTEGRATION / APPENDICES

32. This Consent Decree and its appendices constitute the final, complete, and exclusive understanding among the Parties with respect to the settlement embodied in this Consent Decree. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

33. The following appendices are attached to and incorporated into this Consent Decree:

“Appendix A” is a map of the Site.

“Appendix B” is the draft Restoration Plan and Environmental Assessment.

“Appendix C” is the Amended Conservation Easement.

“Appendix D” is the Conservation Easement.

“Appendix E” is the agreement between Tecumseh and Sheboygan County.

“Appendix F” is a legal description of the proposed Amsterdam Dunes NRD restoration project property.

XV. EFFECTIVE DATE AND RETENTION OF JURISDICTION

34. This Consent Decree shall take effect upon the date upon which approval of this Consent Decree is recorded on the Court’s docket.

35. The Court shall retain jurisdiction over this matter for the purpose of interpreting and enforcing the terms of this Consent Decree.

XVI. CONSENT DECREE MODIFICATIONS

36. Any material modification of this Consent Decree shall be made by agreement of the Parties to this Consent Decree and in writing, and shall not take effect unless approved by the Court. Any non-material modification of this Consent Decree shall be made by agreement of the Parties to this Consent Decree and in writing, and shall not take effect until filed with the Court. Nothing in this Consent Decree shall be deemed to alter the Court’s power to enforce, supervise, or approve modifications to this Consent Decree.

37. The provisions of this Consent Decree are not severable. The Parties’ consent hereto is conditioned upon the entry of the Consent Decree in its entirety without modification, addition, or deletion except as agreed to by the Parties.

38. Economic hardship or changed financial circumstances of Settling Defendant shall not serve as a basis for modifications of this Consent Decree.

XVII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

39. This Consent Decree shall be lodged with the Court for a period of at least 30 days for public notice and comment. The United States reserves the right to withdraw or withhold its consent if comments regarding the Consent Decree disclose facts or considerations

which indicate that this Consent Decree is inappropriate, improper, or inadequate. Settling Defendant consents to the entry of this Consent Decree without further notice.

40. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XVIII. SIGNATORIES / SERVICE

41. Each undersigned representative of Settling Defendant, the United States, and the State certifies that he or she is authorized to enter into the terms and conditions of this Consent Decree and to execute and bind legally such Party to this document.

42. Settling Defendant agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree, unless the United States has notified Settling Defendant in writing that it no longer supports entry of the Consent Decree.

43. Settling Defendant shall identify on the attached signature page the name and address of an agent who is authorized to accept service of process by mail on its behalf with respect to all matters arising under or relating to this Consent Decree. Settling Defendant agrees to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including but not limited to service of a summons. The Parties agree that Settling Defendant need not file an answer to the Complaint in this action unless or until 60 days after the Court expressly declines to enter this Consent Decree.

XIX. FINAL JUDGMENT

44. Upon entry of this Consent Decree by the Court, this Consent Decree shall constitute the final judgment between and among the United States, the State, and Settling Defendant. The Court enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

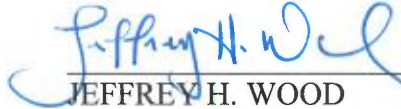
SO ORDERED THIS _____ DAY OF _____, 2018.

United States District Judge

THE UNDERSIGNED PARTY enters into this Consent Decree in United States and Wisconsin v. Tecumseh Products, et al.:

FOR THE UNITED STATES OF AMERICA

Date: 12/11/17



JEFFREY H. WOOD

Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

Date: 12/12/2017



JEFFREY A. SPECTOR

Senior Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044-7611
(202) 514-4432
Jeffrey.Spector@usdoj.gov

GREGORY J. HAANSTAD
United States Attorney
Eastern District of Wisconsin

Date: _____

SUSAN M. KNEPEL

Assistant United States Attorney
Office of the United States Attorney
517 E. Wisconsin Avenue, Room 530
Milwaukee, WI 53202

THE UNDERSIGNED PARTY enters into this Consent Decree in United States and Wisconsin v. Tecumseh Products, et al.:

FOR THE UNITED STATES OF AMERICA

Date: _____

JEFFREY H. WOOD
Acting Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

Date: _____

JEFFREY A. SPECTOR
Senior Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, DC 20044-7611
(202) 514-4432
Jeffrey.Spector@usdoj.gov

GREGORY J. HAANSTAD
United States Attorney
Eastern District of Wisconsin

Date: July 11, 2017

Susan M. Kneipel
SUSAN M. KNEPEL
Assistant United States Attorney
Office of the United States Attorney
517 E. Wisconsin Avenue, Room 530
Milwaukee, WI 53202

THE UNDERSIGNED PARTY enters into this Consent Decree in United States and Wisconsin v. Tecumseh Products, et al.:

FOR THE STATE OF WISCONSIN

Date: _____

7/19/17



CATHY STEPP

Secretary

Wisconsin Department of Natural Resources

101 South Webster Street

Madison, WI 53703

BRAD D. SCHIMEL

Attorney General

Date: _____

LORRAINE C. STOLTZFUS

Assistant Attorney General

Wisconsin Department of Justice

17 W. Main Street

Madison, WI 53703

State Bar # 1003676

THE UNDERSIGNED PARTY enters into this Consent Decree in United States and Wisconsin v. Tecumseh Products, et al.:

FOR THE STATE OF WISCONSIN

Date: _____

CATHY STEPP
Secretary
Wisconsin Department of Natural Resources
101 South Webster Street
Madison, WI 53703

BRAD D. SCHIMEL
Attorney General

Date: 7-28-17



LORRAINE C. STOLTZFUS
Assistant Attorney General
Wisconsin Department of Justice
17 W. Main Street
Madison, WI 53703
State Bar # 1003676

THE UNDERSIGNED PARTY enters into this Consent Decree in United States and Wisconsin
v. Tecumseh Products, et al.:

FOR TECUMSEH PRODUCTS COMPANY, LLC

Date: 6/28/17

Cyn
Signature

Typed Name: Caroline Williams

Title: General Counsel

Address: 5683 Hines Dr.
Ann Arbor, MI 48108

Agent Authorized to Accept Service on Behalf of Above-Signed Party:

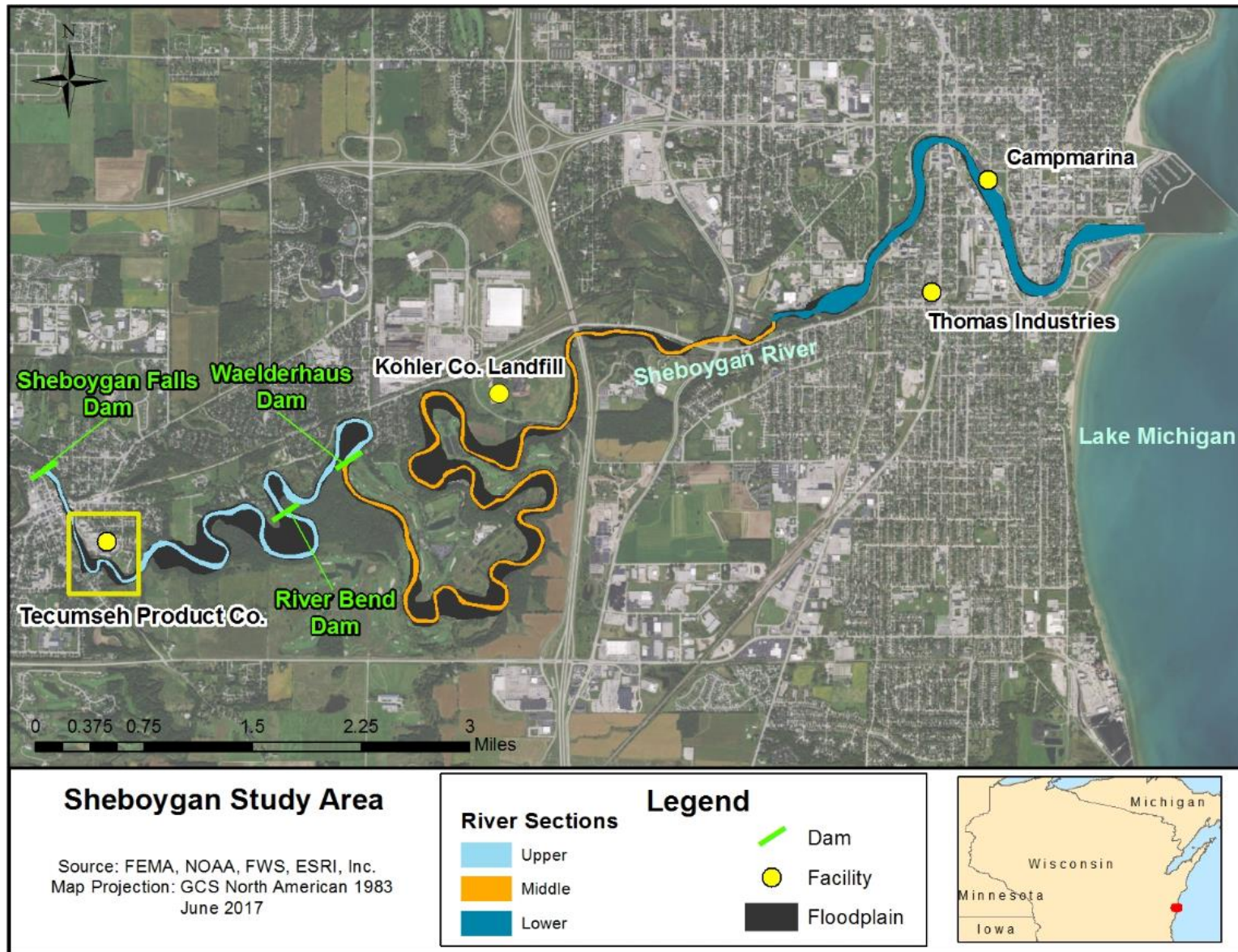
Typed Name: David Mandelbaum

Title: Shareholder

Address: Greenberg Traurig
2700 Two Commerce St.
2001 Market St.
Philadelphia, PA 19103

ATTACHMENT A

MAP OF GEOGRAPHIC SCOPE AND AQUATIC AND FLOODPLAIN ASSESSMENT AREA



ATTACHMENT B



Sheboygan River
and Harbor
Natural Resource
Trustees



Sheboygan River and Harbor Natural Resource Damage Assessment Restoration Plan and Environmental Assessment

Public Draft | November 2017

PREPARED BY:

United States Department of the Interior Fish and
Wildlife Service

National Oceanic and Atmospheric Administration

Wisconsin Department of Natural Resources

WITH ASSISTANCE FROM:

Industrial Economics, Incorporated



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SHEBOYGAN RIVER AND HARBOR NATURAL RESOURCE DAMAGE ASSESSMENT RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT

PROJECT LOCATIONS	Sheboygan River and Sheboygan River Basin, Sheboygan County, Wisconsin
LEAD FEDERAL AGENCY FOR THE RESTORATION PLAN	U.S. Department of the Interior, Fish and Wildlife Service (DOI, FWS)
COOPERATING AGENCIES	National Oceanic and Atmospheric Administration (NOAA) Wisconsin Department of Natural Resources
COOPERATING AGENCY STATEMENT -- NOAA	DOI, the lead Federal Trustee for preparing the Sheboygan River and Harbor Restoration Plan/Environmental Assessment (RP/EA), invited NOAA to act as a cooperating agency pursuant to the National Environmental Policy Act (NEPA) (40 C.F.R. § 1508.5). NOAA agreed to act as a cooperating agency. A federal agency participating in the NEPA process as a cooperating agency may adopt the NEPA analysis of a lead agency without recirculating the statement when, after an independent review of the statement, the cooperating agency concludes that the analysis meets the standards for an adequate statement under the NEPA regulations and that the cooperating agency's comments and suggestions have been satisfied (40 CFR § 1506.3). NOAA is participating in the development of the RP/EA as a cooperating federal agency for purposes of NEPA. This RP/EA describes the site history and natural resource damage assessment process, identifies a preferred alternative that includes acquisition and preservation of two land parcels, and evaluates potential environmental consequences of the preferred alternative. The RP/EA also identifies general types of restoration under the preferred alternative that may be proposed in the future and would be subject to future NEPA analyses. Upon completion of the Final RP/EA, NOAA will conduct an independent review of the EA to inform NOAA's decision regarding adoption of the EA in accordance with 40 CFR § 1506.3 and its agency-specific NEPA procedures. Should NOAA adopt the EA, the RP/EA would be completed via signature on the final NEPA decision document. Additionally, NOAA may serve as a cooperating agency for the purposes of NEPA (40 CFR 1501.6) for future restoration plans developed subsequent to this RP/EA for Sheboygan. When applicable, NOAA will be acknowledged accordingly in future restoration plans developed, and NOAA may serve as a lead agency, co-lead, or cooperating agency for future proposed restoration projects and NEPA analyses.
COMMENTS/CONTACT PERSON	Betsy M. Galbraith Sheboygan River Natural Resource Trustee Council Coordinator 2661 Scott Tower Drive New Franken, WI 54229 betsy_galbraith@fws.gov

ADMINISTRATIVE RECORD	A copy of this document is available for review online at the following website: https://www.fws.gov/midwest/es/ec/nrda/SheboyganHarbor The Administrative Record is maintained by the FWS Green Bay Field Office, and is available at: U.S. Fish and Wildlife Field Office 2661 Scott Tower Drive New Franken, WI 54229 and Mead Public Library 710 N 8th Street Sheboygan, WI 53081
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LIST OF ACRONYMS

AOC	Area of Concern
ASRI	Alternative-Specific Remedial Investigation
BTEX	benzene, toluene, ethylbenzene, xylene
BUI	beneficial use impairment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
DOI	United States Department of the Interior
EA	environmental assessment
EIS	environmental impact statement
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FCA	fish consumption advisory
FONSI	Finding of No Significant Impact
FWS	United States Fish and Wildlife Service
GLC	Glacial Lakes Conservancy
GLRI	Great Lakes Restoration Initiative
IJC	International Joint Commission
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRDAR	Natural Resource Damage Assessment and Restoration
PAHs	polycyclic aromatic hydrocarbons
PAS	Preassessment Screen
PCBs	polychlorinated biphenyls
PEC	probable effects concentration

ppm	parts per million
pptr	parts per trillion
PRPs	potentially responsible parties
RI/ES	Remedial Investigation/Enhanced Screening Report
RP/EA	Restoration Plan/Environmental Assessment
USC	United States Code
WDNR	Wisconsin Department of Natural Resources
WPSC	Wisconsin Public Service Corporation
ww	wet weight

EXECUTIVE SUMMARY

The purpose of this draft Restoration Plan/Environmental Assessment (RP/EA) is to describe how the Trustees for the Sheboygan River Natural Resource Damage Assessment and Restoration (NRDAR) -- the United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration (NOAA), and the Wisconsin Department of Natural Resources (WDNR) -- will utilize funds from natural resource damages for the restoration of natural resources and services injured by the release of hazardous substances at the Sheboygan River and Harbor Site. Injuries to natural resources in the lower 14 miles of the Sheboygan River and adjacent floodplain, including sediment, soil, invertebrates, fish, reptiles, amphibians, birds, and mammals, were caused by exposure of those resources to polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and other contaminants. These injuries resulted in a loss of the ecological and recreational services that assessment area resources would otherwise have provided.

At this time, the Trustees have reached an agreement in principle to settle natural resource damage claims with parties potentially responsible for the hazardous substances in the Sheboygan River, including Tecumseh Products Company, Thomas Industries, and Wisconsin Public Service Corporation (WPSC). Under this settlement, these parties will pay \$4.5 million to support restoration, preservation, recreational enhancements, and past Trustee costs relevant to natural resource injuries. This proposed settlement is described in three Consent Decrees that were recently lodged in a federal case arising from matters related to the Sheboygan River and Harbor Site.



Consistent with the United States Department of the Interior NRDAR regulations and the National Environmental Policy Act (NEPA), the Trustees evaluated a suite of alternatives for conducting the type and scale of restoration sufficient to compensate the public for natural resource injuries and service losses. This restoration would be implemented with the funds from the proposed settlement. Based on factors such as location, technical feasibility, cost effectiveness, provision of natural resource services similar to those lost due to contamination, and net environmental consequences, the Trustees identified Alternative C: Restoration within and beyond the Assessment Area as the preferred alternative. Under this Alternative, the Trustees envision conducting wetland and riparian restoration; wetland, riparian, and ecologically-associated upland preservation; and recreational enhancement projects within the Sheboygan River Basin within Sheboygan County. This would include preservation and potential restoration of Amsterdam Dunes and Willow Creek. The relevant portion of Amsterdam Dunes includes approximately 184 acres abutting Lake Michigan within the Sheboygan River Basin, just north of the Ozaukee-Sheboygan County line. This area is contiguous with over 144 additional acres recently preserved by Sheboygan County. The Willow Creek property is a unique, 140-acre urban open space located within the City of Sheboygan. Both of these properties currently support multiple habitat types, have potential for recreational opportunities, and are under threat of development and degradation.

This draft RP/EA is available for review and comment for a period of 30 days in accordance with 43 CFR § 11.81(d)(2). The Trustees will address public comments and will respond to those comments as part of the final RP/EA for the project types and two specific preservation projects proposed for the Sheboygan River NRDA restoration.

CHAPTER 1 | INTRODUCTION

1.0 PURPOSE AND NEED FOR RESTORATION

Located in East Central Wisconsin, the Sheboygan River flows generally eastward through the City of Sheboygan Falls, Village of Kohler, and City of Sheboygan into Lake Michigan (Exhibit 1-1). For decades, industrial facilities on the Sheboygan River released hazardous substances into the environment, contaminating both the Sheboygan River and the associated floodplain. The lower 14 miles of the Sheboygan River were designated a Superfund site by the United States Environmental Protection Agency (EPA) in 1986. In addition, this same portion of the Sheboygan River was designated a Great Lakes Area of Concern (AOC) by the International Joint Commission (IJC) in 1987. Primary contaminants of concern include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and other substances such as heavy metals that were released from the potentially responsible parties. Natural resources (e.g., surface water, sediments, invertebrates, fish, amphibians, reptiles, birds, and mammals) that utilize these habitats have been exposed to and adversely affected by the released hazardous substances. Over the last three decades, the EPA, in accordance with Superfund, has overseen removal and isolation of contaminated sediments in the Sheboygan River and Harbor. For example, in 2010, a variety of partners including the EPA Great Lakes National Program Office, Wisconsin Department of Natural Resources (WDNR), Sheboygan County, the City of Sheboygan and responsible parties collaborated on a Legacy Act project to remove contaminants that were not addressed by the Superfund program. Funds from the Great Lakes Restoration Initiative (GLRI) were used to conduct this Superfund betterment effort. In addition, Federal, state and municipal agencies collaborated on habitat restoration efforts within the AOC boundaries. These remedial actions, while beneficial, do not themselves compensate the public for past, present, and future contaminant-related injuries to natural resources such as the current “do not eat” fish consumption advisory.

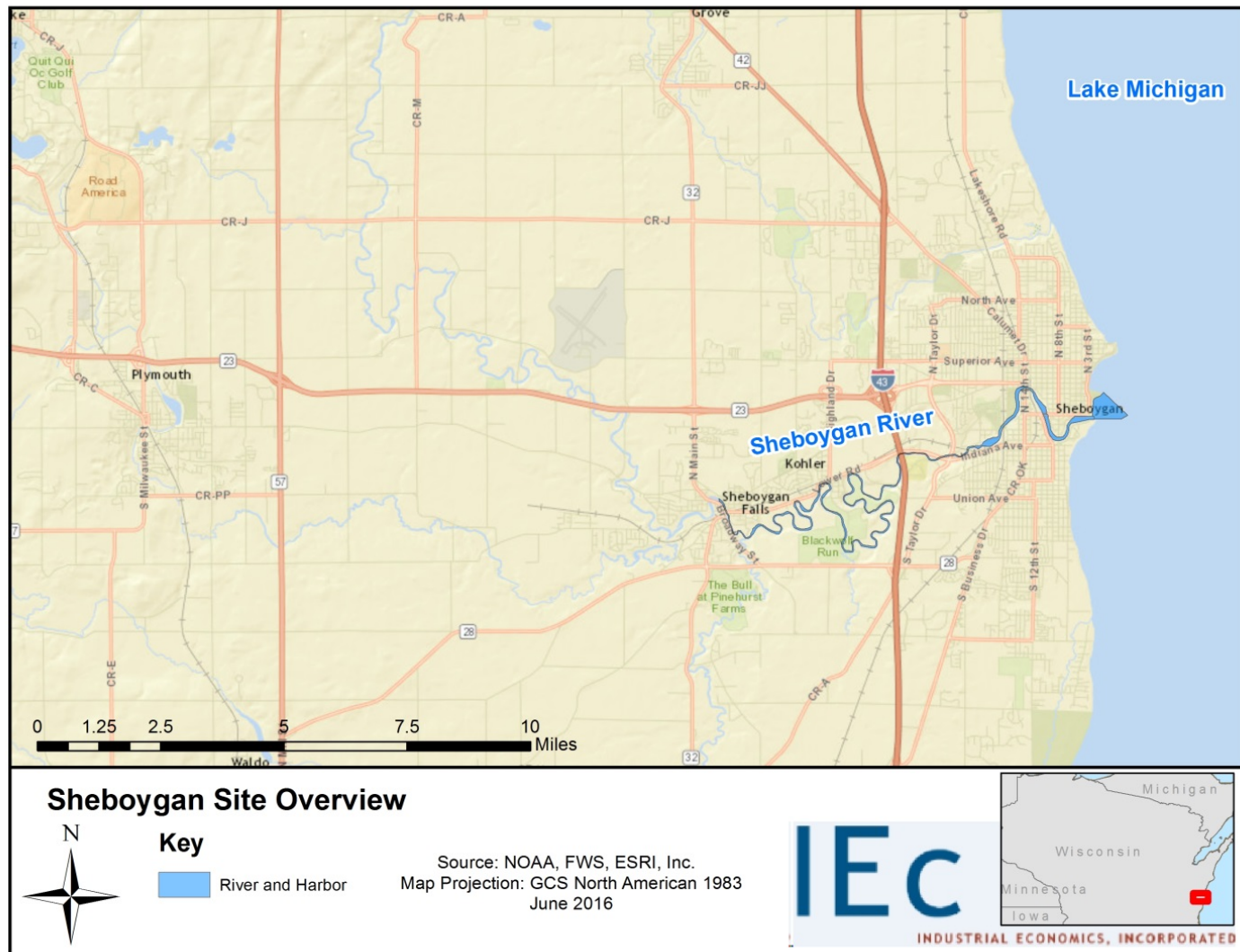
The purpose of this draft Restoration Plan and Environmental Assessment (RP/EA) is to describe how the Trustees for the Sheboygan River Natural Resource Damage Assessment and Restoration (NRDAR) propose to use natural resource damage funds for the restoration, rehabilitation, replacement, or acquisition of equivalent natural resources and services injured by the release of hazardous substances at the Sheboygan River and Harbor Site. Consistent with the U.S. Department of



the Interior (DOI) NRDAR regulations and the National Environmental Policy Act (NEPA; 42 U.S.C. §4321 et seq.), this draft RP/EA includes an evaluation of reasonable restoration alternatives and identifies a preferred alternative, informing the public as to the types and scale of restoration that are expected to compensate for injuries to natural resources. In this draft RP/EA, the Trustees are proposing two land acquisitions for purposes of conservation and preservation, along with general categories of restoration projects. The Trustees anticipate that future restoration projects may occur on the two properties or at other locations. After the Trustees consider public comments submitted on this draft RP/EA, they will select a restoration alternative consistent with the environmental assessment for the proposed restoration project categories and the two specific preservation projects. The selected alternative will be identified in the final RP/EA. As additional restoration opportunities are identified, including other preservation possibilities, the Trustees will develop project-specific restoration plan(s), including additional analyses under the National Environmental Policy Act (NEPA), where applicable. Such future RP/EAs will consider the cumulative impacts of the proposed restoration project(s) along with other proposed or selected actions for the Sheboygan River and Harbor NRDAR Site.

The remainder of this Chapter discusses the relevant regulations and authorities under which the Trustees are conducting this NRDAR and corresponding draft RP/EA, the process and opportunities for public participation, and the administrative record.

EXHIBIT 1-1 OVERVIEW MAP OF THE LOWER 14 MILES OF THE SHEBOYGAN RIVER AND HARBOR



1.1 THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT AND THE DESIGNATION OF NATURAL RESOURCE TRUSTEES FOR THE SHEBOYGAN RIVER

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 U.S.C. § 9601 et seq.) establishes a liability regime for the release of hazardous substances that injure natural resources and the ecological and human use services those resources provide. Pursuant to CERCLA, designated federal and state agencies, federally-recognized Indian tribes, and foreign governments act as trustees on behalf of the public to assess injuries and plan for restoration to compensate for those injuries. CERCLA further instructs the designated trustees to develop and implement a plan for the restoration, rehabilitation, replacement, or acquisition of the equivalent of the injured natural resources under their trusteeship (hereafter collectively referred to as “restoration”). CERCLA defines “natural resources” to include land, fish, wildlife, biota, air, water, ground water, drinking water supplies and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson-Stevens Fishery Conservation and Management Act), any state or local government, any foreign government, any Indian tribes, or, if such resources are subject to trust restriction or alienation, any member of an Indian tribe (42 U.S.C. § 9601(16)). Regulations providing guidance to the Trustees on how to implement, in general, the NRDAR processes are contained in Chapter 43 of the Code of Federal Regulations (CFR), Part 11.

Federal agencies are designated as natural resource trustees pursuant to section 107 of CERCLA (42 U.S.C. § 9607(f)(2)(A)), Executive Order 12777, and the National Contingency Plan (40 CFR § 300.600). For the Sheboygan River and Harbor NRDAR, the federal Trustees are:

- The United States Department of the Interior, as represented by the United States Fish and Wildlife Service (FWS), the lead Federal agency for this RP/EA; and
- The National Oceanic and Atmospheric Administration (NOAA), on behalf of the United States Department of Commerce, a cooperating Federal Agency for this RP/EA.

State agencies are designated as natural resource trustees by the governors of each state pursuant to section 107 of CERCLA (42 U.S.C. § 9607(f)(2)(B)). For the Sheboygan River and Harbor NRDAR, the state Trustee is the State of Wisconsin Department of Natural Resources.

The state and federal Trustees for the Sheboygan River and Harbor NRDAR convened a Natural Resource Trustee Council to: 1) assess the natural resource injuries resulting from the release of hazardous substances in the Sheboygan River, and 2) develop and implement a restoration plan to compensate for those injuries.

1.2 THE NATIONAL ENVIRONMENTAL POLICY ACT

Actions undertaken by federal Trustees to restore natural resources or services under CERCLA are subject to NEPA, 42 U.S.C. § 4321, et seq., and the regulations guiding its implementation at 40 CFR Part 1500. NEPA and its implementing regulations set forth a process of environmental impact analysis, documentation, and public review for federal actions, including restoration actions. Specifically, NEPA provides a mandate and a framework for federal agencies to consider all reasonably foreseeable environmental effects of their proposed actions and to inform and involve the public in their decision-making process.

In general, federal agencies proposing a major federal action must develop an environmental impact statement (EIS) if the action is expected to have significant impacts on the quality of the human environment. When it is uncertain whether a contemplated action is likely to have significant impacts, federal agencies prepare an environmental assessment (EA) to evaluate whether an action would have significant impacts and therefore necessitate an EIS. If the EA demonstrates that the proposed action will not significantly impact the quality of the human environment, the federal agencies issue a Finding of No Significant Impact (FONSI), which satisfies the requirements of NEPA, and no EIS is required. If a FONSI cannot be made, then an EIS is required.

Additionally, over time, through study and experience, agencies may identify activities that do not need to undergo detailed environmental analysis in an EA or an EIS because the activities do not individually or cumulatively have a significant effect on the human environment. Agencies can define categories of such activities, called categorical exclusions, in their NEPA implementing procedures, as a way to reduce unnecessary paperwork and delay. The consideration of NEPA requirements in the context of the Trustees' identified restoration alternatives for the Sheboygan River NRDAR is described in Chapter 6.

1.3 COMPLIANCE WITH OTHER AUTHORITIES

In addition to CERCLA and NEPA, other legal requirements may apply to NRDA restoration planning or implementation. The Trustees will ensure compliance with authorities applicable to restoration projects. Whether and to what extent an authority applies to a particular project depends on the specific characteristics of a particular project, among other parameters. The subset of authorities listed below is the most relevant for the proposed acquisition and conservation actions and may be relevant for future restoration projects proposed for the Sheboygan River and Harbor NRDAR:

- Endangered Species Act (16 U.S.C. §§ 1531 et seq.),
- National Historic Preservation Act (16 U.S.C. §§ 470 et seq.),
- Coastal Zone Management Act (16 U.S.C. §§ 1451-1464),
- Federal Water Pollution Control Act (Clean Water Act, 33 U.S.C. §§ 1251 et seq.),
- Migratory Bird Treaty Act (16 U.S.C. §§ 703-712), and
- Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

1.4 PUBLIC PARTICIPATION

Public participation and review is an integral part of the restoration planning process. The Trustees have made this draft RP/EA available for review and comment for a period of 30 days in accordance with Section 111(i) of CERCLA, 42 USC 9611(i), and NEPA. The Trustees will address public comments and will respond to those comments as part of the final Restoration Plan/Environmental Assessment for the Sheboygan River NRDAR. Comments must be submitted in writing to:

Betsy M. Galbraith
Sheboygan River Natural Resource Trustee Council Coordinator
2661 Scott Tower Drive
New Franken, WI 54228
betsy_galbraith@fws.gov

A copy of this document is available for review online at the following website:

<https://www.fws.gov/midwest/es/ec/nrda/SheboyganHarbor>

Interested parties can obtain a hard copy of this draft RP/EA from the Trustees by submitting a written request to the following email or physical address:

Betsy M. Galbraith
Sheboygan River Natural Resource Trustee Council Coordinator
2661 Scott Tower Drive
New Franken, WI 54228
betsy_galbraith@fws.gov

After the Trustees consider public comments submitted on this draft RP/EA, the Trustees will select a restoration alternative consistent with the environmental assessment for the proposed restoration project categories and the two specific preservation projects. The selected alternative will be identified in the final RP/EA. As additional restoration opportunities are identified, including other preservation possibilities, the Trustees will develop project-specific restoration plan(s), with additional NEPA analyses where applicable. The Trustees will notify the public when these restoration plans are available for public review.

1.5 ADMINISTRATIVE RECORD

Pursuant to 43 CFR § 11.91(c), the Trustees maintain a publicly available Administrative Record for the Sheboygan NRDA, including restoration planning activities. As the lead Federal NRDAR Trustee, the Administrative Record is maintained by the U.S. Fish and Wildlife Green Bay Field Office, and is available at:

U.S. Fish and Wildlife Field Office
2661 Scott Tower Drive
New Franken, WI 54228

and:

Mead Public Library
710 N 8th Street
Sheboygan, WI 53081



CHAPTER 2 | SHEBOYGAN RIVER SITE REMEDY AND NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION

This Chapter provides an overview of Site history and remediation, discusses the nexus between remediation and the Sheboygan River Area of Concern, and describes the goal of NRDAR and the specific actions the Sheboygan River NRDAR Trustees have taken to-date, including reaching an agreement in principle with the potentially responsible parties (PRPs) to settle the Trustees' claim for natural resource damages arising from hazardous substances released to the assessment area.

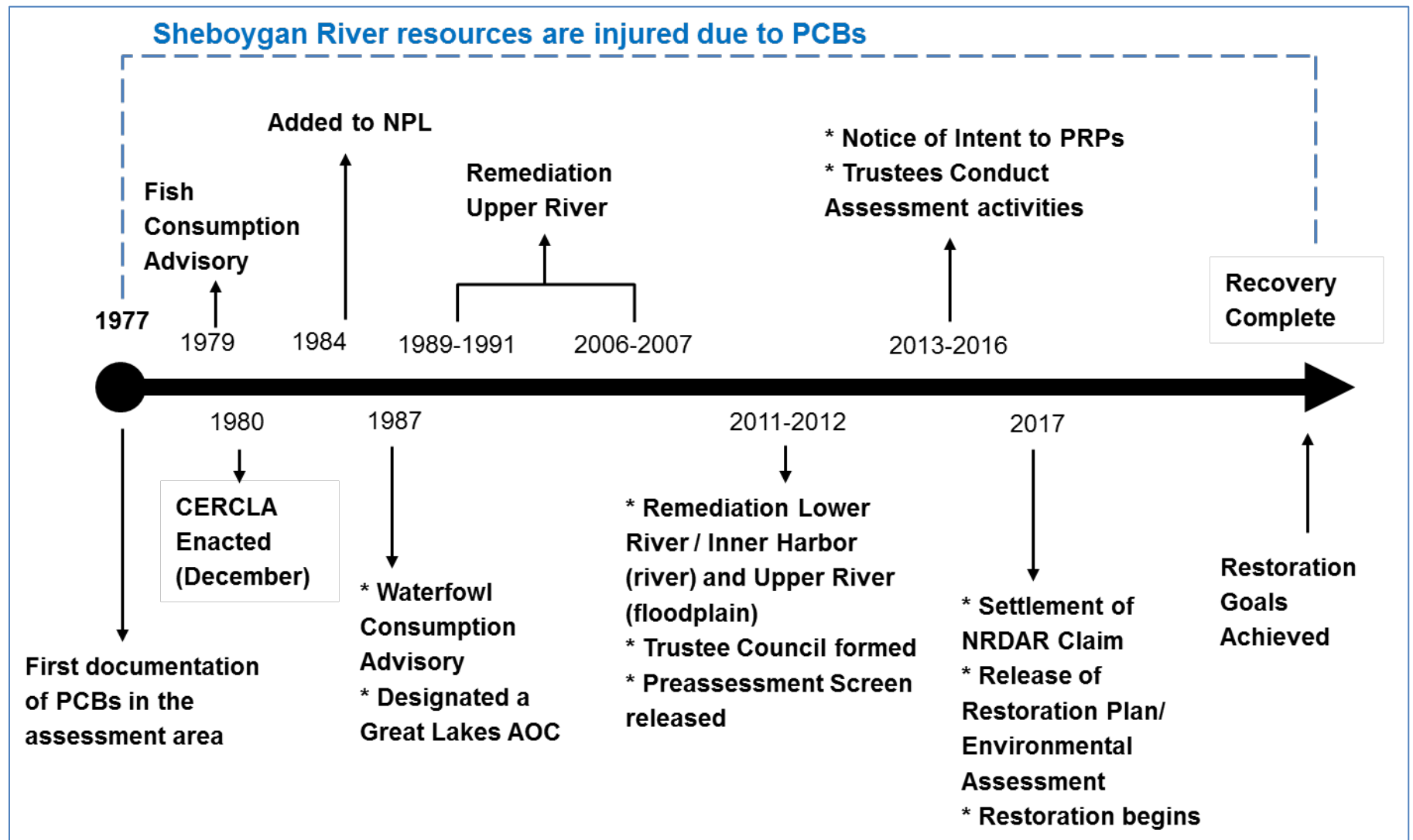
2.1 SUMMARY OF SITE HISTORY AND REMEDIATION

The Sheboygan River and Harbor remedial site (Site) includes the lower 14 miles of the Sheboygan River from Sheboygan Falls downstream to and including Sheboygan Harbor in Lake Michigan. The Site consists of the Sheboygan River and Harbor Superfund site (added to the National Priorities List [NPL]¹ in 1986), the Kohler Company Landfill Superfund site (added to the NPL in 1984), and the former Campmarina manufactured gas plant site (not listed on the NPL but addressed by EPA as a Superfund Alternative Site). The Sheboygan River area has been listed as one of 43 Great Lakes Areas of Concern (AOCs) by the U.S. and Canada (see Section 2.2 for more details on the AOC). A timeline of major events is provided in Exhibit 2-1.

The U.S. Army Corps of Engineers ceased its previously routine dredging of the Sheboygan River channel in 1969 to avoid disturbing and spreading contaminated sediment (WDNR 1995). The subsequent restrictions on dredging resulted in limitations on use of these waters by private marinas and recreational boaters as well as commercial shipping. In 1974, EPA identified elevated levels of mercury, cadmium, chromium, lead, and zinc in sediments in Sheboygan Harbor (Appendix A to BBL 1990). In 1977, WDNR identified elevated concentrations of PCBs in Sheboygan Harbor fish as part of its statewide monitoring program (WDNR 1995), prompting EPA to test for and confirm the presence of PCBs in Sheboygan Harbor sediments that same year (BBL 1990). Since 1979, high PCB levels in fish have prompted WDNR to issue fish consumption advisories that recommend zero consumption of all resident fish species between Sheboygan Falls and the mouth of the Sheboygan River. WDNR also advises only limited consumption of Chinook salmon, Coho salmon, brown trout, lake trout, rainbow trout, yellow perch, whitefish, chubs and smelt from Lake Michigan and the Sheboygan River downstream of the first dam because of PCB contamination (WDNR 2011a). Additionally, wildlife consumption advisories have been in effect since 1987 for the area due to PCB contamination in waterfowl (WDNR 2011b).

¹ "The National Priorities List (NPL) is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation (EPA 2016a).

EXHIBIT 2-1 TIMELINE OF MAJOR REMEDIAL AND NRDAR-RELATED EVENTS FOR THE SHEBOYGAN RIVER SITE



Subsequent sampling found PCBs unevenly distributed throughout the river, with the highest concentrations (4,500 parts per million [ppm] and 4,300 ppm) in sediment immediately downstream from the Tecumseh Products Company facility in Sheboygan Falls (BBL 1990). Additional sources of chemical contamination to the Sheboygan River and Harbor include the Kohler Company facility and landfill, the Thomas Industries site, and the Campmarina manufactured gas plant site (Exhibit 2-2) (EPA 2000, NRT 2009). For example, sediment samples collected in the Sheboygan River near the Campmarina site between 1987 and 1995 had measured total PAH concentrations ranging from 5 ppm to 3,000 ppm, not including some samples with PAH concentrations so high that the samples were considered to be “oil saturated” (EPA 2012). Areas with elevated PAH levels also contained manufactured gas plant residuals (i.e., various waste products), most often observed as staining on sediments. Each of these facilities is discussed in detail below.

TECUMSEH PRODUCTS COMPANY PLANT

Tecumseh Products Company acquired the Die Cast Corporation in 1966, including the facility adjacent to the upper river in Sheboygan Falls. Metal die casting operations began at the facility in 1958 and ended in 2003 when Tecumseh Products Company closed the plant. The operation used hydraulic fluids containing PCBs from about 1966 to 1971, and unused PCB materials remained on-site until a WDNR-ordered cleanup in 1978, described below.

To control flooding of the Tecumseh facility’s low-lying land next to the Sheboygan River, Tecumseh and the City of Sheboygan Falls jointly constructed a flood control dike in the early 1970s from on-site fill. Prior to the construction of the dike, PCB-contaminated materials that had been disposed in the yard behind the Tecumseh plant may have come in contact with Sheboygan River floodwaters (BBL 1990). The fill used to build the dike was later found to contain PCBs, and during periods of rain or high river flow it was a source of PCBs to the River (BBL 1990). In 1978, WDNR ordered Tecumseh to stop disposing of solid waste on its property and to excavate, collect, and properly store all materials likely to contain PCBs. The company complied with the order and excavated contaminated soils and disposed of them in an EPA-licensed PCB disposal facility offsite (EPA 2009). The dike was removed and replaced in 1979 (WDNR 1995).

THE KOHLER COMPANY

The Kohler Company owns and operates a landfill bounded on three sides by the Sheboygan River. The landfill has been in operation since the 1950s, primarily for the disposal of foundry and manufacturing wastes associated with the manufacture of bathroom fixtures. These included chrome plating sludge, enamel powder, hydraulic oils, solvents and paint wastes (WDNR 1995).

The Kohler landfill leached contamination, including metals, PCBs, PAHs, and volatile organic compounds including trichloroethylene and vinyl chloride into surrounding soils and groundwater (WDNR 2007). Sediment samples from a small tributary to the Sheboygan River near Kohler had elevated levels of cadmium, chromium, copper, lead, and zinc, indicating a potential release from the Kohler facility (BBL 1995). Groundwater in the shallow aquifer beneath the site previously flowed into the Sheboygan River, carrying hexavalent chromium and other chemicals (Geraghty and Miller 1992) until 1998 when a collection system was constructed to divert contaminated leachate to the City of Sheboygan wastewater treatment facility (WDNR 2007). As part of the same remedial action, the landfill was capped to contain remaining contamination on-site (WDNR 2007).

THOMAS INDUSTRIES

Thomas Industries manufactured compressors, vacuum pumps, and liquid pumps. Its machine shop operations consisted of milling, drilling, boring and tapping aluminum, steel, powder metal, cast iron, zinc and brass materials, and finishing and cleaning aluminum parts by acid wash, degreasing, vibratory and spindle finishing (EPA 2000). The Thomas Industries facility had outfalls that were found to contain PCBs at 200 parts per trillion (pptr) in direct surface water discharge to the Sheboygan River and 140,000 (pptr) in effluent discharged to the City of Sheboygan wastewater treatment plant (Kleinert et al. 1978).²

CAMPMARINA PLANT

Campmarina, a former Wisconsin Public Service Corporation coal gasification plant located along the east bank of the lower river, operated from 1872 to 1929 (WDNR 1995). Runoff from the gas plant released tars into nearby soil and groundwater. Groundwater at the site showed levels of arsenic, total cyanide, and benzene above the state enforcement standard (Simon Hydro-Search 1992 cited in WDNR 1995). Cyanide was also detected in the soil. The coal gasification plant is the suspected source of PAHs found in sediments near the Pennsylvania Avenue Bridge (BBL 1990) and the Eighth Street Bridge (RMT 1993 cited in WDNR 1995).

For the remedy, the river was divided into Upper, Middle, and Lower river reaches, and the Inner and Outer Harbors (Exhibit 2-2). The Upper and Middle reaches of the river are shallow and relatively fast-flowing and the riverbed is primarily cobble, sand, and gravel with isolated soft sediment deposits. The Lower River and Harbor are slow-flowing with continuous soft sediment beds (PRS 2009). Three dams are present within the Site boundaries: the Sheboygan Falls Dam at the upstream end of the Upper reach, the River Bend Dam in the Upper reach, and the Waelderhaus Dam at the boundary between the Upper and Middle reaches, all of which influence sediment transport and hydrology.

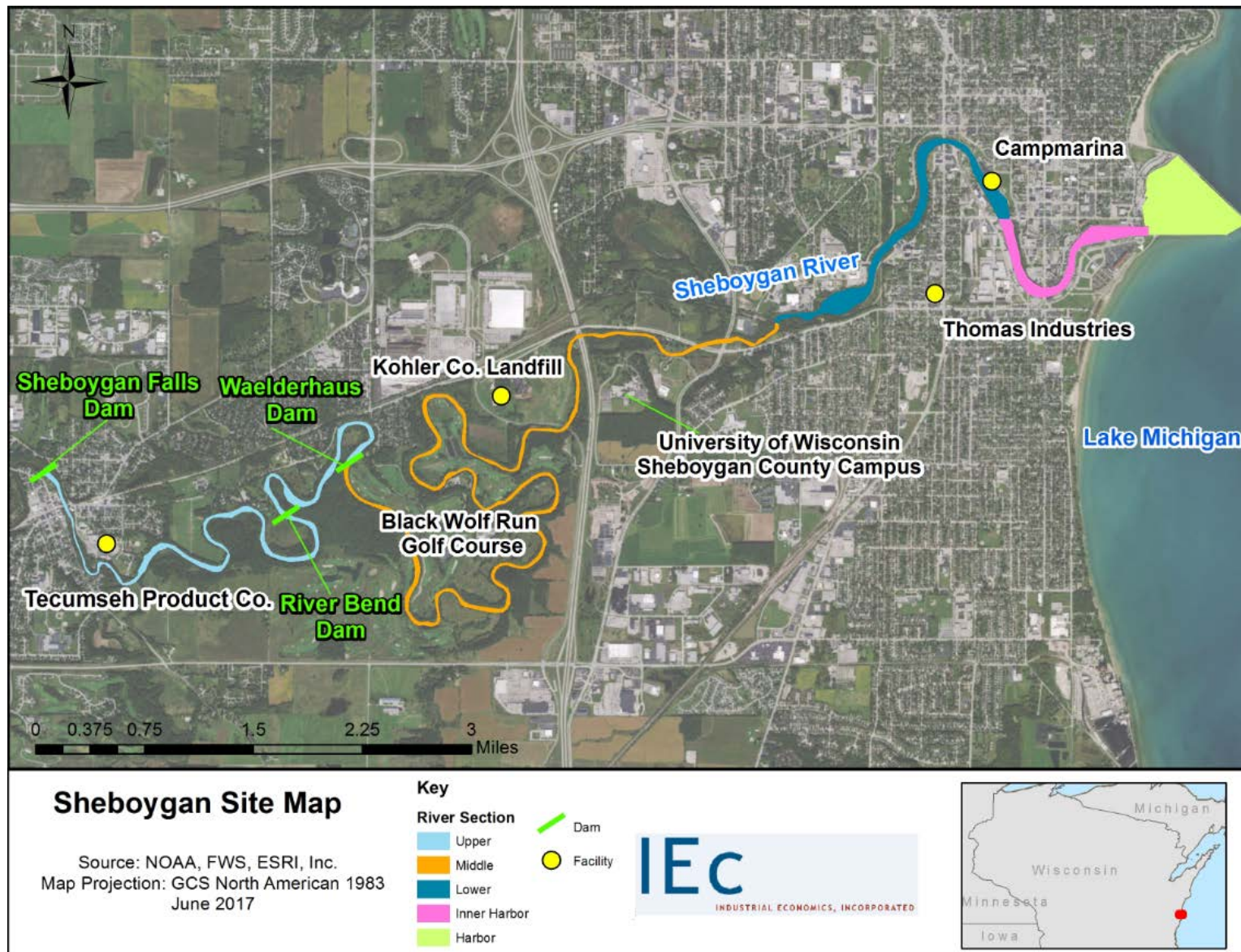
Remedial activities to-date have reduced both direct releases of hazardous substances from facilities and environmental contaminant levels (EPA 2000). For example, from 1989-1991, approximately 5,000 cubic yards of contaminated sediment were dredged from the Upper River, and a small section was armored to prevent contaminants from entering the river (EPA 2009). In 1997, the Kohler Landfill along the Middle River was capped, and a drain in the landfill was installed to capture contaminated groundwater and route it to the City of Sheboygan wastewater treatment plant (NOAA et al. 2012b). In 2004 – 2007, releases from the former Tecumseh Plant site were controlled by materials excavation and disposal, excavation of preferential contaminant pathways and installation of contaminant containment systems. Over 21,000 cubic yards of contaminated soft sediment from the Upper River was hydraulically dredged and disposed in 2006 and 2007. Most recently, dredging has occurred in the Lower River and Inner Harbor portions of the River (i.e., 2011-2012) in accordance with EPA Superfund requirements. This included a time-critical removal action conducted by Wisconsin Public Service Corporation (WPSC) in the Sheboygan River adjacent to the Campmarina site to address the high levels of PAHs in the sediment. This included dredging to achieve PAH remedial goals, and backfilling with a six-inch clean sand cover over a three acre area (EPA 2012).

² The U.S. EPA PCB criterion for the protection of aquatic life is 14 pptr (EPA 2016b).



Follow-up monitoring will assess the success of the actions taken. It should be noted that a voluntary Superfund Betterment project was implemented in 2012 and 2013 to remove additional contaminants from the Lower River and Inner Harbor. Additional details on remedial activities are available in documents such as the Explanation of Significant Differences (ESD; EPA 2010), Remedial Investigation/Enhanced Screening Report (RI/ES; BBL 1990), Alternative-Specific Remedial Investigation (BBL 1995), EPA 5-Year Review (EPA 2009), and Record of Decision for the Campmarina site (EPA 2012).

EXHIBIT 2-2 SHEBOYGAN RIVER AND HARBOR INDUSTRIAL FACILITIES AND REMEDIAL SECTIONS



2.2 SHEBOYGAN RIVER AREA OF CONCERN

The lower 14 miles of the Sheboygan River, including the harbor, comprise one of 43 contaminated sites designated as an AOC under the U.S.-Canada Great Lakes Water Quality Agreement³. Areas of Concern are severely degraded geographic areas within the Great Lakes region. In 1987, the Sheboygan River was designated an AOC primarily due to PCB and PAH contamination in river and harbor sediments.

However, the Remedial Action Plan for the AOC also identified heavy metals, fecal coliform bacteria, and excessive amounts of phosphorus and nitrogen as river contaminants (WDNR 1995). These various types of contamination have contributed to the following nine of 14 beneficial use impairments (BUIs) used by the United States and Canada in determining when to list and delist AOCs:

- Restrictions on fish and wildlife consumption,
- Loss of fish and wildlife habitat,
- Degradation of fish and wildlife populations,
- Degradation of benthos,
- Restriction on dredging activities,
- Eutrophication or undesirable algae,
- Degradation of phytoplankton and zooplankton populations,
- Fish tumors or other deformities, and
- Bird or animal deformities or reproduction problems.

WDNR, EPA, and other public and private partners have been working to remove these BUIs. Once all BUIs have been addressed, the AOC will be eligible for delisting.

Actions to address BUIs accelerated after the inception of GLRI in 2010 and with the completion of remedial actions under Superfund and other programs. In 2015, *restrictions on dredging* was the first BUI to be removed. Later that year, the *eutrophication or undesirable algae* BUI was also removed.

Habitat restoration projects to address the *loss of fish and wildlife habitat* and *degradation of fish and wildlife populations* BUIs were implemented in 2012. Approximately \$5.7 million was invested using funding available through the GLRI. Projects included:

- Kiwanis Park shoreline restoration,
- Taylor Drive and Indiana Avenue wetland restorations,
- Taylor Pond rehabilitation,
- Wildwood Island restoration,
- Shoreline stabilization and in-stream habitat improvements,
- Targeted invasive species control, and

³ The Great Lakes Water Quality Agreement is a formal international agreement, first signed in 1972 by Prime Minister Pierre Trudeau and President Richard Nixon, and updated in 1978, 1987 and 2012. The Agreement reflects the commitment of Canada and the U.S. to address a wide range of water quality issues facing the Great Lakes and the international section of the St. Lawrence River.

- Conservation planning for the former Schuchardt property.

These projects have improved and re-established habitat for a variety of fish and wildlife species. Additionally, recent efforts to implement agricultural best management practices throughout the Sheboygan River Watershed will complement the above efforts by helping reduce nonpoint source pollution to the river.

Since 2013, AOC efforts have shifted towards continued removal of invasive plant species along the river, maintenance and monitoring of the habitat projects that were completed in 2012, and ongoing monitoring of fish and wildlife populations. Monitoring data will inform whether BUI removal targets have been met, and thus whether additional BUIs may be removed.

Much has already been done in the area due to the AOC designation; over 400,000 cubic yards of contaminated sediment have been removed from the Sheboygan River, multiple priority habitat projects have been implemented, and monitoring activities have been initiated (WDNR 2015a). The Trustees have been working closely with those involved with the AOC to ensure projects selected for implementation using NRDAR settlement funds will complement AOC efforts. More information about the Sheboygan River AOC can be found in the 2015 Remedial Action Plan Update (WDNR 2015a) and at <http://dnr.wi.gov/topic/greatlakes/sheboygan.html>.



2.3 NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION

The goal of the NRDAR process is to replace, restore, rehabilitate, or acquire the equivalent of (together, restoration) injured natural resources and resource services lost due to the release of hazardous substances. To determine whether restoration is necessary at the Sheboygan River and Harbor site, the Trustees completed a number of interim steps outlined in the DOI NRDAR regulations (43 CFR Part 11), described below and outlined in Exhibit 2-1.

2.3.1 NRDAR ACTIVITIES AT THIS SITE

The Trustees signed a Memorandum of Agreement in 2012 to “provide a framework for coordination and cooperation among the Trustees to ensure timely and efficient implementation of a...NRDAR to restore natural resource injuries, including service losses, caused by [r]eleases” of hazardous substances, and to “use recovered damages to plan and implement actions appropriate to restore, replace, rehabilitate, or acquire the equivalent of natural resources or resource services injured or lost as a result of the [r]eleases”

(NOAA et al. 2012a). Shortly thereafter, they completed the first phase of the NRDAR process, issuing a preassessment screen (PAS) in 2012 (NOAA et al. 2012b). The purpose of the PAS is to determine the need to conduct a formal natural resource damage assessment. Based on a review of readily available data and a determination that the five preassessment criteria in 43 CFR 11.23(e) have been met (NOAA et al. 2012b), the Trustees concluded that further investigation and assessment is warranted at the Sheboygan River Site and that information existing at the time of the PAS indicated that there is a reasonable probability of making a successful natural resources damage claim pursuant to section 107 of CERCLA and section 311 of the federal Water Pollution Control Act.

In 2013, the Trustees issued a Notice of Intent to pursue a NRDA and sent it to the PRPs for the Sheboygan River Site. Following the Notice of Intent, the Trustees proceeded with assessment activities to evaluate injuries to natural resources and resource services resulting from releases of hazardous substances from the Sheboygan River Site. These assessment activities provided the Trustees with a thorough understanding of injuries to natural resources and losses in ecological and recreational services, as well as the type, scale, and scope of restoration activities that are necessary to address those injuries. Accordingly, the Trustees propose to resolve natural resource damages liability within the assessment area, as described in Section 2.3.3. The Trustees developed this draft RP/EA to explain how they plan to use natural resource damages for the restoration of natural resources and services at the Site.

2.3.2 RELATIONSHIP TO REMEDIAL ACTIVITIES

NRDAR is a process that occurs *in addition* to the remedial process conducted by regulatory agencies like WDNR and EPA (e.g., under Superfund). These two processes have different goals. Remedial action objectives are risk-based, and are developed to protect human health and the environment from further unacceptable harm. Remedies are selected based on evaluation criteria that are used to compare remedial alternatives and may result in contamination remaining in the environment above levels that existed prior to their release. In contrast, the goal of NRDAR is the restoration of resources to their baseline condition (i.e., what their condition would be absent the release). Losses resulting from natural resource exposure to released materials and/or hazardous substances are estimated over time until the resource is restored to baseline conditions (i.e., interim losses). These losses can therefore extend beyond the date of remedy completion due to material and/or contaminants being left in the environment at levels injurious to natural resources.

There are components of NRDAR and remedy however that overlap. For example, remedial decisions can include consideration of NRDA restoration objectives. Work to remedy a site may partially or completely restore injured natural resources, and NRDAR estimates take this into account. In addition, remedial actions may cause “collateral injury” to habitat, and assessment and restoration of this remedy-induced injury is also evaluated within NRDAR.

For the Sheboygan River NRDAR, the Trustees interacted with EPA by reviewing and providing comments on known restoration projects proposed within the Sheboygan River AOC, and by incorporating remedial data into the Trustees’ analyses of contaminant-related exposure and remedial impacts. Despite the remediation and restoration that has occurred (Section 2.1), however, additional but separate actions through the NRDAR process still need to be conducted.

2.3.3 NATURAL RESOURCE DAMAGES SETTLEMENT

Under CERCLA, there are two possible scenarios under which the Trustees would receive the funding needed to implement restoration: settlement or litigation. Under either scenario, the Trustees present a written demand to the PRPs for natural resource damages and the reasonable cost of the damage assessment (43 CFR § 11.91(a)). In the settlement scenario, the Trustees reach an agreement with the PRPs through a cost-effective and efficient process, providing the Trustees with timely certainty about the amount of funding available for restoration. In the litigation scenario, if the PRPs reject the demand, the Trustees can file a judicial claim (i.e., a lawsuit) in an attempt to win a judgment for the cost of restoration. However, litigation typically results in long delays and has an uncertain outcome with respect to the amount of funding that may be gained for restoration.

For the Sheboygan River and Harbor Site, the Trustees reached an agreement in principle to settle Tecumseh Products Company's, Thomas Industries', and WPSC's natural resource damages liability. Under this settlement, these parties will pay \$4.5 million to support restoration, preservation, recreational fishing enhancements, and past Trustee costs relevant to natural resource injuries. This proposed settlement is described in three Consent Decrees that were recently lodged in a federal case arising from matters related to the Sheboygan River and Harbor Site. The Consent Decrees are subject to their own public comment process regarding the sufficiency of the settlement or other terms. Upon conclusion of the public comment process, if both the plaintiffs and then the Court find the decrees to be adequate, fair, reasonable, and in the public interest, the Court will officially enter the final Consent Decrees between defendants Tecumseh Products Company, Thomas Industries, and WPSC and plaintiffs United States and the State of Wisconsin. The Trustees believe that the settlement provides a reasonable approach to achieving the goals of CERCLA to make the public and the environment whole, is fair and reasonable, and advances the public interest.

The public is encouraged to review and comment on this draft RP/EA, as well as under the separate commenting process for the Consent Decrees.



CHAPTER 3 | AFFECTED ENVIRONMENT

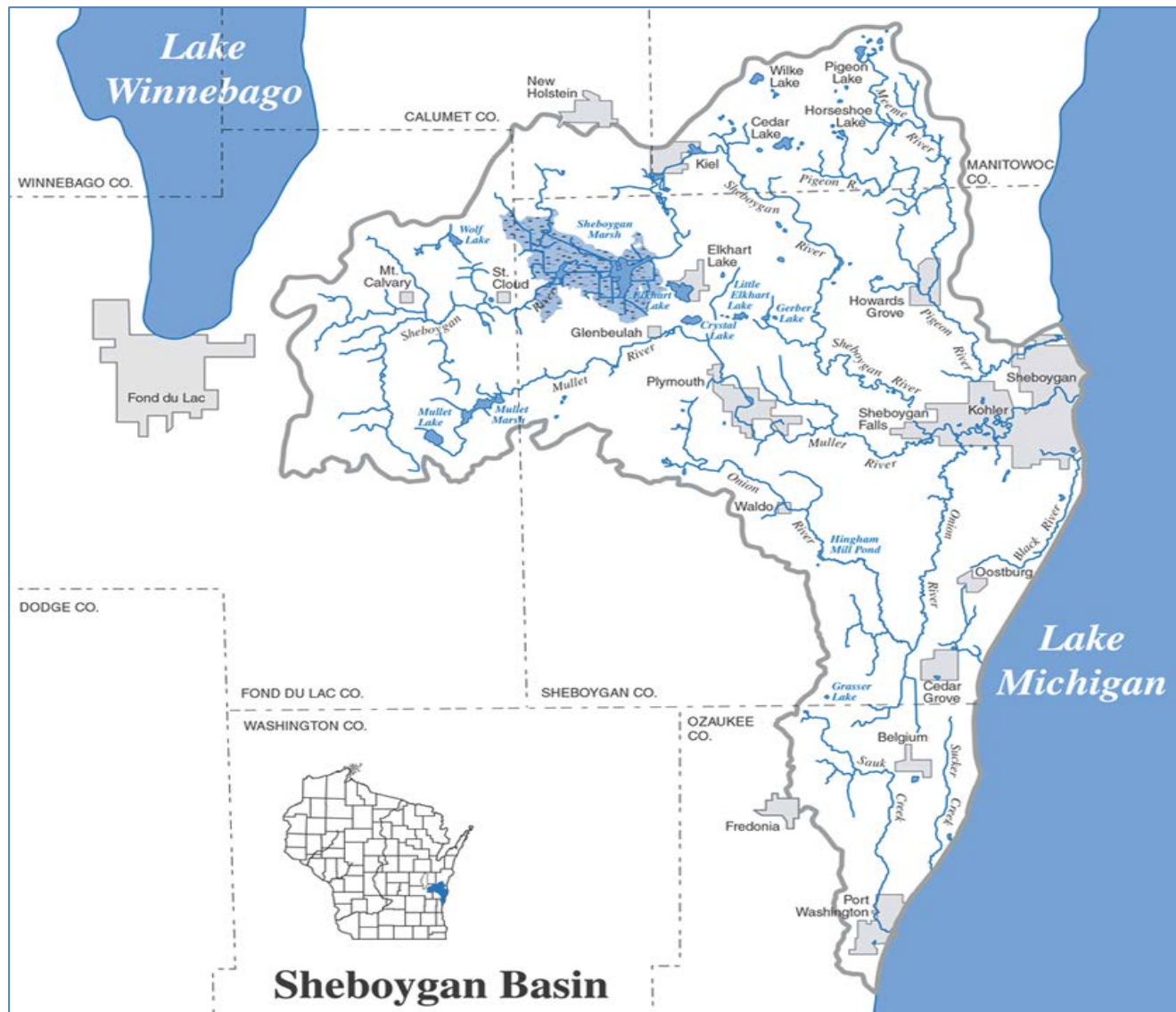
The Trustees assessed the current physical, biological, socioeconomic, and cultural resources within the affected area, described below. This information will assist the Trustees in evaluating and planning future restoration activities and ensure that potential restoration projects are designed to maximize ecological and human use benefits while minimizing or eliminating project-related adverse environmental consequences.

3.1 PHYSICAL ENVIRONMENT

The affected area encompasses the Sheboygan River and its surrounding watershed. The Sheboygan River Basin lies in portions of Sheboygan, Ozaukee, Fond du Lac, Calumet and Manitowoc counties and is part of the larger Great Lakes ecosystem (Exhibit 3-1). Covering about 260 square miles, most of which is in Sheboygan County, the Sheboygan River Watershed is the largest and possibly the most diverse watershed in the basin (WDNR 2001). Sheboygan County itself covers an area of 513 square miles, has over 26.3 miles of coastal shoreline along Lake Michigan on the east, and is bordered by the Kettle Moraine State Forest on the west and by the Sheboygan Marsh in the northwest (Sheboygan County PCD 2015). The Sheboygan River originates in Fond Du Lac County and flows eastward into Sheboygan County, ultimately entering Lake Michigan in the City of Sheboygan. The major tributaries to the Sheboygan River are the Onion and Mullet Rivers (WDNR 2001; WDNR 2012a), and the major urban areas along the lower stretch of the Sheboygan River are the cities of Sheboygan and Sheboygan Falls, and the Village of Kohler.

Land use throughout the watershed is primarily agricultural, but the downstream stretch of the Sheboygan River is almost entirely urbanized. Considering information about land use in the watershed enables the Trustees to assess the conservation landscape, anthropogenic pressures, and the manner in which lands are utilized, all of which may affect the benefits expected from planned restoration. For example, urbanization along the Sheboygan River decreases the amount of land available for restoration and increases costs associated with land preservation and restoration. Environmental quality is expected to become increasingly degraded in concert with urbanization and agricultural use, which can lead to increases in non-point source pollution from agricultural and urban runoff, industrial and municipal wastewater treatment plant discharges, stream channelization, dams, construction site erosion, and overall degradation of adjacent habitats (WDNR 2001, WDNR 2012a).

EXHIBIT 3-1 SHEBOYGAN RIVER BASIN (SRBP 2016)



3.2 NATURAL RESOURCES AND BIOLOGICAL ENVIRONMENT

Natural resources recognized under 43 CFR § 11.14(z) within the Sheboygan River Watershed include, but are not limited to sediment, soil, water (surface water and groundwater), aquatic plants, invertebrates, reptiles and amphibians, fish, birds, and mammals. Wildlife and other biological resources utilize a suite of habitats within the watershed ranging from open water to wetlands to upland forests. Some species are of particular concern to the Trustees, due to their threatened or endangered conservation status, such as the northern long-eared bat and the Pitcher's thistle, or because they are culturally and/or economically important. For example, certain species are caught and consumed through hunting and angling activities, such as waterfowl and fish. The varied habitats provide opportunities for recreation, including running, hiking, and water sports. This section describes the natural resources within the affected area, with particular attention to the various habitat types and wildlife species present.

3.2.1 HABITAT TYPES

A variety of habitats are present within the Sheboygan River Basin, including many types of wetland habitats such as coniferous swamps, floodplain forests, marshes, shrub swamps, and wet meadows. Some streams within the basin are classified as cold water streams and can sustain trout populations and a few of the Lake Michigan tributaries have runs of stocked steelhead and salmon (WDNR 2001). The Sheboygan River supports in-stream rock, cobble, and pool areas that provide habitat for numerous fish species. A large number of bird species use the river, harbor, and floodplain habitats for foraging and/or breeding. Forested areas along the banks provide habitat for a range of small mammals and white-tailed deer. Mammalian species associated with aquatic and semi-aquatic habitats of the Sheboygan River include bats, muskrat, raccoon, mink, and beaver. Because of their role in the food web, other animals of interest include turtles, insects, and benthic invertebrates such as insect larvae, mussels, and crayfish.

The biotic and abiotic resources identified above provide numerous ecological and human use services, including, but not limited to:

- Habitat for trust resources, including food, shelter, breeding, foraging areas, rearing areas, and other factors essential for survival;
- Fishing and hunting;
- Non-consumptive uses such as wildlife viewing, photography, and other outdoor recreation activities; and
- Primary and secondary water contact activities such as swimming and boating.

Land conversion, hydrological changes, invasive species, and forest fragmentation have had dramatic negative effects on the plant and wildlife communities throughout the affected area. However, the existing natural areas still host an important selection of rare and unique plant and animal species with specific habitat requirements, as well as those valued by the public for intrinsic or recreational purposes. For example, the Kohler–Andrae State Park near the Sheboygan River is comprised of wetland and aquatic communities including warm-water river, emergent marsh, Southern sedge meadow, and ephemeral pond, in addition to high quality examples of Northern dry-mesic forest, Northern mesic forest, floodplain forest, emergent marsh, alder thicket, and surrogate grasslands (WDNR 2012a).

3.2.2 FISH

The Sheboygan River contains distinctly different sections of stream habitat, with correspondingly different fish communities. The lower river and harbor are wide and slow-flowing with fine substrate, versus upstream areas where the river narrows, becoming shallow and relatively fast-flowing with substrate consisting of more coarse material. From Sheboygan Falls Dam to the mouth, the Sheboygan River is classified as a warmwater sport fish community consisting of smallmouth bass, largemouth bass, walleye, channel catfish, and assorted panfish, as well as forage species such as black bullhead, blacknose dace, common carp, central mudminnow, green sunfish, and white sucker. Intact floodplain forests and wetlands along this stretch of river are important to sustaining populations of spawning fish, such as walleye and northern pike. In spring and fall, some fish species use the river as a migratory corridor, including northern pike, walleye, white sucker, steelhead, three redhorse species, brown trout, Chinook salmon, Coho salmon and steelhead (WDNR 2012b).

Fishing is an important recreational and commercial activity. Heavy recreational fishing pressure occurs along Sheboygan River tributary streams during the spring and fall migrations of the species listed above. In addition, Sheboygan harbor supports a strong boat fishery for trout and salmon, utilized by many licensed charter captains and private vessels. Commercial fishermen target species such as chubs and whitefish (WDNR 2001). Although WDNR creel surveys document thousands of angler hours spent fishing in this area (B. Eggold, Personal communication), consumption advisories exist for all resident species between Sheboygan Falls and the mouth of the Sheboygan River, as well as additional consumption advisories for certain species from Lake Michigan and the Sheboygan River downstream of the first dam, in response to concerns about PCB contamination of the fish (WDNR 1979-2012). These advisories diminish the public's use and enjoyment of this natural resource.

3.2.3 WILDLIFE

The fish and other aquatic life dependent upon these rivers and their floodwaters in turn support a variety of mammalian and avian species, such as bald eagles, herons, mallards, otter (e.g., North American river otter), and mink. Species of birds such as herons, kingfishers, and sandpipers can be found within the riparian zone of the Sheboygan River, as well as mammalian species such as shrews, voles, and muskrats. The Sheboygan River Watershed is a high priority area for migratory birds due to its location along the Lake Michigan shoreline. Urban development and expansion of agricultural lands have resulted in highly fragmented forests, with edge habitats and open areas most common. This allows invasive species to displace the native plants on which birds depend for food and cover and reduces the high quality habitat available for migratory birds. Local breeding bird communities largely reflect these landscape changes with common woodlot and urban birds being most prevalent. There are, however, some remaining shrub



and surrogate grassland habitats found within the fragmented landscapes along the Sheboygan River, which support several important grassland obligate bird species including eastern meadowlark, bobolink, and dickcissel, along with more common species such as clay-colored sparrow and savannah sparrow (WDNR 2012a).

3.2.4 THREATENED AND ENDANGERED SPECIES

Certain wildlife species have been adversely impacted by environmental stressors (e.g., habitat degradation) to an extent that their long-term viability is uncertain. Many of these species are afforded special protection under federal and/or state legislation for threatened and endangered species. Rare species, species of concern, and high-quality examples of natural communities have been documented within the larger assessment area that encompasses Sheboygan County, notably two species that are listed as federally threatened: the northern long-eared bat (*Myotis septentrionalis*) and the Pitcher's thistle (*Cirsium pitcheri*). The northern long-eared bat was federally listed as threatened in 2015. In the winter, northern long-eared bats require hibernacula, such as caves, and during the summer, these bats require forested areas that provide trees that serve as roosts. The Pitcher's thistle is a native thistle that grows on the beaches and grassland dunes along the shorelines of Lake Michigan, Lake Superior, and Lake Huron. It is most often found in nearshore plant communities, but it can grow in all non-forested areas of a dune system. The thistle was federally listed as threatened in 1988 due to dune habitat destruction from shoreline development, road maintenance and construction, and shoreline recreational activities. This plant can be found along the shoreline in Sheboygan County. Future restoration projects within the restoration area could potentially benefit these species.

3.3 SOCIOECONOMIC RESOURCES

The majority of the Sheboygan River Watershed is within Sheboygan County. This area is highly urbanized, with the City of Sheboygan alone supporting an estimated population of 48,787 in 2015 (www.census.gov). Interstate 43 crosses the Sheboygan River, connecting the area to Milwaukee about 50 miles to the south and Green Bay approximately 64 miles to the north (WDNR 2012a).

In terms of land use, fertile farmland comprises approximately 57 percent of Sheboygan County, supporting almost a thousand farms (USDA 2012). Other land uses in the county include natural areas (33%), residential (3.6%), and transportation (2.4%). In statistics published by the Sheboygan County Planning and Conservation Department, farmland decreased from 207,128 acres to 190,155 acres in the twenty year period from 1992 to 2012 (Sheboygan County PCD 2015). The recent USDA Census of Agriculture reports a seven percent drop in the number of farms in Sheboygan County from 2007 to 2012, but only a one percent decline in the land designated as farmland, indicating that the average size of farms has increased over time (USDA 2012).

The four main employment industries in Sheboygan County are manufacturing (including some agricultural-related jobs such as dairy processing), health care and social assistance, retail trade, and accommodation and food services. The distribution of employment across these sections has been relatively consistent since at least 2002, except for a slight shift in some jobs from manufacturing to wholesale trade between 2002 and 2012 (USDA 2015).

3.4 CULTURAL AND HISTORIC RESOURCES

The excerpt below is from "The State of the Sheboygan River Basin" report published in 2001 by WDNR:

"The Sheboygan River Basin has experienced a long and rich natural resource history. Prior to the major influx of settlers from the eastern United States and Europe which began in the basin

during the early and middle 18th century, the local native populations were clustered on the bank or shore of practically every major stream and lake. The largest native villages were found along the shores of Lake Michigan (including what is now Kohler-Andrae State Park) and the extensive bluffs overlooking the Sheboygan Marsh (now the Sheboygan Marsh County Park and the State Wildlife Area). Fishing was the chief resource along the lake shore and hunting was the attraction for the native people in the marsh region. Besides hunting and fishing, these and the other native settlements also used the basin resources for limited agriculture. On September 26, 1833, the native people ceded all their lands on the west shore of Lake Michigan to the United States. The birth of Sheboygan County followed on December 7, 1836 when the county area, as it is today, was detached from Brown County. Following land surveys of the mid-1830s, land sales were made by the federal Government in tracts of not less than 80 acres at a minimum bid price of \$1.25 per acre.

The natural resources of the basin area continued to be used by the early settlers in much the same way as by the native people. However, with the advent of road construction (many of which followed well-marked Native American trails such as current highways 23 and 28), the various hardwood and pine forests were cleared for timber use and the land was used for expanding agricultural purposes. In addition to the extensive timber harvest, wheat was the major agricultural crop until the 1880s. Depletion of the soil by this one-crop system and the ravages caused by the chinch-bug pest were generally responsible for the shift in land use to dairy farming, for which the basin remains famous today. The local rivers and streams were integral to the development of early manufacturing in the basin. They provided natural power to numerous saw-mills and flour-mills to process raw timber and wheat into the products exported by the growing number of local manufacturers. This led to a rapidly expanding economy and growth in the area particularly in the City of Sheboygan, then a major port on the western shore of Lake Michigan.

[Currently there are three dams along the Sheboygan River within the assessment area, all known or believed to be former mill dams. Dassow Milling Company built a dam on the river in Sheboygan Falls in 1950. The other two dams cross the river as it flows through Kohler– the upper one built in 1931, the lower one in 1947 (A. Knutson, Personal communication).]

This rich natural resource history (from the early settlement of the basin through today) has provided not only an understanding of how important natural resource management is, but how integral the current state of the basin is to our daily lives and to those of future generations.” (WDNR 2001)

More recent archival reviews and archaeological surveys conducted at properties within the Sheboygan River Basin provide additional information on past land use. For example, in 2010, the City of Sheboygan considered options for developing the former Schuchardt farm (a 180-acre annexation located at T15N, R23E, Sections 21 and 28, Town of Sheboygan). A literature search and archival review identified twelve archaeological and historical sites within or directly adjacent to the property, including uncatalogued burial sites, campsites, a trading post, bridge, and residence, indicating that the area has a rich cultural history (Fay 2010). The City subsequently funded an archaeological survey of two of the uncatalogued burial sites in 2011 (Fay 2011). Survey results demonstrated a lack of prehistoric material and no evidence of any human remains or burial features, instead identifying historic items of more recent

origin and an extensive fill area covering the agricultural fields. Fay (2011) concluded that past farming practices and recent topsoil removal and fill activity to bring the fields up to road level have greatly altered the natural landscape.

In May 2015, University of Wisconsin-Milwaukee staff conducted Phase I archaeological investigations for Sheboygan County's proposed Amsterdam Dunes Wetland Mitigation project located in southeastern Sheboygan County (Schneider et al. 2016). The archaeological investigations included archival/literature review, field investigations, and laboratory analysis. Archival/literature review identified two previously recorded archaeological sites associated with the project area. While no cultural materials were identified within the project boundaries, remnants of a historic/modern farmstead consisting of a foundation and water pump were encountered outside of, but in close proximity to, the eastern boundary of the project area. The historical significance of these finds is not certain, but historical plat maps show that the Village of Amsterdam was demarcated in 1852 and vacated in the early 1900s (Schneider et al. 2016, Dykstra and Premo 1997). Even after the village's decline, commercial fishing continued along Amsterdam's shores well into the twentieth century. For example, the Amsterdam Fish Company operated until the late 1940s (Dykstra and Premo 1997).

Field investigations of the proposed mitigation bank site also identified three lithic scatter and campsite/village sites dating to the Middle to Late Woodland period (2,300 to 1,000 years before present). They may provide important information about the prehistory of the region and may be eligible for listing in the National Register of Historic Places.

3.5 LANDSCAPE-SCALE ECOLOGICAL STRESSORS

Widespread, complex ecological stressors are causing changes to the ecological landscape of the Great Lakes. Some of these stressors, such as fluctuating water levels, invasive species, and non-point source pollution, have become both more prevalent and better understood over the last decade. This section describes Great Lakes water levels, water quality, invasive species, and habitat resilience as each relates to the ecological function of the Sheboygan River Watershed and the Sheboygan Harbor of Lake Michigan.

3.5.1 GREAT LAKES WATER LEVELS

Water levels in the Great Lakes and connected waterbodies are influenced by several factors, including regional precipitation, temperature, and lake-wide evaporation. Oscillations occur on decadal cycles, and mean monthly fluctuations of more than six feet have been measured (Harris and Wenger 2010). Between the 1960s and 1990s, the Great Lakes experienced higher than average water levels. Levels severely declined beginning in 1997, and January 2013 saw the lowest average monthly water levels in Lakes Michigan and Huron ever recorded (Cruce and Yurkovich 2011, Wisconsin Sea Grant 2013, Gronewold and Stow 2014). However, since September 2014, monthly water levels have been above average in all of the Great Lakes (NOAA 2015a). Looking forward, long-term atmospheric and hydrologic models predict that net decreases in Great Lakes water levels will occur, along with increases in extreme weather events such as flooding or drought (Hayhoe et al. 2010, Glick et al. 2011). Broad-scale and/or extreme water level fluctuations will likely affect both biological resources that utilize area habitat, as well as human uses of water resources such as navigation, agriculture, and public enjoyment (Winkler 2014). Long-term

changes in Great Lakes water levels will be important to consider when enhancing aquatic and wetland habitat.

3.5.2 WATER QUALITY

Clean water is essential to the proper function of all biological resources, including those that utilize aquatic, riparian, and terrestrial habitats. Water quality is mostly affected by the way people use the land. For example, conversion of open space to residential and commercial developments can increase the number and magnitude of pollution sources to surface water and groundwater. Runoff in Sheboygan has been a problem for decades. Barnyards and livestock feeding and pasture areas carry substantial loads of nutrients, solids, and bacteria to surface waters. Excess nutrients, like phosphorus and nitrogen in surface waters, can cause nuisance growths of aquatic weeds and algae and can be detrimental to sensitive fish and other aquatic species. Soil erosion from adjacent farm fields, streambanks and construction sites add to the sediment load in streams, resulting in excess sediment that blankets streambeds, fills in pools and riffles, and degrades reproductive habitat for fish species and associated fauna (WDNR 2015b, 2001; Sheboygan County PCD 2015). When the Sheboygan County's Soil Erosion Control Plan was published in 1988, approximately 61,000 acres of the county's cropland was in exceedance of the established T-value (tolerable amount of soil loss) from erosion. Since that time, several programs have been successful in getting landowners to participate in conservation planning to reduce soil loss, resulting in a significant drop of nutrients since the 1970's and thus improvements to water quality. Finally, habitat destruction and modifications (such as dams and the loss of vegetation along stream banks) have degraded water quality throughout the Sheboygan River Watershed (WDNR 2015b, 2001; Sheboygan County PCD 2015).

Looking forward, without intervention water quality will continue to be an issue. Therefore, the Trustees will encourage restoration techniques that have broad-scale benefits to water quality and runoff retention, such as creating riparian buffers and conserving land.

3.5.3 INVASIVE SPECIES

Aquatic invasive species have been a substantial contributor to dramatic alterations in Lake Michigan and its aquatic communities. Non-native species such as common carp, sea lamprey, round goby, rainbow smelt, alewife, common reed grass, zebra mussels, and quagga mussels have negatively impacted native species through direct predation, competition, and/or habitat alteration. Zebra and quagga mussels are currently found downriver in the Sheboygan Harbor (WDNR 2012b).

Invasive species also pose negative impacts to the local economy by threatening agriculture, forestry, navigation, tourism, recreation, and the fishing industry.

Several non-native invasive plants are well-established in the Sheboygan River Watershed. Riparian and wetland areas are the most vulnerable to the impacts of invasive species. Populations of Japanese knotweed, common reed grass, garlic mustard, and common and glossy buckthorn have been identified in the near-shore riparian area and floodplain along the Sheboygan River. Changing ecological conditions, such as declining lake levels and increasing air temperature, may increase the vulnerability of natural systems and favor the continued spread and proliferation of invasive species (NOAA 2010). Due to the increasing rate of invasions and associated negative impacts, a council developed the first statewide strategic plan on invasive species for Wisconsin (published in 2013). Because the majority of invasive species in the Great Lakes region are introduced through human activities, the plan recognizes that the continued spread of invasive species is preventable through partnerships, investment, and action (WDNR

2013a). The Trustees will review restoration options for invasive species management and benefit to native species.

3.5.4 HABITAT RESILIENCE

Although predicting future environmental conditions is an inherently complex task, the Trustees will consider habitat resilience when developing future restoration projects. In this context, resilience is the capacity of an ecosystem to respond to a disturbance or deviation from typical conditions by resisting damage and recovering quickly. For example, each habitat type (e.g., wetland, riverine, floodplain, grassland) best succeeds under a specific set of environmental parameters. These include, but are not limited to, precipitation, air temperature, and flooding regime. The organisms that rely on these habitats also have preferred conditions, with some species, such as those that are threatened or endangered, able to succeed only under a narrow range of environmental characteristics. To increase the resiliency of the NRDA restoration program, the Trustees will consider factors such as location, project scope, the characteristics of adjacent areas, proximity to surface water, and affected habitats and species within the Great Lakes watershed.

3.6 SUMMARY

The Sheboygan River Basin encompasses a suite of habitat types that together support a wide range of plant, fish, and wildlife species. Current land use and socioeconomic conditions, combined with recent trends in development and environmental degradation have adversely affected these natural resources. In addition to ecological functions, these natural resources also provide recreational, commercial, and cultural services. The Trustees will take these current resource conditions into account when evaluating and planning future restoration.

CHAPTER 4 | NATURAL RESOURCE INJURIES AND SERVICE LOSSES

As part of the NRDAR process, the Sheboygan River Trustees evaluated available information to inform whether injury to natural resources had occurred as a result of exposure to hazardous substances released into the Sheboygan River. This Chapter describes the geographic scope within which the Trustees assessed injuries, the contaminants of concern (COCs) upon which this NRDAR is focused, the pathways of those COCs through the environment, the natural resources that have been injured or have the potential to be injured, and the associated losses in ecological and recreational services.

4.1 ASSESSMENT AREA

A key component in the determination of natural resource injuries is the assessment area. That is, “the area or areas within which natural resources have been affected directly or indirectly by the discharge of oil or release of a hazardous substance and that serves as the geographic basis for the injury assessment” (43 CFR 11.14 (c)). The geographic scope of the Sheboygan River assessment area includes aquatic habitat within the River and the adjacent 100-year floodplain (as defined by the federal Emergency Management Agency) from Sheboygan Falls Dam to the mouth of the River (Exhibits 4-1 and 4-2). To account for differences in the level of contamination in different stretches of the river, location of PRP facilities, locations of dams, and completed and on-going remedial activities, the Trustees divided the assessment area into sections based in part on the EPA sections delineated as part of the remedial investigation:⁴

- *Upper River*: Sheboygan Falls Dam downstream four miles to the Waelderhaus Dam in Kohler.
- *Middle River*: Waelderhaus Dam downstream seven miles to the former Chicago & Northwestern railroad bridge.
- *Lower River*: Chicago & Northwestern railroad bridge downstream to the mouth of the River, including the Inner Harbor.

⁴ EPA defined River sections based on physical characteristics such as average depth, width and level of PCB sediment contamination.

EXHIBIT 4-1 MAP OF GEOGRAPHIC SCOPE AND AQUATIC AND FLOODPLAIN ASSESSMENT AREA

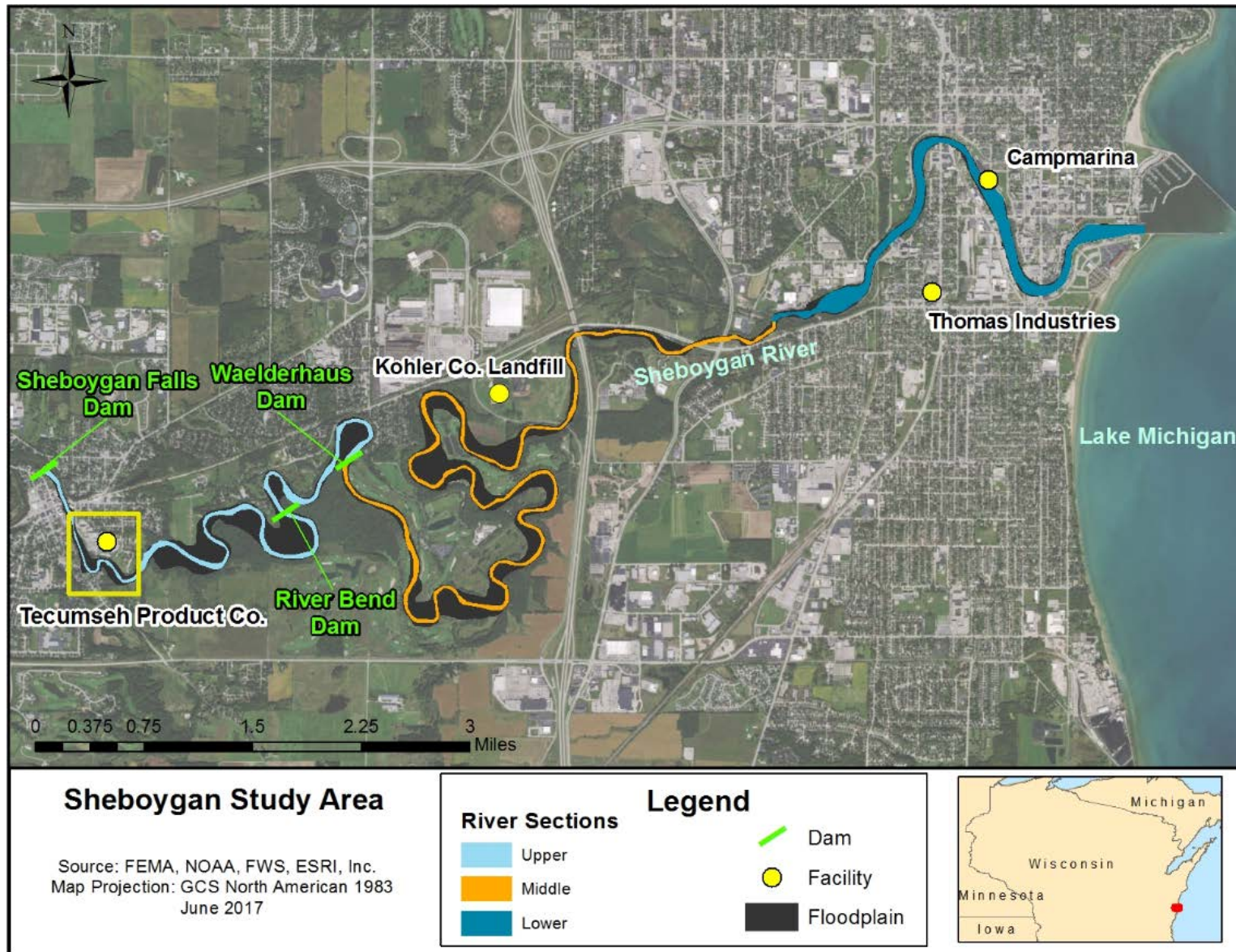


EXHIBIT 4-2 ACREAGE OF ASSESSMENT AREA SECTIONS

HABITAT	ASSESSMENT AREA	ACRES
Aquatic	Upper River	52
	Middle River	74
	Lower River	93
Floodplain	Upper River	111
	Middle River	170
	Lower River	18
Total		518
<i>Sources: NOAA (Undated), FWS (Undated), FEMA (2007), Esri Inc. (Undated).</i>		

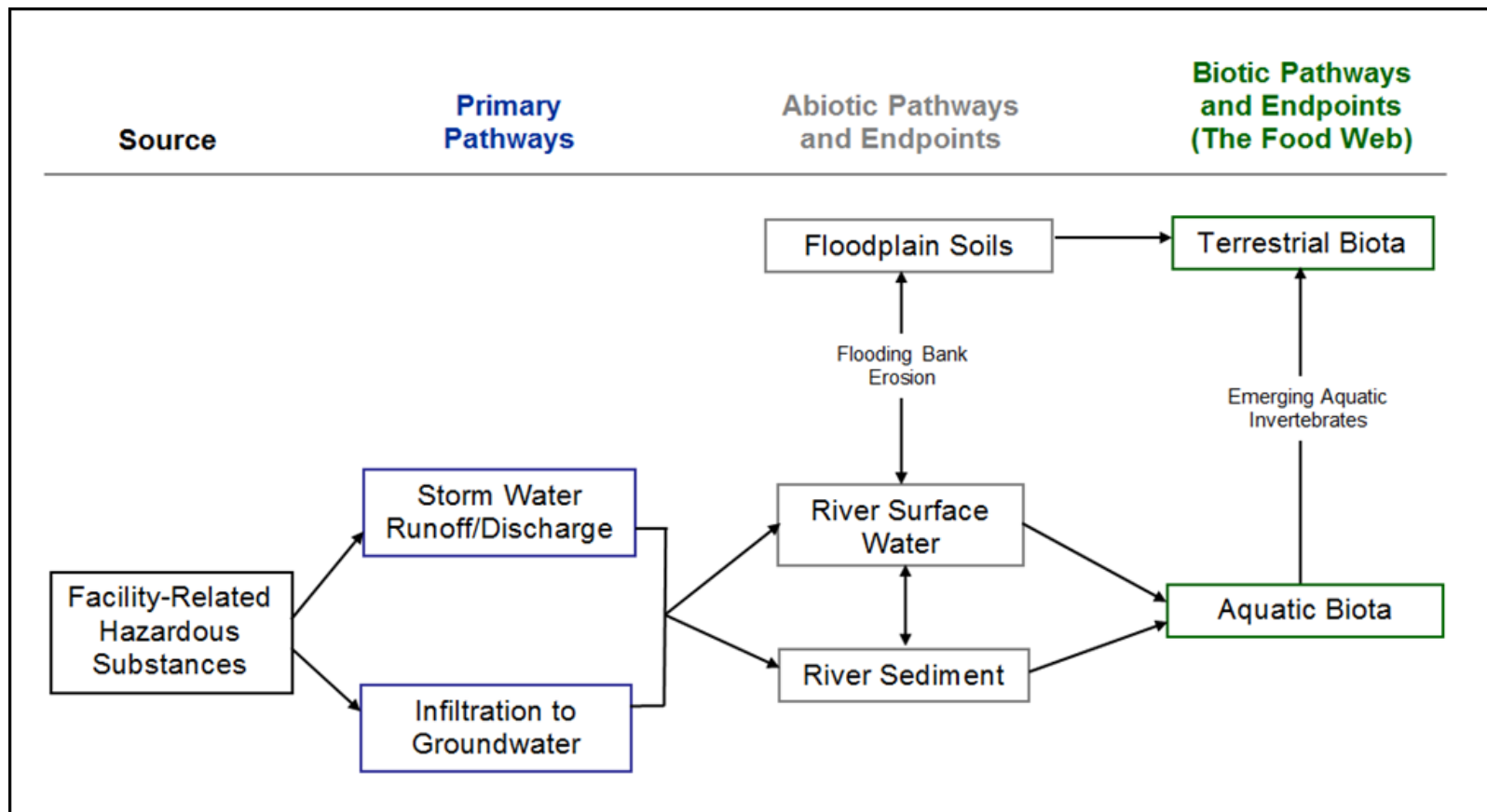
4.2 PATHWAY

Determination of injury requires documentation that there is a viable pathway for the released hazardous substance(s) from the point of release to a point at which natural resources are exposed to the released substance(s). Remedial documents describe hazardous substance releases from the PRPs. With regards to PCBs and PAHs, for example:

- The RI/ES for Tecumseh Products, Company reports releases of PCBs to the Sheboygan River (BBL 1990), and Section 2b of the Explanation of Significant Differences (ESD; EPA 2010) states that elevated PCB concentrations were found in a sewer pipe that runs from the Tecumseh facility to the Sheboygan River. This indicates a direct pathway of contaminants between the Tecumseh facility and the aquatic environment. In addition, Tecumseh used PCB-contaminated soils to construct a dike adjacent to the river, resulting in releases of PCBs to floodplain soils and groundwater and, via floods, to the Sheboygan River (EPA 2009).
- Two storm sewer outfalls from Thomas Industries to the Sheboygan River contained PCBs when sampled by WDNR in 1975 and 1976, indicating a direct pathway of contaminants from Thomas's facility to the aquatic environment (EPA 2000).
- Runoff from the Campmarina gas plant released tars, which typically contain substantial levels of PAHs, into nearby soil and groundwater (WDNR 1995).
- Kohler Company's landfill, located on the banks of the Sheboygan River, released metals and PCBs (EPA 2000).

Once released to the environment, the physical and chemical properties of PCBs and PAHs allow them to be taken up by biota, bioaccumulated, and, in the case of PCBs, biomagnified through the food web (Eisler 2000). Site-specific data document PCBs and PAHs in sediment and PCBs in biological resources (e.g., fish) within the assessment area. Fish and other contaminated prey items then act as a pathway for PCBs and PAHs to higher trophic level organisms (Exhibit 4-3).

EXHIBIT 4-3 PATHWAY FATE AND TRANSPORT EXAMPLES



4.3 BASELINE

In order to measure injuries, and therefore determine damages and restoration activities, the baseline conditions (i.e., physical, chemical, and biological conditions) of the affected resources and associated services must be established. Baseline is “the condition or conditions that would have existed at the assessment area had the...release of the hazardous substance...not occurred” (43 CFR § 11.14 (e)). For this draft RP/EA, the Trustees established baseline for the assessment area using data from a reference area: aquatic and floodplain habitat upstream of Sheboygan Falls Dam, focusing on the toxicological effects of contaminant exposure. Land use upstream of the site is primarily agricultural, and there are no known industrial sources of contaminants in that section of the river (EVS and NOAA 1998). A general review of data from the reference area indicates contaminant levels that are not expected to cause injury to natural resources. For example, PCB and PAH concentrations in reference area sediment (to which sediment-dwelling organisms are exposed) and PCB concentrations in reference area fish (species consistent with those species found in the assessment area)⁵ are below toxicity thresholds. Therefore, the Trustees concluded that but for the hazardous substance releases from the PRPs into the Sheboygan River and floodplain, natural resources in the assessment area would not be injured as a result of exposure to those contaminants.

4.4 ECOLOGICAL INJURIES AND LOSSES

One method for determining injury to natural resources, as defined in the DOI NRDAR regulations, is to demonstrate adverse changes in an organism’s viability (e.g., decreased reproduction) as a result of exposure to the relevant contaminant of concern.

The Trustees identified a set of natural resources within the assessment area on which to focus the assessment based on representativeness of the relevant ecosystem, and for which both exposure and effects information are readily available. Aquatic representative resources include sediment, fish, aquatic birds, and piscivorous mammals. Floodplain representative resources include soil invertebrates, small mammals, and songbirds (Exhibit 4-4).

To assess injury resulting from PCB exposure, the Trustees gathered readily available, site-specific information about past, present, and predicted future PCB concentrations for each representative resource within the assessment area. Because the number of years for which PCB data are available is limited, data were combined within each River section and habitat across years, considering the timing of remedial activities (Exhibit 4-5). Data from the 1980s are minimal; therefore, it is possible that these data combinations underestimate contaminant levels and corresponding injury for some resources, as concentrations were likely higher in the past. The Trustees then compared PCB concentrations in sediment, fish, soil, and the diet of birds and mammals to literature-based toxicological thresholds. These thresholds indicate levels at or above which a toxic effect – focusing on physiological, reproductive, and lethal effects – due to PCBs is expected to occur. The Trustees also reviewed site-specific effects studies, which provide additional evidence of injury. For amphibians and reptiles, the potential for injury is described, as exposure and effects information for these resources is limited.

To assess injury resulting from PAH exposure, the Trustees focused on sediment-dwelling invertebrates, which form the base of the riverine food chain. Benthic invertebrates spend the majority of their life cycle

⁵ PAH concentrations in reference area fish tissue are not available.

burrowed or feeding either in the sediment or at the sediment-surface water interface. Consequently, benthic invertebrates come into direct contact with contaminants in sediment, sediment pore water, and surface water. The Trustees evaluated site-specific toxicity data, compared measured concentrations of PAHs in sediment to literature-based adverse effects thresholds, and assessed the impacts of remedial actions.

EXHIBIT 4-4 SUMMARY OF REPRESENTATIVE RESOURCES

HABITAT	REPRESENTATIVE RESOURCE	EXAMPLE SPECIES
Aquatic	Sediment invertebrates	Midges, caddisflies
	Fish	Largemouth bass, smallmouth bass, channel catfish
	Aquatic birds	Tree swallow, mallard, tern, osprey
	Piscivorous mammals	Mink, otter
	Amphibians and reptiles	Wood frog, green frog, snapping turtle
Floodplain	Soil invertebrates	Earthworm
	Small mammals	Shrew, mole
	Songbirds	Finch, martin, bunting

EXHIBIT 4-5 ANALYSIS OF PCB DATA OVER TIME

HABITAT	ASSESSMENT AREA	YEARS ACROSS WHICH DATA WERE COMBINED	RATIONALE
Aquatic	Upper River	1981-1991	Pre-remedy and during first remedy (remedy occurred 1989-1991)
		1992-2007	Post-first remedy and during second remedy (remedy occurred 2006-2007)
		2008-2012	Post-second remedy
	Middle River	1981-2012	No remedial activities occurred
	Lower River	1981-2010	No remedial activities occurred (remedy occurred in 2011-2012 but data for those years are not available at this time)
Floodplain	Upper River	1981-2012	Pre-remedy and during remedy (remedy occurred in 2011-2012)
	Middle River	1981-2012	No remedial activities occurred
	Lower River	1981-2012	No remedial activities occurred

4.4.1 INJURY TO AQUATIC RESOURCES

Sediment

Injury to sediment is defined as a component of injury to surface water resources, and has occurred when:

Concentrations and duration of substances [are] sufficient to have caused injury...to ground water, air, geologic, or biological resources, when exposed to surface water, suspended sediments, or bed, bank, or shoreline sediments (43 CFR § 11.62(b)(1)(v)).

Because regulatory sediment quality criteria for PCBs and PAHs in Wisconsin do not exist, the Trustees compared PCB and PAH concentrations in sediment to literature-based adverse effects levels. The Trustees calculated the average PCB concentration in each River section and time period, aggregating data as presented in Exhibit 4-5. Average sediment concentrations range from 2.74 to 91.43 ppm, exceeding the consensus-based probable effect concentration (PEC; i.e., the concentration above which adverse effects on benthic organisms are probable; MacDonald et al. 2000) of 0.676 ppm (Exhibit 4-6). Similarly, average concentrations of PAHs in sediment ranged from 0.26 to 100 ppm, exceeding the PEC of 22.8 ppm. These exceedances indicate probable injury to sediment.

Biological Resources

Biological resources provide a suite of ecological services (e.g., food web sustainability). Injury to a biological resource has resulted from the release of a hazardous substance if the concentration of the substance is sufficient to:

(i) Cause the biological resource or its offspring to have undergone at least one of the following adverse changes in viability: death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations (43 CFR § 11.62 (f)(1)).

Note that injury can also be determined by the existence of a consumption advisory. This is discussed in Section 4.5.

The Trustees determined injury to benthic invertebrates, fish, piscivorous birds, and piscivorous mammals. To do so, the Trustees applied various approaches, including: 1) results of site-specific toxicity tests, and 2) comparison of body burden (i.e., tissue) or diet PCB levels to adverse effects thresholds reported in the literature. In this case, adverse effects thresholds are the concentrations of PCBs determined through scientific study and reported in the scientific literature to be associated with negative effects on an organism. Additional information indicates that potential injury to amphibians and reptiles has also occurred.

Benthic Invertebrates

The Trustees reviewed the results of site-specific toxicity tests conducted as part of the 2008 Campmarina remedial investigation (NRT 2009). These tests exposed benthic invertebrates to assessment area sediment near the Campmarina site, and found significant invertebrate mortality resulting from the toxicity of PAHs and benzene-toluene-ethylbenzene-xylene compounds (BTEX; a lighter class of oil-related compounds; Exhibit 4-6). This indicates injury to benthic invertebrates.

EXHIBIT 4-6 BENTHIC INVERTEBRATE SITE-SPECIFIC TOXICITY TEST RESULTS BASED ON PAH CONCENTRATIONS (NRT 2009)

CONCENTRATION (SUM OF 13 PAHS IN PPM)	PERCENT MORTALITY OBSERVED IN TOXICITY TEST
30	10%
45	20%
129	45%
400	60%
1000	85%
2000	95%

Fish

The Trustees compiled readily available site-specific total PCB concentration data using the following steps:

- Excluded salmonids: salmonids spend most of their adult lives in Lake Michigan, only entering the Sheboygan River to head upstream to spawn. Lake Michigan is also contaminated with PCBs and data are insufficient to determine what proportion of PCBs salmonids accumulate in the Lake as compared to the Sheboygan River.
- For studies with limited sample location information where a multi-fish sample could have been taken from the Middle or Lower River, assigned half the sample count to the Middle River and half to the Lower River.
- For samples reported as fillet tissue concentrations, multiplied by a factor of three to convert to whole body concentrations (Exponent 2006).
- Calculated average PCB concentrations in each River section and time period, aggregating data as described in Exhibit 4-5.

Average PCB concentrations in fish range from 16.39 to 41.72 ppm whole body wet weight (ww). These concentrations exceed concentrations reported in the literature to cause adverse effects on relevant fish species. For example, walleye exhibited immunological impacts at a body burden of 4.6 ppm PCBs (Barron et al. 2000), minnow eggs containing 5.1 ppm PCBs had reduced hatchability (Hansen et al. 1974), and Monosson (1993) reported adverse impacts on the fish larvae survival at 5.0 ppm PCBs. This indicates that injury to fish has occurred (Exhibit 4-7).



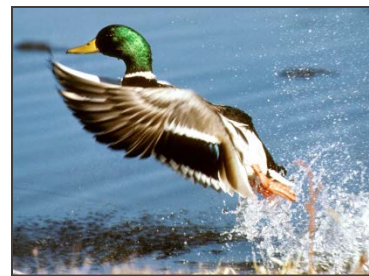
Largemouth bass, walleye, and northern pike (WDNR 2016)

Aquatic Birds

Site-specific studies document exposure of aquatic birds to PCBs in the assessment area. Heinz et al. (1984) reported PCB body burden in herons, kingfishers, and sandpipers ranging from 23-218 ppm. From 1986-1989, WDNR measured PCBs in breast tissue of <0.2-18 ppm in mallards and <0.2-25 ppm in lesser scaup (WDNR Unpublished Data). A more recent study by WDNR (2013b) found elevated PCB breast tissue concentrations in mallards and scaup of approximately 4 ppm. In addition, Patnode (Personal communication as cited in EVS and NOAA 1998) reported impaired hatching and induction of liver enzymes in 12 day old tree swallows nestlings as a result of PCB exposure. In 2010-2013, Custer and Custer (Undated) also found PCB concentrations in tree swallows similar to those reported by Patnode (i.e., 3-10 ppm) (Powerpoint as cited in EVS and NOAA 1998).

Because minimal data on the adverse effects of PCBs in avian body tissue are available, the Trustees evaluated injury based on consumption of contaminated prey using the following steps:

- Identified bird species that represent different foraging guilds: tree swallow, mallard, tern, and osprey.
- Estimated the dietary composition of each species (adapted from Poole 2013):
 - *Tree swallow*: 100 percent insects.
 - *Mallard*: 50 percent insects, 50 percent plants.
 - *Tern*: 100 percent fish less than or equal to 10 cm in length.
 - *Osprey*: 100 percent fish greater than or equal to 10 cm in length.
- Derived species-specific dietary PCB concentrations in each River section using measured fish data and modeled insect and plant data (sediment data combined with corresponding bioaccumulation factors).



Dietary concentrations for the four bird species range from 2.11 to 126.29 ppm PCBs and exceed adverse effects thresholds. For example, at approximately 10 ppm PCBs in diet mallards experienced immunological changes (Friend and Trainer 1970), and a reduction in number of nesting pairs, nest attentiveness, hatching, and young fledged was reported in ring doves (Tori and Peterle 1983, Peakall and Peakall 1973, Peakall et al. 1972). This indicates injury to aquatic birds has occurred (Exhibit 4-7).

Piscivorous Mammals

Site-specific studies document exposure of piscivorous mammals to PCBs in the assessment area. For example, a recent study by WDNR (2013c) reports low abundance of mink along the Sheboygan River downstream of the Sheboygan Falls Dam. Those mink that were captured had elevated PCB concentrations. Seeley (1993), however, was unable to find mink within the same area, despite the existence of appropriate habitat, and concluded that PCBs may be the cause for lack of abundance.

Because data on contaminant concentrations in piscivorous mammal tissue are minimal, we evaluated injury based on consumption of contaminated prey. Assuming a diet of 100 percent fish of all sizes

(reasonable for species such as mink and otter; EPA 1993), the fish PCB concentrations described above (ranging from 16.39 to 41.72 ppm) exceed dietary adverse effects levels for piscivorous mammals. For example, at 0.5 ppm PCBs in diet, mink experienced reduced kit body weight and increased mortality (Restum et al. 1998), and at dietary concentrations between 0.65 ppm and 0.72 ppm mink kit production and survival was reduced (Heaton et al. 1995, Platonow and Karstad 1973). This indicates that injury to piscivorous mammals has occurred (Exhibit 4-7).

EXHIBIT 4-7 AVERAGE PCB CONCENTRATIONS IN AQUATIC RESOURCES AND CORRESPONDING ADVERSE EFFECTS THRESHOLDS (PPM)

RIVER SECTION	YEAR	SEDIMENT	FISH (WHOLE BODY)	TREE SWALLOW (DIET)	MALLARD (DIET)	OSPREY (DIET)	TERNs (DIET)	PISCIVOROUS MAMMALS (DIET)
ADVERSE EFFECTS THRESHOLD		0.676 PPM ¹	5.0 PPM ²	10.0 PPM ³				0.5 PPM ⁴
Upper	1981-1988	88.9	41.7	126.3	68.5	41.7	31.2	41.7
	1989-1991	91.4		129.7	70.3			
	1992-2007	32.8	16.4	46.5	25.2	19.9	14.8	16.4
	2008-2012	--	23.4	--	--	23.8	7.7	23.4
Middle	1981-2012	2.7	20.7	3.9	2.1	21.5	14.5	20.7
Lower	1981-2012	3.4	22.4	4.8	2.6	24.3	15.4	22.4
Note: -- Indicates no measured data available. Sources: 1. MacDonald et al. (2000), 2. Monosson (1999), 3. Peakall et al. (1973), 4. Restum et al. (1998).								

Amphibians and Reptiles

Site-specific studies document exposure to and effects of PCBs on assessment area amphibians and reptiles. For example, Patnode (Personal communication as cited in EVS and NOAA 1998) found reduced snapping turtle hatching success and reduced hatchling righting response below Sheboygan Falls versus upstream reference locations. The same study also reported higher mudpuppy mortality below Sheboygan Falls than at upstream river reference locations in controlled experiments. Although these data are limited, they indicate that it is likely that injury to amphibians and reptiles in the assessment area has occurred.

4.4.2 INJURY TO FLOODPLAIN RESOURCES

Soil

Injury to soil is defined as a component of injury to geological resources, and has occurred when concentrations of a substance are sufficient to cause:

A toxic response to soil invertebrates (43 CFR § 11.62 (e)(9));

Injury...to surface water, ground water, air, or biological resources when exposed to the substances (43 CFR § 11.62 (e)(11)).

The Trustees compared contaminant concentrations in floodplain soil to literature-based thresholds for adverse effects on earthworms. Soil concentrations were calculated as the average PCB concentrations in each River section, aggregating data across all years. For studies with limited sample location information where a sample could have been taken from the Middle or Lower River, the Trustees assigned half the sample count to the Middle River and half to the Lower River. Average soil concentrations range from 3.46 to 25.69 ppm, exceeding adverse effects thresholds. For example, at soil concentrations of 6.3 ppm PCBs, exposed earthworms experienced severe, chronic immunological effects (Goven et al. 1993). This indicates that injury to soil invertebrates has occurred (Exhibit 4-8).

Biological Resources

Applying the same definition of injury as described for aquatic biological resources, the Trustees determined injury to songbirds and small mammals.

Songbirds

Because data on contaminant concentrations in songbird tissue are not available, the Trustees evaluated injury based on consumption of contaminated prey. Assuming a diet of 100 percent earthworms (adapted from Poole 2013), we estimated earthworm PCB concentrations by multiplying soil PCB levels (as calculated above) with an accumulation factor of 1.58 (Hudson River Natural Resource Trustees 2010). Resulting earthworm PCB concentrations range from 5.47 to 40.6 ppm, exceeding adverse effects thresholds. For example, at approximately 10 ppm PCBs in diet, immunological changes and a reduction in number of nesting pairs, nest attentiveness, hatching, and young fledged was reported in ring doves (Tori and Peterle 1983, Peakall and Peakall 1973, Peakall et al. 1972, Friend and Trainer 1970). This indicates that injury to songbirds has occurred (Exhibit 4-8).

Small Mammals

Site-specific studies document exposure of small mammals to PCBs in the assessment area. For example, WDNR (2013b) reported average PCB concentrations in small mammals ranging from 0.027 ppm (jumping mouse) to 2.91 ppm (short-tailed shrew).

Because minimal data on contaminant concentrations in small mammal tissue are available, we evaluated injury based on modeled body burdens. We multiplied soil PCB levels (as calculated above) with a biota-soil accumulation factor of 1.22 (Hudson River Natural Resource Trustees 2010). Resulting small mammal concentrations range from 4.22 to 31.35 ppm, exceeding adverse effects thresholds. For example, at concentrations greater than 0.05 ppm PCBs small mammals experienced adverse physiological effects such as reductions in bone density (Johnson et al. 2009). This indicates that injury to small mammals has occurred (Exhibit 4-8).

EXHIBIT 4-8 AVERAGE PCB CONCENTRATIONS IN FLOODPLAIN RESOURCES AND CORRESPONDING ADVERSE EFFECTS THRESHOLDS (PPM)

RIVER SECTION	YEAR	SOIL	SMALL MAMMALS (WHOLE BODY)	SONGBIRD (DIET)
ADVERSE EFFECTS THRESHOLD		6.3 PPM ¹	0.05 PPM ²	10.0 PPM ³
Upper	1981-2010	25.7	31.4	40.6
Middle	1981-2012	19.2	23.5	30.4
Lower	1981-2012	3.5	4.2	5.5
<i>Sources: 1. Goven et al. (1993), 2. Johnson et al. (2009), 3. Peakall et al. (1973).</i>				

4.5 HUMAN USE OF NATURAL RESOURCES AND SERVICES

In addition to ecological services, natural resources also provide a suite of human use services, including recreational fishing, boating, and waterfowl hunting. For the Sheboygan River NRDAR the Trustees are focusing on changes in recreational fishing and boating, as data are not sufficient to evaluate the potential decrease in waterfowl hunting as a result of waterfowl consumption advisories.⁶

4.5.1 RECREATIONAL FISHING

Fish consumption advisories (FCAs) associated with PCB contamination have been in place on the River since 1979 (WDNR 1979-2012). This constitutes an injury to a biological resource (i.e., fish) under the DOI NRDAR regulations (43 CFR § 11.62 (f)(1)(iii)). From 1979 to 1984, the Wisconsin Fishing Regulations, published by WDNR, contained a Wisconsin Division of Health “do not eat” advisory for fish from the River. From 1985 onwards, trout and salmon followed the Lake Michigan advisory, which has become more specific over time. For example, the 2012 advisory recommended:

- Eat no more than 1 meal/week: Rainbow Trout (0-22”), Smelt, Yellow Perch (0-11”).
- Eat no more than 1 meal/month: Brown Trout (0-28”), Chinook Salmon, Chubs, Coho Salmon, Lake Trout (0-25”), Lake Whitefish, Rainbow Trout (22+”), Yellow Perch (11+”).
- Eat no more than 1 meal every 2 months: Brown Trout (28+”), Lake Trout (25-29”).
- Do not eat: Lake trout (29+”).

Resident fish species have remained under a “do not eat” advisory (WDNR 1979-2012). Exhibit 4-9 provides a timeline of the advisories.

⁶ WDNR has a “do not eat” advisory on mallard ducks using the waters of the River and on lesser scaup using the waters of Sheboygan Harbor (WDNR, 2012). These advisories are injuries under the DOI NRDAR regulations (43 CFR Section 11.62 (f)(1)(iii)). Hunters are aware of the advisory and there has been a general decrease in hunting (D. Katsma, Personal communication). However sufficient data are not available to evaluate any related decrease in waterfowl hunting in the assessment area, and the cost of obtaining such data is likely to be greater than the potential losses incurred by hunters.

The Trustees determined that anglers likely experienced a reduction in the value those anglers hold for fishing on the lower 14 miles of the Sheboygan River. These losses are expected to occur in four categories of recreational fishing:

- 1) Diminished angler trips (i.e., trips still taken to the assessment area but of lower quality) and foregone (i.e., trips not taken at all) trips due to the presence of FCAs for trout and salmon;
- 2) Diminished and foregone angler trips due to the presence of FCAs for resident species (e.g., walleye, northern pike, and smallmouth bass);
- 3) Reduced angler effort due to the suspension of salmon stocking in the River from 1987 to 1993; and
- 4) Reduced angler effort due to remedial activities in 2011 and 2012.

4.5.2 RECREATIONAL BOATING

Remedial activities occurring between 2011 and 2012 have discouraged recreational boating in the River. For example, remedial activities closed the 8th Street boat ramp and discouraged boating elsewhere on the River as shown in Exhibit 4-10 (C. Pelishek, Personal communication). This impacted boaters' ability to participate in that activity, causing a loss.



EXHIBIT 4-9 TIMELINE OF FISH CONSUMPTION ADVISORIES ON THE RIVER

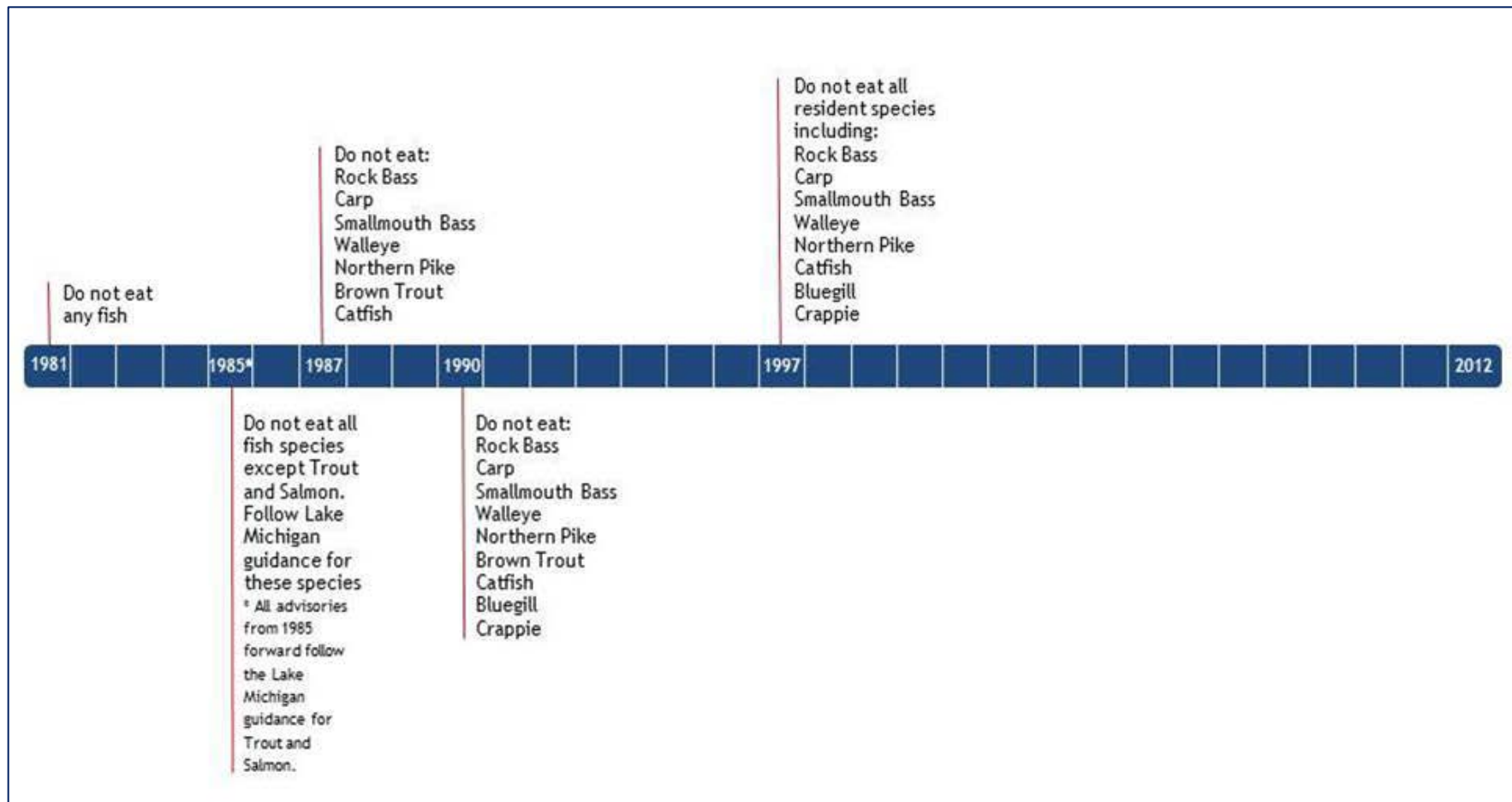


EXHIBIT 4-10 RECREATIONAL BOATING ADVISORY



Photo credit: Robert Paterson