Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)

LCCMR ID: 013-A2

Project Title:

Social and Economic Strategies for Reducing EDCs

LCCMR 2010 Funding Priority:

A. Water Resources

Total Project Budget: $ $459,247

Proposed Project Time Period for the Funding Requested: 3 years, 2010 - 2013

Other Non-State Funds: $ $38,885

Summary:

The goal of this project is to provide socially acceptable and economically efficient strategies based on the best available science for preventing, reducing and remediating the impacts of EDCs.

Name: David Fulton

Sponsoring Organization: U of MN

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Web Address:

Location:

Region: Statewide

County Name: Anoka, Carlton, Carver, Cass, Chisago, Crow Wing, Dakota, Hennepin, Isanti, Morrison, Olmsted, Ramsey, Scott, Sherburne, St. Louis, Washington, Wright

City / Township:

_____ Knowledge Base _____ Broad App. _____ Innovation

_____ Leverage _____ Outcomes

_____ Partnerships _____ Urgency _____ TOTAL

PROJECT TITLE: Social and Economic Strategies for Reducing EDCs

I. PROJECT STATEMENT

During the past decade awareness of endocrine disrupting compounds (EDCs) has increased among both the scientific community and the public. Research in Minnesota and around the globe has begun to investigate the sources, fates and impacts of these increasingly ubiquitous compounds. Early research findings indicate that EDCs have the potential to cause negative impacts to fish, wildlife and humans, but the severity and probability of such negative impacts are just beginning to be understood. There is scant information about the public's awareness of EDCs or the strategies they would support to reduce EDCs. As scientific studies begin to clarify the sources and impacts of EDCs, science-based information will need to be integrated with social, political and economic information to develop effective policy strategies with broad-based support that can be rapidly implemented.

The goal of this project is to provide guidance for crafting socially acceptable and economically efficient policies and strategies based on the best available science for preventing, reducing and remediating the impacts of EDCs. Two strategies for removing EDCs from Minnesota's water include enhanced treatment at wastewater treatment plants and decreasing human behaviors that lead to the emission of EDCs such as the use and disposal of pharmaceuticals, antimicrobial products, and agricultural activities. Strategies for reducing EDCs range from voluntary behavioral change and financial incentives to financial penalties and prohibitive regulations. This project will address three specific social science research needs to help formulate effective policies and strategies for reducing EDCs. First, we will determine current knowledge, awareness of consequences, perception of risks, beliefs, attitudes and behaviors of the Minnesota public concerning EDCs and acceptability of actions to prevent and reduce the impacts of EDCs. Second, we will determine the willingness of Minnesota's to pay for enhanced treatment at wastewater treatment plants to remove EDCs and the economic value of reducing EDCs. Third, we will conduct a policy analysis to clarify viable strategies for the prevention, reduction and remediation of EDCs.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Understanding perceived risks, attitudes and behavioral choices related to EDCs and acceptability of strategies for the prevention, reduction and remediation of EDCs Budget: $ 192718

Preventing or reducing the human use of consumer products and pharmaceuticals containing EDCs and altering agricultural practices represent one set of strategies for reducing EDCs. Public education and communication programs represent a potentially viable way to alter human behavior in these areas, but there might be resistance to changing behavior. We need to understand why education might not work and what alternatives to education might be effective. Doing so requires understanding the choices, motivations, beliefs, attitudes and perceptions of risks and benefits related to EDC containing products or agricultural practices that lead to EDC emissions as well as information about attitudes toward and acceptability of strategies to reduce EDCs. We will collect data from 6,000 households and agricultural producers in four key areas of the state: Twin Cities Metro, Rochester/Olmsted County, Brainerd Lakes and Duluth. We will target 1500 completed surveys in each strata (n = 800 urban; n = 400 rural, non-agricultural, n = 300 agricultural producers). Data collection and sampling will follow well-established protocols for survey research including a non-response check. We will use this information to design a education and information pilot project on EDC use and disposal that will be implemented in the communities adjacent to the St. Paul Campus of the University of Minnesota (Falcon Heights, St. Anthony Park, Como Park). We will use a panel diary study with a sample of 300 households to evaluate the program. Lead responsibility: Fulton

Deliverable	**Completion Date**
1. Collection and analysis of survey data (yr 1& 2)	*Fall 2011*
2. EDC use and disposal pilot program (yr 2&3)	*Spring 2013*

Result 2: Willingness to pay for treatment of EDCs and the economic value of reduced EDC levels Budget: $ 151761

Some treatment and remediation strategies will likely be necessary to reduce anthropogenic EDCs in the environment environment, and require additional expenditures by local communities. We will use stated choice methods to estimate the willingness of the local public to pay for enhanced treatment in wastewater plants as well as remediation activities in rural areas. We will also estimate agricultural producers willingness to pay for remediation of EDCs associated with their agricultural practices. In addition we will explore how this willingness to pay varies with the level of information provided about the risk posed to humans and the environment, and with the hypothetical level of threat to humans and the environment. We will collect data using the survey procedures outlined for Result 1. Lead responsibility: Carlin.

Deliverable	Completion Date
1. Collection, analysis and report on economic data	*Fall 2011*

Result 3: Policy analysis Budget: $ 114768

Using the data collected from other studies on the sources and fates of EDCs and CECs and the data on social and economic aspects of EDC use and reduction developed in results 1 & 2 in this study, we will develop an array of policy tools ranging from education, to community based sustainable land use planning, to traditional regulation, to best management practices to address EDC's in surface water. We will use focus groups in the 4 identified communities to explore the receptivity of the communities to the various policy tools. We will prepare a report and matrices identifying the various policy tools, the ability of the policy tool to redress the EDCs impact on surface waters and receptivity to the community to the proposed tool. We will engage policymakers, resource managers, and the regulatory community in discussions where our findings will be the scientific basis of recommendations for strategies to reduce sources, mitigate sources, and remediate sources of EDCs.Lead responsibility: Enzler and Sleeper

Deliverable	Completion Date
1. Develop recommendations for removing, reducing, remediating CECs from different source categories	*Spring 2013*
2. Hold workshop with policymakers to discuss strategies	*Spring 2013*
3. Final Project Report	*June 2013*

III. PROJECT STRATEGY

A. Project Team/Partners

University of Minnesota project investigators include: David C. Fulton, PhD, FWCB. (Project Manager); Caroline Carlin, PhD Applied Economics; Sherry Enzler, JD. Forest Resources; and Faye Sleeper, Water Resources Center co-director. Partners include: Deborah Swackhammer, PhD, UofM; Paige Novak, PhD UofM, and Bill Arnold, PhD, UofM.

B. Timeline Requirements

Data collection for socio-economic information will occur between Fall 2010 and Fall 2011. The pilot program will be implemented Spring 2012 and evaluated Spring 2013. Policy analysis will begin in Fall 2010 and be completed Spring 2013. Workshops with scientist, policy makers and managers will occur Spring 2013.

C. Long-Term Strategy

The proposed research fits into a larger research agenda centered at the University of Minnesota that is focused on the problem of EDCs in the State's surface waters. Although the proposed research will be completed in the allotted 3-year period with the requested financial resources, it complements current and prior research in this area. When taken together, the research performed or proposed by the University of Minnesota and its partners (e.g., St. Cloud State University) will provide a more complete picture of important sources and loads of estrogens/endocrine disruptors, the fate of these compounds in both engineered and natural systems, and potential strategies to mitigate the threat caused by these compounds.

Social and Economic Strategies for Reducing EDCs Project Budget

INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

Attach budget, in MS-EXCEL format, to your "2010 LCCMR Proposal Submit Form".

(1-page limit, single-sided, 11 pt. font minimum. Retain bold text and delete all instructions typed in italics. ***Add or delete rows as necessary.*** *If a category is not applicable you may write "N/A" , leave it blank, or delete the*

IV. TOTAL PROJECT REQUEST BUDGET (*[Insert # of years for project]* years)

BUDGET ITEM *(See list of Eligible & Non-Eligible Costs, p. 13)*	**AMOUNT**
Personnel: *In this column, list who is getting paid to do what and what is the % of full-time employment for each position. List out by position or position type - one line per position/position type. For each, provide details in this column on the inputs: i.e. % dollars toward salary, % dollars toward benefits, time period for position/position type, and number of people in the position/position type.*	
Graduate Research Associates (2 @ $35,000/12 months) includes salary (60%) and benefits (40%) for 3 years with a yearly inflation factor of 3.5% per annum	$217,436
Carlin 0.10% for 2 years includes salary (69.6%) and benefits (30.4%)	$26,536
Sleeper (0.03%) for 3 years includes salary (69.6%) and benefits (30.4%)	$11,919
Enzler 0.15% for 3 years includes salary (69.6%) and benefits (30.4%)	$44,381
Contracts:	$0
	$0
Equipment/Tools/Supplies:	
Acquisition (Fee Title or Permanent Easements):	$0
Travel:	
In-state mileage for focus groups and meetings 2500 miles @ 0.55/mile	$1,375
Travel per diem for staff overnight travel	$5,000
Additional Budget Items:	
Reduction of EDC pilot program	$30,000
User surveys (6000 @ $18)	$108,000
Focus Groups (12 @ $800)	$9,600
Policy Workshop	$5,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	$459,247

V. OTHER FUNDS

SOURCE OF FUNDS	**AMOUNT**
Other Non-State $ Being Applied to Project During Project Period: *Indicate any additional non-state cash $ to be spent on the project during the funding period. For each individual sum, list out the source of the funds, the amount, and indicate whether the funds are secured or pending approval.*	$ -
Other State $ Being Applied to Project During Project Period: *Indicate any additional state cash $ (e.g. bonding, other grants) to be spent on the project during the funding period. For each individual sum, list out the source of the funds, the amount, and indicate whether the funds are secured or pending approval.*	$ -
In-kind Services During Project Period: Fulton 0.10 fte for 3 years 69.6% salary and 30.4% benefits.	$ 38,885
Remaining $ from Current Trust Fund Appropriation (if applicable): *Specify $ and year of appropriation from any current Trust fund appropriation for any directly related project of the project manager or organization that remains unspect or not yet legally obligated at the time of proposal submission. Be as specific as possible. Describe the status of $ in the right-most column.*	
Funding History:	$ -

Project Manager Qualifications and Organization Description

David C. Fulton
Assistant Unit Leader and Adj. Associate Professor, Minnesota Cooperative Fish and Wildlife Unit, U.S. Geological Survey and University of Minnesota.

B.S., Sociology and Psychology, 1987, (magna cum laude) Texas A&M University, College Station, TX.
M.S., Environmental Science, 1992, Washington State University, Pullman, WA.
Ph.D., Human Dimensions of Natural Resources, 1997, Colorado State University, Ft. Collins, CO.

Dr. David C. Fulton will be responsible for overall project coordination. He has studied the influence of human values, attitudes, and norms on conservation and environmental behaviors for more than 20 years and is recognized as a national and international expert on human attitudes and behaviors concerning the management of fisheries and wildlife resources. He has worked closely with state and Federal agencies including the Minnesota DNR, US Fish and Wildlife Service, and the National Park Service in developing theory-based research to effect changes in public understanding and behavior regarding environmental conservation and management. His recent work has focused on understanding support for environmental policies and behaviors ranging from the use of non-toxic shot and the choice of walleye lakes to conservation of lake shore properties. If final funding is approved, he will begin an LCCMR-funded study July 2009 with colleagues at the University of Minnesota (Swackhamer, Novak, and Arnold) focused on understanding and reducing the use of household products containing EDCs.

Caroline Carlin
Assistant Professor, Department of Applied Economics, University of Minnesota.

B.S., Mathematics, 1985, (magna cum laude) University of Nebraska, Lincoln, NE.
Ph.D., Health Services Research and Policy, 2006, University of Minnesota, Minneapolis, MN.

Dr. Caroline Carlin will be responsible for coordinating the stated choice experiment to capture the public's willingness to pay for control of EDCs. Her work focuses on methodologies for analyzing human choice, particularly in non-randomized environments. Projects currently in process include modeling choices in a wide variety of contexts: choice of health plan and how that leads to differences in treatment outcomes; recreational choice and its impact on the environment; and choice of child care setting among low-income families and how that is influenced by subsidies and quality information.

Sherry A. Enzler, JD.
Research Fellow and Adjunct Professor in the Department of Forest Resources, University of Minnesota. Adjunct Professor, William Mitchell College of Law.

B.A. Political Science, 1976, (magna cum laude) University of Minnesota, Duluth Minnesota.