Canada Alberta



Northern River Basins Study





















NORTHERN RIVER BASINS STUDY PROJECT REPORT NO. 148 **TECHNICAL REPORTS OF THE NORTHERN RIVER BASINS STUDY** BY SUBJECT AND GEOGRAPHICAL **AREA STUDIED**













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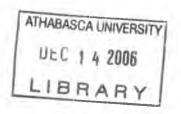
Prepared for the Northern River Basins Study Synthesis and Modelling Component

by

Mark S. J. Ouellett Environment Canada

NORTHERN RIVER BASINS STUDY PROJECT REPORT NO. 148 TECHNICAL REPORTS OF THE NORTHERN RIVER BASINS STUDY BY SUBJECT AND GEOGRAPHICAL AREA STUDIED

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- 4. Peace River Watershed (B.C. and Alta.) -- Environmental aspects.
- 5. Slave River Watershed (Alta. and N.W.T.) -- Environmental aspects.
- I. Northern River Basins Study (Canada)
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PREFACE:

The Northern River Basins Study was initiated through the "Canada-Alberta-Northwest Territories Agreement Respecting the Peace-Athabasca-Slave River Basin Study, Phase II - Technical Studies" which was signed September 27, 1991. The purpose of the Study is to understand and characterize the cumulative effects of development on the water and aquatic environment of the Study Area by coordinating with existing programs and undertaking appropriate new technical studies.

This publication reports the method and findings of particular work conducted as part of the Northern River Basins Study. As such, the work was governed by a specific terms of reference and is expected to contribute information about the Study Area within the context of the overall study as described by the Study Final Report. This report has been reviewed by the Study Science Advisory Committee in regards to scientific content and has been approved by the Study Board of Directors for public release.

It is explicit in the objectives of the Study to report the results of technical work regularly to the public. This objective is served by distributing project reports to an extensive network of libraries, agencies, organizations and interested individuals and by granting universal permission to reproduce the material.

Summary

This report lists the NRBS Technical Reports by issue and geographic area studied. It is intended as a starting point to identify technical reports addressing specific interests.

Acknowledgments

The author thanks Mr. Richard Chabaylo, Mr. Ken Crutchfield, Ms Judy Tilley and Ms Deborah Kennedy of the NRBS Study Office for providing the lists of technical reports. Financial support was provided by Dr. F.J. Wrona of the National Hydrology Research Institute (NHRI) and Mr. Wm.D. Gummer of Environment Canada (Regina). Support and guidance was provided by Dr. Kevin Cash of NHRI.

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18:	Effects of Human Activity in the Northern River Basins Based on Traditional Knowledge	
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	NRBS Research on the Middle Peace River	
	NRBS Research on the Lower Peace River	
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1.0 Introduction

The Northern River Basins Study (NRBS) was established to examine how development affects the Peace, Athabasca and Slave river basins (NRBS 1995). The NRBS commissioned technical studies in eight broad research areas (components): hydrology/hydraulics; nutrients/dissolved oxygen; contaminants; food chain; drinking water; other uses; traditional knowledge; and, synthesis and modelling. Within each component, several subject areas were addressed. It is the intent of this document to provide the user with lists of the technical reports addressing each subject. For more general overviews, see the synthesis report for the appropriate component.

2.0 Subject Areas

The subjects identified are those of the author, and not formally recommended by NRBS. All information is current as of February 19, 1997. At that time, some reports were still in the draft stage; consequently, titles and listed authors may change in the final reports. However, subject and the NRBS Technical Report number will not change, and can be used to identify documents. These lists are not meant to be all inclusive. There may be reports accepted for publication by NRBS after February 19, 1997 which are not included.

Publication years for NRBS Technical Reports.

1993	Reports 1 though 26
1994	Reports 27 through 43
1995	Reports 44 though 69
1996	Reports 70 through 135
1997	Reports 136 through 148
	ntended as guidelines and may not be all publication year of a given report

2.1 Hydrology/Hydraulics

- Flow Models (Table 1).
- Effects of Flow Regulation (Table 2).
- Transport of Contaminants in the Water Column and Sediment (Table 3).

2.2 Nutrients/Dissolved Oxygen

- Nutrient and Dissolved Oxygen Models (Table 4).
- Effects of Dissolved Oxygen Levels (Table 5).
- Sources of Nutrients (Table 6).
- Distribution of Nutrients (Table 7).
- Effects of Nutrient Enrichment (Table 8).

2.3 Contaminants

- Sources of Contaminants (Table 9).
- Distribution of Contaminants (Table 10).
- Effects of Contaminants (Table 11).

2.4 Food Chain

- Fish Habitat (Table 12).
- Effects on Fish Physiology (Table 13).
- Food Web (Table 14).

2.5 Drinking Water

- Sources of Drinking Water (Table 15).
- Quality of Drinking Water (Table 16).

2.6 Other Uses

Quality and/or Quantity of Water for Non-Consumptive Human Use (Table 17).

2.7 Traditional Knowledge

• Effects of Human Activity (Table 18).

2.8 Synthesis and Modelling

- Environmental Effects of Human Activity (Table 19).
- Modelling (Table 20).

3.0 Geographic Areas

The study area is divided into ten areas for the purpose of this report (Figure 1).

- Upper Athabasca Headwaters to Whitecourt (Table 21).
- Middle Athabasca Whitecourt to Fort McMurray (Table 22).
- Lower Athabasca Fort McMurray to mouth (Table 23).
- Upper Peace Alberta border to confluence of Smoky River (Table 24).
- Middle Peace Smoky River confluence to Vermilion Chutes (Table 25).
- Lower Peace Vermilion Chutes to mouth (Table 26).
- Wapiti/Smoky rivers (Table 27).
- Peace-Athabasca Delta (Table 28).
- Lake Athabasca (Table 29).
- Rivière des Rochers and Slave River (Table 30).

Reports dealing with the whole NRBS study area (i.e. Peace, Athabasca and Slaver river basins and Lake Athabasca) are listed in Table 31.

Table 1: Hydrology Flow Models for the Northern River Basins.

#	Title	Author
7	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part I: Time of Travel	G. Van Der Vinne and D. Andres.
14	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part II: Mixing Characteristics	G. Van Der Vinne
36	Winter Under-ice Tracer Dye Studies, Travel Time and Mixing Characteristics Peace River, Shaftesbury Ferry to Notikewin River, February and March 1993.	
43	Hydraulic Modelling of the Peace-Athabasca Delta Under Modified and Natural Flow Conditions.	B. Aitken and R. Sapach.
51	Size Distribution and Transport of Suspended Particles, Athabasca River for February and September 1993.	B.G. Krishnappen, R. Stephens, J.A. Kraft and B.H. Moore.
76	A Hydraulic Flood Routing Model of the Peace River, Hudson Hope to Peace Point.	F.E. Hicks, N. Yasmin and X. Chen.
77	Hydraulic Flood Routing Model of the Peace and Slave Rivers, Hudson Hope to Peace Point.	F.E. Hicks and K. McKay
85	Critical Shear Stresses for Erosion and Deposition of Fine Suspended Sediment from the Athabasca River.	B.G. Krishnappen and R. Stephens.

Table 2: Effects of Flow Regulation on the Peace and Slave rivers and the Peace-Athabasca Delta.

D CITAL.		
#	Title	Author
43	Hydraulic Modelling of the Peace-Athabasca Delta Under Modified and Natural Flow Conditions.	B. Aitken and R. Sapach.
74	Assessment of Impacts on the Slave River Delta of Peace River Impoundment at Hudson Hope.	M.C. English, B. Hill and P.W. Wolfe.
76	A Hydraulic Flood Routing Model of the Peace River, Hudson Hope to Peace Point.	F.E. Hicks, N. Yasmin and X. Chen.
77	Hydraulic Flood Routing Model of the Peace and Slave Rivers, Hudson Hope to Peace Point.	F.E. Hicks and K. McKay.
85	Critical Shear Stresses for Erosion and Deposition of Fine Suspended Sediment from the Athabasca River.	B.G. Krishnappen and R. Stephens.
102	Changes in Morphology and Riparian Vegetation Along the Peace River Following Regulation, 1968-1993.	M. Church et al.
103	Hydrometeorlogical Conditions Controlling Ice-Jam Floods, Peace River near the Peace-Athabasca Delta.	T.D. Prowse, M. Conly and V. Lalonde.
122	The Effects of Flow Regulation on Freeze-Up Regime - Peace River, Taylor to Slave River.	D.D. Andres.
146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.

Table 3: Transport of Contaminants in the Water Column and in Sediment in the Northern River Basins.

#	Title	Author
7	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part I: Time of Travel	G. Van der Vinne and D. Andres.
14	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part II: Mixing Characteristics	G. Van der Vinne.
36	Winter Under-ice Tracer Dye Studies, Travel Time and Mixing Characteristics Peace River, Shaftesbury Ferry to Notikewin River, February and March 1993.	
51	Size Distribution and Transport of Suspended Particles, Athabasca River for February and September 1993.	B.G. Krishnappen, R. Stephens, J.A. Kraft and B.H. Moore.
122	The Effects of Flow Regulation on Freeze-Up Regime - Peace River, Taylor to Slave River.	D.D. Andres.

Table 4: Nutrient and Dissolved Oxygen Models in the Northern River Basins.

#	Title	Author
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
25	An Evaluation of Dissolved Oxygen Modelling of the Athabasca River and the Wapiti-Smoky River System.	G. Macdonald and A. Radermacher.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
46	Growth Rate and Biomass Responses of Periphytic Algae to Nutrient Enrichment of Stable and Unstable Substrates, Athabasca River.	C.J.Perrin, P.A. Chambers and M.L. Bothwell.
95	Assessment and Validation of Modelling Under-Ice Dissolved Oxygen Using DOSTOC, Athabasca River, 1988 to 1994.	P.A. Chambers, A. Pietroniro, G.J. Scrimgeour and M. Ferguson.

Table 5: Effects of Dissolved Oxygen Levels on Aquatic Biota in the Northern River Basins.

#	Title	Author
94	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.
98	Effects on Mayfly of Dissolved Oxygen Level Combined with Bleached Kraft Mill Effluents and Municipal Sewage Assessments Using Artificial Streams.	R.B. Lowell and J.M. Culp.

Table 6: Sources of Aquatic Nutrients in the Northern River Basins.

#	Title	Author
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
49	Identification of Spatial and Temporal Patterns in Nutrient Limitation, Athabasca River, October to December, 1993.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp and C.L. Podemski.
92	Impacts of Contaminants and Nutrients in Bleached Kraft Mill Effluent on Benthic Insect and Periphyton Communities: Assessments Using Artificial Streams, Athabasca River, 1993 and 1994.	J.M. Culp and C.L. Podemski.
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
98	Combined Effects of Dissolved Oxygen Level and Bleached Kraft Mill Effluent and Municipal Sewage on a Mayfly, (Baetis tricaudata): Assessments Using Artificial Streams.	R.B. Lowell and J.M. Culp.
110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.

Table 7: Distribution of Aquatic Nutrients in the Northern River Basins.

	able 7. Distribution of Aquatic Puttients in the Portineth Never Dasins.				
#	Title	Author			
5	Aquatic Macroinvertebrate Identifications, Upper Athabasca River, Spring, 1992.	R.L. & L. Environmental Services.			
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.			
27	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	Sentar Consultants Ltd.			
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.			
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.			
49	Identification of Spatial and Temporal Patterns in Nutrient Limitation, Athabasca River, October to December, 1993.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp and C.L. Podemski.			
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette			
94	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.			
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.			
110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.			

Table 8: Effects of Aquatic Nutrient Enrichment in the Northern River Basins.

Table	8: Effects of Aquatic Nutrient Enrichment in the Northern	
#	Title	Author
5	Aquatic Macroinvertebrate Identifications, Upper Athabasca River, Spring, 1992.	R.L. & L. Environmental Services.
19	Aquatic Macroinvertebrate Identifications on Ekman Dredge Samples, Upper Athabasca River, April and May, 1992.	M. Dunnigan.
38	Aquatic Macroinvertebrate Identifications on Under-ice Samples, Athabasca River, February and March, 1993.	R.D. Saunders and E. Dratnal.
46	Growth Rate and Biomass Responses of Periphytic Algae to Nutrient Enrichment of Stable and Unstable Substrates, Athabasca River.	C.J.Perrin, P.A. Chambers and M.L. Bothwell.
49	Identification of Spatial and Temporal Patterns in Nutrient Limitation, Athabasca River, October to December, 1993.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp and C.L. Podemski.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
67	Growth Rate and Biomass Responses of Periphytic Algae to Phosphorous Enrichment in Experimental Flumes, Athabasca River, April and May, 1994.	A.R. Dale and P.A. Chambers.
68	Growth Rate and Biomass Responses of Periphytic Algae to Phosphorous Enrichment in Experimental Flumes, Athabasca River, Seasonal Variation, 1993 and 1994.	A.R. Dale and P.A. Chambers.
92	Impacts of Contaminants and Nutrients in Bleached Kraft Mill Effluent on Benthic Insect and Periphyton Communities: Assessments Using Artificial Streams, Athabasca River, 1993 and 1994.	J.M. Culp and C.L. Podemski.
94	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
98	Combined Effects of Dissolved Oxygen Level and Bleached Kraft Mill Effluent and Municipal Sewage on a Mayfly, (Baetis tricaudata): Assessments Using Artificial Streams.	R.B. Lowell and J.M. Culp.
128	Design and Application of a Transportable Experimental Stream System for Assessing Effluent Impacts on Riverine Biota.	J.M. Culp, C.L. Podemski and C. Casey.

Table 9: Sources of Aquatic Contaminants in the Northern River Basins.

#	Title	Author
15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
26	Radionuclide Levels in Fish from Lake Athabasca, February 1993.	G. Smithson.
44	Contaminants in Environmental Samples: PCDDs and PCDFs Downstream of Bleached Kraft Mills, Peace and Athabasca rivers, 1992.	G.M. Pastershank and D.C.G. Muir.
64	Environmental Contaminants in Muskrats and Canvasbacks, Peace-Athabasca Delta, 1992.	M. Wayland.
83	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca River, August and September, 1994.	J.L. Parrott, P. Hodson, D.E. Tillitt, D.T. Bennie and M.E. Comba.
104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
112	Contaminant Fate Modelling, Athabasca and Wapiti and Smoky Rivers.	Golder Associates Ltd.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.

Table 10: Distribution of Aquatic Contaminants in the Northern River Basins.

#	Title	Author
1	Mink Contaminants Study, Field Component, January to March, 1992.	L.P. Horstman and T.E. Code.
2	Benthos and Bottom Sediment Field Collections, Upper Athabasca River, April to May 1992.	R.L. & L. Environmental Services.
4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
8	Special Fish Collections, Upper Athabasca River, May, 1992.	B.A. Barton, C.P. Bjornson and K.L. Egan.
10	Special Fish Collections, Upper Athabasca River, September and October, 1992.	B.A. Barton D.J. Patan and L. Seely.
12	Burbot Collections, Smoky, Wapiti and Peace Rivers, October and November, 1992.	P.J. Hvengaard and T.D. Boag.

Table 10: Distribution of Aquatic Contaminants in the Northern River Basins (continued	Table 10:	Distribution of A	Aquatic Conta	minants in th	e Northern	River Basins	(continued)
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#	Title	Author
20	Collection of Fish from the Traditional Winter Fishery on the Peace-Athabasca Delta, February, 1993.	P. Balagus, A. de Vries and J.E. Green.
26	Radionuclide Levels in Fish from Lake Athabasca, February 1993.	G. Smithson.
44	Contaminants in Environmental Samples: PCDDs and PCDFs Downstream of Bleached Kraft Mills, Peace and Athabasca rivers, 1992.	G.M. Pastershank and D.C.G. Muir.
47	Environmental Contaminants in Mink - Peace and Athabasca Rivers, December, 1991 and January 1992.	M. Wayland.
48	Environmental Contaminants in Pre-fledged Common Mergansers, Wapiti River, August, 1992.	M. Wayland.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
64	Environmental Contaminants in Muskrats and Canvasbacks, Peace-Athabasca Delta, 1992.	M. Wayland.
71	Depositional History of Sediments in Legend and Weekes Lakes: Geochronology and Bulk Parameters.	R.A. Bourbonniere, S.L. Telford and J.B. Kemper.
72	Depositional History of Sediment in Lake Athabasca: Geochronology, Bulk Parameters, Contaminants and Biogeochemical Markers.	R.A. Bourbonniere, S.L. Telford and J.B. Kemper.
83	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca River, August and September, 1994.	J.L. Parrott, P. Hodson, D.E. Tillitt, D.T. Bennie and M.E. Comba.
86	Depositional History of Sediments from Lake Athabasca and Reference Lakes - Chlorinated Contaminants.	R.A. Bourbonniere.
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
99	Depositional History of Sediment in Great Slave Lake: Spatial and Temporal Patterns in Geochronology, Bulk Parameters PAHs and Chlorinated Contaminants.	M.S. Evans.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
108	Contaminants in Water and Sediment Upper Athabasca River, April, 1992.	R. Crosley.

9 continued...

Table 10: Distribution of Aquatic Contaminants in the Northern River Basins (concluded).

#	Title	Author
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
112	Contaminant Fate Modelling, Athabasca and Wapiti and Smoky Rivers.	Golder Associates Ltd.
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzo-furans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
131	Limnological Investigations in the West Basin of Great Slave Lake: March 1994.	M.S. Evans.
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
136	Contaminant Fate Modelling for the Athabasca River: Implementation of New Sediment Flux Routines.	Golder Associates Ltd.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.

Table 11: Effects of Aquatic Contaminants in the Northern River Basins.

#	Title	Author
2	Benthos and Bottom Sediment Field Collections, Upper Athabasca River, April to May 1992.	R.L. & L. Environmental Services.
4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
8	Special Fish Collections, Upper Athabasca River, May, 1992.	B.A. Barton, C.P. Bjornson and K.L. Egan.
10	Special Fish Collections, Upper Athabasca River, September and October, 1992.	B.A. Barton D.J. Patan and L. Seely.
12	Burbot Collections, Smoky, Wapiti and Peace Rivers, October and November, 1992.	P.J. Hvengaard and T.D. Boag.
30	Delta Basins Contaminant Survey: Muskrat Collections in the Athabasca River Delta, December, 1992.	J.E. Green.
35	Emergent Insect Sampling With Light Traps - Upper Athabasca River, September, 1993.	M. Dunnigan.

Table 11: Effects of Aquatic Contaminants in the Northern River Basins (concluded).

#	Title	Authors
78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
83	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca River, August and September, 1994.	J.L. Parrott, P. Hodson, D.E. Tillitt, D.T. Bennie and M.E. Comba.
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
100	Suitability of Small Fish Species for Monitoring the Effects of Pulp Mill Effluent on Fish Populations, Athabasca River, 1994 and 1995.	W. Gibbons, K. Munkittrick and W. Taylor.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
113	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River: Stochastic and Time Variable Version.	M.E. Starodub and G. Ferguson.

Table 12: Fish Habitat in the Northern River Basins.

#	Title	Author
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
23	Lake Whitefish Spawning Study Below Vermilion Chutes on the Peace River, October 1992.	J. Patalas.
24	Biophysical Inventory of Critical Overwintering Areas - Peace River, October 1992.	R. Pattenden.
32	A General Fish and Riverine Habitat Inventory, Athabasca River, April to May, 1992.	R.L. & L. Environmental Services.
33	Seasonal Movements of Radio Tagged Fish, Upper Athabasca River, August, 1992 to March, 1993.	T. Clayton and C. McLeod.

Table 12: Fish Habitat in the Northern River Basins (concluded).

#	Title	Author
34	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	T. Clayton and C. Mcleod.
40	A General Fish and Riverine Habitat Inventory, Athabasca River, October 1993.	R.L. & L. Environmental Services.
41	Fish Tagging Along the Athabasca River Near Whitecourt, October 1993.	Golder Associates Ltd.
53	A General Fish and Riverine Habitat Inventory, Athabasca River, May, 1994.	R.L. & L. Environmental Services.
117	Migration of Inconnu (Stenodus leucicthys) and Burbot (Lota lota), Slave River and Great Slave Lake, June, 1994 to July, 1995.	R.F. Tallman, W.M. Tonn and K.J. Howland.

Table 13: Effects of Human Activity on Fish Physiology in the Northern River Basins.

#	Title	Author
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
21	Benthos Field Collections, Under-Ice Sampling, Athabasca River, February and March, 1993.	M. Dunnigan and S. Millar.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
137	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River.	CanTox Inc.

Table 14: Aquatic Food Web Studies in the Northern River Basins.

#	Title	Author
11	Fish Radio Telemetry Demonstration Project, Upper Athabasca River, May to August, 1992.	C. McLeod and T. Clayton.
21	Benthos Field Collections, Under-Ice Sampling, Athabasca River, February and March, 1993.	M. Dunnigan and S. Millar.
22	Stable Isotopes of Sulphur, Carbon and Nitrogen in Biota, Upper Athabasca River, 1992	R. Hesslein and P.S. Ramlal.
32	A General Fish and Riverine Habitat Inventory, Athabasca River, April to May, 1992.	R.L. & L. Environmental Services.
33	Seasonal Movements of Radio Tagged Fish, Upper Athabasca River, August, 1992 to March, 1993.	T. Clayton and C. McLeod.

Table 14: Aquatic Food Web Studies in the Northern River Basins (concluded).

#	Title	Author
34	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	T. Clayton and C. Mcleod.
40	A General Fish and Riverine Habitat Inventory, Athabasca River, October 1993.	R.L. & L. Environmental Services.
41	Fish Tagging Along the Athabasca River Near Whitecourt, October 1993.	Golder Associates Ltd.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
117	Migration of Inconnu (Stenodus leucicthys) and Burbot (Lota lota), Slave River and Great Slave Lake, June, 1994 to July, 1995.	R.F. Tallman, W.M. Tonn and K.J. Howland.
118	Life History Variation of Inconnu (Stenodus leucichthys) and Burbot (Lota lota), Lower Slave River, June to December, 1994.	R.F. Tallman, W.M. Tonn and K.J. Howland.
119	Diet, Food Web and Structure of the Fish Community, Lower Slave River, June to December, 1994 and May to August, 1995.	R.F. Tallman, W.M. Tonn and K.J. Howard.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	
137	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River.	CanTox Inc.

Table 15: Sources of Drinking Water in the Northern River Basins.

#	Title	Author
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.

Table 16: Quality of Drinking Water in the Northern River Basins.

#	Title	Author
42	Water Odour, Athabasca River, February and March, 1993.	S. Kenefick, B. Brownlee, E. Hrudey, L. Gammie and S. Hrudey.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.

Table 16: Quality of Drinking Water in the Northern River Basins (concluded).

#	Title	Author
87	A Review of Literature on the Removal of Organic Chemicals from Drinking Water.	N.J. Oke, S.J. Stanley and D.W. Smith.
88	A Review of Literature on the Removal of Inorganic Contaminants from Drinking Water.	L.E. Liem, S.J. Stanley and D.W. Smith.
114	Water Taste and Odour - Athabasca River, 1994 (Post ALPAC).	S. Kenefick, B. Brownlee, E. Hrudey, G. MacInnis and S. Hrudey.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
139	A Review of Literature on the Removal of Microbial Contaminants from Drinking Water.	H. Zhou, D.W. Smith and S. Stanley.

Table 17: Quality and/or Quantity of Water for Non-Consumptive Human Use in the Northern River Basins.

#	Title	Author
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	•
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.

Table 18: Effects of Human Activity in the Northern River Basins Based on Traditional Knowledge.

#	Title	Author
125	A Compilation of Archived Writings About Environmental Change.	J. Crozier.

Table 19: Environmental Effects of Human Activity in the Northern River Basins.

#	Title	Author
J 45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
50	Aquatic Macroinvertebrate Identifications, Athabasca River, May and September, 1993.	K. Saffran.
__ 59	Ecotoxicology of Depositional Sediments in the Athabasca River, May and September 1993.	K. Day and T.B. Reynoldson.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
140	Assessing Pulp Mill Contamination using Morphological Deformities in Chironomid Larvae (Diptera: Chironomidae), Upper Athabasca River, April 1992.	Warrick, W.F.

Table 20: Modelling the Effects of Human Activity in the Northern River Basins.

#	Title	Author
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
	Indicators of Ecosystem Integrity: Peace-Athabasca Delta.	D.B. Donald, F.J. Wrona, W. Warwick, W. Aitken, F.G. Hunter and J. Syrgiannis.

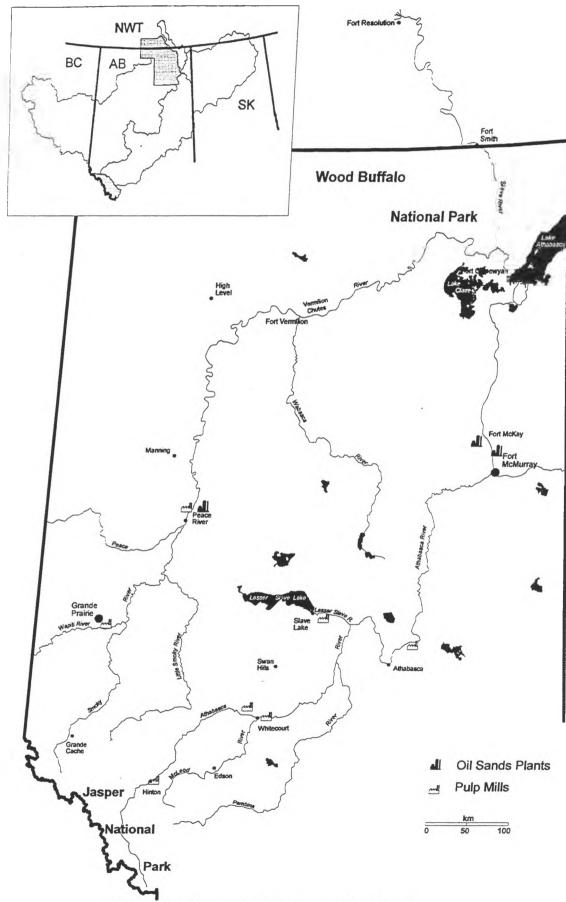


Figure 1. Map of the Northern River Basins.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt).

#	Title	Author
/1	Mink Contaminants Study, Field Component, January to March, 1992.	L.P. Horstman and T.E. Code.
√2	Benthos and Bottom Sediment Field Collections, Upper Athabasca River, April to May 1992.	R.L. & L. Environmental Services.
/3	Sediment Oxygen Demand Investigations, Athabasca River, January to March, 1992	Monenco Inc.
√4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
5	Aquatic Macroinvertebrate Identifications, Upper Athabasca River, Spring, 1992.	R.L. & L. Environmental Services.
√ ₆	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
7	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part I: Time of Travel	G. Van der Vinne and D. Andres.
√ 8	Special Fish Collections, Upper Athabasca River, May, 1992.	B.A. Barton, C.P. Bjornson and K.L. Egan.
J 10	Special Fish Collections, Upper Athabasca River, September and October, 1992.	B.A. Barton D.J. Patan and L. Seely.
11	Fish Radio Telemetry Demonstration Project, Upper Athabasca River, May to August, 1992.	C. McLeod and T. Clayton.
√ 13	Analyses and Interpretation of Steroid Hormones and Gonad Morphology in Fish, Upper Athabasca River, 1992.	S.B. Brown, R.E. Evans, L. Vandenbyllaardt and A. Bordeleau.
/ 15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
J 17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
√1 8	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
J 19	Aquatic Macroinvertebrate Identifications on Ekman Dredge Samples, Upper Athabasca River, April and May, 1992.	M. Dunnigan.
J 21	Benthos Field Collections, Under-Ice Sampling, Athabasca River, February and March, 1993.	M. Dunnigan and S. Millar.
22	Stable Isotopes of Sulphur, Carbon and Nitrogen in Biota, Upper Athabasca River, 1992	R. Hesslein and P.S. Ramlal.
√ 25	An Evaluation of Dissolved Oxygen Modelling of the Athabasca River and the Wapiti-Smoky River System.	G. Macdonald and A. Radermacher.
√ 27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (continued).

#	Title	Author
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
_ 29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
/ 31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
/32	A General Fish and Riverine Habitat Inventory, Athabasca River, April to May, 1992.	R.L. & L. Environmental Services.
33	Seasonal Movements of Radio Tagged Fish, Upper Athabasca River, August, 1992 to March, 1993.	T. Clayton and C. McLeod.
34	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	T. Clayton and C. Mcleod.
35	Emergent Insect Sampling With Light Traps - Upper Athabasca River, September, 1993.	M. Dunnigan.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
38	Aquatic Macroinvertebrate Identifications on Under-ice Samples, Athabasca River, February and March, 1993.	R.D. Saunders and E. Dratnal.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
40	A General Fish and Riverine Habitat Inventory, Athabasca River, October 1993.	R.L. & L. Environmental Services.
₹ 42	Water Odour, Athabasca River, February and March, 1993.	S. Kenefick, B. Brownlee, E. Hrudey, L. Gammie and S. Hrudey.
44	Contaminants in Environmental Samples: PCDDs and PCDFs Downstream of Bleached Kraft Mills, Peace and Athabasca rivers, 1992.	G.M. Pastershank and D.C.G. Muir.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
46	Growth Rate and Biomass Responses of Periphytic Algae to Nutrient Enrichment of Stable and Unstable Substrates, Athabasca River.	C.J.Perrin, P.A. Chambers and M.L. Bothwell.
47	Environmental Contaminants in Mink - Peace and Athabasca Rivers, December, 1991 and January 1992.	M. Wayland.
49	Identification of Spatial and Temporal Patterns in Nutrient Limitation, Athabasca River, October to December, 1993.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp and C.L. Podemski.
50	Aquatic Macroinvertebrate Identifications, Athabasca River, May and September, 1993.	K. Saffran.
√51	Size Distribution and Transport of Suspended Particles, Athabasca River for February and September 1993.	B.G. Krishnappen, R. Stephens, J.A. Kraft and B.H. Moore.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (continued).

#	Title	Author
53	A General Fish and Riverine Habitat Inventory, Athabasca River, May, 1994.	R.L. & L. Environmental Services.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J Stanley.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
59	Ecotoxicology of Depositional Sediments in the Athabasca River, May and September 1993.	K. Day and T.B. Reynoldson.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
67	Growth Rate and Biomass Responses of Periphytic Algae to Phosphorous Enrichment in Experimental Flumes, Athabasca River, April and May, 1994.	A.R. Dale and P.A. Chambers.
68	Growth Rate and Biomass Responses of Periphytic Algae to Phosphorous Enrichment in Experimental Flumes, Athabasca River, Seasonal Variation, 1993 and 1994.	A.R. Dale and P.A. Chambers.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	Drobot Contracting Services Ltd with Praxis Inc.
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (contined).

#	Title	Author
78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
√ 83	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca River, August and September, 1994.	J.L. Parrott, P. Hodson, D.E. Tillitt, D.T. Bennie and M.E. Comba.
84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
85	Critical Shear Stresses for Erosion and Deposition of Fine Suspended Sediment from the Athabasca River.	B.G. Krishnappen and R. Stephens.
,89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
√91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
92	Impacts of Contaminants and Nutrients in Bleached Kraft Mill Effluent on Benthic Insect and Periphyton Communities: Assessments Using Artificial Streams, Athabasca River, 1993 and 1994.	J.M. Culp and C.L. Podemski.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
94	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.
95	Assessment and Validation of Modelling Under-Ice Dissolved Oxygen Using DOSTOC, Athabasca River, 1988 to 1994.	P.A. Chambers, A. Pietroniro, G.J. Scrimgeour and M. Ferguson.
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (continued).

#	Title	Author
/ 98	Combined Effects of Dissolved Oxygen Level and Bleached Kraft Mill Effluent and Municipal Sewage on a Mayfly, (Baetis tricaudata): Assessments Using Artificial Streams.	
100	Suitability of Small Fish Species for Monitoring the Effects of Pulp Mill Effluent on Fish Populations, Athabasca River, 1994 and 1995.	W. Gibbons, K. Munkittrick and W. Taylor.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
√ ₁₀₄	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
J 105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
√108	Contaminants in Water and Sediment Upper Athabasca River, April, 1992.	R. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
/110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.
/ 111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
113	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River: Stochastic and Time Variable Version.	M.E. Starodub and G. Ferguson.
√114	Water Taste and Odour - Athabasca River, 1994 (Post ALPAC).	S. Kenefick, B. Brownlee, E. Hrudey, G. MacInnis and S. Hrudey.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
/ 116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
/120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.
√ ¹²¹	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	C.I. Johnson, A. Urso and L. Gelata.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (continued).

(contin		
#	Title	Author
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.
127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi- Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	J.L. Parrott, J.J. Whyte and M.E. Comba.
_V 129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
/ 130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
√ 132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
√ 133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
√ 134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
/ 135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
136	Contaminant Fate Modelling for the Athabasca River: Implementation of New Sediment Flux Routines.	Golder Associates Ltd.
√ 137	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River.	CanTox Inc.
/ 138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
140	Assessing Pulp Mill Contamination using Morphological Deformities in Chironomid Larvae (Diptera: Chironomidae), Upper Athabasca River, April 1992.	Warrick, W.F.
J 142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
√ 143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
/144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
√ 145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
J146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.

Table 21: NRBS Research on the Upper Athabasca River (Athabasca Falls to Whitecourt) (concluded).

#	Title	Author
√147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
√ ₁₄₈	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray).

#	Title	Author
-1	Mink Contaminants Study, Field Component, January to March, 1992.	L.P. Horstman and T.E. Code.
/ 3	Sediment Oxygen Demand Investigations, Athabasca River, January to March, 1992	Monenco Inc.
-4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
√ 6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
1 7	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part I: Time of Travel	G. Van der Vinne and D. Andres.
-15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
√16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
√17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
√18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
-21	Benthos Field Collections, Under-Ice Sampling, Athabasca River, February and March, 1993.	M. Dunnigan and S. Millar.
V25	An Evaluation of Dissolved Oxygen Modelling of the Athabasca River and the Wapiti-Smoky River System.	G. Macdonald and A. Radermacher.
√27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
$\sqrt{28}$	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
. 29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
√ 31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
J 32	A General Fish and Riverine Habitat Inventory, Athabasca River, April to May, 1992.	R.L. & L. Environmental Services.

23 continued...

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray) (continued).

#	Title	Author
34	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	
, 37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
38	Aquatic Macroinvertebrate Identifications on Under-ice Samples, Athabasca River, February and March, 1993.	R.D. Saunders and E. Dratnal.
√ 39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
40	A General Fish and Riverine Habitat Inventory, Athabasca River, October 1993.	R.L. & L. Environmental Services.
/41	Fish Tagging Along the Athabasca River Near Whitecourt, October 1993.	Golder Associates Ltd.
42	Water Odour, Athabasca River, February and March, 1993.	S. Kenefick, B. Brownlee, E. Hrudey, L. Gammie and S. Hrudey.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
/51	Size Distribution and Transport of Suspended Particles, Athabasca River for February and September 1993.	B.G. Krishnappen, R. Stephens, J.A. Kraft and B.H. Moore.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
v 53	A General Fish and Riverine Habitat Inventory, Athabasca River, May, 1994.	R.L. & L. Environmental Services.
J 54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
- 55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
. 56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
√ 57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
V 61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
V 65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray) (continued).

#	Title	Author
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	_
J73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.
√78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
J 79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
J 80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.
√82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
√83	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca River, August and September, 1994.	
J 84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
√ 85	Critical Shear Stresses for Erosion and Deposition of Fine Suspended Sediment from the Athabasca River.	B.G. Krishnappen and R. Stephens.
√ 89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	*
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray) (continued).

#	Title	Author
94	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.
95	Assessment and Validation of Modelling Under-Ice Dissolved Oxygen Using DOSTOC, Athabasca River, 1988 to 1994.	P.A. Chambers, A. Pietroniro, G.J. Scrimgeour and M. Ferguson.
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
100	Suitability of Small Fish Species for Monitoring the Effects of Pulp Mill Effluent on Fish Populations, Athabasca River, 1994 and 1995.	W. Gibbons, K. Munkittrick and W. Taylor.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
√ 106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October , 1994 and May, 1995.	R.W. Crosley.
. 109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
J110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.
V 111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
√113	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River: Stochastic and Time Variable Version.	M.E. Starodub and G. Ferguson.
√11 4	Water Taste and Odour - Athabasca River, 1994 (Post ALPAC).	S. Kenefick, B. Brownlee, E. Hrudey, G. MacInnis and S. Hrudey.
√ 115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
_V 116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray) (continued).

#	Title	Author
/121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.
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127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	J.L. Parrott, J.J. Whyte and M.E. Comba.
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130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
√135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
√136	Contaminant Fate Modelling for the Athabasca River: Implementation of New Sediment Flux Routines.	Golder Associates Ltd.
√ 137	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River.	CanTox Inc.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
J142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
J ₁₄₃	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
J 144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.

Table 22: NRBS Research on the Middle Athabasca River(Whitecourt to Fort McMurray) (concluded).

#	Title	Author
. 147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

#	Title	Author
1		L.P. Horstman and T.E. Code.
3	Sediment Oxygen Demand Investigations, Athabasca River, January to March, 1992	Monenco Inc.
4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
7	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part I: Time of Travel	G. Van der Vinne and D. Andres.
14	Winter Low Flow Tracer Dye Studies, Athabasca River, Athabasca to Bitumount, February and March, 1992, Part II: Mixing Characteristics	G. Van der Vinne.
15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
Л8	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
√21	Benthos Field Collections, Under-Ice Sampling, Athabasca River, February and March, 1993.	M. Dunnigan and S. Millar.
/ 25	An Evaluation of Dissolved Oxygen Modelling of the Athabasca River and the Wapiti-Smoky River System.	G. Macdonald and A. Radermacher.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
(/31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.

Table 23: NRBS Research on the Lower Athabasca River(Fort McMurray to Delta) (continued).

#	Title	Author
32	A General Fish and Riverine Habitat Inventory, Athabasca River, April to May, 1992.	R.L. & L. Environmental Services.
34ر	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	T. Clayton and C. Mcleod.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
. 38	Aquatic Macroinvertebrate Identifications on Under-ice Samples, Athabasca River, February and March, 1993.	R.D. Saunders and E. Dratnal.
- 39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
.40	A General Fish and Riverine Habitat Inventory, Athabasca River, October 1993.	R.L. & L. Environmental Services.
42	Water Odour, Athabasca River, February and March, 1993.	S. Kenefick, B. Brownlee, E. Hrudey, L. Gammie and S. Hrudey.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
49	Identification of Spatial and Temporal Patterns in Nutrient Limitation, Athabasca River, October to December, 1993.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp and C.L. Podemski.
√51	Size Distribution and Transport of Suspended Particles, Athabasca River for February and September 1993.	B.G. Krishnappen, R. Stephens, J.A. Kraft and B.H. Moore.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
J 54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
.,56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
, 61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
√ 65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.

Table 23: NRBS Research on the Lower Athabasca River(Fort McMurray to Delta) (continued).

Title # Author Proceedings of the Northern River Basins Study Instream Flow Needs G.L. Walder. 66 Workshop, October 14-15, 1993 and January 6-7, 1994. Water Resources Use and Management Issues for the Peace, Athabasca and P. Reicher and J.P. Thompson. Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995. Water Resources Use and Management Issues for the Peace, Athabasca and Drobot Contracting Services Slave River Basins: Implementation of a Household Survey, January to Ltd. with Praxis Inc. April, 1995. Factors Affecting Future Development in Key Economic Sectors in the Nichols Applied Management. Peace, Athabasca and Slave River Basins. Water Resources Use and Management Issues for the Peace, Athabasca and P. Reicher. Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995. A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Sentar Consultants Ltd. Athabasca, Peace and Slave River Basins. A Synthesis of Information on Effluent Characterization of Municipal and Sentar Consultants Ltd. Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins. Water Resources Use and Management Issues for the Peace, Athabasca and M. Williams. Slave River Basins: Best / Worst Analysis of Survey Ouestions About Threats and Actions. A Review and Evaluation of Water Quality and Quantity Models Used E. McCauley. Under the Northern River Basins Study. Accumulation of Fish Mixed Function Oxygenase Inducers by Semi- J.L. Parrott, P. Hodson, D.E. Permeable Membrane Devices in River Water and Effluents, Athabasca Tillitt, D.T. Bennie and M.E. River, August and September, 1994. Life After NRBS: A Proposal for Interjurisdictional Management of the J. Stager. Peace. Athabasca and Slave River Basins. Critical Shear Stresses for Erosion and Deposition of Fine Suspended B.G. Krishnappen and R. V 85 Sediment from the Athabasca River. Stephens. Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in S.B. Brown, R.E. Evans and L. Fish - Peace, Athabasca and Slave River Basins, September to December, Vandenbyllaardt. Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in S.B. Brown and L. Fish - Peace, Athabasca and Slave River Basins, September to December, Vandenbyllaardt. Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave M.A. Giles, S.B. Brown, M. Van River Basins: A Laboratory Study of Burbot (Lota lota). der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.

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River Basins, September to December 1994.

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Table 23: NRBS Research on the Lower Athabasca River(Fort McMurray to Delta) (continued).

#	Title	Author
194	Investigations of Sediment Oxygen Demand, Athabasca River, October, 1994 to March, 1995.	L.R. Noton.
95	Assessment and Validation of Modelling Under-Ice Dissolved Oxygen Using DOSTOC, Athabasca River, 1988 to 1994.	P.A. Chambers, A. Pietroniro, G.J. Scrimgeour and M. Ferguson.
J 96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	
_100	Suitability of Small Fish Species for Monitoring the Effects of Pulp Mill Effluent on Fish Populations, Athabasca River, 1994 and 1995.	W. Gibbons, K. Munkittrick and W. Taylor.
J 101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	
/113	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River: Stochastic and Time Variable Version.	M.E. Starodub and G. Ferguson.
, 114	Water Taste and Odour - Athabasca River, 1994 (Post ALPAC).	S. Kenefick, B. Brownlee, E. Hrudey, G. MacInnis and S. Hrudey.
√115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
J 120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	

Table 23: NRBS Research on the Lower Athabasca River(Fort McMurray to Delta) (concluded).

#	Title	Author
/123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.
127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	•
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
_ 133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
_ 134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
136	Contaminant Fate Modelling for the Athabasca River: Implementation of New Sediment Flux Routines.	Golder Associates Ltd.
137	A Bioenergetic Model of Food Chain Uptake and Accumulation of Organic Chemicals, Athabasca River.	CanTox Inc.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
J 145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
/ 146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
V 148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 24: NRBS Research on the Upper Peace River (Alberta Border to Confluence of Smoky River).

#	Title	Author
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
24	Biophysical Inventory of Critical Overwintering Areas - Peace River, October 1992.	R. Pattenden.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
36	Winter Under-ice Tracer Dye Studies, Travel Time and Mixing Characteristics Peace River, Shaftesbury Ferry to Notikewin River, February and March 1993.	Northwest Hydraulic Consultants and Alberta Research Council.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.

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Table 24: NRBS Research on the Upper Peace River (Alberta Border to Confluence of Smoky River) (continued).

#	Title	Author
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.
76	A Hydraulic Flood Routing Model of the Peace River, Hudson Hope to Peace Point.	F.E. Hicks, N. Yasmin and X. Chen.
77	Hydraulic Flood Routing Model of the Peace and Slave Rivers, Hudson Hope to Peace Point.	F.E. Hicks and K. McKay.
78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	
81	A Pilot Study of the Use of Remote Sensing to Analyze Fish Habitat on the Peace River in Alberta, July to October, 1995.	R.F.Courtney, C. Wrightson and G. Farrington.
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	

Table 24: NRBS Research on the Upper Peace River (Alberta Border to Confluence of Smoky River) (continued).

#	Title	Author
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
102	Changes in Morphology and Riparian Vegetation Along the Peace River Following Regulation, 1968-1993.	M. Church et al.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	C.I. Johnson, A. Urso and L. Gelata.
122	The Effects of Flow Regulation on Freeze-Up Regime - Peace River, Taylor to Slave River.	D.D. Andres.
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.

Table 24: NRBS Research on the Upper Peace River (Alberta Border to Confluence of Smoky River) (concluded).

#	Title	Author
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.
127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	J.L. Parrott, J.J. Whyte and M.E. Comba.
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 25: NRBS Research on the Middle Peace River (Smoky River Confluence to Vermilion Chutes).

#	Title	Author
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
12	Burbot Collections, Smoky, Wapiti and Peace Rivers, October and November, 1992.	P.J. Hvengaard and T.D. Boag.
15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
24	Biophysical Inventory of Critical Overwintering Areas - Peace River, October 1992.	R. Pattenden.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
34	A Preliminary Radio Telemetry Noise Scan, Peace and Athabasca River Drainages, March, 1993.	T. Clayton and C. Mcleod.
36	Winter Under-ice Tracer Dye Studies, Travel Time and Mixing Characteristics Peace River, Shaftesbury Ferry to Notikewin River, February and March 1993.	Northwest Hydraulic Consultants and Alberta Research Council.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.

37 continued...

Table 25: NRBS Research on the Middle Peace River (Smoky River Confluence to Vermilion Chutes) (continued).

	ilion Chutes) (continued).	Andhor
#	Title	Author
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.
76	A Hydraulic Flood Routing Model of the Peace River, Hudson Hope to Peace Point.	F.E. Hicks, N. Yasmin and X. Chen.
77	Hydraulic Flood Routing Model of the Peace and Slave Rivers, Hudson Hope to Peace Point.	F.E. Hicks and K. McKay.
78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
7 9	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.

Table 25: NRBS Research on the Middle Peace River (Smoky River Confluence to Vermilion Chutes) (continued).

#	Title	Author
81	A Pilot Study of the Use of Remote Sensing to Analyze Fish Habitat on the Peace River in Alberta, July to October, 1995.	R.F.Courtney, C. Wrightson and G. Farrington.
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
102	Changes in Morphology and Riparian Vegetation Along the Peace River Following Regulation, 1968-1993.	M. Church et al.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.

Table 25: NRBS Research on the Middle Peace River (Smoky River Confluence to Vermilion Chutes) (concluded).

#	Title	Author
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	
122	The Effects of Flow Regulation on Freeze-Up Regime - Peace River, Taylor to Slave River.	D.D. Andres.
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.
127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi- Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	J.L. Parrott, J.J. Whyte and M.E. Comba.
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzo-furans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 26: NRBS Research on the Lower Peace River (Vermillion Chutes to Delta).

#	Title	Author
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
23	Lake Whitefish Spawning Study Below Vermilion Chutes on the Peace River, October 1992.	J. Patalas.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.

Table 26: NRBS Research on the Lower Peace River (Vermillion Chutes to Delta) (continued).

#	Title	Author
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	<u> </u>
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.
76	A Hydraulic Flood Routing Model of the Peace River, Hudson Hope to Peace Point.	F.E. Hicks, N. Yasmin and X. Chen.
77	Hydraulic Flood Routing Model of the Peace and Slave Rivers, Hudson Hope to Peace Point.	F.E. Hicks and K. McKay.
78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.
81	A Pilot Study of the Use of Remote Sensing to Analyze Fish Habitat on the Peace River in Alberta, July to October, 1995.	R.F.Courtney, C. Wrightson and G. Farrington.
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.

Table 26: NRBS Research on the Lower Peace River (Vermillion Chutes to Delta) (continued).

#	Title	Author
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	G.M. Pastershank and D.C.G. Muir.
102	Charges in Morphology and Riparian Vegetation Along the Peace River Following Regulation, 1968-1993.	M. Church et al.
103	Hydrometeorlogical Conditions Controlling Ice-Jam Floods, Peace River near the Peace-Athabasca Delta.	T.D. Prowse, M. Conly and V. Lalonde.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October, 1994 and May, 1995.	R.W. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	
122	The Effects of Flow Regulation on Freeze-Up Regime - Peace River, Taylor to Slave River.	D.D. Andres.
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.

Table 26: NRBS Research on the Lower Peace River (Vermillion Chutes to Delta) (concluded).

#	Title	Author
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.
127	Accumulation of Fish Mixed Function Oxygenase Inducers by Semi-Permeable Membrane Devices in River Water and Effluents, Athabasca, Peace and Wapiti Rivers, August and September, 1995.	J.L. Parrott, J.J. Whyte and M.E. Comba.
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.	
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.
134	Distribution of Organic Contaminants in Bottom Sediments in the Peace and Athabasca River Systems, 1988 to 1992.	B.G. Brownlee et al.
135	Ecotoxicology of Suspended and Bottom Sediments, Athabasca, Smoky and Peace Rivers.	E. Dobson, K. Day and T. Reynoldson.
138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 27: NRBS Research on the Wapiti/Smoky River System.

	27: NRBS Research on the Wapiti/Smoky River System.	
#	Title	Author
1	Mink Contaminants Study, Field Component, January to March, 1992.	L.P. Horstman and T.E. Code.
4	Collection of Young-of-the-Year Mergansers, August, 1992.	D.A. Westworth & Associates Ltd.
6	A Survey of Birds, Wapiti, Peace and Athabasca Rivers, June and July, 1992.	M. Wayland and T. Arnold.
12	Burbot Collections, Smoky, Wapiti and Peace Rivers, October and November, 1992.	P.J. Hvengaard and T.D. Boag.
15	A Review of Literature on Pulp and Paper Mill Effluent Characteristics in the Peace and Athabasca River Basins	N. McCubbin and J. Folke.
16	NORTHDAT: An Effluent Database Management Systems, Application Description	N. McCubbin, P. Labrosse and AGRA Earth and Environmental Limited.
17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
25	An Evaluation of Dissolved Oxygen Modelling of the Athabasca River and the Wapiti-Smoky River System.	G. Macdonald and A. Radermacher.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
44	Contaminants in Environmental Samples: PCDDs and PCDFs Downstream of Bleached Kraft Mills, Peace and Athabasca rivers, 1992.	
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
47	Environmental Contaminants in Mink - Peace and Athabasca Rivers, December, 1991 and January 1992.	M. Wayland.
48	Environmental Contaminants in Pre-fledged Common Mergansers, Wapiti River, August, 1992.	M. Wayland.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.

45

Table 27: NRBS Research on the Wapiti/Smoky River System (continued).

#	Title	Author
		
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
56	Long-Term Trends in Ecosystem Health - Quantitative Analysis of River Benthic Invertebrate Communities, Peace and Athabasca Rivers.	G.J. Scrimgeour, P.A. Chambers, J.M. Culp, K.J. Cash and M.S.J. Ouellette
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
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65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	2
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
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79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
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Table 27: NRBS Research on the Wapiti/Smoky River System (continued).

#	Title	Author
89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
96	Identification of Spatial and Temporal Patterns in Nutrient Limitation with Herbivory Effects, Wapiti, Smoky and Athabasca Rivers, 1994.	G.J. Scrimgeour and P.A. Chambers.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
101	Environmental Contaminants in Fish: Polychlorinated Biphenyls, Organochlorine Pesticides, and Chlorinated Phenols, Peace and Athabasca Rivers, 1992 to 1994.	
104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
106	Environmental Contaminants in Bottom Sediments, Peace and Athabasca Basins, October , 1994 and May, 1995.	R.W. Crosley.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
110	Contribution of Industrial, Municipal, Agricultural and Groundwater Sources to Nutrient Export in the Athabasca and Wapiti and Smoky Rivers, 1980 to 1993.	P.A. Chambers and A.R. Dale.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
112	Contaminant Fate Modelling, Athabasca and Wapiti and Smoky Rivers.	Golder Associates Ltd.
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
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47 continued...

Table 27: NRBS Research on the Wapiti/Smoky River System (concluded).

#	Title	Author
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.	
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.
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143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
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145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
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Table 28: NRBS Research on the Peace-Athabasca Delta.

#	Title	Author
$\sqrt{1}$	Mink Contaminants Study, Field Component, January to March, 1992.	L.P. Horstman and T.E. Code.
√17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
√ 18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
20	Collection of Fish from the Traditional Winter Fishery on the Peace-Athabasca Delta, February, 1993.	P. Balagus, A. de Vries and J.E. Green.
√27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
J 29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
/ 30	Delta Basins Contaminant Survey: Muskrat Collections in the Athabasca River Delta, December, 1992.	J.E. Green.
-31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
,37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
43	Hydraulic Modelling of the Peace-Athabasca Delta Under Modified and Natural Flow Conditions.	B. Aitken and R. Sapach.
45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.
√ 47	Environmental Contaminants in Mink - Peace and Athabasca Rivers, December, 1991 and January 1992.	M. Wayland.
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
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61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	

Table 28: NRBS Research on the Peace-Athabasca Delta (continued).

#	Title	Author
64	Environmental Contaminants in Muskrats and Canvasbacks, Peace-Athabasca Delta, 1992.	M. Wayland.
√ 65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
60	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
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89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
v 9:	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
- 9 [,]	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	

Table 28: NRBS Research on the Peace-Athabasca Delta (continued).

#	Title	Author	
102	Changes in Morphology and Riparian Vegetation Along the Peace River Following Regulation, 1968-1993.	M. Church et al.	
103	Hydrometeorlogical Conditions Controlling Ice-Jam Floods, Peace River near the Peace-Athabasca Delta.	T.D. Prowse, M. Conly and V. Lalonde.	
<i>J</i> 104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.	
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.	
√107	Indicators of Ecosystem Integrity: Peace-Athabasca Delta.	D.B. Donald, F.J. Wrona, W. Warwick, W. Aitken, F.G. Hunter and J. Syrgiannis.	
/109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.	
√ 111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.	
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.	
√ ₁₁₆	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.	
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.	
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.		
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.	
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.	
	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.		
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.		
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.	
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.	
~ 133 ——	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.	

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Table 28: NRBS Research on the Peace-Athabasca Delta (concluded).

#	Title	Author
v 138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.
/143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.
/ 144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.
✓ 146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

#	Title	Author
L 17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
/18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
v 26	Radionuclide Levels in Fish from Lake Athabasca, February 1993.	G. Smithson.
_U . 27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
· 29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.
<i>∨</i> 37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.
_v 39	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.
42	Water Odour, Athabasca River, February and March, 1993.	S. Kenefick, B. Brownlee, E. Hrudey, L. Gammie and S. Hrudey.
/ 45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.

Table 29: NRBS Research on Lake Athabasca (continued).

#	Title	Author
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.
54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.
55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.
63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.
J 69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.	Drobot Contracting Services Ltd. with Praxis Inc.
- 7 1	Depositional History of Sediments in Legend and Weekes Lakes: Geochronology and Bulk Parameters.	R.A. Bourbonniere, S.L. Telford and J.B. Kemper.
√ ⁷²	Depositional History of Sediment in Lake Athabasca: Geochronology, Bulk Parameters, Contaminants and Biogeochemical Markers.	R.A. Bourbonniere, S.L. Telford and J.B. Kemper.
<i>j</i> 73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.
-75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.
J 78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.

Table 29: NRBS Research on Lake Athabasca (continued).

#	Title	Author
√82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	
₹ 84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
86	Depositional History of Sediments from Lake Athabasca and Reference Lakes - Chlorinated Contaminants.	R.A. Bourbonniere.
√ 89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
/93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
/ 97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
_V 104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
/ 105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
√ 111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	C.I. Johnson.
/115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
_/ 116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.
121	121 Broad Spectrum Analysis of Municipal and Industrial Effluents C.I. Johnson, A. Ur Discharged into the Peace, Athabasca and Slave River Basins: Gelata. Characterization of Effluent Samples, 1994.	
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.

Table 29: NRBS Research on Lake Athabasca (concluded).

#	Title	Author	
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.	
125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.	
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.		
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.	
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.	
133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.	
⁄138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.		
√ ₁₄₂	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.	
J 143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.	
144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.	
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.	
/ 146	146 An Overview of Streamflows and Lake Levels for the Peace, Athabasca J. Choles, W. Aitke and Slave River Basins. Deboer.		
J 147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.	
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette	

Table 30: NRBS Research on Riviere des Rochers and the Slave River.

#	Title	Author
9	A General Fish and Riverine Habitat Inventory, Peace and Slave Rivers, April to June, 1992.	T.D. Boag.
/ 17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
27	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.

Table 30: NRBS Research on Rivière des Rochers and the Slave River (continued).

#	Title	Author	
₁ 28	Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.	
√ 29	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins.	B.A. Barton and B.R. Taylor.	
31	Status and Future Requirements for Socio-Economic Research and Public Communications and Consultations.	Praxis, Inc.	
√ 37	Proceedings of a Workshop on Water Quality Modelling for the Northern River Basins Study, March 22-23, 1993.	J.M. Culp and P.A. Chambers.	
$\sqrt{39}$	Regulatory Requirements for Nutrient Effluent Discharges.	Sentar Consultants Ltd.	
√45	Assessing and Monitoring Aquatic Ecosystem Health - Approaches Using Individual, Population, and Community / Ecosystem Measurements.	K.J. Cash.	
52	A Review and Annotated Bibliography of Water and Fish Tainting in the Peace, Athabasca and Slave River Basins.	S.L. Kenefick and S.E Hrudey.	
/54	An Analysis of Alberta Health Records for the Occurrence of Water-Borne Diseases for the Northern River Basins Study	K.M.E. Emde, D.W. Smith and S.J. Stanley.	
_V 55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.	
√ 57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.	
√ 58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.	
61	Fish Collections, Peace, Athabasca and Slave River Basins, September to December, 1994.	TL. Jacobson and T.D. Boag.	
√ 63	Executive Summary of a Workshop on the Impacts of Land Clearing on the Hydrologic and Aquatic Resources of Boreal Forests in Alberta, November 18 and 19, 1994.	E. Alke.	
65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.	
√66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.	
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.	
70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.		
73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.	
J ₇₄	Assessment of Impacts on the Slave River Delta of Peace River Impoundment at Hudson Hope.	M.C. English, B. Hill and P.W. Wolfe.	
75	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of Stakeholder Surveys, February to April, 1995.	P. Reicher.	

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J78	A Synthesis of Information on Ecotoxicity of Pulp Mill Effluents in the Athabasca, Peace and Slave River Basins.	Sentar Consultants Ltd.
79	A Synthesis of Information on Effluent Characterization of Municipal and Non-Pulp Mill Industrial Sources, Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.
80	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Best / Worst Analysis of Survey Questions About Threats and Actions.	M. Williams.
82	A Review and Evaluation of Water Quality and Quantity Models Used Under the Northern River Basins Study.	E. McCauley.
84	Life After NRBS: A Proposal for Interjurisdictional Management of the Peace, Athabasca and Slave River Basins.	J. Stager.
₩ 89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.	S.B. Brown, R.E. Evans and L. Vandenbyllaardt.
√ 90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.
93	Concentrations of Metalothionein in Fish, Peace, Athabasca and Slave River Basins, September to December 1994.	J.F. Klaverkamp and C.L. Baron.
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.
/ 99	Depositional History of Sediment in Great Slave Lake: Spatial and Temporal Patterns in Geochronology, Bulk Parameters PAHs and Chlorinated Contaminants.	M.S. Evans.
√104	Analysis for Liver Mixed Function Oxygenase in Fish, Upper Athabasca River, 1992.	W.L. Lockhart et al.
√ 105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.
111	Broad Spectrum Analysis of Municipal and Industrial Effluents discharged C.I. Johnson. into the Peace, Athabasca and Slave River Basins: Review of GC-MS Data, 1989 to 1994 (Volumes 1,2 and 3).	
115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.
J 116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.

Table 30: NRBS Research on Rivière des Rochers and the Slave River (continued).

#	Title	Author	
117	Migration of Inconnu (Stenodus leucicthys) and Burbot (Lota lota), Slave River and Great Slave Lake, June, 1994 to July, 1995.	R.F. Tallman, W.M. Tonn and K.J. Howland.	
√118	Life History Variation of Inconnu (Stenodus leucichthys) and Burbot (Lota lota), Lower Slave River, June to December, 1994.	R.F. Tallman, W.M. Tonn and K.J. Howland.	
√1 19	Diet, Food Web and Structure of the Fish Community, Lower Slave River, June to December, 1994 and May to August, 1995.	R.F. Tallman, W.M. Tonn and K.J. Howard.	
/120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).	M.A. Giles and M. van der Zweep.	
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.		
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.	
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.	
/125	125 A Compilation of Archived Writings About Environmental Change in the J. Crozier. Peace, Athabasca and Slave River Basins.		
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.		
130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.	
J. 131	Limnological Investigations in the West Basin of Great Slave Lake: March 1994.	M.S. Evans.	
√132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.	
_{\sqrt} 133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.	
√138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.		
142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	e R.B. More et al.	
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.	
J 144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	asca and Sentar Consultants Ltd.	
J 145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.	
√146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca and Slave River Basins.	J. Choles, W. Aitken and A. Deboer.	

Table 30: NRBS Research on Rivière des Rochers and the Slave River (concluded).

#	Title	Author
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette

Table 31: NRBS Research Covering the Entire Study Area.

#	Title	Author
/ 17	Fish and Fish Habitat Database for the Peace, Athabasca and Slave River Basins.	B.A. Barton and R.F. Courtney.
18	A Review of Rate Coefficients and Constants Used in Nutrient and Dissolved Oxygen Models for the Peace, Athabasca and Slave River Basins.	R.D. Shaw and G. MacDonald.
√ ₂₇	An Annotated Bibliography of Nutrient Loading on the Athabasca, Peace and Slave Rivers.	Sentar Consultants Ltd.
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/ 55	A Review and Analysis of Existing Alberta Data on Drinking Water Quality and Treatment Facilities for the Northern River Basins Study.	D.S Prince, D.W. Smith and S.J. Stanley.
√ 57	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Stakeholder Screening Survey.	T. Hoare.
/ 58	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Design of Questionnaire and Survey.	Golder Associates Ltd.
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65	The Potential Effects of Climate Change in the Peace, Athabasca and Slave River Basins: A Discussion Paper.	S.J. Cohen.
4 66	Proceedings of the Northern River Basins Study Instream Flow Needs Workshop, October 14-15, 1993 and January 6-7, 1994.	G.L. Walder.

Table 31: NRBS Research Covering the Entire Study Area (continued).

#	Title	Author		
69	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Results of the Household and Stakeholder Surveys, January to April, 1995.	P. Reicher and J.P. Thompson.		
/70	Water Resources Use and Management Issues for the Peace, Athabasca and Slave River Basins: Implementation of a Household Survey, January to April, 1995.			
. 73	Factors Affecting Future Development in Key Economic Sectors in the Peace, Athabasca and Slave River Basins.	Nichols Applied Management.		
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/ 89	Analyses for Circulating Gonadal Sex Steroids and Gonad Morphology in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994.			
90	Analyses of Dehydroretinol, Retinol, Retinol Palmitate and Tocopherol in Fish - Peace, Athabasca and Slave River Basins, September to December, 1994	S.B. Brown and L. Vandenbyllaardt.		
91	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave River Basins: A Laboratory Study of Burbot (Lota lota).	M.A. Giles, S.B. Brown, M. Van der Zweep, L. Vandenbyllaardt, G. Van der Kraak and K. Rowes.		
97	Assessment of Trophic Position and Food Sources Using Stable Isotopes of Sulfur, Carbon and Nitrogen, Peace and Athabasca Rivers, 1992 and 1993.	R.H. Hesslein and P.S. Ramlal.		
105	Contaminants in Environmental Samples: Mercury in the Peace, Athabasca and Slave River Basins.	D.B. Donald and H.L. Craig.		
109	Probable Air Pathways for Long-Range Transport of Air Pollutants to Lake Athabasca: Analysis Using a Lagrangian Back Trajectory Model.	K. McDonald.		
J 115	An Assessment of Drinking Water Quality for Alberta Communities in the Peace, Athabasca and Slave River Basins.	D.S Prince, S.J. Stanley and D.W. Smith.		
116	An Assessment of Non-conventional Drinking Water in the Peace, Athabasca and Slave River Basins.	T.F. Armstrong, S.J. Stanley and D.W. Smith.		

60 continued...

Table 31: NRBS Research Covering the Entire Study Area (concluded).

#	Title	Author		
120	Dissolved Oxygen Requirements for Fish of the Peace, Athabasca and Slave Rivers: A Laboratory Study of Bull Trout (Salvelinus confluentus) and Mountain Whitefish (Prosopium williamsoni).			
121	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins: Characterization of Effluent Samples, 1994.			
123	An Assessment of the Utility of Benthic Macroinvertebrate and Fish Community Structure in Biomonitoring, Peace, Athabasca and Slave River Basins.	K.J. Cash.		
124	The Climate of the Peace, Athabasca and Slave River Basins.	E. Hudson.		
√125	A Compilation of Archived Writings About Environmental Change in the Peace, Athabasca and Slave River Basins.	J. Crozier.		
129	Environmental Contaminants in Fish: Spatial and Temporal Trends of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans, Peace, Athabasca and Slave River Basins, 1992 to 1993.			
≠ 130	Environmental Contaminants in Water and Sediment: PCDDs, PCDFs and Resin Acids, Athabasca River, February to May, 1993.	D.W. Crosley.		
132	Analysis for Liver Mixed Function Oxidase in Fish, Peace, Athabasca and Slave River Basins, September to December, 1994.	W.L. Lockhart and D.A. Metner.		
J 133	Sediment Dynamics and Implications for Sediment-Associated Contaminants in the Peace, Athabasca and Slave River Basins.	M.A. Carson, B.C. Victoria and H.R. Hudson.		
/138	Broad Spectrum Analysis of Municipal and Industrial Effluents Discharged into the Peace, Athabasca and Slave River Basins, Evaluation of Surface Waters.	C.I. Johnson and A. Urso.		
√142	A Database of Environmental Samples Collected and Analyzed for the Northern River Basins Study.	R.B. More et al.		
143	BONAR: A Database for Benthos of Peace, Athabasca and Slave River Basins, User's Guide.	M.S.J. Ouellette and K.J. Cash.		
J144	An Annotated Bibliography of Contaminants in the Peace, Athabasca and Slave River Basins.	Sentar Consultants Ltd.		
145	Historical Compilation of Fish Tissue Contaminant Data.	D.A. Westworth & Associates.		
J146	An Overview of Streamflows and Lake Levels for the Peace, Athabasca J. Choles, W. Aitken and Slave River Basins. Deboer.			
147	Fish Distribution, Movement and Gross External Pathology Information for the Peace, Athabasca and Slave River Basins.	T.A. Mill, P. Sparrow-Clark and R.S. Brown.		
148	Technical Reports of the Northern River Basins Study: Listed by Subject and Geographic Area Studied.	M.S.J. Ouellette		

4.0 References

NRBS. 1995. Annual Report. Northern River Basins Study, Edmonton, Alberta.

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