

**Watercourse Crossings in Agro-  
Manitoba: Assessment of  
Operational Statement  
Applicability and Development of  
a Management Approach**

By: Jaime Clarke

A thesis submitted for partial fulfillment of  
requirement for the Degree

**Master of Natural Resource Management  
(M.N.R.M)**

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Applicability and Development of a Management Approach

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Jaime Clarke

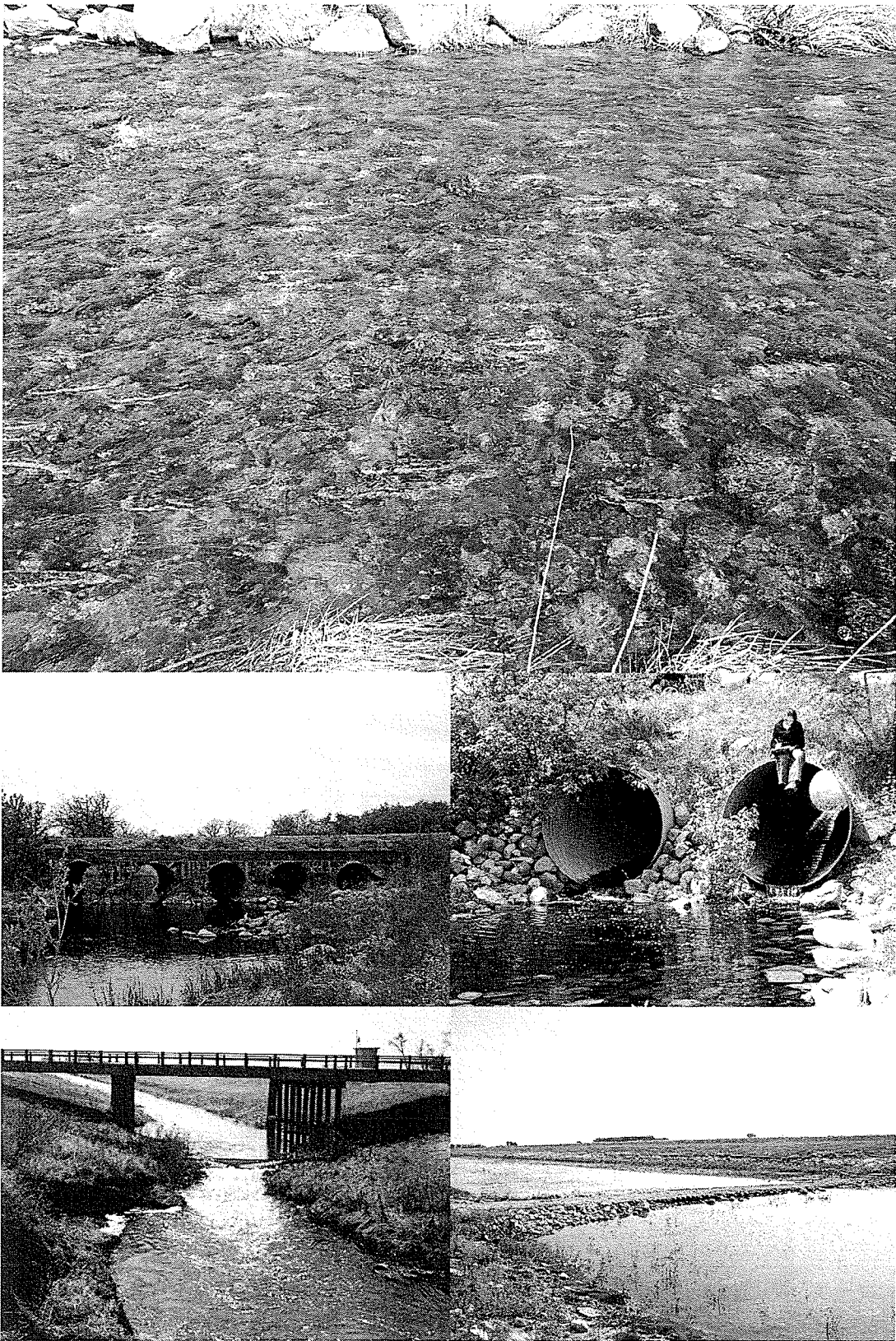
A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of  
Manitoba in partial fulfillment of the requirement of the degree

MASTER OF NATURAL RESOURCE MANAGEMENT

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**Frontispiece: Pictures of fish and road crossings within Manitoba**

Source: Department of Fisheries and Oceans (2007a).

## ABSTRACT

The purpose of this research was to assess the applicability of an operational statement (OS) and develop a management approach that the Department of Fisheries and Oceans Canada (DFO) could use to incorporate economic, ecological, and social elements to achieve good governance as it applied to watercourse crossing projects in agro-Manitoba that reflected stakeholder needs and mandates.

A small watercourse-crossing inventory was conducted in the Morris River sub-watershed to obtain data that was combined with existing provincial data on fish species composition and abundance, and federal habitat classification data, to develop a comprehensive integrated GIS-based map.

Interviews were conducted with representatives from federal, provincial, and municipal governments who have a direct role in, responsibility for, or knowledge related to watercourse crossings, including a private consultant with local area knowledge.

A thorough literature review identified the many elements involved with watercourse crossing projects and their management to provide an understanding of the underlying complex issues. Climate change data was also examined to identify additional impacts that could also affect the development and implementation of an operational statement for Class E habitats.

This research determined that an operational statement for watercourse crossing projects could and should be applied to low risk Class E habitats within parts of the LaSalle, Morris and Plumb River sub-watersheds and extended to parts of the Seine, Rat, and Roseau River sub-watersheds as well, to accommodate the growing numbers of watercourse crossing projects that are anticipated over the next few years. The development and use of this OS and integrated GIS - based watershed map constitute the management approach that DFO should follow.

The proposed management approach enables DFO to comply with its mandate while being sensitive to the provincial and municipal governments' needs and recognizing the importance of the economic and social needs of agricultural community. The approach has support from those interviewed, as it will enable DFO Fish Habitat Biologists to focus on protecting high quality fish habitat and alleviate pressure on DFO's referral system. On a provincial and municipal level, the approach could increase regulatory compliance and reduce overall costs. It could also aid in strategic budgetary and logistical planning when maintaining and replacing ageing watercourse crossing infrastructure by identifying sensitive watercourse habitat and potential sites where an operational statement could apply. Recommendations are provided.

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## Table of Contents

Frontispiece: Pictures of fish and road crossings within Manitoba .....	i
ABSTRACT .....	ii
ACKNOWLEDGEMENTS .....	iv
List of Tables.....	ix
List of Figures .....	x
List of Photos .....	xii
Acronyms .....	xiii
Glossary.....	xiv
1.0 INTRODUCTION.....	1
1.1 Legislative Mandate .....	1
1.2 Problem and History.....	4
1.3 Opportunity Statement .....	7
1.4 Purpose .....	8
1.5 Objectives.....	8
2.0 Background .....	10
2.1 Ecological and Technical Overview .....	10
2.1.1 Diversity of Habitats in Manitoba.....	10
2.1.2 Species Habitat Preferences/Requirements.....	15
2.1.3 Watercourse Crossing Infrastructure.....	19
2.1.4 Pathways of Effects.....	22
2.1.5 Impacts .....	24
2.2 Government Agencies .....	25
2.2.1 Regulators.....	25
2.2.2 Developers.....	27
2.2.3 Memorandum of Understanding .....	29
2.2.4 Scientific Basis for Regulatory Work .....	30
2.2.5 Interactions With Other Stakeholders .....	31
2.3 Case Studies .....	32
2.3.1 Introduction .....	32

2.3.2 Case Study I .....	32
2.3.3 Case Study II .....	33
2.3.4 Case Study III.....	35
2.3.5 Case Study Discussion .....	37
2.4 Datasets .....	38
2.4.1. DFO's Internal Interactive Mapping System .....	38
2.4.2 Manitoba Lands Initiative .....	39
2.4.3 Red River and Lake Winnipeg Studies .....	40
2.5 Discussion .....	40
3.0 METHODS.....	42
3.1 Introduction .....	42
3.2 Crossing Inventory .....	43
3.2.1 Procedures .....	45
3.2.2 Obstacles .....	50
3.3 GIS Mapping.....	50
3.3.1 Procedures .....	50
3.3.2 Obstacles .....	51
3.4 Information Survey Interviews.....	52
3.4.1 Procedures .....	52
3.4.2 Obstacles .....	53
3.5 Climate Change Data .....	53
4.0 RESULTS.....	55
4.1 Crossing Inventory .....	55
4.2 Interactive Map .....	57
4.3 Information Survey Interviews.....	60
4.3.1 Interview Subjects.....	60
4.3.2 Results .....	61
4.4 Habitat Classification and Map Availability.....	63
4.4.1 DFO's Proposed Habitat Classification System.....	63
4.4.2 DFO's Habitat Classification Map Availability.....	66
4.5 DFO's Proposed Risk Management Framework .....	66



4.6 Operational Statement & Best Management Practices .....	68
4.7. Climate Change .....	68
5.0 DISCUSSION .....	70
5.1 Meeting Objectives .....	71
5.1.1 Objective 1 .....	71
5.1.2 Objective 2 .....	71
5.1.3 Objective 3 .....	73
5.1.4 Objective 4 .....	74
5.1.5 Objective 5 .....	74
5.1.6 Objective 6 .....	75
5.2 Crossing Inventory .....	78
5.3 Interactive Map .....	79
5.4 Validity of Interview Responses .....	80
5.5 Habitat Classification and Map Availability .....	81
5.6 Operational Statement & Best Management Practices .....	82
5.7 Research Limitations.....	84
5.8. Climate Change .....	85
5.9 Administration/Policy .....	86
5.10 Design Standards / Guidelines .....	87
5.12 Further Investigative Research into the Literature.....	90
6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....	91
6.1 Summary .....	91
6.2 Conclusions .....	91
5.3 Recommendations .....	95
REFERENCES.....	98
APPENDIX A – Manitoba Indicator Species .....	104
APPENDIX B – ADI Field Data Sheet.....	105
APPENDIX C – Stream Characteristics .....	107
APPENDIX D – Description of Residual Effects.....	108
APPENDIX E – Proposed Habitat Classification Parameters .....	110
APPENDIX F – Culvert Crossing Inventory Field Data Sheet .....	111

APPENDIX G – Ethics Approval ..... 112  
APPENDIX H – Interview Responses ..... 113  
APPENDIX I – Graphs Identifying Climate Change Trends for Temperature,  
Evaporation/Precipitation and Total Soil Moisture Content ..... 116

## List of Tables

Table 1: Summary of habitat preferences of various indicator fish species in Manitoba.	16
Table 2: Acts, Policies, and Regulations that may apply to water-course crossings in agro-Manitoba. ....	30
Table 3: Table showing the breakdown of crossing structures sampled. ....	56
Table 4: Table showing breakdown by damage of ranked culvert sampled. ....	57
Table 5: Subjects interviewed for research, providing a description of their perspective.	61