



**A Cooperative Management Planning Initiative
for the Credit River Fishery**

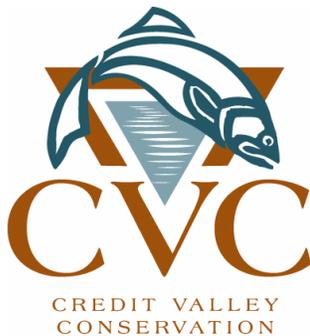
Ministry of Natural Resources

and

Credit Valley Conservation

2002

Appendix A – Complete List of Issues Strategies and Tactics



Ministry of Natural Resources
Ministère des Richesses naturelles

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ISSUES, STRATEGIES AND TACTICS

The strategies and tactics have been developed based on these goals, objectives and guiding principles determined by the Steering and Technical committees.

Note: *The table is in order of priority between and within the issues, strategies and tactics.*

GOAL

“Healthy aquatic ecosystems that provide sustainable benefits, contributing to society’s present and future requirements for a high quality environment, wholesome food, employment and income, recreational, activity, and cultural heritage.” (SPOF II, MNR).

OBJECTIVES

- Protect healthy aquatic ecosystems
- Rehabilitate aquatic ecosystems
- Improve cultural, social and economic benefits from the aquatic resources of the Credit River

1 ISSUE: HABITAT

GUIDING PRINCIPLES

- Protect and / or improve water quantity
- Protect and / or improve water quality
- Protect and / or improve physical habitat
- Protect and / or improve sustainable productivity / diversity with an ecosystem approach

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.a) Water Quantity		
1.a) 1. Lack of watershed-wide management of water-takings (e.g., permitted water withdrawals may exceed water supply) resulting in impacts on fish habitat.	1.a) 1.1. Need better permit management and monitoring of private and municipal wells and surface withdrawals.	<p>1.a) 1.1.1. Encourage the MOE to continue the moratorium on new water taking permits until a water budget is complete. (MNR, CVC).</p> <p>1.a) 1.1.1. Develop a water budget for the Credit watershed defining minimum baseflows to be maintained or other flow targets (including subwatershed). These may be combined with temperature targets (MOE, CVC, MNR).</p> <p>1.a) 1.1.2. Update water-taking policy and guidelines based on a water budget and require a public process (EA, EBR) for all water-taking policy and permits (MOE, CVC, MNR).</p> <p>1.a) 1.1.3. Inventory water-taking permits and seasonal water-taking patterns (Initiated at CVC, MOE).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		<p>1.a) 1.1.4. Audit and enforce existing water-taking. Consider increasing fines (MOE, CVC).</p> <p>1.a) 1.1.5. Develop and support mechanisms that improve MOE participation and action e.g., lobbying, MOU, legal agreement, delegation of authority (MNR, CVC, Municipalities, NGOs, Public).</p> <p>1.a) 1.1.6. Determine priority uses and allocations. Also, consider seasonal limits (urban growth, maintenance of baseflow) (MOE, MNR, Municipalities, CVC).</p> <p>1.a) 1.1.7. Discuss with MOE cumulative effects of all water-taking (including tanker trucks) and update policies and guidelines (<50,000L per day) as required by Water Resources Act to ensure sustainability of fish habitat features and functions (DFO, MNR, CVC).</p>
1.a) 2. Loss of recharge areas during development.	<p>1.a) 1.2. Promote the storage of seasonal surplus water for use during low flow periods.</p> <p>1.a) 2.1. Protect groundwater recharge.</p>	<p>1.a) 1.2.1. MOE to require storage facilities, e.g., ponds, where feasible as condition of water-taking permits (MOE, CVC).</p> <p>1.a) 1.2.2. Investigate the potential of ILCA and other waterbodies to improve the augmentation of low flow (MOE, CVC).</p> <p>1.a) 2.1.1. Promote more infiltration in the watershed through innovative stormwater techniques (Municipalities, CVC, DFO, MNR, MOE).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
		<p>1.a) 2.1.2. Improve recharge areas including depressional storage and reforested areas (CVC, MNR, Municipalities).</p> <p>1.a) 2.1.3. Retrofit older areas with stormwater facilities (Municipalities, CVC).</p> <p>1.a) 2.2. Need to better understand and protect the linkage between recharge areas and fish habitat.</p> <p>1.a) 2.2.1.a) Identify key recharge areas (and it's role in the overall water budget) and linkages to fish habitat in subwatershed plans and plan input and review (Municipalities, CVC, MNR, MOE).</p> <p>1.a) 2.2.1.b) Protect recharge areas and linkages to fish habitat through land use planning process i.e. Subwatershed Plans, Oak Ridges Moraine Strategy, Official Plans, Natural Heritage Policies and monitor (Municipalities, CVC, MNR).</p>
1.a) 3. Lack of water conservation awareness.	1.a) 3.1. Encourage water conservation by water-taking permit holders.	<p>1.a) 3.1.1. Develop economic incentives to conserve water (e.g., water bill for water-taking, surcharge on summer water-takings, municipal water bills reflect true cost, fines for illegal takings (MOE, Municipalities, CVC).</p> <p>1.a) 3.1.2. Request water conservation program with water-taking applications or renewals (MOE, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
		<p>1.a) 3.1.3. Distribute existing or new water conservation brochures. Target residents relying on Credit River groundwater, e.g., mail with the water bill (Municipalities, CVC).</p> <p>1.a) 3.1.4. Reduce water demand by designing and implementing water conservation programs for Municipalities and promote new technology (e.g., toilets, shower heads). Municipalities to ensure new technologies become part of the development standards (Municipalities, CVC).</p>
1.a) 4. Impacts of aggregate extraction on groundwater.	<p>1.a) 4.1. Reduce aggregate extraction impacts.</p> <p>1.a) 4.2. Develop better models and guidelines, e.g., subwatershed 16 and 18.</p>	<p>1.a) 4.1.1. Detailed review of existing licences and conditions of monitoring to ensure hydrological protection sufficient to protect fish habitat. New licences to demonstrate protection (MNR, MOE, Municipalities, CVC, DFO).</p> <p>1.a) 4.1.2. All licenses to require more detailed rehabilitation plans with consideration for cumulative effects at time of licence issuance (MNR).</p> <p>1.a) 4.2.1. Identify and review existing guidelines on aggregate extraction (MNR).</p> <p>1.a) 4.2.2. Complete and implement subwatershed 16 and 18 subwatershed plans (CVC, Municipalities, MNR)</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.b) Water Quality		
1.b) 1. Sedimentation from construction and maintenance activities	1.b) 1.1. Monitor and enforce sediment controls during construction and maintenance	<p>1.b) 1.1.1. Improve enforcement of Section 36 of the <i>Fisheries Act</i>. See also 4.a) 1. – 4.a) 2. (MNR, DFO, CVC).</p> <p>1.b) 1.1.2. Municipalities to adopt or more effectively implement Topsoil Preservation by-laws (Municipalities, CVC).</p> <p>1.b) 1.1.3. Review and update CVC Sediment Control Guidelines (e.g., increase buffer widths during construction phase, ‘staged’ stripping of developing lands) (CVC, MNR, MOE, Municipalities).</p> <p>1.b) 1.1.4. Better publication of sediment control violations (DFO, Municipalities, MNR, CVC).</p> <p>1.b) 1.1.5. Develop and publicize guidelines for public reporting of sediment control violations (MNR, CVC).</p> <p>1.b) 1.1.6. Review the need and frequency for municipal ditch cleanout and review sediment and erosion control guidelines during cleanout activities (Municipalities, CVC, DFO, MNR)</p>
1.b) 2. Expansion and new sewage treatment plants.	1.b) 2.1. Ensure assimilative capacity studies are carried out for sewage treatment plants.	1.b) 2.1.1. Detailed assimilative capacity studies should be done, with results used to set discharge rates (CVC, MOE, Municipalities).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.b) 3. Lack of alternative and effective stormwater management techniques that prevent degradation of water quality due to oils, metals, salt, bacteria, sediment, thermal and other dumping / spills.	1.b) 3.1. Promote other stormwater techniques such as infiltration, swales and ditches (vs. curb and gutter), and foundation drains separate from stormwater.	1.b) 3.1.1. Support and conduct research and update 'Stormwater Management Best Management Planning & Design Manual' (MOE, DFO, MNR, CVC, Municipalities).
		1.b) 3.1.2. Ensure new technologies (e.g., baseflow splitters) become part of the development standards (Municipalities, CVC).
		1.b) 3.1.3. Develop a monitoring program on the effectiveness of stormwater facilities (MOE, Municipalities, CVC).
	1.b) 3.2. Promote naturalized stormwater facilities as multi-purpose (e.g., recreational, aesthetics, property values, fish and wildlife habitat).	1.b) 3.2.1. Through plan input and review, ensure stormwater facilities are multi-purpose and naturalized where appropriate (Municipalities, CVC, MOE).
		1.b) 3.2.2. Continue research of opportunities and constraints for naturalized multi-purpose stormwater facilities (MOE, DFO, MNR, MOE, Municipalities).
		1.b) 3.3.1. Research, design and promote the use of cooling trenches, bottom draws or other similar techniques. (MOE, MNR, CVC).
1.b) 4. Difficulty in identifying deleterious substances to fish and lead agency responsible.	1.b) 4.1. Integrate Section 36 (deleterious substances) of the Federal <i>Fisheries Act</i> with the MOE and DOE water quality standards.	1.b) 4.1.1.a) Clarify the roles of DFO, MOE, DOE, CVC and MNR in dealing with deleterious substances (DFO, MOE, DOE, CVC and MNR).
		1.b) 4.1.1.b) Identify guidelines for each agency in dealing with deleterious substances (DFO, DOE, MNR, MOE, CVC).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.b) 5. Lack of stormwater management in older areas.	1.b) 5.1. Retrofit older areas with stormwater best management practices and facilities.	<p>1.b) 5.1.1. Educate and encourage (city by-laws) property owners to disconnect roof leaders and sump pumps (Municipalities, CVC).</p> <p>1.b) 5.1.2. Build new stormwater facilities in older areas through subwatershed planning. (Municipalities, CVC).</p> <p>1.b) 5.1.3. Identify inefficient stormwater facilities and retrofit for improvement (Municipalities, CVC, MOE).</p>
1.b) 6. Impact from agriculture.	1.b) 6.1. Educate farmers on the financial aid, incentives and compensation available to them for reducing impacts from agriculture such as controlling sediment, reducing chemical applications, properly managing milkhouse wastes and manure etc. and physical alterations (e.g., Environmental Farm Plan).	<p>1.b) 6.1.1. Identify farms with good conservation practices and catalogue them as a demonstration site (MNR, OMAFRA, CVC, OFA).</p> <p>1.b) 6.1.2. Improve stewardship services and develop incentives to for property owners to improve conservation practices (MNR, CVC, OMAFRA, OFA).</p> <p>1.b) 6.1.3. Improve the distribution of brochures to inform landowners about the impacts of agriculture (all).</p>
1.b) 7. Inefficient septic systems.	1.b) 7.1. Repair, replace and maintain private septic systems.	<p>1.b) 7.1.1.a) Develop monitoring program to identify problem areas with faulty septic systems (CVC, MOE, Municipalities).</p> <p>1.b) 7.1.1.b) Enforce, repair or replace septics accordingly (Municipalities, MOE).</p> <p>1.b) 7.1.2. Educate public about inefficient septic systems with emphasis on problem areas. (CVC, Municipalities).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
	1.b) 7.2. Research and monitoring of communal septic systems.	<p>1.b) 7.1.3. Explore financial incentives for landowners to repair, replace or maintain their septic systems (CVC, MOE, Municipalities).</p> <p>1.b) 7.2.1. Ensure monitoring programs of communal septic systems are in place and take action accordingly. (Municipalities, CVC, MOE).</p> <p>1.b) 7.2.2. Assess the cumulative effects of communal septic systems with assimilative capacity studies along the river and take action accordingly (Municipalities, CVC, MOE).</p>
1.b) 8. Potential for spills from sewage treatment plants.	1.b) 8.1. Reduce potential for spills.	1.b) 8.1.1. Review prevention and contingency plans of sewage treatment plants and incorporate new technologies. Incorporate into Certificate of Approval (Municipalities, MOE).
1.b) 9. Leachate from landfill sites.	1.b) 9.1. Monitor landfills for leachates.	<p>1.b) 9.1.1.a) Identify old and existing landfill sites and potential effects on the river (MOE).</p> <p>1.b) 9.1.1.b) Ensure appropriate rehabilitation, mitigation and monitoring of landfills, e.g., Highway 24 (Municipalities, MOE).</p>
1.b) 10. Improper disposal of hazardous waste.	1.b) 10.1. Educate public and some businesses on the proper disposal of hazardous substances (e.g., swimming pool discharges, car oil down the sewer,	<p>1.b) 10.1.1. Continue Storm Drain Marking Program (CVC, MOE, NGOs, DFO).</p> <p>1.b) 10.1.2. Disseminate educational material (Municipalities, CVC, MOE)</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
	inappropriate substances in the septic)	1.b) 10.1.3. Publicize hazardous waste depots through Regional recycling programs (Municipalities).
	1.b) 10.2. Identify areas with inadequate recycling programs and depots.	1.b) 10.2.1. Develop or improve recycling programs where necessary (local and regional governments) (Municipalities).
1.b) 11. Inadequate response to spills (e.g., nighttime).	1.b) 11.1. Improve response to spills.	1.b) 11.1.1. Review the current spills response procedures and discuss the options for improving the system (MOE, DFO, MNR, Municipalities, CVC).
		1.b) 11.1.2. Further promotion of MOE and Regional spills hotlines (MOE, Municipalities).
		1.b) 11.1.3. Provide spills training to area municipalities (MOE, Municipalities).
		1.b) 11.1.4. Publicize the procedures for responding to spills, and provide guidance to NGOs and citizens (MNR, CVC).
	1.b) 11.2. Preventative measures on transportation corridors in high risk areas (e.g., river valleys).	1.b) 11.2.1.a) Identify high risk areas for spills (MOE, MTO).
		1.b) 11.2.1.b) Redesign the high risk site with techniques such as reduced speed limits, rock check dams in the ditches and better lighting (MOE, MTO, MNR, Municipalities, CN, CP).
1.b) 12. Concerns for impacts from pesticides, herbicides and fertilizers (e.g., golf courses, municipal lands	1.b) 12.1. Reduce use and / or eliminate effects.	1.b) 12.1.1. Identify the problem sites through monitoring programs (MOE, CVC).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
and residential areas).		<p>1.b) 12.1.2. Educate and encourage all landowners to reduce the applications of pesticides, herbicides and fertilizers. Provide guidance for best management practices through a workshop or an annual report card (MOE, CVC, Municipalities).</p> <p>1.b) 12.1.3. Ensure enforcement of chemical application methods (MOE).</p>
1.b) 13. Pollution hotspots in high profile areas.	1.b) 13.1. Cleanup hotspots.	<p>1.b) 13.1.1.a) Identify pollution hotspots including historical sites (e.g., sanitary sewer leakages such as Cooksville Creek; industrial sites such as Acton tannery and Georgetown junkyard) and determine extent of problem (MOE, MNR, CVC, NGOs, public).</p> <p>1.b) 13.1.1.b) Enforce or develop cleanup programs for the pollution hotspots (MOE).</p> <p>1.b) 13.1.1.c) Educate the public about these sites and the extent of the problem through media releases (MOE, MNR, CVC, NGOs).</p>
1.b) 14. Thermal impacts from gravel pits and ponds adjacent to streams.	1.b) 14.1. Reduce potential for thermal impacts.	1.b) 14.1.1. Review literature (e.g., Niagara Escarpment Pond Study) and conduct research on the potential thermal impacts of gravel pits and ponds adjacent to streams. Follow up on identified recommendations and develop further guidelines and policies (MNR, CVC, DFO).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.c) Physical Habitat		
1.c) 1. Harmful alteration to fish habitat resulting from land use change and / or practices.	<p>1.c) 1.1. Stronger enforcement, publicity of illegal alterations, destruction, or contamination of fish habitat.</p> <p>1.c) 1.2. Ensure no net loss and encourage net gain of fish habitat.</p> <p>1.c) 1.3. Protect the fish habitat potential as determined by the fish community classification mapping exercise.</p> <p>1.c) 1.4. Encourage / reward developers to develop in an environmentally friendly manner.</p>	<p>1.c) 1.1.1. Refer to 4.a) 1.1.1. – 4.a)1.2.1, 4.a) 2.2.1.</p> <p>1.c) 1.2.1. More consistent application and enforcement of the <i>Fisheries Act</i> and policies (DFO, MNR, CVC).</p> <p>1.c) 1.3.1. Protect the fish habitat potential when applying the <i>Fisheries Act</i> (DFO, CVC).</p> <p>1.c) 1.4.1. Publicly recognize the efforts of developers, aggregate industry, golf courses etc. through awards, dinners and media releases (all).</p> <p>1.c) 1.4.2. Catalogue and provide tours of development sites that have incorporated aquatic ecosystem protection and rehabilitation (MNR, CVC, NGOs).</p> <p>1.c) 1.4.3. Create a Report Card program to recognize and promote environmentally friendly operations (all).</p>
1.c) 2. Buffer zone alteration.	1.c) 2.1. Protect and rehabilitate functional buffers for fish and wildlife purposes.	1.c) 2.1.1. Develop and apply standard criteria for all agencies to determine stream buffer widths, e.g., meander belts, 100m wildlife corridor vs. 15 / 30m buffer (MNR, CVC, DFO, OMAFRA).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
		<p>1.c) 2.1.2. Educate landowners on the value of buffers and investigate incentives to protect or increase width (CVC, MNR, Municipalities).</p> <p>1.c) 2.1.3. Review ability of tree by-law act as a tool to protect buffer zone alterations (CVC, MNR, Municipalities).</p>
1.c) 3. Impact to and loss of wetlands	1.c) 3.1. Support and encourage wetlands protection.	<p>1.c) 3.1.1. Continue to inventory and update wetland evaluations (MNR, CVC, Municipalities, Developer).</p> <p>1.c) 3.1.2. Continue to protect wetlands through the planning process (Municipalities, CVC, MMAH, MNR).</p> <p>1.c) 3.1.3. Have all non-provincially significant wetlands that meet the evaluation criteria (>2ha and / or part of a complex), protected by fill lines, official plans, and / or zoning by-laws (Municipalities, CVC, MNR).</p> <p>1.c) 3.1.4. Continue to provide educational materials about wetlands to the general public and municipalities (DFO, MNR, MOE, CVC, Municipalities, NGOs).</p>
1.c) 4. Loss of swales and intermittent tributaries without fish present.	1.c) 4.1. Need to ensure the functions (hydrograph, water quality) of swales and intermittent tributaries are better understood and replicated.	<p>1.c) 4.1.1. Encourage and assist research into the function of swales and intermittent tributaries to fish habitat (DFO, MNR, CVC, Municipalities, Academic Institutions).</p> <p>1.c) 4.1.2. Formulate guidelines relative to the <i>Fisheries Act</i> (DFO, MNR, CVC).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.c) 5. Impacts due to ponds, dams and dam operations.	1.c) 5.1. Remove or reduce the impacts (e.g., fishways, bottom draws) of dams and ponds not required for fish species partitioning.	<p>1.c) 5.1.1.a) Inventory and characterize dams and ponds in the watershed and identify management issues (MNR, CVC).</p> <p>1.c) 5.1.1.b) Inform landowner of liability issues and discuss feasibility of fish habitat improvements (MNR, CVC).</p> <p>1.c) 5.1.1.c) Prioritize and prescribe management options for the dams and ponds in the 'Rehabilitation Strategy' (MNR, CVC, Landowner).</p> <p>1.c) 5.1.1.d) Implement management options in cooperation with landowner (MNR, CVC, NGOs, Landowner).</p> <p>1.c) 5.1.2. Review literature and develop guidelines (e.g., Niagara Escarpment Pond Study) for the approval of dams and ponds (CVC, MNR).</p> <p>1.c) 5.1.3. Utilize existing legislation to more effectively enforce dam operations resulting in impacts to fish or fish habitat and to develop management plans with dam owners (MNR, DFO, CVC).</p>
1.c) 6. Lack of protection of riparian vegetation as fish habitat by DFO (destruction vs. compensation).	1.c) 6.1. Improve understanding and recognition of the role of riparian vegetation on fish habitat.	1.c) 6.1.1. Define extent and situations where removal of riparian habitat constitutes a harmful alteration disruption or destruction of fish habitat. Review precedent set in B.C. court (DFO).
1.c) 7. Removal of woody material at imposed constrictions (trash grates, bridges, culverts, dams). Lack of	1.c) 7.1. Replace woody material	1.c) 7.1.1. Support woody cover initiatives (e.g., CFWIP) especially in the stream corridors (MNR, CVC).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
woody material management to benefit aquatic life and improve natural channel functions.	1.c) 7.2. Educate the public and municipality on the impact of removing woody materials.	1.c) 7.2.1. General communications on the value of woody materials (DFO, MNR, CVC). 1.c) 7.2.2. Redesign of current structures to pass woody materials (proponents). 1.c) 7.2.3. Relocate or place woody material downstream of project site (Municipalities, MTO).
1.c) 8. Beaver activity causing negative environmental impacts (<i>e.g.</i> , barrier to fish migration) and / or negative impacts to the private landowner (<i>e.g.</i> , flooding, erosion, and tree loss).	1.c) 8.1. Provide information about beavers and their management and implement appropriate management option.	1.c) 8.1.1.a) Review, develop and make available guidelines for beaver management options and a list of beaver trappers, if impacts are determined to be negative (MNR , DFO, CVC). 1.c) 8.1.1.b) Mitigate the negative impacts of beavers (MNR , CVC, Landowner, NGOs). 1.c) 8.1.1.2. Identify and catalogue beaver control demonstration sites (MNR , CVC, Landowner).
1.c) 9. Public access causing environmental degradation and disturbance of wildlife (<i>e.g.</i> , trampling, litter and killing of snapping turtles and	1.c) 9.1. Prevent harmful alteration of and rehabilitate physical habitat.	1.c) 9.1.1. Sign and encourage people to stay on trails. Identify problem sections, relocate, or close and restore, and monitor (MNR, CVC, NGOs, Landowner).

ISSUES	STRATEGIES	TACTICS
1. Habitat		
water snakes).		<p>1.c) 9.1.2. Consider controlling angler access through closed or delayed season openings and consider creating sanctuaries in sensitive areas and representative riparian communities (e.g., Rattray Marsh, Hungry Hollow / Black Creek, Warwick C.A. and Caledon Lake) (NGOs to lobby MNR & CVC).</p> <p>1.c) 9.1.3. Identify and prioritize potential sites as part of the 'Rehabilitation Strategy' (MNR, CVC).</p> <p>1.c) 9.1.4. Arrange for garbage collection in problem areas (NGOs, Landowner).</p>
1.d) Planning & Monitoring		
1.d). 1. Lack of protection of natural heritage features that contribute to fish habitat.	1.d). 1.1. Protect natural heritage features as identified in the Natural Heritage Policy Statements.	<p>1.d). 1.1.1.a) Identify natural features (i.e. valleys, recharge/discharge areas and wildlife corridors and habitats) (CVC, MNR, Municipalities, MMAH).</p> <p>1.d). 1.1.1.b) Protect natural heritage features in Official Plans (Municipalities, CVC, MMAH).</p>
1.d). 2. Lack of data and ecosystem approach to habitat management.	1.d). 2.1. Develop subwatershed plans.	<p>1.d). 2.1.1. Continue promoting the benefits of subwatershed plans to municipalities and the public (CVC).</p> <p>1.d). 2.1.2. Complete subwatershed plans with priority to expanding urban growth centers (e.g., Georgetown) (CVC, Municipalities, MNR).</p>

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.d). 3. Lack of detailed guidelines and consistent standards (e.g., buffers widths, timing windows) for all agencies for planning purposes.	1.d). 3.1. Develop guidelines in concert with planners.	1.d). 3.1.1.a) Revise and update timing windows and buffer width guidelines for the Credit River (MNR, CVC, DFO).
	1.d). 3.2. Further improve agency coordination and participation.	1.d). 3.1.1.b) Incorporate guidelines into Official Plans and Subwatershed Plans (Municipalities, CVC).
1.d). 4. Lack of fish habitat data management (water quality, water quantity, physical habitat) and long-term monitoring.	1.d). 4.1. Improve fish habitat data management and long-term monitoring.	1.d). 3.2.1. Publish lead agencies and responsibilities for plan input and review (MNR, CVC, Municipalities, NGOs).
		1.d). 3.2.2. Greater agency participation in subwatershed plans or other proactive strategies (DFO, MNR, MOE).
		1.d). 4.1.1. Better organize, share and analyze data. Finish FCR data entry into a database for CVC / DFO and complete MNR NRVIS database (MNR, CVC).
		1.d). 4.1.2. Identify data gaps, prioritize and collect data using standard methodologies (e.g., MNR Stream Assessment Protocol) (DFO, MNR, CVC).
1.d). 4.1.3. Review, revise and endorse CVC Monitoring Program proposal. Identify, prioritize and assign monitoring duties, and implement (CVC, MNR, MOE)	1.d). 4.1.4. Involve the local communities (by subwatershed) and educational institutions in the habitat studies and monitoring (MNR, CVC).	

ISSUES	STRATEGIES	TACTICS
1. Habitat		
1.d). 5. Lack of data to identify critical fish habitats for protection through the planning process.	1.d). 5.1. Collect salmonid spawning data.	<p>1.d). 4.1.5. Implement and provide regular report cards / update the website on the health of the watershed (CVC, MNR).</p> <p>1.d). 5.1.1. Prioritize spawning surveys where previously not inventoried (MNR, CVC, DFO, NGOs).</p> <p>1.d). 5.1.2. Implement and continue spawning surveys (MNR, CVC, DFO, NGOs).</p> <p>1.d). 5.1.3. Map critical and sensitive fish habitat for planning purposes (MNR, CVC).</p>
1.d). 6. Lack of understanding of the planning process.	1.d). 6.1. Better public involvement and education of the planning process.	1.d). 6.1.1. Publicize description of planning process and related legislation, policies and guidelines. Identify how public can get involved in meaningful ways (CVC , MNR, Municipalities).

2 ISSUE: SPECIES MIX AND PARTITIONING

GUIDING PRINCIPLES

- Enhance self-sustaining populations with consideration for their value as indicator species (i.e. sensitivity) and their suitability
 - In order of priority
 - Native species (e.g., brook trout, redbreast dace)
 - Restore native Atlantic salmon (if feasible)
 - Naturalized species (e.g., brown trout and rainbow trout)
- Consideration of Fish Community Objectives for Lake Ontario
- Improve fishing opportunities through fish stocking and transfers, where appropriate

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
2.1. Sea lamprey control.	2.1.1. Continue sea lamprey control program.	2.1.1.1. Monitor, review and improve the efficiency of the Streetsville Dam and applications of TFM to control sea lamprey (DFO, MNR).
2.2. Loss of the native Atlantic salmon in the Credit River.	2.2.1. If experimental Atlantic salmon restoration program indicates rehabilitation is feasible, formulate detailed management plan.	2.2.1.1. Discuss optional management strategies (e.g., barrier management) that are consistent with the Credit River and Lake Ontario Fisheries Management Plans with public input and with Credit River Implementation Committee (MNR, NGOs, Public, Implementation Committee).
	2.2.2. Reduce or eliminate competition of Atlantic salmon on brook and brown trout.	2.2.2.1. Assess risks, monitor and develop contingency plan (MNR).

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
2.3. Smallmouth bass distribution limited by Streetsville Dam resulting in a lack of fishing opportunities and top predator from Streetsville to Norval Dam.	2.3.1. Re-introduce smallmouth bass above Streetsville Dam to the Norval Dam.	<p>2.3.1.1.a) Conduct habitat assessment and investigate Credit River transfers, transfers from other systems and aquaculture sources, and ensure Norval Dam is an effective barrier to upstream movement (MNR, CVC, NGOs).</p> <p>2.3.1.1.b) If the habitat assessment deems it feasible, re-introduce smallmouth bass above Streetsville Dam (MNR).</p>
2.4. Pike escaping from ILCA and competing with downstream brook trout populations. Also, pike competition with bass in Island Lake reservoir.	2.4.1. Reduce pike populations and escapement from Island Lake.	<p>2.4.1.1. Continue to promote pike derbies at Island Lake Conservation Area (CVC).</p> <p>2.4.1.2. Promote angler harvest of pike through signage, media releases, cash incentives and contests (CVC, MNR, NGOs).</p> <p>2.4.1.3. Monitor for migration of pike over dam. If necessary, investigate a barrier over length of entire dam (CVC, MNR, NGOs).</p> <p>2.4.1.4. Allow others to collect and transfer pike to other areas (CVC, MNR).</p> <p>2.4.1.5. Consider year round season for pike at ILCA (MNR, CVC).</p>
2.5. Lack of natural reproduction of rainbow trout. Lack of fishing opportunities from Norval to Inglewood.	2.5.1. Continue to stock young hatchery rainbow trout upstream of Norval Dam.	2.5.1.1. Stock rainbow trout at levels and locations consistent with the Lake Ontario Fish Community Objectives. In the future, if rainbow trout are given access above Norval Dam, stocking is to be determined by the level of natural reproduction and the Lake Ontario Fish Community Objectives (MNR , NGOs).

ISSUES	STRATEGIES	TACTICS
<p>2. Species Mix and Partitioning</p>	<p>2.5.2. Allow rainbow trout access above Norval dam and up to some point below confluence of the East Credit River if an effective barrier is constructed and it does not prevent the overwintering migration of brown trout. Protection of existing brook and brown trout fishery. If not feasible, refer to strategy 2.5.3.</p>	<p>2.5.2.1.a) Determine the brown and brook trout wintering range and migration timing with electrofishing or telemetry studies. Also consider other similar studies (MNR, CVC, NGOs).</p> <p>2.5.2.1.b) Undertake barrier design study and EA (i.e. type, efficiency, operation, location) (MNR, DFO, CVC, NGOs).</p> <p>2.5.2.1.c) Fund, build new barrier and manage the Norval Dam to improve rainbow trout and Atlantic salmon passage upstream (MNR, NGOs).</p> <p>2.5.2.1.d) Monitor efficiency of the new barrier and Stewarttown Dam. If rainbows access above either barrier take appropriate action (MNR, CVC, NGOs).</p> <p>2.5.2.1.e) Monitor rainbow trout reproduction success below the barriers and, if can be improved, investigate rehabilitative options (MNR, NGOs).</p> <p>2.5.2.1.f) Co-manage rainbow trout, brook trout, brown trout and Atlantic salmon in lower Black / Silver Creek with input from the Implementation Committee (e.g., no stocking of rainbows in brook trout refuge areas) (MNR).</p>

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
	2.5.3. Allow rainbow trout access up to the Georgetown Paper Mill Dam. If not feasible, refer to 2.5.4.	2.5.3.1.a) Determine the feasibility of a seasonal barrier at the Georgetown Dam site and establish barrier, if feasible (MNR , CVC, NGOs). 2.5.3.1.b) Refer to tactics 2.5.2.1c) and 2.5.2.1d) and 2.5.2.1.f) above. 2.5.3.1.c) Monitor efficiency of the barrier. If rainbows access above the barrier take appropriate action (MNR , CVC, NGOs).
	2.5.4. Allow rainbow trout up to Norval Dam. If not feasible, refer to 2.5.5.	2.5.4.1. Improve operation of Norval Dam as a rainbow trout barrier (MNR , Landowner).
	2.5.5. Stop rainbow trout at Streetsville Dam.	2.5.5.1. Monitor efficiency of the barrier. If rainbows access above the barrier take appropriate action (MNR , CVC, NGOs).
2.6. Poor coldwater fishery in relation to potential rehabilitation map for lower Silver / Black Creek. Potential for conflicting management of different coldwater species.	2.6.1. Clarify fishery management options for lower Black / Silver Creek.	2.6.1.1. Investigate co-management of trout (e.g., stocking levels and locations) with different species, i.e. brook trout, brown trout, Atlantic salmon (MNR , CVC, NGOs).
2.7. management in lower river.	2.7.1. Stop Pacific Salmon at Streetsville Dam to ensure egg collection.	2.7.1.1. Manage the dam and fishway so that Pacific salmon and sea lamprey do not get above Streetsville Dam (MNR). 2.7.1.2. Clarify regulations to deal with Pacific salmon passing Streetsville Dam (MNR). 2.7.1.3. Monitor effectiveness of the barrier (MNR , NGOs).

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
	2.7.2. Improve fishing opportunities in lower river by allowing Pacific Salmon access to Norval Dam.	2.7.2.1. Not feasible at present until following issues are addressed: a) Egg collection program of chinook and coho salmon is not comprised (consider range of spawning dates) (MNR), b) Norval dam can be operated as an efficient barrier to prevent upstream competition (MNR), c) Enforcement issues can be addressed (MNR).
2.8. Lack of fishing opportunities for brown trout downstream of Inglewood.	2.8.1. Improve fishing opportunities for brown trout downstream of Inglewood.	2.8.1.1.a) Prioritize locations for population and habitat assessments from Norval to Inglewood (MNR, CVC, NGOs). 2.8.1.1.b) Develop rehabilitation plan (MNR, CVC, NGOs). 2.8.1.2. Investigate existing and new access points (MNR, CVC, NGOs). See also 6.1.5.1 – 6.1.5.3. 2.8.1.3. Assess role of stocking (MNR, CVC, NGOs). 2.8.1.4. Consider co-management options of brown trout with Atlantic salmon and rainbow trout (MNR, CVC).
2.9. Extirpation of non-game species, improving the forage base and the presence of species as environmental indicators.	2.9.1. Re-establish, introduce or improve populations of non-game species.	2.9.1.1. Identify areas and suitable species for re-establishing, introducing or improving non-game species and habitat conditions (MNR, CVC, OBA).

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
2.10. Lack of a management plan for vulnerable, threatened and endangered species (i.e. redbreasted dace) and other species of interest.	2.10.1. Develop a management plan for vulnerable, threatened and endangered species and other species of interest.	2.10.1.1.a) Obtain management / recovery plan guidelines from COSSARO and COSEWIC. Review Grand River Plan (MNR, CVC). 2.10.1.1.b) Develop a plan specific to the Credit River. (MNR, CVC)
2.11. Lack of management of fish species at the genetic level. Also related to this is the issue of escape from ponds into river system, transferable diseases, e.g., whirling disease.	2.11.1. Ensure the maintenance of healthy genetic pools and the prevention of transferable diseases. Ensure that wild and naturalized populations are not inappropriately mixed with stocked fish, also prevent escapees from hatcheries and stocked ponds.	2.11.1.1. Conduct an inventory of all hatcheries and stocked ponds in the Credit River watershed. Create a voluntary pond registration program (MNR, CVC, Municipalities). 2.11.1.2. Review and update new policies and guidelines for stocking and aquaculture facilities with input from interested groups (MNR). 2.11.1.3. Educate pond owners on the risks of stocked fish mixing with naturalized / wild populations of fish and the need for transfer / stocking permits and regulations through the creation and distribution of literature (MNR, CVC). 2.11.1.4. Publicize information about the licences required to stock fish (MNR, CVC). 2.11.1.5. Review and develop methods to reduce escapement from stocked waterbodies (MNR).

ISSUES	STRATEGIES	TACTICS
2. Species Mix and Partitioning		
		<p>2.11.1.6. Identify Credit River genetic studies, follow other research and collect local data on genetics and disease studies. Apply where appropriate on the Credit River (MNR, Universities).</p> <p>2.11.1.7. Identify ponds / hatcheries where escapement occurs and follow up with enforcement (MNR).</p>
2.12. Introduction and expansion of exotic species that threaten the ecosystem e.g., sea lamprey, river ruffe, round goby, zebra mussel, purple loosestrife.	2.12.1. Promote public awareness of exotic species.	2.12.1.1. Distribute existing literature of exotic species, e.g., fishing regulations (DFO , MNR , CVC , NGOs).
	2.12.2. Control and removal of exotics, where desired.	2.12.2.1. Research and continue existing control programs. Develop new programs specific to the Credit River (DFO , MNR).
2.13. Fish introductions from bait buckets.	2.13.1. Reduce or eliminate the potential of fish introduction.	<p>2.13.1.1. Conduct periodic inspections of baitfish destined for sale, e.g., ILCA (MNR, CVC).</p> <p>2.13.1.2. Educate baitfish operators, retailers and public on fish identification and impacts of introduction of baitfish (MNR, OBA).</p> <p>2.13.1.3. Investigate the option of further restrictions on baitfish use and transfers (MNR, OBA).</p>

3 ISSUE: EDUCATION

GUIDING PRINCIPLES

- Improve education and awareness

ISSUES	STRATEGIES	TACTICS
3. Education		
3.1. Poor distribution of information.	3.1.1. Centralize, share and coordinate information distribution.	<p>3.1.1.1. Consider a newsletter / webpage to improve communication with NGOs and highlight important points for the general public ('Friends of the Credit') (CVC, MNR, NGOs).</p> <p>3.1.1.2. Provide a copy of brochures, factsheets and fisheries management plan to libraries, school boards, and post on website (MNR, CVC).</p> <p>3.1.1.3. Streamline and create a one window information centre for brochures and factsheets. Provide one address / phone / website for inquiries (MNR, CVC, DFO, MOE, Municipalities, NGOs).</p> <p>3.1.1.4. Reconvene the committee investigating the 'Great Lakes Centre for Ecology and Sportfishing'. It should be a multi-purpose research, educational, recreational and tourism facility (Municipalities, MNR, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
3. Education		
	3.1.2. Better promotion and education regarding the Atlantic Salmon Restoration Program.	3.1.2.1. More media coverage, information brochures, posters, interpretive signage (e.g., Wild Trout signs). (MNR , DFO, CVC). 3.1.2.2. Develop partnership with Atlantic Salmon Federation (MNR).
3.2. Lack of information and appreciation of the Credit River and it's fishery by public, municipalities and businesses.	3.2.1. Improve the distribution of habitat protection and rehabilitation educational materials and relate messages to their (non-angling) values, e.g., economic benefits for corporations.	3.2.1.1. Develop a Citizen's Guide and deliver to priority areas. Coordinate with other similar initiatives (e.g., Region of Halton) (CVC , Municipalities). 3.2.1.2. Lobby MNR to hire a Halton-Peel Stewardship Coordinator (NGO's)
	3.2.2. Educate developers, front-line workers, landowners, municipalities, agencies and NGOs on the impacts of watercourse and wetland alterations and the existence and purpose of the permitting process (e.g., clean outs, dams, and on-line and floodplain ponds).	3.2.2.1. Ensure developers, front-line workers, landowners, municipalities, agencies and NGOs are educated on harmful alteration or destruction to fish habitat (i.e. <i>Fisheries Act</i> / BMP's / guidelines / manuals, seminars, 'What is Fish Habitat' video) (DFO , MNR , CVC , Municipalities). 3.2.2.2. Identify priority areas for the distribution of the Credit River Citizen's Guide and / or the MNR 'Working Around Water' brochure and include in stewardship programs (e.g., 'Living with Nature in West Side Waterloo: A Good Neighbour's Guide') (Municipalities , CVC).
	3.2.3. Improve awareness and appreciation.	3.2.3.1. Apply for recognition through the Heritage Rivers program (CVC). 3.2.3.2. Have the Credit River recognized in the Exceptional Waters Program (MNR).

ISSUES	STRATEGIES	TACTICS
3. Education		
		<p>3.2.3.3. Identify and improve partnerships with educational programs, e.g., create and provide educational materials (interactive computer program, videos, colouring book) and speakers to School Boards, youth groups (e.g., badges for Scouts and Guides) local museums, local community centres, private education programs (NEST), universities and colleges, to incorporate into their curriculum (MNR, CVC, NGOs).</p> <p>3.2.3.4. Promote awareness of Credit River through special events and guided tours e.g., Science Fairs, photo contests, video contests, riverfest, fall colours bus tour (CVC, MNR, Municipalities).</p> <p>3.2.3.5. Publicize list of education programs (MNR, CVC)</p> <p>3.2.3.6. Conduct workshops on various themes (MNR, CVC, DFO, NGOs).</p> <p>3.2.3.7. Promote fish communities as environmental indicators (vs. recreational sportfish emphasis) (MNR, CVC, NGOs).</p>
3.3. Lack of access information to anglers.	3.3.1. Improve distribution of, and update signage, maps, and education / regulations materials.	3.3.1.1. Create signs with public access maps, fishing regulations (include penalties), fish identification (e.g., Atlantic salmon, brook / sea lamprey), hotline numbers, Guide to Eating Ontario Sportfish. Add this information to Conservation Areas and on Wild Trout signs (MNR, CVC, NGOs).

ISSUES	STRATEGIES	TACTICS
3. Education		
		<p>3.3.1.2. Provide brochures and factsheets to tackle shops, municipalities, tourist outlets, libraries, MNR offices and NGOs (MNR, CVC).</p> <p>3.3.1.3. Continue promotion of access points at the fishing shows (MNR, CVC).</p> <p>3.3.1.4. Mail a copy of the fishing regulations summary with each fishing license (MNR).</p> <p>3.3.1.5. Make translated literature available and use international symbols on signs (MNR).</p> <p>3.3.1.6. Develop and promote educational programs for youth (e.g., fishing camps) (NGOs, MNR, CVC).</p>
3.4. Lack of fish viewing and education for non-consumptive uses.	3.4.1. Increase fish viewing / education for non-anglers.	<p>3.4.1.1. Develop 'A Naturalists Guide to Viewing Fish' (currently being developed by CVC) (CVC).</p> <p>3.4.1.2. Create more interpretive materials. Provide this information on signs and provide the materials through the Conservation Areas, etc. (DFO, MNR, CVC, NGOs).</p> <p>3.4.1.3. Provide migratory fish viewing opportunities at Streetsville Dam; centrachid, carp and pike spawning areas at Rattray Marsh and Lake Aquitaine (MNR, Municipalities, CVC, NGOs, Landowner).</p>
3.5. Potential for excessive signage impacting on aesthetics.	3.5.1. Reduce the aesthetic impacts of signage (e.g., size, numbers, colours).	3.5.1.1. Consult with a landscape architect or recreation planner (CVC, Landowner, NGOs).

4 ISSUE: ENFORCEMENT AND REGULATIONS

GUIDING PRINCIPLES

- Enforce firmly and effectively

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
a) Habitat-related		
4.a) 1. Limited enforcement resources related to habitat violations.	4.a) 1.1. Increase funding for enforcement.	4.a) 1.1.1. Lobby federal government to increase funding for enforcement (NGOs).
	4.a) 1.2. Create program that will aid the public to report illegal activities.	4.a) 1.2.1. Publicize reporting and evidence collection procedures (MNR, DFO, CVC).
4.a) 2. Lack of understanding of habitat violations due to overlapping legislation.	4.a) 2.1. Clarify the most effective roles of each agency and improve coordination.	4.a) 2.1.1.a) Identify the most appropriate agencies and legislation for enforcement (DFO, DOE, MNR, MOE, CVC).
		4.a) 2.1.1.b) Publicize the roles of the agencies and their responsibilities (MNR, DFO, CVC).
	4.a) 2.2. Raise public awareness of habitat violations.	4.a) 2.2.1. Publicize violations and fines to media (MNR).
4.a) 3. Poor monitoring of water-taking permits and lack of regulation for withdrawals.	4.a) 3.1. Review water-taking policy.	4.a) 3.1.1. Revise water-taking policy based on a water budget (see 1.a) 1.1.1b)) and allow for public input (MOE, DFO, MNR, CVC, NGOs).
		4.a) 3.1.2. Compliance monitoring of water-taking permits required (MOE, MNR, CVC).

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
		4.a) 3.1.3. Discuss with MOE the possibility of a Permit To Take Water for the extraction of <50,000 L of water per day (MNR, CVC, MOE).
4.a) 4. Insufficient time to identify and respond to violations to the Conservation Authorities Act.	4.a) 4.1. Lengthen window or use other appropriate legislation (<i>e.g., Fisheries Act</i>).	4.a) 4.1.1. Consult with Conservation Ontario to amend the Conservation Authorities Act to lengthen the window for charges / restoration (CVC).
b) Fisheries-related		
4.b) 1. Lack of awareness of existing Fishing Regulations.	4.b) 1.1. Increase awareness of existing Fishing Regulations and increase fines and publicize violations.	4.b) 1.1.1. Better distribution of regulations summary, <i>e.g.</i> , mail with all licences, distribute at Conservation Areas, and discuss partnership with beer / liquor stores (MNR, NGOs).
		4.b) 1.1.2. Summarize fisheries regulations specific to the Credit River. Modify and update existing 'Fisheries of the Credit River' brochure and factsheets, which may include the summarized regulations and distribute them (MNR, CVC, NGOs).
		4.b) 1.1.3. Identify and prioritize angling locations where fishing regulations should be posted. Develop partnerships and build the signs (NGOs, MNR, CVC). See also 3.3.1.1 to 3.3.1.6.
		4.b) 1.1.4. Report violations of the fishing regulations to the media (MNR).

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
		<p>4.b) 1.1.5. Make the regulations easier to understand (e.g., Atlantic salmon regulations, rainbow trout in Mullet Creek, Pacific Salmon above Streetsville) including translation for ethnic groups and the use of international symbols (MNR, Public).</p> <p>4.b) 1.1.6. Use educational materials (e.g., videos, media releases, websites, written materials) and other alternative programs (MNR, CVC, NGOs).</p> <p>4.b) 1.1.7. Initiate discussions on Fisheries Education and Regulations Certification Course, FIERCE, for (volunteer) education courses on regulations and fish identification. Consider course mandatory for fishing regulations violators and for Riverwatch program (MNR, NGOs).</p>
4.b) 2. Limited enforcement resources related to fisheries violations.	4.b) 2.1. Create programs that will improve enforcement.	<p>4.b) 2.1.1. Improve and better publicize MNR / Crimestoppers (Report a Poacher) hotline number(s), e.g., on Wild Trout signs, for 24-hour contact with officers (including cellular telephone numbers) (MNR, NGOs).</p> <p>4.b) 2.1.2. Expand and improve Riverwatch and Riverkeeper programs that promote ethical fishing practices, regulations awareness and improves working relations with Conservation Officer and local police (MNR, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
		<p>4.b) 2.1.3. Publicize reporting and evidence collection procedures for fisheries violations (MNR, CVC).</p> <p>4.b) 2.1.4. Increase patrols through monitoring / enforcement partnerships and / or additional Deputy Conservation Officers. Review roles of Deputy Conservation Officers. (MNR).</p> <p>4.b) 2.1.5. Initiate discussions for Fishing Education and Regulation Certification Course, FIERCE (MNR, NGOs).</p> <p>4.b) 2.1.6. Review and consider lobbying for stronger penalties (e.g., fines and licence suspension) (NGOs, Public).</p>
<p>4.b) 3. Lack of understanding and compliance with Special Regulation (i.e. single barbless hooks, organic bait and slot limits).</p>	<p>4.b) 3.1. Improve awareness and enforcement of special regulations.</p>	<p>4.b) 3.1.1. More accurate definitions of Special Regulations or examples need to be communicated through the regulations and signage (MNR, CVC, NGOs).</p> <p>4.b) 3.1.2. Consider simplifying Special Regulations e.g., no kill and single point (NGOs to lobby MNR).</p> <p>4.b) 3.1.3. Consider separate licence or conservation stamp and / or fee to fish Special Regulated waters. Completion of a stewardship course would be required (MNR, CVC).</p>

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
4.b) 4. Harvesting of Atlantic salmon due to misidentification.	4.b) 4.1. Provide species identification materials.	<p>4.b) 4.1.1. Need to better characterize the differences of Atlantic salmon from other similar species in the regulations summary (MNR).</p> <p>4.b) 4.1.2. Post signs, distribute reprints of the Atlantic salmon brochures and posters, and consider creating wallet cards (MNR, NGOs)</p> <p>4.b) 4.1.3. Include fish identification exercise in FIERCE. See also 4.b)1.1.7) (MNR).</p>
4.b) 5. Poaching in general, and especially in sanctuaries, below fishways (22.9 m or 75 ft, Special Regulation Areas and smaller fish.	4.b) 5.1. Decrease poaching.	<p>4.b) 5.1.1. Better / more on-site signage at fishways including hot-line phone numbers (MNR, CVC, NGOs).</p> <p>4.b) 5.1.2. Review existing Conservation Officer patrol areas, identify hot spots and develop a distribution plan for patrols with the Conservation Officers (NGOs).</p> <p>4.b) 5.1.3. Better regulations summary distribution (MNR, CVC).</p> <p>4.b) 5.1.4. Publicize poacher reporting procedures (MNR, CVC).</p>
4.b) 6. Snagging and disposal of fish gutted for roe.	4.b) 6.1. Decrease snagging and disposal of fish gutted for roe.	<p>4.b) 6.1.1. More Conservation Officer / volunteer patrols especially in Erindale Park and north to Burnhamthorpe Rd. and better signage (MNR, NGOs).</p> <p>4.b) 6.1.2. Enact a city by-law to make it illegal to gut or clean fish in Erindale Park (City of Mississauga, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
		<p>4.b) 6.1.3. Consider changing provincial regulations on tackle (no treble hooks?) and use and sale of roe (NGOs to lobby MNR).</p> <p>4.b) 6.1.4. Ensure that salmon from MNR egg collections are disposed of in a proper manner (MNR).</p>
4.b) 7. Lack of enforcement in the TU Landowner Agreement waters.	4.b) 7.1. Improve enforcement.	<p>4.b) 7.1.1. Lobby MNR for application of Special Regulations (NGOs, Public).</p> <p>4.b) 7.1.2. Improve and expand the TU Riverkeeper program (TU, NGOs).</p> <p>4.b) 7.1.3. Develop procedure for trespassing charges (TU, MNR, Landowner, police).</p>
4.b) 8. Catching bass out of season while practicing catch and release and / or claiming to target other fish, particularly at Ken Whillans Resource Management Area, lower Credit, Lake Aquitaine, and Island Lake Conservation Area.	4.b) 8.1. Increase enforcement and education.	<p>4.b) 8.1.1. Provide educational materials or post signs explaining the regulations and biological reasons for the regulations (MNR, Landowner, CVC, NGOs).</p> <p>4.b) 8.1.2. Increase enforcement. See also 4.b)2.</p> <p>4.b) 8.1.3. Consider sanctuary until bass season open on a site specific basis (MNR, Landowner).</p>
4.b) 9. Catching trout out of season while practising catch and release and / or claiming to target other fish.	4.b) 9.1. Consider closed season .	<p>4.b) 9.1.1. Create closed season for all species (fish sanctuary) in upper river (MNR).</p> <p>4.b) 9.1.2. Create closed season for all species (fish sanctuary) from the open season section upstream, to protect rainbow trout during spring run (MNR).</p>

ISSUES	STRATEGIES	TACTICS	
4. Enforcement and Regulations			
4.b) 10. Protect and enhance self-sustaining populations and high quality fisheries, particularly in Charles Sauriol Conservation Area, Belfountain Conservation Area, Forks of the Credit Provincial Park and in the T.U. Landowner Agreement waters.	4.b) 10.1. Extend Special Regulation Areas and consider other regulatory approaches.	<p>4.b) 10.1.1. Review available data (e.g., Special Regulation Study) and conduct further research to determine biological and socio-economic feasibility of slot limits, catch and release, reduced limits, etc. (MNR).</p> <p>4.b) 10.1.2. Request that MNR extend Specially Regulated Areas (NGOs, public).</p> <p>4.b) 10.1.3. Consider more voluntary promotion and private landowner agreements (e.g., TU Landowner Agreement waters) (MNR, Landowner).</p> <p>4.b) 10.1.4. Investigate controlling access through special permit or outfitter fishing, e.g., review Quebec model as a starting point (MNR, NGOs, Landowner).</p>	
	4.b) 10.2. Consider year round sanctuaries for the most vulnerable self-sustaining populations.	<p>4.b) 10.2.1. Identify and consider creating sanctuaries / seasonal closures for critical areas (e.g., Georgetown tributary, 2nd crossing of Credit River on Highway 10, Huttonville Creek) and populations (e.g., may require for expansion of rainbows or Atlantics). (MNR, CVC, NGOs, Landowner).</p> <p>4.b) 10.2.2. Contact landowner and create private landowner agreements. Provide signage (MNR, NGOs, Landowner).</p>	
	4.b) 11. Decreasing opportunities to catch and keep trout.	4.b) 11.1. Increase opportunities to catch and keep trout.	4.b) 11.1.1. Increase stocked pond fisheries (e.g., gravel pits, KWRMA and ILCA ponds) (MNR, Landowner).

ISSUES	STRATEGIES	TACTICS
4. Enforcement and Regulations		
		4.b) 11.1.2. Maintain some waters that are not Specially Regulated (MNR).
4.b) 12. High trout mortality when catch and release anglers improperly handle fish or angle during thermal stress periods.	4.b) 12.1. Better education of catch and release techniques.	4.b) 12.1.1. Promote proper catch and release techniques through brochures, websites, newsletters, etc. (MNR, NGOs, CVC).
	4.b) 12.2. Adopt a thermal stress program.	4.b) 12.2.1. Publicize thermal stress periods through CVC website, media releases, signage (MNR, CVC, NGOs).
4.b) 13. Concern about over-harvest of rainbow trout.	4.b) 13.1. Control over harvest, if verified.	4.b) 13.1.1. Determine if over-harvesting is occurring and implement appropriate voluntary or provincial regulations such as lower creel limits, slot limits or catch and release (MNR).
4.b) 14. No clear rules for rainbows in brook / brown trout Special Regulation Areas.	4.b) 14.1. State the harvest limits for rainbow trout in Specially Regulated Areas on signs and in the fishing regulations.	4.b) 14.1.1. Clarify regulation summary and change Special Regulation signs (MNR).
	4.b) 14.2. Prevent rainbow access into brook / brown trout Special Regulated waters.	4.b) 14.2.1. Refer to Section 2 - Species Mix and Partitioning options above.
4.b) 15. Illegal fish stocking and transfers.	4.b) 15.1. Reduce illegal fish stocking and transfers.	4.b) 15.1.1. Better education and promotion of transfer / stocking permits and regulations with distribution of literature (MNR).
		4.b) 15.1.2. Enforce more effectively and report violations to the media (MNR).

5 ISSUE: REHABILITATION

GUIDING PRINCIPLES

These guiding principles were the same as the guiding principles for the *Habitat* and *Species Mix and Partitioning* issues.

Guiding principles for the *Habitat* issue.

Protect and/or improve water quantity.

Protect and/or improve water quality.

Protect and/or improve direct and indirect physical habitats.

Protect and/or improve sustainable productivity/diversity with an ecosystem approach.

Guiding principles for the *Species Mix and Partitioning* issue.

Enhance self-sustaining populations with consideration for their value as indicator species (i.e. sensitivity) and their adaptability (in order of priority):

Native species (e.g., brook trout, redbreast dace),

Investigate feasibility of restoring Atlantic salmon,

Naturalized species (e.g., brown trout and rainbow trout).

Integration with the Fish Community Objectives for Lake Ontario.

Improving fishing opportunities through fish stocking and transfers.

ISSUES	STRATEGIES	TACTICS
<p>5. Rehabilitation</p>		
<p>5.1. Lack of coordinated scientific approach and watershed-wide rehabilitation strategy.</p>	<p>5.1.1. Identify, prioritize and design rehabilitation projects watershed-wide.</p>	<p>5.1.1.1.a) Identify all potential rehabilitation sites (MNR, CVC, NGOs).</p> <p>5.1.1.1.b) Develop criteria for prioritizing rehabilitation projects, i.e. decision matrix, through a workshop and / or subwatershed plans. Utilize existing and potential fish habitat maps, TU strategy and CVC criteria to create a watershed-wide ‘Rehabilitation Strategy’ (MNR, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
5. Rehabilitation		
		<p>5.1.1.2. Direct rehabilitation efforts to the most limiting factors to fish production. Consider stream type and natural limitations. Utilize an adaptive management approach with monitoring (MNR, CVC, DFO, NGOs).</p> <p>5.1.1.3. Train and provide scientific guidance / protocols to NGOs and others to collect data, design and monitor projects (MNR, CVC, NGOs).</p> <p>5.1.1.4. Design the 'Rehabilitation Strategy' to include project plans, e.g., budgets, for priority projects that can be used for funding proposals (MNR, CVC).</p>
	5.1.2. Implement and monitor rehabilitation projects watershed and subwatershed-wide.	5.1.2.1. Publish a list of stream rehabilitation references and include it in the 'Rehabilitation Strategy'. Provide fact sheets and up-to-date manuals such as CFWIP and Natural Channel Design (MNR, CVC).
5.2. Volunteer participation on workdays and monitoring activities.	5.2.1. Maintain and improve volunteer interest and participation.	<p>5.2.1.1. Identify potential volunteer groups (e.g., schools, Guides, Scouts, Lions Club etc. located in the watershed) via their head offices (MNR, CVC).</p> <p>5.2.1.2. Solicit input from NGO members on preferred project types (MNR, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
<p>5. Rehabilitation</p>		
		<p>5.2.1.3. Make phone calls to individuals for workdays (NGOs).</p> <p>5.2.1.4. Coordinate and provide centralized pool of available volunteers and projects, e.g., keep updated calendar of events on website (MNR, CVC, NGOs).</p> <p>5.2.1.5. Better advanced distribution of workday calendars and cross promotion between NGOs (e.g., Wild Trout Signs, CVC website, outdoor magazines, community newspapers, cable tv, Credit River Stewardship newsletter). Also consider providing an annual report to volunteers and media of volunteer workdays to aid in promotion and fundraising (CVC, NGOs, MNR).</p> <p>5.2.1.6. Provide an educational component to each workday (MNR, CVC, NGOs).</p> <p>5.2.1.7. Provide incentives to NGO members for participating in workdays (e.g., portion of membership fee returned for participation in workdays, pins, posters, draw prizes, awards, crests, volunteer discount cards) (NGOs, CVC, MNR).</p>
<p>5.3. Lack of stewardship coordination and information for landowners / NGOs.</p>	<p>5.3.1. Provide greater stewardship information to landowners / NGOs.</p>	<p>5.3.1.1. Prepare a coordinated / streamlined MNR and CVC Stewardship Program (MNR, CVC, MOE, OMAFRA).</p> <p>5.3.1.2. Implement CVC / MNR Stewardship Program(s) (MNR, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
5. Rehabilitation		
		<p>5.3.1.3. Produce and distribute stewardship documents (e.g., Citizen’s Guide, pond manual) and other related factsheets (DFO, MNR, CVC, Municipalities)</p> <p>5.3.1.4. Provide educational seminars for landowners and NGOs (MNR, CVC, NGOs).</p> <p>5.3.1.5. Catalogue demonstration sites and promote in the Ontario Streams Rehabilitation Manual (Ontario Streams, MNR, CVC, NGOs).</p> <p>5.3.1.6. Provide incentives to improve landowner participation, e.g., tax rebates, funding, recognition, signage and awards (MNR, OMAFRA, CVC, Municipalities).</p> <p>5.3.1.7. Make the procedures for contacting landowners available as a reference for NGOs in the ‘Rehabilitation Strategy’ (MNR, CVC).</p> <p>5.3.1.8. Lobby MNR to hire a Halton-Peel Stewardship coordinator (NGO's).</p> <p>5.3.1.9. Provide guided or self-guided tours of the demonstration sites, including development-related projects (Ontario Streams, MNR, CVC, NGOs).</p> <p>5.3.1.10 Identify reaches and negotiate more agreements similar to TU private landowner stewardship agreements (TU, other NGOs).</p>
	5.3.2. Improve communication of ideas / partnerships with government, NGOs and public.	5.3.2.1. Maintain existing level of communication between groups through the Implementation Committee (MNR, CVC, DFO, Municipalities, NGOs).

ISSUES	STRATEGIES	TACTICS
5. Rehabilitation		
		5.3.2.2. Create a Credit River Stewardship newsletter / website with input from NGOs and / or circulate / hotlink all NGO newsletters / websites to each other (CVC, MNR, NGOs).
	5.3.3. Provide better access to funding programs and equipment.	5.3.3.1. Publish potential funding sources, e.g., CFWIP, Great Lakes 2000, Canada Trust, corporate sponsors, etc. in the 'Rehabilitation Strategy' (MNR, CVC).
		5.3.3.2. Identify and Publicize sources of equipment (MNR, CVC).
	5.3.4. Provide better access to education programs.	5.3.4.1. Publicize potential education sources, e.g., DFO, CVC, MNR, OFAH, school boards, Atlantic Salmon Federation (MNR, CVC).
5.4. Ignorance and / or frustration with permitting process of DFO, MNR and CVC, which may discourage rehabilitation efforts.	5.4.1. Provide information about the permitting process.	5.4.1.1. 'Rehabilitation Strategy' to include a description of the process for designing (i.e. timing restrictions, sediment control guidelines, regulatory requirements) and approving projects (MNR, CVC).
	5.4.2. Decrease the review time and eliminate permit fees of rehabilitation projects.	5.4.2.1. Encourage that rehabilitation proposals are discussed with CVC and / or MNR and submitted early in the process (NGOs, Landowner, Developers).
		5.4.2.2. Fast-track certain projects, i.e. CVC get level 3 approval from DFO, for rehabilitation projects (DFO, CVC).
		5.4.2.3. Waive all permit fees for rehabilitation projects (CVC).

ISSUES	STRATEGIES	TACTICS
5. Rehabilitation		
5.5. The use of inappropriate rehabilitation techniques including the long-term and cumulative impacts of hard engineered solutions.	5.5.1. Better application of appropriate rehabilitation techniques.	5.5.1.1. More research and application of natural channel design techniques and other alternative techniques, e.g., soil bioengineering (CVC, MNR, DFO) 5.5.1.2. Identify and retrofit old hard engineered sites (CVC, Municipalities, MNR, DFO, NGOs).

6 ISSUE: PUBLIC ACCESS AND FISHING OPPORTUNITIES

GUIDING PRINCIPLES

- Improve access to the river for fishing and related nature appreciation
- Improve education and awareness
- Minimize landowner conflicts resulting from trespassing and vandalism
- Improve fishing opportunities

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
6.1. More public access to river and other fishing opportunities desired.	6.1.1. Improve information and distribution of existing access points.	6.1.1.1. Update 'Fisheries of the Credit' brochure and factsheets and identify new areas requiring factsheets (e.g., parkettes), include parking and private fee-for-fishing opportunities. Also update website and hotlinks (CVC , MNR, NGOs). 6.1.1.2. Provide brochures and factsheets to tackle shops, municipalities, tourist outlets, libraries, MNR offices and NGOs (MNR, CVC , NGOs). 6.1.1.3. Continue promotion of access points at the fishing shows (CVC). 6.1.1.4. Consider signage at access points (MNR, CVC , NGOs). 6.1.1.5. Identify navigable waters on the Credit and discuss barriers, such as fences across the river, with landowners (MNR, Coast Guard , NGOs).

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
	6.1.2. Introduction or expansion of species range for new opportunities.	<p>6.1.2.1. Identify waters and species suitable (habitat assessments) for introduction, e.g., non-migratory rainbow trout, brown trout, smallmouth bass and Atlantic salmon upstream of Streetsville, black crappie in Lake Aquitaine, walleye, bass and lake trout in Caledon Pits, and panfish in stormwater ponds. Stock accordingly (See also 2.5.1.1 – 2.5.5.1 and 2.9.1.1a) – 2.9.1.4.) (MNR, CVC, NGOs, Landowner).</p> <p>6.1.2.2. Determine feasibility of expanding / introducing walleye, sturgeon, channel cats, muskeye, pike, white bass and others along the Lake Ontario waterfront including the lower Credit River (MNR, DFO, CVC, NGOs).</p>
	6.1.3. Develop more stocked pond fisheries on public and private properties to relieve pressures on natural fish populations.	<p>6.1.3.1. Identify and prioritize public ponds and suitable species for stocking, e.g., Terra Cotta Conservation Area, Forks kettle lake, ILCA ponds, Lake Aquitaine and KWRMA. Stock accordingly (MNR, CVC).</p> <p>6.1.3.2. Encourage private landowners to stock and develop fee-for-fishing ponds, including gravel pits, where there is no chance for the fish to escape (MNR, NGOs, Landowner).</p> <p>6.1.3.3. Habitat enhancement of ponds and lakes (Landowner, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
		6.1.3.4. Ensure MNR stocking policies, guidelines and permits are used for all stocking (MNR, CVC, NGOs)
		6.1.3.5. Identify potential sponsors for stocked ponds and the purchase of fish (NGOs, Municipalities, CVC, MNR).
	6.1.4. Promote underutilized fisheries and alternate species (e.g., carp)	6.1.4.1. Identify alternate species and their locations (MNR, CVC).
		6.1.4.2. Create fishing factsheets describing and promoting alternate species (MNR, CVC).
	6.1.5. Open more areas to public access.	6.1.5.1. Identify and prioritize areas for public land acquisition. Purchase, lease or negotiate conservation easements, in those areas (i.e. extension of Forks Provincial Park to Highway 24, Charles Sauriol Conservation Area, Caledon Pits, Beechgrove Sideroad and Melville Marshes, Brampton and middle river (CVC, MNR, Municipalities).
		6.1.5.2. Identify reaches and negotiate more agreements similar to TU private landowner stewardship agreement or fee-for-fishing access (NGOs).
	6.1.5.3. Develop a program to promote and educate landowners on the benefits of conservation easements, e.g., brochure, website etc. (CVC, MNR, NGOs).	

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
6.2. Lack of urban angling opportunities, especially for children and the elderly, and with wheelchair accessibility.	6.2.1. Increase urban angling opportunities.	<p>6.2.1.1. Identify and promote existing fishing opportunities in urban areas (MNR, CVC).</p> <p>6.2.1.2. Rehabilitate fish habitat in urban areas to improve fishing opportunities (MNR, CVC, Municipalities, NGOs).</p> <p>6.2.1.3. Identify appropriate locations for stocking and stock appropriate species, e.g., smallmouth bass above Streetsville dam and sunfish, perch, catfish and bass in some stormwater ponds (MNR, CVC, Municipalities, NGOs).</p> <p>6.2.1.4. Continue to promote youth fishing programs such as MNR Fishways, Bassmasters – Youth Angling Club, OFAH school program, FON youth programs, municipal summer camps, Take a Kid Fishing Week, and Urban Fishing Festival (MNR, CVC, NGOs).</p> <p>6.2.1.5. Conduct feasibility study for retrofitting, stormwater management ponds to improve fishing opportunities (MNR, CVC, Municipalities, NGOs).</p> <p>6.2.1.6. Identify locations and create wheelchair and elderly accessible fishing opportunities (e.g., docks reserved primarily for these users with specific published guide) (MNR, Municipalities, CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
6.3. Lack of seasonal fishing opportunities.	<p>6.3.1. Create summer resident fishery through species introductions from Streetsville to a location downstream of Inglewood.</p> <p>6.3.2. Better promote or create winter ice fishing opportunities through species introductions.</p>	<p>6.3.1.1. Research and assess feasibility of brown trout, non-migratory rainbow trout and smallmouth bass (Streetsville up to Norval) introductions and implement (MNR).</p> <p>6.3.2.1. Identify potential areas and species suitability. Consider perch, crappie, pike, trout, walleye for Fairy Lake, KWRMA, Terra Cotta Conservation Area, Caledon Pits. Consider ice safety and liability issues, e.g., not recommended for stormwater ponds such as Lake Aquitaine (MNR, CVC).</p> <p>6.3.2.2. Promote in CVC brochures and factsheets (CVC)</p> <p>6.3.2.3. Refer to section 6.7.</p>
6.4. Trespassing	6.4.1. Educate the public regarding trespassing.	<p>6.4.1.1. Publish information about the <i>Trespass to Property Act, Public Lands Act and Navigable Waters Protection Act</i> (MNR).</p> <p>6.4.1.2. Work with landowners to control trespassing, e.g., signage (MNR, CVC, NGOs, Landowners).</p>
6.5. Poor parking facilities.	6.5.1. Improve parking facilities.	6.5.1.1. Identify locations where additional (e.g., Port Credit) or safer parking facilities (e.g., Forks of the Credit shoulder parking), boat ramp (e.g., ILCA) and washroom facilities are needed (NGOs, MNR, CVC, Municipalities).

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
		<p>6.5.1.2. Discuss with Parks Ontario, the possibility of re-opening the Forks of the Credit Provincial Park parking lots on Dominion St. Identify corporate sponsor, if necessary (MNR, NGOs).</p> <p>6.5.1.3. Purchase or develop available land as parking facilities, e.g., Mississauga Road and Elora-Cataract Trailway. Discuss other options in Cataract with MNR, Town of Caledon (NGOs, MNR, CVC, Municipalities).</p>
6.6. Lack of trophy angling opportunities for bass. No areas with special regulations to develop better bass fishery.	6.6.1. Create sustainable trophy bass fishery.	<p>6.6.1.1. Identify potential locations suitable for trophy bass fishery and conduct age / size studies. Demand is highest at ILCA followed by KWRMA (CVC, NGOs, MNR).</p> <p>6.6.1.2. Lobby for and create regulations (e.g., catch and release, reduced and slot limits) that will promote a sustainable trophy bass fishery and will result in improved bass numbers and size in lower Credit (NGOs, MNR, CVC).</p> <p>6.6.1.3. Continue and further promote volunteer and Conservation Area rules for reducing bass harvest (CVC, NGOs).</p>

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
6.7. Lack of additional year round fishing opportunities for trout and / or Pacific salmon.	6.7.1. Identify new areas for year round fishing.	6.7.1.1. Consider changing the regulations to remove the 'social sanctuary' and / or promote a year round season from Dundas St. to Eglinton Ave. (and possibly further upstream) for rainbow trout (MNR , NGOs, residents).
	6.7.2. Extend season for rainbow trout and consider for brook and brown trout.	6.7.2.1. Lobby for extension of season for rainbow trout up to Eglinton Ave, January 1 to August 15 (NGOs).
		6.7.2.2. Lobby for extension of rainbow trout season into the fall and winter from Streetsville Dam up to Norval (NGOs).
6.7.2.3. Not feasible for brook and brown trout: Need to protect eggs, fry and pre-spawning (aggressive) adults.	6.8.1. Make new areas publicly accessible to redistribute anglers and / or limit access in problem areas.	6.8.1.1. See also 6.1.5.1 – 6.1.5.3., 6.7.1.1.
6.8. Existing and increasing access causing overcrowding, particularly with the rainbow trout and Pacific salmon on lower Credit, or affecting "remote nature experience" particularly on upper Credit.		6.8.1.2. Identify areas inappropriate for encouraging more access and limit parking and promotion (CVC , MNR , Municipalities).
	6.8.1.3. Investigate controlling access through fees, permit or outfitter fishing e.g., Quebec model (MNR).	
	6.8.2. Educate anglers on fishing etiquette.	6.8.2.1. Promote etiquette on signs, literature, NGO newsletters and through media (MNR , CVC , NGOs).
6.9. If rainbow trout are given access to middle river (or other fishery developed) there may be increased impacts from anglers, particularly	6.9.1. Control access and consider regulatory changes in these sensitive areas (e.g., spawning, nursery, ANSI).	6.9.1.1.a) Identify sensitive areas requiring protection (e.g., nursery stream of Black / Silver Creek), create sanctuaries and sign (CVC , MNR , NGOs).

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
along lower Black and Silver Creek.		<p>6.9.1.1.b) Consider delay of open season, i.e. lower Black and Silver (MNR).</p> <p>6.9.1.2. Educate the public by publicizing trespass laws, <i>Navigable Waters Protection Act</i>, and the <i>Public Lands Act</i> (MNR, CVC).</p> <p>6.9.1.3. Contact landowners in the middle river and discuss potential angling impacts, liability issues and methods to control angler access including the creation of regulations that close the fishery (NGOs, MNR, CVC).</p> <p>6.9.1.4. Increase public access points to reduce trespassing. See also 6.1.5.1 – 6.1.5.3.</p>
6.10. Lack of public access for fishing to Caledon Lake, Rattray Marsh, Hillsburgh on-line ponds.	6.10.1. Consider improving public access to lakes.	<p>6.10.1.1. Meet with private landowners to discuss public fishing opportunities and agreements for public access (MNR, CVC).</p> <p>6.10.1.2. Educate public on reasons for not permitting fishing on private property, e.g., environmental impacts on Caledon Lake and at Rattray Marsh (MNR, CVC).</p>
6.11. Limited visitation hours during peak fish activity at Island Lake Conservation Area and Belfountain Conservation Area.	6.11.1. Extend visitation hours.	6.11.1.1. Discuss the extension of gate staff hours and funding (results of trial period), or self-registration with CVC (NGOs).

ISSUES	STRATEGIES	TACTICS
6. Public Access and Fishing Opportunities		
6.12. Littering and garbage can maintenance.	6.12.1. Improve garbage clean up.	6.12.1.1. Identify areas with garbage problems, sponsorship opportunities and develop clean up programs, e.g., garbage cans, poop and scoop, adopt-a-stream program (Landowner, NGOs, Municipalities, CVC, MNR). 6.12.1.2. Identify the ownership of the parking lot at Highway 24 and arrange for garbage can and collection (MNR , CVC, Landowner). 6.12.1.3. Ensure garbage clean-up in the TU section through the year (TU , NGOs).

7 ISSUE VII OTHER ISSUES

GUIDING PRINCIPLES

- Use an ecosystem approach
- Consider climatic fluctuations
- Improve socio-economic benefits
- Increase research opportunities
- Consider the Lake Ontario Fish Community Objectives
- Promote non-consumptive uses

ISSUES	STRATEGIES	TACTICS
7. Other Issues		
7.1. Impacts of climate warming.	7.1.1. Stay aware of climate warming trends and predictions and monitor trends.	7.1.1.1. Monitor international literature, attend workshops etc. and incorporate latest studies (MNR, DFO, MOE, CVC, DOE).
		7.1.1.2. Develop a partnership to model climate change in the Credit River and consider management options consistent with climatic predictions, e.g., reduce water-takings (CVC, DFO, MNR, MOE, DOE, Academic Institutions).
	7.1.3. Consider fish community and habitat management decisions in light of climate change.	7.1.3.1. Increased protection and rehabilitation tactics for remaining habitats of species at risk (MNR, CVC).

ISSUES	STRATEGIES	TACTICS
7. Other Issues		
7.2. Lack of data and understanding of the linkages of ecosystem components such as forests, recharge areas, and wetlands to fish habitat. Also, lack of understanding of cumulative (i.e. the addition of many smaller impacts) and synergistic (i.e. unpredictable changes due to the large number of interacting components) effects.	7.2.1. Better incorporate, model and understand all of the interactive components of an ecosystem.	<p>7.1.3.2. Consider introducing adaptable species and manage habitats impacted by climate warming (temperature and flow changes) (MNR, CVC, DFO, NGOs).</p> <p>7.2.1.1.a) Better identify natural areas, recharge areas, and physiographic features requiring protection. Update wetland evaluations and Ecological Land Classification mapping. (MNR, CVC, Municipalities).</p> <p>7.2.1.1.b) Utilize and implement subwatershed plans (or other similar ecosystem studies) to identify and integrate all components (CVC).</p> <p>7.2.1.2. Review, revise and implement CVC Monitoring Program. Encourage and support more data collection and research (CVC, MNR, MOE).</p>
7.3. Lack of understanding of tourism and other economic benefits in order to better manage the fishery (bait and tackle retail, charter / guide services, marinas, boat and hut rentals, gate fees, accommodations, food and gas).	7.3.1. Utilize more information regarding tourism and economic benefits in managing the fishery.	<p>7.3.1.1. Initiate a socio-economic review / study (e.g., creel and other data) of the values of the Credit River fishery and identify opportunities for improvements. (MNR, CVC, Tourism and Economic Development Agencies, Academic Institutions).</p> <p>7.3.1.2. Investigate catch and release for biological reasons, increasing fishing opportunities and economic benefits and as potentially improving economic benefits (MNR).</p>

ISSUES	STRATEGIES	TACTICS
7. Other Issues		
		7.3.1.3. The economic benefits should be considered during the periodical reviews of the plan (MNR, CVC, Implementation Committee).
7.4. Cumulative impacts of ponds.	7.4.1 Reduce the cumulative impacts of ponds. (e.g., nutrient enrichment, thermal warming, sedimentation and erosion, and barriers to fish migration).	7.4.1.1.a) Review the Niagara Escarpment Pond Study. Review, revise and adopt recommendations (CVC). 7.4.1.1.b) Conduct watershed or subwatershed pond inventories and model impacts (e.g., evaporation losses) (CVC).
7.5. Sportfish contaminant levels.	7.5.1. Reduce and monitor sportfish contaminant levels.	7.5.1.1. Reduce pollutant loadings (see also 1.b)) and support lake-wide clean up initiatives (MOE, DOE, DFO, MNR, CVC, Municipalities, NGOs). 7.5.1.2. Continue and expand MOE's sportfish contaminants sampling program and publishing of the 'Guide to Eating Ontario Sportfish' (e.g., stormwater management ponds) (MOE, CVC, MNR).
7.6. Large numbers of decaying salmon along the river banks causing aesthetic or other perceived problems in public parks and for landowners.	7.6.1. Understand and reduce the impacts of decaying salmon along the river banks.	7.6.1.1. Education of the life history of salmon through signage, salmon walk, brochures etc. (MNR, Municipalities, CVC, NGOs). 7.6.1.2. Review previous and existing practices (e.g., CRAA removal to the municipal dump, Municipality removal off banks into river, MNR disposal after egg collection) and determine proper disposal methods (e.g., landfill, incineration) (MNR, Municipalities, NGOs).

ISSUES	STRATEGIES	TACTICS
7. Other Issues		
		<p>7.6.1.3. Discuss with the Lake Ontario Management Unit the potential for replacing a portion of Pacific salmon stocked in the Credit River with Atlantic salmon / rainbow trout, if feasible (MNR, Municipalities, NGOs).</p> <p>7.6.1.4. Study the contaminant loadings of decaying salmon to the river (MNR, Municipalities, MOE, DFO, Universities).</p>
7.7. Reporting / killing of brook lamprey.	7.7.1. Educate on difference between brook and sea lamprey.	7.7.1.1. Provide educational material on differences between brook and sea lamprey (MNR, DFO, CVC).