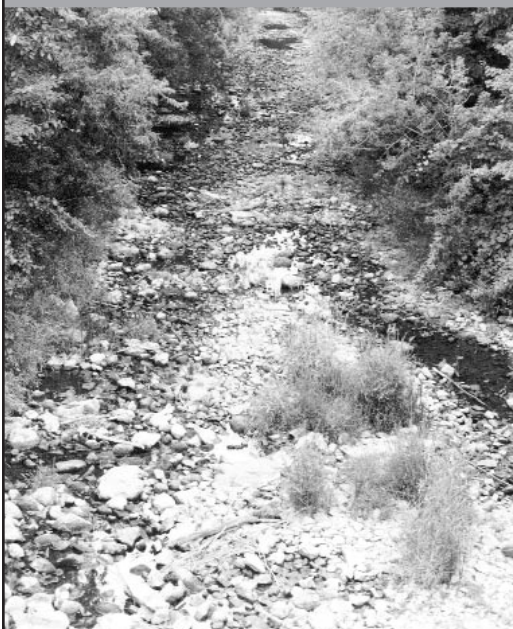




Jock River Watershed Management Plan

November 2001



*" . . . The Jock
That stands one-half the
year with slime
overgrown,
And runs the other half
all o'er the town"*

Hamnett Pinhey, 1832

Acknowledgements

The *Jock River Watershed Management Plan* is produced by the RVCA in co-operation with its member municipalities, provincial and county agencies and members of the watershed community. Special thanks are due to the "Friends of the Jock River" watershed group who helped guide the development of the plan.



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Cover: Goodwood Marsh, Beckwith Township
Jock River, Richmond, 1976
Looking downstream from Ashton Dam

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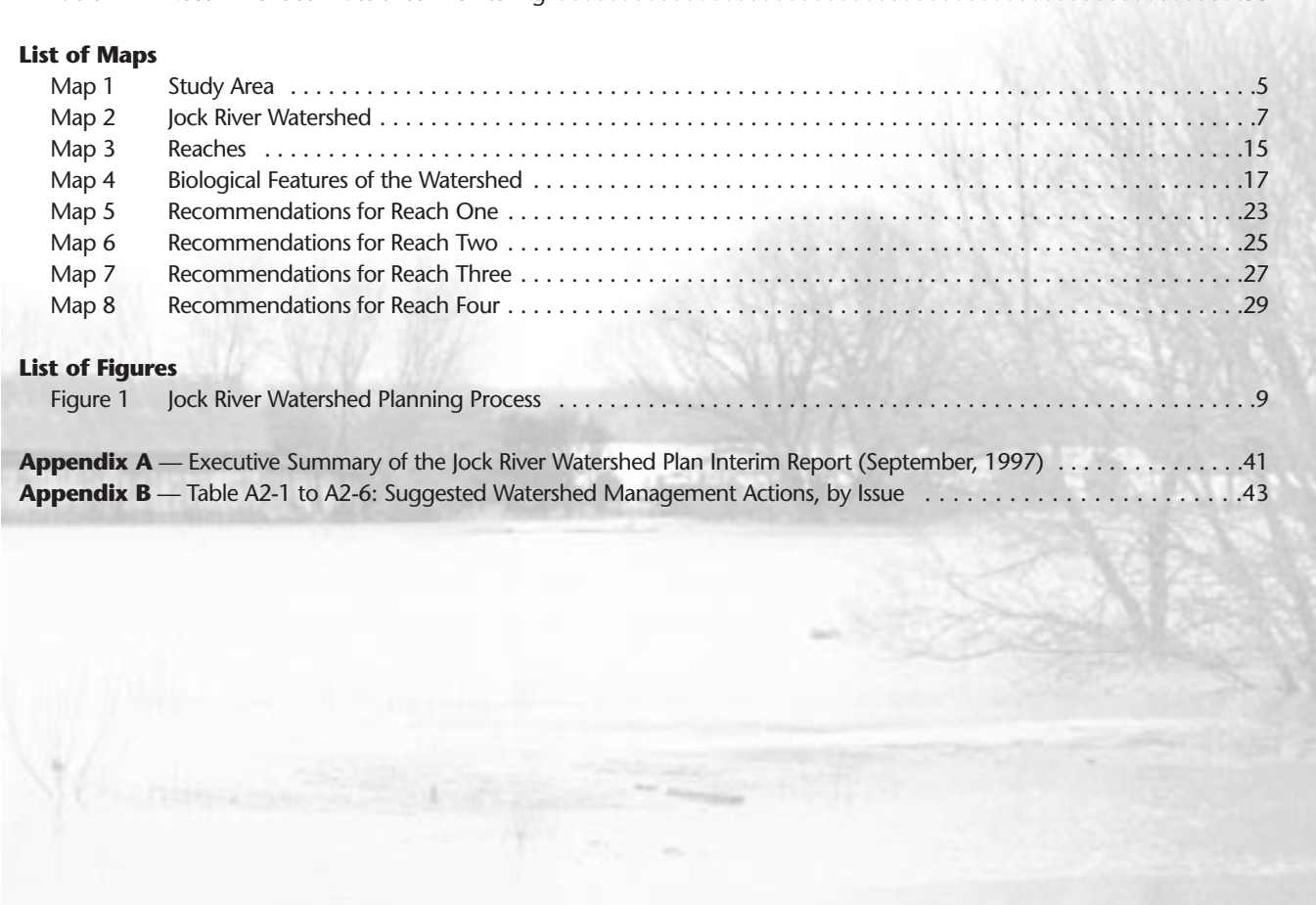
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CHAPTER ONE

Introduction

The Rideau Valley Conservation Authority started a watershed planning exercise on the Jock River watershed in cooperation and consultation with municipalities and several provincial ministries. See Maps 1 and 2. The objective was to have the watershed community prepare a watershed management plan, using the ecosystem approach, that would adequately address a wide range of issues that were of interest and concern to the watershed community. The ultimate goal was to identify a strategy to maintain or improve the health of the ecosystem.

The watershed planning process is shown in Figure 1. Community-based interest in Jock River watershed management has grown, as indicated by the more formal establishment of the Friends of the Jock River and its expanding list of activities and accomplishments. The watershed planning initiative has played a significant role in raising community awareness and involvement in watershed management to a higher level. The *Jock River Watershed Management Plan* will guide watershed management activities in the Jock River over the next several years. The Plan is being circulated for consideration and eventual adoption by all individuals and organizations with a role to play in watershed management.

The format of the *Jock River Watershed Management Plan* has been structured to conform with the *Guidelines for Watershed, Subwatershed and Stormwater Site Management*



Fran Little, Brian Finch, Community Action — Jock River, 1999

Planning in the Region of Ottawa-Carleton (Water Quality Committee, 1999).

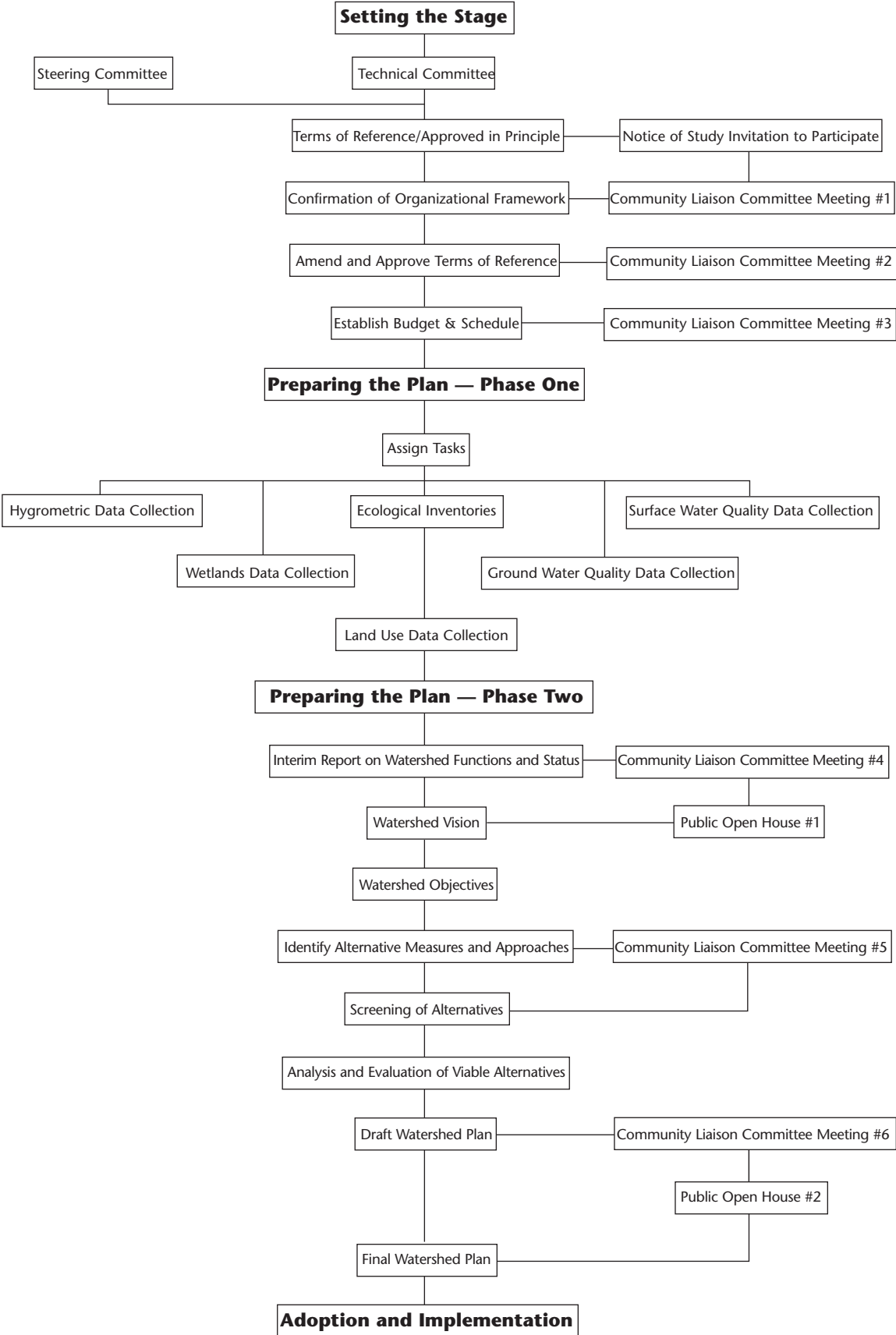
This report's content on progress to date within the planning process, and on the existing state of the watershed is limited to summaries in Chapters 2 and 3. That information is adequately covered in the *Jock River Watershed Plan — Interim Report* published in 1996, and various newsletters distributed over the past several years. A review of the Watershed Vision and Objectives, as they relate to the dominant watershed management issues, is covered in Chapter 4.

The key parts of this report are in Chapters 5 and 6. A recommended watershed management strategy to be pursued over the longer term is discussed in Chapter 5 and presented in Appendix B, in the form of a series of tables — one for each of the six dominant watershed issues — in which recommended watershed management activities of seven different kinds are listed. In Chapter 6, the watershed management activities which are most important to implement over the short term (and who should implement them) have been suggested. In keeping with the principles of adaptive environmental management, a protocol for watershed monitoring and periodic review of the watershed management plan is also suggested.



"Visioning" Workshop

Figure 1: Jock River Watershed Planning Process



CHAPTER TWO

Watershed Management Planning Process

The following is a synopsis of the watershed management planning process which has been followed for the Jock River:

- process started in 1994, first steering committee meeting in April, terms of reference adopted in September
- data collection phase proceeded through 1995, *Jock River Watershed Plan — Interim Report* was published and distributed in September 1996
- community dialogue on watershed visions and objectives was carried out in January and February of 1997, results documented in the May, 1997 paper entitled *Jock River Watershed Plan — Creating Our Watershed's Future; Watershed-Wide Community Workshop As Heard Report*, and communicated in issues number 5 and 6 of "Talk Along the Jock", a newsletter on Jock River watershed planning progress, released in June and December, 1997
- through 1998 and 1999, there were two preliminary attempts to list the necessary elements of an effective watershed management plan, for review by the Technical Advisory Committee (TAC); in the fall of 1999 the TAC found that it was necessary to organize the suggested watershed management actions within a strategic framework which more directly relates to the key watershed issues, as perceived by the community and/or environmental management practitioners; this also involved making an interpretation of the Watershed Vision and Objectives as expressed in the Community-Wide Workshop *As Heard Report*
- throughout this period (1994 to 1999) various watershed management activities have continued and some new activities have begun (most importantly by the Friends of the Jock River), even in the absence of a completed watershed management plan
- the document *Guidelines for Watershed, Subwatershed and Stormwater Site Management Planning in the Region of Ottawa-Carleton* produced in 1999 became available and was useful for providing a focus to the discussions resulting in the current document



Cleaning up the Jock River

CHAPTER THREE

Watershed Description

A full description of what was known about the watershed to September of 1996 is contained in the *Jock River Watershed Plan — Interim Report*. The executive summary of the Interim Report is attached here as Appendix A. A synopsis and map of the four Jock River reaches follows.

Reach Descriptions

For ease of describing and understanding the watershed — its features, functions, issues and interactions — and for recommending action strategies, the watershed has been divided into reaches. The reaches have been chosen based on similar land uses in each. Reach One is from the mouth of the Jock River upstream to Highway 416. Reach Two stretches from Highway 416 upstream to the outlet of the Richmond Fen wetland. Reach Three extends from the outlet of the Richmond Fen wetland to the base of the Ashton dam and Reach Four extends from the Ashton dam to the headwaters. See Map 3.

Reach One — Mouth of the River to Highway 416

In Reach One, (see Map 4) land use is mostly urban with limited forest cover (20% of reach) and very limited (almost non-existent) wetland cover. This short reach includes the majority of the watershed population and urban/suburban development compared to the other reaches. The main growth node — the South Urban Community — is contained in this reach. About 75% of Reach One will be urbanized in the next 20 years. The entire South Urban Community (including Gloucester) is expected to have a population of 100,000 by that time. Several stormwater/master drainage studies are in place for most of this reach and collectively they function in many ways as a Subwatershed Plan.

Water quality in this reach is consistent with the rest of the Jock River — high bacteria and nutrient levels and low suspended solids levels. Riparian vegetation is poor with many stretches devoid of significant natural vegetation. Significant biological features and functions in this stretch include spawning areas for smallmouth bass, walleye and muskellunge.

Water levels in summer are typically low downstream of the Heart's Desire weir, and Jockvale Road. Due to the lack of vegetation, urban development and the efficiency of agricultural drainage in this stretch, few natural storage areas remain and runoff to the river and its tributaries is rapid.

The flood plain in this reach is wide — up to 2 km in width in some areas. The Heart's Desire weir, which is seasonal, was put

in place to hold back water for aesthetic reasons. Today it is believed locally that the weir has affected erosion rates on the south bank of the river and is an impediment to fish movement.

Recreation in this reach varies from fishing in the Jock River to passive nature appreciation, snowmobiling and hiking. The former City of Nepean owned three key waterfront parks — the Bow of the Jock (located in reach two), Jock River Landing and Half Moon Bay — which offer passive recreational opportunities — picnicking, canoeing, and nature appreciation. Besides these main parks, the City owned many parcels of land along the river. The City had a policy to purchase or to have donated any lands along the Jock River deemed appropriate for use as a recreation corridor.

Reach Two — Highway 416 to outlet of Richmond Fen wetland

This reach includes the reach of the Jock River from Highway 416 to the outlet of the Richmond Fen Wetland and includes the subwatersheds of the Monaghan Drain, Flowing Creek and Leamy Creek. Land use is predominantly agricultural however portions of the residential communities of Bridlewood, Stittsville and Richmond fall in this area.

There are two wetlands in this reach — one provincially significant wetland at the head waters of Flowing Creek (North Goulbourn) and one unclassified wetland (which may be part of the North Goulbourn Wetland complex) south of Fallowfield Road, also in the Flowing Creek subwatershed. Approximately 25% of the land in this reach is forested, primarily in the upper portions of the Flowing Creek subwatershed, north of Fallowfield Road. Three fully designated or candidate Areas of Natural and Scientific Interest occur in this reach. Water quality in this reach is also poor as high bacteria and nutrient levels prevail. Total Suspended Solids (TSS) levels are high in the tributaries. Despite its name, Flowing Creek has low water levels and flow during the summer months, as do the other tributaries. Flow and water levels in the main river are such that this stretch of the river is navigable most of the year. Flooding in this reach ranges from restricted to the river channel to spreading extensively beyond the normal banks during a 100 year flood situation. Few houses are subject to flooding during a 100 year flood. One seasonal weir exists in this reach in the Village of Richmond. Engineered flood plain mapping of the Jock River is available throughout Reaches One and Two.

Walleye spawning occurs above Richmond. Tributaries in this stretch mostly lack riparian vegetation, are heavily impacted by urban development and farming yet support some non-sport fish species. The main branch of the river also lacks riparian vegetation in most stretches.

Farming is the most intensive land use in this stretch of the river. The Village of Richmond is the major urban centre and is currently undergoing some expansion.

A number of private bridges cross the river which were historically (and in some cases, presently) used to move livestock and equipment. These may be obstacles to fish movement and water flow. Ownership of the bed of the river is in question here.

Recreation potential is much the same as Reach One. The Bow of the Jock River park, located at the outlet of the Monaghan Drain, provides canoeing opportunities, play structures and limited nature appreciation opportunities. This is a rare stretch of the river in which boating is possible due to higher water levels and flatter terrain during the summer months. The Rideau Trail, used for hiking and skiing runs along the Jock River in this stretch providing a passive recreational experience. Other recreational opportunities are limited due to a lack of vegetative cover and diversity. The Richmond Conservation Area lies within the village of Richmond and consists of flood plain land and abandoned (until recently) sewage lagoons. Recently, some work has been done to make it possible to use one of the lagoon cells for sewage during emergencies or planned maintenance. Management of the area will maintain it for birding, wildlife conservation and passive recreation.

Reach Three — Richmond Fen Wetland to the base of the Ashton Dam

This reach extends from the Richmond Fen wetland outlet to the base of the Ashton dam and includes the subwatersheds of Nichols and King's Creeks and Hobb's and Jinkinson Drains. Approximately 40% of this reach is forested. This reach contains a portion of the significant Marlborough Forest, (12,000 ha) much of which is publicly-owned, and is used for hiking, skiing, and nature appreciation. This reach is home to 11 provincially significant or unclassified wetlands, the most important of which is the Richmond Fen Wetland. This provincially significant wetland occupies more than 2,000 hectares and is important as a unique fen environment (one of the largest in southern Ontario), for providing habitat for four rare species, as a flood attenuation area, for maintaining baseflow, for groundwater recharge and for improving water quality. Significant habitats in this reach include the Fen wetland, white sucker spawning at the base of the Ashton dam, and two Earth Science Areas of Natural and Scientific Interest. Riparian vegetation is lacking in some stretches of the river.

Water quality in this reach is much like the first two with high counts of nutrients and bacteria. Cattle access to the river is not an uncommon site here. The exception to this is King's

Creek where bacteria levels are often lower than the provincial guideline and total phosphorus levels are the lowest in the watershed (although still at or above the guideline). This is likely due to the limited amount of agricultural activity in this subwatershed, the lack of development and the presence of wetlands and woodlots. Water levels in this reach, like flow, are limited in the summer months with much of the reach non-navigable during this time. This reach is the site of the annual Jock River canoe race which can only be held during the spring to ensure adequate water levels.

Development in this area is sporadic being limited to a few severances and estate residential subdivisions. Munster Hamlet experiences problems with its sewage lagoons as the cells leak, meaning raw sewage reaches the Jock River. Efforts are underway to improve the disposal of waste in this community. Spray irrigation of effluent and the application of biosolids is also practised nearby.

Reach Four: Ashton Dam to the Headwaters

The reach includes the Jock River from (and including) the Ashton Dam, upstream to and including the headwaters of the river. Land use in this reach is a mixture of pockets of agriculture and rural land uses. The hamlets of Franktown and Ashton are located here but are very small population centres. With the exception of the pockets of agriculture and hamlet lands, the reach is mostly forest (58%) and wetlands (32%). Significant biological features include Goodwood Marsh, which is a provincially significant wetland and a Regionally Significant Life Science Area of Natural and Scientific Interest, and several deer yards, located at the watershed boundaries. The Goodwood Marsh performs an important hydrologic and ecological role in the watershed due to its size and regional significance. There are seven wetlands in this reach of which five are unclassified and two are provincially significant. Riparian vegetation is good.

Water quality information in this reach is limited but the information that does exist is consistent with the rest of the watershed — high nutrient and high bacteria levels yet relatively low suspended solids levels. The Ashton Dam was erected in the 1950s to ensure a steady supply of water for fire control. It serves no hydrologic function and is in use today merely for aesthetic reasons. Operation of the dam has been controversial in the past with unauthorized operation by local residents.

The Goodwood Marsh allows for limited water recreation opportunities such as canoeing and hunting waterfowl. Snowmobiling and cycling are other opportunities offered in this area. Goodwood Marsh appears to be a groundwater discharge zone.

Ground water quality testing demonstrates that leachate emanating from a site in Beckwith Township, part of which was once used for landfill, is reaching the Jock River watershed and has had impacts on groundwater quality.