

An Assessment of Injury to Human Uses of Fishery Resources in the Grand Calumet River and Indiana Harbor Canal, the Grand Calumet River Lagoons, and Indiana Harbor and the Nearshore Areas of Lake Michigan

Volume II - Appendices

Prepared for:

U.S. Fish and Wildlife Service
Bloomington Field Office
620 South Walker Street
Bloomington, Indiana 47403

Prepared – February 2003 – by:

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United States Geological Survey
4200 New Haven Road
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In Association with:

Industrial Economics, Incorporated
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Appendix 1

Curriculum Vitae of Authors

EDUCATION:

Bachelor of Science, Zoology
(Fisheries Biology; Environmental Physiology, Comparative Biochemistry)
University of British Columbia, 1982

SPECIALIZATION:

Principal of MacDonald Environmental Sciences Limited, which was established to provide scientific consulting services in the fields of fisheries and aquatic resource management, stream ecology, environmental quality guidelines and policy development, environmental risk and hazard assessment, and information and technology transfer.

Specialist environmental toxicology and chemistry, ecosystem-based resource management, water quality/water use interactions, and sediment quality assessment.

PROFESSIONAL MEMBERSHIPS:

American Fisheries Society

President Western Division; Past-President, Canadian Aquatic Resources Section; Nominations Committee; Chair, Wetlands Conservation Committee; Newsletter Committee; Membership Committee.

Aquaculture Association of Canada

Association of Professional Biologists of British Columbia

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EXPERIENCE:

AQUATIC BIOLOGIST - February 1989 to Present

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Independent consulting on fisheries and aquatic resource management, environmental quality, stream ecology, computer data management, and information and technology transfer. Recent projects have been focussed on the development of water quality guidelines, sediment quality guidelines, tissue residue guidelines, environmental quality monitoring programs, fisheries co-management programs, and the assessment of environmental quality.

WATER QUALITY OBJECTIVES OFFICER - September 1984 to February 1989

Water Quality Branch, Inland Waters, Environment Canada
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Compilation, management and statistical analysis of existing and new information generated to support the formulation of water quality objectives in waters of significant federal interest; generation of water quality criteria information through toxicological, water quality, and other studies; design and implementation of monitoring programs to assess compliance with water quality objectives; preparation of reports and other publications on information developed to formulate water quality objectives; organization of workshops and information exchange sessions on water quality guidelines and objectives; provision of information and advice to technical committees established to resolve the International Joint Commission reference on the Flathead River.

Supervisor: Dr. D. Valiela, Head Water Quality Objectives Division

TECHNICAL PLANNING COORDINATOR - November 1983 to September 1984

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Planning and development of regional water quality programs, including long- and short-term logistics and budgetary requirements and inter-project coordination; planning, organization, expedition, and supervision of special field studies and sampling projects for water quality analysis; pollution surveillance and sediment sampling; planning and implementation on national water quality monitoring programs to assess national trends and conditions.

Supervisor: Dr. W.E. Erlebach, Chief Water Quality Branch

PUBLICATIONS AND TECHNICAL REPORTS:*Journal/Book Publications*

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#24-4800 ISLAND HWY N ■ NANAIMO, BRITISH COLUMBIA V9T 1W6 ■ PHONE: 250-729-9623 ■ FAX: 250-729-9628 ■ E-MAIL: MESL@ISLAND.NET

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- MacDonald, D.D. 1991. Canadian water quality guidelines for MCPA. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 64 pp.
- MacDonald, D.D., L.E. Fidler, S.B. Miller, B.J. Moore, V.A. Wong, and S. Walker. 1991. Canadian water quality guidelines for polycyclic aromatic hydrocarbons. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 215 pp.
- MacDonald, D.D. 1990. A discussion paper on the development of ecosystem guidelines for the Slave River, Northwest Territories. Report prepared for Indian and Northern Affairs Canada. Yellowknife, Northwest Territories. 63 pp.
- MacDonald, D.D. 1990. Canadian water quality guidelines for bromoxynil. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 68 pp.
- MacDonald, D.D. 1990. Canadian water quality guidelines for dicamba. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 81 pp.
- MacDonald, D.D. 1990. Protocols for the derivation of water quality guidelines for the protection of agricultural water uses. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 36 pp.
- MacDonald, D.D. 1990. A discussion paper on the derivation and use of action levels for pesticides in groundwater: Technical appendix. Report prepared for Environment Canada. Ottawa, Canada. 54 pp.
- MacDonald, D.D. and J.E. Fairfield. 1990. A discussion paper on the derivation and use of action levels for pesticides in groundwater. Report prepared for Environment Canada. Ottawa, Canada. 45 pp.
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- MacDonald, D.D. and S.L. Smith. 1990. A strategic approach to monitoring ambient environmental quality conditions in the Slave River basin, NWT. Report prepared for Indian and Northern Affairs Canada. Yellowknife, NWT. 60 pp.
- MacDonald, D.D. and S.L. Smith. 1990. A strategic approach to the development and implementation of environmental quality guidelines and objectives in the territorial portion of the Slave River basin. Report prepared for Indian and Northern Affairs Canada. Yellowknife, NWT. 146 pp.
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- Kistriz, R.U. and D.D. MacDonald. 1990. Procedure for deriving water quality guidelines for nutrients, algae and aquatic vascular plants in Canadian stream ecosystems. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada.
- Sigma Engineering Limited. 1990. Keenleyside powerplant project: Assessment of water quality and use. Report prepared for BC Hydro and Power Authority. Vancouver, British Columbia. 119 pp + appendices.
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- MacDonald, D.D. 1989. An assessment of ambient water quality conditions in the Slave River basin, NWT. Report prepared for Indian and Northern Affairs Canada. Yellowknife, NWT. 94 pp.
- MacDonald, D.D. 1989. Proceedings of the Canada-British Columbia workshop on water quality guidelines and objectives: Focus on the Fraser. Water Quality Branch, Environment Canada. Vancouver, B.C. 151 pp.
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- MacDonald, D.D. 1989. Development, implementation and use of site-specific water quality objectives: A conceptual model. Proceedings of the CCREM Workshop on the Development and Use of Water Quality Objectives. Environment Canada. Ottawa, Canada.
- MacDonald, D.D. and R. Bocking. 1989. Rosette Creek: Assessment of potential impacts of bridge construction on sockeye salmon. Report prepared for the Carrier Sekani Tribal Council. MacDonald Environmental Sciences Ltd. and LGL Ltd. Vancouver, British Columbia. 28 pp.
- MacDonald, D.D., W.T. Willingham, L.P. Parrish, G.J. Rodreguez, J.M. Lazorchak, and J.W. Love. 1989. Using *in situ* bioassays as a basis for the development of water quality guidelines: A case study of the Arkansas River. Proceedings of the CCREM Workshop on the Development and Use of Water Quality Objectives. Environment Canada. Ottawa, Canada.
- Mah, F.T.S., D.D. MacDonald, S.W. Sheehan, T.N. Tuominen, and D. Valiela. 1989. Dioxins and furans in sediments and fish from the vicinity of ten inland pulp mills in British Columbia. Water Quality Branch. Environment Canada. Vancouver, B.C. 77 pp.
- MacDonald, D.D. and D. Valiela. 1988. Site-specific water quality guidelines for fish and aquatic life: Deposited sediments. Water Quality Branch, Environment Canada. 84 pp. + appendices.
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- Kistritz, R., D.D. MacDonald and D. Valiela. 1987. Provisional water quality objectives for selected variables in the Canadian portion of the Flathead River. Water Quality Branch, Environment Canada, Vancouver, B.C. 53 pp.
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- Water Quality and Quantity Committee. 1987. Water Quality and Quantity Committee Technical Report. Report to the Flathead River International Study Board (International Joint Commission). 192 pp.
- Water Quality Criteria Task Force. 1987. Ambient water quality criteria for selected variables in the Canadian portion of the Flathead River. Report to the Flathead River International Study Board (International Joint Commission). 76 pp.
- MacDonald, D.D. (ed.) 1985. Proceedings of the Flathead River Basin Bull Trout Biology and Population Dynamics Modelling Information Exchange. Fisheries Branch. Ministry of Environment. 104 pp.

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- MacDonald, D.D. and L.E. Fidler. 1985. Flathead River bull trout - Approaches to modelling dynamic populations. *In*: D.D. MacDonald (ed.). Proceedings of the Flathead River Basin Bull Trout Biology and Population Dynamics Modelling Information Exchange. Fisheries Branch, B.C. Ministry of Environment. 104 pp.
- MacDonald, D.D. 1983. Blackwater/Cottonwood juvenile salmonid studies, 1981-82. Internal Report. Enhancement Services Branch. Fisheries and Oceans Canada. 16 pp + appendices.
- MacDonald, D.D. and D.D. MacKinlay. 1983. Stuart pilot operations, 1982-83. Internal Report. Enhancement Services Branch. Fisheries and Oceans Canada. 61 pp + appendices.
- MacDonald, D.D. and B.G. Shepherd. 1983. Developmental timing of British Columbia salmon and steelhead trout. Enhancement Services Branch, Fisheries and Oceans Canada, Vancouver, B.C. 17 pp.
- MacDonald, D.D. and B.G. Shepherd. 1983. A review of the Kitimat River watershed. Enhancement Services Branch, Fisheries and Oceans Canada, Vancouver, B.C. 166 pp.
- MacDonald, D.D. 1982. A review of the effects of temperature on the developmental timing of East Coast Pacific anadromous salmonids. Internal Report. Enhancement Services Branch. Fisheries and Oceans Canada.
- MacDonald, D.D. 1981. On the existence of, and salmonid interaction with, naturally occurring supersaturation. Internal Report. Enhancement Services Branch. Fisheries and Oceans Canada. 11 pp + appendices.
- MacDonald, D.D. and B.G. Shepherd. 1980. Proceedings of the Aeration workshop. Enhancement Services Branch, Fisheries and Oceans Canada. 23 pp.
- Helm, R.K., D.D. MacDonald, B. Sinclair, G. Stuart, A. Chalmers and B.G. Shepherd. 1980. A review of the Quesnel River watershed. Enhancement Services Branch, Fisheries and Oceans Canada. 72 pp. + appendices.
- Helm, R.K., D.D. MacDonald, B. Sinclair, D. Chan, T. Hetherington, A. Chalmers and B.G. Shepherd. 1980. A review of the Nechako River watershed. Enhancement Services Branch, Fisheries and Oceans Canada. 90 pp. + appendices.

EDUCATION

- 1974-1975 Bemidji State University, Bemidji, MN
1975-1978 Miami University, Oxford, OH, B.S. Biology Education
1980-1982 Miami University, Oxford, OH, M.S. Zoology
1982-1986 University of Wyoming, Laramie, WY, Ph.D. Zoology and Physiology

PROFESSIONAL CAREER

- 1977 Undergraduate Teaching Assistant, Vertebrate Zoology, Miami University, Oxford, OH
1978-1980 High School Biology Teacher, Milford Village Schools, Milford, OH
1980-1982 Graduate Teaching Assistant (Limnology, Animal Diversity), Department of Zoology, Miami University, Oxford, OH
1981-1982 Research Assistant with Dr. Robert W. Winner, Department of Zoology, Miami University, Oxford, OH
1982-1983 Graduate Teaching Assistant (Limnology, Lake and Field Ecology, and Human Anatomy and Physiology), Department of Zoology and Physiology, University of Wyoming, Laramie, WY
1983-1986 Research Assistant with Dr. Harold L. Bergman, Department of Zoology and Physiology, University of Wyoming, Laramie, WY
1986-1987 Leader, Invertebrate Toxicology Section, National Fisheries Contaminant Research Center, US Fish and Wildlife Service, Columbia, MO
1987-1996 Leader, Fish and Invertebrate Toxicology Section, National Fisheries Contaminant Research Center/Midwest Science Center/Environmental and Contaminants Research Center/Columbia Environmental Research Center, US Fish and Wildlife Service/National Biological Survey/National Biological Service/US Geological Survey, Columbia, MO
1988- Research Associate, School of Forestry, Fisheries and Wildlife, University of Missouri, Columbia, MO
1996- Chief, Aquatic Toxicology Branch, US Geological Survey, Columbia, MO

PROFESSIONAL SOCIETY MEMBERSHIP AND COMMITTEE ACTIVITIES

Society of Environmental Toxicology and Chemistry (SETAC)

- Nominating Committee (1993)
- Technical Committee (Chair, 1992-1995)
- Short Course Committee (1992-1995)
- Meeting Committee (1992)
- Publications Advisory Council (1995 to present)
- Guest editor for issue 13:12 (1994) of *Environmental Toxicology and Chemistry*
- Coordinating Editor of SETAC Books (1995-2001)
- Editorial Board (1987-1990)
- Board of Directors (National: 1992-1995; 2001 to present)
- Board of Directors (Regional: 1987-1992)
- Liaison to ASTM (1992 to present)
- Membership Committee (Chair, 2001 to present)

American Society for Testing and Materials (ASTM)

- Chair of Committee E47 on Environmental Fate and Effects of Contaminants (1996-2001)
- Chair Subcommittee E47.03 on Sediment Toxicology (1988-1996)
- Subcommittee E47.03 on Sediment Toxicology (1988 to present; Task Groups E1367, E1383, E1391, E1525, E1706)
- Subcommittee E47.01 on Aquatic Toxicology (1988 to present)
- Committee on Standards (1999-2001)
- Subcommittee on the Form and Style Manual (1999-2001)
- Chair of Form and Style Subcommittee for the Committee on Standards (2000-2001)
- Chair Subcommittee E47.03 on Sediment Assessment and Toxicology (2002 to present)

Standards Engineering Society (2002-)

Archives of Environmental Contamination and Toxicology, Editorial Board (1997-)

Environmental Protection Agency Scientific Advisory Boards

- Environmental Effects and Fate Committee - Sediment Criteria Subcommittee member (1988-1996)
- ACQUIRE database review (1994)
- Ecological Risk Assessment colloquium (1994)
- Environmental Effects and Fate Committee - Ammonia Sulfate Subcommittee member (1995)
- National Sediment Inventory (1995 to present)
- Standard Methods Review (Series 835 and 850; 1997)

National Oceanic and Atmospheric Administration
Cargo Sweeping advisory panel (1994)

Standard Methods
Editorial Board (2000 to present)

JOURNAL REVIEWER

American Society for Testing and Materials Aquatic Toxicology
Archives of Environmental Contamination and Toxicology (Editorial Board)
Canadian Journal of Fisheries and Aquatic Science
Chemosphere
Environmental Toxicology and Chemistry (Editorial Board)
Journal of Great Lakes Research
Journal of the Water Pollution Control Federation

HONORS AND DISTINCTIONS

Eagle Scout (1971)
Magna Cum Laude, Miami University (1978)
Graduate Student Achievement Award, Miami University (1981)
Outstanding Graduate Student in Zoology (awarded by Department of Zoology, Miami University; 1982)
Outstanding Graduate Student (awarded by Phi Sigma, Miami University; 1982)
US Fish and Wildlife Service/National Biological Service Quality Performance Award (awarded for a level IV performance evaluation in 1987, 1989-1994);
US Fish and Wildlife Service Special Achievement Award (awarded for a level V performance evaluation in 1988)
Exceptional Service Award, ASTM Committee E47 on Biological Effects and Environmental Fate (1992)
Award for distinguished service on the USEPA GLNPO ARCS project (1993)
Special recognition from SETAC for service as Chair of the Technical Committee 1992-1994 (1994)
Nominated for EPA gold medal for development of standard methods for measuring the toxicity and bioaccumulation of sediment-associated contaminants with invertebrates (1994)
Paper by Canfield et al. 1996 in the *Journal of Great Lakes Research* selected as the first runner up for the Chandler-Misener Award for the outstanding paper in the journal in a given year (1997)
Society of Technical Communications competition award of "Excellence" for the book by Ingersoll CG, Dillon T, Biddinger RG, editors. 1997. Ecological risk assessment of contaminated sediment. Pensacola FL: SETAC Press (1998)
USGS on the spot award for serving as an editor on book: Ingersoll CG, Dillon T, Biddinger RG, editors. 1997. Ecological risk assessment of contaminated sediment. Pensacola FL: SETAC Press (1998)

- USGS on the spot award for coordinating research projects associated with the Toxicology Branch (1998)
- USGS award for conducting a review of the USGS Water Resources Division NAWQA ecological study plans (1999)
- EPA bronze metal for assistance in developing methods for assessing sediment contamination with freshwater invertebrates (1999)
- EPA Office of Water team of the quarter (October to December of 1999) for contributions in the development of a methods manual for assessing sediment contamination with freshwater invertebrates (2000)
- USGS star award for coordinating research projects associated with the Toxicology Branch (2000)
- Society of Technical Communications competition award of “Excellence” for the book by DeFur PL, Crane M, Ingersoll CG, Tattersfield LJ, editors. 1999. Endocrine disruption in invertebrates: Endocrinology, testing, and assessment. Pensacola FL: SETAC Press (2001)
- USGS star award for periodically serving as the acting Center Director and for assistance in coordinating the Center review (2001)
- ASTM award of appreciation for serving as the Chair of Committee E47 on Biological Effects and Environmental Fate (1996 to 2001)
- ASTM service award from the Committee on Standards (2001)
- Nominated for the SETAC government service award (2001, 2002)
- USGS star award for contribution to the BRD Contaminants Program review (2002)
- ASTM Robert J. Painter meritorious award for development of standards (2002)

THESIS AND DISSERTATION

- Ingersoll CG. 1982. Effect on *Daphnia pulex* (De Geer) of daily pulse exposures to copper or cadmium. Master's thesis, Miami University, Oxford, OH. 22 p.
- Ingersoll CG. 1986. The effects of pH, aluminum, and calcium on survival and growth of brook trout (*Salvelinus fontinalis*) early life stages. Ph.D. thesis, The University of Wyoming, Laramie, WY. 122 p.

PRESENTATIONS

- Ingersoll CG, Winner RW. The effect on *Daphnia pulex* of daily, short-term exposures to copper or cadmium. Presented at the 2nd annual meeting of SETAC, Arlington, VA, November 22-25, 1981.
- Ingersoll CG, Hlohowskyj I, Mundahl ND. Movements and densities of fantail (*Etheostoma flabellare*), orangethroat (*E. spectabile*), and johnny (*E. nigrum*) darters during spring spawning. Presented at the 63rd annual meeting of the American Society of Ichthyologists and Herpetologists, Florida State University, Tallahassee, FL, June 1983.

- Ingersoll CG, La Point TW, Bergman HL. An early life stage brook trout (*Salvelinus fontinalis*) bioassay testing the independent and combined effects of pH, calcium and aluminum in low conductivity water. Presented at the American Fisheries Society 1984 annual meeting, Cornell University, Ithaca, NY, August 13-16, 1984.
- Meyer JS, Ingersoll CG, McDonald LL. Sensitivity analysis of population growth rates estimated from cladoceran chronic toxicity tests. Presented at the 5th annual meeting of SETAC, Arlington, VA, November 4-7, 1984.
- Ingersoll CG, La Point TW, Bergman HL. The effects of pH, aluminum and calcium on brook trout (*Salvelinus fontinalis*) hatching, growth and survival. Presented at the 5th annual meeting of SETAC, Arlington, VA, November 4-7, 1984.
- Marcus MD, Bergman HL, Ingersoll CG, Mattice JS. A brief summary of surface-water acidification effects on fish. Presented at the Acid Deposition Symposium, The Air Pollution Control Association, Rocky Mountain States Section, Boulder, CO, January 31, 1985.
- Tietge J, Ingersoll CG, Johnson R. Histopathological analysis of brook trout (*Salvelinus fontinalis*) fry and adults exposed to pH, calcium and aluminum combinations in low conductivity water. Presented at the International Symposium on Acid precipitation, Muskoka Conference '85, Toronto, ONT, September 15-20, 1985.
- Ingersoll CG, La Point TW, Fernandez J, Mount D. The long-term effects of pH, aluminum and calcium on early life stage and adult brook trout (*Salvelinus fontinalis*) survival, growth and reproduction. Presented at the International Symposium on Acid precipitation, Muskoka Conference '85, Toronto, ONT, September 15-20, 1985.
- Bergman HL, Parkhurst B, Ingersoll CG, Marcus M, Mattice J. Effects of acidification on fish: Review of laboratory toxicity studies. Presented at the International Symposium on Acid precipitation, Muskoka Conference '85, Toronto, ONT, September 15-20, 1985.
- Ingersoll CG, Mount DR, La Point TW, Bergman HL. A comparison of adult and early life stage brook trout (*Salvelinus fontinalis*) response to pH, calcium and aluminum exposure. Presented at the 6th annual meeting of SETAC, St. Louis, MO, November 10-13, 1985.
- Breck JE, Ingersoll CG. Modeling the mortality of early life stages of brook trout in response to fluctuating levels of pH, calcium, and aluminum. Presented at the 6th annual meeting of SETAC, St. Louis, MO, November 10-13, 1985.

Ingersoll CG, Sanchez DA, Tietge J. The effects of pH, calcium and aluminum exposure of the epidermis of brook trout (*Salvelinus fontinalis*) fry. Presented at the 6th annual meeting of SETAC, St. Louis, MO, November 10-13, 1985.

Wood CM, McDonald DG, Tin GC, Ingersoll CG, Mount DR. Evaluation of acid/aluminum stress to early life stages of brook trout by instrumental neutron activation analysis (INAA). Presented at a Ontario Ministry of Natural Resources Seminar, Toronto, ONT, January 31, 1986.

Breck JE, Beauchamp JJ, Ingersoll CG. A microcomputer model for estimating the survival of brook trout early-life stages exposed to different combinations of pH, aluminum, and calcium. Presented at the American Fisheries Society 1986 annual meeting, Providence, RI, September 14-18, 1986.

Ingersoll CG, Mount DR, Hockett JR, Gulley D, Mueller ME, Bergman HL. Relative sensitivity of two brook trout strains exposed to combinations of acidity, aluminum, and calcium. Presented at the 7th annual meeting of SETAC, Arlington, VA, November 2-5, 1986.

Mueller ME, Sanchez DA, Ingersoll CG, Bergman HL. Effects of acid and aluminum on the gills of two strains of juvenile brook trout. Presented at the 8th annual meeting of SETAC, Pensacola, FL, November 9-12, 1987.

Ingersoll CG, Nelson MK, Burton GA, Stemmer K, Winks KE. Toxicity assessment of contaminants associated with sediments from lower Lake Michigan. I: A comparison of acute and chronic test methods with amphipods and midges. Presented at the 9th annual meeting of SETAC, Arlington, VA, November 13-17, 1988.

Nelson MK, Ingersoll CG, Dwyer FJ. Use of *Hyaella azteca* in estuarine sediment toxicity testing. Presented at the 9th annual meeting of SETAC, Arlington, VA, November 13-17, 1988.

Coyle JJ, Ingersoll CG, Buckler DR, May TW. Effects of dietary and waterborne selenium on the reproductive success of bluegill sunfish (*Lepomis macrochirus*). Presented at the 9th annual meeting of SETAC, Arlington, VA, November 13-17, 1988.

Cleveland L, Ingersoll CG, Buckler DR. Effects of simulated episodic pH depressions and aluminum on whole body ions of brook trout. Presented at the 9th annual meeting of SETAC, Arlington, VA, November 13-17, 1988.

Nelson MK, Ingersoll CG. Use of *Hyaella azteca* (Amphipoda) in fresh-and saltwater toxicity testing. Presented at the Midwest Pollution Control Biologist meeting, USEPA Region V, Chicago, IL, March 15-17, 1989.

- Nelson MK, Ingersoll CG. Chronic sediment toxicity testing with *Hyalella azteca* (Amphipoda) and *Chironomus riparius* (Diptera). Presented at the 13th Symposium on Aquatic Toxicology and Risk Assessment, American Society of Testing and Materials, Atlanta, GA, April 16-18, 1989.
- Burch SA, Ingersoll CG, Dwyer FJ, Nelson MK, Buckler DR. The toxicity of effluent and reconstituted drain waters from Stillwater National Wildlife Refuge, Nevada, to fish and aquatic invertebrates. Presented at the 4th annual meeting of the Ozark-Prairie Chapter of SETAC, Columbia, MO, April 29, 1989.
- Ingersoll CG. Sediment toxicity test methods. Presented at the USEPA Sediment Steering Committee Meeting, Newport, OR, September, 1989.
- Ingersoll CG, Dwyer FJ, Burch SA, Nelson MK, Buckler DR. Use of Fresh- and saltwater organisms for the separation of toxic effects of inorganic contaminants from the toxic effects of salinity. Presented at the 10th annual meeting of SETAC, Toronto, ONT, October 28-November 2, 1989.
- Cleveland L, Little EE, Ingersoll CG, Wiedmeyer RH. Toxicity of Waterborne and dietary selenium to juvenile bluegill. Presented at the North American Lake Management Society Ninth International Symposium, Austin, TX, November 7-11, 1989.
- Coyle JJ, Buckler DR, Ingersoll CG, Fairchild JF, May TW. Effects of dietary and waterborne selenium on the reproductive success of bluegill sunfish (*Lepomis macrochirus*). Presented at the 51st Midwest Fish and Wildlife Conference, Springfield, IL, December 3-6, 1989.
- Ingersoll CG. Standardization of sediment toxicity testing methods. Presented at the USEPA Sediment Oversight Technical Committee, Vicksburg, MS, March 20-22, 1990.
- Burch SA, Dwyer FJ, Ingersoll CG, Finger SE. Toxicity of waters associated with agricultural irrigation at Stillwater National Wildlife Refuge, Fallon, NV. Presented at Selenium V, San Francisco, CA, March 30-31, 1990.
- Coyle JJ, Ingersoll CG. Factors influencing the composition and toxicity of sediment elutriate and pore-water preparations. Presented at the Midwest Pollution Control Biologist Meeting, Chicago, IL, April 10-13, 1990.
- Dwyer FJ, Burch SA, Ingersoll CG, Nelson MK, Buckler DR. Toxicity of trace element and salinity mixtures to fresh- and saltwater organisms. Presented at the 14th Symposium on Aquatic Toxicology and Risk Assessment, ASTM, San Francisco, CA, April 22-24, 1990.

- Burch SA, Dwyer FJ, Ingersoll CG. Effects on aquatic organisms of ground water associated with irrigation drainage entering Stillwater Wildlife Management Area, Nevada. Presented at the 5th annual meeting of the Ozark-Prairie SETAC regional chapter, Stillwater, OK, May 12, 1990.
- Ross PE, Ankley GT, Burton GA, Crecelius E, Filkins JF, Giesy JP, Ingersoll CG, Landrum PF, Mac MJ, Murphy TJ, Rathbun J, Smith VE, Tatem H, Taylor RW. Assessment and remediation of contaminated sediments: Background and approach. Presented at the International Association for Great Lakes Research, Windsor, ONT, May 13-17, 1990.
- Ingersoll CG, Buckler DR, Cleveland L, Coyle JJ, La Point TW, Mehrle PM, Nelson MK. Assessment and remediation of contaminated sediment (ARCS). III: Development of sediment apparent effects threshold concentrations for selected Great Lakes areas of concern. Presented at the International Association for Great Lakes Research, Windsor, ONT, May 13-17, 1990.
- Ingersoll CG. An Overview of sediment toxicity and bioaccumulation testing methods. Presented to the College of Engineering at the University of Wisconsin, Milwaukee, WI, September 11-13, 1990.
- Ingersoll CG. Potential incorporation of sediment toxicity tests as a required tier component in pesticide registration. Presented to the USEPA Aquatic Effects Dialogue Committee, Washington, DC, October 19, 1990.
- Ingersoll CG. Sediment quality concentrations for selected Great Lakes areas of concern. Presented at the 17th Aquatic Toxicity Workshop, Vancouver, BC, November 4-7, 1990.
- Ingersoll CG, Nelson MK, Coyle JJ. Freshwater sediment toxicity testing procedures. A short-course presented at the 11th annual meeting of SETAC, Arlington, VA, November 11-15, 1990.
- Cleveland L, Buckler DR, Coyle JJ, Ingersoll CG, La Point TW, Nelson MK. Sediment apparent effects threshold concentrations for selected Great Lakes areas of concern. Presented at the 11th annual meeting of SETAC, Arlington, VA, November 11-15, 1990.
- Dwyer FJ, Burch SA, Ingersoll CG, La Point TW, Fairchild JF. Toxicity of linear alkylbenzene sulphonate to fathead minnows and *Hyalella azteca*. Presented at the 11th annual meeting of SETAC, Arlington, VA, November 11-15, 1990.

Landrum, PF, Tsymbal VN, Nelson MK, Ingersoll CG, Cossiaux DC, Burton GA, Sasson-Brickson G. Sediment-associated contaminant toxicity: Assessment by dilution experiments. Presented at the 11th annual meeting of SETAC, Arlington, VA, November 11-15, 1990.

Ingersoll CG, Cleveland L, Coyle JJ, King LB, Nelson MK. Acute and chronic effects of contaminated sediments on the amphipod *Hyaella azteca* and the midges *Chironomus riparius* and *Chironomus tentans*. Presented at the annual meeting of ASTM, Atlantic City, NJ, April 14-16, 1991.

Ingersoll CG. Activities of the ASTM subcommittee E47.03 on sediment toxicology and freshwater chronic sediment toxicity tests. USEPA Contaminated Sediment Assessment Workshop, Narragansett, RI, May 6, 1991.

Ingersoll CG, Burton GA, Cleveland L, Coyle JJ, Nelson MK. The acute and chronic effects of contaminated sediment on the amphipod *Hyaella azteca* and the midges *Chironomus riparius* and *Chironomus tentans*. Presented at the annual meeting of the International Association For Great Lakes Research, Buffalo, NY, June 2-6, 1991.

Lanchester E, Vargo K, Tracy M, Tracy J, Rathbun J, Ingersoll CG, Burton GA, Henry M, Landrum PK. Predicting sediment toxicity in the Buffalo River from "indicator analyses". Presented at the annual meeting of the International Association For Great Lakes Research, Buffalo, NY, June 2-6, 1991.

Burton GA, Ingersoll CG, Ross P, Burnett L, Henry M, Klaine S, Landrum P, Swift M, Tuchman M. Sediment toxicity assessments: Optimal design considerations. Presented at the annual meeting of the International Association For Great Lakes Research, Buffalo, NY, June 2-6, 1991.

Ingersoll CG. Standardization of sediment toxicity testing methods. Presented to the USEPA Tiered Testing Work group, Washington, DC, September 23, 1991.

Cleveland L, Ingersoll CG, Coyle JJ, Nelson MK. Acute and chronic effects of contaminated sediment on the amphipod *Hyaella azteca* and the midges *Chironomus riparius* and *Chironomus tentans*. Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.

Burton GA, Burnett L, Henry M, Hinman M, Ingersoll C, Klaine S, Landrum P, Nelson M, Ross P, Swift M, Tuchman M. Selecting appropriate test designs for sediment toxicity assessments. Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.

Swift MC, Canfield TJ, La Point TW, Burton GA, Ingersoll CG. Artificial substrates vs. grab samples: Which is better in sediment toxicity assessments? Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.

- Tracy, M, Lancaster E, Vargo K, Tracy J, Rathbun J, Ingersoll C, Burton A, Henry M, Landrum P. Predicting sediment toxicity in the Buffalo River from "indicator" analyses. Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.
- Nelson MK, Brunson EL, Ingersoll CG, Ellersieck MR. *Hyalella azteca* growth and development in laboratory culture and contaminated sediment. Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.
- Ingersoll CG. Short course on development of sediment criteria. Presented at the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.
- Ingersoll CG. Evaluating bioassay performance at Superfund sites. Panel discussion during the 12th annual meeting of SETAC, Seattle, WA, November 3-7, 1991.
- Ingersoll CG. Biological assessment of contaminated sediments. Presented to the personnel at the US Fish and Wildlife Bay Estuary Program, Olympia, WA, November 8, 1991.
- Ingersoll CG. Use of the apparent effects threshold (AET) approach for assessing aquatic effects of contaminated sediment. Presented to the College of Engineering at the University of Wisconsin, Madison, WI, November 19, 1991.
- Ingersoll CG. Whole sediment toxicity testing. Presented at the 4th annual USEPA Superfund environmental evaluation workshop, San Antonio, TX, February 25-27, 1992.
- Ingersoll CG. Assessment of contaminated sediment. Presented to the Biology Department at Southwest Missouri State University, Springfield, MO, March 13, 1992.
- Ingersoll CG, Cleveland L, Coyle JJ, Dwyer FJ. A comparison of methods used to assess contaminated sediment. Presented at the North American Benthological Society, Louisville, KY, May 25-29, 1992.
- Ingersoll CG. Summary of ASTM Activities on freshwater and marine sediment test methods. Presented at the USEPA Tiered Testing Workshop for Freshwater and Marine sediments, USEPA Office of Water and Office of R&D, Washington, DC, September 16, 1992.
- Ingersoll CG. Overview of fisheries work group studies for the Milltown Endangerment Assessment Project. Fisheries work group meeting, Denver, CO, September 29, 1992.

Ingersoll CG. Great Lakes sediment toxicity studies. Presented to Drury College students, Columbia, MO, October 3, 1992.

Brumbaugh WG, Wiedmeyer RH, Ingersoll CG, Mount DR, Stubblefield WA. Milltown Reservoir-Clark Fork River, Montana: Chemical characterization of metals in sediments and pore Waters. Presented at the 13th annual meeting of SETAC, Cincinnati, OH, November 8-12, 1992.

Canfield TJ, Fairchild FJ, Ingersoll CG, La Point TW. Milltown Reservoir-Clark Fork River, Montana: Assessing benthic invertebrate abundance and community structure in areas exposed to metals contaminated runoff. Presented at the 13th annual meeting of SETAC, Cincinnati, OH, November 8-12, 1992.

Kemble NE, Ingersoll CG, Brunson EL, Dwyer FJ, Monda DP, Woodward DF. Milltown Reservoir-Clark Fork River, Montana: Assessing sediment toxicity to invertebrates and fish. Presented at the 13th annual meeting of SETAC, Cincinnati, OH, November 8-12, 1992.

Besser JM, Brumbaugh WG, Kemble NE, Ingersoll CG. Milltown Reservoir-Clark Fork River, Montana: Factors affecting metal bioavailability in contaminated sediment. Presented at the 13th annual meeting of SETAC, Cincinnati, OH, November 8-12, 1992.

Sappington LC, Buckler DR, Dwyer FJ, Ingersoll CG, Jones JR, Ellersieck MR, Mayer FL. Use of the surrogate species concept in assessing contaminant risk to endangered and threatened fishes. Presented at the 13th annual meeting of SETAC, Cincinnati, OH, November 8-12, 1992.

Ingersoll CG. Overview of results of studies to develop standard sediment methods. Presented to the USEPA, Duluth, MN, January 3-4, 1993.

Ingersoll CG. Approaches for assessing contaminated sediment. Presented to Eastman Kodak, Rochester, NY, January 13, 1993.

Ingersoll CG. Data interpretation: Sediment quality guidelines. Presented to the College of Engineering at the University of Wisconsin, Madison, WI, April 14, 1993.

Dwyer FJ, Ingersoll CG. Critical issues in sediment toxicology: Chronic sediment toxicity testing. Presented at the annual meeting of ASTM, Atlanta, GA, April 25-28, 1993.

Ingersoll CG. Statistical analysis of sediment toxicity tests. Presented at USEPA Headquarters, Washington, DC, June 3, 1993.

- Nelson MK, Cleveland L, Coyle JJ, King LB, Kemble NE, Crecelius EA, Ingersoll CG. Reliability of current sediment threshold concentrations and relative species sensitivity based on results of whole sediment exposures. Presented at the International Association for Great Lakes Research, Green Bay, WI, June, 6-10, 1993.
- Burton GA, Ingersoll C, and Tuchman M. Evaluating the strengths and weakness of sediment toxicity tests for initial assessments of contamination. Presented at the International Association for Great Lakes Research, Green Bay, WI, June, 6-10, 1993.
- Fox, RG, Crecelius E, Ingersoll C, Burton GA. Integrated sediment assessment of Saginaw Bay, Michigan for the ARCS program. Presented at the International Association on Water Pollution Research and Control, Milwaukee, WI, June 14-16, 1993.
- Ingersoll CG. Overview of freshwater sediment assessment methods. Presented to the US Army Corps of Engineers, Denver, CO, June 18, 1993.
- Ingersoll CG. Assessment of contaminated sediments. Short course presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Ingersoll CG, Ankley GT, Benoit DA, Burton GA, Dwyer FJ, Greer IE, Norberg-King TJ, Winger PV. Standardization of national USEPA methods for measuring the toxicity and bioaccumulation of sediment-associated contaminants with freshwater invertebrates. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Norberg-King, TJ, Ankley GT, Ingersoll CG, Burton GA, Hoke R, Kubitz NJ, Landrum PF. Choosing species and methods for standardized tests with freshwater sediments. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Burton GA, Ankley GT, Ingersoll CG, Norberg-King TJ, Winger PV. Evaluation of sediment toxicity test methods: Round robin testing design. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Burton GA, Jacher K, Rowland C, Ankley GT, Benoit D, Norberg-King TJ, Call D, Dawson T, Day K, Dwyer J, Ingersoll CG, England D, Kennedy P, Kubitz J, Giesy J, Smith M, Lazorchak J, Suedel B, Stinson M, Winger P. Round robin testing of the proposed USEPA toxicity test methods. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Dwyer FJ, Ingersoll CG, Kemble NE. Use of standardized formulated sediment in toxicity tests. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.

- Brunson EL, Ankley GT, Burton GA, Dwyer FJ, Ingersoll CG, Landrum PF, Lee H, Phipps GL. Bioaccumulation kinetics and field-validation of whole-sediment exposures with the oligochaete, *Lumbriculus variegatus*. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Zumwalt DC, Dwyer FJ, Greer IE, Ingersoll CG. Demonstration of a water-renewal system that accurately delivers small volumes of water to exposure chambers. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- McNulty EW, Greer IE, Ingersoll CG, Rabeni CF. The utility of reference toxicity tests with *Hyaella azteca*. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Kemble NE, Canfield TJ, Ingersoll CG. Cost analysis comparisons of laboratory toxicity tests, benthic invertebrate community analyses, and chemical analyses for making integrated ecological risk assessments. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Dwyer FJ, Canfield TJ, Haverland PS, Ingersoll CG, Kemble NE. The use of the sediment quality triad approach for two freshwater systems. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Greer IE, McNulty EW, Ingersoll CG. A method for the collection of known-age *Hyaella azteca*. Presented at the 14th annual meeting of SETAC, Houston, TX, November 14-18, 1993.
- Ingersoll CG, Ankley GT, Benoit DA, Burton GA, Dwyer FJ, Greer IE, Norberg-King TJ, Winger PV. Standardization of national USEPA methods for measuring the toxicity and bioaccumulation of sediment-associated contaminants with freshwater invertebrates. Presented at the 6th International Symposium on the Interactions Between Sediment and Water, Santa Barbara, CA, December 5-8, 1993.
- Burton GA, Ingersoll CG, Tuchman M. Selection of an optimal test battery for determining freshwater sediment toxicity. Presented at the 6th International Symposium on the Interactions Between Sediment and Water, Santa Barbara, CA, December 5-8, 1993.
- Canfield TJ, Dwyer FJ, Haverland PS, Ingersoll CG, Kemble NE. Use of the sediment quality triad approach to assess contamination of Great Lakes sediments. Presented at the 55th annual Midwest Fish and Wildlife Conference, St. Louis, MO, December 11-15, 1993.

- Armitage T, Ingersoll C. USEPA's national contaminated sediment management strategy. Presented at the 4th ASTM Symposium on Environmental Toxicology and Risk Assessment, Montreal Quebec, April 11-13, 1994.
- Dwyer FJ, Ankley GT, Benoit DA, Brunson EL, Burton GA, Greer IE, Hoke RA, Ingersoll CG, Norberg-King TJ, Winger PV. USEPA's methods for measuring the toxicity and bioaccumulation of sediment-associated contaminants with freshwater invertebrates. Presented at the 4th ASTM Symposium on Environmental Toxicology and Risk Assessment, Montreal Quebec, April 11-13, 1994.
- Schlekat C, Ingersoll CG. Measuring the toxicity and bioaccumulation of sediment-associated contaminants with estuarine and marine invertebrates: Methods employed by federal programs within the United States. Presented at the 4th ASTM Symposium on Environmental Toxicology and Risk Assessment, Montreal Quebec, April 11-13, 1994.
- Ingersoll CG, Brunson EL, Canfield TJ, Dwyer FJ, Haverland PS, Henke CE, Kemble NE, Mount DR. Calculation of sediment effect concentrations (SECs) for *Hyalella azteca* and *Chironomus riparius*. Presented at the 4th ASTM Symposium on Environmental Toxicology and Risk Assessment, April 11-13, 1994, Montreal Quebec.
- Besser JM, Kubitz JA, Giesy JP, Ingersoll CG. Relationship of metal bioaccumulation to toxicity in freshwater invertebrates. Presented at the North American Benthological Society meeting, Orlando, FL, May 23-27, 1994.
- Kemble NE, Ingersoll CG, Brumbaugh WG, Dwyer FJ, Canfield TJ. Assessing sediment toxicity to invertebrates and fish. Presented at the North American Benthological Society meeting, Orlando, FL, May 23-27, 1994.
- Canfield, TJ, Fairchild JF, Ingersoll CG, Kemble NE. Assessing benthic invertebrate abundance and structure exposed to metals contaminated sediment. Presented at the North American Benthological Society meeting, Orlando, FL, May 23-27, 1994.
- Ingersoll CG. Short course on USEPA freshwater sediment toxicity and bioaccumulation methods. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30, 1994.
- Ingersoll CG, Brunson EL, Canfield TJ, Dwyer FJ, Haverland PS, Henke CE, Kemble NE, Mount DR. Evaluation of sediment effect concentrations (SECs) for *Hyalella azteca* and *Chironomus riparius*. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Haverland PS, Brunson NE, Canfield TJ, Dwyer FJ, Henke CE, Ingersoll CG, Kemble KE, Mount DR. Calculation of sediment effect concentrations (SECs) for *Hyalella azteca* and *Chironomus riparius*. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Canfield TJ, Kemble NE, Ingersoll CG. Assessing chironomid deformities in field- and laboratory-exposed organisms from organic- and metal-contaminated sediments. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Besser JM, Ingersoll CG, Giesy JP. Metal bioavailability in freshwater sediments: Influence of acid-volatile sulfide and organic matter. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Kemble NE, Dwyer FJ, Ingersoll CG. Development of a formulated control sediment for use in whole-sediment toxicity testing. Presented at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Canfield TJ, Dwyer FJ, Ingersoll CG, Mount DR. Using an integrated field and laboratory approach for assessing contaminated sediments. Presented at the North American Benthological Society meeting, Keystone, CO, May 30-June 3, 1995.

Haverland PS, Dwyer FJ, Henke CE, Ingersoll CG, Mount DR, Field J, MacDonald DD, Smith SL. Predictions of sediment toxicity using a database for *Hyalella azteca* and *Chironomus riparius*. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Ingersoll CG, Dwyer FJ, Ankley GT, Benoit DA, Norberg-King TJ, Swartz RC, Scott JK, Day KE, Scroggins R, McLeay DJ. Harmonization of standard methods used to conduct toxicity tests with sediment in North America. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Mount DR, Henke CE, Ingersoll CG, Besser JM, Ankley GT, Norberg-King TJ, West CW. Development of toxicity identification procedures for whole-sediment toxicity tests. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Kemble NE, Dwyer NE, Hardesty DK, Ingersoll CG. Formulated sediment for use in whole-sediment toxicity testing. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Brunson EL, Dwyer FJ, Ingersoll CG. Evaluation of reproduction as an endpoint in chronic toxicity tests with the amphipod *Hyalella azteca*. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Kemble NE, Brunson EL, Canfield TJ, Dwyer FJ, Ingersoll CG. Laboratory toxicity test with *Hyaella azteca* exposed to whole sediments from the Upper Mississippi River. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Brunson EL, Canfield TJ, Dwyer FJ, Ingersoll CG, Kemble NE. Sediment bioaccumulation test with upper Mississippi River sediments using the oligochaete *Lumbriculus variegatus*. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Canfield TJ, Brunson EL, Dwyer FJ, Ingersoll CG, Kemble NE. Assessing upper Mississippi river sediments using benthic invertebrates and the sediment quality triad. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Henke CE, Dwyer FJ, Ingersoll CG, Mount DR, Mayer FL. Evaluation and use of standard effluent toxicity tests for protection of endangered and threatened species. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Canfield TJ, Kemble NE, Ingersoll CG. Use of chironomid deformities in field and laboratory assessments of contaminated sediments. Presented at the 2nd SETAC World Congress, Vancouver, BC, November 5-9, 1995.

Ingersoll CG, Brunson EL, Dwyer FJ, Hardesty D, Kemble NE, Benoit DA, Sibley PK. Reproduction as an endpoint in sediment toxicity tests with the amphipod *Hyaella azteca* and the midge *Chironomus tentans*. Presented at the 6th ASTM symposium on Environmental Toxicology and Risk Assessment, Orlando, FL, April 15, 1996.

Ingersoll CG, Johns M, Kemble NE, Reish D, Ross P. ASTM standards for measuring the toxicity and bioaccumulation of sediment-associated contaminants with invertebrates. Short course presented at the 6th ASTM symposium on Environmental Toxicology and Risk Assessment, Orlando, FL, April 17, 1996.

Haverland PS, Canfield TJ, Dwyer FJ, Ehrhardt EA, Ingersoll CG, Kemble NE, Field LJ, Long ER, MacDonald DD, Smith SL. Use of sediment quality guidelines to interpret toxicity data for freshwater sediments. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Kemble NE, Dwyer FJ, Ingersoll CG. Evaluation of feeding levels on survival and reproduction of *Hyaella azteca* in a formulated sediment. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Besser J, Ingersoll C, Mount D. TIE methods for freshwater sediments: Effect of zeolite on porewater ammonia concentrations and toxicity. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Kemble NE, Brunson EL, Dwyer FJ, Ehrhardt EA, Hardesty DK, Haverland PS, Ingersoll CG. Use of sublethal endpoints in sediment toxicity testing with the amphipod *Hyalella azteca*. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Canfield TJ, Dwyer FJ, Ingersoll CG, Kemble NE. Comparisons of composite vs. individual sediment grabs for assessing benthic invertebrate communities from soft sediments. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Canfield TJ, Dwyer FJ, Ehrhardt EA, Haverland PS, Ingersoll CG, Kemble NE. Development of a sediment effect concentration database to evaluate benthic invertebrate community structure. Presented at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Papoulias D, Chapman D, Huckins J, Ingersoll C, Johnson B, Jones S, Petty J, Tillitt D, Buckler D. Bioindicators of contaminant exposure in the Rio Grande river. Presented at the 8th United States Mexico Conference on Recreation, Parks, and Wildlife, Hermosillo, Sonora, Mexico February 26-March 1, 1997.

Ingersoll CG. Use of numerical sediment quality guidelines for the USEPA National Sediment Quality Survey Report. USEPA meeting January 23, 1997, Arlington, VA.

Ingersoll CG, Besser JM, Dwyer FW. Development and application of methods for assessing the bioavailability of contaminants associated with sediments: I. Toxicity and the sediment quality triad. U.S. Geological Survey Workshop on Expanding USGS Sediment Research Capabilities in Today's USGS February 4-7, 1997 in Reston, VA and Harper's Ferry, WV.

Chris Ingersoll, John Besser, and Jim Dwyer, Midwest Science Center (MSC), Biological Resources Division, U.S. Geological Survey, Columbia, Missouri.

Ingersoll CG, Canfield TJ, Dwyer FJ, Ehrhardt EA, Haverland PS, Kemble NE, MacDonald DD, Field LJ, Long ER. Predictions of sediment toxicity using sediment quality guidelines (SQGs). Presented at the 7th ASTM Symposium on Environmental Toxicology and Risk Assessment, St. Louis, MO. April 7-10, 1997.

Kemble NE, Johnson BT, Ingersoll CG. Whole-sediment toxicity assessments with bioluminescent *in vitro* bioassays: An evaluation. Presented at the 7th ASTM Symposium on Environmental Toxicology and Risk Assessment, St. Louis, MO, April 7-10, 1997.

Ingersoll CG, Dwyer FJ, Haverland PS, Kemble KE, MacDonald DD, Field LJ, Long ER. Use of sediment quality guidelines (SQGs) to predict the potential for sediment toxicity. Presented at the 12th annual conference on contaminated soils at the University of Massachusetts at Amherst, October 20-23, 1997.

DeWitt TH, Ingersoll CG, Berry WJ, Chapman GA, Lamberson JO. Foundations of ecologically-based toxicity tests for marine environments. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Johnson BT, Kemble NE, Ingersoll CG. Natural whole sediment assessments with the Microtox acute toxicity test system. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Kemble, NE, Dwyer FJ, Ingersoll CG. Evaluation of remediated sediments from Waukegan Harbor, Illinois using the amphipod *Hyalella azteca*. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Kemble NE, Dwyer FJ, Ingersoll CG, Burton GA, Rowland C, Mount DR, Norberg-King TJ, Sibley P, Hall T. Round-robin testing of a proposed standard method for assessing sublethal effects of sediment contamination on the amphipod *Hyalella azteca*. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Norberg-King TJ, Mount DR, Sibley PK, Benoit DA, Burton GA, Rowland C, Ingersoll CG, Dwyer FJ, Kemble NE, Hall T. Development of life-cycle methods for freshwater sediments: Inter-laboratory evaluation of sediment tests. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Rowland C, Burton GA, Norberg-King TJ, Mount DR, Kemble NE, Dwyer FJ, Ingersoll CG, Hall T, Stahl L, Tuchman M. Interlaboratory evaluation of the USEPA freshwater sediment acute toxicity tests. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Sibley PK, Benoit DA, Norberg-King TJ, Mount DR, Burton GA, Rowland C, Kemble NE, Ingersoll CG, Dwyer FJ, Hall T. Round-robin testing of a proposed standard method for assessing sublethal effects of sediment contamination on the midge *Chironomus tentans*. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Canfield TJ, Dwyer FJ, Hardesty DK, Henke CE, Ingersoll CG, Mayer FL, Tomasovic MJ, Whites DW. Assessing contaminant sensitivity of endangered and threatened species. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Ingersoll et al. Short course on use of SQGs presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Chapman D, Papoulias D, Huckins J, Ingersoll C, Johnson B, Jones S, Petty J, Tillitt D, Buckler D. Bioindicators of contaminant exposure in the Rio Grande river. Presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Kemble NE, Dwyer FJ, Ingersoll CG. Comparison of length and weight as sublethal endpoints in chronic whole-sediment exposures with the amphipod *Hyalella azteca*. Presented at the 8th ASTM symposium on Environmental Toxicology and Risk Assessment, Atlanta, GA, April 20-23, 1998.

Whites DW, Brunson EL, Dwyer FJ, Hardesty DK, Ingersoll CG, Zumwalt D, O'Donnell LJ. A procedure for assessing the effects of sediment slurries on spring-dwelling organisms. Presented at the 8th ASTM symposium on Environmental Toxicology and Risk Assessment, Atlanta, GA, April 20-23, 1998.

Canfield TJ, Ingersoll CG, Kemble NE. Using chironomid deformities as developmental indicators of sediment contamination in field- and laboratory-exposed organisms. Presented at the 8th ASTM symposium on Environmental Toxicology and Risk Assessment, Atlanta, GA, April 20-23, 1998.

Ingersoll CG. Short course for the North Atlantic Chapter of SETAC dealing with "Using a weight of evidence approach to sediment assessment," Boston University, Boston, MA, June 16, 1998.

Ingersoll CG. Sediment toxicity testing. A presentation at a short course for the U.S. EPA Great Lakes National Research Program Office on "Collection analysis, and interpretation of sediment quality data", Chicago, IL, November 3-4, 1998.

Canfield TJ, Ingersoll CG. A case study on assessing sediment quality in the Great Lakes using the sediment quality triad. A presentation at a short course for the U.S. EPA Great Lakes National Research Program Office on "Collection analysis, and interpretation of sediment quality data", Chicago, IL, November 3-4, 1998.

- MacDonald DD, Ingersoll CG, Crane J. An ecosystem-based framework for assessing sediment quality in the Great Lakes basin. A presentation at a short course for the U.S. EPA Great Lakes National Research Program Office on "Collection analysis, and interpretation of sediment quality data", Chicago, IL, November 3-4, 1998.
- Berry WJ, Field LJ, Long ER, Hansen DJ, Ingersoll CG, Keating FJ, MacDonald DD, Mount DR. The best of both worlds: Improving sediment assessment by combining the use of empirically-derived and equilibrium partitioning approaches. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Kemble NE, Dwyer FJ, Ingersoll CG, Schuerenberg HD. Relative sensitivity of endpoints measured in long-term water-only exposures with the amphipod *Hyaella azteca* and the midge *Chironomus tentans*. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Canfield TJ, Dwyer FJ, Ingersoll CG, Kemble NE. Use of the sediment quality triad approach to evaluate benthic invertebrate effects with toxicity tests and sediment chemistry. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Dwyer, FJ, Hardesty DK, Henke CE, Ingersoll CG, Sappington LC, Whites DE. Assessing contaminant sensitivity of endangered and threatened aquatic species. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Besser JM, Brumbaugh WG, Ingersoll CG, May TW. An evaluation of the role of organic matter in controlling bioavailability and toxicity of cadmium and copper in sediments. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Klump JV, Ingersoll CG, Power M, Reid LM, Fairbrother A, Harris HJ, Adams WJ, Cardwell R. Identifying multiple stressors in ecological risk assessment. Presented at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.
- Ingersoll CG, MacDonald D. Sediment toxicity testing methods and data interpretation. Presented at the USFWS National Environmental Contaminants meeting, Ridgedale, MO, April 12, 1999.
- Kemble NE, Dwyer FJ, Ingersoll CG, Williams HD. Relative sensitivity of endpoints measured in long-term water-only exposures with the amphipod *Hyaella azteca*. Presented at the 9th ASTM symposium on Environmental Toxicology and Risk Assessment, Seattle, WA, April 19-21, 1999.

- Dwyer FJ, Hardesty DK, Henke CE, Ingersoll CG. Assessing contaminant sensitivity of endangered and threatened species. Presented at the 9th ASTM symposium on Environmental Toxicology and Risk Assessment, Seattle, WA, April 19-21, 1999.
- Wang N, Besser JM, Dwyer FJ, Ingersoll CG. Effects of copper on survival, growth, and variation in size of fathead minnows. Presented at the Ozark-Prairie SETAC meeting in Carbondale, IL, May 20-22, 1999.
- Ankley GT, Cameron K, Campbell P, Crane M, DeFur P, Huet MC, Ingersoll C, LeBlanc G, Matthiessen P, Stahl R, Tattersfield L, Vethaak D. The international SETAC workshop on endocrine disruption in invertebrates: Endocrinology, testing and assessment (EDIETA). Presented at the 9th annual meeting of SETAC-Europe, Leipzig, Germany, May 25-29, 1999.
- Ingersoll CG, MacDonald DD. Approaches and tools for assessing contaminated sediments. Presented to the US Department of the Interior, Office of Environmental Policy and Compliance, Washington, DC, June 14, 1999.
- Ingersoll CG. Sediment toxicity testing methods. Presented at a USEPA workshop on approaches for assessing and remediating contaminated sediments. Athens, GA, September 21-22, 1999.
- Ingersoll CG, MacDonald DD, Kemble NE, Wang N, Field LJ, Severn CG. Derivation and assessment of consensus-based freshwater sediment quality guidelines. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.
- Kemble NE, Ingersoll CG, Willman HD, Dwyer FJ. Relative sensitivity of endpoints measured in water or sediment exposures with the amphipod *Hyaella azteca* or the midge *Chironomus tentans*. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.
- Field LJ, MacDonald DD, Norton SB, Severn CG, Ingersoll CG. Beyond thresholds: Using logistic regression models to estimate the probability of sediment toxicity. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.
- Severn CG, Field LJ, MacDonald DD, Norton SB, Long ER, Ingersoll CG. Creating databases for sediment quality guideline development and evaluation. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.
- Wang N, Besser JM, Dwyer FJ, Ingersoll CG. Chronic and acute toxicity of copper to endangered and surrogate species of fish. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.

Norberg-King TJ, Mount DR, Burton GA, Rowland C, Ingersoll CG, Kemble NE, Dwyer FY, Sibley P, Hall TJ. Definitive Results of the Inter-laboratory Evaluation of 10-d and Life-Cycle Sediment Tests with the midge *Chironomus tentans* and the amphipod *Hyaella azteca*.

Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.

Brix KV, Dwyer FJ, Adams WJ, Ingersoll CG, DeForest, DK, Sappington LC, Mayer FL. Evaluation of the relative sensitivity of threatened and endangered species to contaminants. Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.

Ankley GT, Cameron K, Campbell P, Crane M, DeFur P, Huet MC, Ingersoll C, LeBlanc G, Matthiessen P, Stahl R, Tattersfield L, Vethaak D. The international SETAC workshop on endocrine disruption in invertebrates: Endocrinology, testing and assessment (EDIETA). Presented at the 20th annual meeting of SETAC, Philadelphia, PA, November 14-18, 1999.

Ingersoll CG, Hinman M. Harmonization of environmental standards for assessing biological effects and fate by ASTM Committee E47 and Committee D02. Presented at the 10th Symposium on Environmental Toxicology and Risk Assessment, Toronto, Ontario, April 10-12, 2000.

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- Dwyer FJ, Hardesty DK, Henke CE, Ingersoll CG, Whites DW, Mayer FL, Augspurger T. Assessing the sensitivity of endangered and threatened fish species using WET.
- Besser JM, Leib KJ, Wirt L, Wright WG, Ingersoll CG. Seasonal variation in toxicity of high-altitude streams affected by hard-rock mining: the upper Animas River watershed, Colorado. Presented at an Abandoned Minelands workshop in Denver, October 22-24, 2002.

- Wenning RJ, Adams WJ, Batley GE, Berry WJ, Burton GA, Douglas WS, Engler RM, Ingersoll CG, Moore DW, Stahl RG. Use of sediment quality guidelines (SQGs) and related tools for the assessment of contaminated sediments: Overview of a SETAC Pellston Workshop. Presented at the 23rd meeting of SETAC, Salt Lake City, UT, November 16-20, 2002.
- Word JQ, Anghera M, Albrecht B, Baudo R, Bay SM, Di Toro DM, Hyland JL, Ingersoll CG, Landrum PF, Long ER, Meador J, Moore DW, O'Connor TP, J.Shine J. The use of SQGs to estimate the potential for effects, or no effects, of sediment-associated contaminants in laboratory toxicity tests and in benthic community assessments. Presented at the 23rd meeting of SETAC, Salt Lake City, UT, November 16-20, 2002.
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SESSIONS CHAIRED

Sediment methods standardization. ASTM subcommittee E47.03, spring and fall meeting, 1987-1995.

Methods standardization. ASTM Committee E47, spring and fall meeting, 1996-.

Assessment of contaminated sediment. Platform session at the 11th annual meeting of SETAC, Arlington, VA, November 13, 1990.

Contaminated sediment: Quality assurance. Platform session at the 12th annual meeting of SETAC, Seattle, WA, November 5, 1991.

Milltown Reservoir-Clark Fork River endangerment assessment. Platform session at the 13th annual meeting of SETAC, Cincinnati, OH, November 10, 1992.

Workshop entitled: Managing contaminated sediment: Measurement, interpretation, and remediation, College of Engineering, University of Wisconsin, Madison, WI, April 14, 1993.

Critical issues in sediment toxicology. Platform session at the 3rd ASTM Symposium on Environmental Toxicology and Risk Assessment, Atlanta, GA, April 27, 1993.

Scientific and regulatory issues associated with sediment contamination. Session at the American Chemical Society, San Diego, CA, March 13, 1994.

International approaches to sediment toxicity assessment. Session at the 4th ASTM Symposium on Environmental Toxicology and Risk Assessment, Montreal, Quebec, April 11-13, 1994.

Development and use of formulated sediment in toxicity testing. Session at the 15th annual meeting of SETAC, Denver, CO, October 30-November 3, 1994.

Interpretation issues in sediment assessments. Session at the 17th annual meeting of SETAC, Washington, DC, November 17-21, 1996.

Bioaccumulation short course presented at the 6th ASTM symposium on Environmental Toxicology and Risk Assessment, Orlando, FL, April 15, 1996.

Sediment quality guideline short course presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Tribute to Rick Swartz and Dave Hanson presented at the 18th annual meeting of SETAC, San Francisco, CA, November 16-20, 1997.

Sediment toxicity testing. Session at the 19th annual meeting of SETAC, Charlotte, NC, November 15-19, 1998.

Sediment toxicity testing. Session at the 9th ASTM symposium on Environmental Toxicology and Risk Assessment, Seattle, WA, April 19-21, 1999.

Harmonization of standard methods. Session at the 19th ASTM symposium on Environmental Toxicology and Risk Assessment, Toronto, Ontario, April 10-12, 2000.

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Appendix 2

Criteria for Evaluating Candidate Data Sets

Appendix 2. Criteria for Evaluating Candidate Data Sets

1.1 Introduction

A project database was developed to support the assessment of injury to human uses of fishery resources in the Grand Calumet River and Indiana Harbor Canal, the Grand Calumet River Lagoons, and Indiana Harbor and the nearshore areas of Lake Michigan. The database is comprised of sediment chemistry and fish tissue residue data from the Assessment Area. These data were used to determine if human uses of fishery resources within the Assessment Area have been injured due to discharges of oil or releases of other hazardous substances. To assure that the data used in the assessment met project data quality objectives, all of the candidate data sets were critically evaluated prior to inclusion in the database. However, the screening process was also designed to be flexible to assure that professional judgement could also be used when necessary in the evaluation process. In this way, it was possible to include as many data sets as possible and, subsequently, use them to the extent that the data quality and quantity dictate. In total, more than 125 data sets were evaluated to obtain the information needed to accomplish these objectives.

1.2 Criteria for Evaluating Whole-Sediment and Tissue Chemistry

The whole sediment and tissue chemistry data from the Assessment Area were used to determine if human uses of fishery resources within the Assessment Area have been injured due to discharges of oil or releases of other hazardous substances. Data from individual studies were considered to be acceptable for use in this assessment if:

- Samples were collected within the study area (see Natural Resources Trustees 1997 for a complete description of the study area);
- Matching information was available on the concentrations of COPCs in sediment samples and on levels of total organic carbon (TOC);

- Tissue chemistry data was reported on a wet weight basis (or information on percent moisture was available to allow the data to be converted to a WW basis);
- Appropriate procedures were used for collecting, handling, and storing sediments (e.g., ASTM 2000d) and other samples;
- The concentrations of chemicals of concern were measured in samples (see Natural Resources Trustees 1997 for a list of hazardous substances);
- Appropriate analytical methods were used to generate chemistry data. The methods that were considered to be appropriate included USEPA approved methods, other standardized methods (e.g., ASTM methods, SW-846 methods), or methods that have been demonstrated to be equivalent or superior to standard methods; and,
- Data quality objectives (DQOs) were met. The criteria that were used to evaluate data quality included;
 - the investigator indicated that DQOs had been met,
 - analytical detection limits were reported and lower than the associated sediment or tissue benchmark (measurements with detection limits above the associated sediment or tissue benchmark were included in the project database, but not used in data analyses); accuracy and precision of the chemistry data were reported and within acceptable ranges for the method; sample contamination was not noted (i.e., analytes were not detected in method blanks),
 - in the absence of complete QA/QC information, chemistry data were considered to be acceptable if they were generated post-1985 for use in a regulatory context (i.e., it was assumed that the USEPA QA/QC guidelines were likely met for such data),
 - the results of a detailed third party review indicated that the data were acceptable, and/or,
 - professional judgement indicated that the data set was likely to be of sufficient quality to be used in the assessment (i.e., in conjunction with author communications and/or other investigations); and,

- Incomplete information was available to conduct a full evaluation or certain data quality objectives were not met, but best professional judgement indicated that the data set was likely to be of sufficient quality to be used in the assessment.

Appendix 3

Whole-Sediment Chemistry Data Tables

Table A3.1 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1980; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	SITE 1	SITE 2	SITE 3
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC
Reach	USC	USC	USC
Sampling Year	1980	1980	1980
Depth (ft)	0-3.28	0-3.28	0-3.28
Latitude	41.65917	41.65571	41.65115
Longitude	-87.4541	-87.45867	-87.4645
Percent TOC	2.08	2.8	2.26
Percent Moisture	NR	NR	NR
<i>Polychlorinated Biphenyls (µg/kg OC)</i>			
Aroclor 1242	<4810	<3570	<4420
Aroclor 1248	1490000	1010000	1120000
Aroclor 1254	<4810	257000	540000
Aroclor 1260	<4810	<3570	<4420
Total PCBs ¹	1490000	1260000	1650000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported.

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.2 Sediment chemistry data used to assess injury to human uses of fishery resources (Polls 1988; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	E 5.4	E 2.7	E 3.8	E 0.6	E 1.3	A 0.2	A 0.5	A 1.0	A 1.5	A 2.0	A 3.0	B 0.2	B 0.5
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM
Reach	LGB	USC	USC	IH	IH	LM	LM	LM	LM	LM	LM	LM	LM
Sampling Year	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.6465	41.65603	41.64237	41.67643	41.6677	41.684	41.68567	41.69	41.6955	41.70033	41.71	41.68467	41.68983
Longitude	-87.482	-87.45783	-87.47117	-87.44103	-87.44195	-87.45016	-87.454	-87.46283	-87.46833	-87.475	-87.48333	-87.451	-87.45033
Percent TOC	4.7398	6.8859	7.1151	1.0392	2.3718	0.015	0.4295	0.0258	0.2529	0.3919	0.0652	0.0083	0.1674
Percent Moisture	73.6	70.9	76.8	52	59.2	25.1	28.9	23.9	42.7	50.6	28.5	30.2	35
<i>Polychlorinated Biphenyls (µg/kg OC)</i>													
Total PCBs ¹	365000	147000	113000	140000	94000	267000	11600	116000	11900	23000	15300	241000	35800

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; LGB = Lake George Branch; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.2 Sediment chemistry data used to assess injury to human uses of fishery resources (Polls 1988; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	B 1.0	B 2.0	B 3.0	B 5.0	C 0.5	C 1.0	C 1.5	C 3.0	D 0.3	D 2A	D 2B	D 3.0	D 5.0
Geographic Area	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM
Reach	LM	LM	LM	LM	LM	LM	LM	LM	LM	LM	LM	LM	LM
Sampling Year	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987	1987
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.69633	41.7125	41.72633	41.67733	41.68767	41.69233	41.69767	41.71333	41.68583	41.67667	41.67283	41.676	41.67733
Longitude	-87.448	-87.44833	-87.44867	-87.30617	-87.44067	-87.4345	-87.4285	-87.40517	-87.46183	-87.40067	-87.40234	-87.34517	-87.30617
Percent TOC	0.138	0.2546	0.024	0.0216	0.012	0.0159	0.0127	0.0182	0.0298	0.0126	0.0522	0.1667	0.1069
Percent Moisture	48.9	35.7	32.6	26.8	31	42.2	33.3	13	36.5	14.2	40.6	50.5	62
<i>Polychlorinated Biphenyls (µg/kg OC)</i>													
Total PCBs ¹	65200	15700	83300	278000	500000	126000	394000	110000	67100	79400	38300	6000	74800

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; LGB = Lake George Branch; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.3 Sediment chemistry data used to assess injury to human uses of fishery resources (Risatti & Ross 1989; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	1	12/12A	2	3	6	7	9A	10	11/11A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM
Reach	LGB	USC	USC	USC	LM	LM	LM	LM	LM
Sampling Year	1988	1988	1988	1988	1988	1988	1988	1988	1988
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.64684	41.64883	41.63963	41.65542	41.68529	41.68936	41.67646	41.68878	41.67649
Longitude	-87.481	-87.4682	-87.4711	-87.4587	-87.4501	-87.4683	-87.4018	-87.4314	-87.401
Percent TOC	12.57	10.3	16.84	12.66	0.07	0.03	2.74	1.43	1.91
Percent Moisture	60.06	39.68	84.51	63.32	24.08	20.31	53.86	16.71	53.15
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Total PCBs ¹	569	44.2	609	460	79400	59000	694	4790	25900

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; LGB = Lake George Branch; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.4 Sediment chemistry data used to assess injury to human uses of fishery resources (USEPA 1996a; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IH 01 05	IH 01 06	IH 01 07	IH 01 08	IH 01 10	IH 01 03	IH 01 04
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	IH/LM	IH/LM
Reach	USC	USC	USC	USC	USC	IH	IH
Sampling Year	1989	1989	1989	1989	1989	1989	1989
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.66085	41.65518	41.64598	41.64676	41.63982	41.67395	41.66798
Longitude	-87.45175	-87.45998	-87.47243	-87.48051	-87.47146	-87.43911	-87.4363
Percent TOC	11.1	11.58	8.77	10.41	12.25	7.65	5.64
Percent Moisture	49.77	70.2	53.33	76.98	80.42	59.24	55.24
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>							
Benz[a]anthracene	52300	138000	365000	288000	56300	95400	74500
Benzo(a)pyrene	51400	216000	353000	279000	75100	131000	124000
Benzo(k)fluoranthene	45900	199000	154000	202000	79200	131000	74500
Chrysene	64900	225000	582000	317000	76700	112000	92200
Indeno(1,2,3-c,d)pyrene	59500	17300	115000	183000	47300	95400	94000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>							
Aroclor 1016	<3240	<4320	<4680	<4710	<5630	<4710	<6380
Aroclor 1242	96700	207000	490000	173000	58000	131000	53200
Aroclor 1248	<3240	<4320	<4680	<4710	<5630	<4710	<6380
Aroclor 1254	17000	<4320	<4680	<4710	24500	<4710	17700
Aroclor 1260	<3240	<4320	<4680	<4710	<5630	<4710	<6380
Total PCBs ¹	114000	207000	490000	173000	82400	131000	70900
<i>Pesticides (µg/kg OC)</i>							
Chlordane ¹	661	1300	1940	961	604	863	864
Dieldrin	1140	2850	547	2690	<563	3660	<638

Table A3.4 Sediment chemistry data used to assess injury to human uses of fishery resources (USEPA 1996a; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IH 01 05	IH 01 06	IH 01 07	IH 01 08	IH 01 10	IH 01 03	IH 01 04
<i>Pesticides (µg/kg OC; cont.)</i>							
Endrin	<324	<432	502	<471	<563	<471	<638
Heptachlor	480	864	3650	711	<563	<627	<638
Heptachlor epoxide	910	2760	3080	2500	645	<471	<638
Lindane	<324	<432	<468	<471	<563	<471	<638
p,p'-DDD	<324	<432	798	<471	<563	<471	<638
p,p'-DDE	778	864	2390	749	776	641	<638
p,p'-DDT	342	864	<468	961	<563	<471	<638
<i>Toxic Equivalents (no units)</i>							
TCDD-TEQ ¹	0.207	3.16	6.2	2.47	1.45	3.34	0.51

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; LGB = Lake George Branch; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.5 Sediment chemistry data used to assess injury to human uses of fishery resources (Hoke et al. 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	UG-3	UG-4	UG-5	UG-6	UG-1	UG-2	UG-7	UG-8	UG-9	UG-10
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR II	EBGCR II	IHC	WBGCR I	WBGCR II	WBGCR II
Sampling Year	1990	1990	1990	1990	1990	1990	1990	1990	1990	1990
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.60829	41.61213	41.612	41.61552	41.60837	41.60953	41.61824	41.61474	41.61653	41.62592
Longitude	-87.39604	-87.42734	-87.44414	-87.46761	-87.31184	-87.34734	-87.47106	-87.47554	-87.48994	-87.52284
Percent TOC	7.2	12.5	14.3	15.9	28.1	4.4	14.7	22.3	18.8	13.4
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	29700	4640	10000	1040	9360	38200	3610	11900	8780	1270
Benzo(a)pyrene	234000	67500	319000	56200	96800	460000	12600	375000	533000	243000
Benzo(k)fluoranthene	84700	13100	28200	23200	11200	95000	22200	26100	11600	23100
Chrysene	48100	6640	29400	7230	7440	80900	20100	11800	27700	19200
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1248	95700	7520	128000	10400	7720	33900	29000	12600	24500	59200
Total PCBs ¹	95700	7520	128000	10400	7720	33900	29000	12600	24500	59200
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	17100	400	629	10300	3700	10000	12900	10800	11600	16000
Dieldrin	10000	320	559	5850	747	17300	4220	179	17100	8510
Heptachlor	36900	2880	8670	3270	3490	9550	9320	1970	9150	1420
Lindane	25400	11400	2030	2390	1210	4770	4350	3540	16800	1940
p,p'-DDD	<139	<80.0	4340	1070	142	1820	68	1030	53.2	<74.6
p,p'-DDE	34600	5680	10800	26600	8750	55900	19700	7980	24700	20200
p,p'-DDT	20000	2000	5240	6350	819	15200	5650	2470	9310	672

Table A3.5 Sediment chemistry data used to assess injury to human uses of fishery resources (Hoke et al. 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	UG-3	UG-4	UG-5	UG-6	UG-1	UG-2	UG-7	UG-8	UG-9	UG-10
<i>Toxic Equivalents (no units)</i>										
TCDD-TEQ ¹	0.0000208	0.000016	0.0000867	0.000022	0.0000221	0.0000227	0.0000034	0.0000157	0.0000388	0.0000545

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX- 036/36A	GC-SD-XX- 037/37A	GC-SD-XX- 037/37B	GC-SD-XX- 038/38A	GC-SD-XX- 038/38B	GC-SD-XX- 039/39A	GC-SD-XX- 040/40A	GC-SD-XX- 040/40B	GC-SD-XX- 041/41A	GC-SD-XX- 041/41B
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	0-7.9	8-12.9	0-7.9	8-12.9
Latitude	41.6097	41.609	41.609	41.6087	41.6087	41.60878	41.60973	41.60973	41.6092	41.6092
Longitude	-87.3867	-87.388	-87.388	-87.3889	-87.3889	-87.39791	-87.4085	-87.4085	-87.4112	-87.4112
Percent TOC	2.1	1.3	2.2	2.225	1.5	3.1	3.1	7	4	3
Percent Moisture	47.1	42.9	46.9	39.4125	37.7	49.725	42.15	46.7	51.8	35.9
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	1290	<19200	<455	<27000	<1330	<645	28800	34500	<500	<667
Benz[a]anthracene	158000	<424000	<375000	224000	<277000	<439000	684000	323000	<155000	<174000
Benzo(a)pyrene	98600	<565000	<500000	222000	<370000	<587000	487000	203000	<206000	<232000
Benzo(k)fluoranthene	72400	<565000	<500000	<380000	<370000	<587000	442000	166000	<206000	<232000
Chrysene	193000	<424000	<375000	231000	<277000	<439000	710000	337000	<155000	<174000
Dibenz[a,h]anthracene	<87100	<678000	<600000	<454000	<444000	<703000	<419000	<150000	<248000	<278000
Indeno(1,2,3-c,d)pyrene	108000	<678000	<600000	<454000	<444000	<703000	<419000	<150000	<248000	<278000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	NR	<7690	<4550	<4490	<6670	<3230	<32300	NR	NR	<3330
Aroclor 1242	NR	<7690	<4550	<4490	<6670	<3230	<32300	NR	NR	<3330
Aroclor 1248	NR	108000	<4550	8990	<6670	<3230	1500000	NR	NR	84000
Aroclor 1254	NR	<7690	<4550	8430	<6670	<3230	<32300	NR	NR	<3330
Aroclor 1260	NR	<7690	<4550	<4490	<6670	<3230	<32300	NR	NR	<3330
Total PCBs ¹	NR	108000	NR	17400	NR	NR	1500000	NR	NR	84000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX- 042/42A	GC-SD-XX- 042/42B	GC-SD-XX- 043/43A	GC-SD-XX- 043/43B	GC-SD-XX- 044/44A	GC-SD-XX- 044/44B	GC-SD-XX- 045/45A	GC-SD-XX- 045/45B	GC-SD-XX- 048/48A	GC-SD-XX- 048/48B
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9
Latitude	41.6092	41.6092	41.6131	41.6131	41.61315	41.61315	41.6133	41.6133	41.61247	41.61247
Longitude	-87.4115	-87.4115	-87.4321	-87.4321	-87.43239	-87.43239	-87.4341	-87.4341	-87.45117	-87.45117
Percent TOC	5.15	2.7	5.4	4.85	2.6	4.15	4.2	2.1	2.2	7.2
Percent Moisture	44.425	38.4	60.7	58.75	57.4	63.1	35.3	55.3	58.025	72.1
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	<11700	<7410	2910	454	4360	735	<143000	<476	<909	<139
Benz[a]anthracene	140000	<187000	<108000	<98100	320000	181000	2430000	<221000	<518000	<158000
Benzo(a)pyrene	<194000	<250000	<144000	<131000	242000	177000	1880000	<295000	<691000	<211000
Benzo(k)fluoranthene	<194000	<250000	<144000	<131000	216000	166000	1430000	<295000	<691000	<211000
Chrysene	169000	<187000	117000	<98100	402000	200000	2270000	<221000	<518000	<158000
Dibenz[a,h]anthracene	<233000	<300000	<173000	<157000	<323000	<233000	<166000	<354000	<827000	<253000
Indeno(1,2,3-c,d)pyrene	<233000	<300000	<173000	<157000	<323000	<233000	1130000	<354000	<827000	<253000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<1940	<3700	<1850	<2060	<3850	<2410	<2380	<4760	<4550	<1390
Aroclor 1242	<1940	<3700	<1850	<2060	<3850	<2410	<2380	<4760	<4550	<1390
Aroclor 1248	17300	<3700	<1850	<2060	<3850	<2410	42400	<4760	<4550	<1390
Aroclor 1254	<1940	<3700	<1850	<2060	<3850	<2410	<2380	<4760	<4550	<1390
Aroclor 1260	<1940	<3700	<1850	<2060	<3850	<2410	<2380	<4760	<4550	<1390
Total PCBs ¹	17300	NR	NR	NR	NR	NR	42400	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX- 049/49A	GC-SD-XX- 049/49B	GC-SD-XX- 049/49C	GC-SD-XX- 050/50A	GC-SD-XX- 050/50B	GC-SD-XX- 052/52A	GC-SD-XX- 052/52B	GC-SD-XX- 001/01A	GC-SD-XX- 002/02A	GC-SD-XX- 003/03A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	8-12.9	13-?	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	0-7.9	0-7.9
Latitude	41.6167	41.6167	41.6167	41.61639	41.61639	41.6144	41.6144	41.6085	41.6085	41.6085
Longitude	-87.4552	-87.4552	-87.4552	-87.46011	-87.46011	-87.4613	-87.4613	-87.3012	-87.3042	-87.3069
Percent TOC	5.8	7.4	6.7	3.85	1.1	3.1	3.2	4.2	2.2	9.4
Percent Moisture	41.4	63	70.7	56.4	41.8	54.75	66.2	31.7	20.15	49.3
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	<345	<135	<149	961	<909	<645	<312	37900	632000	162000
Benz[a]anthracene	422000	<133000	<193000	397000	<460000	<266000	<356000	379000	93200	270000
Benzo(a)pyrene	<178000	<178000	<257000	373000	<614000	<355000	<475000	426000	127000	294000
Benzo(k)fluoranthene	<178000	<178000	<257000	273000	<614000	<355000	<475000	<383000	87300	228000
Chrysene	955000	<133000	<193000	588000	<460000	<266000	<356000	405000	132000	353000
Dibenz[a,h]anthracene	<214000	<214000	<307000	<366000	<736000	<426000	<569000	<460000	<54500	114000
Indeno(1,2,3-c,d)pyrene	<214000	<214000	<307000	<366000	<736000	<426000	<569000	<460000	73600	<12800
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<1720	<1350	<1490	<2600	<9090	<3230	<3120	<23800	<4550	<1060
Aroclor 1242	<1720	<1350	<1490	<2600	<9090	<3230	<3120	<23800	<4550	<1060
Aroclor 1248	<1720	<1350	<1490	95800	<9090	<3230	<3120	179000	45500	62000
Aroclor 1254	<1720	<1350	<1490	<2600	<9090	<3230	<3120	<23800	<4550	<1060
Aroclor 1260	<1720	<1350	<1490	<2600	<9090	<3230	<3120	<23800	<4550	<1060
Total PCBs ¹	NR	NR	NR	95800	NR	NR	NR	179000	45500	62000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-003/03B	GC-SD-XX-004/04A	GC-SD-XX-004/04B	GC-SD-XX-005/05A	GC-SD-XX-005/05B	GC-SD-XX-006/06A	GC-SD-XX-006/06B	GC-SD-XX-007/07A	GC-SD-XX-007/07B
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9
Latitude	41.6085	41.6086	41.6086	41.6082	41.6082	41.608	41.608	41.6076	41.6076
Longitude	-87.3069	-87.3109	-87.3109	-87.3144	-87.3144	-87.3176	-87.3176	-87.3211	-87.3211
Percent TOC	4.6	9.2	6.5	10.4	5	10	1.2	10.1	12
Percent Moisture	44.1	46	36.1	50.25	34.9	58.05	28.1	60.8	38.2
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benzene	135000	7590000	7980000	3430000	3020000	2070000	11600000	2750000	883000
Benz[a]anthracene	5650000	9460000	1530000	9380000	18600000	4500000	50800000	13900000	313000
Benzo(a)pyrene	5220000	7610000	1270000	7550000	15200000	4500000	52500000	9210000	219000
Benzo(k)fluoranthene	4350000	6520000	809000	4760000	13000000	3900000	44200000	8710000	200000
Chrysene	6520000	10400000	1850000	4950000	10000000	2400000	25800000	13900000	333000
Dibenz[a,h]anthracene	957000	1520000	243000	745000	1280000	<3000000	<25000000	<1190000	<68300
Indeno(1,2,3-c,d)pyrene	2830000	4670000	723000	3650000	7000000	<3000000	29200000	6440000	175000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<21700	<10900	<1540	<9620	<20000	<20000	<83300	<9900	<8330
Aroclor 1242	<21700	<10900	<1540	<9620	<20000	<20000	<83300	<9900	<8330
Aroclor 1248	5240000	2040000	772000	990000	1680000	882000	5490000	24300	213000
Aroclor 1254	<21700	<10900	<1540	160000	258000	<20000	658000	<9900	<8330
Aroclor 1260	<21700	<10900	<1540	<9620	<20000	<20000	<83300	<9900	<8330
Total PCBs ¹	5240000	2040000	772000	1150000	1940000	882000	6150000	24300	213000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-008/08A	GC-SD-XX-008/08B	GC-SD-XX-009/09A	GC-SD-XX-009/09B	GC-SD-XX-010/10A	GC-SD-XX-010/10B	GC-SD-XX-011/11A	GC-SD-XX-012/12A	GC-SD-XX-013/13A	GC-SD-XX-014/14A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	0-7.9	0-7.9	0-7.9
Latitude	41.6076	41.6076	41.6076	41.6076	41.6076	41.6076	41.6076	41.6077	41.6077	41.6076
Longitude	-87.3229	-87.3229	-87.3244	-87.3244	-87.3266	-87.3266	-87.3282	-87.3303	-87.3317	-87.3332
Percent TOC	16.73	5.79	16.7	1.8	8.2	1.3	2.3	1.6	1.2	2.37
Percent Moisture	47.15	36.9	53.1	15.7	42.5	16.8	35	22.9	25.9	26.25
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	163000	3130000	1710000	7440000	2820000	7460000	<174000	<50000	40600	<422
Benz[a]anthracene	717000	18400000	5990000	6670000	11600000	19200000	25800000	2710000	13100000	116000
Benzo(a)pyrene	458000	14100000	3410000	4650000	6410000	12500000	16700000	1770000	7170000	78100
Benzo(k)fluoranthene	403000	11900000	2570000	4480000	4160000	9310000	12300000	1170000	5660000	69600
Chrysene	736000	19000000	5750000	6670000	11000000	19400000	25500000	2520000	12500000	58500
Dibenz[a,h]anthracene	85200	1810000	556000	<3940000	<1280000	<4690000	<4690000	<1110000	<1480000	<50600
Indeno(1,2,3-c,d)pyrene	361000	10500000	2510000	4030000	5220000	9770000	14700000	1240000	4330000	42200
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<5980	<17300	<5990	<55600	<12200	NR	<43500	NR	<83300	<4220
Aroclor 1242	<5980	<17300	<5990	<55600	<12200	NR	<43500	NR	<83300	<4220
Aroclor 1248	129000	2960000	123000	<55600	4170000	NR	830000	NR	1130000	78100
Aroclor 1254	<5980	<17300	<5990	<55600	<12200	NR	<43500	NR	<83300	<4220
Aroclor 1260	<5980	<17300	<5990	<55600	<12200	NR	<43500	NR	<83300	<4220
Total PCBs ¹	129000	2960000	123000	NR	4170000	NR	830000	NR	1130000	78100

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-015/15A	GC-SD-XX-016/16A	GC-SD-XX-016/16B	GC-SD-XX-017/17A	GC-SD-XX-017/17B	GC-SD-XX-018/18A	GC-SD-XX-018/18B	GC-SD-XX-019/19A	GC-SD-XX-019/19B	GC-SD-XX-020/20A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9
Latitude	41.6077	41.6079	41.6079	41.6086	41.6086	41.6093	41.6093	41.6098	41.6098	41.61
Longitude	-87.3353	-87.3385	-87.3385	-87.3394	-87.3394	-87.3401	-87.3401	-87.3412	-87.3412	-87.3428
Percent TOC	2.7	3.6	1.6	3.4	5.1	4.95	2.1	2.1	2.8	2.8
Percent Moisture	36.95	42.3	29.5	35.95	48.9	46.4	31.6	33.3	40.5	48.2
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	<111000	15300	<18700	<176000	<118000	<60600	<14300	<14300	9210	12300
Benz[a]anthracene	1000000	333000	4440000	14100000	4710000	2220000	1180000	1370000	282000	457000
Benzo(a)pyrene	685000	200000	3310000	9120000	3330000	1520000	857000	1150000	225000	361000
Benzo(k)fluoranthene	626000	183000	3600000	5880000	3140000	1490000	614000	910000	229000	300000
Chrysene	511000	189000	2460000	7350000	2350000	1140000	581000	667000	179000	239000
Dibenz[a,h]anthracene	122000	<33300	<750000	2150000	588000	99000	176000	152000	71400	78600
Indeno(1,2,3-c,d)pyrene	411000	100000	1490000	6470000	1720000	706000	590000	805000	179000	225000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<3700	<2780	<6250	<2940	<1960	<2020	<4760	<4760	<3570	<3570
Aroclor 1242	<3700	<2780	<6250	<2940	<1960	<2020	<4760	<4760	<3570	<3570
Aroclor 1248	<3700	35800	494000	1620000	62700	153000	475000	1200000	<3570	107000
Aroclor 1254	<3700	<2780	<6250	206000	19600	<2020	<4760	<4760	<3570	42900
Aroclor 1260	<3700	<2780	<6250	<2940	<1960	<2020	<4760	<4760	<3570	<3570
Total PCBs ¹	NR	35800	494000	1820000	82400	153000	475000	1200000	NR	150000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-021/21A	GC-SD-XX-022/22A	GC-SD-XX-023/23A	GC-SD-XX-023/23B	GC-SD-XX-024/24A	GC-SD-XX-024/24B	GC-SD-XX-025/25A	GC-SD-XX-025/25B	GC-SD-XX-025/25C	GC-SD-XX-026/26A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	0-7.9	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	13-?	0-7.9
Latitude	41.6096	41.6088	41.6079	41.6079	41.6074	41.6074	41.607	41.607	41.607	41.6073
Longitude	-87.3472	-87.3488	-87.3501	-87.3501	-87.3519	-87.3519	-87.3539	-87.3539	-87.3539	-87.3585
Percent TOC	2.5	11	3.3	1.2	4.4	3	3.5	1.6	3.7	1.6
Percent Moisture	40.9	31.95	33.5	21.4	55.3	35.7	42.2	39.6	45.5	37.4
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	<400	9450	<1210	4420	<13600	<667	<28600	<250000	297	<1250
Benz[a]anthracene	56000	639000	485000	708000	132000	143000	4860000	444000	114000	231000
Benzo(a)pyrene	48000	536000	379000	600000	114000	110000	4000000	387000	97300	194000
Benzo(k)fluoranthene	<40000	435000	306000	392000	79500	93300	3430000	294000	81100	162000
Chrysene	32800	317000	270000	392000	77300	90000	2540000	5240000	67600	131000
Dibenz[a,h]anthracene	<48000	90000	<36400	100000	<27300	<40000	371000	<75000	<32400	<75000
Indeno(1,2,3-c,d)pyrene	<48000	265000	176000	433000	81800	80000	1840000	219000	73000	112000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<4000	<909	<3030	<8330	<2270	<3330	<28600	<6250	<27000	<6250
Aroclor 1242	<4000	<909	<3030	<8330	<2270	<3330	<28600	<6250	<27000	<6250
Aroclor 1248	148000	19100	45200	373000	12700	<3330	291000	<6250	<27000	93700
Aroclor 1254	<4000	8180	<3030	<8330	<2270	<3330	51400	<6250	<27000	<6250
Aroclor 1260	<4000	<909	<3030	<8330	<2270	<3330	<28600	<6250	<27000	<6250
Total PCBs ¹	148000	27300	45200	373000	12700	NR	343000	NR	NR	93700

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX- 026/26B	GC-SD-XX- 026/26C	GC-SD-XX- 027/27A	GC-SD-XX- 027/27B	GC-SD-XX- 028/28A	GC-SD-XX- 029/29A	GC-SD-XX- 029/29B	GC-SD-XX- 030/30A	GC-SD-XX- 031/31A	GC-SD-XX- 031/31B
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	8-12.9	13-?	0-7.9	8-12.9	0-7.9	0-7.9	8-12.9	0-7.9	0-7.9	8-12.9
Latitude	41.6073	41.6073	41.608	41.608	41.6087	41.6087	41.6087	41.6091	41.6066	41.6066
Longitude	-87.3585	-87.3585	-87.361	-87.361	-87.3637	-87.3681	-87.3681	-87.3724	-87.3769	-87.3769
Percent TOC	1.6	4.7	3.8	3.3	4.1	6.45	4.85	2.23	2.395	2.63
Percent Moisture	40.9	56.5	47	50.6	50.8	49.5	53.2	42.4	53.8	49.9
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	1310	1300	<26300	<1210	854	550	<825	942	731	<760
Benz[a]anthracene	137000	279000	321000	694000	768000	405000	295000	3630000	1180000	185000
Benzo(a)pyrene	93700	230000	<342000	745000	568000	259000	149000	2430000	657000	121000
Benzo(k)fluoranthene	93700	177000	<342000	561000	322000	173000	125000	1810000	453000	97000
Chrysene	106000	155000	<258000	376000	744000	390000	349000	3850000	1100000	222000
Dibenz[a,h]anthracene	<75000	<48900	<421000	<576000	87800	29500	<53600	<852000	66800	<76000
Indeno(1,2,3-c,d)pyrene	<75000	179000	<421000	<576000	537000	258000	133000	2100000	537000	114000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<6250	<2130	<2630	<3030	NR	<1550	<2060	NR	<41800	<38000
Aroclor 1242	<6250	<2130	<2630	<3030	NR	<1550	<2060	NR	<41800	<38000
Aroclor 1248	<6250	<2130	240000	<3030	NR	89000	5770	NR	<41800	<38000
Aroclor 1254	<6250	<2130	<2630	<3030	NR	<1550	<2060	NR	<41800	<38000
Aroclor 1260	<6250	<2130	<2630	<3030	NR	<1550	<2060	NR	<41800	<38000
Total PCBs ¹	NR	NR	240000	NR	NR	89000	5770	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-032/32A	GC-SD-XX-032/32B	GC-SD-XX-032/32C	GC-SD-XX-033/33A	GC-SD-XX-033/33B	GC-SD-XX-033/33C	GC-SD-XX-034/34A	GC-SD-XX-034/34B	GC-SD-XX-034/34C	GC-SD-XX-035/35A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	0-7.9	8-12.9	13-?	0-7.9	8-12.9	13-?	0-7.9	8-12.9	13-?	0-7.9
Latitude	41.6068	41.6068	41.6068	41.6089	41.6089	41.6089	41.6103	41.6103	41.6103	41.6116
Longitude	-87.37963	-87.37963	-87.37963	-87.3806	-87.3806	-87.3806	-87.3807	-87.3807	-87.3807	-87.3852
Percent TOC	5.02	2.56	1.55	6.2	4.6	2.8	6.4	4.8	2.9	5.4
Percent Moisture	58.9	61.7	30	59.05	48.3	50.1	53.3	60.6	56.4	54.8
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	7030	2930	1100	6130	21500	<286000	891	<167000	13200	38300
Benz[a]anthracene	857000	191000	355000	1110000	557000	3140000	2170000	606000	386000	604000
Benzo(a)pyrene	592000	102000	219000	866000	252000	1440000	2000000	398000	192000	231000
Benzo(k)fluoranthene	367000	85900	200000	600000	215000	1240000	1500000	252000	153000	159000
Chrysene	823000	258000	445000	1140000	550000	2970000	2120000	604000	417000	591000
Dibenz[a,h]anthracene	87600	<82000	<116000	<424000	<52200	<696000	<439000	51700	<79700	<45700
Indeno(1,2,3-c,d)pyrene	576000	93800	200000	679000	172000	911000	1340000	408000	150000	256000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<19900	NR	<64500	<16100	NR	NR	NR	NR	NR	NR
Aroclor 1242	<19900	NR	<64500	<16100	NR	NR	NR	NR	NR	NR
Aroclor 1248	77500	NR	<64500	182000	NR	NR	NR	NR	NR	NR
Aroclor 1254	<19900	NR	<64500	<16100	NR	NR	NR	NR	NR	NR
Aroclor 1260	<19900	NR	<64500	<16100	NR	NR	NR	NR	NR	NR
Total PCBs ¹	77500	NR	NR	182000	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-035/35B	GC-SD-XX-035/35C	GC-SD-XX-053/53A	GC-SD-XX-053/53B	GC-SD-XX-057/57A	GC-SD-XX-057/57B	GC-SD-XX-058/58A	GC-SD-XX-059/59A	GC-SD-XX-060/60A	GC-SD-XX-061/61A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	IHC	IHC	IHC	IHC	IHC	IHC	IHC	IHC
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	8-12.9	13-?	0-7.9	8-12.9	0-7.9	8-12.9	0-7.9	0-7.9	0-7.9	0-7.9
Latitude	41.6116	41.6116	41.61808	41.61808	41.61873	41.61873	41.6229	41.62712	41.63125	41.63535
Longitude	-87.3852	-87.3852	-87.47089	-87.47089	-87.47114	-87.47114	-87.47117	-87.47108	-87.47114	-87.47121
Percent TOC	4.6	3.3	0.86	3.2	0.9	1	1.6	1.4	1.07	3.9
Percent Moisture	58.2	60.6	30.4	49.7	30.85	24.6	60	26.6	21.05	51.65
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	8930	33900	17200	<625	47000	<30000	<2500	<1430	6730	69500
Benz[a]anthracene	204000	403000	1150000	<167000	3420000	1080000	1180000	1060000	594000	390000
Benzo(a)pyrene	89200	266000	<628000	<223000	2920000	<555000	806000	<943000	<1010000	<305000
Benzo(k)fluoranthene	54600	213000	650000	<223000	2100000	<555000	552000	<943000	<1010000	<305000
Chrysene	239000	473000	1720000	<167000	4010000	1920000	2460000	1190000	975000	518000
Dibenz[a,h]anthracene	<50400	<80900	<753000	<268000	<1280000	<666000	<495000	<1130000	<1210000	<367000
Indeno(1,2,3-c,d)pyrene	96200	283000	<753000	<268000	1510000	<666000	<495000	<1130000	<1210000	<367000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<2170	<3030	<11600	<3120	<11100	NR	<6250	<7140	<9350	<2560
Aroclor 1242	<2170	<3030	<11600	<3120	<11100	NR	<6250	<7140	<9350	<2560
Aroclor 1248	123000	<3030	<11600	<3120	283000	NR	650000	<7140	<9350	<2560
Aroclor 1254	<2170	<3030	<11600	<3120	<11100	NR	<6250	<7140	<9350	<2560
Aroclor 1260	<2170	<3030	<11600	<3120	<11100	NR	<6250	<7140	<9350	<2560
Total PCBs ¹	123000	NR	NR	NR	283000	NR	650000	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-061/61B	GC-SD-XX-062/62A	GC-SD-XX-062/62B	GC-SD-XX-054/54A	GC-SD-XX-054/54B	GC-SD-XX-054/54C	GC-SD-XX-055/55A	GC-SD-XX-055/55B	GC-SD-XX-055/55C	GC-SD-XX-056/56A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	IHC	IHC	IHC	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	8-12.9	0-7.9	8-12.9	0-7.9	8-12.9	13-?	0-7.9	8-12.9	13-?	0-7.9
Latitude	41.63535	41.6385	41.6385	41.61803	41.61803	41.61803	41.61409	41.61409	41.61409	41.6142
Longitude	-87.47121	-87.4712	-87.4712	-87.47142	-87.47142	-87.47142	-87.47974	-87.47974	-87.47974	-87.4801
Percent TOC	0.95	13	11.45	4.3	4.1	3.9	4.75	2.85	2	1.3
Percent Moisture	31.2	57.1	42.2	50.2	57.1	67.4	58.575	51.4	50.4	69.2
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	3580	1370	380	22400	42200	1540	5740	<10500	<500	<30800
Benz[a]anthracene	<643000	242000	406000	765000	<226000	<272000	3940000	<342000	<426000	1410000
Benzo(a)pyrene	<858000	166000	303000	388000	<302000	<362000	974000	<456000	<570000	<650000
Benzo(k)fluoranthene	<858000	131000	199000	<270000	<302000	<362000	682000	<456000	<570000	<650000
Chrysene	805000	368000	602000	1800000	<226000	<272000	6540000	380000	<426000	2950000
Dibenz[a,h]anthracene	<1030000	<77700	58400	<323000	<361000	<433000	337000	<547000	<680000	<777000
Indeno(1,2,3-c,d)pyrene	<1030000	97700	185000	<323000	<361000	<433000	314000	<547000	<680000	<777000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10500	<769	<873	<2330	<2440	<2560	<2110	<3510	<5000	<7690
Aroclor 1242	<10500	<769	<873	<2330	<2440	<2560	<2110	<3510	<5000	<7690
Aroclor 1248	<10500	<769	34500	<2330	<2440	<2560	<2110	<3510	<5000	<7690
Aroclor 1254	<10500	<769	<873	<2330	<2440	<2560	<2110	<3510	<5000	<7690
Aroclor 1260	<10500	<769	<873	<2330	<2440	<2560	<2110	<3510	<5000	<7690
Total PCBs ¹	NR	NR	34500	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.6 Sediment chemistry data used to assess injury to human uses of fishery resources (Floyd-Browne 1993; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC-SD-XX-056/56B	GC-SD-XX-056/56C
Geographic Area	GCR/IHC	GCR/IHC
Reach	WBGCR I	WBGCR I
Sampling Year	1991	1991
Depth (ft)	8-12.9	13-?
Latitude	41.6142	41.6142
Longitude	-87.4801	-87.4801
Percent TOC	6.9	4.9
Percent Moisture	66.2	65.5
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>		
Benzene	8610	<408
Benz[a]anthracene	396000	<196000
Benzo(a)pyrene	267000	<261000
Benzo(k)fluoranthene	249000	<261000
Chrysene	610000	<196000
Dibenz[a,h]anthracene	<188000	<314000
Indeno(1,2,3-c,d)pyrene	<188000	<314000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>		
Aroclor 1016	<1450	<2040
Aroclor 1242	<1450	<2040
Aroclor 1248	<1450	<2040
Aroclor 1254	<1450	<2040
Aroclor 1260	<1450	<2040
Total PCBs ¹	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; IHC = Indiana Harbor Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.7 Sediment chemistry data used to assess injury to human uses of fishery resources (USEPA 1991; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	S08	S09	S10	S11	D11	S12	S13	S14	S15	S16	S17	S18
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	USC	USC	USC	USC	USC	USC	USC	USC	USC	USC	USC	USC
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.65942	41.65883	41.65818	41.65554	41.65554	41.65481	41.65377	41.65304	41.65206	41.65104	41.64856	41.64823
Longitude	-87.45333	-87.45407	-87.45573	-87.45943	-87.45943	-87.46023	-87.46056	-87.4618	-87.4631	-87.46642	-87.46892	-87.46875
Percent TOC	4.1	31	37	28	18	17	38	12	26	23	22	23
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>												
Benz[a]anthracene	163000	58100	97300	4640	22800	20600	145000	158000	92300	87000	114000	95700
Benzo(a)pyrene	129000	41900	64900	7140	22800	19400	145000	91700	80800	91300	118000	113000
Benzo(k)fluoranthene	56100	11900	19700	2750	10000	5590	60500	39200	42300	35700	54500	60900
Chrysene	17100	74200	130000	7140	41700	31800	211000	225000	131000	126000	159000	135000
Dibenz[a,h]anthracene	19300	8060	8920	<17500	<20000	<25300	19700	18300	12700	13000	18600	11700
Indeno(1,2,3-c,d)pyrene	82900	24200	37800	5710	<20000	10600	92100	66700	57700	73900	95500	87000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; USC = United States Canal.

Table A3.7 Sediment chemistry data used to assess injury to human uses of fishery resources (USEPA 1991; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	S19	S01	S02	S03	S04	D04	S05	S06	S07
Geographic Area	GCR/IHC	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM
Reach	USC	IH	IH	IH	IH	IH	IH	IH	IH
Sampling Year	1991	1991	1991	1991	1991	1991	1991	1991	1991
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.64979	41.66865	41.66617	41.66536	41.66484	41.66484	41.66567	41.66693	41.66886
Longitude	-87.46766	-87.43647	-87.43829	-87.43798	-87.438	-87.438	-87.43906	-87.44065	-87.43814
Percent TOC	23	31	27	15	18	32	16	18	17
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	65200	41900	21500	66700	167000	71900	81300	49400	52900
Benzo(a)pyrene	82600	22900	20400	73300	139000	65600	62500	54400	22900
Benzo(k)fluoranthene	33500	8390	9630	28000	51700	26600	24400	17200	6470
Chrysene	91300	48400	33300	66700	183000	100000	93800	61100	64700
Dibenz[a,h]anthracene	14800	5480	5190	<47300	23900	11600	12500	<41100	5590
Indeno(1,2,3-c,d)pyrene	60900	13500	14400	58700	94400	53100	41900	40600	12400

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH = Indiana Harbor; LM = Lake Michigan; USC = United States Canal.

Table A3.8 Sediment chemistry data used to assess injury to human uses of fishery resources (IDEM 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	085-94	086-94	025-90	026-90	033-92	063-94	064-94	087-94
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	USC	USC	USC	USC	USC	WBGCR II
Sampling Year	1994	1994	1990	1990	1992	1994	1994	1994
Depth (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Latitude	41.61409	41.61409	41.65525	41.65525	41.65525	41.65525	41.65525	41.6144
Longitude	-87.4614	-87.4614	-87.4592	-87.4592	-87.4592	-87.4592	-87.4592	-87.4806
Percent TOC	10.52	10.4	9.37	11.53	9.065	15.86	10.36	18.64
Percent Moisture	54.5	62.5	53	48	52.5	69.4	55.9	74.8
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	NR	NR	331	217	1070	NR	NR	NR
Benz[a]anthracene	209000	96200	171000	104000	205000	47300	78200	59000
Benzo(a)pyrene	171000	32700	104000	83300	90500	61800	59800	24700
Benzo(k)fluoranthene	<171000	58700	<149000	<113000	74300	29600	29900	34900
Chrysene	447000	38500	203000	147000	1550000	94600	174000	24100
Dibenz[a,h]anthracene	22800	21200	<149000	<113000	19700	13200	13500	11300
Indeno(1,2,3-c,d)pyrene	44700	15400	65100	45100	124000	26500	22200	14500
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<20900	<12800	<227	<167	<58600	<8240	<8750	<10600
Aroclor 1242	<20900	<12800	145000	155000	<58600	<8240	<8750	<10600
Aroclor 1248	148000	97400	<227	<167	204000	45300	125000	42600
Aroclor 1254	<20900	<12800	36300	35000	<58600	<8240	<8750	<10600
Aroclor 1260	<20900	<12800	3180	2500	<58600	<8240	<8750	<10600
Total PCBs ¹	148000	97400	185000	193000	204000	45300	125000	42600
<i>Pesticides (µg/kg OC)</i>								
Chlordane ¹	NR	NR	1360	367	NR	824	1570	NR

Table A3.8 Sediment chemistry data used to assess injury to human uses of fishery resources (IDEM 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	085-94	086-94	025-90	026-90	033-92	063-94	064-94	087-94
<i>Pesticides (µg/kg OC)</i>								
Dieldrin	<418	<257	318	167	<1170	577	219	<575
Endrin	<4180	<2560	<1700	<1250	<11700	<206	136	<2130
Heptachlor	<2090	<1280	<568	<417	<5860	556	1930	<1060
Heptachlor epoxide	<1610	<2030	<863	<634	<5860	1650	3500	<1060
Lindane	<418	<257	<171	<125	<1170	<20.8	153	<213
p,p'-DDD	<836	<512	908	717	<2340	268	482	958
p,p'-DDE	<1150	<795	<227	<167	<2340	701	1360	<958
p,p'-DDT	<836	<512	<568	<417	<2340	289	306	<426

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, WBGCR = West Branch of the Grand Calumet River; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	COL1-13	COL2-37	COL2-38	COL2-39	COL2-40	COL2-41	COL2-42	COL2-46	COL2-47	MOL1-17	MOL2-48
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	0-1	0-3	3-6	6-7.2	0-3	3-6	6-7.1	0-3	0-3	0-3	0-3
Latitude	41.61866	41.61866	41.61866	41.61866	41.61866	41.61866	41.61866	41.6186	41.6188	41.6159	41.6159
Longitude	-87.4997	-87.4997	-87.4997	-87.4997	-87.4997	-87.4997	-87.4997	-87.4997	-87.4997	-87.4938	-87.4938
Percent TOC	1.3	2.2	4.8	7.4	3.4	7.3	6.9	1.4	3.8	11.72	12.5
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>											
Benzene	<5150	NR	NR	NR	NR	NR	NR	NR	NR	<1020	NR
Benz[a]anthracene	231000	159000	375000	716000	353000	411000	464000	<857000	447000	358000	448000
Benzo(a)pyrene	254000	<300000	185000	311000	235000	192000	232000	<857000	237000	265000	192000
Benzo(k)fluoranthene	146000	<300000	<219000	<446000	<241000	<219000	<319000	<857000	<276000	58900	<144000
Chrysene	262000	259000	500000	757000	588000	603000	522000	443000	868000	734000	960000
Dibenz[a,h]anthracene	<354000	<300000	<219000	<446000	<241000	<219000	<319000	<857000	<276000	<128000	<144000
Indeno(1,2,3-c,d)pyrene	192000	<300000	123000	<446000	147000	91800	<319000	<857000	<276000	73400	<144000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	MOL2-50	MOL2-52	MOL2-54	MOL2-56	MOL2-58	MOL2-59	MOL2-60	MOL2-61	MOL2-68	MOL2-70	ROX1-21A
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	3-6	6-9	9-12	12-13	0-3	3-6	6-9	9-11.7	0-3	0-3	0-3
Latitude	41.6159	41.6159	41.6159	41.6159	41.6159	41.6159	41.6159	41.6159	41.61595	41.616	41.6163
Longitude	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4938	-87.4903
Percent TOC	9	6.8	8	1.3	15.8	9.7	8.7	5.5	18.1	17.4	8.4
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>											
Benzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	679
Benz[a]anthracene	456000	83800	<65000	<154000	627000	47400	<43700	<65500	2320000	1090000	167000
Benzo(a)pyrene	244000	<76500	<65000	<154000	266000	20600	<43700	<65500	884000	420000	143000
Benzo(k)fluoranthene	<256000	<76500	<65000	<154000	<171000	<25800	<43700	<65500	<298000	39700	21400
Chrysene	889000	137000	<65000	<154000	1330000	92800	28700	<65500	4030000	1320000	369000
Dibenz[a,h]anthracene	<256000	<76500	<65000	<154000	<171000	<25800	<43700	<65500	144000	<16700	<131000
Indeno(1,2,3-c,d)pyrene	<256000	<76500	<65000	<154000	<171000	<25800	<43700	<65500	144000	92000	<131000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	ROX1-21B	ROX2-71	ROX2-72	ROX2-73	ROX2-74	ROX2-75	ROX2-76	ROX2-80	ROX2-81	ROX2-82	ROX2-84
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	0-3	0-3	3-6	6-7.5	0-3	3-6	6-7.7	0-3	0-3	0-3	3-6
Latitude	41.6163	41.6163	41.6163	41.6163	41.6163	41.6163	41.6163	41.61617	41.6164	41.6188	41.6188
Longitude	-87.4903	-87.4903	-87.4903	-87.4903	-87.4903	-87.4903	-87.4903	-87.4902	-87.4903	-87.4864	-87.4864
Percent TOC	6.5	19.2	15.2	9.1	13.4	14.8	10.5	4	8.5	5.8	5.1
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>											
Benzene	<2460	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Benz[a]anthracene	385000	365000	289000	46200	261000	203000	<50500	173000	200000	<32800	<58800
Benzo(a)pyrene	200000	161000	158000	27500	179000	115000	<50500	133000	119000	<32800	<58800
Benzo(k)fluoranthene	29200	<83300	<138000	<51600	<41000	<50000	<50500	<52500	16500	<32800	<58800
Chrysene	862000	781000	553000	89000	343000	358000	<50500	400000	412000	<32800	<58800
Dibenz[a,h]anthracene	29200	<83300	<138000	<51600	29900	<50000	<50500	17500	<68200	<32800	<58800
Indeno(1,2,3-c,d)pyrene	41500	<83300	<138000	<51600	36600	26400	<50500	25000	22400	<32800	<58800

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	ROX2-86	ROX2-88	ROX2-89	ROX2-90	ROX2-94	ROX2-95	SOHL1-09	SOHL2-21	SOHL2-23	SOHL2-25	SOHL2-27
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	6-7.8	0-3	3-6	6-7.2	0-3	0-3	0-3	0-3	3-6	6-6.5	0-3
Latitude	41.6188	41.6188	41.6188	41.6188	41.6187	41.6188	41.6222	41.6222	41.6222	41.6222	41.6222
Longitude	-87.4864	-87.4864	-87.4864	-87.4864	-87.4864	-87.48642	-87.5127	-87.5127	-87.5127	-87.5127	-87.5127
Percent TOC	4.5	6.7	6.2	4.3	13.3	8.9	1.96	10.7	9.4	6.3	11.3
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>											
Benzene	NR	NR	NR	NR	NR	NR	816	NR	NR	NR	NR
Benz[a]anthracene	<68900	<46300	<53200	<55800	143000	<52800	969000	1590000	883000	190000	858000
Benzo(a)pyrene	<68900	<46300	<53200	<55800	113000	<52800	1120000	916000	489000	96800	389000
Benzo(k)fluoranthene	<68900	<46300	<53200	<55800	241000	<52800	474000	252000	<543000	<190000	<407000
Chrysene	<68900	<46300	<53200	<55800	308000	<52800	1070000	1780000	915000	173000	850000
Dibenz[a,h]anthracene	<68900	<46300	<53200	<55800	<241000	<52800	168000	<72000	<543000	<190000	<407000
Indeno(1,2,3-c,d)pyrene	<68900	<46300	<53200	<55800	<241000	<52800	816000	402000	<543000	<190000	<407000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	SOHL2-28	SOHL2-29	SOHL2-33	SOHL2-35	SOHL2-96	STATE1-05	STATE2-09	STATE2-13	STATE2-14	STATE2-19
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	3-6	6-7	0-3	3-6	6-7.8	0-3	3-4.3	0-3	3-5.1	0-3
Latitude	41.6222	41.6222	41.6222	41.6222	41.6222	41.62546	41.62546	41.62546	41.62546	41.6254
Longitude	-87.5127	-87.5127	-87.5127	-87.5127	-87.5127	-87.5201	-87.5201	-87.5201	-87.5201	-87.5201
Percent TOC	7.6	5.1	5.1	7.8	6.4	10.1	11.3	13.4	4.6	10.7
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benzene	NR	NR	NR	NR	NR	<1880	NR	NR	NR	NR
Benz[a]anthracene	421000	72500	167000	436000	78100	931000	1240000	679000	<222000	738000
Benzo(a)pyrene	<526000	<118000	82400	231000	42200	574000	575000	358000	<222000	402000
Benzo(k)fluoranthene	<526000	<118000	33300	<269000	<109000	168000	<938000	<724000	<222000	<570000
Chrysene	434000	70600	196000	487000	73400	980000	1330000	694000	<222000	1310000
Dibenz[a,h]anthracene	<526000	<118000	<114000	<269000	<109000	71300	<938000	<724000	<222000	<570000
Indeno(1,2,3-c,d)pyrene	<526000	<118000	66700	141000	<109000	228000	<938000	<724000	<222000	<570000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.9 Sediment chemistry data used to assess injury to human uses of fishery resources (Burton 1994; Dorkin 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	STATE2-20	TORR1-01A	TORR2-01	TORR2-02	TORR2-03
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1993	1993	1993	1993	1993
Depth (ft)	0-3	0-3	0-3	3-6	6-7.5
Latitude	41.6255	41.64554	41.64554	41.64554	41.64554
Longitude	-87.5201	-87.558	-87.558	-87.558	-87.558
Percent TOC	9.3	11.7	11.7	11.7	1.8
Percent Moisture	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>					
Benzene	NR	427	NR	NR	NR
Benz[a]anthracene	731000	316000	214000	171000	<200000
Benzo(a)pyrene	387000	239000	162000	75200	<200000
Benzo(k)fluoranthene	129000	69200	<359000	<103000	<200000
Chrysene	828000	462000	342000	308000	<200000
Dibenz[a,h]anthracene	<581000	37600	<359000	<103000	<200000
Indeno(1,2,3-c,d)pyrene	129000	128000	<359000	<103000	<200000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.10 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHST 93-1-1	IHST 93-1-2	IHST 93-1-3	IHST 93-1-4	IHST 93-1-5	IHST 93-2-1	IHST 93-2-2	IHST 93-2-3	IHST 93-2-4
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	USC	USC	USC	USC	USC	USC	USC	USC	USC
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	13.1-17.1	17.1-21.1	21.1-25.1	25.1-29.1	29.1-33.1	11.6-15.6	15.6-19.6	19.6-23.6	23.6-27.6
Latitude	41.64075	41.64075	41.64075	41.64075	41.64075	41.64233	41.64233	41.64233	41.64233
Longitude	-87.4711	-87.4711	-87.4711	-87.4711	-87.4711	-87.4713	-87.4713	-87.4713	-87.4713
Percent TOC	12.98	10.76	9.25	7.36	8.81	13.92	12.65	9.86	10.75
Percent Moisture	64	52	45	40	49	64	60	51	49
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	125000	125000	163000	186000	213000	125000	111000	117000	135000
Benzo(a)pyrene	107000	82700	110000	124000	97600	118000	86200	75100	84700
Benzo(k)fluoranthene	77800	52000	63800	76100	32900	86200	55300	49700	54900
Chrysene	151000	165000	202000	230000	398000	142000	138000	155000	165000
Dibenz[a,h]anthracene	13100	11200	13000	16300	20400	12900	11100	9130	10200
Indeno(1,2,3-c,d)pyrene	73200	45500	65900	72000	44300	82600	54500	40600	47400
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1242	<1030	<919	<990	<1230	<1130	<941	<1020	<1030	<957
Aroclor 1248	127000	375000	509000	627000	43800	110000	244000	519000	594000
Aroclor 1254	<1030	<919	<990	<1230	<1130	<941	<1020	<1030	<957
Aroclor 1260	<1030	<919	<990	<1230	<1130	<941	<1020	<1030	<957
Total PCBs ¹	127000	375000	509000	627000	43800	110000	244000	519000	594000
<i>Pesticides (µg/kg OC)</i>									
Dieldrin	131	191	177	166	66.1	71.3	179	230	136
Endrin	<33.9	<30.4	<32.6	<40.6	<37.3	<31.0	<33.8	<34.0	<31.6
Heptachlor	<30.1	<27.0	<29.1	<36.1	<33.1	<27.6	<30.0	<30.2	<28.1

Table A3.10 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHST 93-1-1	IHST 93-1-2	IHST 93-1-3	IHST 93-1-4	IHST 93-1-5	IHST 93-2-1	IHST 93-2-2	IHST 93-2-3	IHST 93-2-4
<i>Pesticides (µg/kg OC; cont.)</i>									
Heptachlor epoxide	61.9	<27.0	<29.1	100	<33.1	73	<30.0	<30.2	<28.1
Lindane	51.8	<26.7	<28.8	<35.7	<32.8	<27.3	<29.7	<29.9	<27.8
p,p'-DDD	448	939	1510	2060	343	322	610	1320	1850
p,p'-DDE	358	344	543	487	190	405	403	347	134
p,p'-DDT	<31.7	<28.4	<30.7	<38.2	<35.1	<29.2	<31.7	<31.9	<29.7

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.10 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHST 93-2-5	IHST 93-3-1	IHST 93-3-2	IHST 93-3-3	IHST 93-3-4	IHST 93-4-2	IHST 93-4-3	IHST 93-4-4	IHST 93-4-5
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	USC	USC	USC	USC	USC	USC	USC	USC	USC
Sampling Year	1993	1993	1993	1993	1993	1993	1993	1993	1993
Depth (ft)	27.6-29.6	6.9-10.9	10.9-14.9	14.9-18.9	18.9-22.9	0.3-4.3	4.3-8.3	8.3-12.3	12.3-16.3
Latitude	41.64233	41.64323	41.64323	41.64323	41.64323	41.64611	41.64611	41.64611	41.64611
Longitude	-87.4713	-87.4713	-87.4713	-87.4713	-87.4713	-87.4719	-87.4719	-87.4719	-87.4719
Percent TOC	13.44	7.84	14.46	11.94	7.27	12.8	10.94	10.44	6.81
Percent Moisture	55	64	52	47	39	54	40	42	34
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	91500	330000	89200	157000	792000	224000	723000	1480000	1710000
Benzo(a)pyrene	45400	311000	56000	100000	316000	135000	333000	679000	687000
Benzo(k)fluoranthene	21600	235000	31100	74500	71500	73400	93200	114000	119000
Chrysene	147000	358000	120000	193000	1680000	361000	1420000	3100000	3600000
Dibenz[a,h]anthracene	7440	31900	6920	13400	79800	22700	24700	155000	167000
Indeno(1,2,3-c,d)pyrene	24600	221000	29700	60300	103000	71900	122000	196000	207000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1242	<798	<1730	<764	<899	<1460	<901	<797	<878	<1250
Aroclor 1248	13500	262000	350000	836000	124000	332000	272000	<878	<1250
Aroclor 1254	<798	<1730	<764	<899	<1460	<901	<797	<878	<1250
Aroclor 1260	<798	<1730	<764	<899	<1460	<901	<797	<878	<1250
Total PCBs ¹	13500	262000	350000	836000	124000	332000	272000	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Dieldrin	103	230	177	215	337	194	190	<25.0	<35.7
Endrin	<26.3	<57.3	<25.2	<29.6	<48.0	<29.8	<26.3	<29.0	<41.4
Heptachlor	<23.4	<50.9	<22.4	<26.4	<42.6	<26.5	<23.4	<25.8	<36.9

Table A3.10 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1994; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHST 93-2-5	IHST 93-3-1	IHST 93-3-2	IHST 93-3-3	IHST 93-3-4	IHST 93-4-2	IHST 93-4-3	IHST 93-4-4	IHST 93-4-5
<i>Pesticides (µg/kg OC; cont.)</i>									
Heptachlor epoxide	<23.4	<50.9	<22.4	<26.4	168	<26.5	<23.4	<25.8	<36.9
Lindane	<23.2	<50.4	<22.2	<26.1	<42.2	<26.2	<23.1	<25.5	<36.4
p,p'-DDD	204	726	866	2650	618	1060	1110	486	650
p,p'-DDE	378	660	243	305	<42.0	257	230	<25.4	<36.3
p,p'-DDT	<24.7	<53.7	<23.7	<27.9	<45.1	<28.0	<24.7	<27.2	<38.9

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; USC = United States Canal.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.11 Sediment chemistry data used to assess injury to human uses of fishery resources (Gillespie et al. 1998; USDOJ 1994; bolded values indicate an exceedance of bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	ML2	WL4	WL5
Geographic Area	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL
Sampling Year	1995	1995	1995
Depth (ft)	0.66-0.98	0.66-0.98	0.66-0.98
Latitude	41.61527	41.6133	41.61176
Longitude	-87.2731	-87.2889	-87.2931
Percent TOC	0.1	5.1	34.1
Percent Moisture	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>			
Benz[a]anthracene	<700000	<13700	1530000
Benzo(a)pyrene	<700000	<13700	1300000
Benzo(k)fluoranthene	<700000	19600	604000
Chrysene	<700000	<13700	1330000
Indeno(1,2,3-c,d)pyrene	<700000	<13700	648000

OC = organic carbon; TOC = total organic carbon; NR = not reported; GCRL = Grand Calumet River Lagoons.

Table A3.12 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1996; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	001	002	003	004	005	006
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1996	1996	1996	1996	1996	1996
Depth (ft)	0-2	0-3	0-1	2-3	0-2	0-4
Latitude	41.61588	41.61546	41.61589	41.61329	41.61358	41.61221
Longitude	-87.264	-87.2725	-87.2789	-87.2811	-87.2863	-87.2924
Percent TOC	6.65	10.4	9.11	8.87	10.8	38.1
Percent Moisture	79	80	75	77	74	87
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>						
Benz[a]anthracene	<14300	<9620	<8780	<9810	<7130	13100000
Benzo(a)pyrene	<14300	<9620	<8780	<9810	<7130	1230000
Benzo(k)fluoranthene	<14300	<9620	<8780	<9810	<7130	1000000
Chrysene	<14300	<9620	<8780	<9810	<7130	14400000
Dibenz[a,h]anthracene	<14300	<9620	<8780	<9810	<7130	<814000
Indeno(1,2,3-c,d)pyrene	<14300	<9620	<8780	<9810	<7130	<814000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>						
Aroclor 1016	<1430	<962	<878	<981	<713	<394
Aroclor 1242	<1430	<962	<878	<981	<713	<394
Aroclor 1248	<1430	<962	<878	<981	<713	<394
Aroclor 1254	<1430	<962	<878	<981	<713	<394
Aroclor 1260	<1430	<962	<878	<981	<713	<394
<i>Pesticides (µg/kg OC)</i>						
Dieldrin	<143	<96.2	<87.8	<98.1	<71.3	<39.4
Endrin	<143	<96.2	<87.8	<98.1	<71.3	<39.4
Heptachlor	<72.2	<48.1	<43.9	<49.6	<36.1	<20.2

Table A3.12 Sediment chemistry data used to assess injury to human uses of fishery resources (USACE 1996; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	001	002	003	004	005	006
<i>Pesticides (µg/kg OC; cont.)</i>						
Heptachlor epoxide	<72.2	<48.1	<43.9	<49.6	<36.1	<20.2
Lindane	<72.2	<48.1	<43.9	<49.6	<36.1	<20.2
p,p'-DDD	<436	<288	<263	<293	<213	<121
p,p'-DDE	<143	<96.2	<87.8	<98.1	<71.3	<39.4
p,p'-DDT	<436	<288	<263	<293	<213	<121

OC = organic carbon; TOC = total organic carbon; GCRL = Grand Calumet River Lagoons.

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S01	97CG82S02	97CG82S03	97CG82D03	97CG82S04	97CG82S05	97CG82S06	97CG82D06	97CG82S07	97CG82S08
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6124	41.6131	41.613	41.613	41.613	41.6136	41.6136	41.6136	41.6136	41.6142
Longitude	-87.3821	-87.3834	-87.3825	-87.3825	-87.3816	-87.3839	-87.383	-87.383	-87.3821	-87.3834
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	29.59	77.585	59.31	27.08	21.715	88.445	31.16	30.315	19.995	46.075
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<74000	<230000	<130000	<84000	<76000	<370000	<75000	<82000	<78000	<90000
Benzo(a)pyrene	<74000	<230000	<130000	<84000	<76000	<370000	<75000	<82000	<78000	13000
Chrysene	<74000	24000	<130000	<84000	<76000	<370000	<75000	<82000	<78000	9600
Dibenz[a,h]anthracene	<74000	<230000	<130000	<84000	<76000	<370000	<75000	<82000	<78000	9400
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aroclor 1242	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aroclor 1248	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aroclor 1254	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aroclor 1260	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<500	<1300	<700	<500	<500	<2400	<400	<400	<400	<500

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S01	97CG82S02	97CG82S03	97CG82D03	97CG82S04	97CG82S05	97CG82S06	97CG82D06	97CG82S07	97CG82S08
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	<500	<1300	<700	<500	<500	<2400	<400	<400	<400	<500
Heptachlor	<300	<600	<400	<300	<300	<1200	<200	<200	<66200	<300
Heptachlor epoxide	<300	<600	<400	<300	<300	<1200	<200	<200	<200	<300
Lindane	<300	<600	<400	<300	<300	<1200	<200	<200	<200	<300
p,p'-DDD	<500	<1300	<700	<500	<500	<2400	<400	<400	<400	<500
p,p'-DDE	<500	<1300	<700	<500	<500	<2400	<400	<400	<400	<500
p,p'-DDT	<500	<1300	<700	<500	<500	<2400	<400	<400	<400	<500

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S09	97CG82S10	97CG82S11	97CG82S12	97CG82S13	97CG82S14	97CG82S15	97CG82D15	97CG82S16	97CG82S17
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6142	41.6142	41.6148	41.6156	41.6156	41.6156	41.6165	41.6165	41.6165	41.6165
Longitude	-87.3825	-87.3816	-87.3839	-87.3838	-87.3826	-87.3815	-87.3838	-87.3838	-87.3826	-87.3815
Percent TOC	1	1	1	1	1	1	1	1.3	1.1	1.2
Percent Moisture	20.81	19.29	26.195	23.31	50.705	59.49	54.59	52.78	45.28	63.825
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<88000	<8000	<72000	<94000	18000	28000	11000	<92300	13600	37500
Benzo(a)pyrene	<88000	<88000	<72000	<94000	21000	30000	12000	<92300	14500	40800
Chrysene	<88000	<88000	<72000	<94000	22000	36000	12000	<92300	18200	47500
Dibenz[a,h]anthracene	<88000	<88000	<72000	<94000	<100000	<110000	<100000	<92300	<86400	<125000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	NR	NR	NR	NR	NR	<13000	NR	NR	NR	NR
Aroclor 1242	NR	NR	NR	NR	NR	<13000	NR	NR	NR	NR
Aroclor 1248	NR	NR	NR	NR	NR	<13000	NR	NR	NR	NR
Aroclor 1254	NR	NR	NR	NR	NR	<13000	NR	NR	NR	NR
Aroclor 1260	NR	NR	NR	NR	NR	<13000	NR	NR	NR	NR
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<400	<400	<400	<500	<500	<700	<500	<538	<455	<667

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S09	97CG82S10	97CG82S11	97CG82S12	97CG82S13	97CG82S14	97CG82S15	97CG82D15	97CG82S16	97CG82S17
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	<400	<400	<400	<500	<500	<700	<500	<538	<455	<667
Heptachlor	<200	<200	<200	<300	<300	<400	<300	<308	<273	<333
Heptachlor epoxide	<200	<200	<200	<300	<300	<400	<300	<308	<273	<333
Lindane	<200	<200	<200	<300	<300	<400	<300	<308	<273	<333
p,p'-DDD	<400	<400	<400	<500	<500	<700	<500	<538	<455	<667
p,p'-DDE	<400	<400	<400	<500	<500	<700	<500	<538	<455	<667
p,p'-DDT	<400	<400	<400	<500	<2500	<700	<500	<538	<455	<667

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S18	97CG82S19	97CG82S20	97CG82S21	97CG82D21	97CG84S01	97CG84S02	97CG84S03	97CG84D03	97CG84S04
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6174	41.6174	41.6183	41.6183	41.6183	41.6078	41.6078	41.6078	41.6078	41.6081
Longitude	-87.3838	-87.3826	-87.3838	-87.3826	-87.3826	-87.3827	-87.3823	-87.3819	-87.3819	-87.3831
Percent TOC	1.2	1.5	1.7	1.2	1	1	1	1	1	1
Percent Moisture	37.41	42.915	33.185	57.81	63.99	21.5	22.615	61.915	38.48	22.08
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	542000	8000	141000	24200	27000	<87000	<76000	63000	67000	<82000
Benzo(a)pyrene	575000	9330	147000	25800	32000	<87000	<76000	100000	100000	<82000
Chrysene	575000	10000	165000	30000	37000	<87000	<76000	73000	69000	<82000
Dibenz[a,h]anthracene	83300	<65300	21800	<100000	<120000	<87000	<76000	<130000	<90000	<82000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	NR	NR	NR	NR	NR	NR	NR	<200000	<100000	NR
Aroclor 1242	NR	NR	NR	NR	NR	NR	NR	<200000	<100000	NR
Aroclor 1248	NR	NR	NR	NR	NR	NR	NR	2850000	690000	NR
Aroclor 1254	NR	NR	NR	NR	NR	NR	NR	<13000	<10000	NR
Aroclor 1260	NR	NR	NR	NR	NR	NR	NR	<13000	<10000	NR
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	2850000	690000	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<417	<400	<235	<583	<800	<400	<500	<5000	<4000	<500

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG82S18	97CG82S19	97CG82S20	97CG82S21	97CG82D21	97CG84S01	97CG84S02	97CG84S03	97CG84D03	97CG84S04
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	<417	<400	<235	<583	<800	<400	<500	<5000	<4000	<500
Heptachlor	<250	<200	<118	<333	<400	<200	<300	<3000	<2000	<300
Heptachlor epoxide	<250	<200	<118	<333	<400	<200	<300	<3000	<2000	<300
Lindane	<250	<200	<118	<333	<400	<200	<300	<3000	<2000	<300
p,p'-DDD	<417	<400	<235	<583	<800	<400	<500	<5000	<4000	<500
p,p'-DDE	<417	<400	<235	<583	<800	<400	<500	<5000	<4000	<500
p,p'-DDT	<417	<400	<235	<583	<800	<400	<500	<5000	<4000	<500

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG84S05	97CG84S06	97CG84S07	97CG84S08	97CG84S09	97CG84D09	97CG84S10	97CG84S11	97CG84S12	97CG84S13
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6081	41.6081	41.6081	41.6084	41.6084	41.6084	41.6084	41.6084	41.6084	41.6087
Longitude	-87.3827	-87.3823	-87.3819	-87.3835	-87.3831	-87.3831	-87.3827	-87.3823	-87.3819	-87.384
Percent TOC	1	1	1	1	1	1	1.3	1	1	1
Percent Moisture	80.12	86.88	83.31	44.305	84.58	85.58	74.075	76.785	24.885	23.81
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	240000	230000	240000	33000	520000	160000	154000	90000	<81000	<74000
Benzo(a)pyrene	370000	330000	370000	55000	460000	240000	162000	110000	<81000	<74000
Chrysene	290000	300000	310000	37000	580000	200000	192000	120000	<81000	<74000
Dibenz[a,h]anthracene	<550000	<720000	<550000	<80000	<650000	<350000	<277000	<180000	<81000	<74000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<30000	<40000	<40000	<10000	<40000	NR	<12300	<20000	<10000	NR
Aroclor 1242	<30000	<40000	<40000	<10000	<40000	NR	<12300	<20000	<10000	NR
Aroclor 1248	130000	290000	230000	14000	170000	NR	61500	100000	<10000	NR
Aroclor 1254	<30000	<40000	<40000	<10000	<40000	NR	<12300	<20000	<10000	NR
Aroclor 1260	<30000	<40000	<40000	<10000	<40000	NR	<12300	<20000	<10000	NR
Total PCBs ¹	130000	290000	230000	14000	170000	NR	61500	100000	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<4000	<16000	<16000	<5000	<16000	<16000	<6150	<10000	<5000	<400

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG84S05	97CG84S06	97CG84S07	97CG84S08	97CG84S09	97CG84D09	97CG84S10	97CG84S11	97CG84S12	97CG84S13
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	<4000	<16000	<16000	<5000	<16000	<16000	<6150	<10000	<5000	<400
Heptachlor	<2000	<8000	<8000	<3000	<8000	<8000	<3080	<5000	<3000	<200
Heptachlor epoxide	<2000	<8000	<8000	<3000	<8000	<8000	<3080	<5000	<3000	<200
Lindane	<2000	<8000	<8000	<3000	<8000	<8000	<3080	<5000	<3000	<200
p,p'-DDD	<4000	<16000	<16000	<5000	<16000	<16000	<6150	<10000	<5000	<400
p,p'-DDE	<4000	<16000	<16000	<5000	<8000	<16000	<6150	<10000	<5000	<400
p,p'-DDT	<4000	<16000	<16000	<5000	<16000	<16000	<6150	<10000	<5000	<400

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG84S14	97CG84S15	97CG84S16	97CG84S17	97CG84S18	97CG84S19	98CG50S06 South Bonji #2	98CG50S07 South Bonji #5	98CG50S08 North Bonji #6
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II
Sampling Year	1997	1997	1997	1997	1997	1997	1998	1998	1998
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6087	41.6087	41.6087	41.6087	41.6087	41.609	41.6131	41.6136	41.6165
Longitude	-87.3835	-87.3831	-87.3827	-87.3823	-87.3819	-87.3827	-87.3834	-87.3839	-87.3815
Percent TOC	1	1	1	1	1	1	0.04	0.86	1.34
Percent Moisture	72.2	83.12	68.705	26.695	37.89	27.115	75.2406	81.5641	52.40355
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	140000	240000	32000	13000	21000	14000	<5000000	52300	56000
Benzo(a)pyrene	190000	330000	50000	20000	29000	19000	<5000000	58100	44000
Chrysene	140000	250000	42000	17000	32000	22000	<5000000	76700	69400
Dibenz[a,h]anthracene	<180000	46000	<160000	<86000	<93000	<75000	<5000000	<209000	<82100
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<20000	<30000	<20000	NR	NR	NR	<350000	NR	<5220
Aroclor 1242	<20000	<30000	<20000	NR	NR	NR	<350000	NR	<5220
Aroclor 1248	130000	230000	90000	NR	NR	NR	<350000	NR	<5220
Aroclor 1254	<20000	<30000	<20000	NR	NR	NR	<350000	NR	<5220
Aroclor 1260	<20000	<30000	<20000	NR	NR	NR	<350000	NR	<5220
Total PCBs ¹	130000	230000	90000	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<10000	<16000	<8000	<5000	<4000	<4000	<17500	<1160	<299

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG84S14	97CG84S15	97CG84S16	97CG84S17	97CG84S18	97CG84S19	98CG50S06 South Bonji #2	98CG50S07 South Bonji #5	98CG50S08 North Bonji #6
<i>Pesticides (µg/kg OC; cont.)</i>									
Endrin	<10000	<16000	<8000	<5000	<4000	<4000	<17500	<1160	<299
Heptachlor	<5000	<8000	<4000	<3000	<2000	<2000	<10000	<581	<149
Heptachlor epoxide	<5000	<8000	<4000	<3000	<2000	<2000	<10000	<581	<149
Lindane	<5000	<8000	<4000	<3000	<2000	<2000	<10000	<581	<149
p,p'-DDD	<10000	<16000	<8000	<5000	<4000	<4000	<17500	<1160	<299
p,p'-DDE	<5000	<3000	<8000	<5000	<2000	<40000	17500	814	522
p,p'-DDT	<10000	<16000	<8000	<5000	<4000	<4000	<17500	<1160	<299

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S09 North Bonji #10	98CG50S10 Georgia Pacific #5	98CG50S11 Georgia Pacific #7	98CG50S12 Georgia Pacific #9	98CG50S13 Georgia Pacific #14	97CG80S01	97CG80S02
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCRL	GCRL
Reach	EBGCR II	EBGCR II	EBGCR II	EBGCR II	EBGCR II	GCRL	GCRL
Sampling Year	1998	1998	1998	1998	1998	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6183	41.6081	41.6081	41.6084	41.6087	41.6115	41.6115
Longitude	-87.3826	-87.3827	-87.3819	-87.3831	-87.3835	-87.2947	-87.294
Percent TOC	0.68	0.76	0.9	0.87	0.94	24.2	17.3
Percent Moisture	55.80045	75.02225	83.335	83.0532	75.9243	50.195	64.695
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>							
Benz[a]anthracene	75000	250000	378000	425000	<223000	45100000	555000
Benzo(a)pyrene	72100	316000	511000	425000	277000	16500000	191000
Chrysene	85300	303000	422000	218000	<245000	550000	694000
Dibenz[a,h]anthracene	<162000	57900	111000	<644000	<447000	1070000	17300
<i>Polychlorinated Biphenyls (µg/kg OC)</i>							
Aroclor 1016	<14700	<19700	<22200	<23000	<21300	<2070	<867
Aroclor 1242	<14700	526000	<22200	<23000	<21300	<2070	<867
Aroclor 1248	<14700	<19700	311000	276000	270000	<2070	<867
Aroclor 1254	<14700	<19700	<22200	<23000	<21300	<2070	<867
Aroclor 1260	<14700	<19700	<22200	<23000	<21300	<2070	<867
Total PCBs ¹	NR	526000	311000	276000	270000	NR	NR
<i>Pesticides (µg/kg OC)</i>							
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	<921	<1110	<1150	<851	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S09 North Bonji #10	98CG50S10 Georgia Pacific #5	98CG50S11 Georgia Pacific #7	98CG50S12 Georgia Pacific #9	98CG50S13 Georgia Pacific #14	97CG80S01	97CG80S02
<i>Pesticides (µg/kg OC; cont.)</i>							
Endrin	NR	<921	<1110	<1150	<851	NR	NR
Heptachlor	NR	<526	<556	<575	<426	NR	NR
Heptachlor epoxide	NR	<526	<556	<575	<426	NR	NR
Lindane	NR	<526	<556	<575	<426	NR	NR
p,p'-DDD	NR	<921	<1110	<1150	<851	NR	NR
p,p'-DDE	NR	5000	<1110	5060	3300	NR	NR
p,p'-DDT	NR	<921	<1110	<1150	<851	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S03	97CG80S04	97CG80S05	97CG80S06	97CG80S07	97CG80D07	97CG80S08	97CG80S09	97CG80S10	97CG80S11
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6119	41.6119	41.6119	41.6123	41.6123	41.6123	41.6127	41.6127	41.6132	41.6132
Longitude	-87.2937	-87.2931	-87.2924	-87.2927	-87.2921	-87.2921	-87.2911	-87.2905	-87.2895	-87.2888
Percent TOC	2.2	2	28.9	1	2	1	4.9	2.6	1.8	1.5
Percent Moisture	86.725	83.585	31.34	80.88	81.6	77.585	70.295	84.50999	81.675	81.305
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	350000	60000	NR	870000	430000	1000000	306000	185000	72200	180000
Benzo(a)pyrene	4140000	600000	NR	900000	2300000	5700000	327000	204000	83300	193000
Chrysene	3640000	700000	NR	990000	3400000	8000000	347000	204000	117000	260000
Dibenz[a,h]anthracene	164000	<1850000	NR	<3300000	<700000	340000	<204000	33500	<339000	30700
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<18200	<20000	<16300	<40000	<15000	<30000	<6120	<15400	<16700	<20000
Aroclor 1242	59100	20000	<16300	<40000	<15000	<30000	<6120	11500	<16700	<20000
Aroclor 1248	<18200	<20000	<16300	<40000	<15000	<30000	<6120	<15400	<16700	<20000
Aroclor 1254	<18200	<20000	<16300	<40000	<15000	<30000	<6120	<15400	<16700	<20000
Aroclor 1260	40900	5000	<16300	<40000	<15000	<30000	<6120	19200	<16700	<20000
Total PCBs ¹	100000	25000	NR	NR	NR	NR	NR	30800	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S03	97CG80S04	97CG80S05	97CG80S06	97CG80S07	97CG80D07	97CG80S08	97CG80S09	97CG80S10	97CG80S11
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S12	97CG80S13	97CG80S14	97CG80S15	97CG80S16	97CG80S17	97CG80S18	97CG80S19	97CG80S20	97CG80S21
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6132	41.6132	41.6132	41.6132	41.6132	41.6132	41.6132	41.6136	41.6136	41.6136
Longitude	-87.2882	-87.2875	-87.281	-87.2803	-87.2797	-87.279	-87.2784	-87.2885	-87.2879	-87.2872
Percent TOC	1.1	1	1	1	1	1	1	1	1	2.4
Percent Moisture	87.08	88.18	88.49001	63.125	90.3	61.125	78.31	75.165	42.6	83.595
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	76400	400000	350000	20000	<2300000	26000	65000	930000	27000	300000
Benzo(a)pyrene	78200	440000	430000	20000	<2300000	34000	64000	1400000	19000	387000
Chrysene	100000	590000	460000	25000	<2300000	33000	79000	1800000	24000	358000
Dibenz[a,h]anthracene	<318000	84000	163000	<140000	<2300000	<130000	<490000	200000	<110000	58300
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<36400	<40000	<40000	<15000	<50000	<20000	<30000	<20000	<10000	<20800
Aroclor 1242	<36400	<40000	<40000	<15000	<50000	<20000	<30000	<20000	<10000	<20800
Aroclor 1248	<36400	<40000	<40000	<15000	<50000	<20000	<30000	<20000	<10000	<20800
Aroclor 1254	<36400	<40000	<40000	<15000	<50000	<20000	<30000	<20000	<10000	<20800
Aroclor 1260	<36400	<40000	<40000	<15000	<50000	<20000	<30000	<20000	<10000	<20800
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S12	97CG80S13	97CG80S14	97CG80S15	97CG80S16	97CG80S17	97CG80S18	97CG80S19	97CG80S20	97CG80S21
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S22	97CG80S23	97CG80S24	97CG80S25	97CG80D25	97CG80S26	97CG80S27	97CG80S28	97CG80S29	97CG80S30
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6136	41.6136	41.6136	41.6136	41.6136	41.6136	41.6136	41.6136	41.6136	41.6136
Longitude	-87.2865	-87.2859	-87.2852	-87.2846	-87.2846	-87.2839	-87.2833	-87.2826	-87.282	-87.2813
Percent TOC	2.1	1	1	1	1	1	1	1.6	1	1
Percent Moisture	76.58	80.075	70.73	84.11	96.86	88.67	88.415	87.99001	24.7	47.5
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	25700	43000	NR	140000	390000	480000	69000	1500000	27000	<100000
Benzo(a)pyrene	29500	28000	NR	150000	440000	670000	92000	1060000	35000	<100000
Chrysene	40000	63000	NR	190000	500000	560000	96000	1690000	34000	13000
Dibenz[a,h]anthracene	<95200	<250000	NR	<680000	<1700000	95000	<350000	331000	<64000	<100000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<9520	<30000	<20000	<40000	<180000	<30000	<40000	<18700	<10000	<10000
Aroclor 1242	<9520	<30000	<20000	<40000	<180000	154000	<40000	37500	<10000	<10000
Aroclor 1248	<9520	<30000	<20000	<40000	<180000	<30000	<40000	<18700	<10000	<10000
Aroclor 1254	<9520	<30000	<20000	<40000	<180000	30000	<40000	<18700	<10000	<10000
Aroclor 1260	<9520	<30000	<20000	<40000	<180000	<30000	<40000	<18700	<10000	<10000
Total PCBs ¹	NR	NR	NR	NR	NR	184000	NR	37500	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S22	97CG80S23	97CG80S24	97CG80S25	97CG80D25	97CG80S26	97CG80S27	97CG80S28	97CG80S29	97CG80S30
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S31	97CG80S32	97CG80S33	97CG80S34	97CG80S35	97CG80S36	97CG80S37	97CG80S38	97CG80S39	97CG80S40
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6136	41.6136	41.6136	41.6136	41.614	41.614	41.614	41.614	41.614	41.614
Longitude	-87.2807	-87.2787	-87.278	-87.2774	-87.2856	-87.2849	-87.2843	-87.2836	-87.2784	-87.2777
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	55.8	76.595	52.725	78.88	60.095	60.405	78.185	22.28	36.92	57
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	18000	<190000	14000	<170000	9500	16000	<480000	10000	<64000	24000
Benzo(a)pyrene	18000	27000	16000	<170000	12000	20000	52000	13000	<64000	31000
Chrysene	26000	22000	21000	<170000	13000	19000	61000	12000	7800	42000
Dibenz[a,h]anthracene	<120000	<190000	<130000	<170000	<79000	<150000	<480000	<87000	<64000	<240000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<20000	NR	<20000	<10000	<16000	<25000	<10000	<10000	<10000
Aroclor 1242	<10000	<20000	NR	<20000	<10000	<16000	<25000	<10000	<10000	<10000
Aroclor 1248	<10000	<20000	NR	<20000	<10000	<16000	<25000	<10000	<10000	<10000
Aroclor 1254	<10000	<20000	NR	<20000	<10000	<16000	<25000	<10000	<10000	<10000
Aroclor 1260	<10000	<20000	NR	<20000	<10000	<16000	<25000	<10000	<10000	<10000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S31	97CG80S32	97CG80S33	97CG80S34	97CG80S35	97CG80S36	97CG80S37	97CG80S38	97CG80S39	97CG80S40
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S41	97CG80S42	97CG80S43	97CG80S44	97CG80S45	97CG80S46	97CG80S47	97CG80S48	97CG80S49	97CG80S50
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.614	41.6166	41.6166	41.617	41.617	41.6174	41.6174	41.6174	41.6174	41.6174
Longitude	-87.2771	-87.2626	-87.262	-87.2623	-87.2617	-87.262	-87.2614	-87.2609	-87.2603	-87.2597
Percent TOC	1	1	1	1	1.1	1	1.4	1.8	1.7	1
Percent Moisture	46.775	76.9	64.8	43.5	75.98	64.1	30.4	41.1	31.385	20.8
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	12000	63000	<270000	<89000	218000	13000	7140	<61100	11800	1400000
Benzo(a)pyrene	14000	72000	<270000	<89000	282000	15000	7860	<61100	12400	1300000
Chrysene	13000	97000	<270000	<89000	345000	18000	10700	<61100	15300	1500000
Dibenz[a,h]anthracene	<85000	<490000	<270000	<89000	41800	<130000	<62900	<61100	<46500	180000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<20000	<10000	<10000	<12700	<10000	<3570	<2780	<3530	<5000
Aroclor 1242	<10000	<20000	<10000	<10000	<12700	<10000	<3570	<2780	<3530	<5000
Aroclor 1248	<10000	<20000	<10000	<10000	<12700	<10000	<3570	<2780	<3530	<5000
Aroclor 1254	<10000	<20000	<10000	<10000	<12700	<10000	<3570	<2780	<3530	<5000
Aroclor 1260	<10000	<20000	<10000	<10000	<12700	<10000	<3570	<2780	<3530	<5000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	2400	NR	NR	1270	NR	NR	222	NR	5100
Dieldrin	NR	<1000	<500	<400	<636	<200	<214	55.6	<118	<300

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S41	97CG80S42	97CG80S43	97CG80S44	97CG80S45	97CG80S46	97CG80S47	97CG80S48	97CG80S49	97CG80S50
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	<1000	<500	<400	636	200	<214	<167	<118	<300
Heptachlor	NR	<500	<300	<200	<273	<200	<71.4	<55.6	<58.8	<100
Heptachlor epoxide	NR	<500	<300	<200	<273	<200	<71.4	<55.6	<58.8	<100
Lindane	NR	<500	<300	<200	<273	<200	<71.4	<55.6	<58.8	<100
p,p'-DDD	NR	<1000	<500	<200	<636	<400	<214	389	5470	167000
p,p'-DDE	NR	79000	300	<200	53300	700	1000	444	4060	127000
p,p'-DDT	NR	18000	<500	<400	13100	400	<214	4560	882	<300

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S51	97CG80S52	97CG80D52	97CG80S53	97CG80S54	97CG80S55	97CG80S56	97CG80S57	97CG80S58	97CG80S59
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6145	41.6145	41.6145	41.6145	41.6145	41.6149	41.6149	41.6149	41.6149	41.6149
Longitude	-87.2758	-87.2753	-87.2753	-87.2747	-87.2741	-87.2744	-87.2738	-87.2732	-87.2726	-87.2721
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	37.62	71.985	64.98	64.50999	25.61	41.28	72.22	80.72	43.61	43.61
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<89000	21000	<650000	<150000	<81000	<86000	<180000	<310000	<180000	<65000
Benzo(a)pyrene	<89000	23000	<650000	<150000	<81000	<86000	<180000	<310000	<180000	<65000
Chrysene	<89000	34000	<650000	<150000	<81000	<86000	<180000	<310000	<180000	<65000
Dibenz[a,h]anthracene	<89000	<190000	<650000	<150000	<81000	<86000	<180000	<310000	<180000	<65000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<20000	<13000	<15000	<10000	<10000	<20000	<30000	<16000	<10000
Aroclor 1242	<10000	<20000	<13000	<15000	<10000	<10000	<20000	<30000	<16000	<10000
Aroclor 1248	<10000	<20000	<13000	<15000	<10000	<10000	<20000	<30000	<16000	<10000
Aroclor 1254	<10000	<20000	<13000	<15000	<10000	<10000	<20000	<30000	<16000	<10000
Aroclor 1260	<10000	<20000	<13000	<15000	<10000	<10000	<20000	<30000	<16000	<10000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S51	97CG80S52	97CG80D52	97CG80S53	97CG80S54	97CG80S55	97CG80S56	97CG80S57	97CG80S58	97CG80S59
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S60	97CG80S61	97CG80S62	97CG80S63	97CG80S64	97CG80S65	97CG80S66	97CG80S67	97CG80S68	97CG80D68
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6149	41.6152	41.6153	41.6153	41.6153	41.6153	41.6153	41.6153	41.6153	41.6153
Longitude	-87.2715	-87.2741	-87.2735	-87.2729	-87.2723	-87.2718	-87.2712	-87.2706	-87.27	-87.27
Percent TOC	1	1	1.1	1	1	1.1	1.1	1.2	1	1
Percent Moisture	18.095	25.605	68.295	72.225	79.72	78.16	80.485	69.59	82.665	82.875
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<72000	<77000	<145000	<200000	<250000	NR	NR	<117000	98000	34000
Benzo(a)pyrene	<72000	<77000	<145000	<200000	<250000	NR	NR	<117000	130000	34000
Chrysene	<72000	<77000	<145000	<200000	<250000	NR	NR	<117000	140000	44000
Dibenz[a,h]anthracene	<72000	<77000	<145000	<200000	<250000	NR	NR	<117000	22000	<330000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<10000	<18200	<16000	<26000	<45500	<23600	<11700	<20000	<30000
Aroclor 1242	<10000	<10000	<18200	<16000	<26000	<45500	<23600	<11700	<20000	<30000
Aroclor 1248	<10000	<10000	<18200	<16000	<26000	<45500	<23600	<11700	<20000	<30000
Aroclor 1254	<10000	<10000	<18200	<16000	<26000	<45500	<23600	<11700	164000	<30000
Aroclor 1260	<10000	<10000	<18200	<16000	<26000	<45500	<23600	<11700	<20000	<30000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	164000	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S60	97CG80S61	97CG80S62	97CG80S63	97CG80S64	97CG80S65	97CG80S66	97CG80S67	97CG80S68	97CG80D68
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S69	97CG80S70	97CG80S71	97CG80S72	97CG80S73	97CG80S74	97CG80S75	97CG80S76	97CG80S77	97CG80S78
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6153	41.6153	41.6156	41.6156	41.6156	41.6155	41.6156	41.6156	41.6156	41.616
Longitude	-87.2694	-87.2689	-87.2732	-87.2726	-87.2721	-87.2715	-87.2709	-87.2703	-87.2697	-87.2729
Percent TOC	1	1	1	1.9	1	1.2	1.2	1	1	1
Percent Moisture	52.1	30.785	74.79	81.9	77.48	69.6	61.72	59.8	48.98	45.275
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<200000	140000	<230000	<311000	<240000	<150000	<117000	<140000	<99000	<190000
Benzo(a)pyrene	<200000	160000	<230000	<311000	<240000	<150000	<117000	17000	<99000	<190000
Chrysene	<200000	210000	<230000	<311000	<240000	<150000	<117000	22000	<99000	<190000
Dibenz[a,h]anthracene	<200000	28000	<230000	<311000	<240000	<150000	<117000	<140000	<99000	<190000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<8000	<5000	<25000	<10500	<20000	<16700	<12500	<13000	<10000	<10000
Aroclor 1242	<8000	<5000	<25000	<10500	<20000	<16700	<12500	<13000	<10000	<10000
Aroclor 1248	<8000	<5000	<25000	<10500	<20000	<16700	<12500	<13000	<10000	<10000
Aroclor 1254	<8000	<5000	<25000	<10500	<20000	<16700	<12500	<13000	<10000	<10000
Aroclor 1260	<8000	13000	<25000	<10500	<20000	<16700	<12500	<13000	<10000	<10000
Total PCBs ¹	NR	13000	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S69	97CG80S70	97CG80S71	97CG80S72	97CG80S73	97CG80S74	97CG80S75	97CG80S76	97CG80S77	97CG80S78
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S79	97CG80S80	97CG80S81	97CG80S82	97CG80S83	97CG80S84	97CG80S85	97CG80S86	97CG80S87	97CG80S88
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.616	41.616	41.616	41.6164	41.6164	41.6164	41.6164	41.6168	41.6168	41.6168
Longitude	-87.2723	-87.2718	-87.2712	-87.2738	-87.2732	-87.2726	-87.2721	-87.2741	-87.2735	-87.2729
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	68.425	65.9	69.985	34.495	26.705	41	24.965	39	18.605	39.18
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<160000	<150000	<170000	8900	<70000	310000	NR	<93000	NR	99000
Benzo(a)pyrene	<160000	<150000	<170000	12000	<70000	390000	NR	<93000	NR	120000
Chrysene	<160000	<150000	<170000	13000	<70000	470000	NR	<93000	NR	150000
Dibenz[a,h]anthracene	<160000	<150000	<170000	<84000	<70000	51000	NR	<93000	NR	15000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<20000	<16000	<20000	<10000	<10000	<10000	<10000	<10000	<6000	<10000
Aroclor 1242	<20000	<16000	<20000	<10000	<10000	<10000	<10000	<10000	<6000	<10000
Aroclor 1248	<20000	<16000	<20000	<10000	<10000	<10000	<10000	<10000	<6000	<10000
Aroclor 1254	<20000	<16000	<20000	<10000	<10000	<10000	<10000	<10000	<6000	<10000
Aroclor 1260	<20000	<16000	<20000	<10000	<10000	<10000	<10000	<10000	<6000	<10000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S79	97CG80S80	97CG80S81	97CG80S82	97CG80S83	97CG80S84	97CG80S85	97CG80S86	97CG80S87	97CG80S88
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S89	97CG80S90	97CG80S91	97CG80S92	97CG80S93	97CG80S94	97CG80S95	97CG80S96	97CG80D96	97CG80S97
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6168	41.6168	41.6152	41.6152	41.6152	41.6152	41.6155	41.6155	41.6155	41.6155
Longitude	-87.2724	-87.2718	-87.2682	-87.2677	-87.2671	-87.2665	-87.2674	-87.2668	-87.2668	-87.2662
Percent TOC	1	1	1	1	1.4	1	3.3	1	1	1
Percent Moisture	47.98	29.515	21.51	80.81	75.785	30.92	16.58	77.685	80.99001	82.08
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	710000	<82000	20000	180000	50000	<89000	39400	<210000	67000	130000
Benzo(a)pyrene	6700000	12000	19000	210000	47100	<89000	26700	<210000	73000	150000
Chrysene	8100000	14000	24000	290000	63600	<89000	42400	<210000	92000	200000
Dibenz[a,h]anthracene	710000	<82000	<89000	<620000	<171000	<89000	3330	<210000	<250000	<470000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<10000	NR	<30000	<21400	<10000	<1520	<20000	<25000	<30000
Aroclor 1242	<10000	<10000	NR	<30000	<21400	<10000	<1520	<20000	<25000	<30000
Aroclor 1248	<10000	<10000	NR	<30000	<21400	<10000	<1520	<20000	<25000	<30000
Aroclor 1254	<10000	<10000	NR	<30000	<21400	<10000	<1520	<20000	<25000	<30000
Aroclor 1260	<10000	<10000	NR	<30000	<21400	<10000	<1520	<20000	<25000	<30000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	600	1300	NR	NR	90.9	NR	NR	NR
Dieldrin	NR	NR	<400	<1500	<1070	NR	<90.9	<1000	<1300	<700

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S89	97CG80S90	97CG80S91	97CG80S92	97CG80S93	97CG80S94	97CG80S95	97CG80S96	97CG80D96	97CG80S97
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	<400	<1500	<1070	NR	<90.9	<1000	<1300	<1400
Heptachlor	NR	NR	<200	<700	<500	NR	<30.3	<500	<600	<700
Heptachlor epoxide	NR	NR	<200	<700	<500	NR	<30.3	<500	<600	<700
Lindane	NR	NR	<200	<700	<500	NR	<30.3	<500	<600	<700
p,p'-DDD	NR	NR	2300	5700	6790	NR	212	<500	4800	7500
p,p'-DDE	NR	NR	9000	27700	21300	NR	1360	4000	38100	34600
p,p'-DDT	NR	NR	1100	2800	1640	NR	182	<0	2900	6700

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S98	97CG80S99	97CG81S01	97CG81S02	97CG81S03	97CG81S04	97CG81S05	97CG81S06	97CG81S07	97CG81S08
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6155	41.6155	41.6155	41.6155	41.6155	41.6155	41.6159	41.6159	41.6159	41.6159
Longitude	-87.2657	-87.2651	-87.2645	-87.264	-87.2634	-87.2628	-87.2654	-87.2648	-87.2643	-87.2637
Percent TOC	1	1	1	1	1	1.3	1	1	1	1
Percent Moisture	53.105	20.11	84.795	25.12	76.185	73.205	77.21	78.45	55.3	72.685
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	13000	<89000	60000	<67000	56000	362000	<200000	NR	19000	<170000
Benzo(a)pyrene	14000	<89000	69000	<67000	72000	415000	<200000	NR	24000	<170000
Chrysene	16000	<89000	80000	<67000	73000	492000	<200000	NR	28000	19000
Dibenz[a,h]anthracene	<110000	<89000	<280000	<67000	<230000	67700	<200000	NR	<100000	<170000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	NR	<10000	<30000	<6000	<22000	<15400	NR	<25000	<12000	<20000
Aroclor 1242	NR	<10000	<30000	<6000	<22000	<15400	NR	<25000	<12000	<20000
Aroclor 1248	NR	<10000	<30000	<6000	<22000	<15400	NR	<25000	<12000	<20000
Aroclor 1254	NR	<10000	<30000	<6000	<22000	<15400	NR	<25000	<12000	<20000
Aroclor 1260	NR	<10000	<30000	<6000	<22000	<15400	NR	<25000	<12000	<20000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	900	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	<400	<1500	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG80S98	97CG80S99	97CG81S01	97CG81S02	97CG81S03	97CG81S04	97CG81S05	97CG81S06	97CG81S07	97CG81S08
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	<400	<1500	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	<200	<700	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	<200	<700	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	<200	<700	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	<400	8500	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	<400	63000	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	<400	9400	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG81S09	97CG81D09	97CG81S10	97CG81S11	97CG81S12	97CG81S13	97CG81S14	97CG81S15	97CG81S16	97CG81S17
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6159	41.6159	41.6159	41.6163	41.6163	41.6163	41.6163	41.6166	41.6166	41.6177
Longitude	-87.2631	-87.2631	-87.2626	-87.264	-87.2634	-87.2629	-87.2623	-87.2637	-87.2631	-87.2617
Percent TOC	1.3	1	1	1	1	1	1	1	1	1
Percent Moisture	72.1	73.9	64.9	59.9	29.8	77.375	71.705	23.605	68.38	79.895
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	53100	160000	340000	<140000	<90000	160000	<180000	23000	<150000	<190000
Benzo(a)pyrene	69200	210000	390000	<140000	<90000	220000	<180000	37000	16000	<190000
Chrysene	76900	220000	440000	<140000	<90000	240000	<180000	31000	18000	<190000
Dibenz[a,h]anthracene	<162000	35000	47000	<140000	<90000	34000	<180000	<72000	<150000	<190000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<15400	<20000	<15000	<14000	<10000	<25000	<20000	<10000	<20000	<30000
Aroclor 1242	<15400	<20000	<15000	<14000	<10000	<25000	<20000	<10000	<20000	<30000
Aroclor 1248	<15400	<20000	<15000	<14000	<10000	<25000	<20000	<10000	<20000	<30000
Aroclor 1254	<15400	<20000	45000	<14000	<10000	<25000	<20000	<10000	<20000	<30000
Aroclor 1260	<15400	<20000	<15000	<14000	<10000	<25000	<20000	<10000	<20000	<30000
Total PCBs ¹	NR	NR	45000	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG81S09	97CG81D09	97CG81S10	97CG81S11	97CG81S12	97CG81S13	97CG81S14	97CG81S15	97CG81S16	97CG81S17
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG81S18	97CG81S19	97CG81S20	97CG83S01	97CG83D01	97CG83S02	97CG83S03	97CG83S04	97CG83S05	97CG83S06
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6177	41.6177	41.6177	41.6154	41.6154	41.6156	41.6156	41.6156	41.6156	41.6158
Longitude	-87.2612	-87.2606	-87.26	-87.2788	-87.2788	-87.2785	-87.2789	-87.2787	-87.2784	-87.2791
Percent TOC	1	1	1	1.1	1.1	1	1.1	1	1	1
Percent Moisture	27.38	23.295	34.47	50.07	40.01	39.305	64.21	33.01	30.79	52.015
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<75000	<76000	12000	27300	<76400	22000	NR	<77000	<76000	27000
Benzo(a)pyrene	<75000	<76000	14000	45500	<76400	32000	NR	8900	<76000	43000
Chrysene	<75000	<76000	17000	35500	<76400	29000	NR	<77000	<76000	37000
Dibenz[a,h]anthracene	<75000	<76000	<76000	<109000	<76400	<110000	NR	<77000	<76000	<130000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<10000	<10000	<9090	<9090	<10000	<18200	<10000	<10000	<13000
Aroclor 1242	<10000	<10000	<10000	<9090	<9090	<10000	<18200	<10000	<10000	<13000
Aroclor 1248	<10000	<10000	<10000	<9090	<9090	<10000	<18200	<10000	<10000	<13000
Aroclor 1254	<10000	<10000	<10000	<9090	<9090	<10000	<18200	<10000	<10000	<13000
Aroclor 1260	<10000	<10000	<10000	<9090	<9090	30000	21800	<10000	<10000	<13000
Total PCBs ¹	NR	NR	NR	NR	NR	30000	21800	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG81S18	97CG81S19	97CG81S20	97CG83S01	97CG83D01	97CG83S02	97CG83S03	97CG83S04	97CG83S05	97CG83S06
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG83S07	97CG83S08	97CG83S09	97CG83S10	97CG83S11	97CG83S12	97CG83S13	97CG83S14	97CG83S15	97CG83S16
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6158	41.6158	41.616	41.616	41.616	41.6161	41.6161	41.6161	41.6163	41.6163
Longitude	-87.2788	-87.2785	-87.2792	-87.2789	-87.2787	-87.2793	-87.2791	-87.2788	-87.2794	-87.2792
Percent TOC	1.5	1.4	1	1	1	1	1	1.1	1	1
Percent Moisture	53.19	53.99	31.1	42.425	28.58	32.895	39.455	27	30.62	30.095
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	19300	48600	NR	13000	9100	8500	20000	<79100	17000	9200
Benzo(a)pyrene	33300	70700	NR	22000	15000	13000	35000	8270	28000	16000
Chrysene	28700	59300	NR	17000	11000	12000	28000	<79100	21000	11000
Dibenz[a,h]anthracene	<73300	<78600	NR	<90000	<81000	<78000	<92000	<79100	<82000	<80000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<6670	<7140	<10000	<10000	<10000	<10000	<10000	<9090	<10000	<10000
Aroclor 1242	<6670	<7140	<10000	<10000	<10000	<10000	<10000	<9090	<10000	<10000
Aroclor 1248	<6670	<7140	<10000	<10000	<10000	<10000	<10000	<9090	<10000	<10000
Aroclor 1254	<6670	<71400	<10000	<10000	<10000	<10000	<10000	<9090	<10000	<10000
Aroclor 1260	<6670	<379000	<10000	13000	<10000	<10000	<10000	<9090	<10000	13000
Total PCBs ¹	NR	NR	NR	13000	NR	NR	NR	NR	NR	13000
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG83S07	97CG83S08	97CG83S09	97CG83S10	97CG83S11	97CG83S12	97CG83S13	97CG83S14	97CG83S15	97CG83S16
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG83S17	97CG83S18	97CG83S19	97CG83D19	97CG83S20	97CG85S01	97CG85S02	97CG85S03	97CG85S04	97CG85S05
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6163	41.6163	41.6165	41.6165	41.6165	41.6155	41.6157	41.6157	41.616	41.616
Longitude	-87.2789	-87.2787	-87.2798	-87.2798	-87.2796	-87.2761	-87.2768	-87.2757	-87.2768	-87.2764
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	34.19	27.595	56.21	48.575	24.8	44.525	31	48.695	47.005	34.08
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	18000	15000	54000	39000	<86000	12000	8800	<120000	<100000	15000
Benzo(a)pyrene	31000	21000	83000	58000	<86000	17000	13000	<120000	<100000	23000
Chrysene	22000	19000	75000	53000	<86000	14000	12000	14000	<100000	35000
Dibenz[a,h]anthracene	<77000	<71000	13000	<100000	<86000	<110000	<86000	<120000	<100000	<86000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<10000	<10000	<10000	<10000	<13000	<10000	<13000	<10000	<10000
Aroclor 1242	<10000	<10000	<10000	<10000	<10000	<13000	<10000	<13000	<10000	<10000
Aroclor 1248	<10000	<10000	<10000	<10000	<10000	<13000	<10000	<13000	<10000	<10000
Aroclor 1254	<10000	<10000	<10000	<10000	<10000	<13000	<10000	<13000	<10000	<10000
Aroclor 1260	<10000	30000	10000	10000	<10000	<13000	<10000	<13000	<10000	<10000
Total PCBs ¹	NR	30000	10000	10000	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG83S17	97CG83S18	97CG83S19	97CG83D19	97CG83S20	97CG85S01	97CG85S02	97CG85S03	97CG85S04	97CG85S05
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG85S06	97CG85D06	97CG85S07	97CG85S08	97CG85S09	97CG85S10	97CG85D10	97CG85S11	97CG85S12	97CG85S13
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.616	41.616	41.616	41.6163	41.6163	41.6163	41.6163	41.6163	41.6163	41.6165
Longitude	-87.2761	-87.2761	-87.2757	-87.2771	-87.2768	-87.2764	-87.2764	-87.2761	-87.2757	-87.2764
Percent TOC	1	1	1	1	1	1	1	1	1	1
Percent Moisture	43.205	34.315	37.705	40.19	42.65	29.31	31.715	25.08	28.905	24.39
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>										
Benz[a]anthracene	<100000	<85000	<93000	<100000	NR	11000	13000	<74000	<95000	<85000
Benzo(a)pyrene	14000	<85000	<93000	<100000	NR	17000	19000	<74000	<95000	<85000
Chrysene	13000	<85000	<93000	<100000	NR	24000	21000	7500	<95000	<85000
Dibenz[a,h]anthracene	<100000	<85000	<93000	<100000	NR	<85000	<77000	<74000	<95000	<85000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>										
Aroclor 1016	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Aroclor 1242	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Aroclor 1248	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Aroclor 1254	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Aroclor 1260	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>										
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG85S06	97CG85D06	97CG85S07	97CG85S08	97CG85S09	97CG85S10	97CG85D10	97CG85S11	97CG85S12	97CG85S13
<i>Pesticides (µg/kg OC; cont.)</i>										
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG85S14	97CG85S15	97CG85S16	97CG85S17	97CG85S18	97CG85S19	98CG50S01 East Pond #5	98CG50S02 East Pond #19	98CG50S03 West Pond #7
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1997	1997	1997	1997	1997	1997	1998	1998	1998
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6165	41.6165	41.6168	41.6168	41.6168	41.6171	41.616	41.6171	41.6158
Longitude	-87.2761	-87.2757	-87.2761	-87.2757	-87.2754	-87.2754	-87.2764	-87.2754	-87.2788
Percent TOC	1	1	1	1	1	1	0.51	0.14	0.69
Percent Moisture	24.28	32.72	29.305	24.48	43.385	86.995	62.825	23.91395	36.29805
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	<98000	12000	<90000	<82000	<230000	71000	<176000	<929000	159000
Benzo(a)pyrene	<98000	16000	<90000	11000	24000	110000	<176000	<929000	203000
Chrysene	<98000	18000	<90000	8700	<230000	89000	<176000	<929000	188000
Dibenz[a,h]anthracene	<98000	<100000	<90000	<82000	<230000	<510000	<176000	<929000	<493000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<10000	<10000	<10000	<10000	<10000	<50000	<19600	<35700	<14500
Aroclor 1242	<10000	<10000	<10000	<10000	<10000	<50000	<19600	<35700	<14500
Aroclor 1248	<10000	<10000	<10000	<10000	<10000	<50000	<19600	<35700	<14500
Aroclor 1254	<10000	<10000	<10000	<10000	<10000	<50000	<19600	<35700	<14500
Aroclor 1260	<10000	<10000	<10000	<10000	<10000	<50000	<19600	<35700	49300
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	49300
<i>Pesticides (µg/kg OC)</i>									
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	97CG85S14	97CG85S15	97CG85S16	97CG85S17	97CG85S18	97CG85S19	98CG50S01 East Pond #5	98CG50S02 East Pond #19	98CG50S03 West Pond #7
<i>Pesticides (µg/kg OC; cont.)</i>									
Endrin	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S04 West Pond #18	98CG50S14 West Lake #1	98CG50S15 West Lake #16	98CG50S16 West Lake #18	98CG50S17 West Lake #21	98CG50S18 West Lake #28	98CG50D18 West Lake #28	98CG50S19 West Lake #32
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6163	41.6115	41.6132	41.6132	41.6136	41.6136	41.6136	41.6136
Longitude	-87.2787	-87.2947	-87.2797	-87.2784	-87.2872	-87.2826	-87.2826	-87.2787
Percent TOC	0.02	15.8	1	0.42	1.12	0.67	0.62	0.54
Percent Moisture	36.9915	53.5119	83.8709	15.8068	42.48405	83.4444	43.0279	78.0715
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	235000	354000	380000	78600	893000	806000	1080000	500000
Benzo(a)pyrene	310000	392000	510000	107000	1250000	925000	1450000	519000
Chrysene	2550000	278000	430000	92900	982000	627000	823000	407000
Dibenz[a,h]anthracene	<8000000	30400	<610000	<117000	277000	<1790000	<2260000	88900
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<350000	<633	<25000	<14300	<22300	<29900	<41900	<27800
Aroclor 1242	<350000	<633	<25000	<14300	<22300	<29900	<41900	<27800
Aroclor 1248	<350000	<633	25000	<14300	50000	53700	72600	35200
Aroclor 1254	<350000	<633	<25000	<14300	<22300	<29900	<41900	<27800
Aroclor 1260	<350000	2340	<25000	<14300	<22300	<29900	<41900	<27800
Total PCBs ¹	NR	2340	25000	NR	50000	53700	72600	35200
<i>Pesticides (µg/kg OC)</i>								
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S04 West Pond #18	98CG50S14 West Lake #1	98CG50S15 West Lake #16	98CG50S16 West Lake #18	98CG50S17 West Lake #21	98CG50S18 West Lake #28	98CG50D18 West Lake #28	98CG50S19 West Lake #32
<i>Pesticides (µg/kg OC; cont.)</i>								
Endrin	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	NR
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S20 West Lake #33	98CG50S21 West Lake #40	98CG50S22 Middle Lake #2	98CG50S23 Middle Lake #6	98CG50S24 Middle Lake #16	98CG50S25 Middle Lake #18	98CG50S26 Middle Lake #22	98CG50S27 East Lake #7
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	surface	surface	surface	surface	surface	surface	surface	surface
Latitude	41.6136	41.614	41.6145	41.6149	41.6153	41.6153	41.6156	41.6155
Longitude	-87.278	-87.2777	-87.2753	-87.2738	-87.2712	-87.27	-87.2726	-87.2662
Percent TOC	0.55	0.84	0.51	0.32	0.49	0.57	0.45	0.38
Percent Moisture	81.01575	37.9047	72.62075	63.9134	79.88155	83.24319	74.02264	76.15445
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	291000	214000	133000	116000	286000	789000	162000	605000
Benzo(a)pyrene	345000	250000	143000	131000	306000	947000	204000	737000
Chrysene	273000	202000	118000	109000	265000	789000	178000	553000
Dibenz[a,h]anthracene	<473000	<250000	<353000	<275000	<490000	<526000	<400000	<526000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<36400	<23800	<25500	<31300	NR	<35100	<31100	<39500
Aroclor 1242	<36400	<23800	<25500	<31300	NR	<35100	<31100	<39500
Aroclor 1248	<36400	16700	<25500	<31300	NR	<35100	<31100	<39500
Aroclor 1254	<36400	<23800	<25500	<31300	NR	221000	<31100	<39500
Aroclor 1260	<36400	<23800	<25500	<31300	NR	<35100	<31100	<39500
Total PCBs ¹	NR	16700	NR	NR	NR	221000	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	2890
Dieldrin	NR	NR	NR	NR	NR	NR	NR	<1840

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S20 West Lake #33	98CG50S21 West Lake #40	98CG50S22 Middle Lake #2	98CG50S23 Middle Lake #6	98CG50S24 Middle Lake #16	98CG50S25 Middle Lake #18	98CG50S26 Middle Lake #22	98CG50S27 East Lake #7
<i>Pesticides (µg/kg OC; cont.)</i>								
Endrin	NR	NR	NR	NR	NR	NR	NR	<1840
Heptachlor	NR	NR	NR	NR	NR	NR	NR	<1050
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	<1050
Lindane	NR	NR	NR	NR	NR	NR	NR	<1050
p,p'-DDD	NR	NR	NR	NR	NR	NR	NR	21300
p,p'-DDE	NR	NR	NR	NR	NR	NR	NR	65800
p,p'-DDT	NR	NR	NR	NR	NR	NR	NR	21100

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S28 East Lake #10	98CG50S29 East Lake #13	98CG50S30 East Lake #29	98CG50S31 East Lake #34
Geographic Area	GCRL	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL	GCRL
Sampling Year	1998	1998	1998	1998
Depth (ft)	surface	surface	surface	surface
Latitude	41.6155	41.6155	41.617	41.6174
Longitude	-87.2645	-87.2628	-87.2617	-87.2597
Percent TOC	0.6	0.8	0.87	0.52
Percent Moisture	79.21405	77.66135	77.3433	82.9404
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>				
Benz[a]anthracene	717000	825000	552000	2500000
Benzo(a)pyrene	967000	812000	586000	2500000
Chrysene	833000	937000	621000	2310000
Dibenz[a,h]anthracene	<400000	<262000	<241000	<1130000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>				
Aroclor 1016	<33300	<25000	<23000	<38500
Aroclor 1242	<33300	<25000	<23000	<38500
Aroclor 1248	<33300	<25000	<23000	<38500
Aroclor 1254	<33300	<25000	<23000	<38500
Aroclor 1260	<33300	<25000	<23000	<38500
Total PCBs ¹	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>				
Chlordane ¹	7500	9500	3560	37700
Dieldrin	4330	<1250	<920	<1540

Table A3.13 Sediment chemistry data used to assess injury to human uses of fishery resources (Simon 2000; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	98CG50S28 East Lake #10	98CG50S29 East Lake #13	98CG50S30 East Lake #29	98CG50S31 East Lake #34
<i>Pesticides (µg/kg OC; cont.)</i>				
Endrin	2330	<1250	<920	<1540
Heptachlor	<833	<625	<460	<769
Heptachlor epoxide	<833	<625	<460	<769
Lindane	<833	<625	<460	<769
p,p'-DDD	13000	18900	8740	1010000
p,p'-DDE	65700	67500	48600	1030000
p,p'-DDT	14700	14100	10100	758000

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	A-M ECH-E-AM01	A-M ECH-E-AM02	A-M ECH-E-AM03	A-N ECH-E-AN01_1	A-N ECH-E-AN01_2	A-S ECH-E-AS01	B-M BCORE01SD	B-M BCORE02SD_1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	0-0.33	0.33 - 0.66	0.66 - 0.98	0-0.33	0-0.33	0-0.33	0-1.80	1.80 - 3.94
Latitude	41.6133	41.6133	41.6133	41.6134	41.6134	41.6132	41.6132	41.6132
Longitude	-87.4341	-87.4341	-87.4341	-87.4341	-87.4341	-87.4341	-87.4381	-87.4381
Percent TOC	1.03	1.22	3.2	2.24	2.03	2.12	3	4.2
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	<194	27900	17800	<89.3	<98.5	<189	NR	NR
Carbazole	62100	1230000	4370000	49100	54200	<21200	<15300	<3810
Benz[a]anthracene	2330000	28700000	43700000	1030000	1130000	387000	833000	5710
Benzo(a)pyrene	2330000	19700000	29100000	982000	1080000	226000	600000	<3810
Benzo(b)fluoranthene	2330000	20500000	29700000	1030000	1080000	264000	867000	<3810
Benzo(k)fluoranthene	922000	5490000	8440000	348000	429000	56600	310000	<3810
Chrysene	2430000	32800000	43700000	1340000	1530000	849000	1070000	5480
Dibenz[a,h]anthracene	359000	2050000	3440000	179000	177000	61300	<15300	<3810
Indeno(1,2,3-c,d)pyrene	1460000	10700000	11200000	670000	690000	142000	250000	<3810
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<44700	<36900	<14700	<25000	<26100	<42000	<3000	<3570
Aroclor 1242	<44700	<36900	<14700	<25000	<26100	<42000	<3000	<3570
Aroclor 1248	252000	<36900	<14700	205000	192000	<42000	<3000	<3570
Aroclor 1254	<44700	<36900	<14700	<25000	<26100	<42000	<3000	<3570
Aroclor 1260	<44700	<36900	<14700	<25000	<26100	<42000	<3000	<3570
Total PCBs ¹	252000	NR	NR	205000	192000	NR	NR	NR

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	A-M ECH-E-AM01	A-M ECH-E-AM02	A-M ECH-E-AM03	A-N ECH-E-AN01_1	A-N ECH-E-AN01_2	A-S ECH-E-AS01	B-M BCORE01SD	B-M BCORE02SD_1
<i>Chlorophenols (µg/kg OC)</i>								
2,4,6-Trichlorophenol	<45600	<73800	<150000	<25000	<26100	<42500	<30300	<7380
2,4-Dichlorophenol	<45600	<73800	<150000	<25000	<26100	<42500	<30300	<7380
Pentachlorophenol	<117000	<189000	<375000	<62500	<64000	<108000	<76700	<18600
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<913	<746	<300	<491	<542	<849	<60.0	<73.8
Chlordane ¹	NR	1980	1020	893	542	NR	NR	145
Dieldrin	<1750	<1480	625	<982	<1030	<1650	213	<145
Endosulfan, total	5600	14500	11700	2770	2460	<4100	820	<364
Endrin	<1750	<1480	<594	1470	<1030	<1650	<120	<145
Heptachlor	<913	<746	<300	<491	<542	<849	<60.0	73.8
Heptachlor epoxide	3960	<746	<300	<491	1920	<849	<60.0	<73.8
Hexachlorocyclohexane-alpha	<913	<746	<300	<491	<542	<849	<60.0	<73.8
Hexachlorocyclohexane-beta	1580	13300	<300	<491	1870	<849	<60.0	<73.8
Lindane	<913	<746	<300	<491	591	<849	<60.0	<73.8
p,p'-DDD	<1750	<1480	<594	<982	<1480	<1600	<1200	<145
p,p'-DDE	<1750	<1480	<594	<982	15800	<1600	<1200	<145
p,p'-DDT	<1750	<1480	1470	<982	<1030	<1650	<1200	<145

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	B-M BCORE03SD	B-N ECH-E-BN01	B-S ECH-E-BS01	C-N ECH-E-CN03_1	D-N ECH-E-DN01	D-S ECH-E-DS01	G-M GCORE01SD	G-M GCORE02SD
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	3.94 - 5.68	0-0.33	0-0.33	0.66 - 0.98	0-0.33	0-0.33	0-2.10	3.08 - 6.82
Latitude	41.6132	41.6134	41.6130	41.6119	41.6128	41.6126	41.6172	41.6172
Longitude	-87.4381	-87.4381	-87.4380	-87.4494	-87.4511	-87.4514	-87.4582	-87.4582
Percent TOC	0.253	1.17	3	3	2.16	3.34	1.19	3.1
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	NR	<171	300	NR	4490	<150	NR	NR
Carbazole	<16200	<23900	<63300	NR	<20400	<16800	118000	<3870
Benz[a]anthracene	<16200	821000	1230000	NR	880000	2690000	1090000	<3870
Benzo(a)pyrene	<16200	795000	1000000	NR	1060000	1290000	840000	<3870
Benzo(b)fluoranthene	<16200	855000	367000	NR	1200000	1470000	1010000	<3870
Benzo(k)fluoranthene	<16200	333000	<63300	NR	407000	<16800	<30300	<3870
Chrysene	<16200	1030000	1800000	NR	1160000	6290000	2440000	<3870
Dibenz[a,h]anthracene	<16200	137000	180000	NR	218000	389000	193000	<3870
Indeno(1,2,3-c,d)pyrene	<16200	573000	633000	NR	880000	689000	454000	<3870
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<15800	<47000	<25000	NR	<39800	<32900	<5970	<3550
Aroclor 1242	<15800	<47000	<25000	NR	<39800	<32900	<36100	<3550
Aroclor 1248	<15800	538000	2280000	NR	495000	<32900	<92400	<3550
Aroclor 1254	<15800	<47000	<25000	NR	<39800	<32900	<72300	<3550
Aroclor 1260	<15800	<47000	<25000	NR	<39800	<32900	<31100	<3550
Total PCBs ¹	NR	538000	2280000	NR	495000	NR	NR	NR

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	B-M BCORE03SD	B-N ECH-E-BN01	B-S ECH-E-BS01	C-N ECH-E-CN03_1	D-N ECH-E-DN01	D-S ECH-E-DS01	G-M GCORE01SD	G-M GCORE02SD
<i>Chlorophenols (µg/kg OC)</i>								
2,4,6-Trichlorophenol	<32000	<47900	<127000	NR	<40300	<32900	<60500	<7420
2,4-Dichlorophenol	<32000	<47900	<127000	NR	<40300	<32900	<60500	<7420
Pentachlorophenol	<79100	<120000000	<317000	48	<102000	<83800	<151000	<18700
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<324	<940	<500	NR	<833	<689	<118	<74.2
Chlordane ¹	NR	NR	667	NR	1300	3230	2000	NR
Dieldrin	<632	<1880	1700	NR	<1570	<1320	<235	<145
Endosulfan, total	<1590	<4700	<2500	NR	<3980	<3320	<588	<365
Endrin	<632	<1880	<1000	NR	<1570	<1320	1600	<145
Heptachlor	<324	<940	<500	NR	<833	<689	336	<74.2
Heptachlor epoxide	<324	<940	25700	NR	<833	<689	353	<74.2
Hexachlorocyclohexane-alpha	<324	<940	<500	NR	<833	<689	<118	<74.2
Hexachlorocyclohexane-beta	<324	1370	5830	NR	<833	<689	454	<74.2
Lindane	<324	<940	1170	NR	<833	<689	<118	<74.2
p,p'-DDD	<632	<1880	<1000	NR	<1570	<1320	<235	<145
p,p'-DDE	<632	<1880	10700	NR	<1570	<1320	<235	<145
p,p'-DDT	<632	3160	<1000	NR	3100	<1320	<235	<145

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	G-M GCORE03SD_1	G-M GCORE03SD_2	I-M ECH-E-IM01	I-M ECH-E-IM02_1	I-M ECH-E-IM02_2	I-M ECH-E-IM03	I-M ICORE01SD	I-M ICORE02SD
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	6.82 - 8.50	6.82 - 8.50	0-0.33	0.33 - 0.66	0.33 - 0.66	0.66 - 0.98	0-2.43	2.43 - 5.09
Latitude	41.6172	41.6172	41.6148	41.6148	41.6148	41.6148	41.6148	41.6148
Longitude	-87.4582	-87.4582	-87.4610	-87.4610	-87.4610	-87.4610	-87.4610	-87.4610
Percent TOC	2.5	3.4	1.31	1.94	1.13	2.04	2.5	1.8
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	NR	NR	382	361	531	294	NR	NR
Carbazole	<3920	<2940	<22100	134000	248000	<26500	96000	<6110
Benz[a]anthracene	<3920	<2940	763000	5000000	7960000	1720000	5600000	117000
Benzo(a)pyrene	<3920	<2940	840000	3090000	4070000	1030000	2920000	106000
Benzo(b)fluoranthene	<3920	<2940	1150000	3560000	4420000	1470000	3320000	<6110
Benzo(k)fluoranthene	<3920	<2940	397000	1240000	1060000	358000	680000	<6110
Chrysene	<3920	<2940	1370000	9790000	19500000	3190000	15200000	144000
Dibenz[a,h]anthracene	<3920	<2940	107000	454000	611000	137000	400000	<6110
Indeno(1,2,3-c,d)pyrene	<3920	<2940	359000	1030000	1060000	324000	560000	<6110
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<3880	<2940	<43500	<39200	<6550	<5390	<92000	<6110
Aroclor 1242	<3880	<2940	<43500	<39200	<6550	<5390	<92000	<6110
Aroclor 1248	<3880	<2940	435000	304000	419000	<5390	<92000	<6110
Aroclor 1254	<3880	<2940	<43500	<39200	<6550	<5390	<40000	<6110
Aroclor 1260	<3880	<2940	<43500	<39200	<6550	<5390	<18000	<6110
Total PCBs ¹	NR	NR	435000	304000	419000	NR	NR	NR

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	G-M GCORE03SD_1	G-M GCORE03SD_2	I-M ECH-E-IM01	I-M ECH-E-IM02_1	I-M ECH-E-IM02_2	I-M ECH-E-IM03	I-M ICORE01SD	I-M ICORE02SD
<i>Chlorophenols (µg/kg OC)</i>								
2,4,6-Trichlorophenol	<8000	<6180	<44300	<39700	<66400	<53900	<30400	<12800
2,4-Dichlorophenol	<8000	<6180	<44300	<39700	<66400	<53900	<30400	<12800
Pentachlorophenol	<19600	<15300	<107000	<97900	<168000	<132000	<76000	<31100
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<80.0	<61.8	<916	<773	<1330	<1080	<60.0	<128
Chlordane ¹	NR	NR	NR	6080	24100	3280	6600	NR
Dieldrin	<152	<118	<1760	<1550	<2570	<2060	720	<244
Endosulfan, total	<384	<297	<4430	<3870	<6460	<5200	1940	<617
Endrin	<152	<118	<1760	<1550	4340	<2060	<116	<244
Heptachlor	<80.0	<61.8	<916	<773	<1330	<1080	<60.0	<128
Heptachlor epoxide	<80.0	<61.8	<916	<773	<1330	<1080	604	<128
Hexachlorocyclohexane-alpha	<80.0	<61.8	<916	<773	<1330	<1080	<60.0	<128
Hexachlorocyclohexane-beta	<80.0	<61.8	<916	1290	<1330	<1080	600	<128
Lindane	<80.0	<61.8	<916	<773	1500	<1080	312	<128
p,p'-DDD	<152	<118	<1760	<1550	<2570	<2060	<116	<244
p,p'-DDE	<152	<118	<1760	<1550	8140	<2060	1160	<244
p,p'-DDT	<152	<118	<1760	<1550	<2570	<2060	216	<244

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	I-M ICORE03SD	I-N (S) ECH-E-IN02	I-N ECH-E-IN01	I-N ECH-E-IN03	I-S ECH-E-IS01	I-S ECH-E-IS02	I-S ECH-E-IS03	WETLAND1 ECH-E-W101	WETLAND2 ECH-E-W102_1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	5.09 - 6.00	0.33 - 0.66	0-0.33	0.66 - 0.98	0-0.33	0.33 - 0.66	0.66 - 0.98	0-0.33	0-0.33
Latitude	41.6148	41.6148	41.6148	41.6148	41.6147	41.6147	41.6147	41.6130	41.6126
Longitude	-87.4610	-87.4611	-87.4611	-87.4611	-87.4609	-87.4609	-87.4609	-87.4415	-87.4502
Percent TOC	0.63	2.5	3.49	2.2	1.25	1.5	0.21	7.1	8.2
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benzene	NR	280	430	955	560	<400	<476	<84.5	<110
Carbazole	<6670	<18000	<13800	<43600	<34400	<40000	<114000	NR	NR
Benz[a]anthracene	15900	1440000	487000	955000	664000	273000	<114000	NR	NR
Benzo(a)pyrene	7940	760000	516000	591000	440000	220000	<114000	NR	NR
Benzo(b)fluoranthene	<6670	1000000	688000	909000	720000	373000	<114000	NR	NR
Benzo(k)fluoranthene	<6670	204000	244000	332000	264000	133000	<114000	NR	NR
Chrysene	42900	3160000	745000	1090000	960000	207000	<114000	NR	NR
Dibenz[a,h]anthracene	<6670	152000	77400	72700	34400	<40000	<114000	NR	NR
Indeno(1,2,3-c,d)pyrene	<6670	268000	249000	305000	152000	93300	<114000	NR	NR
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<6510	<35600	<26900	<43200	<68000	<80000	<224000	NR	NR
Aroclor 1242	<6510	<35600	<26900	<43200	<68000	<80000	<224000	NR	NR
Aroclor 1248	<6510	<35600	<26900	<43200	<68000	<80000	<224000	NR	NR
Aroclor 1254	<6510	<35600	<26900	<43200	<68000	<80000	<224000	NR	NR
Aroclor 1260	<6510	<35600	<26900	<43200	<68000	<80000	<224000	NR	NR
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.14 Sediment chemistry data used to assess injury to human uses of fishery resources (Exponent 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station Sample	I-M ICORE03SD	I-N (S) ECH-E-IN02	I-N ECH-E-IN01	I-N ECH-E-IN03	I-S ECH-E-IS01	I-S ECH-E-IS02	I-S ECH-E-IS03	WETLAND1 ECH-E-W101	WETLAND2 ECH-E-W102_1
<i>Chlorophenols (µg/kg OC)</i>									
2,4,6-Trichlorophenol	<13200	<36000	<27200	<86400	<68800	<80000	<229000	NR	NR
2,4-Dichlorophenol	<13200	<36000	<27200	<86400	<68800	<80000	<229000	NR	NR
Pentachlorophenol	<33300	<88000	<68800	<218000	<176000	<200000	<571000	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Aldrin	<133	<720	<544	<864	<1360	<1600	<4570	NR	NR
Chlordane ¹	159	2240	1060	2180	NR	NR	NR	NR	NR
Dieldrin	<254	<1400	<1060	<1730	<2720	<3130	<9050	NR	NR
Endosulfan, total	<641	<3520	<2660	<4320	<6800	<7870	<22700	NR	NR
Endrin	<254	<1400	<1060	<1730	<2720	<3130	<9050	NR	NR
Heptachlor	<133	<720	<544	<864	<1360	<1600	<4570	NR	NR
Heptachlor epoxide	<133	<720	<544	<864	<1360	<1600	<4570	NR	NR
Hexachlorocyclohexane-alpha	<133	<720	<544	<864	<1360	<1600	<4570	NR	NR
Hexachlorocyclohexane-beta	<133	<720	<544	1640	<1360	<1600	<4570	NR	NR
Lindane	<133	<720	<544	<864	<1360	<1600	<4570	NR	NR
p,p'-DDD	<254	<1400	<1060	<1730	<2720	<3130	<9050	NR	NR
p,p'-DDE	<254	<1400	<1060	<1730	<2720	<3130	<9050	NR	NR
p,p'-DDT	<254	<1400	<1060	<1730	<2720	<3130	<9050	NR	NR

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.15 Sediment chemistry data used to assess injury to human uses of fishery resources (Thermoretec 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	SD-98-16/0-2'	SD-98-16/2-4.5'	SD-98-17/2-5'	SD-98-17S/0-2'	SD-98-18/0-2'	SD-98-18/2-4'	SD-98-20/0-2'
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	0-2	2-4.5	2-5	0-2	0-2	2-4	0-2
Latitude	41.6258	41.6258	41.6257	41.6257	41.6255	41.6255	41.6253
Longitude	-87.5215	-87.5215	-87.5208	-87.5208	-87.5199	-87.5199	-87.5193
Percent TOC	12.9	8.71	10.5	4.44	8.34	7.43	14.4
Percent Moisture	63	59.8	57.4	60.4	58.7	61.3	48.7
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>							
Benzene	7750	31000	86700	563000	6830	89500	306000
Benz[a]anthracene	41900	<7580	143000	1490000	116000	190000	458000
Benzo(a)pyrene	27900	<7580	<314000	1170000	74300	149000	<903000
Benzo(k)fluoranthene	10900	<7580	<314000	315000	22800	122000	<903000
Chrysene	51900	<7580	133000	1530000	132000	180000	458000
Dibenz[a,h]anthracene	<25600	<7580	<314000	<1490000	<39600	<444000	<903000
Indeno(1,2,3-c,d)pyrene	<25600	<7580	<314000	<1490000	<39600	<444000	<903000

OC = organic carbon; TOC = total organic carbon; GCR/IHC = Grand Calumet River and Indiana Harbor Canal;
WBGCR = West Branch of the Grand Calumet River.

Table A3.15 Sediment chemistry data used to assess injury to human uses of fishery resources (Thermoretec 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	SD-98-20/2-4'	SD-98-20S/0-0.83	SD-98-22/0-2'	SD-98-22/2-4'	SD-98-24/0-2'	SD-98-24/2-5'	SD-98-24S/0-0.83
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	2-4	0-0.83	0-2	2-4	0-2	2-5	0-0.83
Latitude	41.6253	41.6253	41.6249	41.6249	41.6245	41.6245	41.6245
Longitude	-87.5193	-87.5193	-87.5186	-87.5186	-87.51785	-87.51785	-87.5179
Percent TOC	12.1	10.4	13.7	10.1	10	6.83	15
Percent Moisture	46.6	59.9	59.6	57	50	59.3	58.9
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>							
Benzene	<413000	135000	59900	257000	<500000	4830	1800
Benz[a]anthracene	992000	115000	131000	465000	450000	<966000	10700
Benzo(a)pyrene	<2730000	88500	109000	406000	350000	<966000	9330
Benzo(k)fluoranthene	<2730000	<250000	<241000	119000	<660000	<966000	3870
Chrysene	826000	240000	226000	515000	440000	<966000	16000
Dibenz[a,h]anthracene	<2730000	<250000	<241000	<653000	<660000	<966000	<4400
Indeno(1,2,3-c,d)pyrene	<2730000	<250000	<241000	<653000	<660000	<966000	<4400

OC = organic carbon; TOC = total organic carbon; GCR/IHC = Grand Calumet River and Indiana Harbor Canal;

WBGCR = West Branch of the Grand Calumet River.

Table A3.15 Sediment chemistry data used to assess injury to human uses of fishery resources (Thermoretec 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	SD-98-26/0-2'	SD-98-26/2-5'
Geographic Area	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II
Sampling Year	1998	1998
Depth (ft)	0-2	2-5
Latitude	41.6239	41.6239
Longitude	-87.5168	-87.5168
Percent TOC	7.96	6.22
Percent Moisture	55.8	51.1
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>		
Benzene	<77900	<9970
Benz[a]anthracene	176000	22500
Benzo(a)pyrene	<415000	18500
Benzo(k)fluoranthene	<415000	7880
Chrysene	176000	26500
Dibenz[a,h]anthracene	<415000	<10600
Indeno(1,2,3-c,d)pyrene	<415000	<10600

OC = organic carbon; TOC = total organic carbon; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RA01SE00	01RA01SE07	01RA02SE00	01RA02SE07	01RA03SD10	01RA03SE00	01RA03SE10	01RB01SE00
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	0-0.16	2-3.7	0-0.16	2-5.5	5-8	0-0.16	5-8	0-0.16
Latitude	41.6169	41.6169	41.6182	41.6182	41.6188	41.6188	41.6188	41.6179
Longitude	-87.4867	-87.4867	-87.4877	-87.4877	-87.4881	-87.4881	-87.4881	-87.4859
Percent TOC	16.9	5.33	27.4	2.39	6.33	12	5.95	16.3
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	<65.1	<131	<35.0	<230	NR	NR	NR	NR
Benz[a]anthracene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
Benzo(a)pyrene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
Benzo(k)fluoranthene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
Chrysene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
Dibenz[a,h]anthracene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
Indeno(1,2,3-c,d)pyrene	<3910	<6190	<2410	<13800	<5210	<68300	<5550	<4050
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<19500	<3000	<120	<1380	<521	<27500	<555	<20200
Aroclor 1242	<19500	<3000	<120	<1380	<521	<27500	<555	<20200
Aroclor 1248	<19500	<3000	<120	<1380	<521	<27500	<555	<20200
Aroclor 1254	<19500	<3000	117	<1380	<521	<27500	<555	<20200
Aroclor 1260	<19500	<3000	<120	<1380	<521	<27500	<555	<20200
Total PCBs ¹	NR	NR	117	NR	NR	NR	NR	NR

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RA01SE00	01RA01SE07	01RA02SE00	01RA02SE07	01RA03SD10	01RA03SE00	01RA03SE10	01RB01SE00
<i>Pesticides (µg/kg OC)</i>								
Dieldrin	<2010	<1280	<124	<1420	<269	<5670	<286	<2090
Endrin	<2010	<1280	<124	<1420	<269	<5670	<286	<2090
Heptachlor	<1010	<638	<62.0	<711	<134	<2830	<143	<1040
Heptachlor epoxide	<1010	<638	<62.0	<711	<134	<2830	<143	<1040
Lindane	<1010	<638	<62.0	<711	<134	<2830	<143	<1040
p,p'-DDD	<2010	<1280	<124	<1420	<269	<5670	<286	<2090
p,p'-DDE	<2010	<1280	<124	<1420	<269	<5670	<286	<2090
p,p'-DDT	<2010	<1280	<124	<1420	<269	<5670	<286	<2090

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RB01SE07	01RB03SD10	01RB03SE05	01RB03SE10	01RB03SE15	01RC01SE00	01RC01SE07	01RC02SE00
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1998	1998	1998	1998	1998	1998	1998	1998
Depth (ft)	2-7	5-10	0-5	5-10	10-13	0-2	2-6.5	0-5
Latitude	41.6179	41.6188	41.6188	41.6188	41.6188	41.6168	41.6168	41.6175
Longitude	-87.4859	-87.4859	-87.4859	-87.4859	-87.4859	-87.4853	-87.4853	-87.4843
Percent TOC	3.76	9.96	10.2	11.1	4.14	12.4	5.02	23.1
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benzene	NR	NR	NR	NR	<174	<58.9	<112	<36.4
Benz[a]anthracene	<8780	<3310	83300	<2970	<7970	<2660	<6570	<1430
Benzo(a)pyrene	<8780	<3310	<32400	<2970	<7970	<2660	<6570	<1430
Benzo(k)fluoranthene	<8780	<3310	<32400	<2970	<7970	<2660	<6570	<1430
Chrysene	<8780	<3310	157000	3150	<7970	3230	<6570	<1430
Dibenz[a,h]anthracene	<8780	<3310	<32400	<2970	<7970	<2660	<6570	<1430
Indeno(1,2,3-c,d)pyrene	<8780	<3310	<32400	<2970	<7970	<2660	<6570	<1430
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<878	<3310	<32400	<2970	<797	<5320	<657	<143
Aroclor 1242	<878	<3310	<32400	<2970	<797	<5320	<657	<143
Aroclor 1248	<878	<3310	<32400	<2970	<797	<5320	<657	<143
Aroclor 1254	<878	<3310	<32400	<2970	<797	<5320	<657	563
Aroclor 1260	<878	<3310	<32400	<2970	<797	<5320	<657	<143
Total PCBs ¹	NR	NR	NR	NR	NR	NR	NR	563

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RB01SE07	01RB03SD10	01RB03SE05	01RB03SE10	01RB03SE15	01RC01SE00	01RC01SE07	01RC02SE00
<i>Pesticides (µg/kg OC)</i>								
Dieldrin	<90.4	<3410	<16700	<3060	<411	<2740	<67.7	<736
Endrin	<90.4	<3410	<16700	<3060	<411	<2740	<67.7	<736
Heptachlor	<45.2	<1710	<8330	<1530	<205	<1370	<33.9	<368
Heptachlor epoxide	<45.2	<1710	<8330	<1530	<205	<1370	<33.9	<368
Lindane	<45.2	<1710	<8330	<1530	<205	<1370	<33.9	<368
p,p'-DDD	<90.4	<3410	<16700	<3060	<411	<2740	<67.7	<736
p,p'-DDE	<90.4	<3410	<16700	<3060	<411	<2740	<67.7	<736
p,p'-DDT	<90.4	<3410	<16700	<3060	<411	<2740	<67.7	<736

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RC02SE07	01RC03SE00	01RC03SE10
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC
Reach	WBGCR II	WBGCR II	WBGCR II
Sampling Year	1998	1998	1998
Depth (ft)	2-3.5	0-0.16	5-9.5
Latitude	41.6175	41.6179	41.6179
Longitude	-87.4843	-87.4838	-87.4838
Percent TOC	4.2	17.5	2.92
Percent Moisture	NR	NR	NR
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>			
Benzene	<200	<274000	<260
Benz[a]anthracene	<7860	<286000	<11300
Benzo(a)pyrene	<7860	<286000	<11300
Benzo(k)fluoranthene	<7860	<286000	<11300
Chrysene	<7860	<286000	<11300
Dibenz[a,h]anthracene	<7860	<286000	<11300
Indeno(1,2,3-c,d)pyrene	<7860	<286000	<11300
<i>Polychlorinated Biphenyls (µg/kg OC)</i>			
Aroclor 1016	<3810	<18900	<1130
Aroclor 1242	<3810	<18900	<1130
Aroclor 1248	<3810	<18900	<1130
Aroclor 1254	<3810	<18900	<1130
Aroclor 1260	<3810	<18900	<1130
Total PCBs ¹	NR	NR	NR

Table A3.16 Sediment chemistry data used to assess injury to human uses of fishery resources (URS Greiner Woodward Clyde 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	01RC02SE07	01RC03SE00	01RC03SE10
<i>Pesticides (µg/kg OC)</i>			
Dieldrin	<810	<19400	<1160
Endrin	<810	<19400	<1160
Heptachlor	<405	<9710	<582
Heptachlor epoxide	<405	<9710	<582
Lindane	<405	<9710	<582
p,p'-DDD	<810	<19400	<1160
p,p'-DDE	<810	<19400	<1160
p,p'-DDT	<810	<19400	<1160

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; WBGCR = West Branch of the Grand Calumet River.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99E1	GC99E2	GC99E3	GC99S01	GC99S015	GC99S02	GC99S03	GC99S04	GC99S05
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-6.29	6.29-10	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33	0-0.33
Latitude	41.6154	41.6154	41.6154	41.60945	41.61075	41.61195	41.619366667	41.62315	41.61545
Longitude	-87.467233333	-87.467233333	-87.467233333	-87.388083333	-87.42075	-87.420066667	-87.4195	-87.424	-87.466666667
Percent TOC	12	8.1	0.55	14	14	0.17	4.8	7.2	14
Percent Moisture	56.5	46	21	83	68	23	63	65	58
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	102000	NR	34500	<6930	43600	<124000	<18500	<13100	57900
Benzo(a)pyrene	55800	70400	30900	2140	60000	<124000	<18500	<13100	62900
Benzo(b)fluoranthene	86700	122000	38200	3070	65000	<124000	<18500	<13100	85700
Benzo(k)fluoranthene	32900	38300	11800	2140	54300	<124000	<18500	<13100	31400
Chrysene	103000	222000	52700	2500	53600	<124000	<18500	<13100	63600
Dibenz[a,h]anthracene	8580	9140	3820	<6930	12100	<124000	<18500	<13100	8570
Indeno(1,2,3-c,d)pyrene	23800	27200	10200	<6930	32900	<124000	<18500	<13100	27900
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<1580	<1850	<3820	<693	<371	<12400	<937	<653	<1430
Aroclor 1242	<1580	<1850	<3820	<693	<371	<12400	<937	<653	<1430
Aroclor 1248	371000	173000	30900	<693	17900	<12400	<937	<653	54300
Aroclor 1254	<1580	<1850	<3820	<693	<371	<12400	<937	1150	<1430
Aroclor 1260	<1580	<1850	<3820	<693	<371	<12400	<937	<653	<1430
Total PCBs ¹	371000	173000	30900	NR	17900	NR	NR	1150	54300
<i>Phthalates (µg/kg OC)</i>									
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99E1	GC99E2	GC99E3	GC99S01	GC99S015	GC99S02	GC99S03	GC99S04	GC99S05
<i>Chlorophenols (µg/kg OC)</i>									
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Aldrin	<642	<383	<382	<69.3	<186	<1240	<937	<333	<143
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<1250	<753	<764	<136	<371	<2530	<185	<653	<279
Endosulfan, total	<3140	<1890	<1910	<341	<929	<6290	<1310	<1640	<700
Endrin	<1250	<753	<764	<136	<371	<2530	<185	<653	<279
Heptachlor	<642	<383	<382	<69.3	<186	<1240	<937	<333	<143
Heptachlor epoxide	<642	<383	<382	<69.3	<186	<1240	<937	<333	<143
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<642	<383	<382	<69.3	<186	<1240	<937	<333	<143
p,p'-DDD	<1250	<753	<764	<136	<371	<2530	<185	<653	<279
p,p'-DDE	<1250	<753	<764	<136	<371	<2530	<185	<653	<279
p,p'-DDT	<1250	<753	<764	<136	<371	<2530	<185	<653	<279

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99S05A	GC99S06	GC99T01C1	GC99T01C2	GC99T01C3	GC99T01CS	GC99T01L1	GC99T01LS
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-0.33	0-0.33	0-5	5-9	9-10	0-0.33	0-3	0-0.33
Latitude	41.6155	41.61575	41.608	41.608	41.608	41.608	41.608	41.608
Longitude	-87.466666667	-87.468683333	-87.393316667	-87.393316667	-87.393316667	-87.393316667	-87.3931	-87.3931
Percent TOC	11	9.9	7.2	10	13	9	0.34	1.1
Percent Moisture	55	70	44	67	73	23	24	30
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	16400	34300	472000	2500000	6080	11000000	11500000	14500000
Benzo(a)pyrene	19100	40400	264000	1200000	<23800	10100000	10900000	16400000
Benzo(b)fluoranthene	23600	48500	431000	2100000	<23800	7780000	9410000	15500000
Benzo(k)fluoranthene	9000	27300	306000	1200000	<23800	6330000	6760000	10000000
Chrysene	18200	73700	486000	2500000	7230	10600000	11200000	12700000
Dibenz[a,h]anthracene	2360	<28300	NR	NR	<23800	956000	735000	NR
Indeno(1,2,3-c,d)pyrene	8550	15200	153000	720000	<23800	2780000	3240000	4820000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<3360	<556	<2080	<2500	<923	<1220	<32400	<10900
Aroclor 1242	<3360	<556	<2080	<2500	<923	<1220	<32400	<10900
Aroclor 1248	63600	2120	18100	36000	408	267000	471000	409000
Aroclor 1254	<3360	<556	<2080	<2500	<923	<1220	<32400	<10900
Aroclor 1260	<3360	<556	<2080	<2500	<923	<1220	<32400	<10900
Total PCBs ¹	63600	2120	18100	36000	408	267000	471000	409000
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99S05A	GC99S06	GC99T01C1	GC99T01C2	GC99T01C3	GC99T01CS	GC99T01L1	GC99T01LS
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<664	<55.6	<819	<1000	<46.9	<4780	<12600	<4270
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<1360	<111	<1670	<2000	<92.3	<9560	<25600	<8550
Endosulfan, total	<3390	<278	<4150	<5000	<232	<23900	<63800	<21400
Endrin	<1360	<111	<1670	<2000	<92.3	<9560	<25600	<8550
Heptachlor	<664	<55.6	<819	<1000	<46.9	<4780	<12600	<4270
Heptachlor epoxide	<664	<55.6	<819	<1000	<46.9	<4780	<12600	<4270
Hexachlorocyclohexane-alpha	<664	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	<664	NR	NR	NR	NR	NR	NR	NR
Lindane	<664	<55.6	<819	<1000	<46.9	<4780	<12600	<4270
p,p'-DDD	<1360	<111	<1670	<2000	<92.3	<9560	<25600	<8550
p,p'-DDE	<1360	<111	<1670	<2000	<92.3	<9560	<25600	<8550
p,p'-DDT	<1360	<111	<1670	<2000	<92.3	<9560	<25600	<8550

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T01R1	GC99T01R2	GC99T01R3	GC99T02C1	GC99T02CS	GC99T02L1	GC99T02L2	GC99T02R1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-7.92	7.92-10	0-5	0-0.33	0-3	3-5	0-5
Latitude	41.608166667	41.608166667	41.608166667	41.609083333	41.609083333	41.609	41.609	41.6092
Longitude	-87.393116667	-87.393116667	-87.393116667	-87.410716667	-87.410716667	-87.4114	-87.4114	-87.411216667
Percent TOC	8.5	7.6	13	9.6	11	7.5	0.8	10
Percent Moisture	49	54	74	53	34	60	24	55
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	98200	88200	<24600	156000	209000	40000	32500	46000
Benzo(a)pyrene	68800	63200	<24600	146000	336000	34700	42500	37000
Benzo(b)fluoranthene	94100	59200	<24600	135000	327000	38700	41200	37000
Benzo(k)fluoranthene	65900	67100	<24600	115000	264000	28000	36200	31000
Chrysene	124000	111000	<24600	167000	218000	46700	38700	51000
Dibenz[a,h]anthracene	NR	NR	<24600	<7290	48200	<5470	<27500	<3700
Indeno(1,2,3-c,d)pyrene	25900	17100	<24600	68700	155000	17300	<27500	19000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<1880	<2370	<1000	<1870	<1180	<547	<2750	<1800
Aroclor 1242	<1880	<2370	<1000	<1870	<1180	<547	<2750	<1800
Aroclor 1248	2470	<2370	<1000	5310	12700	733	<2750	13000
Aroclor 1254	<1880	<2370	<1000	<1870	<1180	<547	<2750	<1800
Aroclor 1260	<1880	<2370	<1000	<1870	<1180	<547	<2750	<1800
Total PCBs ¹	2470	NR	NR	5310	12700	733	NR	13000
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	<27500	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	<27500	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T01R1	GC99T01R2	GC99T01R3	GC99T02C1	GC99T02CS	GC99T02L1	GC99T02L2	GC99T02R1
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	<27500	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	<137000	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<765	<947	<48.5	<187	<118	<54.7	<275	<180
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<1530	<1840	<100	<365	<227	<111	<538	<370
Endosulfan, total	<3820	<4630	<248	<917	<573	<276	<1350	<920
Endrin	<1530	<1840	<100	<365	<227	<111	<538	<370
Heptachlor	<765	<947	<48.5	<187	<118	<54.7	<275	<180
Heptachlor epoxide	<765	<947	<48.5	<187	<118	<54.7	<275	<180
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<765	<947	<48.5	<187	<118	<54.7	<275	<180
p,p'-DDD	<1530	<1840	<100	<365	<227	<111	<538	<370
p,p'-DDE	<1530	<1840	<100	<365	<227	<111	<538	<370
p,p'-DDT	<1530	<1840	<100	<365	<227	<111	<538	<370

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T02R2	GC99T02R3	GC99T02RS	GC99T03C1	GC99T03C2	GC99T03CS	GC99T03L1	GC99T03L2
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	5-7.25	7.25-10	0-0.33	0-5	5-10	0-0.33	0-5	5-10
Latitude	41.6092	41.6092	41.6092	41.6101	41.6101	41.6101	41.609866667	41.609866667
Longitude	-87.411216667	-87.411216667	-87.411216667	-87.420416667	-87.420416667	-87.420416667	-87.420566667	-87.420566667
Percent TOC	9.1	10	10	11.15	2.3	9.6	10	8.1
Percent Moisture	55	67	51	46	35	39	59	51
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	67000	2300	150000	341000	196000	115000	570000	39500
Benzo(a)pyrene	56000	<5000	120000	233000	161000	115000	340000	21000
Benzo(b)fluoranthene	57100	<5000	120000	269000	178000	135000	430000	30900
Benzo(k)fluoranthene	44000	<5000	97000	130000	95700	63500	210000	13600
Chrysene	76900	2900	150000	269000	143000	81200	440000	29600
Dibenz[a,h]anthracene	<3700	<5000	3200	29600	19600	15600	51000	3090
Indeno(1,2,3-c,d)pyrene	30800	<5000	64000	97300	73900	56200	170000	9750
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<1980	<500	<1700	<5560	<5650	<1460	<2000	<2100
Aroclor 1242	<1980	<500	<1700	<5560	<5650	<1460	<2000	<2100
Aroclor 1248	<1980	<500	150000	117000	20900	25000	120000	<2100
Aroclor 1254	<1980	<500	<1700	<5560	<5650	<1460	<2000	<2100
Aroclor 1260	<1980	<500	23000	<5560	<5650	<1460	<2000	<2100
Total PCBs ¹	NR	NR	173000	117000	20900	25000	120000	NR
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T02R2	GC99T02R3	GC99T02RS	GC99T03C1	GC99T03C2	GC99T03CS	GC99T03L1	GC99T03L2
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<198	<50.0	<170	<556	<2220	<562	<800	<827
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<407	<100	<340	<1080	<4350	<1150	<1600	<1600
Endosulfan, total	<1010	<250	<850	<2710	<10900	<2850	<4000	<4040
Endrin	<407	<100	<340	<1080	<4350	<1150	<1600	<1600
Heptachlor	<198	<50.0	<170	<556	<2220	<562	<800	<827
Heptachlor epoxide	<198	<50.0	<170	<556	<2220	<562	<800	<827
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<198	<50.0	<170	<556	<2220	<562	<800	<827
p,p'-DDD	<407	<100	<340	<1080	<4350	<1150	<1600	<1600
p,p'-DDE	<407	<100	<340	<1080	<4350	<1150	<1600	<1600
p,p'-DDT	<407	<100	<340	<1080	<4350	<1150	<1600	<1600

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T03L3	GC99T03R1	GC99T03R2	GC99T03RS	GC99T04C1	GC99T04C2	GC99T04C3	GC99T04CS
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	10-15	0-5	5-10	0-0.33	0-5	5-6.5	6.5-9.29	0-0.33
Latitude	41.609866667	41.610166667	41.610166667	41.610166667	41.612833333	41.612833333	41.612833333	41.612833333
Longitude	-87.420566667	-87.420616667	-87.420616667	-87.420616667	-87.431316667	-87.431316667	-87.431316667	-87.431316667
Percent TOC	0.32	12	0.45	13	7.7	2.6	0.23	6.1
Percent Moisture	26	55	22	62	62	43	20	29
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	10300	258000	8670	146000	83100	10400	3390	136000
Benzo(a)pyrene	8440	167000	8000	115000	55800	23800	3610	134000
Benzo(b)fluoranthene	10000	217000	8670	138000	74000	23500	3780	164000
Benzo(k)fluoranthene	4380	100000	3780	63100	33800	10000	1650	75400
Chrysene	8440	200000	7330	115000	63600	7310	2960	102000
Dibenz[a,h]anthracene	<6880	23300	<4670	14600	7270	2770	<9130	19700
Indeno(1,2,3-c,d)pyrene	<6880	76700	<4670	41500	27300	13100	<9130	72100
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<6880	<1500	<4670	<1690	<1130	<1120	<9130	<1970
Aroclor 1242	<6880	<1500	<4670	<1690	<1130	<1120	<9130	<1970
Aroclor 1248	<6880	225000	37800	423000	<1130	4230	<9130	2300
Aroclor 1254	<6880	<1500	<4670	<1690	<1130	<1120	<9130	<1970
Aroclor 1260	<6880	<1500	<4670	<1690	<1130	<1120	<9130	<1970
Total PCBs ¹	NR	225000	37800	423000	NR	4230	NR	2300
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T03L3	GC99T03R1	GC99T03R2	GC99T03RS	GC99T04C1	GC99T04C2	GC99T04C3	GC99T04CS
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<688	<608	<467	<669	<558	<112	<913	<377
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<1410	<1250	<933	<1310	<1130	<223	<1780	<754
Endosulfan, total	<3500	<3110	<2330	<3280	<2820	<558	<4480	<1890
Endrin	<1410	<1250	<933	<1310	<1130	<223	<1780	<754
Heptachlor	<688	<608	<467	<669	<558	<112	<913	<377
Heptachlor epoxide	<688	<608	<467	<669	<558	<112	<913	<377
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<688	<608	<467	<669	<558	<112	<913	<377
p,p'-DDD	<1410	<1250	<933	<1310	<1130	<223	<1780	<754
p,p'-DDE	<1410	<1250	<933	<1310	<1130	<223	<1780	<754
p,p'-DDT	<1410	<1250	<933	<1310	<1130	<223	<1780	<754

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T04L1	GC99T04L2	GC99T04R1	GC99T04RS	GC99T05C1	GC99T05C2	GC99T05C3	GC99T05CS
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-10	0-5	0-0.33	0-5	5-6.63	6.63-10.72	0-0.33
Latitude	41.6126	41.6126	41.6131	41.6131	41.6121	41.6121	41.6121	41.6121
Longitude	-87.4314	-87.4314	-87.43125	-87.43125	-87.442916667	-87.442916667	-87.442916667	-87.442916667
Percent TOC	4.5	3.4	1.8	8.8	3.7	4.8	14	6.3
Percent Moisture	51	41	49	54	24	49	71	39
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	109000	241	6110	85200	227000	58300	1210	114000
Benzo(a)pyrene	91100	224	2940	79500	151000	54200	1000	111000
Benzo(b)fluoranthene	111000	382	7780	92000	238000	60400	1360	157000
Benzo(k)fluoranthene	48900	121	3440	40900	78400	25000	650	63500
Chrysene	95600	206	4560	63600	NR	62500	1360	125000
Dibenz[a,h]anthracene	11300	<824	<3610	10100	26800	6460	<786	22200
Indeno(1,2,3-c,d)pyrene	42200	<824	2940	30700	75700	25000	600	63500
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<756	<824	<8890	<2050	<2970	<3330	<407	<2220
Aroclor 1242	<756	<824	<8890	<2050	<2970	<3330	<407	<2220
Aroclor 1248	<756	<824	<8890	58000	27000	8750	<407	27000
Aroclor 1254	<756	<824	<8890	<2050	<2970	<3330	<407	<2220
Aroclor 1260	<756	<824	<8890	<2050	<2970	<3330	<407	<2220
Total PCBs ¹	NR	NR	NR	58000	27000	8750	NR	27000
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T04L1	GC99T04L2	GC99T04R1	GC99T04RS	GC99T05C1	GC99T05C2	GC99T05C3	GC99T05CS
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<378	<82.4	<1780	<818	<297	<333	<40.7	<222
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<756	<165	<3610	<1590	<595	<667	<78.6	<429
Endosulfan, total	<1890	<412	<9000	<4000	<1490	<1670	<198	<1080
Endrin	<756	<165	<3610	<1590	<595	<667	<78.6	<429
Heptachlor	<378	<82.4	<1780	<818	<297	<333	<40.7	<222
Heptachlor epoxide	<378	<82.4	<1780	<818	<297	<333	<40.7	<222
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<378	<82.4	<1780	<818	<297	<333	<40.7	<222
p,p'-DDD	<756	<165	<3610	<1590	<595	<667	<78.6	<429
p,p'-DDE	<756	<165	<3610	<1590	<595	<667	<78.6	<429
p,p'-DDT	<756	<165	<3610	<1590	<595	<667	<78.6	<429

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T05L1	GC99T05L2	GC99T05R1	GC99T05R2	GC99T05R3	GC99T05RS	GC99T06C1	GC99T06CS
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-8	0-5	5-7.75	7.75-10	0-0.33	0-5	0-0.33
Latitude	41.612083333	41.612083333	41.612433333	41.612433333	41.612433333	41.612433333	41.614	41.614
Longitude	-87.442666667	-87.442666667	-87.442766667	-87.442766667	-87.442766667	-87.442766667	-87.4622	-87.4622
Percent TOC	6.5	0.14	10	9.3	0.41	10	0.53	0.59
Percent Moisture	64	21	74	69	22	49	26	28
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	43100	<15000	24000	1830	1560	47000	43400	271000
Benzo(a)pyrene	33800	4000	23000	1610	<5120	50000	52800	305000
Benzo(b)fluoranthene	49200	7860	31000	2900	1540	70000	60400	407000
Benzo(k)fluoranthene	16900	2210	11000	892	<5120	27000	26400	153000
Chrysene	66200	9290	32000	3440	3900	66000	47200	390000
Dibenz[a,h]anthracene	4770	<15000	3100	<1180	<5120	8500	6420	40700
Indeno(1,2,3-c,d)pyrene	15400	<15000	9900	914	<5120	29000	28300	144000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<708	<15000	<630	<570	<5120	<1600	<4150	<18600
Aroclor 1242	<708	<15000	<630	<570	<5120	<1600	<4150	<18600
Aroclor 1248	<708	<15000	<630	3330	12700000	12000	9060	147000
Aroclor 1254	<708	<15000	<630	<570	<5120	<1600	<4150	<18600
Aroclor 1260	<708	<15000	<630	<570	<5120	<1600	<4150	<18600
Total PCBs ¹	NR	NR	NR	3330	12700000	12000	9060	147000
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T05L1	GC99T05L2	GC99T05R1	GC99T05R2	GC99T05R3	GC99T05RS	GC99T06C1	GC99T06CS
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<354	<1500	<63.0	<57.0	<512	<160	<415	<7800
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<708	<3000	<130	<118	<1020	<320	<849	<15600
Endosulfan, total	<1770	<7500	<323	<294	<2560	<800	<2110	<39000
Endrin	<708	<3000	<130	<118	<1020	<320	<849	<15600
Heptachlor	<354	<1500	<63.0	<57.0	<512	<160	<415	<7800
Heptachlor epoxide	<354	<1500	<63.0	<57.0	<512	<160	<415	<7800
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<354	<1500	<63.0	<57.0	<512	<160	<415	<7800
p,p'-DDD	<708	<3000	<130	<118	<1020	<320	<849	<15600
p,p'-DDE	<708	<3000	<130	<118	<1020	<320	<849	1860
p,p'-DDT	<708	<3000	<130	<118	<1020	<320	<849	<15600

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T06L1	GC99T06L2	GC99T06L3	GC99T06L4	GC99T06L5	GC99T06R1	GC99T06R2	GC99T07C1	GC99T07CS
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I	EBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-10	10-11	11-13.16	0-0.33	0-5	5.25-9.5	0-5	0-0.33
Latitude	41.615	41.615	41.615	41.615	41.615	41.6139	41.6139	41.617216667	41.617216667
Longitude	-87.4622	-87.4622	-87.4622	-87.4622	-87.4622	-87.4622	-87.4622	-87.46875	-87.46875
Percent TOC	7.1	8.5	4.7	5.5	10	3.7	0.96	2.8	6.1
Percent Moisture	34	39	31	62	53	46	29	36	60
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	169000	247000	87200	436	69000	<838	<2400	6790	59000
Benzo(a)pyrene	183000	75300	76600	<782	84000	<838	<2400	5710	NR
Benzo(b)fluoranthene	211000	153000	100000	582	110000	<838	<2400	10700	NR
Benzo(k)fluoranthene	88700	37600	NR	142	45000	<838	<2400	3360	NR
Chrysene	169000	NR	126000	873	77000	<838	<2400	15400	NR
Dibenz[a,h]anthracene	18300	6240	10200	<782	4200	<838	<2400	1290	12600
Indeno(1,2,3-c,d)pyrene	85900	31800	34000	<782	43000	<838	<2400	3930	44300
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<1830	<1650	<2550	<782	<1800	<838	<2400	<929	<672
Aroclor 1242	<1830	<1650	<2550	<782	<1800	<838	<2400	<929	<672
Aroclor 1248	28200	30600	100000	<782	23000	<838	<2400	8570	41000
Aroclor 1254	<1830	<1650	<2550	<782	<1800	<838	<2400	<929	<672
Aroclor 1260	2110	2000	<2550	<782	3100	<838	<2400	<929	<672
Total PCBs ¹	30300	32600	100000	NR	26100	NR	NR	8570	41000
<i>Phthalates (µg/kg OC)</i>									
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T06L1	GC99T06L2	GC99T06L3	GC99T06L4	GC99T06LS	GC99T06R1	GC99T06R2	GC99T07C1	GC99T07CS
<i>Chlorophenols (µg/kg OC)</i>									
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Aldrin	<183	<165	<511	<78.2	<180	<83.8	<240	<929	<1360
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<352	<318	<1020	<158	<350	<165	<479	<1860	<2790
Endosulfan, total	<887	<800	<2550	<395	<880	<414	<1200	<4640	<6930
Endrin	<352	<318	<1020	<158	<350	<165	<479	<1860	<2790
Heptachlor	<183	<165	<511	<78.2	<180	<83.8	<240	<929	<1360
Heptachlor epoxide	<183	<165	<511	<78.2	<180	<83.8	<240	<929	<1360
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<183	<165	<511	<78.2	<180	<83.8	<240	<929	<1360
p,p'-DDD	<352	<318	<1020	<158	<350	<165	50	<1860	<2790
p,p'-DDE	<352	<318	<1020	<158	<350	<165	<479	<1860	<2790
p,p'-DDT	<352	<318	<1020	<158	<350	<165	56.3	<1860	<2790

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T07L1	GC99T07L2	GC99T07R1	GC99T07RS	IHC99S07	IHC99T09C1	IHC99T09CS	IHC99T09L1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	EBGCR I	EBGCR I	EBGCR I	EBGCR I	IHC	IHC	IHC	IHC
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-5	5-10	0-3	0-0.33	0-0.33	0-0.33	0-0.33	0-4
Latitude	41.609	41.609	41.6173	41.6173	41.633533333	41.622416667	41.622416667	41.622566667
Longitude	-87.4115	-87.4115	-87.4687	-87.4687	-87.467983333	-87.471116667	-87.471116667	-87.471216667
Percent TOC	6.6	5.1	0.32	7.3	13	2.3	3.1	0.6
Percent Moisture	58	54.5	20	31	71	27	35	21
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	87900	8430	306000	260000	<4380	152000	326000	53300
Benzo(a)pyrene	78800	11200	438000	132000	1150	187000	322000	48300
Benzo(b)fluoranthene	112000	16300	938000	370000	<4380	204000	355000	51700
Benzo(k)fluoranthene	42400	6080	244000	NR	<4380	104000	165000	23300
Chrysene	152000	16000	1810000	NR	1150	326000	597000	86700
Dibenz[a,h]anthracene	11200	1250	37500	10300	<4380	29100	50000	15200
Indeno(1,2,3-c,d)pyrene	30300	6570	253000	82200	<4380	60900	109000	25000
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<3030	<765	<31300	<1640	<438	<4780	<4190	<7000
Aroclor 1242	<3030	<765	<31300	<1640	<438	<4780	<4190	<7000
Aroclor 1248	11800	12500	109000	23300	<438	69600	41900	23300
Aroclor 1254	<3030	<765	<31300	<1640	<438	<4780	<4190	<7000
Aroclor 1260	<3030	<765	<31300	<1640	<438	<4780	<4190	<7000
Total PCBs ¹	11800	12500	109000	23300	NR	69600	41900	23300
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T07L1	GC99T07L2	GC99T07R1	GC99T07RS	IHC99S07	IHC99T09C1	IHC99T09CS	IHC99T09L1
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<303	<76.5	<6560	<658	<43.8	<1000	<806	<350
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<591	<155	<12800	<1320	<84.6	<1960	<1650	<700
Endosulfan, total	<1480	<363	<32200	<3290	<213	<4910	<4100	<1750
Endrin	<591	<155	<12800	<1320	<84.6	<1960	<1650	<700
Heptachlor	<303	<76.5	<6560	<658	<43.8	<1000	<806	<350
Heptachlor epoxide	<303	<76.5	<6560	<658	<43.8	<1000	<806	<350
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<303	<76.5	<6560	<658	<43.8	<1000	<806	<350
p,p'-DDD	<591	<155	<12800	<1320	<84.6	<1960	<1650	<700
p,p'-DDE	<591	<155	<12800	<1320	<84.6	<1960	<1650	<700
p,p'-DDT	<591	<155	<12800	<1320	11.5	<1960	<1650	<700

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T09LS	IHC99T09R1	IHC99T10C1	IHC99T10CS	IHC99T10L1	IHC99T10R1	IHC99T10RS	IHC99T11C1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	IHC	IHC	IHC	IHC	IHC	IHC	IHC	LGB
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-0.33	0-5	0-5	0-0.33	0-5	0-3	0-0.33	0-5
Latitude	41.622566667	41.6217	41.6366	41.6366	41.636366667	41.6368	41.6368	41.6468
Longitude	-87.471216667	-87.470883333	-87.471216667	-87.471216667	-87.471266667	-87.4709	-87.4709	-87.486066667
Percent TOC	1.1	0.51	8.2	2.2	2	1.4	4.9	6.65
Percent Moisture	23	21	47	31	42	22	26	31
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	109000	54900	110000	327000	145000	250000	306000	123000
Benzo(a)pyrene	109000	51000	75600	423000	85000	136000	180000	94700
Benzo(b)fluoranthene	118000	54900	84100	382000	100000	200000	265000	78900
Benzo(k)fluoranthene	59100	23500	62200	255000	90000	78600	116000	22600
Chrysene	218000	102000	171000	455000	150000	593000	776000	196000
Dibenz[a,h]anthracene	6270	15100	8050	NR	NR	NR	26500	40600
Indeno(1,2,3-c,d)pyrene	39100	27500	18300	150000	27500	37100	42900	40600
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<3910	<8240	<3780	<5450	<7000	<7860	<4490	<7220
Aroclor 1242	<3910	<8240	<3780	<5450	<7000	<7860	<4490	<7220
Aroclor 1248	31800	19600	31700	45500	13000	66400	100000	82000
Aroclor 1254	<3910	<8240	<3780	<5450	<7000	<7860	<4490	<7220
Aroclor 1260	<3910	<8240	<3780	<5450	<7000	<7860	<4490	2780
Total PCBs ¹	31800	19600	31700	45500	13000	66400	100000	84700
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T09LS	IHC99T09R1	IHC99T10C1	IHC99T10CS	IHC99T10L1	IHC99T10R1	IHC99T10RS	IHC99T11C1
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<1000	<412	<378	<545	<700	<786	<918	<3610
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<1000	<824	<756	<1090	<1400	<1500	<1820	<7220
Endosulfan, total	<4820	<2060	<1890	<2730	<3500	<3790	<4550	<18000
Endrin	<1910	<824	<756	<1090	<1400	<1500	<1820	<7220
Heptachlor	<1000	<412	<378	<545	<700	<786	<918	<3610
Heptachlor epoxide	<1000	<412	<378	<545	<700	<786	<918	<3610
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<1000	<412	<378	<545	<700	<786	<918	<3610
p,p'-DDD	<1910	<824	<756	<1090	<1400	<1500	<1820	<7220
p,p'-DDE	<1910	<824	<756	<1090	<1400	<1500	<1820	<7220
p,p'-DDT	282	90.2	<756	<1090	<1400	393	<1820	<7220

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T11C2	IHC99T11C3	IHC99T11CS	IHC99T11L1	IHC99T11R1	IHC99T11R2	IHC99T11RS	IHC99T12C1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	LGB	LGB	LGB	LGB	LGB	LGB	LGB	LGB
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	5-10	10-14.5	0-0.33	0-2	0-5	5-9.67	0-0.33	0-5
Latitude	41.6468	41.6468	41.6468	41.646983333	41.646616667	41.646616667	41.646616667	41.646716667
Longitude	-87.486066667	-87.486066667	-87.486066667	-87.486383333	-87.48645	-87.48645	-87.48645	-87.493466667
Percent TOC	12	4.9	3.6	5	2.1	3.5	1.8	21
Percent Moisture	42	27	28	24	20	21	19	83
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	375000	198000	97200	60000	181000	457000	261000	31900
Benzo(a)pyrene	367000	245000	114000	<22000	<47600	<28600	306000	25200
Benzo(b)fluoranthene	200000	106000	91700	70000	176000	234000	167000	19000
Benzo(k)fluoranthene	69200	55100	33300	<22000	<47600	129000	66700	<46200
Chrysene	650000	245000	169000	90000	281000	543000	378000	61900
Dibenz[a,h]anthracene	83300	77600	27800	<22000	<47600	<28600	88900	<46200
Indeno(1,2,3-c,d)pyrene	78300	59200	36100	22000	52400	68600	77800	<46200
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<2330	<9180	<12800	<2200	<4760	<2860	<11100	<23300
Aroclor 1242	<2330	<9180	<12800	<2200	<4760	<2860	<11100	<23300
Aroclor 1248	5500	3060	77800	36000	47600	6290	39400	176000
Aroclor 1254	<2330	<9180	<12800	<2200	<4760	<2860	<11100	<23300
Aroclor 1260	<2330	<9180	6670	<2200	<4760	<2860	<11100	<23300
Total PCBs ¹	5500	3060	84400	36000	47600	6290	39400	176000
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T11C2	IHC99T11C3	IHC99T11CS	IHC99T11L1	IHC99T11R1	IHC99T11R2	IHC99T11RS	IHC99T12C1
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<475	<918	<3060	<4400	<1950	<6000	<2280	<4620
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<917	<1840	<6390	<8600	<3950	<12000	<4500	<9050
Endosulfan, total	<2310	<4590	<15800	<21600	<9860	<24000	<11300	<22700
Endrin	<917	<1840	<6390	<8600	<3950	<12000	<4500	<9050
Heptachlor	<475	<918	<3060	<4400	<1950	<6000	<2280	<4620
Heptachlor epoxide	<475	<918	<3060	<4400	<1950	<6000	<2280	<4620
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<475	<918	<3060	<4400	<1950	<6000	<2280	<4620
p,p'-DDD	<917	<1840	<6390	<8600	<3950	<12000	<4500	<9050
p,p'-DDE	<917	<1840	<6390	<8600	<3950	<12000	<4500	<9050
p,p'-DDT	<917	<1840	<6390	<8600	<3950	<12000	<4500	<9050

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T12C2	IHC99T12C3	IHC99T12CS	IHC99T12L1	IHC99T12L2	IHC99T12L3	IHC99T12LS	IHC99T12R1
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	LGB	LGB	LGB	LGB	LGB	LGB	LGB	LGB
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	5-10	10-14	0-0.33	0-5	5-10	10-13.41	10-13.41	0-5
Latitude	41.646716667	41.646716667	41.646716667	41.646983333	41.646983333	41.646983333	41.646983333	41.646416667
Longitude	-87.493466667	-87.493466667	-87.493466667	-87.4935	-87.4935	-87.4935	-87.4935	-87.493
Percent TOC	15	1.7	14	22	14	7	16	16
Percent Moisture	64	27.8	82	76	57	26	80	53
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	260000	18200	<65700	132000	236000	67100	<51900	18800
Benzo(a)pyrene	273000	23500	26400	132000	264000	74300	16900	<11300
Benzo(b)fluoranthene	147000	13500	32900	77300	143000	38600	20000	13800
Benzo(k)fluoranthene	48000	8240	<65700	30500	50000	17100	<51900	<11300
Chrysene	413000	26500	31400	227000	343000	117000	26300	29400
Dibenz[a,h]anthracene	73300	<13500	<65700	39100	64300	<31400	<51900	<11300
Indeno(1,2,3-c,d)pyrene	62700	<13500	14300	39100	55000	22900	<51900	<11300
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<6130	<6470	<6570	<6360	<5500	<3140	<10600	<1130
Aroclor 1242	<6130	<6470	<6570	<6360	<5500	<3140	<10600	<1130
Aroclor 1248	<6130	2240	27900	50000	<5500	5860	48800	18100
Aroclor 1254	<6130	<6470	<6570	<6360	<5500	<3140	<10600	<1130
Aroclor 1260	<6130	<6470	<6570	<6360	<5500	<3140	6880	<1130
Total PCBs ¹	NR	2240	27900	50000	NR	5860	55600	18100
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T12C2	IHC99T12C3	IHC99T12CS	IHC99T12L1	IHC99T12L2	IHC99T12L3	IHC99T12LS	IHC99T12R1
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<3070	<135	<1290	<3140	<1360	<643	<2560	<438
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<6130	<271	<2640	<6360	<2710	<1270	<5190	<875
Endosulfan, total	<15300	<676	<6570	<15900	<6790	<3190	<12900	<2190
Endrin	<6130	<271	<2640	<6360	<2710	<1270	<5190	<875
Heptachlor	<3070	<135	<1290	<3140	<1360	<643	<2560	<438
Heptachlor epoxide	<3070	<135	<1290	<3140	<1360	<643	<2560	<438
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<3070	<135	<1290	<3140	<1360	<643	<2560	<438
p,p'-DDD	<6130	<271	<2640	<6360	<2710	357	<5190	<875
p,p'-DDE	<6130	<271	<2640	<6360	<2710	<1270	750	<875
p,p'-DDT	<6130	<271	<2640	<6360	<2710	<1270	<5190	<875

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T12R2	LG99S08	LG99S09	LG99T13C1	LG99T13CS	LG99T13L1	LG99T13R1	LG99T13R2
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	LGB	LGB	LGB	LGB	LGB	LGB	LGB	LGB
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	5-7.17	0-0.33	0-0.33	0-4.75	0-0.33	0-4.75	0-5	5-8.33
Latitude	41.646416667	41.644966667	41.645016667	41.646616667	41.646616667	41.646833333	41.646583333	41.646583333
Longitude	-87.493	-87.493316667	-87.501816667	-87.500833333	-87.500833333	-87.500316667	-87.501116667	-87.501116667
Percent TOC	3.935	3.6	2	4	9.75	1.1	4.3	0.75
Percent Moisture	36	25	50	56	85.5	20	58	19
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	85100	<12200	25000	<47500	11300	<90900	39500	<26700
Benzo(a)pyrene	41300	<12200	<33000	140000	<60500	<90900	<46500	<26700
Benzo(b)fluoranthene	31100	<12200	<33000	110000	<60500	<90900	39500	<26700
Benzo(k)fluoranthene	56700	<12200	<33000	<47500	<60500	<90900	<46500	<26700
Chrysene	71200	<12200	55000	115000	19000	<90900	65100	10100
Dibenz[a,h]anthracene	18400	<12200	<33000	<47500	<60500	<90900	<46500	<26700
Indeno(1,2,3-c,d)pyrene	16500	<12200	<33000	<47500	<60500	<90900	<46500	<26700
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<18600	<3060	<8500	<4750	<6050	<9090	<4650	<13300
Aroclor 1242	<18600	<3060	<8500	<4750	<6050	<9090	<4650	<13300
Aroclor 1248	46300	<3060	2750	<4750	2490	<9090	<4650	<13300
Aroclor 1254	<18600	<3060	<8500	<4750	3410	<9090	<4650	<13300
Aroclor 1260	<18600	<3060	<8500	<4750	<6050	<9090	<4650	<13300
Total PCBs ¹	46300	NR	2750	NR	5900	NR	NR	NR
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	IHC99T12R2	LG99S08	LG99S09	LG99T13C1	LG99T13CS	LG99T13L1	LG99T13R1	LG99T13R2
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<4570	<61.1	<165	<1880	<2460	<191	<1840	<267
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<9400	<122	<330	<3750	<4820	<373	<3720	<547
Endosulfan, total	<23400	<306	<825	<9380	<12100	<936	<9280	<1360
Endrin	<9400	<122	<330	<3750	<4820	<373	<3720	<547
Heptachlor	<4570	<61.1	<165	<1880	<2460	<191	<1840	<267
Heptachlor epoxide	<4570	<61.1	<165	<1880	<2460	<191	<1840	<267
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<4570	<61.1	<165	<1880	<2460	<191	<1840	<267
p,p'-DDD	<9400	<122	<330	<3750	<4820	<373	<3720	<547
p,p'-DDE	<9400	<122	95	<3750	<4820	<373	3260	3600
p,p'-DDT	<9400	<122	100	<3750	<4820	<373	<3720	<547

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	LG99T13RS	LG99T14C1	LG99T14CS	LG99T14L1	LG99T14LS	LG99T14R1	GC99T08C1	GC99T08C2
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Reach	LGB	LGB	LGB	LGB	LGB	LGB	WBGCR I	WBGCR I
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-0.33	0-3.42	0-0.33	0-0.33	0-0.33	0-3.67	0-5	5-10
Latitude	41.646583333	41.6465	41.6465	41.64665	41.64665	41.646567	41.615483333	41.615483333
Longitude	-87.501116667	-87.506333333	-87.506333333	-87.506633333	-87.506633333	-87.5065	-87.474566667	-87.474566667
Percent TOC	6.7	3	7.6	1.5	17	3.1	6.3	2.4
Percent Moisture	79	51	89	33	89	47	55	40
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>								
Benz[a]anthracene	10700	63300	<98700	100000	<44100	54800	302000	187000
Benzo(a)pyrene	<58200	93300	<98700	140000	<44100	80600	54000	22100
Benzo(b)fluoranthene	<58200	<56700	<98700	<80000	<44100	51600	159000	91700
Benzo(k)fluoranthene	<58200	<56700	<98700	<80000	<44100	25200	30200	16200
Chrysene	19400	80000	<98700	127000	<44100	80600	667000	417000
Dibenz[a,h]anthracene	<58200	<56700	<98700	<80000	<44100	<51600	17500	11200
Indeno(1,2,3-c,d)pyrene	<58200	<56700	<98700	<80000	<44100	<51600	31700	24600
<i>Polychlorinated Biphenyls (µg/kg OC)</i>								
Aroclor 1016	<5820	<5670	<9870	<8000	<4410	<5160	<5870	<11700
Aroclor 1242	<5820	<5670	<9870	<8000	<4410	<5160	<5870	<11700
Aroclor 1248	<5820	<5670	3290	<8000	1470	1680	<5870	<11700
Aroclor 1254	<5820	<5670	<9870	<8000	<4410	<5160	<5870	<11700
Aroclor 1260	<5820	<5670	<9870	<8000	<4410	<5160	<5870	<11700
Total PCBs ¹	NR	NR	3290	NR	1470	1680	NR	NR
<i>Phthalates (µg/kg OC)</i>								
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	LG99T13RS	LG99T14C1	LG99T14CS	LG99T14L1	LG99T14LS	LG99T14R1	GC99T08C1	GC99T08C2
<i>Chlorophenols (µg/kg OC)</i>								
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>								
Aldrin	<2390	<2230	<3950	<3270	<441	<2000	<1160	<1170
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	<4630	<4330	<7890	<6600	<882	<3870	<2380	<2290
Endosulfan, total	<11600	<10900	<19700	<16500	<2210	<9740	<5920	<5750
Endrin	<4630	<4330	<7890	<6600	<882	<3870	<2380	<2290
Heptachlor	<2390	<2230	<3950	<3270	<441	<2000	<1160	<1170
Heptachlor epoxide	<2390	<2230	<3950	<3270	<441	<2000	<1160	<1170
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	NR	NR	NR	NR
Lindane	<2390	<2230	<3950	<3270	<441	<2000	<1160	<1170
p,p'-DDD	<4630	<4330	<7890	<6600	<882	<3870	<2380	<2290
p,p'-DDE	403	<4330	<7890	<6600	241	742	<2380	<2290
p,p'-DDT	<4630	<4330	<7890	<6600	<882	<3870	<2380	<2290

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T08CS	GC99T08L1	GC99T08L2	GC99T08L3	GC99T08R1	GC99T08R2	GC99T08RS	ML99S10	ML99S11
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCRL	GCRL
Reach	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I	WBGCR I	GCRL	GCRL
Sampling Year	1999	1999	1999	1999	1999	1999	1999	1999	1999
Depth (ft)	0-0.33	0-5	5-9.5	9.5-10	0-5	5-10	0-0.33	0-0.33	0-0.33
Latitude	41.615483333	41.615616667	41.615616667	41.615616667	41.6153	41.6153	41.6153	41.616216667	41.615883333
Longitude	-87.474566667	-87.47465	-87.47465	-87.47465	-87.4747	-87.4747	-87.4747	-87.262766667	-87.27055
Percent TOC	40	6.1	8.6	6.6	1.7	0.13	12	13	9.9
Percent Moisture	37	51	57	66	29	21	43	72	81.5
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>									
Benz[a]anthracene	350000	262000	140000	11200	1060000	846000	1670000	33800	6670
Benzo(a)pyrene	27500	50800	77900	3940	276000	285000	442000	48500	9040
Benzo(b)fluoranthene	168000	139000	128000	11400	365000	369000	617000	50800	8280
Benzo(k)fluoranthene	27500	NR	NR	2730	33500	<162000	45000	43100	6670
Chrysene	825000	NR	198000	19700	1530000	1380000	2670000	44600	6670
Dibenz[a,h]anthracene	19500	7050	5230	652	<27100	<162000	<24200	<22300	<18200
Indeno(1,2,3-c,d)pyrene	35000	32800	33700	2580	153000	215000	<24200	35400	6570
<i>Polychlorinated Biphenyls (µg/kg OC)</i>									
Aroclor 1016	<1300	<2790	<2210	<3640	<27100	<323000	<4830	<454	<929
Aroclor 1242	<1300	<2790	<2210	<3640	<27100	<323000	<4830	<454	<929
Aroclor 1248	1330	<2790	<2210	<3640	<27100	<323000	<4830	538	1820
Aroclor 1254	<1300	<2790	<2210	<3640	<27100	<323000	<4830	<454	<929
Aroclor 1260	<1300	<2790	<2210	<3640	<27100	<323000	<4830	<454	<929
Total PCBs ¹	1330	NR	NR	NR	NR	NR	NR	538	1820
<i>Phthalates (µg/kg OC)</i>									
Bis(2-ethylhexyl)phthalate	NR	NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	GC99T08CS	GC99T08L1	GC99T08L2	GC99T08L3	GC99T08R1	GC99T08R2	GC99T08RS	ML99S10	ML99S11
<i>Chlorophenols (µg/kg OC)</i>									
2,4-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>									
Aldrin	<650	<1100	<895	<74.2	<2710	<1620	<4830	<223	<92.9
Chlordane ¹	NR	NR	NR	NR	NR	NR	NR	423	NR
Dieldrin	<1300	<2130	<1740	<147	<5470	<3230	<10000	<454	<182
Endosulfan, total	<3250	<5360	<4380	<368	<13600	<8080	<24800	<1130	<457
Endrin	<1300	<2130	<1740	<147	<5470	<3230	<10000	<454	<182
Heptachlor	<650	<1100	<895	<74.2	<2710	<1620	<4830	<223	<92.9
Heptachlor epoxide	<650	<1100	<895	<74.2	<2710	<1620	<4830	<223	<92.9
Hexachlorocyclohexane-alpha	NR	NR	NR	NR	<2710	<1620	<4830	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR	NR	<2710	<1620	<4830	NR	NR
Lindane	<650	<1100	<895	<74.2	<2710	<1620	<4830	<223	<92.9
p,p'-DDD	<1300	<2130	<1740	<147	<5470	<3230	<10000	177	<182
p,p'-DDE	<1300	<2130	<1740	<147	<5470	<3230	<10000	623	<182
p,p'-DDT	<1300	<2130	<1740	<147	<5470	<3230	<10000	177	85.4

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	ML99S12	ML99S13	ML99S14
Geographic Area	GCRL	GCRL	GCRL
Reach	GCRL	GCRL	GCRL
Sampling Year	1999	1999	1999
Depth (ft)	0-0.33	0-0.33	0-0.33
Latitude	41.613916667	41.613366667	41.613883333
Longitude	-87.27775	-87.281216667	-87.28405
Percent TOC	13	11	13
Percent Moisture	83	80	81
<i>Polycyclic Aromatic Hydrocarbons (µg/kg OC)</i>			
Benz[a]anthracene	<37700	12700	11500
Benzo(a)pyrene	12300	22700	20800
Benzo(b)fluoranthene	11500	19100	20000
Benzo(k)fluoranthene	7690	17300	14600
Chrysene	10000	14500	13800
Dibenz[a,h]anthracene	<37700	<15500	<13100
Indeno(1,2,3-c,d)pyrene	<37700	17300	14600
<i>Polychlorinated Biphenyls (µg/kg OC)</i>			
Aroclor 1016	<746	<755	<669
Aroclor 1242	<746	<755	<669
Aroclor 1248	500	573	1380
Aroclor 1254	<746	<755	<669
Aroclor 1260	<746	<755	<669
Total PCBs ¹	500	573	1380
<i>Phthalates (µg/kg OC)</i>			
Bis(2-ethylhexyl)phthalate	NR	NR	NR
2,4,6-Trichlorophenol	NR	NR	NR

Table A3.17 Sediment chemistry data used to assess injury to human uses of fishery resources (Maxim Technologies 1999; bolded values indicate an exceedance of the bioaccumulation-based benchmarks for sediment chemistry; Table 2).

Station	ML99S12	ML99S13	ML99S14
<i>Chlorophenols (µg/kg OC)</i>			
2,4-Dichlorophenol	NR	NR	NR
Pentachlorophenol	NR	NR	NR
<i>Pesticides (µg/kg OC)</i>			
Aldrin	<74.6	<75.5	<66.9
Chlordane ¹	NR	NR	NR
Dieldrin	<146	<155	<131
Endosulfan, total	<367	<385	<328
Endrin	<146	<155	<131
Heptachlor	<74.6	<75.5	<66.9
Heptachlor epoxide	<74.6	<75.5	<66.9
Hexachlorocyclohexane-alpha	NR	NR	NR
Hexachlorocyclohexane-beta	NR	NR	NR
Lindane	<74.6	<75.5	<66.9
p,p'-DDD	<146	<155	<131
p,p'-DDE	<146	<155	<131
p,p'-DDT	28.5	30.9	76.9

OC = organic carbon; TOC = total organic carbon; PCBs = polychlorinated biphenyls; NR = not reported; GCR/IHC = Grand Calumet River and Indiana Harbor Canal; EBGCR = East Branch of the Grand Calumet River, IHC = Indiana Harbor Canal; LGB = Lake George Branch; WBGCR = West Branch of the Grand Calumet River; GCRL = Grand Calumet River Lagoons.

¹Calculated or reported total (see Section 3.2 for a description of data treatment).

Appendix 4

Summary for the Whole- Sediment Chemistry Data Tables

Table A4.1 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	79	70.35	326.69	1070.05	19621.63	345289.67	2834.59	320186.52	2847.08	17.52	7586956.68
Carbazole	5	51079.36	54187.19	62135.92	96000.00	108456.89	71490.33	23321.14	71490.38	49107.14	117647.05
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	240	22593.43	63249.84	190237.95	596706.74	1711383.57	201631.59	815159.99	201635.49	1044.03	25782609.23
Benzo(a)pyrene	226	27702.74	72622.60	166410.06	424645.88	1159335.33	184421.84	639113.81	184424.58	1153.85	16695652.52
Benzo(b)fluoranthene	80	36563.23	72998.28	147976.20	387911.15	1089722.66	178271.42	573383.34	178273.36	3071.43	15454545.12
Benzo(k)fluoranthene	160	19429.29	32538.16	79364.36	311320.37	1486801.33	115055.63	631830.44	115058.05	2142.86	12260869.82
Chrysene	244	24042.40	73552.34	224762.40	791414.67	2360682.61	236769.54	852318.32	236773.34	1153.85	25478261.40
Dibenz[a,h]anthracene	104	8053.50	12954.79	28446.07	89165.38	295778.33	36558.68	94180.05	36559.99	1285.71	2147058.76
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	149	21364.31	36567.17	82926.83	314210.53	1364273.23	118772.05	514136.42	118773.80	2944.44	14695652.48
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.1 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	8	82932.54	131253.03	163770.57	257036.22	500843.57	181319.98	109405.19	181320.24	57959.18	526315.78
Aroclor 1248	136	8777.62	24023.03	77918.30	226239.72	756967.66	70973.13	201751.07	70976.80	733.33	4170731.80
Aroclor 1254	16	805.51	6574.15	29287.90	68261.01	230089.50	17726.42	82960.21	17738.62	116.79	539823.01
Aroclor 1260	7	2338.43	2638.36	3100.00	4603.91	10940.66	4178.07	3438.82	4178.30	2112.68	23000.00
Total PCBs	154	3798.23	23561.00	84590.52	206778.06	614307.42	61392.44	196327.98	61410.51	44.17	4170731.80
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	14	13218.60	15174.99	20675.50	23647.59	33099.21	20817.73	5090.01	20817.81	12500.00	63333.33
2,4,6-Trichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pentachlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	27	578.39	741.21	1362.86	8124.06	12084.73	2099.45	3835.94	2100.23	366.87	17083.33
Dieldrin	40	209.67	320.00	921.07	4576.97	10549.58	1333.37	3161.98	1334.71	166.52	17272.73

Table A4.1 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	13	78.89	267.97	798.18	1031.39	1635.03	534.12	359.92	535.32	53.19	4335.66
p,p'-DDE	32	537.95	777.21	3276.78	11903.12	24241.09	3159.93	6895.96	3162.15	95.00	55909.09
p,p'-DDT	23	116.69	297.26	863.56	4072.62	8623.62	994.75	2647.12	999.46	11.54	20000.00
Endosulfan, total	93	359.47	819.44	1695.45	3400.00	7928.79	1598.41	1803.72	1599.43	106.54	16093.75
Endrin	54	61.39	122.01	193.06	233.30	250.00	168.79	62.67	169.02	42.31	1596.64
Heptachlor	17	524.53	863.56	2880.00	8671.33	9409.37	2569.59	4155.00	2570.53	336.13	36944.45
Heptachlor epoxide	12	607.97	834.89	2190.52	3179.44	3912.65	1949.00	1781.18	1949.62	352.94	25733.33
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	6	521.80	737.28	1471.10	1794.96	3304.64	1363.79	802.91	1364.14	453.78	5833.33
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	14	377.97	1177.34	2201.53	4664.35	14976.10	2325.39	4018.66	2326.95	153.47	25416.67
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	15	0.00002	0.00002	0.00004	0.72	2.87	0.001	1.704	0.47	0.000003	6.20

OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.2 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Carbazole	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	114	11834.81	19082.79	67992.65	353317.54	918697.78	94704.57	822565.46	94706.61	6666.67	45080439.62
Benzo(a)pyrene	125	13391.13	20000.00	69230.77	387500.00	1023076.35	92547.23	444811.97	92548.90	7857.14	16528924.69
Benzo(b)fluoranthene	5	9457.30	11538.46	19090.91	20000.00	34976.29	17929.03	7855.51	17929.21	8282.83	50769.23
Benzo(k)fluoranthene	6	7161.15	9031.23	15888.60	34278.74	207278.76	28677.41	216060.84	28678.47	6666.67	997375.33
Chrysene	127	13000.00	21000.00	73000.00	352590.02	873533.88	92335.04	419257.83	92336.78	6666.67	14435695.54
Dibenz[a,h]anthracene	28	16602.75	30594.68	54543.56	167582.24	333851.08	67485.08	104324.05	67486.25	3333.33	1074380.10
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	4	8347.20	11965.47	15888.60	20664.51	28535.10	15562.02	5861.49	15562.21	6565.66	35384.62
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.2 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	5	14378.11	20000.00	37500.00	59090.91	104983.54	37953.35	25879.41	37953.77	11538.46	154000.00
Aroclor 1248	11	538.46	890.61	16666.67	41943.54	53731.34	6641.89	17385.02	6645.15	500.00	72580.64
Aroclor 1254	4	33880.43	40662.11	85907.14	176708.25	202115.75	83640.83	74835.80	83641.21	30000.00	221052.63
Aroclor 1260	13	5743.53	10000.00	13000.00	30000.00	38448.57	15007.08	8494.95	15007.55	2341.77	49275.36
Total PCBs	29	1160.60	10000.00	25000.00	49275.36	110399.94	16995.56	25324.26	16999.36	500.00	221052.63
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
2,4,6-Trichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pentachlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	14	269.61	664.02	1766.40	4662.72	8849.63	1753.06	3577.08	1755.02	90.91	37692.31
Dieldrin	4	55.56	55.56	494.11	4333.33	4333.33	490.65	2138.89	494.11	55.56	4333.33

Table A4.2 Summary of the whole-sediment chemistry data for surficial sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	16	287.26	3993.64	7133.92	14270.19	59664.11	6705.62	87167.25	6710.74	176.92	1007692.30
p,p'-DDE	22	630.37	1784.68	30958.37	64989.60	77766.90	13189.45	42712.66	13195.17	300.00	1026923.07
p,p'-DDT	23	37.15	179.35	2800.00	11507.13	17277.64	NC	37340.28	1402.32	0.00	757692.31
Endosulfan, total	5	171.67	183.46	192.27	228.28	393.47	237.00	98.55	237.08	164.23	565.38
Endrin	22	44.06	60.40	87.04	200.00	247.59	113.79	131.40	114.26	19.69	2333.33
Heptachlor	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Heptachlor epoxide	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

NC = Not calculated (i.e., a Geomean can not be calculated if one or more of the values equal zero); OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.3 Summary of the whole-sediment chemistry data for surficial sediments in the Indiana Harbor and nearshore areas of Lake Michigan.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Carbazole	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	10	39222.04	50296.36	69221.87	79498.71	100897.45	63626.02	13538.89	63626.17	21481.48	166666.67
Benzo(a)pyrene	10	22636.38	28474.17	64043.44	108815.23	131513.84	57498.18	24626.02	57498.45	20370.37	138888.89
Benzo(b)fluoranthene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Benzo(k)fluoranthene	10	8172.31	11136.04	25445.25	44330.00	78778.39	24627.17	23203.66	24627.62	6470.59	130718.95
Chrysene	10	46617.02	61990.63	78400.09	98399.48	118053.13	77256.58	23503.63	77256.69	33333.33	183333.33
Dibenz[a,h]anthracene	6	5332.44	5509.78	8038.35	12258.73	17280.42	9047.89	3980.76	9048.04	5185.19	23888.89
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	10	13423.81	18697.79	47165.77	83530.59	94542.03	40131.82	19561.00	40132.19	12352.94	95424.84
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.3 Summary of the whole-sediment chemistry data for surficial sediments in the Indiana Harbor and nearshore areas of Lake Michigan.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	2	58195.85	66598.84	83385.57	104403.45	119478.32	83385.47	38763.73	83385.57	53191.49	130718.95
Aroclor 1248	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1254	1	17730.50	17730.50	17730.50	17730.50	17730.50	17730.50	NA	17730.50	17730.50	17730.50
Aroclor 1260	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Total PCBs	30	10894.66	23664.95	72852.86	123338.89	267757.48	52389.30	56649.89	52392.55	693.80	500000.00
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
2,4,6-Trichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pentachlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	1	862.75	862.75	862.75	862.75	862.75	862.75	NA	862.75	862.75	862.75
Dieldrin	2	3660.13	3660.13	3660.13	3660.13	3660.13	3660.13	NA	3660.13	3660.13	3660.13

Table A4.3 Summary of the whole-sediment chemistry data for surficial sediments in the Indiana Harbor and nearshore areas of Lake Michigan.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
p,p'-DDE	1	640.52	640.52	640.52	640.52	640.52	640.52	NA	640.52	640.52	640.52
p,p'-DDT	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Endosulfan, total	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Endrin	1	235.29	235.29	235.29	235.29	235.29	235.29	NA	235.29	235.29	235.29
Heptachlor	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Heptachlor epoxide	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	2	0.68	0.97	1.56	2.33	2.90	1.30	1.41	1.56	0.51	3.34

OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.4 Summary of the whole-sediment chemistry data for surficial sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	79	70.35	326.69	1070.05	19621.63	345289.67	2834.59	320186.52	2847.08	17.52	7586956.68
Carbazole	5	51079.36	54187.19	62135.92	96000.00	108456.89	71490.33	23321.14	71490.38	49107.14	117647.05
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	364	13000.00	43316.18	148064.44	461766.78	1405380.23	154174.62	807734.45	154177.72	1044.03	45080439.62
Benzo(a)pyrene	361	17000.00	41935.48	130718.95	390000.01	1122448.96	140638.44	560938.86	140640.72	1153.85	16695652.52
Benzo(b)fluoranthene	85	21382.10	60377.36	135416.66	369863.00	1060590.95	155741.29	545744.39	155743.32	3071.43	15454545.12
Benzo(k)fluoranthene	176	12513.74	28964.93	73316.26	301379.35	1291069.40	100530.80	576286.87	100533.09	2142.86	12260869.82
Chrysene	381	17000.00	42000.00	166666.66	588376.64	1775700.97	167973.17	706200.34	167976.08	1153.85	25478261.40
Dibenz[a,h]anthracene	138	7807.65	13308.50	30114.08	93724.54	333073.77	38961.75	96043.84	38963.08	1285.71	2147058.76
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	163	17271.47	33911.65	76666.67	254337.37	1214904.04	105716.95	475983.54	105718.61	2944.44	14695652.48
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.4 Summary of the whole-sediment chemistry data for surficial sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	15	25717.65	55524.19	130718.95	163770.57	347442.14	97065.85	47397.76	97066.58	11538.46	526315.78
Aroclor 1248	147	4385.64	21236.30	63636.36	197855.96	665713.94	59444.10	193203.62	59449.57	500.00	4170731.80
Aroclor 1254	21	1152.78	8426.97	35026.02	159615.39	221052.63	23821.44	81326.97	23834.10	116.79	539823.01
Aroclor 1260	20	2485.65	3159.28	11401.76	22107.82	30945.05	9592.55	8662.24	9593.15	2112.68	49275.36
Total PCBs	213	2850.31	18055.56	63636.36	176190.48	463269.35	50404.90	154270.48	50417.73	44.17	4170731.80
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	14	13218.60	15174.99	20675.50	23647.59	33099.21	20817.73	5090.01	20817.81	12500.00	63333.33
2,4,6-Trichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pentachlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	42	433.68	702.95	1331.06	6188.01	11514.37	1935.56	3761.73	1936.76	90.91	37692.31
Dieldrin	46	179.37	320.00	1135.14	4304.13	10000.00	1277.21	2538.65	1279.18	55.56	17272.73

Table A4.4 Summary of the whole-sediment chemistry data for surficial sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	29	169.40	481.66	1818.18	7500.00	19339.71	2157.11	46963.21	2161.18	53.19	1007692.30
p,p'-DDE	55	560.55	795.66	5057.47	27146.35	64586.72	5436.19	27361.58	5439.67	95.00	1026923.07
p,p'-DDT	47	53.52	246.73	1100.00	6523.78	14888.39	NC	15362.20	1067.93	0.00	757692.31
Endosulfan, total	100	205.26	558.85	1643.07	3181.16	7918.18	1426.24	1671.65	1427.34	106.54	16093.75
Endrin	78	57.26	78.53	183.64	224.11	250.00	149.64	76.66	149.98	19.69	2333.33
Heptachlor	17	524.53	863.56	2880.00	8671.33	9409.37	2569.59	4155.00	2570.53	336.13	36944.45
Heptachlor epoxide	12	607.97	834.89	2190.52	3179.44	3912.65	1949.00	1781.18	1949.62	352.94	25733.33
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	6	521.80	737.28	1471.10	1794.96	3304.64	1363.79	802.91	1364.14	453.78	5833.33
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	14	377.97	1177.34	2201.53	4664.35	14976.10	2325.39	4018.66	2326.95	153.47	25416.67
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	17	0.00002	0.00002	0.00005	1.45	3.23	0.002	1.75	0.56	0.000003	6.20

NC = Not calculated (i.e., a Geomean can not be calculated if one or more of the values equal zero); OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.5 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	64	104.30	272.18	837.58	22923.41	610215.12	3041.01	785333.03	3049.19	55.78	11583332.87
Carbazole	10	1856.12	1941.58	3191.42	212496.94	1395905.76	21312.32	677422.42	21317.44	1470.59	4374999.93
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	120	10377.38	86704.08	218739.35	697510.22	3253622.37	212806.78	2038019.99	212824.96	241.18	50833331.31
Benzo(a)pyrene	111	16875.00	66666.67	157894.74	376939.43	3092783.41	161509.20	1708472.01	161520.45	223.53	52499997.91
Benzo(b)fluoranthene	43	3061.00	14838.62	60416.66	216465.11	1955571.31	71999.17	1521515.30	72010.34	382.35	29687499.56
Benzo(k)fluoranthene	92	6238.11	38114.50	93284.57	238257.26	2858484.17	97878.25	1316718.05	97900.05	120.59	44166664.91
Chrysene	127	8936.65	82746.60	244897.95	629757.25	3170483.73	230566.92	1859328.03	230584.10	205.88	43749999.35
Dibenz[a,h]anthracene	52	5325.11	10227.61	23646.52	140801.35	608343.25	38932.83	244259.13	38936.00	651.52	3437499.95
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	83	18126.27	42377.55	93750.00	275412.64	1671979.21	127570.91	1197525.67	127576.96	600.00	29166665.51
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.5 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1248	52	5526.73	27799.97	123027.41	432657.16	829828.04	97344.00	577495.29	97352.55	407.69	12682926.94
Aroclor 1254	3	32830.13	71126.36	258000.00	412128.72	545859.25	149336.21	181360.17	149338.02	19607.84	658333.31
Aroclor 1260	2	2262.89	2723.39	3708.30	5049.26	6076.53	3708.10	2437.50	3708.30	2000.00	6875.00
Total PCBs	52	5526.73	28018.40	123027.41	432657.16	829828.04	98707.44	596099.22	98716.11	407.69	12682926.94
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	1	13750.00	13750.00	13750.00	13750.00	13750.00	13750.00	NA	13750.00	13750.00	13750.00
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	17	3701.99	6388.89	18000.00	36885.25	53852.43	15928.22	14767.94	15928.93	3088.24	114285.72
2,4,6-Trichlorophenol	4	3257.79	3529.72	3700.06	3780.22	3910.60	3606.18	201.07	3606.18	3088.24	4000.00
Pentachlorophenol	1	48.00	48.00	48.00	48.00	48.00	48.00	NA	48.00	48.00	48.00
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	9	155.94	1018.75	2181.82	3284.31	8008.83	1684.98	3343.87	1686.98	145.24	24070.80
Dieldrin	34	79.56	136.00	179.05	215.24	300.21	174.95	46.87	175.09	66.06	625.00

Table A4.5 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River/Indiana Harbor Canal.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	20	307.30	423.65	686.65	1163.49	1868.30	666.75	395.02	667.45	50.00	2650.08
p,p'-DDE	18	216.73	267.94	367.56	528.20	1200.92	467.01	757.67	467.35	134.23	8141.59
p,p'-DDT	2	78.20	127.87	289.07	651.94	1061.42	287.43	706.25	289.07	56.25	1468.75
Endosulfan, total	56	164.14	300.68	1220.40	2664.67	7042.29	1056.67	1598.53	1058.00	98.93	14471.31
Endrin	46	14.85	16.96	50.00	119.46	204.30	52.06	110.11	52.67	12.62	4336.28
Heptachlor	1	73.81	73.81	73.81	73.81	73.81	73.81	NA	73.81	73.81	73.81
Heptachlor epoxide	4	65.07	70.06	85.27	113.47	143.45	93.21	25.59	93.28	61.94	167.68
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	3	1351.72	1452.15	1636.36	4662.01	8736.34	3036.62	4990.93	3037.10	1288.66	13278.69
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	2	72.78	120.96	280.86	650.40	1075.80	279.08	726.33	280.86	51.77	1504.42
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.6 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Carbazole	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	1	1533724.41	1533724.41	1533724.41	1533724.41	1533724.41	1533724.41	NA	1533724.41	1533724.41	1533724.41
Benzo(a)pyrene	1	1302052.84	1302052.84	1302052.84	1302052.84	1302052.84	1302052.84	NA	1302052.84	1302052.84	1302052.84
Benzo(b)fluoranthene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Benzo(k)fluoranthene	2	27625.01	46196.38	108837.56	256416.81	428791.74	108835.69	292248.88	108837.56	19607.84	604105.60
Chrysene	1	1328445.81	1328445.81	1328445.81	1328445.81	1328445.81	1328445.81	NA	1328445.81	1328445.81	1328445.81
Dibenz[a,h]anthracene	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	1	648093.87	648093.87	648093.87	648093.87	648093.87	648093.87	NA	648093.87	648093.87	648093.87
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.6 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1248	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1254	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1260	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Total PCBs	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
2,4,6-Trichlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Pentachlorophenol	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Dieldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

Table A4.6 Summary of the whole-sediment chemistry data for sub-surface sediments in the Grand Calumet River Lagoons.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
p,p'-DDE	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
p,p'-DDT	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Endosulfan, total	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Endrin	1	49.04	49.04	49.04	49.04	49.04	49.04	NA	49.04	49.04	49.04
Heptachlor	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Heptachlor epoxide	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans; NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Table A4.7 Summary of the whole-sediment chemistry data for sub-surface sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Metals (mg/kg OC)</i>											
Mercury	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
<i>Polycyclic Aromatic Hydrocarbons (PAHs; µg/kg OC)</i>											
Acenaphthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Acenaphthylene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Anthracene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benzene	64	104.30	272.18	837.58	22923.41	610215.12	3041.01	785333.03	3049.19	55.78	11583332.87
Carbazole	10	1856.12	1941.58	3191.42	212496.94	1395905.76	21312.32	677422.42	21317.44	1470.59	4374999.93
Fluorene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
2-Methylnaphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Naphthalene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Phenanthrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Benz[a]anthracene	121	10384.62	87234.05	224218.75	708333.31	3142857.20	216308.91	2013119.35	216327.24	241.18	50833331.31
Benzo(a)pyrene	112	17029.82	68493.49	159375.21	390078.31	2865030.60	164547.17	1683796.98	164558.54	223.53	52499997.91
Benzo(b)fluoranthene	43	3061.00	14838.62	60416.66	216465.11	1955571.31	71999.17	1521515.30	72010.34	382.35	29687499.56
Benzo(k)fluoranthene	94	6570.16	37802.23	93284.57	245547.18	2373054.65	98099.49	1279452.82	98120.90	120.59	44166664.91
Chrysene	128	9022.67	85821.65	251272.27	675187.03	3167859.54	233743.09	1840309.39	233760.38	205.88	43749999.35
Dibenz[a,h]anthracene	52	5325.11	10227.61	23646.52	140801.35	608343.25	38932.83	244259.13	38936.00	651.52	3437499.95
Fluoranthene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Indeno(1,2,3-cd)pyrene	84	18659.40	43312.40	94964.96	288262.23	1647722.74	130063.39	1180012.40	130069.49	600.00	29166665.51
Pyrene	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Total PAHs	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG

Table A4.7 Summary of the whole-sediment chemistry data for sub-surface sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Polychlorinated Biphenyls (PCBs; µg/kg OC)</i>											
Aroclor 1016	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1242	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Aroclor 1248	52	5526.73	27799.97	123027.41	432657.16	829828.04	97344.00	577495.29	97352.55	407.69	12682926.94
Aroclor 1254	3	32830.13	71126.36	258000.00	412128.72	545859.25	149336.21	181360.17	149338.02	19607.84	658333.31
Aroclor 1260	2	2262.89	2723.39	3708.30	5049.26	6076.53	3708.10	2437.50	3708.30	2000.00	6875.00
Total PCBs	52	5526.73	28018.40	123027.41	432657.16	829828.04	98707.44	596099.22	98716.11	407.69	12682926.94
<i>Chlorinated Benzenes (µg/kg OC)</i>											
Hexachlorobenzene (HCB)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Hexachlorobutadiene (HCBd)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
<i>Phthalates (µg/kg OC)</i>											
Bis(2-ethylhexyl)phthalate	1	13750.00	13750.00	13750.00	13750.00	13750.00	13750.00	NA	13750.00	13750.00	13750.00
<i>Chlorophenols (µg/kg OC)</i>											
2,4-Dichlorophenol	17	3701.99	6388.89	18000.00	36885.25	53852.43	15928.22	14767.94	15928.93	3088.24	114285.72
2,4,6-Trichlorophenol	4	3257.79	3529.72	3700.06	3780.22	3910.60	3606.18	201.07	3606.18	3088.24	4000.00
Pentachlorophenol	1	48.00	48.00	48.00	48.00	48.00	48.00	NA	48.00	48.00	48.00
<i>Pesticides (µg/kg OC)</i>											
Aldrin	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chlordane	9	155.94	1018.75	2181.82	3284.31	8008.83	1684.98	3343.87	1686.98	145.24	24070.80
Dieldrin	34	79.56	136.00	179.05	215.24	300.21	174.95	46.87	175.09	66.06	625.00

Table A4.7 Summary of the whole-sediment chemistry data for sub-surface sediments in the Assessment Area.

Chemicals of Potential Concern (COPCs)	Number of samples (n)¹	10th Percentile^{2,3}	25th Percentile^{2,3}	50th Percentile^{2,3}	75th Percentile^{2,3}	90th Percentile^{2,3}	Geomean Mean^{2,4}	Geometric Standard Deviation^{2,5}	Arithmetic Mean^{2,3}	Minimum²	Maximum²
<i>Pesticides (µg/kg OC; cont.)</i>											
p,p'-DDD	20	307.30	423.65	686.65	1163.49	1868.30	666.75	395.02	667.45	50.00	2650.08
p,p'-DDE	18	216.73	267.94	367.56	528.20	1200.92	467.01	757.67	467.35	134.23	8141.59
p,p'-DDT	2	78.20	127.87	289.07	651.94	1061.42	287.43	706.25	289.07	56.25	1468.75
Endosulfan, total	56	164.14	300.68	1220.40	2664.67	7042.29	1056.67	1598.53	1058.00	98.93	14471.31
Endrin	47	14.86	16.97	50.00	116.76	204.10	52.00	107.94	52.59	12.62	4336.28
Heptachlor	1	73.81	73.81	73.81	73.81	73.81	73.81	NA	73.81	73.81	73.81
Heptachlor epoxide	4	65.07	70.06	85.27	113.47	143.45	93.21	25.59	93.28	61.94	167.68
Alpha-hexachlorocyclohexane (HCH)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beta-HCH	3	1351.72	1452.15	1636.36	4662.01	8736.34	3036.62	4990.93	3037.10	1288.66	13278.69
Technical-HCH	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Lindane (gamma-HCH)	2	72.78	120.96	280.86	650.40	1075.80	279.08	726.33	280.86	51.77	1504.42
<i>PCDDs and PCDFs (µg/kg OC)</i>											
TCDD-TEQ	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

OC = organic carbon; TCDD-TEQ = tetrachlorodibenzo-*p*-dioxin - toxic equivalents; PCDDs = polychlorinated dibenzo-*p*-dioxins; PCDFs = polychlorinated dibenzofurans;

NM = not measured; NG = no guideline.

¹Excluding results for which the detection limit was greater than the selected chemical benchmark (see Section 3.2 for details).

²If the result is less than the detection limit, the value of 1/2 the detection limit was assigned.

³The percentiles and arithmetic mean were calculated using log_e transformed data.

⁴The geometric mean was not calculated using the log_e transformed data.

⁵The geometric standard deviation was calculated using the methods outlined in Gilbert (1987).

Note: Substances not listed in this table were not used in the analysis or not measured in this geographic area.

Appendix 5

Tissue Residue Data Tables

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	Q-CARP-1	Q-CARP-2	Q-CARP-3	Q-CARP-4	Q-CARP-5	Q-CARP-6	R-CARP-1	R-CARP-2	R-CARP-3	A RO3499	B RO3502
Reference	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	IDEM 2000b	IDEM 2000b
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	IH/LM	IH/LM	IH/LM	GCRL	GCRL
Year	1988	1988	1988	1988	1988	1988	1988	1988	1988	1997	1997
Lab Tissue Type ¹	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	SK-OFF	SK-OFF
Number Fish/Sample	1	1	1	1	1	1	1	1	1	5	5
Length (cm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Weight (gm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	1390	2072
Latitude	41.645679	41.645679	41.645679	41.645679	41.645679	41.645679	41.667786	41.667786	41.667786	NR	NR
Longitude	-87.472031	-87.472031	-87.472031	-87.472031	-87.472031	-87.472031	-87.439423	-87.439423	-87.439423	NR	NR
Conventionals (%)											
Percent Lipid	8.13	31.57	0.71	16.16	1.68	32.14	11.32	11.35	9.34	2.92	2.96
Percent Moisture	72.57	64.84	70.11	73.45	81.71	83.64	67.76	69.28	67.71	NR	NR
Metals (mg/kg)											
Mercury	0.0584	0.0487	0.0573	0.0634	<0.00714	0.0160	0.0864	0.112	<u>0.193</u>	0.105	0.075
Pesticides (µg/kg)											
Aldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aldrin + Dieldrin ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2,4'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	79	68
Sum DDD ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC	NC
2,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sum DDE ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	Q-CARP-1	Q-CARP-2	Q-CARP-3	Q-CARP-4	Q-CARP-5	Q-CARP-6	R-CARP-1	R-CARP-2	R-CARP-3	A RO3499	B RO3502
<i>Pesticides (µg/kg; cont.)</i>											
2,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sum DDT ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total DDT ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC	NC
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor + Heptachlor epoxide ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Alpha (Cis) Chlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	24	25
Cis-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	11	NR
Gamma (Trans) Chlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	8.3	8.7
Oxychlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Trans-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Chlordane (all isomers) ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	24	25
<i>Polychlorinated Biphenyls (µg/kg)</i>											
Total PCBs (reported)	<u>1350</u>	<u>5830</u>	<u>336</u>	<u>1200</u>	<u>875</u>	<u>148</u>	<u>3210</u>	<u>469</u>	<u>727</u>	<u>410</u>	<u>340</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	C RO3505	D RO3508	E RO3511	F RO3514	G RO3517	H RO3520	I RO3523	J RO3526	K RO3529	L RO3532
Reference	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL
Year	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
Lab Tissue Type ¹	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF
Number Fish/Sample	5	5	5	5	5	5	5	5	5	5
Length (cm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Weight (gm)	2097	2089	1192	1390	738	1135	624	880	1419	679
Latitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Longitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Conventionals (%)										
Percent Lipid	2.74	2.45	1.34	1.22	1.38	1.46	1.39	0.71	0.9	1.14
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals (mg/kg)										
Mercury	NR	0.115	NR	0.075	0.075	NR	NR	0.11	<u>0.245</u>	0.085
Pesticides (µg/kg)										
Aldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Aldrin + Dieldrin ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2,4'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	51	48	NR	11	36	32	NR	NR	NR	NR
Sum DDD ²	NC	NC	NR	NC	NC	NC	NR	NR	NR	NR
2,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sum DDE ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	C RO3505	D RO3508	E RO3511	F RO3514	G RO3517	H RO3520	I RO3523	J RO3526	K RO3529	L RO3532
<i>Pesticides (µg/kg; cont.)</i>										
2,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sum DDT ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total DDT ²	NC	NC	NR	NC	NC	NC	NR	NR	NR	NR
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor + Heptachlor epoxide ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Alpha (Cis) Chlordane	23	18	NR	NR	13	11	NR	NR	NR	NR
Cis-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Gamma (Trans) Chlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Oxychlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Trans-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Chlordane (all isomers) ²	23	NC	NR	NR	NC	NC	NR	NR	NR	NR
<i>Polychlorinated Biphenyls (µg/kg)</i>										
Total PCBs (reported)	<u>280</u>	<u>290</u>	<u>270</u>	<u>160</u>	<u>300</u>	<u>210</u>	<u>70</u>	<u>320</u>	<u>240</u>	<u>240</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversic factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	M RO3535	N RO3538	O RO3541	P RO3544	Q RO3547	R RO3610	00658	00478	00477	00199
Reference	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000b	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCRL	GCRL	GCRL	GCRL	GCRL	GCRL	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1997	1997	1997	1997	1997	1997	1980	1982	1982	1984
Lab Tissue Type ¹	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	SK-OFF	WHOLE	WHOLE	WHOLE	WHOLE
Number Fish/Sample	5	5	5	5	5	5	5	3	3	5
Length (cm)	NR	NR	NR	NR	NR	NR	11.6 - 26.8	35 - 55.5	48.5 - 63	48.7 - 53.5
Weight (gm)	653	822	993	968	1646	1277	22 - 280	624 - 1276	1588 - 2863	1844 - 2298
Latitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Longitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Conventionals (%)										
Percent Lipid	1.07	2.05	0.76	0.78	1.13	0.74	1.74	8.82	8.03	7.35
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals (mg/kg)										
Mercury	0.08	0.06	0.145	0.11	<u>0.17</u>	<u>0.2</u>	<0.0357	NR	NR	<0.0200
Pesticides (µg/kg)										
Aldrin	NR	NR	NR	NR	NR	NR	<23.7	<23.7	<23.7	<23.7
Dieldrin	NR	NR	NR	NR	NR	NR	0.741	<7.41	<7.41	7.41
Aldrin + Dieldrin ²	NR	NR	NR	NR	NR	NR	NC	NC	NC	NC
2,4'-DDD	NR	NR	NR	NR	NR	NR	<7.41	<7.41	<7.41	<7.41
4,4'-DDD	NR	NR	NR	NR	NR	NR	6.67	127	140	48.9
Sum DDD ²	NR	NR	NR	NR	NR	NR	NC	NC	NC	NC
2,4'-DDE	NR	NR	NR	NR	NR	NR	<7.41	<7.41	<7.41	<7.41
4,4'-DDE	NR	NR	NR	NR	NR	NR	8.15	239	960	112
Sum DDE ²	NR	NR	NR	NR	NR	NR	NC	239	960	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	M RO3535	N RO3538	O RO3541	P RO3544	Q RO3547	R RO3610	00658	00478	00477	00199
<i>Pesticides (µg/kg; cont.)</i>										
2,4'-DDT	NR	NR	NR	NR	NR	NR	<7.41	<7.41	<7.41	<7.41
4,4'-DDT	NR	NR	NR	NR	NR	NR	<7.41	<7.41	<7.41	<7.41
Sum DDT ²	NR	NR	NR	NR	NR	NR	NC	NC	NC	NC
Total DDT ²	NR	NR	NR	NR	NR	NR	NC	239	960	NC
Heptachlor	NR	NR	NR	NR	NR	NR	<23.7	<23.7	<23.7	<23.7
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	<5.93	<5.93	<5.93	7.41
Heptachlor + Heptachlor epoxide ²	NR	NR	NR	NR	NR	NR	NC	NC	NC	NC
Alpha (Cis) Chlordane	NR	NR	NR	NR	NR	NR	4.44	54.8	48.1	<5.93
Cis-Nonachlor	NR	NR	NR	NR	NR	NR	0.741	<5.93	23.0	10.4
Gamma (Trans) Chlordane	NR	NR	NR	NR	NR	NR	5.93	147	279	6.67
Oxychlordane	NR	NR	NR	NR	NR	NR	0.741	<5.93	0.741	1.48
Trans-Nonachlor	NR	NR	NR	NR	NR	NR	<5.93	19.3	48.1	14.8
Total Chlordane (all isomers) ²	NR	NR	NR	NR	NR	NR	NC	221	399	14.8
<i>Polychlorinated Biphenyls (µg/kg)</i>										
Total PCBs (reported)	<u>240</u>	<u>420</u>	<u>370</u>	<u>320</u>	<u>930</u>	<u>660</u>	<u>1050</u>	<u>3430</u>	<u>9260</u>	<u>4350</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	00881	00882	80502396	80502398	80502399	80502403	80502404	80502405	80502406	80502409
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1986	1986	1986	1986	1986	1986	1986	1987	1987	1987
Lab Tissue Type ¹	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE
Number Fish/Sample	5	5	3	4	4	5	3	4	2	4
Length (cm)	33 - 40	36 - 43	53 - 70	66 - 73.5	36.1 - 67	62 - 68.5	62.4 - 75.6	52 - 65.1	22 - 36.5	28.4 - 37.5
Weight (gm)	610 - 850	790 - 1238	2071 - 4654	3859 - 4937	738 - 4058	2866 - 4370	3093 - 6299	1873 - 4086	190 - 790	380 - 851
Latitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Longitude	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Conventionals (%)										
Percent Lipid	5.8	5.48	13.3	14.5	9.3	16.6	13.5	14	5.8	8.3
Percent Moisture	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals (mg/kg)										
Mercury	0.0471	0.0471	<u>0.203</u>	<u>0.243</u>	<u>0.271</u>	<u>0.214</u>	<u>0.320</u>	0.146	0.0743	0.0714
Pesticides (µg/kg)										
Aldrin	NR	NR	<184	19.3	<184	<302	16.3	8.15	11.9	24.4
Dieldrin	5.93	5.93	31.9	93.3	48.1	109	137	52.6	<7.41	17.8
Aldrin + Dieldrin ²	NC	NC	NC	93.3	NC	109	137	NC	NC	NC
2,4'-DDD	NR	NR	8.15	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41
4,4'-DDD	17.8	16.3	78.5	256	110	250	341	158	26.7	22.2
Sum DDD ²	NC	NC	NC	256	NC	250	341	158	NC	NC
2,4'-DDE	NR	NR	27.4	66.7	28.1	37.8	45.2	18.5	12.6	17.0
4,4'-DDE	<7.41	<0.741	633	889	622	1330	1930	1700	<156	14.1
Sum DDE ²	NC	NC	633	889	622	1330	1930	1700	NC	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	00881	00882	80502396	80502398	80502399	80502403	80502404	80502405	80502406	80502409
<i>Pesticides (µg/kg; cont.)</i>										
2,4'-DDT	NR	NR	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41
4,4'-DDT	1.48	0.741	11.1	<7.41	<7.41	<7.41	164	<7.41	<7.41	<7.41
Sum DDT ²	NC	NC	NC	NC	NC	NC	164	NC	NC	NC
Total DDT ²	NC	NC	633	1140	622	1580	2430	1860	NC	NC
Heptachlor	NR	NR	<184	<184	<184	<302	<599	<302	<124	<184
Heptachlor epoxide	1.48	1.48	<5.93	11.9	<5.93	12.6	17.8	<5.93	<5.93	10.4
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	6.67	7.41	14.1	89.6	40.0	60.7	72.6	31.9	8.15	10.4
Cis-Nonachlor	2.22	2.22	8.15	42.2	14.1	21.5	29.6	23.0	<5.93	<5.93
Gamma (Trans) Chlordane	4.44	5.19	6.59	57.0	28.1	37.8	39.3	16.3	8.15	11.1
Oxychlordane	8.89	9.63	<5.93	14.8	8.89	13.3	20.0	10.4	<5.93	<5.93
Trans-Nonachlor	<0.741	<0.741	10.4	63.7	25.2	32.6	43.7	22.2	<5.93	<5.93
Total Chlordane (all isomers) ²	NC	NC	NC	267	93.3	153	205	93.3	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>										
Total PCBs (reported)	<u>2780</u>	<u>2320</u>	<u>3780</u>	<u>4070</u>	<u>3780</u>	<u>5260</u>	<u>7190</u>	<u>5930</u>	<u>3190</u>	<u>3480</u>

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¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	80502410	90602983 292-88	90602985 293-88	11202139 093-90	11202141 094-90	30301041 192-92	30301043 193-92	30301044 194-92
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1987	1988	1988	1990	1990	1992	1992	1992
Lab Tissue Type ¹	WHOLE	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	1	3	1	3	2	1	5	4
Length (cm)	38.5	60.5 - 63	74	55.2 - 61.2	40 - 47.5	80	35 - 39.1	52.2 - 55.5
Weight (gm)	888	3119 - 3686	6691	2412 - 3377	965 - 1674	8427	823 - 965	1958 - 2554
Latitude	NR	NR	NR	41.655	41.655	41.6525	41.6525	41.6525
Longitude	NR	NR	NR	-87.45916667	-87.45916667	-87.46333333	-87.46333333	-87.46333333
Conventionals (%)								
Percent Lipid	4.7	6.2	21.68	6.34	3.42	12.1	6.23	8.34
Percent Moisture	NR	NR	NR	74.2	76.5	55.91	73.37	72.4
Metals (mg/kg)								
Mercury	0.0643	0.084	0.124	0.13	0.014	0.09	0.01	0.03
Pesticides (µg/kg)								
Aldrin	<124	<16	<40	205	150	<8	<8	<40
Dieldrin	<7.41	21	210	23	<10	99	<10	<10
Aldrin + Dieldrin ²	NC	NC	210	205	150	NC	NC	NC
2,4'-DDD	<7.41	<10	<50	26	15	26	<10	10
4,4'-DDD	<7.41	40	61	140	45	78	45	160
Sum DDD ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	<7.41	<10	<50	16	<20	<20	<20	<60
4,4'-DDE	<156	145	280	320	64	315	<10	59
Sum DDE ²	NC	NC	280	320	NC	315	NC	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	80502410	90602983 292-88	90602985 293-88	11202139 093-90	11202141 094-90	30301041 192-92	30301043 193-92	30301044 194-92
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	<7.41	<10	<50	<20	<20	<20	<20	<60
4,4'-DDT	<7.41	<10	<50	<20	<20	<20	<20	<60
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	NC	280	320	NC	315	NC	NC
Heptachlor	<124	<16	<40	6.1	8.3	14	9.7	<40
Heptachlor epoxide	<5.93	<8	101	<8	<8	32	<8	<8
Heptachlor + Heptachlor epoxide ²	NC	NC	101	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	<5.93	<8	80	34	10	27	<16	13
Cis-Nonachlor	<5.93	13	<40	16	<8	11	<8	<8
Gamma (Trans) Chlordane	<5.93	<8	<40	23	<8	13	<8	12
Oxychlordane	<5.93	<8	<40	<8	<8	<8	<8	<8
Trans-Nonachlor	<5.93	<8	<40	18	<16	<16	<16	<48
Total Chlordane (all isomers) ²	NC	NC	80	57	NC	27	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>2440</u>	<u>1600</u>	<u>2200</u>	<u>5000</u>	<u>2500</u>	<u>8900</u>	<u>4500</u>	<u>4600</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	30301045 195-92	40900692 065-94	40900693 066-94	40900694 067-94	41201188 070-94	41201189 071-94	41201191 073-94	41201192 074-94
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1992	1994	1994	1994	1994	1994	1994	1994
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	5	1	1	1	2	1	2	2
Length (cm)	22.9 - 28.8	32.8	53.7	49.5	50.6 - 50.7	35.1	35.4 - 39	46 - 46.1
Weight (gm)	216 - 336	624	2100	2724	1844 - 1930	993	530 - 993	1703 - 1703
Latitude	41.6525	41.652222222	41.652222222	41.652222222	41.609027778	41.609027778	41.6125	41.6125
Longitude	-87.46333333	-87.46305556	-87.46305556	-87.46305556	-87.37111111	-87.37111111	-87.43013889	-87.43013889
Conventionals (%)								
Percent Lipid	4.52	2.7	3.46	20.86	5.37	5.99	1.64	5.14
Percent Moisture	72.6	78.2	77.9	62.4	76.5	76.9	80.2	76.3
Metals (mg/kg)								
Mercury	0.01	<0.04	0.05	0.06	<0.02	0.05	0.03	0.02
Pesticides (µg/kg)								
Aldrin	<40	<8	28	8.6	<8	<8	<8	<8
Dieldrin	<10	<10	23	26	<10	<10	<10	<10
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	<10	<10	19	40	<10	<10	23	16
4,4'-DDD	23	<10	78	290	30	19	120	77
Sum DDD ²	NC	NC	NC	290	NC	NC	NC	NC
2,4'-DDE	<60	15	20	62	<84	<20	<38	<120
4,4'-DDE	<50	37	53	330	<40	69	23	39
Sum DDE ²	NC	NC	NC	330	NC	NC	NC	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	30301045 195-92	40900692 065-94	40900693 066-94	40900694 067-94	41201188 070-94	41201189 071-94	41201191 073-94	41201192 074-94
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	<60	<20	<20	13	<20	<20	<20	<20
4,4'-DDT	<60	<20	<20	<20	<10	<20	<10	<10
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	NC	NC	620	NC	NC	NC	NC
Heptachlor	<40	<8	<8	<8	<8	<8	<8	<8
Heptachlor epoxide	<8	<8	<8	11	<8	<8	<8	<8
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	<48	<16	14	55	<8	<8	<8	16
Cis-Nonachlor	<8	<8	<70	<260	<8	<8	<8	<8
Gamma (Trans) Chlordane	<48	<16	<16	41	<8	<8	<8	17
Oxychlordane	<8	<8	<8	<8	<8	<8	<8	<8
Trans-Nonachlor	<48	<16	<16	37	<38	<48	<22	<51
Total Chlordane (all isomers) ²	NC	NC	NC	133	NC	NC	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>2600</u>	<u>3000</u>	<u>4900</u>	<u>23000</u>	<u>6800</u>	<u>6600</u>	<u>800</u>	<u>7950</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	41201194 075-94	41201196 077-94	41201197 078-94	41201198 079-94	41201200 081-94	41201201 082-94	41201202 083-94	61200735 131-96
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1994	1994	1994	1994	1994	1994	1994	1996
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	1	3	3	1	3	4	2	1
Length (cm)	78.5	46 - 50.7	41 - 41.8	55.1	40.2 - 42.4	28 - 31.2	60 - 65.4	49.4
Weight (gm)	7037	1816 - 2384	972 - 1163	2696	1050 - 1135	392 - 608	3093 - 4171	1731
Latitude	41.6125	41.614861111	41.614861111	41.614861111	41.615	41.615	41.615	41.609027778
Longitude	-87.43013889	-87.48180556	-87.48180556	-87.48180556	-87.46069444	-87.46069444	-87.46069444	-87.37111111
Conventionals (%)								
Percent Lipid	11.98	8.22	5.03	16.51	4.75	6.64	8.81	9.77
Percent Moisture	69.3	73.8	76.4	66.9	77	77	73.8	71.98
Metals (mg/kg)								
Mercury	0.13	0.02	0.02	0.04	0.03	0.02	0.13	0.0563
Pesticides (µg/kg)								
Aldrin	<8	<8	<8	<8	<8	<8	<8	<8
Dieldrin	21	<10	<10	16	<10	<10	15	26
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	26	10	<10	20	<10	<10	12	24
4,4'-DDD	200	75	45	160	37	52	97	66
Sum DDD ²	200	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	<20	<20	<20	<20	<110	<108	<200	479
4,4'-DDE	1300	34	27	78	29	19	600	300
Sum DDE ²	1300	NC	NC	NC	NC	NC	600	779

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	41201194 075-94	41201196 077-94	41201197 078-94	41201198 079-94	41201200 081-94	41201201 082-94	41201202 083-94	61200735 131-96
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	<20	<20	<20	<20	<20	<20	<20	<20
4,4'-DDT	<10	<10	<10	<10	<10	<10	<10	15
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	1500	NC	NC	NC	NC	NC	600	779
Heptachlor	<8	<8	<8	<8	<8	<8	<8	110
Heptachlor epoxide	<8	<8	<8	<8	<8	<8	<8	12
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	110
Alpha (Cis) Chlordane	24	18	11	30	<8	<8	27	20
Cis-Nonachlor	25	<8	<8	9	<8	<8	26	<8
Gamma (Trans) Chlordane	<8	18	12	29	<8	11	<8	14
Oxychlordane	<8	<8	<8	<8	<8	<8	<8	<8
Trans-Nonachlor	36	<57	<38	<92	<46	<44	31	15
Total Chlordane (all isomers) ²	85	NC	NC	59	NC	NC	84	20
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>27000</u>	<u>11000</u>	<u>5700</u>	<u>19000</u>	<u>7900</u>	<u>6500</u>	<u>16000</u>	<u>20000</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200736 133-96	61200742 138-96	61200743 139-96	61200744 140-96	61200758 149-96	61200759 150-96	61200761 152-96	61200763 155-96
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1996	1996	1996	1996	1996	1996	1996	1996
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	2	1	2	1	1	2	1	3
Length (cm)	35 - 37.7	62.2	42.2 - 42.6	29.9	39.8	28.2 - 28.6	36.4	27.2 - 28.9
Weight (gm)	689 - 789	3093	1305 - 1334	408	993	364 - 392	648	336 - 361
Latitude	41.609027778	41.6125	41.6125	41.6125	41.652222222	41.652222222	41.652222222	41.614861111
Longitude	-87.371111111	-87.43013889	-87.43013889	-87.43013889	-87.46305556	-87.46305556	-87.46305556	-87.48180556
Conventionals (%)								
Percent Lipid	6.06	5.7	7.79	4.7	6.89	4.20	4.04	2.98
Percent Moisture	74.99	74.32	73.53	75.44	74.29	77.16	76.28	77.41
Metals (mg/kg)								
Mercury	0.0256	<u>0.267</u>	0.037	0.024	0.0056	<0.006	<0.0058	<0.0055
Pesticides (µg/kg)								
Aldrin	<8	<8	<8	<8	<80	<40	<40	<40
Dieldrin	<10	17	<10	<10	<10	<10	<10	<10
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	<10	<10	<10	<10	<10	15	<10	<10
4,4'-DDD	33	66	48	20	33	135	24	66
Sum DDD ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	198	93	190	110	<170	<91	<130	<90
4,4'-DDE	140	420	170	55	<110	<72	<60	<60
Sum DDE ²	NC	420	NC	NC	NC	NC	NC	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200736 133-96	61200742 138-96	61200743 139-96	61200744 140-96	61200758 149-96	61200759 150-96	61200761 152-96	61200763 155-96
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	23	<20	<20	<20	<110	<60	<60	<60
4,4'-DDT	<20	<20	<20	<20	<110	<60	<60	<60
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	420	NC	NC	NC	NC	NC	NC
Heptachlor	39	22	37	26	<80	<40	<40	<40
Heptachlor epoxide	<8	<8	<8	<8	<8	<8	<8	<8
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	10	14	9.4	<8	<8	10	<8	11
Cis-Nonachlor	<18	<8	<8	<8	<8	<8	<8	<8
Gamma (Trans) Chlordane	11	<8	10	<8	<8	6.9	<8	8.8
Oxychlordane	<8	<8	<8	<8	<8	<8	<8	<8
Trans-Nonachlor	8.5	14	8.5	<16	<88	<48	<48	<48
Total Chlordane (all isomers) ²	NC	NC	NC	NC	NC	NC	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>12500</u>	<u>7200</u>	<u>13000</u>	<u>6700</u>	<u>7100</u>	<u>2650</u>	<u>3500</u>	<u>2700</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); **bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.**

Station Sample	61200764 156-96	61200765 157-96	61200749 162-96	61200750 163-96	61200754 164-96	910262001	910262003	910262007
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1996	1996	1996	1996	1996	2000	2000	2000
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	1	1	2	3	2	3	3	3
Length (cm)	36	19.6	24.3 - 25	36.7 - 40.5	42.7 - 46.3	40.5 - 47.5	48.5 - 54.3	40.5 - 41
Weight (gm)	748	150	228 - 272	718 - 985	1305 - 1362	1077 - 1531	1814 - 2381	1106 - 1191
Latitude	41.614861111	41.614861111	41.615	41.615	41.615	41.609166667	41.609166667	41.614444444
Longitude	-87.48180556	-87.48180556	-87.46069444	-87.46069444	-87.46069444	-87.37222222	-87.37222222	-87.46111111
Conventionals (%)								
Percent Lipid	6.89	4.98	2.62	5.36	4.26	4.03	10.8	9.32
Percent Moisture	74.94	74.21	77.78	75.28	75.52	77.05	69.7	72.1
Metals (mg/kg)								
Mercury	0.007	0.0075	0.0345	0.0281	0.0435	<0.05	<0.05	<0.05
Pesticides (µg/kg)								
Aldrin	<40	<100	<8	<8	<8	<2.5	<2.5	<2.5
Dieldrin	<10	<13	<10	<10	<10	<5	8.3	6.5
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	16	<13	12	<10	21	6.8	24	12
4,4'-DDD	150	38	37	41	110	38	150	58
Sum DDD ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	<60	150	52	171	160	<5	<5	<5
4,4'-DDE	<60	<143	30	85	120	43.5	320	<5
Sum DDE ²	NC	NC	NC	NC	NC	NC	320	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200764 156-96	61200765 157-96	61200749 162-96	61200750 163-96	61200754 164-96	910262001	910262003	910262007
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	<60	<143	<20	<20	<20	<5	<5	<5
4,4'-DDT	<60	<143	<20	<20	<20	<5	<5	<5
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	NC	NC	NC	NC	NC	320	NC
Heptachlor	<40	<100	<8	29	19	<2.5	<2.5	<2.5
Heptachlor epoxide	<8	<10	<8	<8	<8	<2.5	<2.5	<2.5
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	28	<10	<8	9	13	4.25	31	9.2
Cis-Nonachlor	<8	<10	<8	<8	<8	<5	<5	<5
Gamma (Trans) Chlordane	19	<10	<8	9.6	10	3.35	23	9.4
Oxychlordane	<8	<10	<8	<8	<8	<5	<5	<5
Trans-Nonachlor	<48	<110	<16	<16	16	<5	33	5.6
Total Chlordane (all isomers) ²	28	NC	NC	NC	NC	NC	87	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>3300</u>	<u>4100</u>	<u>2400</u>	<u>9200</u>	<u>8800</u>	<u>4700</u>	<u>9000</u>	<u>7400</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); **bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.**

Station Sample	910262012	910262013	910262019	910398006	80502397	80502401	80502402
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCRL	GCRL	GCRL
Year	2000	2000	2000	2000	1986	1986	1986
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	SK-ON, SC-OFF	WHOLE	WHOLE	WHOLE
Number Fish/Sample	3	3	3	3	5	3	4
Length (cm)	40.1 - 40.5	58.5 - 63.8	45.8 - 52.1	43.6 - 47.5	43.4 - 57	39.9 - 45.5	33 - 45
Weight (gm)	992 - 1134	2863 - 3856	1928 - 1984	1077 - 1729	1078 - 2298	766 - 1277	482 - 1277
Latitude	41.613055556	41.613055556	41.613888889	41.652222222	NR	NR	NR
Longitude	-87.4325	-87.4325	-87.47805556	-87.46305556	NR	NR	NR
Conventionals (%)							
Percent Lipid	9.64	11.7	2.21	6.01	7.6	2.8	4.5
Percent Moisture	73.3	68.8	80.1	75.1	NR	NR	NR
Metals (mg/kg)							
Mercury	<0.05	0.12	<0.05	<0.05	0.0671	0.0500	0.0514
Pesticides (µg/kg)							
Aldrin	<2.5	<2.5	<2.5	<2.5	<11.9	<11.9	<65.2
Dieldrin	8.2	18	<5	<5	<7.41	<7.41	12.6
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	13	25	5.1	8.2	25.2	<7.41	<7.41
4,4'-DDD	79	140	30	43	336	22.2	15.6
Sum DDD ²	NC	NC	NC	NC	336	NC	NC
2,4'-DDE	<5	<5	<5	<5	38.5	<7.41	<7.41
4,4'-DDE	160	590	34	73	963	274	133
Sum DDE ²	NC	590	NC	NC	963	274	NC

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	910262012	910262013	910262019	910398006	80502397	80502401	80502402
<i>Pesticides (µg/kg; cont.)</i>							
2,4'-DDT	<5	<5	<5	<5	<7.41	<7.41	<7.41
4,4'-DDT	<5	<5	<5	<5	8.89	<7.41	<7.41
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	590	NC	NC	1300	274	NC
Heptachlor	<2.5	<2.5	<2.5	<2.5	<11.9	<11.9	<65.2
Heptachlor epoxide	<2.5	<2.5	<2.5	<2.5	<5.93	<5.93	<5.93
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	16	18	7	7	79.3	8.89	<5.93
Cis-Nonachlor	6.1	13	<5	<5	16.3	<5.93	<5.93
Gamma (Trans) Chlordane	11	11	6.5	4.9	38.5	<5.93	<5.93
Oxychlordane	<5	<5	<5	<5	<5.93	<5.93	<5.93
Trans-Nonachlor	<5	<5	<5	8.6	14.8	<5.93	<5.93
Total Chlordane (all isomers) ²	NC	NC	NC	NC	149	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>							
Total PCBs (reported)	<u>10000</u>	<u>11000</u>	<u>2200</u>	<u>4100</u>	<u>237</u>	<u>215</u>	<u>815</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	90603017 306-88	90603019 308-88	980431004 212-96
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	IH/LM	IH/LM	IH/LM
Year	1988	1988	1996
Lab Tissue Type ¹	SK-ON, SC-ON	SK-ON, SC-ON, LS	SK-ON, SC-OFF
Number Fish/Sample	2	5	2
Length (cm)	NR	NR	60 - 63.1
Weight (gm)	NR	NR	3360 - 3810
Latitude	NR	NR	41.670277778
Longitude	NR	NR	-87.436666667
Conventionals (%)			
Percent Lipid	20.91	19.95	14.21
Percent Moisture	NR	NR	69.6
Metals (mg/kg)			
Mercury	<u>0.165</u>	<u>0.165</u>	<0.04
Pesticides (µg/kg)			
Aldrin	<16	<8	<8
Dieldrin	85	102	21
Aldrin + Dieldrin ²	NC	102	NC
2,4'-DDD	<10	<10	<10
4,4'-DDD	110	210	45
Sum DDD ²	NC	210	NC
2,4'-DDE	<10	<10	<20
4,4'-DDE	1200	<10	230
Sum DDE ²	1200	NC	230

Table A5.1 Tissue chemistry data used to assess injury to human uses of fishery resources (carp; *Cyprinus carpio*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	90603017 306-88	90603019 308-88	980431004 212-96
<i>Pesticides (µg/kg; cont.)</i>			
2,4'-DDT	14	<10	<20
4,4'-DDT	<10	<10	24
Sum DDT ²	NC	NC	NC
Total DDT ²	1200	210	230
Heptachlor	<16	<8	<31
Heptachlor epoxide	19	27	<8
Heptachlor + Heptachlor epoxide ²	NC	NC	NC
Alpha (Cis) Chlordane	57	85	14
Cis-Nonachlor	25	41	11
Gamma (Trans) Chlordane	34	57	8.3
Oxychlordane	11	<8	<8
Trans-Nonachlor	41	30	<16
Total Chlordane (all isomers) ²	157	213	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>			
Total PCBs (reported)	<u>1500</u>	<u>3300</u>	<u>4200</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; GCRL = Grand Calumet River Lagoons; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-OFF = Skin-off Fillets; SK-ON, SC-OFF = Skin-on fillets, scaleless; SK-ON, SC-ON = Skin-on fillets, scales on; SK-ON, SC-ON, LS = Skin-on fillets, scales on, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.2 Tissue chemistry data used to assess injury to human uses of fishery resources (goldfish; *Carassius auratus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	11202142 095-90	41201190 072-94	41201195 076-94	41201199 080-94	41201203 084-94	61200738 134-96	61200745 141-96	61200755 146-96
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1990	1994	1994	1994	1994	1996	1996	1996
Lab Tissue Type ¹	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE
Number Fish/Sample	6	8	8	9	10	5	1	5
Length (cm)	15.1 - 23.5	14.7 - 17.5	13.9 - 17.2	18.5 - 19.5	12.5 - 14.8	13.3 - 15.1	12.5	15.5 - 16.2
Weight (gm)	70 - 263	55 - 100	53 - 90	113 - 162	20 - 60	42 - 64	44	76 - 100
Latitude	41.655	41.609027778	41.6125	41.614861111	41.615	41.609027778	41.6125	41.652222222
Longitude	-87.45916667	-87.37111111	-87.43013889	-87.48180556	-87.46069444	-87.37111111	-87.43013889	-87.46305556
Conventionals (%)								
Percent Lipid	4.85	3.92	3.19	4.55	3.44	4.59	4.75	8.86
Percent Moisture	73.6	76.3	76.9	75.3	76.3	72.65	72.31	70.35
Metals (mg/kg)								
Mercury	<0.0143	0.0429	0.0429	0.0429	0.0429	0.0224	0.0419	<0.00786
Pesticides (µg/kg)								
Aldrin	163	<5.93	<5.93	<5.93	<5.93	<5.93	<8.89	<59.3
Dieldrin	<7.41	<7.41	<7.41	<7.41	<7.41	<7.41	<11.1	9.63
Aldrin + Dieldrin ²	163	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	8.89	<7.41	<7.41	<7.41	<7.41	<7.41	<11.1	8.15
4,4'-DDD	33.3	<7.41	<7.41	88.9	40.0	24.4	<11.1	61.5
Sum DDD ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	<14.8	<52.6	<62.2	<43.7	<61.5	126	119	<185
4,4'-DDE	<7.41	<7.41	<57.0	18.5	14.1	81.5	72.6	<81.5
Sum DDE ²	NC	NC	NC	NC	NC	NC	NC	NC

Table A5.2 Tissue chemistry data used to assess injury to human uses of fishery resources (goldfish; *Carassius auratus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	11202142 095-90	41201190 072-94	41201195 076-94	41201199 080-94	41201203 084-94	61200738 134-96	61200745 141-96	61200755 146-96
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	35.6	<14.8	<14.8	<14.8	<14.8	17.8	<22.2	<81.5
4,4'-DDT	<14.8	<7.41	<7.41	<7.41	<7.41	<14.8	<22.2	<81.5
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Heptachlor	<5.93	<5.93	<5.93	<5.93	<5.93	<5.93	<8.89	<59.3
Heptachlor epoxide	<5.93	<5.93	<5.93	<5.93	<5.93	<5.93	<8.89	<5.93
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	8.89	<5.93	<5.93	11.9	<5.93	8.15	11.9	14.8
Cis-Nonachlor	<5.93	<5.93	<5.93	<5.93	<5.93	<12.6	<8.89	<5.93
Gamma (Trans) Chlordane	<5.93	<5.93	<5.93	10.4	<5.93	5.93	<8.89	10.4
Oxychlordane	<5.93	<5.93	<5.93	<5.93	<5.93	<5.93	<8.89	<5.93
Trans-Nonachlor	<11.9	<28.1	<28.9	<25.2	<31.1	<11.9	<17.8	<65.2
Total Chlordane (all isomers) ²	NC	NC	NC	NC	NC	NC	NC	14.8
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>4220</u>	<u>3040</u>	<u>3930</u>	<u>2670</u>	<u>3850</u>	<u>8150</u>	<u>6300</u>	<u>4960</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000)

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.2 Tissue chemistry data used to assess injury to human uses of fishery resources (goldfish; *Carassius auratus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200762 153-96	61200748 161-96	910262004	910262014	910262016	910262018	910262008	910398005
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC	GCR/IHC
Year	1996	1996	2000	2000	2000	2000	2000	2000
Lab Tissue Type ¹	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE
Number Fish/Sample	5	5	12	2	13	41	9	5
Length (cm)	14.2 - 15.5	13 - 13.8	10.9 - 13.7	15 - 20.5	9.1 - 15.9	4.2 - 8.4	10 - 16	7.1 - 20.7
Weight (gm)	60 - 78	40 - 48	24 - 60	64 - 150	14 - 82	1 - 10	18 - 84	4 - 178
Latitude	41.614861111	41.615	41.609166667	41.613055556	41.613888889	41.613888889	41.614444444	41.652222222
Longitude	-87.48180556	-87.46069444	-87.37222222	-87.4325	-87.47805556	-87.47805556	-87.46111111	-87.46305556
Conventional (%)								
Percent Lipid	4.07	6.61	3.44	3.04	2.67	2.9	4.81	16.6
Percent Moisture	74.35	71.13	74.2	74.4	76.5	79	74.2	64.2
Metals (mg/kg)								
Mercury	<0.00743	0.0487	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714	<0.0714
Pesticides (µg/kg)								
Aldrin	<29.6	<5.93	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
Dieldrin	<7.41	<7.41	<3.70	<3.70	<3.70	<3.70	<3.70	10.4
Aldrin + Dieldrin ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDD	14.1	<7.41	<3.70	<3.70	<3.70	<3.70	<3.70	10.4
4,4'-DDD	141	25.2	6.67	<3.70	23.0	22.2	11.1	46.7
Sum DDD ²	NC	NC	NC	NC	NC	NC	NC	NC
2,4'-DDE	<54.1	141	<3.70	<3.70	<3.70	<3.70	<3.70	<3.70
4,4'-DDE	<63.7	81.5	<3.70	31.1	27.4	23.0	<3.70	222
Sum DDE ²	NC	NC	NC	NC	NC	NC	NC	222

Table A5.2 Tissue chemistry data used to assess injury to human uses of fishery resources (goldfish; *Carassius auratus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200762 153-96	61200748 161-96	910262004	910262014	910262016	910262018	910262008	910398005
<i>Pesticides (µg/kg; cont.)</i>								
2,4'-DDT	<44.4	<14.8	<3.70	<3.70	<3.70	<3.70	<3.70	<3.70
4,4'-DDT	<44.4	<14.8	<3.70	<3.70	<3.70	<3.70	<3.70	<3.70
Sum DDT ²	NC	NC	NC	NC	NC	NC	NC	NC
Total DDT ²	NC	NC	NC	NC	NC	NC	NC	222
Heptachlor	<29.6	<5.93	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
Heptachlor epoxide	<5.93	<5.93	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
Heptachlor + Heptachlor epoxide ²	NC	NC	NC	NC	NC	NC	NC	NC
Alpha (Cis) Chlordane	20.0	8.89	<1.85	<1.85	4.81	4.22	3.41	17.0
Cis-Nonachlor	6.67	<5.93	<3.70	<3.70	<3.70	<3.70	<3.70	6.81
Gamma (Trans) Chlordane	14.8	7.41	<1.85	<1.85	4.81	4.52	2.30	14.1
Oxychlordane	<5.93	<5.93	<3.70	<3.70	<3.70	<3.70	<3.70	<3.70
Trans-Nonachlor	<35.6	6.22	<3.70	<3.70	<3.70	<3.70	<3.70	32.6
Total Chlordane (all isomers) ²	34.8	NC	NC	NC	NC	NC	NC	49.6
<i>Polychlorinated Biphenyls (µg/kg)</i>								
Total PCBs (reported)	<u>2070</u>	<u>8150</u>	<u>3480</u>	<u>2000</u>	<u>1110</u>	<u>889</u>	<u>3930</u>	<u>12600</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000)

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.3 Tissue chemistry data used to assess injury to human uses of fishery resources (bluegill; *Lepomis macrochirus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	974252003
Sample	049-97
Reference	IDEM 2000a
Geographic Area	GCRL
Year	1997
Lab Tissue Type ¹	WHOLE
Number Fish/Sample	15
Length (cm)	10.4 - 17.2
Weight (gm)	550
Latitude	41.615833333
Longitude	-87.26444444
<i>Conventional</i> (%)	
Percent Lipid	3.26
Percent Moisture	75.5
<i>Metals</i> (mg/kg)	
Mercury	<0.0571
<i>Pesticides</i> (µg/kg)	
Aldrin	<5.93
Dieldrin	<7.41
Aldrin + Dieldrin ²	NC
2,4'-DDD	<7.41
4,4'-DDD	14.8
Sum DDD ²	NC
2,4'-DDE	<14.8
4,4'-DDE	44.4
Sum DDE ²	NC

Table A5.3 Tissue chemistry data used to assess injury to human uses of fishery resources (bluegill; *Lepomis macrochirus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	974252003
Sample	049-97
<i>Pesticides (µg/kg; cont.)</i>	
2,4'-DDT	<14.8
4,4'-DDT	<14.8
Sum DDT ²	NC
Total DDT ²	NC
Heptachlor	<5.93
Heptachlor epoxide	<5.93
Heptachlor + Heptachlor epoxide ²	NC
Alpha (Cis) Chlordane	<5.93
Cis-Nonachlor	<5.93
Gamma (Trans) Chlordane	<5.93
Oxychlordane	<5.93
Trans-Nonachlor	<11.9
Total Chlordane (all isomers) ²	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>	
Total PCBs (reported)	<u>252</u>

GCRL = Grand Calumet River Lagoons; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000)

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.4 Tissue chemistry data used to assess injury to human uses of fishery resources (pumpkinseed; *Lepomis gibbosus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	80502408
Reference	IDEM 2000a
Geographic Area	GCR/IHC
Year	1987
Lab Tissue Type ¹	WHOLE
Number Fish/Sample	10
Length (cm)	7.5 - 10.3
Weight (gm)	10 - 28
Latitude	NR
Longitude	NR
<i>Conventional (%)</i>	
Percent Lipid	1.5
<i>Metals (mg/kg)</i>	
Mercury	<0.0357

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000)

Table A5.5 Tissue chemistry data used to assess injury to human uses of fishery resources (sunfish; *Lepomis* Hybrid); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	Q-SUN-1,2,3	R-SUN-1,2,3
Reference	Risatti and Ross 1989	Risatti and Ross 1989
Geographic Area	GCR/IHC	IH/LM
Year	1988	1988
Lab Tissue Type ¹	WHOLE	WHOLE
Number Fish/Sample	3	3
Length (cm)	NR	NR
Weight (gm)	NR	NR
Latitude	41.645679	41.667786
Longitude	-87.472031	-87.439423
Conventional (%)		
Percent Lipid	NR	5.1767
Percent Moisture	82.63	78.35
Metals (mg/kg)		
Mercury	0.0443	<0.00714
Polychlorinated Biphenyls (µg/kg)		
Total PCBs (reported)	<u>380</u>	<u>575</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000).

Table A5.6 Tissue chemistry data used to assess injury to human uses of fishery resources (largemouth bass; *Micropterus salmoides*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	80502400	974252001 047-97	974252002 048-97
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCRL	GCRL	GCRL
Year	1986	1997	1997
Lab Tissue Type ¹	WHOLE	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	1	3	3
Length (cm)	32	39.2 - 43.7	37.1 - 40.3
Weight (gm)	454	809 - 919	582 - 829
Latitude	NR	41.615833333	41.615833333
Longitude	NR	-87.264444444	-87.264444444
<i>Conventionals (%)</i>			
Percent Lipid	4.4	0.62	0.48
Percent Moisture	NR	81	80.8
<i>Metals (mg/kg)</i>			
Mercury	0.0900	<0.04	<0.04
<i>Pesticides (µg/kg)</i>			
Aldrin	<23.7	<8	<8
Dieldrin	<7.41	<10	<10
Aldrin + Dieldrin ²	NC	NC	NC
2,4'-DDD	<7.41	<10	<10
4,4'-DDD	209	<10	<10
Sum DDD ²	209	NC	NC
2,4'-DDE	17.0	<10	<20
4,4'-DDE	1040	44	51
Sum DDE ²	1040	NC	NC

Table A5.6 Tissue chemistry data used to assess injury to human uses of fishery resources (largemouth bass; *Micropterus salmoides*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	80502400	974252001 047-97	974252002 048-97
<i>Pesticides (µg/kg; cont.)</i>			
2,4'-DDT	<7.41	<20	<20
4,4'-DDT	<7.41	<20	<20
Sum DDT ²	NC	NC	NC
Total DDT ²	1250	NC	NC
Heptachlor	<23.7	<8	<8
Heptachlor epoxide	<5.93	<8	<8
Heptachlor + Heptachlor epoxide ²	NC	NC	NC
Alpha (Cis) Chlordane	25.9	<8	<8
Cis-Nonachlor	19.3	<8	<8
Gamma (Trans) Chlordane	11.1	<8	<8
Oxychlordane	15.6	<8	<8
Trans-Nonachlor	22.2	<16	<16
Total Chlordane (all isomers) ²	83.0	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>			
Total PCBs (reported)	<u>459</u>	<u>170</u>	<u>250</u>

GCRL = Grand Calumet River Lagoons; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; NR = not reported; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-ON, SC-OFF = Skin-on fillets, scaleless.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.7 Tissue chemistry data used to assess injury to human uses of fishery resources (longnose sucker; *Catostomus catostomus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	90603018 307-88	90603020 309-88
Reference	IDEM 2000a	IDEM 2000a
Geographic Area	IH/LM	IH/LM
Year	1988	1988
Lab Tissue Type ¹	SK-ON, SC-ON	SK-ON, LS
Number Fish/Sample	5	5
Length (cm)	NR	NR
Weight (gm)	NR	NR
Latitude	NR	NR
Longitude	NR	NR
Conventional (%)		
Percent Lipid	4.78	4
Metals (mg/kg)		
Mercury	0.098	<u>0.191</u>
Pesticides (µg/kg)		
Aldrin	<8	<16
Dieldrin	45	49
Aldrin + Dieldrin ²	NC	NC
2,4'-DDD	<10	<10
4,4'-DDD	34	27
Sum DDD ²	NC	NC
2,4'-DDE	<10	<10
4,4'-DDE	<10	131
Sum DDE ²	NC	NC

Table A5.7 Tissue chemistry data used to assess injury to human uses of fishery resources (longnose sucker; *Catostomus catostomus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	90603018 307-88	90603020 309-88
<i>Pesticides (µg/kg; cont.)</i>		
2,4'-DDT	<10	<10
4,4'-DDT	<10	24
Sum DDT ²	NC	NC
Total DDT ²	NC	NC
Heptachlor	<8	<16
Heptachlor epoxide	17	<8
Heptachlor + Heptachlor epoxide ²	NC	NC
Alpha (Cis) Chlordane	26	23
Cis-Nonachlor	27	14
Gamma (Trans) Chlordane	14	17
Oxychlordane	<8	17
Trans-Nonachlor	<8	33
Total Chlordane (all isomers) ²	53	56
<i>Polychlorinated Biphenyls (µg/kg)</i>		
Total PCBs (reported)	<u>600</u>	<50

IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; NR = not reported; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels.

¹Lab Tissue Type: SK-ON, SC-ON = Skin on fillets, scales on; SK-ON, LS = Skin-on fillets, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.8 Tissue chemistry data used to assess injury to human uses of fishery resources (white sucker; *Catostomus commersoni*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200766 158-96	910262015	910262017
Reference	IDEM 2000a	IDEM 2000a	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	GCR/IHC
Year	1996	2000	2000
Lab Tissue Type ¹	SK-ON, SC-OFF	WHOLE	WHOLE
Number Fish/Sample	1	1	5
Length (cm)	28.2	22.6	8.6 - 12.5
Weight (gm)	258	100	6 - 20
Latitude	41.614861111	41.613055556	41.613888889
Longitude	-87.48180556	-87.4325	-87.47805556
<i>Conventionals (%)</i>			
Percent Lipid	0.86	1.22	1.57
Percent Moisture	79.75	75.6	78.1
<i>Metals (mg/kg)</i>			
Mercury	0.0123	<0.0714	<0.0714
<i>Pesticides (µg/kg)</i>			
Aldrin	<8	<1.85	<1.85
Dieldrin	<10	<3.70	<3.70
Aldrin + Dieldrin ²	NC	NC	NC
2,4'-DDD	<10	<3.70	<3.70
4,4'-DDD	18	<3.70	8.15
Sum DDD ²	NC	NC	NC
2,4'-DDE	<24	<3.70	<3.70
4,4'-DDE	<30	31.9	14.8
Sum DDE ²	NC	NC	NC

Table A5.8 Tissue chemistry data used to assess injury to human uses of fishery resources (white sucker; *Catostomus commersoni*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	61200766 158-96	910262015	910262017
<i>Pesticides (µg/kg; cont.)</i>			
2,4'-DDT	<20	<3.70	<3.70
4,4'-DDT	<20	<3.70	<3.70
Sum DDT ²	NC	NC	NC
Total DDT ²	NC	NC	NC
Heptachlor	<8	<1.85	<1.85
Heptachlor epoxide	<8	<1.85	<1.85
Heptachlor + Heptachlor epoxide ²	NC	NC	NC
Alpha (Cis) Chlordane	<8	<1.85	2.96
Cis-Nonachlor	<8	<3.70	<3.70
Gamma (Trans) Chlordane	<8	<1.85	3.04
Oxychlordane	<8	<3.70	<3.70
Trans-Nonachlor	<16	<3.70	<3.70
Total Chlordane (all isomers) ²	NC	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>			
Total PCBs (reported)	<u>770</u>	<u>2150</u>	<u>593</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; COPC = chemical of potential concern; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-ON, SC-OFF = Skin-on fillets, scaleless.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.9 Tissue chemistry data used to assess injury to human uses of fishery resources (yellow perch; *Perca flavescens*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group1 threshold.

Station Sample	S-PER-1-10	90603021 315-88	90603022 316-88
Reference	Risatti and Ross 1989	IDEM 2000a	IDEM 2000a
Geographic Area	IH/LM	IH/LM	IH/LM
Year	1988	1988	1988
Lab Tissue Type ¹	WHOLE	SK-ON, LS	SK-ON, LS
Number Fish/Sample	10	5	5
Length (cm)	NR	20.3 - 22.6	22.4 - 23.9
Weight (gm)	NR	NR	NR
Latitude	41.678841	NR	NR
Longitude	-87.401932	NR	NR
<i>Conventionals (%)</i>			
Percent Lipid	2.87	0.87	0.87
Percent Moisture	74.92	NR	NR
<i>Metals (mg/kg)</i>			
Mercury	0.0326	0.09	0.081
<i>Pesticides (µg/kg)</i>			
Aldrin	NR	<16	<16
Dieldrin	NR	<10	<10
Aldrin + Dieldrin ²	NR	NC	NC
2,4'-DDD	NR	<10	<10
4,4'-DDD	NR	<10	<10
Sum DDD ²	NR	NC	NC
2,4'-DDE	NR	<10	<10
4,4'-DDE	NR	<10	<10
Sum DDE ²	NR	NC	NC

Table A5.9 Tissue chemistry data used to assess injury to human uses of fishery resources (yellow perch; *Perca flavescens*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group1 threshold.

Station Sample	S-PER-1-10	90603021 315-88	90603022 316-88
<i>Pesticides (µg/kg; cont.)</i>			
2,4'-DDT	NR	<10	<10
4,4'-DDT	NR	<10	<10
Sum DDT ²	NR	NC	NC
Total DDT ²	NR	NC	NC
Heptachlor	NR	<16	<16
Heptachlor epoxide	NR	<8	<8
Heptachlor + Heptachlor epoxide ²	NR	NC	NC
Alpha (Cis) Chlordane	NR	<8	<8
Cis-Nonachlor	NR	<8	<8
Gamma (Trans) Chlordane	NR	<8	<8
Oxychlordane	NR	<8	<8
Trans-Nonachlor	NR	<8	<8
Total Chlordane (all isomers) ²	NR	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>			
Total PCBs (reported)	<u>280</u>	<50	<50

IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; NR = not reported; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; COPC = chemical of potential concern; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-ON, LS = Skin-on fillets, left side.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.10 Tissue chemistry data used to assess injury to human uses of fishery resources (channel catfish; *Ictalurus punctatus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	910262011
Reference	IDEM 2000a
Geographic Area	GCR/IHC
Year	2000
Lab Tissue Type ¹	SK-OFF
Number Fish/Sample	1
Length (cm)	56
Weight (gm)	1673
Latitude	41.613055556
Longitude	-87.4325
<i>Conventional</i> (%)	
Percent Lipid	19.5
Percent Moisture	60.6
<i>Metals</i> (mg/kg)	
Mercury	0.095
<i>Pesticides</i> (µg/kg)	
Aldrin	<2.5
Dieldrin	21
Aldrin + Dieldrin ²	NC
2,4'-DDD	<5
4,4'-DDD	55
Sum DDD ²	NC
2,4'-DDE	<5
4,4'-DDE	520
Sum DDE ²	520

Table A5.10 Tissue chemistry data used to assess injury to human uses of fishery resources (channel catfish; *Ictalurus punctatus*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station	910262011
<i>Pesticides (µg/kg; cont.)</i>	
2,4'-DDT	<5
4,4'-DDT	15
Sum DDT ²	NC
Total DDT ²	520
Heptachlor	<2.5
Heptachlor epoxide	<2.5
Heptachlor + Heptachlor epoxide ²	NC
Alpha (Cis) Chlordane	<2.5
Cis-Nonachlor	28
Gamma (Trans) Chlordane	12
Oxychlordane	9.4
Trans-Nonachlor	68
Total Chlordane (all isomers) ²	96
<i>Polychlorinated Biphenyls (µg/kg)</i>	
Total PCBs (reported)	<u>4600</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; PCBs = polychlorinated biphenyls; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: SK-OFF = Skin off fillets.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.11 Tissue chemistry data used to assess injury to human uses of fishery resources (brown trout; *Salmo trutta*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	980431002 210-96	980431003 211-96
Reference	IDEM 2000a	IDEM 2000a
Geographic Area	IH/LM	IH/LM
Year	1996	1996
Lab Tissue Type ¹	SK-ON, SC-OFF	SK-ON, SC-OFF
Number Fish/Sample	1	3
Length (cm)	37.2	43.5 - 47
Weight (gm)	710	950 - 1490
Latitude	41.670277778	41.670277778
Longitude	-87.436666667	-87.436666667
<i>Conventionals (%)</i>		
Percent Lipid	9.09	11.31
Percent Moisture	70	68
<i>Metals (mg/kg)</i>		
Mercury	<0.04	<0.04
<i>Pesticides (µg/kg)</i>		
Aldrin	<8	<8
Dieldrin	22	32
Aldrin + Dieldrin ²	NC	NC
2,4'-DDD	<10	<10
4,4'-DDD	24	26
Sum DDD ²	NC	NC
2,4'-DDE	<20	<20
4,4'-DDE	87	100
Sum DDE ²	NC	NC

Table A5.11 Tissue chemistry data used to assess injury to human uses of fishery resources (brown trout; *Salmo trutta*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	980431002 210-96	980431003 211-96
<i>Pesticides (µg/kg; cont.)</i>		
2,4'-DDT	<20	<20
4,4'-DDT	16	23
Sum DDT ²	NC	NC
Total DDT ²	NC	NC
Heptachlor	<16	<10
Heptachlor epoxide	<8	<8
Heptachlor + Heptachlor epoxide ²	NC	NC
Alpha (Cis) Chlordane	8.7	<8
Cis-Nonachlor	10	19
Gamma (Trans) Chlordane	<8	<8
Oxychlordane	<8	<8
Trans-Nonachlor	<16	<16
Total Chlordane (all isomers) ²	NC	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>		
Total PCBs (reported)	<u>1200</u>	<u>910</u>

IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels.

USFDA = United States Food and Drug Administration; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: SK-ON, SC-OFF = Skin on fillets, scaleless.

²Calculated total (see Section 3.2 for a description of data treatment).

Table A5.12 Tissue chemistry data used to assess injury to human uses of fishery resources (gizzard shad; *Dorosoma cepedianum*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	Q-SHAD-1	Q-SHAD-7	R-SHAD-1	R-SHAD-2	R-SHAD-3	R-SHAD-4,5	R-SHAD-6,11	R-SHAD-12	R-SHAD-13,14	980431001 209-96
Reference	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	Risatti and Ross 1989	IDEM 2000a
Geographic Area	GCR/IHC	GCR/IHC	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM	IH/LM
Year	1988	1988	1988	1988	1988	1988	1988	1988	1988	1996
Lab Tissue Type ¹	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	WHOLE	SK-ON, SC-OFF
Number Fish/Sample	1	1	1	1	1	2	2	1	2	5
Length (cm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	41.6 - 44.6
Weight (gm)	NR	NR	NR	NR	NR	NR	NR	NR	NR	910 - 1150
Latitude	41.645679	41.645679	41.667786	41.667786	41.667786	41.667786	41.667786	41.667786	41.667786	41.67027778
Longitude	-87.472031	-87.472031	-87.439423	-87.439423	-87.439423	-87.439423	-87.439423	-87.439423	-87.439423	-87.43666667
Conventionals (%)										
Percent Lipid	19.54	5.15	23.12	4.21	12.63	6.16	4.655	15.66	20.09	20.14
Percent Moisture	67.07	78.38	66.20	78.29	63.25	75.73	84.205	76.82	80.91	64.2
Metals (mg/kg)										
Mercury	0.0757	0.0414	0.0781	0.0346	0.0224	0.0311	<0.00714	NR	0.0380	<0.04
Pesticides (µg/kg)										
Aldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	<8
Dieldrin	NR	NR	NR	NR	NR	NR	NR	NR	NR	22
Aldrin + Dieldrin ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
2,4'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	<10
4,4'-DDD	NR	NR	NR	NR	NR	NR	NR	NR	NR	22
Sum DDD ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
2,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	<20
4,4'-DDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	130

Table A5.12 Tissue chemistry data used to assess injury to human uses of fishery resources (gizzard shad; *Dorosoma cepedianum*); bolded values indicate an exceedance of the USFDA tolerance level or action level; italicized and underlined values indicate an exceedance of the ISDH Group 1 threshold.

Station Sample	Q-SHAD-1	Q-SHAD-7	R-SHAD-1	R-SHAD-2	R-SHAD-3	R-SHAD-4,5	R-SHAD-6,11	R-SHAD-12	R-SHAD-13,14	980431001 209-96
<i>Pesticides (µg/kg; cont.)</i>										
Sum DDE ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
2,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	<20
4,4'-DDT	NR	NR	NR	NR	NR	NR	NR	NR	NR	16
Sum DDT ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
Total DDT ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
Heptachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	<8
Heptachlor epoxide	NR	NR	NR	NR	NR	NR	NR	NR	NR	<8
Heptachlor + Heptachlor epoxide ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
Alpha (Cis) Chlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	9.7
Cis-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	8.8
Gamma (Trans) Chlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	<8
Oxychlordane	NR	NR	NR	NR	NR	NR	NR	NR	NR	<8
Trans-Nonachlor	NR	NR	NR	NR	NR	NR	NR	NR	NR	<16
Total Chlordane (all isomers) ²	NR	NR	NR	NR	NR	NR	NR	NR	NR	NC
<i>Polychlorinated Biphenyls (µg/kg)</i>										
Total PCBs (reported)	<u>310</u>	<u>155</u>	<u>731</u>	<u>197</u>	<u>105</u>	<u>1200</u>	<u>669</u>	<u>86.7</u>	<u>88.7</u>	<u>2400</u>

GCR/IHC = Grand Calumet River and Indiana Harbor Canal; IH/LM = Indiana Harbor and nearshore areas of Lake Michigan; PCBs = polychlorinated biphenyls; USEPA = United States Environmental Protection Agency; COPC = chemical of potential concern; NR = not reported; USFDA = United States Food and Drug Administration; NC = not calculated; all values contributing to the total were less than detection limit data and low level detects, which were treated as zero in accordance with the guidance provided by USFDA (2001), to facilitate comparison with the action levels; ISDH = Indiana State Department of Health.

¹Lab Tissue Type: WHOLE = Whole body (Note that the data reported in this appendix are calculated COPC concentrations in skin-on fillets using the USEPA-recommended conversion factors from the whole body data; USEPA 2000); SK-ON, SC-OFF = Skin-on fillets, scaleless.

²Calculated total (see Section 3.2 for a description of data treatment).