

CALL FOR RESEARCH PROPOSALS

Research to Support Development of Regional Monitoring Frameworks to Support Cumulative Effects Assessment

Tobacco Creek Model Watershed (TCMW) Research Consortium

(Deadline for Submission: September 15, 2011)

The Canadian Water Network (CWN) is currently calling for research proposals to develop a watershed-scale research platform that will support the Tobacco Creek Model Watershed (TCMW) research consortium node in establishing a regional monitoring framework to support cumulative effects assessments, including **cumulative effects monitoring of agri-ecosystem sustainability in the Red River Valley and Lake Winnipeg Basin.**

This specific call for research projects is part of a CWN “Canadian Watershed Research Consortium.” It forms part of a national research program and represents a call for research within one of five different region-specific consortium nodes, each of which is developing research programs related to improving cumulative effects assessment by establishing regional monitoring frameworks. Calls for proposals for three other regional nodes can be found at <http://www.cwn-rce.ca/news-and-events/featured/cwrc-call-for-research-proposals/>.

As part of its Canadian Watershed Research Consortium Initiative, the current call seeks to advance the understanding of hydrological, water quality and biological processes within the Tobacco Creek Model Watershed and Red River Valley. New sampling stations and innovative sampling methodologies will supplement the existing long-term datasets for the watersheds; contribute to local models as well as regional understanding of cumulative effects; and provide a suite of measurable indicators for the agriculture-dominated drainage system of the Lake Winnipeg Basin. This will include development, calibration, and validation of an integrated watershed model.

Through this process, the CWN anticipates funding several research projects of three-year duration. Total available funding is \$600k over three years (\$200k per year).

Description	Deadline
Request for Proposals Announcement	July 14, 2011
Proposal Submission	September 15, 2011
Funding Decision Notification	December 16, 2011
Project Duration	April 2012 –March 2015

1.1 Scope

The objective of this research call is to provide the TCMW Research Consortium with a monitoring framework that will provide the necessary information to evaluate agricultural practices and water management schemes in the watershed; and to establish baseline data against which to measure cumulative effects from natural processes and management practices. The research will contribute to the achievement of the TCMW Research Consortium's long-term goals (see Context of the Research Call – **See Section 2**).

The project outputs will be research-based and applicable to the prairie region and will include protocols for:

- Sampling site selection;
- Sampling methodologies;
- Sample timing and frequency;
- Sample handling and analysis;
- Indicator selection and application.

We are soliciting proposals from Granting-council (NSERC, SSHRC or CIHR) eligible researchers in the following areas –

1. Hydrology monitoring;
2. Water quality monitoring;
3. Sediment monitoring;
4. Aquatic biology monitoring;
5. Cumulative effects monitoring;
6. Monitoring of agricultural practices;
7. Monitoring the consequences or benefits of artificial structures.

1.2 Eligibility to Receive CWN Funds

As a condition of the funding received from the federal Networks of Centres of Excellence (NCE) Directorate that supports the CWN, only the following persons can receive funds from CWN as part of this proposal: any person employed or otherwise given academic status by a university, post-secondary educational institution, hospital, institute or other organization eligible to receive research funds from any one of the federal granting agencies: Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and / or the Social Sciences and Humanities Research Council (SSHRC). Please go to the **NSERC Eligibility Guidelines** http://www.nserc-crsng.gc.ca/NSERC-CRSNG/eligibility-admissibilite/index_eng.asp for a complete explanation of eligibility.

Although only researchers meeting these criteria may receive funds directly from CWN, projects are encouraged to include additional researchers and partners from other sectors if they can be supported by non-NCE (i.e., non-CWN) funding through matching or leveraged funding generated by the project teams.

2 Context of the Research Call

2.1 CWN and the Canadian Water Research Consortium Context

The Canadian Water Network (www-cwn-rce.ca) plays a vital role in ensuring that Canada benefits from its investments in research to manage our water resources more effectively and becomes a world leader in water management. CWN catalyzes and supports partnerships among the water research community, water managers and government regulators necessary for robust water research and delivery of tangible health, social and economic benefits. Development of our research programs begins by articulating the needs of end-users, so our research is relevant and outcomes are implemented. This results in not only better application and adoption of knowledge, but strengthens our relationships with our partners and their decision-making communities to expand involvement and further investment.

CWN has established its Canadian Watersheds Research Consortium (CWRC) to support and catalyze groups committed to improving science-based decision making for watershed management activities within a regional environmental framework. The initial phase of research projects conducted within this CWRC initiative is aimed at supporting monitoring frameworks that will support cumulative effects assessments and better underpin longer-term strategies for adaptive management.

CWN established a pilot watershed consortium node in the Saint John Harbour, New Brunswick in 2010. Earlier in 2011, CWN established four additional regional watershed “nodes” within the CWRC program through a competitive proposal process that was designed to identify groups with a strong interest and capacity to identify shared end-user needs and collectively establish and manage a research program to address them. A separate call for research proposals was developed by each of the four successful nodes through a consultative process. The specific research call was designed by each node, customized to their priorities, needs and realities. This call for research projects represents one of the four resulting calls for research resulting from that process.

Additional context on the overall goals of creating CWN’s Canadian Water Research Consortium is provided in Appendix A.

2.2 Tobacco Creek Model Watershed Consortium Context

The Tobacco Creek has been monitored for the past 20 years by various federal and provincial agencies and research groups, making it an ideal location to develop a regional monitoring network in the Red River Valley, which contributes the majority of nutrients and flow to Lake Winnipeg. Major research gaps still exist, in relation to understanding water flow, nutrient movement, and relative contributions of nitrogen and phosphorus – to determine the most appropriate agricultural Beneficial Management Practices for agricultural watersheds on the Canadian Prairies. The TCMW Research Consortium has been set up to address a number of research priorities over the next 10 years, specifically:

- What are the best methods (e.g. wetland restoration, land management options, artificial storage, drainage flow coordination, etc.) for reducing peak flows to reduce damage to

crops and municipal infrastructure, increase availability of water for cattle, irrigation, and domestic use, among other results?

- What are the best methods for reducing total nutrient loads (and particularly dissolved phosphorus) and create opportunities to use these nutrients beneficially locally, supporting small farm operations?
- What are the best methods for enhancing biodiversity to preserve appropriate natural land cover, improve riparian health, benefit in-stream flows, restore wetland areas, and expand biodiversity of all aquatic and terrestrial species, while providing a source of income for agricultural producers, among other results?
- What are the best methods for improving watershed governance that engages stakeholders, improves land-use planning across municipal boundaries, improves coordination in water management among local governments and with the provincial government, and improves monitoring of ecosystem health trends, and improves evaluation/improvement of watershed management performance?

A regional monitoring network will provide some of the data needed to progress these questions. **See Appendix D: Final TCMW Research Consortium proposal to CWN** (p. 7-8) for more details.

The Tobacco Creek Model Watershed (TCMW) Research Consortium is being established for monitoring and research in the Red River Valley and Lake Winnipeg Basin, focusing on Tobacco Creek, a 1000 km² sub-watershed within south-central Manitoba with approximately 1000 agricultural producers and other private landowners within the watershed. The TCMW consortium is a partnership of: farmers, community members, the agriculture industry, government policy-makers and decision-makers, and scientific researchers.

The TCMW Research Consortium is seeking to develop an research team which integrates hydrologic, water quality, and biological research with the policy and management needs of decision-makers – to help determine the most cost-effective means through which the cumulative causes and effects influencing TCMW sustainability can be addressed over time. The TCMW is recognized as a representative and contributing watershed of the Red River Valley and Lake Winnipeg Basin.

CWN defines knowledge translation as “a process by which relevant research information is made available and accessible for practice, planning and policy-making through interactive and iterative engagement with intended research users.” To facilitate this process, the successful research team(s) responding to this research call will interact with the TCMW Research Consortium through two committees:

A TCMW Community Partnership Management Committee (CPMC) comprised of:

Agricultural Producers: the Deerwood Soil and Water Management Association, will co-chair this committee and coordinate TCMW operations. The Director of the Natural and Social Capital Program, International Institute for Sustainable Development will also provide co-chair support.

Municipalities/Conservation Districts: The Rural Municipalities of Dufferin, Lorne, Morris, Thompson, and Roland – and the Pembina Valley and La Salle RedBoine Conservation Districts have been key supporters of the TCMW vision, working in partnership with Deerwood. These are influential local land use and water management entities.

Federal/Provincial Representatives: representatives from departments responsible for developing policy instruments to address water flow, quality and biodiversity issues will be involved.

This Community Partnership Management Committee will review all TCMW research, and compile annual reports from the TCMW Research Consortium. The committee will meet two times per year, with additional meetings via conference call as necessary.

A TCMW Watershed Science Advisory Committee (WSAC) comprised of:

Scientific Researchers: This committee will be co-chaired by the Deerwood Association and the Senior Research Chair of the Watershed Systems Research Program, University of Manitoba. After completion of the CWN research call and selection process, WSAC participation will be open to all researchers interested in exploring agri-watershed sustainability in a Lake Winnipeg Basin or Canadian Prairie water regional context. It will build on established scientific exchanges that have evolved from research programs in the watershed since 1991, specifically the South Tobacco Creek Project (STC), and Watershed Evaluation of Beneficial Management Practices (WEBs). These have involved researchers from federal/provincial departments, universities, industry, and NGO partners. The WSAC will not be established until after the CWN call and selection process is complete.

All research teams receiving CWN research project funding will become active members of the WSAC by virtue of their role as CWN-funded researchers. WSAC research will form the foundation of annual TCMW Research Consortium reports prepared by the CPMC. The committee will meet two times per year, with additional meetings via conference call as necessary. A collegial process of discussion between the WSAC and CPMC will ensure that research results are considered in a collaborative environment which fosters scientific innovation and generates useful information for policy-makers and decision-makers.

Appendix B: TCMW Management and Research Plan (<http://tobaccocreek.com/>)
STC Project Steering Cttee. Role/Process (to be revised for TCMW, <http://tobaccocreek.com/>)
STC Project Acceptance Guide (to be revised for TCMW, <http://tobaccocreek.com/>)

2.3 Nature of Supporting Consortium Activities

This current call for research proposals represents a core research element within a larger Consortium initiative being undertaken by the TCMW Research Consortium. As such, the research will be conducted within and augmented by parallel activities being conducted within the Consortium.

The Lake Winnipeg Basin has been extensively studied and is the subject of ongoing research and regular monitoring, as the research papers set out in Appendix C indicate. However, these studies are not coordinated or integrated, which makes it difficult for the data to be used to develop effective policy instruments.

An objective of this research consortium is to provide a model for regional monitoring and research evaluation that can be applied across the Lake Winnipeg watershed.

In addition to the work set out in this call, a significant amount of research and monitoring has been done over the past 20 years or is underway. More detail of this work is available from the TCMW website, but it covers the following areas:

- Water quality monitoring in Lake Winnipeg and watershed
- Hydrological monitoring;
- Aquatic biology monitoring
- Nutrient transport in floodwaters
- Studies on snow melt and nutrient losses
- Sediment monitoring
- Land-use trend analysis
- Soil erosion studies
- Monitoring of beneficial management practices
- SWAT model development
- Socio-economic studies

Current water quality and hydrologic monitoring will continue in the watershed, and TCMW partners are also working to improve the infrastructure and technical capacity for flow and water quality data. Four hydrometric stations are to be installed and water quality sampling will be done at each of these to complement existing monitoring.

Appendix C: List of Existing STC, WEBS, and other Research Relevant to TCMW
(<http://tobaccocreek.com/>)

3 Description of the Research Call

3.1 Scope, Nature and Funding of Solicited Research Projects

CWN has committed up to \$600k in total (\$200k/yr for three years) to provide core funding for this research call. One of the goals of using a consortium construct to achieve the research is to provide a centralized mechanism and rationale for co-investment of partners in these research projects of common interest.

TCMW partners have contributed time and resources to the consortium and existing projects and programs will continue. The outputs from those projects and programs will be available for the research call. In addition to existing instrumentation, four additional hydrometric stations are being provided through separate funding to this research call. There is also substantial water quality monitoring occurring in the South Tobacco Creek system, and there are plans to expand this significantly within the larger TCMW area.

It is recognized that the TCMW's long-term research priorities (Section 2.2) represent a comprehensive challenge which will take several years to address. However, TCMW Research Consortium partners are seeking to make meaningful progress toward these goals during the CWN funding window to 31 March 2015.

There is no additional financial support available to CWN-funded integrated research teams from the TCMW Research Consortium.

Project teams are expected to bring additional resources to the program both in terms of leveraged existing research resources and additional partnerships. The capacity of the team to contribute both leveraged and additional partner funding to the project should be clearly outlined in the budget section of the proposal.

Following selection of successful proposals in the fall of 2011, final proposal funding and scope will be negotiated with successful proponents for the research programs with the consortium management committee, and will be dependent upon the degree to which the successful programs can fulfill the needs of the consortium.

3.2 Description of the Research Categories within which Project Proposals May be Submitted

We are soliciting proposals in each of **3** areas described below, with expectations for the maximum allowable funding requests in each category.

Proposals are invited in the following categories for projects with a **maximum duration of three years: The consortium has a maximum of \$200k available to spend across all three project research areas each year.**

The consortium is seeking proposals which deliver one or more of the three research areas set out below. Ideally the research teams and individuals should be able to work together to support the consortium in the development of a long-term monitoring strategy. Research teams proposing to deliver one or more research area should have experience in setting up sampling programs, the establishment of monitoring protocols, and the analysis of the resulting data.

The consortium's interests are focused on incorporating scientific knowledge in a cumulative effects monitoring program which yields useful information to assist government policy makers to: design efficient instruments; facilitate management solutions at the watershed scale; monitor their effectiveness; and continually adapt/improve over time. A team-based proposal describing a comprehensive research program that addresses all eligible research topics and provides a clear mechanism for collaboration will be preferred. However, applicants may submit a proposal considering as few as a single research topic, provided a strong reporting mechanism and project integration mechanism is included.

Research-based guidance on the following are required: sampling station selection; sampling methodologies; protocols for sample timing and frequency; protocols on sample handling and analysis; the preliminary water and nutrient budgets for watershed modeling, draft watershed sustainability indicators, proposed indices and parameters for monitoring, and specific means by which to best collect required data (such as chemical markers, indicator species or others) and their application.

At the end of the CWN funding horizon (March 2015), sufficient data should be collected and analyzed to provide the consortium with the evidence it needs to seek ongoing funding from partners and other funding sources – and to provide preliminary results which address the TCMW's long-term goals (**see Section 2.2**). The monitoring program that develops needs to be affordable and adaptable in the long-term.

3.2.1 Research Categories

Hydrology Indicators – A network of stations is already in place in the watershed, and four more stations are being funded in addition to this research call. Through a research project of three years or less, the TCMW hydrological monitoring network should be evaluated and utilized to provide baseline data to begin modeling the sources of flow throughout the watershed, the patterns of flow following snow melt and summer storms, and to calculate nutrient loads. The full range of policy and management options aimed at reducing peak flows across the TCMW should be explored via literature audit and considered in light of results from the South Tobacco Creek system and new TCMW data from CWN-funded research. A prioritized list of options should be developed for future research. Initiation of actual experimentation on any options through this call would be beneficial.

Water Quality Indicators – There are a number of existing monitoring stations throughout the South Tobacco Creek watershed. Monitoring has been carried out for a range of purposes over the past 20 years, but is mainly project based. Additional monitoring efforts are now developing within the larger TCMW area. Through a research project of three years or less, the TCMW water quality monitoring network should be evaluated and utilized to provide baseline data to begin tracking water quality trends throughout the watershed. The full range of policy and management options aimed at reducing nutrient loads should be explored via literature audit and considered in light of results from the STC system and new TCMW data from CWN-funded research. A prioritized list of options should be developed for future research. Initiation of actual experimentation on any options through this call would be beneficial.

Biodiversity Indicators – Some biological monitoring has taken place in the watershed to understand the current status of both the South Tobacco Creek and larger TCMW. Through a research project of three years or less, a network of monitoring sites and research protocols should be established, evaluated, and utilized to provide baseline data to begin determining aquatic and terrestrial biological health throughout the watershed. The full range of policy and management options aimed at improving biological health should be explored via literature audit and considered in light of results from the STC and TCMW systems, and new TCMW data from CWN-funded research. A prioritized list of options should be developed for future research. Initiation of actual experimentation on any options through this call would be beneficial.

3.3 Proposal Evaluation

Proposals will be evaluated based on the merits of the submission, especially the relevance of the proposed outcomes and the potential to lead to a major impact towards the stated TCMW Consortium goals. The research proposals will be evaluated by an external expert panel and the final decision for funding proposals will be made by the CWN Board of Directors upon recommendation by a joint management committee composed of members of the CWN's Research Management Committee and the TCMW-Consortium Management. Strict Conflict of Interest protocols will be applied as outlined in the CWN policies. (Final funding agreements will be contingent on the successful completion and approval of CWN's mid-term evaluation by the NCE Directorate in fall 2011.)

The proposals will be assessed against the following criteria:

- Potential to contribute to the consortium goals

- Fit with the described goals of the selected category
- Strength and excellence of the project team (including additional partners)
- Scientific excellence of the proposed research
- Development of highly qualified personnel
- Project networking and management capacity
- Knowledge translation plan
- Appropriateness of budget

Note: Scientific excellence is essential for successful proposals, but is not sufficient, as all criteria will be considered.

3.4 Proposal Evaluation Criteria

The proposals will be assessed against the following criteria:

1. Potential to Contribute to the Consortium Goals

The proposed research represents a strong potential to contribute to the stated goals of the consortium and its capacity to achieve the desired advancement in development of a regional environmental monitoring framework to support cumulative effects assessment. (Appendix D: Final TCMW Research Consortium proposal to CWN)

2. Fit with Described Goals of the Selected Category

The proposed research shows a good understanding of and response to the described category and has a strong potential to address the desired goals.

3. Strength and Excellence of the Project Team

The proposed research team (including extended project partnerships) demonstrates the necessary excellence and breadth of experience and skill sets to conduct the work.

4. Scientific Excellence of the Proposed Research

The proposed research plan and methodology demonstrate the use of state-of-the-art research and scientific excellence in the overall approach, employing a strategy that is appropriate to the purpose and context of the work given the current state of the science knowledge.

5. Development of Highly Qualified Personnel (HQP)

The project offers opportunities for students or others to obtain unique cross-disciplinary training and partner interactions that will contribute to broadening the experience and capacity of those involved in the project.

6. Project Networking and Management Capacity

The project indicates a clear plan and capacity to manage the various elements of the project both to ensure networking among project components and with the larger Consortium group and to ensure the project proceeds on time and on budget, addresses key milestones, and ensures appropriate integration that avoids silos.

7. Knowledge Translation Plan

In addition to fulfilling the Consortium's requirement for researchers to participate in regular Consortium meetings, the project has identified a clear process to ensure that

the research approach and scope are clearly informed by user needs represented in the Consortium, as well as the larger user community and other project partners. The project has a well-defined process for incorporating user feedback throughout the project, and explicit plans to communicate research progress and outcomes using appropriate user-oriented formats (i.e., face-to-face meetings, user-oriented reports), within the context of declared user needs.

8. Appropriateness of Budget

The budget request is appropriate to the proposed scope and intended outcomes and effectively leverages existing resources as well as attracting additional resources that demonstrate clear ability to resource the planned work and achieve outcomes.

3.5 Eligibility to Receive CWN Funds

Any person employed or otherwise given academic status by a university, post-secondary educational institution, hospital, institute or other organization eligible to receive research funds from any one of the federal granting agencies: Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and / or the Social Sciences and Humanities Research Council (SSHRC).

Although only researchers meeting these criteria may receive funds directly from CWN, projects may involve additional researchers and partners from other sectors if *they can be supported by non-NCE funding through matching or leveraged funding generated by the project teams.*

Please go to the **NSERC Eligibility Guidelines** http://www.nserc-crsng.gc.ca/NSERC-CRSNG/eligibility-admissibilite/index_eng.asp for a complete explanation of eligibility.

3.6 Funding Conditions

All funded projects will be reviewed annually by CWN and continued funding will be contingent on acceptable progress toward identified outcomes. Successful proponents will be expected to meet with the local Consortium Management Committee at least once every six months; funding for participation in these meetings should be budgeted in the proposal. Proposals cannot include work that will extend past March 31, 2015. Requested funding must be commensurate with the level and timing of the work proposed. Funding of successful proposals will begin April 2012. Final funding contracts are contingent on successful completion of CWN's mid-term review process with its core funder, the Networks of Centres of Excellence Directorate, in the fall of 2011.

3.7 Intellectual Property

Those submitting expressions of interest and / or proposals should read the **NSERC Policy on Intellectual Property**, found at http://www.nserc-crsng.gc.ca/NSERC-CRSNG/policies-politiques/ip-pi_eng.asp. This policy applies to CWN funding.

3.8 Deadline for Submission

Proposals must be submitted by email to jlevangie@cwn-rce.ca no later than 11:59 Eastern Daylight Saving Time September 15, 2011.

Confirmation of receipt of proposals will be sent within 72 hours. If a confirmation is not received, contact Janice Levangie at jlevangie@cwn-rce.ca or by telephone at 519-888-4567 ext. 31144.

Questions on process should be directed to **Janice Levangie** (jlevangie@cwn-rce.ca, 519-888-4567 ext. 31144) at the Canadian Water Network. Questions on the research topic area specific to the consortium node should be directed to either of the following as applicable:

Mr. Les McEwan, Chair
Tobacco Creek Model
Watershed
Box 28
Altamont, Manitoba
R0G 0A0
Tel. 204-744-2344
Email:
mcewan_les@hotmail.com

Dr. David Lobb, Co-Chair
Watershed Science Advisory
Ctte.
Tobacco Creek Model
Watershed
276 Ellis Bldg. University of
Manitoba
Winnipeg, MB R3T 2N2
Tel. 204-474-9319
Email:
lobbda@cc.umanitoba.ca

Dr. Henry Venema, Co-Chair
Community Partnership Mgmt.
Ctte.
Tobacco Creek Model
Watershed
161 Portage Avenue East
Winnipeg, MB R3B 0Y4
Tel. 204-958-7706
Email: hvenema@iisd.ca

3.9 Proposal Guidelines

1. Deadlines

The deadline for submitting proposals is 11:59 p.m. Eastern Daylight Saving Time, September 15, 2011. Note that some of the forms can be submitted by later deadlines according to the schedule below:

Form	Submission method	Deadline
CWN WSTC -1 Proposal	email	September 15, 2011
CWN WSTC -2 Budget, Investigators, HQP, Partners	email	September 15, 2011
CWN WSTC -3 Applicant Signature	fax, courier or scan & email	September 15, 2011
CWN WSTC -4 Investigator Signature	fax, courier or scan & email	September 15, 2011
CWN WSTC -5 Environmental Impact Statement	fax, courier or scan & email	September 15, 2011
CWN WSTC -6 Conflict of Interest Statement	fax, courier or scan & email	September 15, 2011
CWN WSTC -7 Intellectual Property	fax, courier or scan & email	September 15, 2011
Copy of NSERC Form 100 (or CV) for each of the Project Leader and Investigators	email	September 15, 2011
Letters of Support	fax, courier or scan & email	September 15, 2011

2. Forms

All forms can be downloaded from <http://www.cwn-rce.ca/news-and-events/cwrc-rfp-tcmwrc/>.

a) Email forms

The proposal involves two forms which should be submitted by email to Janice Levangie at jlevangie@cwn-rce.ca.

1. CWN- WSTC -1 Proposal Information (**This is the main proposal**)
One copy of this form must be completed.
2. CWN- WSTC -2 Budget Investigators HQP Partners
One copy of this form must be completed.

b) Signature Forms

The following forms require signatures. Signed forms must be either:

- faxed to CWN at 519-883-7574,
- couriered/mailed to Canadian Water Network, c/o University of Waterloo, 200 University Ave. W., Waterloo, ON, N2L 3G1, or

- scanned and emailed to Janice Levangie at jlevangie@cwn-rce.ca.
3. CWN- WSTC -3 Applicant Signature
One copy of this form must be signed by the project leader.
 4. CWN- WSTC -4 Investigator Signature
One copy of this form must be signed by each funded investigator listed in the “Investigators” tab of Form CWN WSTC -2.
 5. CWN- WSTC -5 Environmental Impact Statement
One copy of this form must be signed by each institution represented in the proposal. If there is more than one investigator from an institution, choose one person to get the form signed.
 6. CWN- WSTC -6 Conflict of Interest
This form must be signed by each funded investigator listed in the “Investigators” tab of Form CWN WSTC -2.
 7. CWN- WSTC -7 Intellectual Property
This form must be signed by each funded investigator listed in the “Investigators” tab of Form CWN WSTC -2.

c) Additional Supporting Documents

The following supporting documents must either:

- faxed to CWN at 519-883-7574,
 - couriered/mailed to Canadian Water Network, c/o University of Waterloo, 200 University Ave. W., Waterloo, ON, N2L 3G1, or
 - scanned and emailed to Janice Levangie at jlevangie@cwn-rce.ca.
8. CVs or NSERC Form 100s for any researcher for whom CWN funding is requested.
 9. Letters of support are mandatory for all cash contributions greater than \$5,000. Additional letters of in-kind support or contributions may also be provided where deemed helpful to corroborating key statements of value, user interest, or unique contributions, as outlined in the main proposal. Please ensure that all letters of support clearly indicate the proposal title in the subject line.

Only proposals submitted using the forms above will be considered. Additional information submitted outside of the forms will not be considered in the proposal review.

3.10 Appendix A: Background Context for CWN's Canadian Water Research Consortium, Phase 1.

3.10.1 The Challenge: Managing Cumulative Impacts on Water Resources and Aquatic Ecosystems

The management of watersheds has begun to incorporate the intrinsic value of ecosystems and the critical role of aquatic ecosystem health in the sustainable management of water resources. Managing water quality and aquatic ecosystem health on a watershed basis requires the identification and consideration of the various relative threats to sources of water and related aquatic systems, as well as possible mitigation measures to limit environmental degradation

3.10.2 Supporting Assessments of Cumulative Impacts and Assimilative Capacity for Aquatic Ecosystem Health

Methodologies to assess the cumulative impacts of various contaminant sources and the assimilative capacity of aquatic systems have not adequately matured for widespread use as a core principle to inform decisions. There are many different monitoring programs that currently operate in basins, including programs for licenses and permits, regional monitoring programs, status and trends, environmental impact assessments, environmental effects monitoring, and yet we still are faced with challenges of how to deal with predicting the potential future cumulative effects, and with detecting current cumulative impacts. This is due to a variety of factors, including that decision-making and responsibility are split into different areas, and that there is not any overarching framework, common philosophy, common methodologies, integration, or consistency in timing between programs.

There are several challenges with the current practice of cumulative effects assessment (CEA), and considerable challenges with terminology in the area. There are inconsistencies between the intent of CEA and the practice that create barriers to achieving/maintaining environmental sustainability, and there are significant challenges affecting effective watershed management. There is a need to clarify accountability and roles for CEA, and a need to improve collaboration and networking to assist in design and interpretation. The availability and consistency of data is a significant hurdle, further complicated by the absence of a common framework or approach to study/monitoring design in most situations. CWN is working to support processes to place regional monitoring programs into a common framework that would enhance the effectiveness of the cumulative effects assessment process while respecting the site-specific differences appropriate to consider in addressing unique conditions in each watershed area.

The benefits for framing a cumulative effects assessment approach within the context of a regional monitoring framework are the ability to quantify thresholds for environmental management, and the ability to provide a basis and mechanism for (re-)assessment of conditions over time and conduct adaptive management, that are likely to be missed in site- or project-specific assessments.

3.10.3 The CWN Canadian Watershed Research Consortium

This Canadian Watershed Research Consortium is aimed at ensuring the appropriate collaboration of end-users with shared interests in clearly defining the research needs to influence the development of monitoring programs in a number of priority areas across Canada. The program is being launched in five different regional nodes within Canada. It is intended that these “nodal” locations could be adequately linked to enable the development of cumulative effects assessments regionally, and through that process help to change the “community of practice” around what is considered in an EIA (or CEA), and to increase the capacity to deal with cumulative effects.

The main goal of the consortium program is to support science-based decision-making for watershed management activities within a regional environmental framework. This first phase is aimed at supporting cumulative effects frameworks and supporting more effective practice with respect to Environmental Impact Assessments practices.

A **regional monitoring framework** is defined as a strategic, integrated, regional monitoring design and decision-making strategy for the measurement of regional ecosystem change while incorporating site-specific monitoring needs. It is necessary that the monitoring fit within the context of an adaptive management framework with a design that extends beyond any single project-specific needs to understand site-specific conditions or changes in the context of conditions in the larger system.

The consortium process seeks to link regional watershed users and decision-makers in a process that examines existing monitoring approaches, and defines what is limiting the appropriate regional application of cumulative effects assessments. It seeks to develop linkages between monitoring programs to look for efficiencies, and to develop a co-investment strategy and definition of research that would lead to a change in the community of practice for cumulative effects assessment. It would also integrate programs into a regional monitoring consortium and framework capable of beginning to look in real terms at the issue of cumulative effects.

3.11 Appendix B –Background and ToR etc., on the Consortium Node

TCMW Management and Research Plan (<http://tobaccocreek.com/>)

STC Project Steering Ctte. Role/Process (to be revised for TCMW, <http://tobaccocreek.com/>)

STC Project Acceptance Guide (to be revised for TCMW, <http://tobaccocreek.com/>)

3.12 Appendix C –Background Documents and Materials on the Watershed available to proponents for review.

List of Existing STC, WEBS, and other Research Relevant to TCMW (<http://tobaccocreek.com/>)

3.13 Appendix D: Final TCMW Research Consortium proposal to CWN

Appendix D: Final TCMW Research Consortium proposal to CWN (<http://tobaccocreek.com/>)