

Chapter 11.0

Appendix A: Member Involvement Process and Issues



11.0 APPENDIX A: MEMBER INVOLVEMENT PROCESS AND ISSUES

As part of the State of the North Saskatchewan Watershed project, activities were designed to gather feedback on the project and raise awareness of the NSWA and its initiatives. Public consultation activities for the State of the North Saskatchewan Watershed project included:

- NSWA membership input at the AGM
- NSWA membership feedback
- An Indicator workshop;
- Static displays at public locations; and
- Three watershed open houses.

11.1.1 Static Displays

Static displays were placed in public venues throughout the watershed to provide information about the NSWA, the open houses and watershed resources. Displays were placed in the Stanley Milner Library in Edmonton, Strathcona County Hall, Vilna, Elk Point, and Rocky Mountain House in July and August 2003.

11.1.2 Open Houses

In 2003, open houses were held in Rocky Mountain House, Elk Point and Sherwood Park on September 9th, 11th, and October 2nd respectively. The purpose of these open houses was to raise awareness regarding the importance of watershed integrity, promote the activities of community-based watershed initiatives, collect public input related to water management in the watershed, and present preliminary work for the 'State of the North Saskatchewan Watershed Report'.

Open houses lasted seven hours (from 2:00 p.m. until 9:00 p.m.) and were held in local community venues. Advertisements for each open house were done by radio and in local newspapers, brochures were left at public static displays, and notices were sent to NSWA members. Attendance at each open house was: Rocky Mountain House: 30; Elk Point: 30, plus 56 grade three and 50 senior high students; and Sherwood Park: 120.

11.1.3 Public Issues and Feedback

The following issues and comments were obtained from verbal and written comments recorded during the open houses. Water quality, quantity and the industrial use of water were the most frequently mentioned concerns. The comments have been summarized into eight categories, listed below alphabetically. These categories represent overlapping/interconnected issues and concerns. The comments and suggestions do not necessarily reflect the views of the NSWA or the authors of this report.

11.1.3.1 Future Trends

Several comments were made that the State of the Watershed should look at future trends and be proactive regarding possible droughts and climate change. The following specific suggestions were made:

- The Brazeau Dam should have data for inflow and outflow; and
- Historical data should be used to identify trends for future drought and climate change.



11.1.3.2 Impact of North Saskatchewan Watershed Plan on Industry

Concerns were raised at the Elk Point open house that the watershed plan might be too restrictive on industrial activities.

11.1.3.3 Land Use

Municipal

Concerns about the impacts on the North Saskatchewan Watershed from the City of Edmonton, commercial and residential development in the Cooking Lake / Moraine area of Strathcona County were recorded at both the Elk Point and Sherwood Park open houses.

Riparian Areas and Vegetation

The following specific concerns were raised throughout the three watershed regions:

- Scentless chamomile and other noxious weeds coming from the cities to the rural areas;
- The need to keep trees in their natural state beside creeks, lakes and the river;
- The proximity of landfills and other dump sites to the river;
- The lack of a re-planting program in the County of St. Paul No. 19 for areas susceptible to soil erosion, cleared roads and power lines;
- Change of watershed vegetation due to 'flush out' (water being dumped at high temperatures) and dams; and
- Holding water too long in the Ribstone Creek causes flooding, which drowns the farmer's hay. (The creek is dammed and Alberta Environment holds water too long causing flooding.)

Forestry

At the Sherwood Park open house, the following concerns with forestry land use were raised:

- The decline of forested areas affects the flow of water;
- The ability of private landowners to remove forest cover on their land without restriction is a concern; and
- Uncertainty regarding whether or not the *Forestry Act* includes a section on sustainability for the upper watershed for water conservation.

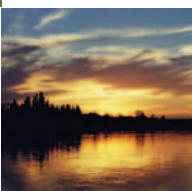
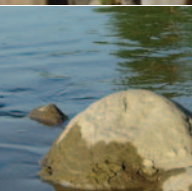
Recreation Use

At both the Elk Point and the Rocky Mountain House open houses, issues were raised about how boating restrictions should be considered for airboats used by outfitters, as they are disruptive to waterfowl. There was also concern that more information needs to be gathered and communicated about the effects of motorized recreation on shallow water bodies. Additionally, the protection of flood plains from recreational use impacts was brought forward at the Rocky Mountain open house.

Land Management

Open house attendees expressed the following land management comments and issues:

- Fire bans should not be lifted in response to political pressure, if the conditions are too dry;



- The water and land management plan should take an integrated watershed management approach; and
- The management plan for the Athabasca watershed provides a good example of how industries can work together.

Agriculture

The impacts on water quality from intensive livestock operations and pesticides were concerns expressed at the Rocky Mountain House open house.

Historic Resources and Cultural Values

In Rocky Mountain House, it was mentioned that there are sensitive and cultural areas near/around water bodies that should be recognized. In addition, the identification of Aboriginal cultural and historical resources should be included in the management plan.

11.1.3.4 Quality of Life

The considerable improvement in water quality over the last 20 years was mentioned as a positive issue, however there was concern that these improvements can only continue with a strong economy. Additionally, it was suggested that the Alberta government look at the Norwegian oil and gas sector as an example for water management that may enhance the economic standard of living for all Albertans and Canadians.

11.1.3.5 Quality of Water

Water quality was one of the most commonly reported issues at both the Elk Point and Rocky Mountain House open houses. The specific concerns about water quality are given below.

- The ‘capacity’ of smaller villages and hamlets to ensure water quality (including delivered water supplies);
- Future availability and quality of water both in terms of domestic and agricultural uses;
- Roads that are not properly maintained by counties, leading to the erosion of ditches and polluted run-off;
- Damaging impacts from the road oil run-off from oil and gas activity; and
- Water quality related to wastewater treatment, including pharmaceuticals.

Additionally, it was mentioned that it is important to raise awareness of individual impacts on water quality.

11.1.3.6 Quantity of Water

Water quantity was an issue identified at all open houses. Specific comments and concerns are summarized below.

- The future availability of water;
- Lack of water for cattle;
- The amount of fresh water being lost due to oil recovery methods;
- Fluctuating water levels that ruin the littoral zone in the river and reservoir;
- The lack of water in the Battle River;
- Uncertainty about the impact of using data from the last 1000 years, which has been the wettest on record;
- Reduced flows and sediment infilling of the Sturgeon River within the City of St. Albert;
- Declining water levels in Sandy Lake;



- The effects of mining and aggregate extraction on aquifers;
- Wetland drainage reducing the amount of water storage in the watershed and reducing recharge of groundwater; and
- The 'cons' for aquatic life of stabilizing lake levels.

11.1.3.7 Public Understanding

Concern was expressed that the general public does not understand how integrated the natural water systems are and the importance of protecting them. The importance of raising awareness of how individuals impact water quality was also reported. Additionally, it was suggested that the impact of natural drought cycles, such as the Pacific Decadal Oscillations, on hydrology and historical data for inflow and outflow demands should be included in watershed planning.

11.1.3.8 Use and Management of Water

At NSWA open houses, the public discussed issues of water management that included municipal wastewater, the exporting of water, industrial use and diversion. Specific comments and concerns are summarized below.

Municipal Waste

- Municipal wastewater being dumped into the river; and
- Impacts from the City of Edmonton on the North Saskatchewan River.

Exporting of Water

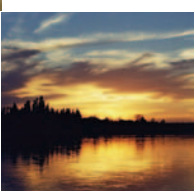
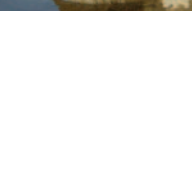
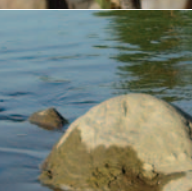
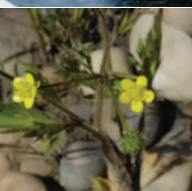
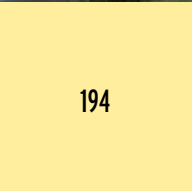
- The idea of selling water was both supported and refuted; and
- Government should retain control over water exports, not large corporations.

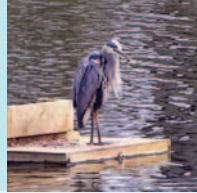
Industrial Use of Water

- Industry is using too much water and it needs to be monitored more closely;
- Chemical plants on the North Saskatchewan River are negatively impacting water;
- Industrial discharge to the North Saskatchewan River should be regulated more stringently; and
- Methane emissions from coal at Battle Lake.

Water Diversion

- The diversion of the Mackenzie and Peace River towards Elk Point; and
- Impacts from damming of the Colorado River could be used as comparison for the management plan.





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Appendix B: List of NSWA Members



APPENDIX B: NSWA Membership (February 2005)

NON GOVERNMENT ORGANIZATIONS

1. Alberta Conservation Association
2. Alberta Ecotrust
3. Alberta Lake Management Society
4. Alberta League for Environmentally Responsible Tourism (ALERT)
5. Bow River Basin Council
6. Bow River Project
7. Butte Action Committee for the Environment
8. Capital Health Authority
9. Cows & Fish Program
10. Ducks Unlimited Canada
11. East Central Regional Health Authority
12. Energy Efficiency Association
13. Environmental Law Centre
14. Environmental Resource Centre
15. Federation of Alberta Naturalists
16. Lakeland Regional Health Authority
17. Land Stewardship Centre of Canada
18. Legacy Lands Conservation Society
19. Northeast Alberta Water Management Coalition
20. Northwest Alliance Conservation Initiative
21. Parkland Residents Association
22. Partners FOR the Saskatchewan River Basin
23. Pembina Institute for Appropriate Development
24. Rocky & Nordegg Cooperative Fisheries Inventory Program
25. Rocky Riparian Group
26. Rossdale Community League
27. Saskatchewan Watershed Authority
28. Sierra Club, Prairie Chapter
29. The Living by Water Project
30. TOPSOIL
31. Toxics Watch Society of Alberta
32. Tri-town Environmental Society
33. Trout Unlimited Canada
34. Vermilion River Naturalist Club
35. Wonder of WaterRESEARCH/EDUCATION
36. Alberta Research Council
37. Edmonton Catholic Schools
38. Edmonton Science Outreach Network
39. Foothills Model Forest
40. Inside Education
41. Riverwatch
42. The King's University College



- 43. University of Alberta, Kinsella Research Station
- 44. University of Alberta, Renewable Resources Department
- 45. Water Institute for Semi-arid Ecosystems
- 46. YoWoChAs

CULTURE/RECREATION/TOURISM

- 47. Alberta Fish & Game Association
- 48. Alberta Recreation Canoe Association
- 49. Alberta Sport, Recreation, Parks and Wildlife Foundation
- 50. Alberta Trailnet Society
- 51. Banff National Park
- 52. Dickson Fish & Game Association
- 53. Edmonton & District Historical Society
- 54. Elk Island National Park
- 55. Kalyna Country
- 56. Midwest Tourism
- 57. Northeast Edmonton Heritage Conservation Initiative
- 58. Northwest Voyageurs Canoe and Kayak Club
- 59. River Valley Alliance
- 60. Riverland Recreational Trail Society
- 61. The Iron Horse Trail
- 62. Thorsby Fish & Game Association
- 63. Voyageur Ventures

AGRICULTURE

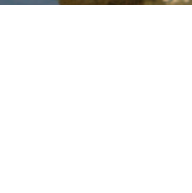
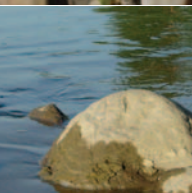
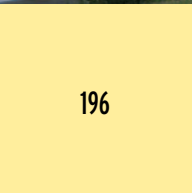
- 64. Alberta Beef Producers
- 65. Canadian National Committee for Irrigation Drainage
- 66. Grey Wooded Forage Association
- 67. Intensive Livestock Working Group
- 68. Restorative Ecological Agriculture Projects Society
- 69. St. Mary's Irrigation District
- 70. St. Paul Grazing Reserve

ABORIGINAL COMMUNITIES

- 71. Enoch First Nation
- 72. First Nations Alberta Technical Services Advisory Group
- 73. Métis Nation of Alberta
- 74. Paul First Nation
- 75. Saddle Lake Tribal Administration

INDUSTRY

- 76. Alberta Capital Region Wastewater Commission
- 77. Alberta's Industrial Heartland
- 78. AMEC Earth & Environmental Ltd.
- 79. Aquality Environmental Consulting
- 80. Aquascience
- 81. Dillon Consulting Ltd.



82. EBA Engineering Consultants Ltd.
83. ECL Environmental Services Limited
84. EduTransfer Design Association Inc.
85. Elk Point Chamber of Commerce
86. EnviroMak
87. EPCOR Water Services
88. Golder and Associates
89. Komex International
90. Noble Resource Management Ltd.
91. Northeast Capital Industrial Association
92. Nova Chemicals Corporation
93. Parkland Stone Landscaping
94. Petro-Canada
95. Shell Canada Ltd.
96. Strathcona Industrial Association
97. Sunpine Forest Products
98. The Canadian Salt Company Limited
99. Top Draw
100. TransAlta Utilities
101. Weyerhaeuser

GOVERNMENT

Federal

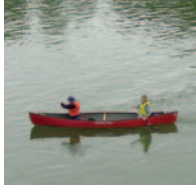
102. Agriculture & Agri-Food Canada; Prairie Farm Rehabilitation Administration
103. Canadian Heritage Parks Canada
104. Fisheries and Oceans Canada
105. Department of Indian & Northern Affairs

Provincial

106. Alberta Agriculture, Food & Rural Development
107. Alberta Community Development
108. Alberta Energy and Utilities Board
109. Alberta Environment
110. Alberta Environmentally Sustainable Agriculture
111. Alberta Health and Wellness
112. Alberta Sustainable Resource Development
113. Special Areas

Municipal

114. Alberta Urban Municipalities Association
115. City of Camrose
116. City of Edmonton, Community Services
117. City of Edmonton, Drainage Services
118. City of Edmonton, Planning & Development
119. City of Leduc, Environmental Advisory Board
120. City of Lloydminster
121. City of Spruce Grove
122. City of St. Albert



- 123. North West Alliance Conservation Initiative
- 124. Town of Bruderheim
- 125. Town of Devon
- 126. Town of Drayton Valley
- 127. Town of Elk Point
- 128. Town of Gibbons
- 129. Town of Rocky Mountain House
- 130. Town of Smoky Lake
- 131. Town of Tofield
- 132. Village of Marwayne

Counties & MD's

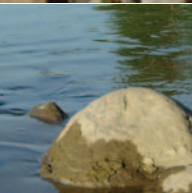
- 133. Beaver
- 134. Camrose
- 135. Clearwater
- 136. Flagstaff
- 137. Lac Ste Anne
- 138. Lacombe
- 139. Lamont
- 140. Leduc
- 141. Minburn #27
- 142. Paintearth #18
- 143. Parkland
- 144. Red Deer
- 145. Smoky Lake
- 146. St. Paul #19
- 147. Strathcona
- 148. Engineering & Environmental Planning
- 149. Environmental Operations
- 150. Sturgeon
- 151. Two Hills #21
- 152. Vermilion River #24
- 153. Wetaskiwin #10
- 154. M.D. Brazeau
- 155. M.D. of Wainwright No. 61

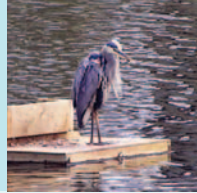
CITIZEN MEMBERS

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WATERSHED STEWARDSHIP GROUPS

- 174. Battle Lake Watershed Enhancement Association
- 175. Beaverhill Watershed Initiative
- 176. Big Lake Environment Support Society
- 177. Bonnie Lake Sustainability Association
- 178. Devon Watershed Alliance
- 179. Friends of Lily Lake
- 180. Iron Creek Watershed Improvement Society
- 181. Rocky Riparian Group
- 182. Vermilion Watershed Initiative





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Appendix C: Indicator Metrics Ranking Categories and Subwatershed Health Scores



13.0 APPENDIX C: INDICATOR METRICS RANKING CATEGORIES AND SUBWATERSHED HEALTH SCORES

Indicator Rankings:

Linear disturbance

Subjectively, linear disturbance below 2% was considered good, between 2 and 3 percent was fair and above 3% was deemed poor.

Total phosphorous

Subjectively, total phosphorus less than 100 ug/L was good, between 100 ug/L and 199 ug/L was fair and 200 ug/L was deemed poor.

Livestock density

Subjectively, livestock density (surrogate of manure production used) that was low was deemed good, medium low and medium were deemed fair, medium high and high were deemed poor.

Land disturbance - other

Subjectively, subwatersheds that were less than 50% disturbed were deemed good, between 50% and 89% fair, and greater than 90% poor.

Riparian health – Cows and Fish rankings

Subjectively, the ranking that rated highest by percentage was used to rank the subwatershed. For example, in the Frog Subwatershed there were more healthy riparian areas (46%) than any other ranking, therefore the watershed was deemed to have 'healthy' riparian areas.

E.coli

Subjectively, *E.coli* counts between 0 and 50 were deemed good, counts between 51 and 100 were deemed fair, and counts greater than 100 were deemed poor.

Wetlands

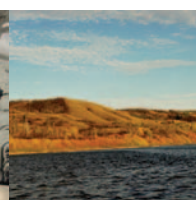
Subjectively, subwatersheds with greater than 10% wetlands were deemed good, between 9% and 5% fair, and below 5% were deemed poor.

Alberta Surface Water Quality Index

Subjectively, the ASWQI subwatersheds with a rating of good were deemed healthy, good-fair, and marginal as fair, and poor were deemed poor.

Aquatic macrophytes

No systematic studies were done in any watershed. However, if studies found aquatic macrophytes, the overall health in the watershed was assumed to be 'fair'. This knowledge gap must be addressed before a more accurate assessment can be made.



Benthic invertebrates

No systematic studies were done in any reach of the watershed. However, if studies found benthic invertebrates, the overall health in the watershed was assumed to be 'fair'. This knowledge gap must be addressed before a more accurate assessment can be made.

Fish populations

No systematic studies were done in any reach of the watershed. However, if studies found fish populations existed, the overall health in the watershed was assumed to be 'fair'. This knowledge gap must be addressed before a more accurate assessment can be made.

Subwatershed Health Scores:

Cline

Of the 4 indicators assessed, 3 were good, 1 was fair, and 1 was poor, yielding an overall subjective rating of **good**.

Brazeau

Of the 7 indicators assessed, 5 were good, 1 was fair, and 1 was poor, yielding an overall subjective rating of **good**.

Ram

Of the 8 indicators assessed, 6 were good, 2 were fair, and 0 were poor, yielding an overall subjective rating of **good**.

Clearwater

Of the 6 indicators assessed, 4 were good, 2 were fair, and 0 were poor, yielding an overall subjective rating of **good**.

Modeste

Of the 10 indicators assessed, 0 were good, 6 were fair, and 4 were poor, yielding an overall subjective rating of **fair**.

Strawberry

Of the 11 indicators assessed, 3 were good, 3 were fair, and 5 were poor, yielding an overall subjective rating of **poor**.

Sturgeon

Of the 9 indicators assessed, 2 were good, 5 were fair, and 2 were poor, yielding an overall subjective rating of **fair**.

Beaverhill

Of the 7 indicators assessed, 0 were good, 4 were fair, and 3 were poor, yielding an overall subjective rating of **fair**.

White Earth

Of the 6 indicators assessed, 2 were good, 3 were fair, and 2 were poor, yielding an overall subjective rating of **fair**.

Vermilion

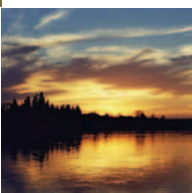
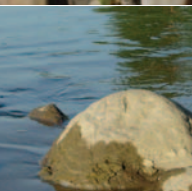
Of the 7 indicators assessed, 0 were good, 2 were fair, and 5 were poor, yielding an overall subjective rating of **poor**.

Frog

Of the 7 indicators assessed, 1 was good, 6 were fair, and 0 were poor, yielding an overall subjective rating of **fair**.

Monnery

Of the 6 indicators assessed, 0 were good, 5 were fair, and 1 was poor, yielding an overall subjective rating of **fair**.



Bigstone

Of the 9 indicators assessed, 1 was good, 4 were fair, and 4 were poor, yielding an overall subjective rating of **poor**.

Paintearth

Of the 8 indicators assessed, 2 were good, 4 were fair, and 2 were poor, yielding an overall subjective rating of **fair**.

Iron

Of the 7 indicators assessed, 0 was good, 4 were fair, and 3 were poor, yielding an overall subjective rating of **fair**.

Ribstone

Of the 8 indicators assessed, 2 were good, 3 were fair, and 3 were poor, yielding an overall subjective rating of **poor**.

Blackfoot

Of the 5 indicators assessed, 0 were good, 1 was fair, and 4 were poor, yielding an overall subjective rating of **poor**.

Sounding

Of the 5 indicators assessed, 2 were good, 2 were fair, and 1 was poor, yielding an overall subjective rating of **fair**.

Ranking of Subwatersheds:

“Good”:

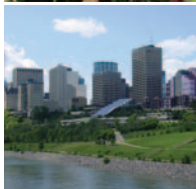
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- Brazeau
- Ram
- Clearwater

“Fair”:

- Modeste
- Sturgeon
- Beaverhill
- Whitearth
- Frog
- Monnery
- Paintearth
- Iron
- Sounding

“Poor”:

- Strawberry
- Vermilion
- Bigstone
- Ribstone
- Blackfoot

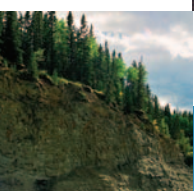
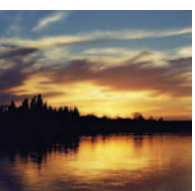
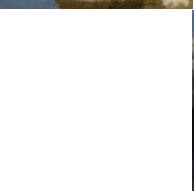
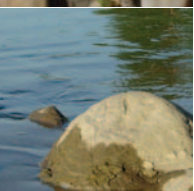


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Acknowledgments

Due to the length and magnitude of this project, both in development and completion, there have been many NSWA members involved with the project direction. The NSWA has tracked membership of this Steering Committee over time. Current management apologizes for any omissions in this list.

The report would not have been possible without the efforts of many individuals and organizations. This project was conceived at a meeting in Edmonton on November 15, 2001. The following individuals met to discuss the current project: Christine Della Costa (FEESA; now Inside Education); Bruce McCulloch (Fisheries and Oceans Canada); Dave Trew, Anne Marie Anderson, Ed Bulger, Hamid Namsechi, Sal Figliuzzi, Jason Boisvert, Douglas Thrussell (Alberta Environment); Cherie Westbrook, Jamie Wuite (Alberta Agriculture, Food and Rural Development); Ron Bjorge, Kevin Tripp (Alberta Sustainable Resource Development); Adele Mandryk (then NSWA Manager); and Cindy Shepel (EPCOR Water Services). Through the efforts of NSWA Manager Adele Mandryk, terms of reference were created and funds were raised to start the project.

NSWA partner agencies are largely responsible for the donation of digital data products and guidance, without either of which this project would not have been as successful. The following should be recognized: Andy Lamb from Alberta Environment; Richard Escott, Jason Vanrobaeys, Nolan Becker, David Gibbens and Shannon Hall from Agriculture and Agri-Food Canada – PFRA; Tim Martin and Jamie Wuite from Alberta Agriculture, Food and Rural Development; Kevin Tripp and Phil Mackenzie from Alberta Sustainable Resource Development; and Tracy Scott, Nicole Hopkins and David Kay from Ducks Unlimited Canada. Special thanks go to Ducks Unlimited Canada for the donation of a GIS workstation and server space during 2003/2004. Significant technical support was provided to this project by Nicole Hopkins at the Edmonton DUC office.

Other NSWA partners provided timely riparian health data for inclusion into this report including Lorne Fitch and Kelsey Spicer-Rawe (Cows and Fish), Kristin York (AESAs – Counties of Leduc and Wetaskiwin), Blake Mills (Alberta Conservation Association) and Andrew Schoepf (Alberta Fish and Game Association).

NSWA members were instrumental to the success of the public outreach component of this project. The NSWA would like to thank the Rocky Riparian Group, Delaney Anderson (AESAs – Smoky Lake and St. Paul Counties) of the Bonnie Lake Sustainability Association, and Michael Dell of Trout Unlimited Canada, and Locke Girvan and Doug Marvin of Strathcona County for their promotion of the Public Open Houses.

The Steering Committee members who have overseen this project are recognized for their efforts. Committee members have included Kerry Brewin, Ernie Ewaschuk, Peter Denney, Richard Escott, Gail Feltham, Paul Goodman, Jordan Kuschminder, Adele Mandryk, Bruce McCulloch, Diana Rung, Tracy Scott, Cindy Shepel, Doug Thrussell, Susan Tiege, Beth Michener, Ross Wein, and Carol Wilson.

Finally, the NSWA Membership is to be thanked for their ongoing support. NSWA members determine project work. This report is to be recognized as a foundational document for the Integrated Watershed Management Plan.

