

# **APPENDIX 2**

Technical Experts' Curricula Vitae

# JESSE A. SINCLAIR

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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@SHAW.CA

## SUMMARY OF QUALIFICATIONS

Extensive experience in identifying and conducting appropriate statistical analyses through my Master's research and work as a Biologist with MacDonald Environmental Sciences Ltd. and the BC Ministry of Environment; I am proficient with the R programming language for statistical computing and graphics.

Participated in sediment and biological sampling programs to support Natural Resource Damage assessments and Ecological Risk Assessments.

Participated in hydroacoustic and gill netting surveys on the Sooke Lake and Coquitlam reservoirs; sampling consisted of identifying, measuring, weighing, sexing and collecting muscle tissue, stomach contents and scales of freshwater fishes.

Accumulated 34 days at sea participating in juvenile salmon surveys in the Bering Sea. I collaborated with NOAA, collecting phytoplankton, zooplankton and marine and anadromous fishes; sampling consisted of identifying, measuring, weighing, sexing and collecting muscle tissue, stomach contents and scales of selected fishes.

Experience using relational databases such as Microsoft Access, PostgreSQL and Oracle to import and extract biological and limnological data as well as creating queries to collate data and run analyses. I have designed and maintained multiple databases to support environmental assessments during my Master's research and work experience.

Worked with stakeholders (i.e., municipal government) during my experience in the Water and Aquatic Sciences Research Program at the University of Victoria and Natural Resource Trustees during my experience with MacDonald Environmental Sciences Ltd..

## EDUCATION

### **University of Victoria**

Victoria, BC

M.Sc., Biology, 2010, Water and Aquatic Sciences Research Program

### **University of Saskatchewan**

Saskatoon, SK

B.Sc. with distinction, Biology, 2004, Minor in Geographic Information Systems

### **Carlton Comprehensive High School**

Prince Albert, SK

High School Diploma, 1997

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## PROFESSIONAL CERTIFICATIONS

Registered Professional Biologist (College of Applied Biology - British Columbia)

## WORK HISTORY

### *Senior Biologist*

*February 2010 - Present*

*MacDonald Environmental Sciences Ltd., Nanaimo, BC*

- Develop and maintain relational databases to support the development of Natural Resource Damage Assessments and Ecological Risk Assessments.
- Participate in the compilation and statistical analysis of environmental data to support the development of Natural Resource Damage Assessments and Ecological Risk Assessments.
- Participate in the design of sampling programs and the subsequent collection of sediment and biota samples to support the development of Natural Resource Damage Assessments and Ecological Risk Assessments.
- Successfully created a package of statistical analysis tools, which has streamlined various aspects of analyses routinely performed at MESL, including: the analysis of environmental data needed to support the development of Natural Resource Damage Assessments, the development of concentration-response models to derive toxicity thresholds, and the calculation of preliminary estimates of damage of trust resources.

### *Scientific and Technical Officer - Water Protection*

*April 2009 - February 2010*

*Health Protection Branch, Population and Public Health Division*

*BC Ministry of Healthy Living & Sport, Victoria, BC*

- Analyzed and developed spatial information products to address source water protection issues, using ArcGIS.
- Identified key topic areas regarding water quality issues for human health in British Columbia and developed the Water Protection work plan to address the data requirements for priority issues
- Participated in creating a source area risk assessment tool to identify watersheds at risk in British Columbia.
- Reviewed water quality objectives reports, developed to assess water quality in Community Watersheds on Vancouver Island.

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## ***Water Quality Biologist***

*July 2008 - March 2009*

*Information Branch, Water Stewardship Division  
BC Ministry of Environment, Victoria, BC*

- Improved and modernized the acquisition of continuous water quality data in the province by successfully installing and using satellite telemetry to acquire real-time water quality data from remote locations, configuring and downloading data from data loggers and calibrating and maintaining multi-parameter water quality probes.
- Reviewed and edited water quality assessment and objectives development reports for community watersheds across the province, including the compilation and analysis of water quality data pertaining to designated uses of the watersheds (drinking water, aquatic life, wildlife, recreation and irrigation). Used BC water quality and Health Canada guidelines for drinking water to assess water quality.
- Worked with colleagues in an inter-branch setting to assess and offer recommendations to improve data storage and processing of water quality and quantity data.
- Contributed to the Water Quality Objectives Attainment Summary Report; the project involved compiling and analyzing water quality data for select watersheds across the province; summary reports for various watersheds were written.

## ***Field Technician***

*January 2008 - June 2008*

*Water and Aquatic Sciences Research Program  
University of Victoria, Victoria, BC*

*April 2005 - September 2005*

- Collected limnological data (physical and biological components) in both mesocosm and field settings.
- Supervised a Co-op student during their work term, training the student in collection and analysis of limnological data.
- Performed statistical analyses of field experiments and presented results to the municipal government.
- Prepared and analyzed water chemistry samples (organic carbon, nitrogen and phosphorus).
- Assisted in hydro-acoustic and gill netting fish surveys; identifying, measuring, weighing and bio-sampling salmonids in a freshwater environment.

## ***Teaching Assistant (BIOL 330: Ecological Methods)***

*January 2007 - April 2007*

*University of Victoria, Victoria, BC*

- Instructed the lab component for 3rd and 4th year biology and environmental science students on design of ecological experiments, sampling design, and statistical

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analysis.

- Lab material focussed on the analysis of data sets using SPSS 14 and Microsoft Excel and writing scientific reports.
- Guided students through a term research project of their design.

## VOLUNTEER EXPERIENCE

**Bering-Aleutian Salmon International Survey** 2006/2007  
University of Victoria / NOAA Bering Sea

- Participated in multi-week trawl surveys in the Bering Sea collecting information on juvenile salmonids
- Identified, measured and weighed juvenile and adult salmonid and other fish species.
- Sampled juvenile and adult salmonids (collected muscle tissue, scales and stomach contents).

**Volunteer Firefighter** 2003/2004 (Seasonal)  
Prince Albert National Park & Waskesiu Lake, SK

## COMPUTER SKILLS

**Statistical Software:** R, SPSS, SigmaPlot

**Operating Systems:** Mac OS X, Microsoft Windows, GNU/Linux, UNIX

**Office Software:** Microsoft Word, Microsoft Excel, Microsoft Access, Microsoft Project, Microsoft Outlook

**GIS Software:** ArcGIS platform (ArcMap, ArcCatalog)

## PUBLICATIONS

Carter, R., M.E. Wainwright, D.D. MacDonald, J.A. Sinclair, A. Schein, H.J. Prencipe, M.L. Haines, W. Lorentz, D. Tillitt, and D.K. Nicks. 2013. Field Sampling Plan for Evaluation of Exposure of Avian Receptors to Bioaccumulative Contaminants. Prepared for United States Fish and Wildlife Service. Birmingham, Alabama.

MacDonald, D.D., C.G. Ingersoll, M.E. Wainwright, A. Schein, C.E. Orazio, W.G. Brumbaugh, H.J. Prencipe, J.A. Sinclair, M.L. Haines. 2013. Quality Assurance Protection Plan (QAPP) for Evaluation of the Toxicity of Upper Columbia River Sediments to Freshwater Mussels. Prepared for United States Department of the

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Interior (USDOJ) Project Manager. Spokane, Washington.

MacDonald, D.D., A. Schein, and J. Sinclair. 2012. Overview of Water Quality Issues and Concerns Related to the Avanti Kitsault Mine Project. Prepared for Nisga'a Lisims Government, New Aiyansh, British Columbia.

MacDonald, D.D., J. Sinclair, and M. Coady. 2012. An Evaluation of the Reference Envelope Approach Applied in the Baseline Ecological Risk Assessment for the Portland Harbor Site. Prepared for: Office of Environmental Assessment, U.S. Environmental Protection Agency. Seattle, Washington. Prepared by: MacDonald Environmental Sciences Ltd., Nanaimo, BC in association with CDM Smith, Bellevue, WA.

Sinclair, J.A., M.A. Crawford, D.D. MacDonald, and H.J. Prencipe. 2012. Preliminary Risk Assessment of Long Lake in the Quinsam River Watershed, Vancouver Island. Prepared for: Ministry of Environment, Nanaimo, British Columbia. Prepared by: MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D. and J.A. Sinclair. 2012. Identification and evaluation of toxicity tests to support the development of site-specific water quality objectives for Buttle Lake, Vancouver Island, British Columbia. Prepared for B.C. Ministry of the Environment. Nanaimo, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

Ingersoll, C.G., W.G. Brumbaugh, J. A., Steevens, G.R. Lotufo, D.D. MacDonald, and J.A. Sinclair. 2012. Sediment sample collection, handling, preparation, and characterization. Chapter 2 . In: Evaluation of toxicity to the amphipod, *Hyalella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; MacDonald Environmental Sciences Ltd., Nanaimo, BC.

Steevens, J.A., G.R. Lotufo, N.E. Kemble, C.G. Ingersoll, J.K. Stanley, J.D. Farrar, J.A. Sinclair, D.D. MacDonald. 2012. Evaluation of bioaccumulation in the oligochaete, *Lumbriculus variegatus*, exposed to sediments from the Anniston PCB Site. Chapter 3. In: Evaluation of toxicity to the amphipod, *Hyalella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; U.S. Geological Survey, Columbia, MO; MacDonald Environmental Sciences Ltd., Nanaimo, BC.

Stanley, J.K., N.E. Kemble, J.D. Farrar, C.G. Ingersoll, D.D. MacDonald, J.A. Steevens, J.A.

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Sinclair. 2012. Toxicity testing with the amphipod, *Hyalella azteca*, and with the midge *Chironomus dilutus*. Chapter 4. *In: Evaluation of toxicity to the amphipod, Hyalella azteca, and to the midge, Chironomus dilutus, and bioaccumulation by the oligochaete, Lumbriculus variegatus, with exposure to PCB-contaminated sediments from Anniston Alabama.* Prepared by U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; MacDonald Environmental Sciences Ltd., Nanaimo, BC.

MacDonald, D.D., C.G. Ingersoll, J.A. Sinclair, J.A. Steevens, J.K. Stanley, J.D. Farrar, N.E. Kemble, J.L. Kunz, W.G. Brumbaugh, and M.R. Coady. 2012. Evaluation of relations between sediment toxicity and sediment chemistry at the Anniston PCB Site. Chapter 5. *In: Evaluation of toxicity to the amphipod, Hyalella azteca, and to the midge, Chironomus dilutus, and bioaccumulation by the oligochaete, Lumbriculus variegatus, with exposure to PCB-contaminated sediments from Anniston Alabama.* Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, BC; U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS.

MacDonald, D.D., J.A. Sinclair, A. Schein, H.J. Prencipe, M.E. Wainwright, M.R. Coady, M.L. Haines, C.G. Ingersoll, N.E. Kemble, J.L. Kunz, J.A. Steevens, G.R. Lotufo, and D. Farrar. 2012. Preliminary Assessment and Quantification of Natural Resource Injuries Associated with Discharges of Oil or Releases of Other Hazardous Substances in the Vicinity of the Piles Creek Site, Linden, New Jersey. Volume 1 - Technical Report. Prepared for Office of Response and Restoration National Oceanic and Atmospheric Administration and New Jersey Field Office, U.S. Fish and Wildlife Service. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia, United States Geological Survey, Columbia, Missouri, and United States Army Corps of Engineers (ERDC), Vicksburg, Missouri.

MacDonald, D.D., J. Sinclair, M.A. Crawford, C.G. Ingersoll, H. Prencipe, S. Cox, and M. Coady. 2012. Evaluation and interpretation of the 2005 sediment chemistry and sediment toxicity data for the Upper Columbia River Site. Prepared for Washington Department of Ecology Toxic Cleanup Program. Through Science Applications International Corporation. Bothell, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri and Tacoma, Washington.

MacDonald, D.D., J.A. Sinclair, M. Crawford, H. Prencipe, C. Lewis, and M. Donlan. 2011. Preliminary Summary of Whole-Sediment Chemistry, Fish-Tissue Chemistry, and Invertebrate-Tissue Chemistry Data Obtained during the 2010 Sediment and Biota Sampling Program for Piles Creek and South Branch Creek, Linden, New Jersey. Prepared for Office of Response and Restoration, National Oceanic and Atmospheric Administration and Division of Environmental Contaminants, U.S. Fish and Wildlife Service. Prepared by

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MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia, and Industrial Economics Inc., Columbia, Missouri.

MacDonald D.D., C.G. Ingersoll, D.E. Smorong, J.A. Sinclair, R.A. Lindskoog, N. Wang, C. Severn, R. Gouguet, J. Meyer, and J. Field. 2011. Baseline ecological risk assessment of the Calcasieu Estuary, Louisiana: 2. An evaluation of the predictive ability of effects-based sediment quality guidelines. *Archives of Environmental Contamination and Toxicology* 61:14-28.

MacDonald D.D., C.B. Ingersoll, N. Kemble, D.E. Smorong, J.A. Sinclair, R.A. Lindskoog, C. Gaston, D. Sanger, S. Carr, J. Biedenbach, R. Gouguet, J. Kern, A. Shortelle, J. Field, and J. Meyer. 2011. Baseline Ecological Risk Assessment of the Calcasieu Estuary, Louisiana: 3. An Evaluation of the Risks to Benthic Invertebrates Associated with Exposure to Contaminated Sediments. *Archives of Environmental Contamination and Toxicology* 61:29-58.

MacDonald, D.D., J. Sinclair, M. Crawford, H. Prencipe and M. Meneghetti. 2011. Potential effects of contaminants on Fraser River sockeye salmon. MacDonald Environmental Sciences Ltd. Cohen Commission Tech. Rep. 2. In prep. Vancouver, B.C. [www.cohencommission.ca](http://www.cohencommission.ca)

MacDonald, D.D., C.G. Ingersoll, J.A. Sinclair, M. Crawford, H. Prencipe, M. Coady, N.E. Kemble, A. Jones, M. Curry, C. Lewis, J. Steevens, and K. Nolan. 2011. Preliminary evaluation of the effects on benthic invertebrates associated with exposure to PCB-contaminated sediments in the Upper Hudson River, New York. Prepared for: National Oceanic and Atmospheric Administration, Silver Spring, Maryland. Prepared by: MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. United States Geological Survey, Columbia, Missouri. Industrial Economics, Inc., Cambridge, Massachusetts. United States Army Corps of Engineers, Vicksburg, Mississippi. Watershed Assessment Associates, LLC, Schenectady, New York.

MacDonald, G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume I: Overview of the Recommended Decision Framework. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and

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Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume II: Description of the Rapid (Tier 1) Assessment Process. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume III: Description of Detailed (Tier 2) Assessment Process. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., A. Jones, C.G. Ingersoll, J.A. Sinclair, H. Prencipe, and M. Meneghetti. 2010. Sampling and analysis plan for the 2010 sediment and biota sampling program for Piles Creek and South Branch Creek, Linden, New Jersey. Prepared for: National Oceanic and Atmospheric Administration. Silver Spring, Maryland. Prepared by: MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. Industrial Economics Inc., Cambridge, Massachusetts. United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., C.G. Ingersoll, M. Crawford, H. Prencipe, J.M. Besser, W.G. Brumbaugh, N. Kemble, T.W. May, C.D. Ivey, M. Meneghetti, J. Sinclair, and M. O'Hare. 2010. Advanced screening-level ecological risk assessment (SLERA) for aquatic habitats within the Tri-State Mining District, Oklahoma, Kansas, and Missouri. Draft Final Technical Report. Submitted to United States Environmental Protection Agency (USEPA). Region 6, Dallas, Texas, Region 7, Kansas City, Kansas, and US Fish and Wildlife Service, Columbia, Missouri. Submitted by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. United States Geological Survey, Columbia, Missouri. CH2M Hill, Dallas, Texas

## PRESENTATIONS

### **Effects of Wetland Inundation on Hydrologically Connected Aquatic Ecosystems**

Society of Canadian Limnologists Annual Meeting, 2007

Montréal, QC

## **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 in 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  
Canadian Association on Water Pollution Research and Control  
International Association on Water Pollution Research and Control  
Society of Environmental Toxicology and Chemistry

## **OTHER PROFESSIONAL ACTIVITIES:**

1986-1988	Newsletter Editor, North Pacific International Chapter, American Fisheries Society
1987-1989	Chair, Membership Committee, North Pacific International Chapter, American Fisheries Society
1992-1994	Chair, Wetlands Conservation Committee, Canadian Aquatic Resources Section, American Fisheries Society
1990-1994	Vice-President, President-Elect, President, and Past-President, Canadian Aquatic Resources Section, American Fisheries Society
1995-Present	Canadian Director and Chair, Board of Directors, Sustainable Fisheries Foundation
1997-2001	Vice-President, President-Elect, President, and Past-President, Western Division, American Fisheries Society
2000-2001	Member, Membership Committee, American Fisheries Society
2003-2006	Award of Excellence Committee, American Fisheries Society
2005-2006	Member, Science Advisory Board for Contaminated Sites in British Columbia
2006-Present	Board of Directors, Mid-Island Science, Technology & Innovation Council (MISTIC)

## PROFESSIONAL CERTIFICATIONS:

Fisheries Professional-Certified (American Fisheries Society)  
Registered Professional Biologist (College of Applied Biology - British Columbia)

## EXPERIENCE:

*AQUATIC BIOLOGIST - February 1989 to Present*

**MacDonald Environmental Sciences Limited, #24 - 4800 Island Highway North, Nanaimo, B.C. V9T 1W6** Independent consulting on environmental impact assessment, natural resource damage assessment, ecological risk assessment, fisheries and aquatic resource management, environmental quality, stream ecology, computer data management, and information and technology transfer. Projects include the development of water quality guidelines, sediment quality guidelines, tissue residue guidelines, environmental quality monitoring programs, fisheries co-management programs, ecosystem-based management, ecological risk assessments, natural resource damage assessments, and the assessment of environmental quality.

*WATER QUALITY OBJECTIVES OFFICER - September 1984 to February 1989*

**Water Quality Branch, Inland Waters, Environment Canada, 502 - 1001 West Pender Street, Vancouver, B.C. V6E 2M9** 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*

**Water Quality Branch, Inland Waters, Environment Canada, 502 - 1001 West Pender Street, Vancouver, B.C. V6E 2M9** 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*

- MacDonald D.D., D. Moore D, C.G. Ingersoll, D.E. Smorong, R.S. Carr, R. Gouguet, D. Charters, D. Wilson, T. Harris, J. Rauscher, S. Roddy, and J. Meyer. 2011. Baseline ecological risk assessment of the Calcasieu Estuary, Louisiana: 1. Overview and problem formulation. *Archives of Environmental Contamination and Toxicology* 61:1-13.
- MacDonald D.D., C.G. Ingersoll, D.E. Smorong, J.A. Sinclair, R.A. Lindskoog, N. Wang, C. Severn, R. Gouguet, J. Meyer, and J. Field. 2011. Baseline ecological risk assessment of the Calcasieu Estuary, Louisiana: 2. An evaluation of the predictive ability of effects-based sediment quality guidelines. *Archives of Environmental Contamination and Toxicology* 61:14-28.
- MacDonald D.D., C.B. Ingersoll, N. Kemble, D.E. Smorong, J.A. Sinclair, R.A. Lindskoog, C. Gaston, D. Sanger, S. Carr, J. Biedenbach, R. Gouguet, J. Kern, A. Shortelle, J. Field, and J. Meyer. 2011. Baseline ecological risk assessment of the Calcasieu Estuary, Louisiana: 3. An evaluation of the risks to benthic invertebrates associated with exposure to contaminated sediments. *Archives of Environmental Contamination and Toxicology* 61:29-58.
- MacDonald D.D and C.G. Ingersoll. 2010. Tools for assessing contaminated sediments in freshwater, estuarine, and marine ecosystems. *In: Sedimentology of Aqueous Systems*, 1st edition, C. Poletto, S. Charlesworth editors. Blackwell Publishing. Boston Massachusetts.
- Clark, M.J.R., D.D. MacDonald, P.H. Whitfield, and M.P. Wong. 2010. Designing monitoring programs for water quality based on experience in Canada. Part II - Monitoring Tools - Problem Characterization and Data Quality Objectives. *Trends in Analytical Chemistry* 29(5):385-398.
- MacDonald, D.D., M.J.R. Clark, P.H. Whitfield, and M.P. Wong. 2009. Using water sampling for decision making for status and trends: Part III - Ecosystem Based Management and Water Quality Objectives - Problem Characterization and Data Quality Objectives. In Review.
- MacDonald, D.D. M.J.R. Clark, P.H. Whitfield, and M.P. Wong. 2009. Designing monitoring programs for water quality based on experience in Canada I. Theory and framework. *Trends in Analytical Chemistry* 28(2):204-213.
- Ingersoll, C.G., N.E. Kemble, J.L. Kunz, W.G. Brumbaugh, D.D. MacDonald, and D. Smorong. 2009. Toxicity of sediment cores collected from the Ashtabula River in Northeastern Ohio, USA, to the amphipod *Hyaella azteca*. *Archives of Environmental Contamination and Toxicology* 57(2):315-329.
- Bay, S.M., W. Berry, P. Chapman, R. Fairey, T. Gries, E. Long, D. MacDonald, and S. Weisberg. 2007. Evaluating consistency of best professional judgment in the application of a multiple lines of evidence sediment quality triad. *Integrated Environmental Assessment and Management* 3(4):491-497.

- Long E.R., C.G. Ingersoll, and D.D. MacDonald. 2006. Calculation and uses of mean sediment quality guidelines: A critical review. *Environmental Science and Technology* 40(6):1726-1736.
- Ingersoll, C.G., S.M. Bay, J.L. Crane, L.J. Field, T.H. Gries, J.L. Hyland, E.R. Long, D.D. MacDonald, and T.P. O'Connor. 2005. Ability of sediment quality guidelines to estimate effects or no effects of sediment-associated contaminants in laboratory toxicity tests or in benthic community assessments. *In: Wenning RJ, Batley G, Ingersoll CG, editors. Use of sediment quality guidelines (SQGs) and related tools for the assessment of contaminated sediments.* 497-556. SETAC Press. Pensacola Florida.
- MacDonald, D.D., R.S. Carr, D. Eckenrod, H. Greening, S. Grabe, C.G. Ingersoll, S. Janicki, R.A. Lindskoog, E.R. Long, R. Pribble, G. Sloane, and D.E. Smorong. 2004. Development, evaluation and application of sediment quality targets for assessing and managing contaminated sediments in Tampa Bay, Florida. *Archives of Environmental Contamination and Toxicology* 46(2):147-161.
- Knudsen, E.E., D.D. MacDonald, and Y.K. Muirhead, editors. 2004. Sustainable management of North American fisheries. American Fisheries Society, Symposium 43, Bethesda, Maryland.
- Carr, R.S., J.M. Biedenbach, and D.D. MacDonald. 2003. Comparison of sediment quality guideline values derived using sea urchin porewater toxicity test data with existing guidelines. *In: Porewater Toxicity Testing: Biological, Chemical, and Ecological Considerations* R.S. Carr and M. Nipper (Eds). SETAC Press. Pensacola, Florida.
- Crane, J.L. and D.D. MacDonald. 2003. Applications of numerical sediment quality targets for assessing sediment quality conditions in a U.S. Great Lakes Area of Concern. *Environmental Management* 32(1):128-140.
- Nipper, M. R.S. Carr, W.J. Adams, W.J. Berry, G.A. Burton Jr., K.T. Ho. D.D. MacDonald, R. Scroggins, and P.V. Winger. 2003. Recommendations for research related to biological, chemical, and ecological aspects of sediment pore water: The way forward. *In: Porewater Toxicity Testing: Biological, Chemical, and Ecological Considerations* R.S. Carr and M. Nipper (Eds). SETAC Press. Pensacola, Florida.
- MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, D.W. Sparks, J.R. Smith, T.P. Simon, and M.A. Hanacek. 2002. Assessment of injury to fish and wildlife resources in the Grand Calumet River and Indiana Harbor area of concern. *Archives of Environmental Contamination and Toxicology* 43:130-140.
- MacDonald, D.D., M.A. Hanacek and L. Genn. 2002. Salmon, society and politics: The potential for ecosystem-based management of pacific salmon. *In: Sustaining North American Salmon: Perspectives Across Regions and Disciplines.* American Fisheries Society.
- MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, D.W. Sparks, J.R. Smith, T.P. Simon, and M.A. Hanacek. 2002. An assessment of injury to sediments and sediment-dwelling organisms in the Grand Calumet River and Indiana Harbor area of concern. *Archives of Environmental Contamination and Toxicology* 43:141-155.

- Crane, J.L., D.D. MacDonald, C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, C.G. Severn, T.A. Berger, and L.J. Field. 2002. Evaluation of numerical sediment quality targets for the St. Louis River area of concern. *Archives of Environmental Contamination and Toxicology* 43:1-10.
- Ingersoll, C.G., D.D. MacDonald, W.G. Brumbaugh, B.T. Johnson, N.E. Kemble, J.L. Kunz, T.W. May, N. Wang, J.R. Smith, D.W. Sparks, and S.D. Ireland. 2002. Toxicity assessment of sediments from the Grand Calumet River and Indiana Harbor Canal in northwestern Indiana. *Archives of Environmental Contamination and Toxicology* 43:156-167.
- Field, L.J., D.D. MacDonald, S.B. Norton, C.G. Ingersoll, C.G. Severn, D. Smorong, and R. Lindskoog. 2002. Predicting amphipod toxicity from sediment chemistry using logistic regression models. *Environmental Toxicology and Chemistry* 21(9):1993-2005.
- Ingersoll C.G., D.D. MacDonald, N. Wang, J.L. Crane, L.J. Field, P.S. Haverland, N.E. Kemble, R.A. Lindskoog, C.G. Severn, and D.E. Smorong. 2001. Predictions of sediment toxicity using consensus-based freshwater sediment quality guidelines. *Archives of Environmental Contamination and Toxicology*. *Archives of Environmental Contamination and Toxicology* 41:8-21.
- MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Archives of Environmental Contamination and Toxicology* 39:20-31.
- MacDonald, D.D., C.R. Steward, and E.E. Knudsen. 2000. One Northwest Community - People, Salmon, Rivers, and the Sea: Towards Sustainable Fisheries. *In*: E.E. Knudsen, C.R. Steward, D.D. MacDonald, J.E. Williams, and D.W. Reiser (Eds.). *Sustainable Fisheries Management: Pacific Salmon*. CRC Press. Boca Raton, Florida.
- MacDonald, D.D., L.M. DiPinto, J. Field, C.G. Ingersoll, E.R. Long, and R.C. Swartz. 2000. Development and evaluation of consensus-based sediment effect concentrations for polychlorinated biphenyls (PCBs). *Environmental Toxicology and Chemistry* 19:1403-1413.
- Kemble, N.E., D.G. Hardesty, C.G. Ingersoll, B.T. Johnson, F.J. Dwyer, and D.D. MacDonald. 2000. An evaluation of the toxicity of contaminated sediments from Waukegan Harbor, Illinois following remediation. *Archives of Environmental Contamination and Toxicology* 39:452-461.
- Knudsen, E.E., D.D. MacDonald, C.R. Steward. 2000. Setting the Stage for a Sustainable Pacific Salmon Fisheries Strategy. *In*: E.E. Knudsen, C.R. Steward, D.D. MacDonald, J.E. Williams, and D.W. Reiser (Eds.). *Sustainable Fisheries Management: Pacific Salmon*. CRC Press. Boca Raton, Florida.
- Knudsen, E.E., C.R. Steward, D.D. MacDonald, J.E. Williams, and D.W. Reiser (Eds.). 2000. *Sustainable Fisheries Management: Pacific Salmon*. CRC Press. Boca Raton, Florida.

- Long, E.R., D.D. MacDonald, C.G. Severn, and C.B. Hong. 2000. Short Communication. Classifying probabilities of acute toxicity in marine sediments with empirically derived sediment quality guidelines. *Environmental Toxicology and Chemistry* 19(10):2598-2601.
- Field, L.J., D.D. MacDonald, S.B. Norton, C.G. Severn, and C.G. Ingersoll. 1999. Evaluating sediment chemistry and toxicity data using logistic regression modelling. *Environmental Toxicology and Chemistry* 18(6):1311-1322.
- Milburn, D., D.D. MacDonald, T.D. Prowse, and J.M. Culp. 1999. Ecosystem Maintenance Indicators for the Slave River Delta, Northwest Territories, Canada. *In: Y.A. Pykh, D.E. Hyatt, and R.J.M. Lenz (Eds.). Environmental Indices: Systems Analysis Approach.* ISBN 0 9534944 0 3. EOLSS Publishers Co. Ltd. Oxford, United Kingdom.
- MacDonald, D.D., M.G. Ikonou, A.-L. Rantalainen, I.H. Rogers, D. Sutherland, J. Van Oostdam. 1998. Contaminants in white sturgeon (*Acipenser transmontanus*) from the Upper Fraser River, British Columbia. *Environmental Toxicology and Chemistry* 16(3):479-490.
- Long, E.R. and D.D. MacDonald. 1998. Recommended uses of empirically derived, sediment quality guidelines for marine and estuarine ecosystems. *Human and Ecological Risk Assessment* 4(5):1019-1039.
- Long, E.R., D.D. MacDonald, J.C. Cabbage, and C.G. Ingersoll. 1998. Predicting the toxicity of sediment-associated trace metals with SEM:AVS concentrations and dry weight-normalized concentrations - A critical comparison. *Environmental Toxicology and Chemistry* 17(5):972-974.
- Long, E.R., L.J. Field, and D.D. MacDonald. 1998. Predicting toxicity in marine sediments with numerical sediment quality guidelines. *Environmental Toxicology and Chemistry* 17(4):714-727.
- Ingersoll, C.G., G.T. Ankley, R. Baudo, G.A. Burton, W. Lick, S.N. Luoma, D.D. MacDonald, T.B. Reynoldson, K.R. Solomon, R.C. Swartz, and W.J. Warren-Hicks. 1997. Workgroup summary report on uncertainty evaluation of measurement endpoints used in sediment ecological risk assessment. *In: C.G. Ingersoll, T. Dillon, and G.R. Biddinger (Eds.). Ecological Risk Assessment of Contaminated Sediments.* Pensacola Florida: SETAC Press p. 297-352.
- Solomon, K.R., G.T. Ankley, R. Baudo, G.A. Burton, C.G. Ingersoll, W. Lick, S. Luoma, D.D. MacDonald, T.B. Reynoldson, R.C. Swartz, W.J. Warren-Hicks. 1997. Work group summary report on methodological uncertainty in sediment ecological risk assessment. *In: C.G. Ingersoll, T. Dillon, and R.G. Biddinger (Eds.). Ecological Risk Assessment of Contaminated Sediment.* Pensacola Florida: SETAC Press. p. 271-296.
- Zarbock, H., J. Schulten, E. Long, and D.D. MacDonald. 1997. Sediment contamination in Tampa Bay: Sources, risks, and management. Tampa Bay BASIS3 Proceedings.
- MacDonald, D.D., R.S. Carr, F.D. Calder, E.R. Long, and C.G. Ingersoll. 1996. Development and evaluation of sediment quality guidelines for Florida coastal waters. *Ecotoxicology* 5:253-278.

- Smith, S.L., D.D. MacDonald, K.A. Keenleyside, C.L. Gaudet. 1996. The development and implementation of Canadian sediment quality guidelines. *In: M. Munawar and G. Dave (Eds.). Development and Progress in Sediment Quality Assessment: Rationale, Challenges, Techniques and Strategies. Ecovision World Monograph Series. SPB Academic Publishing. Amsterdam. The Netherlands.*
- Smith, S.L., D.D. MacDonald, K.A. Keenleyside, C.G. Ingersoll, and J. Field. 1996. A preliminary evaluation of sediment quality assessment values for freshwater ecosystems. *Journal of Great Lakes Research* 22(3):624-638.
- Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Journal of Environmental Management* 19(1):81-97.
- Porter, E.L., R.A. Kent, D.E. Andersen, K.A. Keenleyside, D. Milne, P. Cureton, S.L. Smith, K.G. Drouillard, and D.D. MacDonald. 1995. Development of proposed Canadian Environmental Quality Guidelines for cadmium. *Journal of Geochemical Exploration* 52:205-219.
- Outridge, P.M. and D.D. MacDonald. 1994. An evaluation of the ecological hazards associated with cadmium in the Canadian environment. *Environmental Reviews* 2:91-107.
- Powles, H. and D. MacDonald. 1994. Development of a Canadian office for the American Fisheries Society. *Fisheries* 19(2):30-31.
- Caux, P.-Y., R.A. Kent, G.T. Fan, C. Grande, and D.D. MacDonald. 1994. Aldicarb. *In: P.Y. Caux and R.A. Kent (Eds.). Canadian Water Quality Guidelines for Pesticides and Industrial Substances. Canadian Association on Water Quality. Monograph Series No. 4:1-62.*
- Caux, P.-Y., R.A. Kent, G.T. Fan, C. Grande, and D.D. MacDonald. 1994. Bromoxynil. *In: P.Y. Caux and R.A. Kent (Eds.). Canadian Water Quality Guidelines for Pesticides and Industrial Substances. Canadian Association on Water Quality. Monograph Series No. 4:63-112*
- Caux, P.-Y., R.A. Kent, G.T. Fan, C. Grande, and D.D. MacDonald. 1994. Dimethoate. *In: P.Y. Caux and R.A. Kent (Eds.). Canadian Water Quality Guidelines for Pesticides and Industrial Substances. Canadian Association on Water Quality. Monograph Series No. 4:113-164.*
- Caux, P.-Y., R.A. Kent, G.T. Fan, and D.D. MacDonald. 1994. Protocols for deriving Canadian water quality guidelines for the protection of agricultural water uses. *Regulatory Toxicology and Pharmacology* 20:223-247.
- Caux, P.-Y., R.A. Kent, M. Tache, C. Grande, G.T. Fan, and D.D. MacDonald. 1994. Environmental fate and effects of dicamba: A Canadian perspective. *Reviews of Environmental Contamination and Toxicology* 133:1-58.

- MacDonald, D.D. and C.P. Newcombe. 1993. Effects of suspended sediments in aquatic ecosystems: A clarification of the stress index model. *North American Journal of Fisheries Management* 13(4):873-876.
- Marshall, T.R. and D.D. MacDonald. 1992. Expanding the role of the American Fisheries Society in Canada: The issues, recent initiatives, and future strategies. *Fisheries* 17(4):28-31.
- Newcombe, C.P. and D.D. MacDonald. 1991. Factors affecting the impacts of suspended sediments on aquatic ecosystems: Concentration and duration of exposure. *North American Journal of Fisheries Management* 11:72-82.
- MacDonald, D.D. and T.R. Marshall. 1990. Canadian members of the AFS: Do we really belong? *Fisheries* 11(4):63-67.
- MacDonald, D.D., D. Valiela, and S.J. Brown. 1988. Temporal variability of phosphorus levels in the Flathead River at the International Border Station. *Water Pollution Research Journal of Canada* 23(4):556-567.
- MacDonald, D.D. and L.E. McDonald. 1987. The influence of surface coal-mining on potential salmonid spawning habitat in the Fording River, B.C. *Water Pollution Research Journal of Canada* 22(4):584-595.
- Mommsen, T.P., J. Ballantyne, D.D. MacDonald, J. Gosline and P.W. Hochachka. 1981. Analogues of red and white muscle in squid mantle. *Proceedings of the National Academy of Sciences USA* 78(5):3274-3278.

### *Technical Reports*

- Carter, R., M.E. Wainwright, D.D. MacDonald, J.A. Sinclair, A. Schein, H.J. Prencipe, M.L. Haines, W. Lorentz, D. Tillitt, and D.K. Nicks. 2013. Field Sampling Plan for Evaluation of Exposure of Avian Receptors to Bioaccumulative Contaminants. Prepared for United States Fish and Wildlife Service. Birmingham, Alabama.
- MacDonald, D.D., C.G. Ingersoll, M.E. Wainwright, A. Schein, C.E. Orazio, W.G. Brumbaugh, H.J. Prencipe, J.A. Sinclair, M.L. Haines. 2013. Quality Assurance Protection Plan (QAPP) for Evaluation of the Toxicity of Upper Columbia River Sediments to Freshwater Mussels. Prepared for United States Department of the Interior (USDOI) Project Manager. Spokane, Washington.
- MacDonald, D.D., J. Sinclair, and M. Coady. 2012. An Evaluation of the Reference Envelope Approach Applied in the Baseline Ecological Risk Assessment for the Portland Harbor Site. Prepared for: Office of Environmental Assessment, U.S. Environmental Protection Agency. Seattle, Washington. Prepared by: MacDonald Environmental Sciences Ltd., Nanaimo, BC in association with CDM Smith, Bellevue, WA.
- MacDonald, D.D., A. Schein, and J. Sinclair. 2012. Overview of Water Quality Issues and Concerns Related to the Avanti Kitsault Mine Project. Prepared for Nisga'a Lisims Government, New Aiyansh, British Columbia.

MacDonald, D.D., J.A. Sinclair, A. Schein, H.J. Prencipe, M.E. Wainwright, M.R. Coady, M.L. Haines, C.G. Ingersoll, N.E. Kemble, J.L. Kunz, J.A. Steevens, G.R. Lotufo, and D. Farrar. 2012. Preliminary Assessment and Quantification of Natural Resource Injuries Associated with Discharges of Oil or Releases of Other Hazardous Substances in the Vicinity of the Piles Creek Site, Linden, New Jersey. Volume 1 - Technical Report. Prepared for Office of Response and Restoration National Oceanic and Atmospheric Administration and New Jersey Field Office, U.S. Fish and Wildlife Service. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia, United States Geological Survey, Columbia, Missouri, and United States Army Corps of Engineers (ERDC), Vicksburg, Missouri.

MacDonald, D.D. and J.A. Sinclair. 2012. Identification and evaluation of toxicity tests to support the development of site-specific water quality objectives for Buttle Lake, Vancouver Island, British Columbia. Prepared for B.C. Ministry of the Environment. Nanaimo, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

Sinclair, J.A., M.A. Crawford, D.D. MacDonald, and H.J. Prencipe. 2012. Preliminary risk assessment of Long Lake in the Quinsam River Watershed, Vancouver Island. Technical Report. Prepared for Ministry of Environment. Province of British Columbia. Nanaimo, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

Ingersoll, C.G., J.A. Steevens, J.A., and D.D. MacDonald. 2012. Evaluation of toxicity to the amphipod, *Hyaella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by: U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; MacDonald Environmental Sciences Ltd., Nanaimo, BC

Ingersoll, C.G., W.G. Brumbaugh, J. A., Steevens, G.R. Lotufo, D.D. MacDonald, and J.A. Sinclair. 2012. Sediment sample collection, handling, preparation, and characterization. Chapter 2 . In: Evaluation of toxicity to the amphipod, *Hyaella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; MacDonald Environmental Sciences Ltd., Nanaimo, BC

Steevens, J.A., G.R. Lotufo, N.E. Kemble, C.G. Ingersoll, J.K. Stanley, J.D. Farrar, J.A. Sinclair, D.D. MacDonald. 2012. Evaluation of bioaccumulation in the oligochaete, *Lumbriculus variegatus*, exposed to sediments from the Anniston PCB Site. Chapter 3. In: Evaluation of toxicity to the amphipod, *Hyaella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; U.S. Geological Survey, Columbia, MO; MacDonald Environmental Sciences Ltd., Nanaimo, BC.

- Stanley, J.K., N.E. Kemble, J.D. Farrar, C.G. Ingersoll, D.D. MacDonald, J.A. Steevens, J.A. Sinclair. 2012. Toxicity testing with the amphipod, *Hyaella azteca*, and with the midge *Chironomus dilutus*. Chapter 4. In: Evaluation of toxicity to the amphipod, *Hyaella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS; U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; MacDonald Environmental Sciences Ltd., Nanaimo, BC.
- MacDonald, D.D., C.G. Ingersoll, J.A. Sinclair, J.A. Steevens, J.K. Stanley, J.D. Farrar, N.E. Kemble, J.L. Kunz, W.G. Brumbaugh, and M.R. Coady. 2012. Evaluation of relations between sediment toxicity and sediment chemistry at the Anniston PCB Site. Chapter 5. In: Evaluation of toxicity to the amphipod, *Hyaella azteca*, and to the midge, *Chironomus dilutus*, and bioaccumulation by the oligochaete, *Lumbriculus variegatus*, with exposure to PCB-contaminated sediments from Anniston Alabama. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, BC; U.S. Geological Survey, Columbia Environmental Research Center, Columbia, MO; U.S. Army Corps of Engineer, Engineer Research and Development Center, Vicksburg, MS.
- MacDonald, D.D., J. Sinclair, M.A. Crawford, H. Prencipe, and M. Coady. 2012. Evaluation and interpretation of the sediment chemistry and sediment toxicity data for the Upper Columbia River. Prepared for Washington Department of Ecology Toxic Cleanup Program. Through Science Applications International Corporation. Bothell, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia.
- MacDonald, D.D. 2011. Approach to the Compilation of Toxicity Thresholds and Selection of Toxicity Tests for the Hanford Natural Resources Damage Assessment. Summary Report for Workshop Convened March 15, 2011 in Richland, WA MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia, in association with Industrial Economics, Inc., Cambridge, Massachusetts. Prepared for: Hanford Natural Resource Trustee Council, U.S. Fish and Wildlife Service, Spokane, Washington.
- MacDonald, D.D., J.A. Sinclair, M. Crawford, H. Prencipe, C. Lewis, and M. Donlan. 2011. Preliminary Summary of Whole-Sediment Chemistry, Fish-Tissue Chemistry, and Invertebrate-Tissue Chemistry Data Obtained during the 2010 Sediment and Biota Sampling Program for Piles Creek and South Branch Creek, Linden, New Jersey. Prepared for Office of Response and Restoration, National Oceanic and Atmospheric Administration and Division of Environmental Contaminants, U.S. Fish and Wildlife Service. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia, and Industrial Economics Inc., Columbia, Missouri.
- MacDonald, D.D., J. Sinclair, M. Crawford, H. Prencipe and M. Meneghetti. 2011. Potential effects of contaminants on Fraser River sockeye salmon. MacDonald Environmental Sciences Ltd. Cohen Commission Tech. Rep. 2. In prep. Vancouver, British Columbia [www.cohencommission.ca](http://www.cohencommission.ca)
- MacDonald, D.D., C.G. Ingersoll, J. Sinclair, M. Crawford, H. Prencipe, M. Coady, N.E. Kemble, A. Jones, M. Curry, C. Lewis, J. Steevens, and K. Nolan. 2011. Preliminary evaluation of the effects on benthic invertebrates associated with exposure to

PCB-contaminated sediments in the Upper Hudson River, New York. Prepared for National Oceanic and Atmospheric Administration. Silver Spring, Maryland. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia.

MacDonald, D.D., G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume I: Overview of the Recommended Decision Framework. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume II: Description of the Rapid (Tier 1) Assessment Process. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., G.L. Linder, C.G. Ingersoll, S.E. Finger, M.A. Crawford, H.J. Prencipe, J.A. Sinclair, M.B. Meneghetti, and J.E. Hinck. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume III: Description of Detailed (Tier 2) Assessment Process. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., G.L. Linder, C.G. Ingersoll, and S.E. Finger. 2010. Handbook for Assessing Risks to Fish and Wildlife Associated with the Potential Use of Water, Treated Wastewater, Stormwater, Sediment, Soil, Biosolids, or Other Materials on Units of the National Wildlife Refuge System. Volume IV: Monitoring Requirements for Evaluating the Ecological Effects Associated with Placement of Candidate Materials on Units of the National Wildlife Refuge System. Prepared for U.S. Fish and Wildlife Service. Vancouver, Washington. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey, Columbia, Missouri.

MacDonald, D.D., C.G. Ingersoll, M. Crawford, H. Prencipe, J.M. Besser, W.G. Brumbaugh, N. Kemble, T.W. May, C.D. Ivey, M. Meneghetti, J. Sinclair, and M. O'Hare. 2010. Advanced screening-level ecological risk assessment (SLERA) for aquatic habitats within the Tri-State Mining District, Oklahoma, Kansas, and Missouri. Draft Final Technical Report. Submitted to United States Environmental Protection Agency (USEPA). Region 6, Dallas, Texas, Region 7, Kansas City, Kansas, and US Fish and Wildlife Service, Columbia, Missouri. Submitted by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. United States Geological Survey, Columbia, Missouri. CH2M Hill, Dallas, Texas

- MacDonald, D.D., P. Landrum, J. Sanderson, C. Lafontaine, M. Crawford, H. Prencipe, M. Meneghetti, M.L. Haines, A. Czarnecki, D. Smorong, O. Forest, and J. Smejkal. 2010. Status and Trends of Environmental Quality Conditions in the Transboundary Reach of the Slave River, NWT. Draft Report. Prepared for Indian and Northern Affairs Canada. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences, Nanaimo, British Columbia. Landrum and Associates, Ann Arbor, Michigan. Indian and Northern Affairs Canada, Yellowknife, Northwest Territories.
- MacDonald, D.D. 2009. Development of a sediment remediation footprint to address risks to benthic invertebrates and fish in the vicinity of the shipyards site in San Diego Bay, California. MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Prepared for: Clean Bay Campaign Environmental Health Coalition. National City, California.
- MacDonald, D.D. and M. Stelljes. 2009. Pilot Sediment Investigation for the Detailed Quantitative Ecological Risk Assessment of Esquimalt Harbour: Evaluation of Candidate Reference Areas and Candidate Toxicity Tests. Prepared for Public Works and Government Services Canada. Prepared by MacDonald Environmental Sciences Ltd, Nanaimo, British Columbia and SLR Consulting, Victoria, British Columbia.
- MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, J.M. Besser, W.G. Brumbaugh, N. Kemble, T.W. May, C.D. Ivey, S. Irving, and M. O'Hare. 2009. Development and evaluation of sediment and pore-water toxicity thresholds to support sediment quality assessments in the Tri-State Mining District (TSMD), Missouri, Oklahoma, and Kansas. Draft Final Technical Report. Volume I: Text. Submitted to United States Environmental Protection Agency (USEPA). Region 6, Dallas, Texas, Region 7, Kansas City, Kansas, and US Fish and Wildlife Service, Columbia, Missouri. Submitted by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. United States Geological Survey, Columbia, Missouri. CH2M Hill, Dallas, Texas.
- MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, J.M. Besser, W.G. Brumbaugh, N. Kemble, T.W. May, C.D. Ivey, S. Irving, and M. O'Hare. 2009. Development and evaluation of sediment and pore-water toxicity thresholds to support sediment quality assessments in the Tri-State Mining District (TSMD), Missouri, Oklahoma, and Kansas. Draft Final Technical Report. Volume II: Appendices 1 through 4. Submitted to United States Environmental Protection Agency (USEPA). Region 6, Dallas, Texas, Region 7, Kansas City, Kansas, and US Fish and Wildlife Service, Columbia, Missouri. Submitted by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia. United States Geological Survey, Columbia, Missouri, and CH2M Hill, Dallas, Texas.
- MacDonald, D.D., J. Steevens, W. Lorentz, P. Tuttle, and S. Thoms. 2009. Preliminary evaluation of the effects of wet and dry sieving on the concentrations and homolog distribution of PCBs in Choccolocco Creek samples. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.
- MacDonald, D.D., C.G. Ingersoll, A. Jones, D.E. Smorong, M. Curry, and K. Lanahan. 2009. Work Plan for the pilot study on the effects of PCB-contaminated sediments on benthic invertebrates in the Upper Hudson River, New York. Prepared for National Oceanic and Atmospheric Administration. Silver Spring, Maryland. Prepared by: MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Industrial Economics Inc. Cambridge, Massachusetts.

- MacDonald, D.D., B. Zajdlik, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 1- Recommended procedures for identifying issues and concerns associated with development projects. Prepared for Indian and Northern Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Zajdlik and Associates, Rockwood, Ontario.
- MacDonald, D.D., B. Zajdlik, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 2 - Recommended procedures for developing the problem formulation to support the design of aquatic effects monitoring identifying issues and concerns associated with development projects. Prepared for Indian and Northern Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Zajdlik and Associates, Rockwood, Ontario.
- MacDonald, D.D., B. Zajdlik, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 3 - Recommended procedures for developing data quality objectives and a conceptual study design. Prepared for Indian and Northern Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Zajdlik and Associates, Rockwood, Ontario.
- MacDonald, D.D., B. Zajdlik, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 5 - Recommended procedures for documenting and verifying conceptual and detailed designs of aquatic effects monitoring programs. Prepared for Indian and Northern Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Zajdlik and Associates, Rockwood, Ontario.
- MacDonald, D.D., B. Zajdlik, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 6 - Recommended procedures for evaluating, compiling, interpreting, and reporting data collected under aquatic effects monitoring programs. Prepared for Indian and Northern Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Zajdlik and Associates, Rockwood, Ontario.
- Stelljes, M., D.D. MacDonald, D.E. Smorong, M. McLeay, S. Reimer, and J. Smejkal. 2009. Preliminary problem formulation for the detailed quantitative ecological risk assessment of Esquimalt Harbour, BC. March 2009 version. Prepared for Public Works and Government Services Canada. Prepared by SLR Consulting, Victoria, British Columbia and MacDonald Environmental Sciences Ltd, Nanaimo, British Columbia
- Zajdlik, B. D.D. MacDonald, and INAC Water Resources. 2009. Guidelines for designing and implementing aquatic effects monitoring programs for development projects in the Northwest Territories: Volume 4 - Recommended procedures for developing detailed designs of aquatic effects monitoring programs. Prepared for Indian and Northern

Affairs Canada. Water Resources Division. Yellowknife, Northwest Territories. Prepared by Zajdlik and Associates, Rockwood, Ontario and MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia.

MacDonald, D.D. and P.F. Landrum. 2008. An Evaluation of the Approach for Assessing Risks to the Benthic Invertebrate Community at the Portland Harbor Superfund Site. Preliminary Draft. Prepared for United States Environmental Protection Agency, Region 10, Seattle, Washington 9 and Parametrix, Inc. Albany, Oregon. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and Landrum and Associates, Ann Arbor, Michigan..

MacDonald, D.D. and D.E. Smorong. 2008. An assessment of injury to natural resources and associated damages to surface water and biological resources in the vicinity of the Cornell-Dubilier Electronics, Inc. Superfund Site, South Plainfield, N.J. Prepared for United States Department of Justice. Washington, District of Columbia. Prepared by MacDonald Environmental Sciences Ltd, Nanaimo, British Columbia in association with Industrial Economics Inc., Cambridge, Massachusetts.

MacDonald, D.D., B. Zajdlik, K. Racher, M. Culhane, and J. Arsenault. 2008. Guidelines for Designing and Implementing Aquatic Effects Monitoring Program for Development Projects in the Northwest Territories: Overview Report. Prepared for Indian and Northern Affairs Canada. Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia and Zajdlik & Associates Inc. Rockwood, Ontario.

MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, N. Kemble, C.D. Ivey, T. Baker, and M. Curry. 2008. Preliminary evaluation of the toxicity of field-collected sediments from the Calcasieu Estuary, Louisiana. Technical Report. Prepared for: National Oceanic and Atmospheric Administration, Assessment and Restoration Division. Baton Rouge, Louisiana.

MacDonald, D.D., R. Gale, W. Brumbaugh, C.G. Ingersoll, D.E. Smorong, S. Hamilton, and Y. Muirhead. 2008. Guidelines on the selection of analytical detection limits for generating water chemistry, sediment chemistry, and tissue residue data for use in aquatic risk assessments. Prepared for Office of Environmental Policy and Compliance. Department of the Interior. Washington, District of Columbia and Emergency Response Team. United States Environmental Protection Agency. Edison, New Jersey. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., D.E. Smorong, J.J. Jackson, and Y.K. Muirhead. 2008. Ecological and human health risk assessment of aquatic habitats in the vicinity of the Weston Foods (Canada) Inc. Site in Quathiaski Cove, Quadra Island. Technical Report. Prepared for Weston Foods (Canada) Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., D.E. Smorong, J.J. Jackson, J. Rao, N. Shah, and S. Reimer. 2008. Overview of the assessment activities and remedial measures conducted to support an application for certificate of compliance for the Weston Foods Inc. waterlot site, Quathiaski Cove, Quadra Island, B.C. Prepared for Weston Foods (Canada) Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

Levelton Consultants Ltd. Surrey, British Columbia and SEACOR Environmental.  
Victoria, British Columbia

MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, J.M. Besser, W.G. Brumbaugh, N. Kemble, T.W. May, S. Irving, and M. O'Hare. 2008. Evaluation of the matching sediment chemistry and sediment toxicity in the Tri-State Mining District (TSMD), Missouri, Oklahoma, and Kansas. Preliminary Draft. Prepared for United States Environmental Protection Agency Region 6, and Region 7 and United States Fish and Wildlife Service, Columbia, Missouri. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. United States Geological Survey. Columbia, Missouri and CH2M Hill. Dallas, Texas.

Canton, S.P., A. Fairbrother, A.D. Lemly, H.M. Ohlendorf, L.E. McDonald, and D.D. MacDonald. 2008. Experts Workshop on the evaluation and management of selenium in the Elk Valley, British Columbia. Submitted to: British Columbia Ministry of the Environment. Environmental Protection Division, Kootenay and Okanagan Regions.

Ingersoll C.G., D.D. MacDonald, J.M. Besser, W.G. Brumbaugh, C.D. Ivey, N.E. Kemble, J.L. Kunz, T.W. May, N. Wang, and D.E. Smorong. 2008. Sediment chemistry, toxicity, and bioaccumulation data report for the US Environmental Protection Agency - Department of the Interior sampling of metal-contaminated sediment in the Tri-state Mining District in Missouri, Oklahoma, and Kansas. Prepared by USGS, Columbia Missouri and MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia for the USEPA Kansas City, Missouri; USEPA, Dallas, Texas, and USFWS, Columbia, Missouri.

MacDonald, D.D. and D.E. Smorong. 2007. Response to Comments on: Receiving Environmental Monitoring Program (REMP) for the Capital Regional District (CRD) Core Area Liquid Waste Management Plan (LWMP) for the Macaulay Point and Clover Point Outfalls. Submitted to British Columbia Ministry of Environment, Nanaimo, British Columbia and British Columbia Ministry of Environment, Victoria, British Columbia.

MacDonald, D.D., D.E. Smorong, and J.J. Jackson. 2007. Evaluation of residual risks to ecological receptors associated with exposure to toxic and bioaccumulative contaminants of concern following the implementation of various sediment restoration options in the Indiana Harbor Area of Concern, Indiana. Version 1. Prepared for United States Fish and Wildlife Service. Bloomington, Indiana and Indiana Department of Environment Management. Indianapolis, Indiana. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., D.E. Smorong, J.J. Jackson, Y.K. Muirhead, J.G. Stefanoff, B.E. Sample, H.M. Ohlendorf, and Frank Dillon. 2007. Screening Level ecological risk assessment (SLERA) of the Upper Columbia River Site, Washington. Preliminary problem formulation Version 1.0 (Draft - April, 2007). Prepared for CH2M Hill Spokane, Washington. Prepared by MacDonald Environmental Sciences Ltd. CH2M Hill.

MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, J.J. Jackson, Y.K. Muirhead, and S. Irving. 2007. Advanced screening level ecological risk assessment (SLERA) of aquatic habitats in the Tri-State Mining District in Missouri, Kansas, and Oklahoma - Preliminary problem formulation. Version 2.0. Prepared for United States Environmental

Protection Agency. Region 6. Dallas, Texas and Region 7. Kansas City, Kansas. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. United States Geological Survey. Columbia, Missouri and CH2M Hill. Dallas, Texas.

MacDonald, D.D., D.E. Smorong, C.G. Ingersoll, J.J. Jackson, Y.K. Muirhead, and S. Irving. 2007. Candidate assessment endpoints, risk questions, and measurement endpoints for a baseline ecological risk assessment. Version 1.0. Prepared for United States Environmental Protection Agency. Region 6. Dallas, Texas and Region 7. Kansas City, Kansas. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. United States Geological Survey. Columbia, Missouri and CH2M Hill. Dallas, Texas.

MacDonald, D. D., D.E. Smorong, D.G. Pehrman, C.G. Ingersoll, J. J. Jackson, Y.K. Muirhead, S. Irving, and C. McCarthy. 2007. Conceptual field sampling design - 2007 sediment sampling program of the Tri-State Mining District. Prepared for United States Environmental Protection Agency. Region 6. Dallas, Texas and Region 7. Kansas City, Kansas. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Black & Veatch Special Projects Corp. Laurel Springs, New Jersey. United States Geological Survey. Columbia, Missouri and CH2M Hill. Dallas, Texas.

MacDonald, D.D., D.E. Smorong, J.J. Jackson, Y.K. Muirhead, and C.G. Ingersoll. 2007. Receiving Environmental Monitoring Program (REMP) for the Capital Regional District (CRD) Core Area Liquid Waste Management Plan (LWMP) for the Macaulay Point and Clover Point Outfalls. Submitted to British Columbia Ministry of Environment. Nanaimo, British Columbia and British Columbia Ministry of Environment. Victoria, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri.

MacDonald, Donald D., Christopher G. Ingersoll, Aswea D. Porter, Yvonne K. Muirhead, Scott T. Black, and C.G. Miller. 2007. Approach to the development of delisting targets for the Presque Isle Bay Area of Concern, Pennsylvania. Technical Report - Prepared April 2005, revised May 2007. Prepared for: Pennsylvania Sea Grant. Penn State University. Erie, Pennsylvania, and Pennsylvania Department of Environmental Protection. Meadville, Pennsylvania.

MacDonald, Donald D., D.E. Smorong, C.G. Ingersoll, and J.J. Jackson, 2007. An assessment of recovery-period sediment quality conditions in Presque Isle Bay Area of Concern, Pennsylvania. Technical Report - Preliminary Draft. PIB-SQCRP-0707-V2. Prepared for: Pennsylvania Sea Grant. Penn State University. Erie, Pennsylvania, and Pennsylvania Department of Environmental Protection. Meadville, Pennsylvania. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., A.D. Porter, C. Miller, and S. Black. 2007. Field sampling plan for the 2005 sediment quality evaluation of Presque Isle Bay, Pennsylvania. Prepared August 2005, revised May 2007. Prepared for Pennsylvania Sea Grant. Penn State University. Erie, Pennsylvania and Pennsylvania Department of Environmental Protection. Meadville, Pennsylvania. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MESL (MacDonald Environmental Sciences Ltd.) and CH2M Hill. 2007. Ecological risk assessment workshop for the Tri-State Mining District - Kansas, Missouri, and

Oklahoma - Workshop summary report. Prepared for United States Environmental Protection Agency. Region 6. Dallas, Texas and Region 7. Kansas City, Kansas. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia, and CH2M Hill. Dallas, Texas.

Obert, E., L. Boughton, D. Smorong, and D. MacDonald. 2007. Quality Assurance Project Plan (QAPP): Development of delisting targets and associated sediment quality monitoring program for the Presque Isle Bay Area of Concern. Grant Number GL-96556701-0. Revision 3, prepared January 2005, revised May 2007. Prepared by Pennsylvania Sea Grant. Penn State University. Erie, Pennsylvania and Pennsylvania Department of Environmental Protection. Meadville, Pennsylvania. In association with MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

Sustainable Fisheries Foundation. 2007. Workshop to support the development of guidance on the assessment of contaminated sediments in British Columbia: Workshop Summary Report. Prepared for the British Columbia Ministry of Environment. Victoria, British Columbia. Prepared by the Sustainable Fisheries Foundation. Nanaimo, British Columbia.

MacDonald, D.D. 2006. Toward the development of northern water standards: Review and evaluation of approaches for managing water use in Northern Canada. Discussion Paper. Prepared for Indian and Northern Affairs Canada. Gatineau, Quebec and Yellowknife, Northwest Territories. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D. and D.E. Smorong. 2006. An evaluation of sediment quality conditions in the vicinity of the Macaulay Point and Clover Point outfalls. Submitted to Environmental Management Branch. British Columbia Ministry of Environment, Victoria, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D. and D.E. Smorong. 2006. Review and evaluation of the seawater and seafloor triggers established under the Capital Regional District's core area liquid waste management plan. Submitted to British Columbia Ministry of Environment. Nanaimo, British Columbia and British Columbia Ministry of Environment. Victoria, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., C.G. Ingersoll, and D.E. Smorong. 2006. An assessment of injury to natural resources and associated damages to surface water and biological resources in the vicinity of the Bloomington PCB Sites. Technical Report. Prepared for United States Department of Interior. Washington, District of Columbia and United States Department of Justice. Washington, District of Columbia. Prepared by MacDonald Environmental Sciences Limited. Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri. In association with Industrial Economics Inc. Cambridge, Massachusetts.

MacDonald, D.D., D.E. Smorong, and C.G. Ingersoll. 2006. Approach for assessing and quantifying injuries to physical resources (surface water and bed sediments) and biological resources (sediment-dwelling organisms and benthic fish) in intertidal and shallow sub-tidal habitats of the Calcasieu Estuary associated with the June, 2006 slop

oil spill at the Citgo Facility in Lake Charles, Louisiana. Prepared for National Oceanic and Atmospheric Administration (NOAA). Baton Rouge, Louisiana and Louisiana Oil Spill Coordinator's Office. Baton Rouge, Louisiana. Prepared by MacDonald Environmental Sciences Limited. Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri.

MacDonald, D.D., C.G. Ingersoll, M. Donlan, C.H. Peterson, D.E. Smorong, A.D. Porter, Y.K. Muirhead, S.T. Black, C.G. Miller. 2006. Preliminary estimate of damages Technical Appendix 1: Potential injury to bed sediments and biological resources (sediment injury) and associated benthic service losses in the Passaic River - Newark Bay Complex. Prepared for Damage Assessment Center. National Oceanic and Atmospheric Administration. Silver Spring, Maryland. Site Remediation Program. New Jersey Department of Environmental Protection. Trenton, New Jersey and Environmental Contaminants and Private Lands. United States Fish and Wildlife Service - New Jersey Field Office. Pleasantville, New Jersey.

MacDonald, D.D., D.E. Smorong, A.D. Porter, Y.K. Muirhead, C.G. Ingersoll. 2006. Preliminary estimate of damages Technical Appendix 2: Preliminary identification of contaminants of concern in the Passaic River - Newark Bay Complex. National Oceanic and Atmospheric Administration. Silver Spring, Maryland, New Jersey Department of Environmental Protection. Trenton, New Jersey and United States Fish and Wildlife Service. Pleasantville, New Jersey. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri. In association with Industrial Economics Inc. Cambridge, Massachusetts.

MacDonald, D.D., D.E. Smorong, J.J. Jackson, and Y.K. Muirhead. 2006. Supplemental evaluation of sediment quality conditions in the vicinity of the Macaulay Point and Clover Point Outfalls. Submitted to British Columbia Ministry of Environment. Victoria, British Columbia and British Columbia Ministry of Environment, Nanaimo, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia

MacDonald, D.D., A. Jones, J. Michel, T. Baker, C.G. Ingersoll, D.E. Smorong, and J. Jackson. 2006. Field sampling plan for the 2006 sediment and biota sampling program of the Calcasieu Estuary, Louisiana. Prepared for National Oceanic and Atmospheric Administration. Damage Assessment Center. Baton Rouge, Louisiana and Louisiana Oil Spill Coordinator's Office. Office of the Governor. Baton Rouge, Louisiana. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Industrial Economics Inc. Cambridge, Massachusetts. Research Planning, Inc. Columbia, South Carolina. NOAA. Baton Rouge, Louisiana and United States Geological Survey. Columbia, Missouri.

MacDonald, D.D., A. Jones, D.E. Smorong, J. Jackson, C.G. Ingersoll, and T. Baker. 2006. Quality assurance project plan (QAPP) for the 2006 sediment and biota sampling program of the Calcasieu Estuary, Louisiana. Revision: 2.0. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Industrial Economics Inc. Cambridge, Massachusetts. United States Geological Survey. Columbia, Missouri and National Oceanic and Atmospheric Administration. Baton Rouge, Louisiana

MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, and J. Jackson. 2006. Sediment and biota sampling program for the 2006 Citgo Oil Spill of the Calcasieu Estuary, Louisiana.

Procedures for selecting sediment samples for toxicity testing. Prepared for National Oceanic and Atmospheric Administration (NOAA). Baton Rouge, Louisiana and Louisiana Oil Spill Coordinator's Office. Baton Rouge, Louisiana. Prepared by MacDonald Environmental Sciences Limited. Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri.

MESL, USGS, and Tetra-Tech (MacDonald Environmental Sciences Ltd., United States Geological Survey, and Tetra Tech EC, Inc.). 2006. Appendix B.1: Evaluation of the adequacy of benthic preliminary restoration goals for protecting aquatic-dependent wildlife in the West Branch of the Grand Calumet River. Technical Appendix. *In*: Restoration alternatives development report. West Branch of the Grand Calumet River, Hammond, Indiana. Prepared by Tetra Tech EC, Inc. Prepared for United States Fish and Wildlife Service. Bloomington, Indiana and Indiana Department of Environmental Management. Indianapolis, Indiana.

MESL (MacDonald Environmental Sciences Ltd.) and Cantox (Cantox Environmental, Inc.). 2006. Identification of assessment and measurement endpoints to support the development of preliminary remediation goals for the Anniston PCB site, Anniston, Alabama. Prepared for: United States Environmental Protection Agency. Edison, New Jersey. Prepared by MESL. Nanaimo, British Columbia and Cantox. Ottawa, Ontario.

Smorong, D.E., D.D. MacDonald, Y.K. Muirhead, and J.J. Jackson. 2006. Data package for the 2006 sediment and biota field sampling program of the Calcasieu Estuary, Louisiana. Prepared for National Oceanic and Atmospheric Administration. Damage Assessment Center. Baton Rouge, Louisiana and Louisiana Oil Spill Coordinator's Office. Office of the Governor. Baton Rouge, Louisiana. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia

Wong, M., P. Whitfield, and D. MacDonald. 2006. Discussion paper on water quality sampling: guidance on the use of sampling for decision making - Status and trends. Submitted to Working Group on Water Quality Sampling. International Organization for Standardization. Geneva, Switzerland.

MacDonald, D. D. 2005. Field sampling plan for advanced screening study of Quathiaski Cove Site, Quadra Island. Prepared for Weston Foods (Canada) Inc. Surrey, British Columbia. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia

MacDonald, D.D. 2005. Quality assurance project plan for the advanced screening study of the Quathiaski Cove Site, Quadra Island, British Columbia. Prepared for Weston Foods (Canada) Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D. 2005. Health and safety plan for the 2006 supplemental characterization program of the Quathiaski Cove Site, Quadra Island, BC. Prepared for Weston Foods (Canada) Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D. and C.G. Ingersoll. 2005. Baseline ecological risk assessment for the Quathiaski Cove Site, Quadra Island, B.C. Baseline Problem Formulation. Prepared for

Weston Foods Inc. Prepared by MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia and United States Geological Survey. Columbia, Missouri.

MacDonald, D.D., D.E. Smorong, and C.G. Ingersoll. 2005. Field sampling plan for the 2006 supplemental characterization of the Quathiaski Cove Site, Quadra Island. Prepared for Weston Foods Inc. c/o Zuliani & Company Consultants Ltd. Surrey, British Columbia.

MacDonald, D.D., D.E. Smorong, and C.G. Ingersoll. 2005. Quality assurance project plan for the 2006 supplemental characterization program of the Quathiaski Cove Site, Quadra Island, BC. Prepared for Weston Foods Inc. c/o Zuliani & Company Consultants Ltd. Surrey, British Columbia.

MacDonald, D.D., A.D. Porter, Y.K. Muirhead, S.T. Black, and C.G. Miller. 2005. Screening level ecological risk assessment for the Quathiaski Cove Site, Quadra Island, British Columbia. Technical Report. Prepared for Weston Foods Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

MacDonald, D.D., R. Gale, W. Brumbaugh, C.G. Ingersoll, D.E. Smorong, S. Hamilton, and Y.K. Muirhead. 2005. Guidance on the selection of analytical detection limits for generating water chemistry, sediment chemistry, and tissue residue data for use in aquatic risk assessments. Prepared for Office of Environmental Policy and Compliance. Natural Resources Trust and Response Team. Department of the Interior. Washington, District of Columbia and Emergency Response Team. United States Environmental Protection Agency. Edison, New Jersey.

MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, L. Fisher, C. Huntington, and G. Braun. 2005. Development and evaluation of risk-based preliminary remediation goals for selected sediment-associated contaminants of concern in the West Branch of the Grand Calumet River. Prepared for: United States Fish and Wildlife Service. Bloomington, Indiana.

MacDonald, D.D., C.G. Ingersoll, A.D. Porter, S.B. Black, C. Miller, Y.K. Muirhead. 2005. Development and evaluation of preliminary remediation goals for aquatic receptors in the Indiana Harbor Area of Concern. Technical Report. Prepared for: United States Fish and Wildlife Service. Bloomington, Indiana and Indiana Department of Environmental Management. Indianapolis, Indiana.

MacDonald, D.D., M. Donlan, A. Jones, C. Sommerfield, and C. Miller. 2005. Field sampling plan for the 2005 sediment quality evaluation of Delaware River estuary. Revision 2.0. Prepared for: J. Hoff. Damage Assessment Center. National Oceanic and Atmospheric Administration. Silver Spring, Maryland. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Industrial Economics, Inc. Cambridge, Massachusetts and College of Marine Sciences. University of Delaware - Penny Hall. Lewes, Delaware.

MacDonald Environmental Sciences Ltd. 2005. Advanced screening study of the Weston Foods Inc. Site in Quathiaski Cove, Quadra Island. Preliminary Problem Formulation. Prepared for Weston Foods Inc. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.

- Donlan, M.C., G. Douglas, and D.D. MacDonald. 2005. An evaluation of the composition, and potential environmental fate and toxicity of heavy Venezuelan crude oil released into the Delaware River during the *M/T ATHOS I* oil spill. Prepared for the Aquatic Technical Work Group for ATHOS I Spill. Prepared by Industrial Economics Inc., Cambridge, Massachusetts; New Fields Environmental Forensics Practice LLC, Rockland, Massachusetts; and, MacDonald Environmental Sciences Ltd., Nanaimo, British Columbia
- Greenberg, M., D. MacDonald, D. Moore, and S. Thoms. 2005. Emergency Response Team review of screening level ecological risk assessment (SLERA) and problem formulation for Operable Unit 4 of the Anniston PCB site. Submitted to the United States Environmental Protection Agency. Atlanta, Georgia.
- Obert, E., L. Boughton, and D. MacDonald. 2005. Quality Assurance Project Plan (QAPP): Sediment quality monitoring program for the Presque Isle Bay Area of Concern. Grant Number GL-96556701-0. Revision 3. Prepared by Pennsylvania Sea Grant. Penn State University. Erie, Pennsylvania and Pennsylvania Department of Environmental Protection. Meadville, Pennsylvania. In association with MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia.
- Tetra Tech EC Inc. 2005. Technical Memorandum - Development of remedial action objectives to support the evaluation of restoration alternatives for the West Branch of the Grand Calumet River, Indiana. Prepared for United States Fish and Wildlife Service. Bloomington, Indiana.
- MacDonald, D.D. 2004. Evaluation of the proposed discharge limits for the De Beers Canada Mining Incorporated (DCMI) Snap Lake Project. Prepared for Water Resources Division. Indian and Northern Affairs Canada. Yellowknife, Northwest Territories.
- MacDonald, D.D. and C.G. Ingersoll. 2004. An assessment of sediment injury in the Calcasieu Estuary, Louisiana. Volume I. Technical Report. In association with Industrial Economics Inc. Cambridge, Massachusetts. Prepared for Damage Assessment Center, National Oceanic and Atmospheric Administration. Seattle, Washington.
- MacDonald, D.D. and C.G. Ingersoll. 2004. An assessment of sediment injury in the Calcasieu Estuary, Louisiana. Volume II-VII. Appendices. In association with Industrial Economics Inc. Cambridge, Massachusetts. Prepared for Damage Assessment Center, National Oceanic and Atmospheric Administration. Seattle, Washington.
- MacDonald, D.D. and D.R.J. Moore. 2004. Considerations for developing problem formulations for ecological risk assessments conducted at contaminated sites under CERCLA. A discussion paper. Prepared for Environmental Response Team. United States Environmental Protection Agency. Edison, New Jersey.
- MacDonald, D.D. and D.R.J. Moore. 2004. Review of the quality assurance project plan for the Anniston PCB site. Prepared for Environmental Response Team. United States Environmental Protection Agency. Edison, New Jersey.

- MacDonald, D.D. and D.R.J. Moore. 2004. Review of the quality assurance project plan for the Anniston PCB site. Prepared for Environmental Response Team. United States Environmental Protection Agency. Edison, New Jersey.
- MacDonald, D.D. and D.R.J. Moore. 2004. Review of the OU-1/OU-2 field sampling plan for the Anniston PCB site. Prepared for Environmental Response Team. United States Environmental Protection Agency. Edison, New Jersey.
- MacDonald, D.D. and D.R.J. Moore. 2004. Review of the remedial investigation/feasibility study (RI/FS)OU-1/OU-2 field sampling plan for the Anniston PCB site. Prepared for Environmental Response Team. United States Environmental Protection Agency. Edison, New Jersey.
- MacDonald, D.D. and D.E. Smorong. 2004. An evaluation of the Colomac Site remediation plan and supporting documentation. Prepared for Indian and Northern Affairs Canada. Yellowknife, Northwest Territories.
- MacDonald, D.D. and D.E. Smorong. 2004. An evaluation of candidate effluent quality criteria for the Colomac Site, NT. Prepared for Contaminated Sites Office. Indian and Northern Affairs Canada. Yellowknife, Northwest Territories
- MacDonald, D.D. C.G. Ingersoll, D.E. Smorong, L. Fisher, C. Huntington, and G. Braun. 2004. Development and evaluation of risk-based preliminary remediation goals for selected sediment-associated contaminants of concern in the West Branch of the Grand Calumet River. Draft report. Contract No. GS-10F-0208J. Prepared for United States Fish and Wildlife Service. Bloomington, Indiana.
- MacDonald, D.D., D.A Levy, A. Czarnecki, G. Low, and N. Richea. 2004. State of the aquatic knowledge of Great Bear Watershed. Prepared for Water Resources Division. Indian and Northern Affairs Canada. Yellowknife, Northwest Territories.
- MESL (MacDonald Environmental Sciences Ltd.) and Cantox (Cantox Environmental, Inc.). 2004. Anniston PCB site remedial investigation/feasibility study (RI/FS): Ecological risk assessment (ERA). Prepared for: United States Environmental Protection Agency. Edison, New Jersey. Prepared by MESL, Nanaimo, British Columbia and Cantox, Ottawa, Ontario.
- Crane, J.L. D.D. MacDonald, D.E. Smorong, L.J. Fisher, S.L. Hamilton, and C.A. Huntington. 2004. Phase II GIS-based sediment quality database for the St. Louis River Area of Concern (AOC): Comparison of surficial sediment contamination in the St. Louis River AOC with other areas of concern in the Great Lakes Basin and other areas located elsewhere in the United States. Prepared for Minnesota Pollution Control Agency. St. Paul, Minnesota.
- Macfarlane, M.W., D.D. MacDonald, and C.G. Ingersoll. 2004. Criteria for contaminated sites: Criteria for managing contaminated sediment in British Columbia. Technical Appendix. Environmental Management Branch. Environmental Protection Division. British Columbia Ministry of Water, Land and Air Protection. Victoria, British Columbia.

Smorong, D.E., Clara L. Mackenzie, Judy L. Crane, Donald D. MacDonald, Leanne J. Fisher, and Chad A. Huntington. 2004. Phase II GIS-based Sediment quality database for the St. Louis River Area of Concern (AOC). Technical documentation. Prepared for Minnesota Pollution Control Agency. St. Paul, Minnesota.

British Columbia Ministry of Water, Land and Air Protection. 2004. Director's criteria for contaminated sites: Criteria for managing contaminated sediment in British Columbia. Environmental Management Branch. Environmental Protection Division. Victoria, British Columbia.

USEPA (United States Environmental Protection Agency). 2004. Predicting amphipod toxicity from sediment chemistry. EPA/600/R-04/030. National Center for Environmental Assessment. Washington, District of Columbia

MacDonald, D.D. 2003. An evaluation of the application for amendment of water licence N7L2-1645 that was submitted to the Mackenzie Valley Land and Water Board by Diavik Diamond Mines Inc. Prepared for Dogrib Treaty 11 Council, Yellowknife, Northwest Territories and T.D. Pearse Resource Consulting, Mayne Island, British Columbia.

MacDonald, D.D. and C.G. Ingersoll. 2003. A guidance manual to support the assessment of contaminated sediments in freshwater, estuarine, and marine ecosystems in British Columbia. Volume I: An ecosystem-based framework for assessing and managing contaminated sediments. Prepared for Pollution Prevention and Remediation Branch. British Columbia Ministry of Water, Land, and Air Protection. Victoria, British Columbia

MacDonald, D.D. and C.G. Ingersoll. 2003. A guidance manual to support the assessment of contaminated sediments in freshwater, estuarine, and marine ecosystems in British Columbia. Volume II: Design and implementation of sediment quality investigations in freshwater ecosystems. Prepared for Pollution Prevention and Remediation Branch. British Columbia Ministry of Water, Land, and Air Protection. Victoria, British Columbia.

MacDonald, D.D. and C.G. Ingersoll. 2003. A guidance manual to support the assessment of contaminated sediments in freshwater, estuarine, and marine ecosystems in British Columbia. Volume IV - Supplemental guidance on the design and implementation of detailed site assessments in marine and estuarine ecosystems. Prepared for Pollution Prevention and Remediation Branch. British Columbia Ministry of Water, Land, and Air Protection. Victoria, British Columbia

MacDonald, D.D. and D.A. Levy. 2003. Toward the development of a cumulative effects monitoring program for the lower Columbia River. Prepared for the British Columbia Ministry of Water, Land and Air Protection. Nelson, British Columbia. An initiative of the Columbia River Integrated Environmental Monitoring.

MacDonald, D.D., C.G. Ingersoll, and D.R.J. Moore. 2003. Response to comments on the Calcasieu Estuary baseline ecological risk assessment. Prepared for United States Environmental Protection Agency. Region 6. Dallas, Texas.

- MacDonald, D.D., R.L. Breton, K. Edelmann, M.S. Goldberg, C.G. Ingersoll, R.A. Lindskoog, D.B. MacDonald, D.R.J. Moore, A.V. Pawlitz, D.E. Smorong, and R.P. Thompson. 2003. Development and evaluation of preliminary remediation goals for selected contaminants of concern at the Calcasieu Estuary cooperative site, Lake Charles, Louisiana. Prepared for United States Environmental Protection Agency, Region 6. Dallas, Texas.
- MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, G. Sloane and T. Biernacki. 2003. Development and evaluation of numerical sediment quality assessment guidelines for Florida inland waters. Prepared for Florida Department of Environmental Management. Tallahassee, Florida.
- MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, and R.A. Lindskoog. 2003. Development and application of sediment quality criteria for managing contaminated sediments in British Columbia. Environmental Protection Division. Ministry of Water, Land, and Air Protection. Victoria, British Columbia.
- MacDonald, D.D., D.E. Smorong, L.J. Fisher, and C.A. Huntington. 2003. Comparison of levels of contamination in the St. Louis River Area of Concern with other areas of concern in the Great Lakes Basin and other areas located elsewhere in North America. Prepared for Minnesota Pollution Control Agency. St. Paul, Minnesota.
- MacDonald, D.D., D.E. Smorong, R.A. Lindskoog, and C.G. Ingersoll. 2003. 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 I - Technical Report. Prepared for United States Fish and Wildlife Service. Bloomington, Indiana. In Association with Industrial Economics, Incorporated. Cambridge, Massachusetts.
- Ingersoll C.G. and D.D. MacDonald. 2003. A guidance manual to support the assessment of contaminated sediments in freshwater, estuarine, and marine ecosystems in British Columbia. Volume III: Interpretation of the results of sediment quality investigations. Prepared for Pollution Prevention and Remediation Branch. British Columbia Ministry of Water, Land, and Air Protection. Victoria, British Columbia.
- Nagpal, N.K, D.A. Levy, and D.D. MacDonald. 2003. Ambient water quality guidelines for chloride: Overview. Water Management Branch. British Columbia Ministry of Water, Land, and Air Protection. Victoria, British Columbia.
- Smorong, D.E., R.A. Lindskoog, and D.D. MacDonald. 2003. Development of a data archiving system for the Coppermine River Basin cumulative effects monitoring program: User's manual. Prepared for Indian and Northern Affairs Canada. Yellowknife, Northwest Territories.
- Smorong, D.E., C.L. Mackenzie, J.L. Crane, and D.D. MacDonald. 2003. GIS-based sediment quality database for the St. Louis River Area of Concern (AOC): Technical documentation. Environmental Outcomes Division. Minnesota Pollution Control Agency. St. Paul, Minnesota.
- MacDonald, D.D. and C.G. Ingersoll. 2002. Development and evaluation of sediment quality standards for the waters of the Colville Indian Reservation, including the Lake

Roosevelt and Okanogan River Basins. Prepared for the Confederated Tribes of the Colville Reservation. Nesplem, Washington. Under Contract to Environment International Ltd. Seattle, Washington.

MacDonald, D.D. and C.G. Ingersoll. 2002. A guidance manual to support the assessment of contaminated sediments in freshwater ecosystems. Volume I: An ecosystem-based framework for assessing and managing contaminated sediments. EPA-905-B02-001-A. Prepared for the Great Lakes National Program Office. United States Environmental Protection Agency. Chicago, Illinois. Under contract to Sustainable Fisheries Foundation. Snohomish, Washington.

MacDonald, D.D. and C.G. Ingersoll. 2002. A guidance manual to support the assessment of contaminated sediments in freshwater ecosystems. Volume II: Design and implementation of sediment quality investigations. EPA-905-B02-001-B. Prepared for the Great Lakes National Program Office. United States Environmental Protection Agency. Chicago, Illinois. Under contract to Sustainable Fisheries Foundation. Snohomish, Washington.

MacDonald, D.D., D.E. Smorong, D.A. Levy, L. Swain, P.Y. Caux, and J.B. Kemper. 2002. Guidance on the site-specific application of water quality guidelines in Canada: Procedures for deriving numerical water quality objectives. Prepared for Canadian Council of Ministers of the Environment, Winnipeg, Manitoba and Environment Canada, Ottawa, Canada.

MacDonald, D.D., C.G. Ingersoll, D.R.J. Moore, M. Bonnell, R.L. Breton, R.A. Lindskoog, D.B. MacDonald, Y.K. Muirhead, A.V. Pawlitz, D.E. Sims, D.E. Smorong, R.S. Teed, R.P. Thompson, and N. Wang. 2002. Calcasieu Estuary remedial investigation/feasibility study (RI/FS): Baseline ecological risk assessment (BERA). Technical report plus appendices. Contract No. 68-W5-0022. Prepared for CDM Federal Programs Corporation and United States Environmental Protection Agency. Dallas, Texas.

MESL (MacDonald Environmental Sciences Ltd.). 2002. Procedures for deriving site-specific water quality objectives for ammonia. Prepared for Water Quality Guidelines and Assessment Section. National Guidelines and Standards Office. Environmental Quality Branch. Environment Canada. Hull, Quebec. Prepared by MESL. Nanaimo, British Columbia.

Crane, J.L., D.E. Smorong, D.A. Pillard, and D.D. MacDonald. 2002. Sediment remediation scoping project in Minnesota Slip, Duluth Harbor. EPA-905-R-02-002. Submitted to Great Lakes National Program Office, G-17J. United States Environmental Protection Agency. Chicago, Illinois.

Ingersoll C.G. and D.D. MacDonald. 2002. A guidance manual to support the assessment of contaminated sediments in freshwater ecosystems. Volume III: Interpretation of the results of sediment quality investigations. EPA-905-B02-001-C. Prepared for the Great Lakes National Program Office. United States Environmental Protection Agency. Chicago, Illinois. Under contract to Sustainable Fisheries Foundation. Snohomish, Washington.

- MacDonald, D.D. and C.G. Ingersoll. 2001. A review of the toxic effects of sediment-associated polycyclic aromatic hydrocarbons (PAHs), with special reference to the 8335 Meadow Avenue site in Burnaby, British Columbia. Prepared for Legal Services Branch. B.C. Ministry of the Attorney General. Vancouver, British Columbia.
- MacDonald, D.D., D.E. Smorong, and R.A. Lindskoog. 2001. Development and evaluation of numerical sediment quality criteria for sediment contaminated sites in British Columbia: A retrospective. Prepared for B.C. Ministry of Environment, Lands, and Parks. Victoria, British Columbia.
- MacDonald, D.D., J.L. Crane, and D.E. Smorong. 2001. Development of a GIS-based sediment quality database for the St. Louis River area of concern: summary of the results of stakeholder meetings. Prepared for Minnesota Pollution Control Agency. St. Paul, Minnesota.
- MacDonald, D.D., D.R. Moore, A. Pawlisz, D.E. Smorong, R.L. Breton, D.B. MacDonald, R. Thompson, R.A. Lindskoog and M.A. Hanacek. 2001. Calcasieu estuary remedial investigation/feasibility study (RI/FS): Baseline ecological risk assessment (BERA). Volume I. Baseline problem formulation. Prepared for: CDM Federal Programs Corporation. Dallas, Texas.
- MacDonald, D.D., D.R. Moore, A. Pawlisz, D.E. Smorong, R.L. Breton, D.B. MacDonald, R. Thompson, R.A. Lindskoog and M.A. Hanacek. 2001. Calcasieu estuary remedial investigation/feasibility study (RI/FS): Baseline ecological risk assessment (BERA). Volume 2. Baseline problem formulation: Appendices. Prepared for: CDM Federal Programs Corporation. Dallas, Texas.
- MESL (MacDonald Environmental Sciences Ltd.). 2001. *Hyaella azteca* sediment toxicity tests, solid phase Microtox toxicity tests, metals analyses of whole sediments of the Calcasieu Estuary, Louisiana. Prepared for United States Environmental Protection Agency. Dallas Texas.
- Ingersoll, C.G. and D.D. MacDonald. 2001. Response to the Golder Associates (2001) and Patrick (2001) responses to the MacDonald and Ingersoll (1999) critical evaluation of Golder methods used for the aquatic risk assessment for the 8335 Meadow Avenue site, Burnaby, B.C. Prepared for Legal Services Branch. B.C. Ministry of the Attorney General. Vancouver, British Columbia.
- MacDonald, D.D. 2000. Interests and needs related to the development of freshwater sediment quality guidelines for the State of Florida: Workshop summary report. Prepared for Florida Department of Environmental Protection. Tallahassee, Florida.
- MacDonald, D.D. and C.G. Ingersoll. 2000. An assessment of sediment injury in the Grand Calumet River, Indiana Harbor Canal, Indiana Harbor, and the nearshore areas of Lake Michigan B Volume I. Report prepared for the U.S. Fish and Wildlife Service, Bloomington, Indiana.
- MacDonald, D.D. and C.G. Ingersoll. 2000. An assessment of sediment injury in the Grand Calumet River, Indiana Harbor Canal, Indiana Harbor, and the nearshore areas of Lake Michigan B Volume II: Tables. Report prepared for the U.S. Fish and Wildlife Service, Bloomington, Indiana.

- MacDonald, D.D. and C.G. Ingersoll. 2000. An assessment of sediment injury in the Grand Calumet River, Indiana Harbor Canal, Indiana Harbor, and the nearshore areas of Lake Michigan B Volume III: Figures. Report prepared for the U.S. Fish and Wildlife Service, Bloomington, Indiana.
- MacDonald, D.D. and C.G. Ingersoll. 2000. An assessment of sediment injury in the Grand Calumet River, Indiana Harbor Canal, Indiana Harbor, and the nearshore areas of Lake Michigan B Volume IV: Appendices. Report prepared for the U.S. Fish and Wildlife Service, Bloomington, Indiana.
- MacDonald, D.D., C.G. Ingersoll, D. Moore, and R.S. Carr. 2000. Calcasieu Estuary remedial investigation/feasibility study (RI/FS): Baseline Ecological Risk Assessment workshop. Workshop summary report. Report prepared for CDM Federal Programs Corporation. Dallas, Texas.
- Crane, J.L., D.D. MacDonald, C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, C.G. Severn, T.A. Berger, L.J. Field. 2000. Development of a framework for evaluating numerical sediment quality targets and sediment contamination in the St. Louis Area of Concern. EPA 905-R-00-008. Great Lakes National Program Office. Chicago, Illinois.
- Ingersoll C.G., D.D. MacDonald, N. Wang, J.L. Crane, L.J. Field, P.S. Haverland, N.E. Kemble, R.A. Lindskoog, C.G. Severn, D.E. Smorong. 2000. Prediction of sediment toxicity using consensus-based freshwater sediment quality guidelines. EPA 905/R-00/007. Chicago, Illinois.
- MacDonald, D.D. 1999. Tampa Bay Sediment Quality Workshop: Establishing impact levels and setting sediment quality targets - Workshop Summary Report. Prepared for the Tampa Bay National Estuary Program. St. Petersburg, Florida.
- MacDonald, D.D. 1999. Approaches to assessing cumulative environmental effects in Northern River ecosystems. Prepared for Aquatic Ecosystem Impacts Branch. National Water Research Institute. Saskatoon, Saskatchewan. 65 pp.
- MacDonald, D.D. and C.G. Ingersoll. 1999. A critical review of the aquatic risk assessment prepared by Golder Associates for the 8335 Meadow Avenue site in Burnaby, B.C. Prepared for the Ministry of Environment, Lands, and Parks. Victoria, British Columbia.
- MacDonald, D.D. and M. Macfarlane. 1999. Criteria for managing contaminated sediment in British Columbia. Prepared pursuant to Section 26(a) of the Waste Management Act. Prepared for Ministry of Environment, Lands, and Parks. Victoria, British Columbia.
- MacDonald, D.D., T. Berger, K. Wood, J. Brown, T. Johnsen, M.L. Haines, K. Brydges, M.J. MacDonald, S.L. Smith, and P. Shaw. 1999. A compendium of environmental quality benchmarks for priority substances in the Georgia Basin. Volume I. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Prepared for Environment Canada. North Vancouver, British Columbia.

- MacDonald, D.D., T. Berger, K. Wood, J. Brown, T. Johnsen, M.L. Haines, K. Brydges, M.J. MacDonald, S.L. Smith, and P. Shaw. 1999. A compendium of environmental quality benchmarks for priority substances in the Georgia Basin. Volume II - Water Quality Benchmarks. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Prepared for Environment Canada. North Vancouver, British Columbia.
- MacDonald, D.D., T. Berger, K. Wood, J. Brown, T. Johnsen, M.L. Haines, K. Brydges, M.J. MacDonald, S.L. Smith, and P. Shaw. 1999. A compendium of environmental quality benchmarks for priority substances in the Georgia Basin. Volume III - Sediment Quality Benchmarks. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Prepared for Environment Canada. North Vancouver, British Columbia.
- MacDonald, D.D., T. Berger, K. Wood, J. Brown, T. Johnsen, M.L. Haines, K. Brydges, M.J. MacDonald, S.L. Smith, and P. Shaw. 1999. A compendium of environmental quality benchmarks for priority substances in the Georgia Basin. Volume IV - Tissue Residue Benchmarks. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia. Prepared for Environment Canada. North Vancouver, British Columbia.
- MacDonald, D.D. R.A. Lindskoog, D.E. Smorong, and M.L. Haines. 1999. Development and evaluation of sediment quality values for the protection of marine ecosystems in Perth's Coastal Waters. Prepared for Western Australia Department of Environmental Protection. Perth, Western Australia
- MacDonald, D.D., K.E. Wood, T. Johnsen, J.L. Brown, and P.K. Gregory. 1999. An overview of ambient environmental conditions in the Coppermine River watershed: Preliminary draft. Prepared by MacDonald Environmental Sciences Ltd. Nanaimo, British Columbia Prepared for Indian and Northern Affairs Canada, Yellowknife, Western Arctic. In association with the Steering Committee on Cumulative Effects Assessment in the Coppermine River Basin.
- Brown, J., S. Mann, T.F. Johnsen, M.L. Haines, and D.D. MacDonald. 1999. An annotated bibliography on cumulative effects assessment in Northern River ecosystems. Prepared for Aquatic Ecosystem Impacts Branch. National Water Research Institute. Saskatoon, Saskatchewan. 71 pp.
- Ingersoll, C.G., and D.D. MacDonald. 1999. An assessment of sediment injury in the West Branch of the Grand Calumet River. Volume I. Prepared for Environmental Enforcement Section. Environment and Natural Resources Division. U.S. Department of Justice. Washington, District of Columbia. 161 pp.
- Ingersoll, C.G., and D.D. MacDonald. 1999. An assessment of sediment injury in the West Branch of the Grand Calumet River. Volume II - Appendices. Prepared for Environmental Enforcement Section. Environment and Natural Resources Division. U.S. Department of Justice. Washington, District of Columbia. 159 pp.
- Ingersoll, C.G. and D.D. MacDonald. 1999. United States v. Sanitary District of Hammond: Rebuttal of opinions provided in the reports prepared by Dr. J.E. Alleman and Dr. R.E. Roper. Report prepared for the Environmental Enforcement Section, Environment and Natural Resources Division. United States Department of Justice. Washington, District of Columbia.

Kemble, N.E., D.G. Hardesty, C.G. Ingersoll, B.T. Johnson, F.J. Dwyer, and D. MacDonald. 1999. Evaluation of the toxicity and bioaccumulation of contaminants in sediment samples from Waukegan Harbor, Illinois. Prepared for: Great Lakes National Program Office. United States Environmental Protection Agency. Chicago, Illinois. Prepared by: Biological Resource Division. United States Geological Survey. Columbia, Missouri.

Moore, D., S. Teed and D. MacDonald. 1999. Risk-based framework for Canada-wide standards. Proceedings of a Workshop in Calgary, Alberta; February 23-24, 1999. Prepared for Canadian Council of Ministers of the Environment. Winnipeg, Manitoba.

United States Environmental Protection Agency. 1999. Evaluation of the toxicity and bioaccumulation of contaminants in sediment samples from Waukegan Harbor, Illinois. EPA 905/R-99/009. Chicago, Illinois.

MacDonald, D.D. 1998. Criteria for managing contaminated sediment in British Columbia. Prepared pursuant to Section 26(1) of the Waste Management Act. Prepared for Ministry of Environment, Lands and Parks. Victoria, British Columbia.

MacDonald, D.D. 1998. Applications of sediment quality guidelines in the remediation of sediment contaminated sites in British Columbia. Prepared for Ministry of Environment, Lands and Parks. Victoria, British Columbia.

MacDonald, D.D. and Industrial Economics Inc. 1998. Development and evaluation of consensus-based sediment effect concentrations for PCBs in the Lower Hudson River and Estuary. Prepared for National Oceanic and Atmospheric Administration. Silver Spring, Maryland.

MacDonald, D.D., D.Q. Tao, and T. Berger. 1998. Water quality assessment and recommended objectives for the Salmon River. Summary Report. Prepared for Environment Canada's Fraser River Action Plan. Vancouver, British Columbia. DOE-FRAP 97-43

Gwanikar, S., S. Cross, D. MacDonald, D.Q. Tao, and T. Berger. 1998. Water quality assessment and recommended objectives for the Salmon River: Technical Appendix. (Volume I) Prepared for Environment Canada's Fraser River Action Plan. DOE-FRAP 97-42.

Gwanikar, S., S. Cross, D. MacDonald, D.Q. Tao, and T. Berger. 1998. Water quality assessment and recommended objectives for the Salmon River: Technical Appendix. (Volume II) Prepared for Environment Canada's Fraser River Action Plan. DOE-FRAP 97-42.

Mann, S., M.L. Haines, T.F. Johnsen, and D.D. MacDonald. 1998. An annotated bibliography on cumulative effects assessment and monitoring for the Coppermine River Basin project. Prepared for Water Resources Division. Indian and Northern Affairs Canada. Yellowknife, Northwest Territories. 212 pp.

Sustainable Fisheries Foundation. 1998. Toward ecosystem-based management in the Upper Columbia River Basin: Workshop summary report. Toward ecosystem-based

management in the Upper Columbia River Basin: An International Conference and Workshop. Castlegar, British Columbia. April 27-30, 1998.

MacDonald, D.D. 1997. Water quality assessment and objectives: Methods for deriving site-specific water quality objectives in British Columbia and Yukon. Prepared for B.C. Ministry of Environment, Lands and Parks. Victoria, British Columbia.

MacDonald, D.D. 1997. Sediment injury in the Southern California Bight: Review of the toxic effects of DDTs and PCBs in sediments. Prepared for National Oceanic and Atmospheric Administration. United States Department of Commerce. Long Beach, California.

MacDonald, D.D. 1997. Sediment injury in the Southern California Bight: Review of the toxic effects of DDTs and PCBs in sediments. Volume II: Appendix 4, 5, and 6. Prepared for National Oceanic and Atmospheric Administration. United States Department of Commerce. Long Beach, California.

MacDonald, D.D. 1997. Tampa Bay sediment quality workshop: Setting targets and defining management strategies - Final Summary Report. Prepared for the Tampa Bay National Estuary Program. St. Petersburg, Florida.

MacDonald, D.D. 1997. Controlling arsenic releases to the environment in the Northwest Territories: Executive Summary. Prepared for Environment Canada, Yellowknife, Northwest Territories.

MacDonald, D.D. 1997. A review and critical evaluation of the applicability of existing sediment effect concentrations of PCBs to the Lower Hudson River and Estuary. Submitted to Industrial Economics Inc. Cambridge, Massachusetts.

MacDonald, D.D., J. Stavinga, and L. Hunter. 1997. Workshop on controlling arsenic releases into the environment in the Northwest Territories: Workshop report. Prepared for Environment Canada. Yellowknife, Northwest Territories.

MacDonald Environmental Sciences Ltd. 1997. Lower Columbia River from Birchbank to the International Boundary: Water Quality and Quantity Assessment and Objectives Technical Report. Prepared for Environment Canada, Vancouver, British Columbia and the British Columbia Ministry of Environment, Lands and Parks, Victoria, British Columbia.

Caux, P.-Y., D. MacDonald, D.R. Moore, and H.J. Singleton. 1997. Ambient water quality criteria for turbidity, suspended and benthic sediments in British Columbia. Technical Appendix. Prepared for Ministry of Environment Lands and Parks. Prepared by Cadmus Group. Ottawa, Ontario.

Gwanikar, S., S. Cross, D. MacDonald, and J.R. Brown. 1997. Salmon River Watershed: Water quality assessment and objectives. Technical Report. Prepared for Environment Canada. Prepared by Aquametrix Research Ltd. Sydney, British Columbia. 78 pp.

Milburn, D., D.D. MacDonald, T.D. Prowse, and J.M. Culp. 1997. Ecosystem maintenance indicators for the Slave River delta, Northwest Territories, Canada. Presented at

INDEX-97. An International Conference on Environmental Indices Systems Analysis Approach. St. Petersburg, Russia. July 7-11, 1997.

Stavinga, J.M. and MacDonald Environmental Sciences Ltd. 1997. Creating and celebrating our watershed's future. Selecting indicators for a sustainable watershed future. Workshop summary report. 1997. Prepared for Environment Canada, Vancouver, British Columbia and the Salmon River Watershed Roundtable, Salmon Arm, British Columbia.

MacDonald, D.D. 1996. Workshop on small diameter core diamond drilling from ice. Summary Report. Prepared for NWT Chamber of Mines, Fisheries and Oceans Canada, and Environment Canada. Yellowknife, Northwest Territories.

MacDonald, D.D. 1996. Peel River Watershed Advisory Committee workshop on land and water management. Workshop Summary Report. Prepared for Peel River Watershed Advisory Committee c/o First Nation of Na-cho Nyak Dun. Mayo, Yukon.

MacDonald, D.D. 1996. A discussion paper on the management of renewable resources by Indigenous peoples of British Columbia. Prepared for E.V. Christensen Consulting Ltd. Prepared by MacDonald Environmental Sciences Ltd. Ladysmith, British Columbia. 23 pp. + apps.

MacDonald, D.D. and C.R. Steward (Eds). 1996. Towards Sustainable Fisheries: Building a Cooperative Strategy for Balancing the Conservation and Use of Westcoast Salmon and Steelhead Populations. Sustainable Fisheries Foundation. Ladysmith, British Columbia.

MacDonald, D.D., N. Barnett, and J.R. Brown. 1996. Water quality assessment and objectives for the lower Columbia River: Birchbank to the international boundary. Prepared for Environment Canada and B.C. Ministry of Environment, Lands, and Parks. Vancouver, British Columbia.

MacDonald, D.D., J. Brodie, and L.M. Broughton. 1996. Review and evaluation of the draft water licence for the BHP Diamond Mine. Submitted to North West Territories Water Board. Prepared by MacDonald Environmental Sciences Ltd. Ladysmith, British Columbia.

MacDonald, D.D., J.R. Brown, N. Barnett, and M.L. Haines. 1996. Canadian sediment quality guidelines for toxaphene. Prepared for Guidelines Division. Environment Canada. Ottawa, Canada.

MacDonald, D.D., L. Poulak, P. Tan, and M.L. Haines. 1996. Canadian tissue residue guidelines for DDTs. Prepared for Guidelines Division. Environment Canada. Ottawa, Canada.

MacDonald, D. P. Tan, N. Barnett, L. Poulak, and M.L. Haines 1996. Canadian tissue residue guidelines for toxaphene. Prepared for Guidelines Division. Environment Canada. Ottawa, Canada.

MacDonald Environmental Sciences Ltd. 1996. Canadian sediment quality guidelines for DDTs. Prepared for Guidelines Division. Environment Canada. Ottawa, Canada.

- MacDonald Environmental Sciences Ltd. 1996. Canadian tissue residue guidelines for polychlorinated biphenyls. Prepared for Guidelines Division. Environment Canada. Ottawa, Canada.
- MacDonald Environmental Sciences Ltd. 1996. Guidelines for small core diameter drilling from ice in the Northwest Territories. Prepared for Environmental Protection. Environment Canada. Yellowknife, Northwest Territories.
- MacDonald, D.D. 1995. Science advisory group on sediment assessment in Tampa Bay: Summary report. Technical Publication #06-95. Tampa Bay National Estuary Program. St. Petersburg, Florida.
- MacDonald, D.D. 1995. Contaminated Sites Soil Task Group Workshop on the development and implementation of soil quality standards for contaminated sites: Summary Report. Prepared for the B.C. Ministry of Environment, Lands, and Parks. Victoria, British Columbia.
- MacDonald, D.D. 1995. Canadian sediment quality guidelines for polychlorinated biphenyls: Draft. Prepared for the Guidelines Division. Environment Canada. Ottawa, Canada.
- MacDonald, D.D. and C.R. Steward. 1995. Development of a sustainable fisheries strategy for west coast salmon and steelhead populations. *Native Issues Monthly* III(7):23-25.
- Field, L.J., D.D. MacDonald, and C.G. Severn. 1996. Use of a sediment toxicity database for evaluating matching sediment chemistry and toxicity data. HAZMAT Report 97-1. Seattle: Hazardous Materials Response and Assessment Division. National Oceanic and Atmospheric Administration. 28 pp.
- Louie, W.H., E. Hardisty, and D.D. MacDonald. 1995. Acquisition of traditional environmental knowledge in the Lower Liard River Basin. Prepared for Water Resources Division. Indian and Northern Affairs. Ottawa, Canada.
- Oliver, G.G. and D.D. MacDonald. 1995. Technical review of the Columbia Power Corporation's application for an Energy Project Certificate for the Keenleyside Powerplant Project. Submitted to Fisheries and Oceans Canada. Vancouver, British Columbia. Submitted by Interior Reforestation Co. Ltd. Cranbrook, British Columbia and MacDonald Environmental Sciences Ltd. Ladysmith, British Columbia. 57 pp. + apps.
- Sobolewski, A., D.D. MacDonald, and W.H. Louie. 1995. A review of the environmental effects of diamond mining. Prepared for the Assessment and Monitoring Division. Environment Canada. Yellowknife, Northwest Territories.
- MacDonald Environmental Sciences Ltd. 1995. Development of ecosystem maintenance indicators for the Slave, Liard, and Peel Rivers. Supporting Documentation for Experts Workshop. Prepared for Water Resources Division. Indian and Northern Affairs. Ottawa, Canada.

- MacDonald Environmental Sciences Ltd. 1995. Expert's workshop on the development of ecosystem maintenance indicators for the Transboundary river systems with the Mackenzie River basin. Workshop summary report. Prepared for Water Resources Division. Indian and Northern Affairs. Ottawa, Canada.
- MacDonald, D.D. 1994. A review of environmental quality criteria and guidelines for priority substances in the Fraser River. Prepared for Environment Canada. Pacific and Yukon Region. West Vancouver, British Columbia. 55 pp.
- MacDonald, D.D. 1994. A discussion paper on the development of ecosystem maintenance indicators for the transboundary river systems within the Mackenzie River Basin: Slave, Liard, and Peel rivers. Report prepared for Water Resources Division. Indian and Northern Affairs Canada. Ottawa, Canada. 84 pp.
- MacDonald, D.D. 1994. Approach to the assessment of sediment quality in Florida coastal waters. Volume 1: Development and evaluation of sediment quality assessment guidelines. Report prepared for Florida Department of Environmental Protection. Tallahassee, Florida.
- MacDonald, D.D. 1994. Approach to the assessment of sediment quality in Florida coastal waters. Volume 2: Applications of the sediment quality assessment guidelines. Report prepared for Florida Department of Environmental Protection. Tallahassee, Florida.
- MacDonald, D.D. 1994. Canadian sediment quality guidelines for polycyclic aromatic hydrocarbons. Prepared for Evaluation and Interpretation Branch. Environment Canada. Ottawa, Canada. 195 pp.
- MacDonald, D.D. and D. Sutherland. 1994. Contaminants in white sturgeon in the Upper Fraser River, British Columbia. A preliminary evaluation of the potential for adverse effects on human health. Prepared for Fisheries and Oceans Canada. Prince George, British Columbia.
- MacDonald, D.D., B.L. Charlish, M.L. Haines, and K. Brydges. 1994. Approach to the assessment of sediment quality in Florida coastal waters. Volume 3: Supporting documentation - Biological effects database for sediments. Report prepared for Florida Department of Environmental Protection. Tallahassee, Florida.
- MacDonald, D.D., B.L. Charlish, M.L. Haines, and K. Brydges. 1994. Approach to the assessment of sediment quality in Florida coastal waters. Volume 4: Supporting documentation - Regional biological effects database for sediments. Report prepared for Florida Department of Environmental Protection. Tallahassee, Florida.
- Zeeman, A.J. and D.D. MacDonald. 1994. An evaluation of the relationship between lowest observed effect levels and no observed levels in aquatic toxicity tests. Prepared for Environment Canada. Hull, Quebec. 40 pp.
- Christensen, E.V., D.D. MacDonald, and P. Quaw. 1994. A discussion paper on First Nations environmental assessment. Prepared for Dene Nation. Yellowknife, Northwest Territories. 43 pp.

- Haines, M.L., K. Brydges, M.J. MacDonald, S.L. Smith, D.D. MacDonald. 1994. A review of environmental quality criteria and guidelines for priority substances in the Fraser River. Supporting Documentation. Prepared for Environment Canada. Pacific and Yukon Region. West Vancouver, British Columbia. 222 pp.
- MacDonald, D.D. 1993. Canadian environmental quality guidelines for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo furans. Report prepared for EcoHealth Branch, Environment Canada. Ottawa Canada. 212 pp.
- MacDonald, D.D. 1993. A discussion paper on the development and use of safety, application, and uncertainty factors in the derivation of water quality guidelines for aquatic life. Technical Report. Report prepared for EcoHealth Branch, Environment Canada. Ottawa Canada. 18 pp.
- MacDonald, D.D. and M.L. Haines. 1993. A discussion paper on the development and use of safety, application, and uncertainty factors in the derivation of water quality guidelines for aquatic life. Supporting Documentation. Report prepared for EcoHealth Branch, Environment Canada. Ottawa Canada. 244 pp.
- MacDonald, D.D. and A. Sobolewski. 1993. Recommended procedures for developing site-specific environmental quality remediation objectives for contaminated sites. Report prepared for EcoHealth Branch, Environment Canada. Ottawa Canada. 85 pp.
- MacDonald, D.D., A. White, B. Charlish, M.L. Haines, and T. Wong. 1993. Compilation of toxicological information on sediment-associated contaminants and the development of freshwater sediment quality guidelines. Report prepared for EcoHealth Branch, Environment Canada. Ottawa Canada. 24 pp + Supporting Documentation.
- Smith, S.L. and D.D. MacDonald. 1993. A protocol for the derivation of sediment quality guidelines for the protection of aquatic life. *In*: Canadian Sediment Quality Guidelines. Report prepared for the Task Group on Water Quality Guidelines. Canadian Council of Ministers of the Environment. Ottawa, Canada.
- Smith, S.L. and D.D. MacDonald. 1993. Framework for the Implementation of sediment quality guidelines. *In*: Canadian Sediment Quality Guidelines. Report prepared for the Task Group on Water Quality Guidelines. Canadian Council of Ministers of the Environment. Ottawa, Canada.
- MacDonald Environmental Sciences Ltd. 1993. Development of a First Nations fisheries management model - Phase II: Strategic planning in stock assessment and stewardship. Report prepared for Coast Salish Fisheries Working Group. Vancouver, British Columbia. 132 pp.
- MacDonald Environmental Sciences Ltd. 1993. Development of a First Nations fisheries management model - Phase III: Formulation and implementation of a joint fisheries management strategy. Report prepared for Coast Salish Fisheries Working Group. Vancouver, British Columbia.
- MacDonald Environmental Sciences Ltd. 1993. Proceedings of the Coast Salish Fisheries Working Group Harvest Monitoring Workshop. Report prepared for Coast Salish Fisheries Working Group. Vancouver, British Columbia. 69 pp.

- MacDonald, D.D. 1992. Development of an approach to the assessment of sediment quality in Florida coastal waters. Report prepared for the Florida Department of Environmental Regulation. Tallahassee, Florida.
- MacDonald, D.D. 1992. Canadian interim sediment quality guidelines for arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc. Report prepared for EcoHealth Branch. Environment Canada. Hull, Quebec. 81 pp.
- MacDonald, D.D. and S.L. Walker. 1992. A discussion paper on the derivation and use of Canadian tissue residue guidelines for the protection of aquatic life and wildlife. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada.
- MacDonald, D.D., K. Brydges, and M.L. Haines. 1992. Development of an approach to the assessment of sediment quality in Florida coastal waters: Supporting documentation. Report prepared for the Florida Department of Environmental Regulation. Tallahassee, Florida.
- MacDonald, D.D., P.M. Outridge, and I.D. Cuthbert. 1992. Canadian soil quality criteria for contaminated sites: Cadmium. Report prepared for the CCME Subcommittee on Environmental Quality Criteria for Contaminated Sites. 76 pp.
- MacDonald, D.D., I.D. Cuthbert, and P.M. Outridge. 1992. Sampling and analytical methods for monitoring and assessing the impacts of glycols in the Canadian environment. Report prepared for Environment Canada and Transport Canada. Ottawa, Canada. 27 pp.
- MacDonald, D.D., I.D. Cuthbert, and P.M. Outridge. 1992. Canadian environmental quality guidelines for three glycols used in aircraft de-icing/anti-icing fluids. Report prepared for Environment Canada and Transport Canada. Ottawa, Canada. 140 pp.
- MacDonald, D.D., S.L. Smith, M.P. Wong, and P. Mudroch. 1992. The development of Canadian marine environmental quality guidelines. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada.
- MacDonald, D.D., I.D. Cuthbert, P.M. Outridge, and R.T. Ruthman. 1992. Canadian water quality guidelines for the protection of aquatic life for ethylene glycol, diethylene glycol, and propylene glycol. Report prepared for Environment Canada and Transport Canada. Ottawa, Canada. 70 pp.
- Haines, M.L. and D.D. MacDonald. 1992. A guide to conducting on-line literature searches in support of CEPA-PSL assessments and Canadian EQGs development: Experience with two organic chemicals: DCM and TCE. Environment Canada. Ottawa, Ontario. 8 pp.
- Isaac, T.D. and D.D. MacDonald. 1992. Willow River adult chinook salmon enumeration/carcass recovery program: 1992. Report prepared by Lheit-Lit'en Nation. Prince George, British Columbia.

- Long, E.R. and D.D. MacDonald. 1992. National Status and Trends Program approach. *In: Sediment Classification Methods Compendium*. Sediment Oversight Technical Committee. United States Environmental Protection Agency. Washington, District of Columbia.
- Outridge, P.O., D.D. MacDonald, and I.D. Cuthbert. 1992. Background supporting document for cadmium. Canadian Environmental Protection Act. Priority Substances List. Report prepared for EcoHealth Branch, Environment Canada. Ottawa, Canada. 202 pp.
- MacDonald Environmental Sciences Ltd. 1992. Development of a First Nations fisheries management model - Phase I: Derivation of a generic model. Report prepared for Coast Salish Fisheries Working Group. Vancouver, British Columbia. 80 pp.
- MacDonald Environmental Sciences Ltd. 1992. An assessment of ambient environmental conditions in the Liard River Basin, Northwest Territories. Report prepared for Water Resources Division. Indian and Northern Affairs Canada. Yellowknife, Northwest Territories. 89 pp.
- MacDonald, D.D. 1991. Canadian water quality guidelines for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo furans. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada.
- MacDonald, D.D. 1991. Canadian water quality guidelines for dimethoate. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 66 pp.
- MacDonald, D.D. 1991. Canadian water quality guidelines for aldicarb. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 68 pp.
- 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.
- MacDonald, D.D. and S.L. Smith. 1990. An approach to monitoring ambient environmental quality in the Slave River basin, Northwest Territories: Toward a consensus. Report prepared for Indian and Northern Affairs Canada. Yellowknife, NWT. 64 pp.
- 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.
- Fidler, L.E., B.J. Moore, and D.D. MacDonald. 1990. A review of the status of prophylaxis, pretreatment, and therapy of intoxications due to botulinal neurotoxins, staphylococcal enterotoxins and ricin in humans. Report prepared for National Defence Canada. Ralston, Alberta. 92 pp.
- Fidler, L.E., B.J. Moore, and D.D. MacDonald. 1990. A survey of research groups in Canada and the United States capable of conducting research on botulinal neurotoxins, staphylococcal enterotoxins and ricin in humans. Report prepared for National Defence Canada. Ralston, Alberta. 34 pp + appendices.
- Roch, M., D.D. MacDonald, C. Hilliar and W.E. McLean. 1990. Copper toxicity bioassays conducted at the Puntledge River salmon hatchery to assess the effects of acid mine drainage from Mt. Washington. Report prepared for the Steelhead Society. Campbell River, British Columbia.
- 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.

- Sigma Engineering Limited. 1990. Columbia River integrated environmental sampling program. Report prepared for BC Ministry of Environment, Cominco Metals, Celgar Pulp, and BC Power and Hydro Authority. Vancouver, British Columbia. 47 pp + appendices.
- 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.
- MacDonald, D.D. 1989. Canadian water quality guidelines for dinoseb. Report prepared for the Canadian Council of Resource and Environment Ministers. Ottawa, Canada. 74 pp.
- 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. Rodriguez, 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.
- MacDonald, D.D., L.E. Fidler and D. Valiela. 1987. Site-specific water quality criteria for fish and aquatic life in the Canadian portion of the Flathead River basin: Nitrate, nitrite and ammonia. Water Quality Branch, Environment Canada, Vancouver, B.C. 119 + appendices.
- Kistriz, 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.

- MacKinlay, D.D., D.D. MacDonald, M.K. Johnson and R.F. Fielden. 1987. Culture of chinook salmon (*Oncorhynchus tshawytscha*) in iron-rich groundwater: Stuart pilot hatchery experiences. Canadian Manuscript Report of Fisheries and Aquatic Sciences 1944. 45 pp.
- 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.
- 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.

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

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.