

Admiral James D. Watkins
Chairman
U.S. Commission on Ocean Policy
1120 20th Street NW, Suite 200 North
Washington, DC 20036

Dear Admiral Watkins:

Thank you for your letter of October 16, 2002, regarding testimony on nonpoint source pollution to the Commission. In your letter you requested additional information on:

- Leveraging authorities and expertise to create best possible solutions for watersheds;
- Examples of watershed restoration or ecosystem management strategies in the Great Lakes;
- Why EPA is considering new rules for enforcing the Clean Water Act; and
- What research is being done to find a better method for TMDLs and where this falls in the research priorities.

Enclosed you will find answers to these questions as well as supporting documentation. If you have any questions or require further clarification, please feel free to contact me at (202) 566-1146.

Sincerely,

Robert H. Wayland, III

1. How can we effectively leverage the authorities and expertise of each Federal and State agency, while considering local environmental conditions and political context to create the best possible solution for each watershed? Are there watershed restoration or ecosystem management strategies in the Great Lakes region? If so, how are they working and what has been the Federal role?

Part 1:How can we effectively leverage the authorities and expertise of each Federal and State agency, while considering local environmental conditions and political context to create the best possible solution for each watershed?

Many public, private, and civic organizations are joining forces and creating multi-disciplinary and multi-jurisdictional partnerships to effect watershed protection efforts at the local level. These local watershed partnerships increasingly are calling upon federal agencies to help protect the creeks, rivers, lakes, estuaries, and groundwater flowing through their neighborhoods. They want this assistance in the form of better coordinated federal services such as financial and technical assistance, training, education and outreach, and implementation of other federal programs. For example, delegates to the June 2001 National Watershed Forum, described below, strongly recommended that federal agencies better coordinate their programs, regulatory activities, grants, technical assistance, and data collection and information dissemination mechanisms to better serve the needs of States, Tribes, local governments, and the over 3000 citizen watershed partnerships across the country.

The National Watershed Forum, and the activities that led up to it, provide an example of how federal agencies can connect and coordinate with each other and with state and local interests in support of watershed protection efforts. The National Watershed Forum brought together nearly 500 delegates, drawn from community-based watershed initiatives; local, state, federal and tribal government; interest groups such as agriculture, forest products, mining, development, and fishing; environmental organizations; foundations; and academia, to give voice to geographically, politically, and culturally diverse viewpoints on protecting and restoring aquatic resources through partnerships. The Forum was intended to forge stronger partnerships and collaboration, help empower communities to continue their progress in improving the health of their watersheds, and educate government agencies about the efforts of the growing watershed movement. It provided local watershed partnerships, the private sector and government leaders a unique opportunity to identify and start taking important steps together to improve the nation's waters.

The National Watershed Forum was the culmination of more than two years of effort by thirteen Regional Watershed Roundtables. The Roundtables were organized to stimulate dialogue and interaction among diverse watershed interests, identify barriers to watershed protection, and begin developing solutions for overcoming the barriers. The conveners of the Roundtables assembled diverse stakeholders from watersheds in their regions to identify and begin addressing common challenges. The findings of the Roundtables served as building blocks for the National Watershed Forum, ensuring that local experiences and needs were heard and considered at the national level.

Follow up activities from the National Watershed Forum and the Regional Watershed

Roundtables continue on a number of fronts. An interagency Watershed Steering Committee was formed at the national level to improve coordination among the federal agencies on watershed issues, and Regional Watershed Coordination Teams mirror the Committee on the regional level. In addition, many of the Regional Watershed Roundtables still meet to continue their dialogues and address new challenges at the regional, state and local levels. This national-regional-local structure is similar to that employed by the Coastal America partnership to fulfill its coastal habitat restoration mission. It is this type of sustained, integrated, multi-level/multi-stakeholder effort that is needed to create the best possible solutions for protecting our nation's watersheds.

For more information on the National Watershed Forum, including recommendations made by the delegates, please visit: <http://www.epa.gov/owow/forum/>. Additional information on the Regional Watershed Roundtables is also available at this site. For more information on the Coastal America partnership, please visit: <http://www.coastalamerica.gov/>.

Part 2: Are there watershed restoration or ecosystem management strategies in the Great Lakes region?

The Great Lakes has a robust management structure that actively coordinates the protection and restoration of the basin ecosystem. Under the auspices of the U.S. Policy Committee, Federal, State, and Tribal leaders utilized their authorities and resources to develop and implement environmental protection and natural resource management efforts. As outlined in the extensive Great Lakes Strategy 2002, programs are directed toward all the major Great Lakes issues, including: air deposition, contaminated sediments, fish consumption advisories, habitat protection and restoration, agricultural land use, wet weather events, human health, beach closings, and invasive species. The Strategy goes beyond individual program efforts by addressing issues that are beyond the scope of these programs and helping integrate them into an overall basin-wide context. Besides having the full endorsement of the Federal, State, and Tribal partners, the Strategy benefitted from extensive public input, including workshops were held throughout the basin – in Duluth, Chicago, Detroit, and Niagara Falls – to solicit comments from local governments, industry, non-governmental environmental organizations, and the general public. The Great Lakes Strategy 2002 outlines a comprehensive approach to the protection and restoration of the Great Lakes basin Ecosystem. It is an effort that goes well beyond typical watershed planning efforts.

Part 3:If so, how are they working and what has been the Federal role?

As called for in the Clean Water Act and codified in 33CFR26.1.1268, the United States is to strive to achieve the goals embodied in the Great Lakes Water Quality Agreement. The USEPA's Great Lakes National Program Office is to take the lead in coordinating this effort, working with federal, state, tribal, and international agencies. The federal role in ecosystem protection is to lead public and private actions to protect and restore the integrity of the Great

Lakes ecosystem by providing program coordination, high quality technical assistance, information, and services, establishing partnerships, and by demonstrating innovative approaches to environmental management and stewardship.

In addition, I have enclosed a copy of the Great Lakes Strategy 2002 and a one-pager on the Strategy which will illustrate the comprehensiveness of the Great Lakes 2002 Strategy.

2. Why is EPA considering new rules for enforcing the Clean Water Act? Does the Federal government maintain authority over the discharge of pollutants and impacts on wetlands in navigable and non-navigable waters that flow into coastal waters? If not, should they?

EPA is developing several new and modified rules under the Clean Water Act, notably a revision to the effluent guidelines for concentrated animal feeding operations, a proposal to update the requirements for Total Maximum Daily Loads, and, pertinent to the aspect of the question concerning navigable waters, an “Advance Notice of Proposed Rulemaking” (ANPRM) in response to the Supreme Court decision in *Solid Waste Agency of Northern Cook County v. U.S. (SWANCC)*. That decision, and subsequent decisions in other Federal courts, interpret the agencies’ authority under the Clean Water Act to regulate activities in so-called “isolated waters.” The ANPRM allows the Corps and EPA to raise questions to the public regarding the effect of these court decisions and to request public input on how best the agencies should respond, for example, to proceed with a formal rulemaking to revise our CWA regulations. We are still in the process of coordinating with the Corps of Engineers in the preparation of that ANPRM.

The most direct response to the second part of this question is that our regulations assert CWA jurisdiction over all coastal waters, including wetlands, that are “subject to the ebb and flow of the tide.” This well settled principle is unaffected by SWANCC and the agencies will continue to require permits for discharges in any coastal water, including wetlands, subject to tidal influence.

3. **What is EPA doing within its research division and how much of a priority is being placed on finding a better method for TMDLs. Please provide detail about where this falls within EPA’s research agenda.**

Part 1: What is EPA doing within its research division?

Attached is a table showing the work the Office of Research and Development (ORD) is doing to meet the Twenty Needs Report¹. This report was developed by EPA’s Office of

¹USEPA. 2002. *The Twenty Needs Report: How Research Can Improve the TMDL Program*. EPA 841-B-02-002, US Environmental Protection Agency Office of Water, Washington, DC (43pp).

Water and contains TMDL science needs. The science needs were identified by the National Research Council, States and Tribes, EPA National and Regional TMDL programs, the private sector, and others.

Part 2:How much of a priority is being placed on finding a better method for TMDLs

We are working on several fronts to improve the development and implementation of TMDLs. As mentioned earlier, EPA has been in an extensive public dialogue on possible revisions to our rules in this area. We have issued several significant guidance documents which can be found at <http://www.epa.gov/owow/tmdl>. We have worked with the Water Environment Research Foundation and the Association of State and Interstate Water Pollution Control Administrators to convene technical workshops on TMDL issues. The most recent of these was held earlier this month in Phoenix and involved ~400 practitioners, academics, consultants and interested parties.

The attached table on how ORD is addressing the Twenty Needs Report highlights work that improves methods for TMDLs. This includes:

1. Improving watershed and water quality modeling
For example,
 - Provide updated models for storm water management and for allocating suspended solids and sediment loads and related uncertainties for mixed land use watersheds
2. Increase quantity and quality of completed TMDLs
For example,
 - Demonstrate the application of ecological risk assessments, classification schemes, landscape models, waste load allocation models, BMP effectiveness data, and economic projections to formulate watershed management plans capable of maintaining designated uses and meeting TMDL requirements
3. Improve information on BMP restoration or other management practice effectiveness, and the related processes of system recovery
For example,
 - Provide a comprehensive set of performance and cost data for controlling nutrients, suspended solids, sediments, pathogens, toxic chemicals (metals and PBTs), and flow variations within mixed land use watersheds draining to freshwater and coastal systems
4. Evaluate defensible scientific standards for listing and de-listing
For example,
 - Provide EPA Regions and States decision support systems consistent with resource availability and that enable diagnostic assessments for listing

impairments via 303(d) and for inferring causes of listed impairments across multiple scales for freshwater and coastal systems

5. Improve support for protecting unimpaired waters from degradations

For example,

- Development of a framework that integrates risk and human dimensions for effective long-term watershed management

Part 3:Please provide detail about where this falls within EPA's research agenda.

Virtually all of ORD's water quality research is directed to support TMDLs:

- Research on monitoring, e.g., EMAP, is increasingly tuned to assist the 303(d) listings
- Research on landscape and watershed indicators and thresholds is designed, in part, to facilitate better targeting of the 303(d) listings
- Research on dose-response effects from aquatic stressors (e.g., nutrients, toxics, sediments) is increasingly meeting TMDL needs
- Research on diagnostics is directly linked to TMDLs as a means to go from impairments to causes/sources
- Model development directly supports TMDLs
- Research on risk management is focused on both the effectiveness of BMPs and on use of market mechanisms and incentives to enhance implementation of TMDLs (e.g, research on trading runoff credits to increase efficiencies in urban wet weather flow mitigation)
- Research on pathogens is developing ongoing methods for source-tracking via DNA matching

**EPA/ORD and Water Environment Research Foundation (WERF) Research
Supporting TMDL Program Needs
as Identified in the Draft Twenty Needs Report of 2/8/02
9/25/02**

Project	Description	Sponsor	Schedule
Develop “state of the science” syntheses in several high priority subject areas to aid TMDL practitioners and decision-makers. (Need #1)			
Mutually improve networking and access to expertise in ORD, OW and EPA Regions. (Need #2)			
Revitalize ORD technical support and technical information transfer (Need #3)			
Increase quantity and quality of completed TMDLs (Need #4)			
Water Quality MYP Long Term Goal 3 APG	Demonstrate the application of ecological risk assessments, classification schemes, landscape models, waste load allocation models, BMP effectiveness data, and economic projections to formulate watershed management plans capable of maintaining designated uses and meeting TMDL requirements.	EPA ORD NCEA/NRMRL	2005
Ecosystems Research Long Term Goal 2 Watershed Classification Goal 8	Develop watershed classification schemes in different regions of the U.S. New classification schemes are needed to support design of efficient monitoring strategies, diagnose the causes of biological impairment, and prioritize watersheds for restoration.	EPA /ORD NCER	2006
Ecosystems Research Long Term Goal 2 Watershed Classification Goal 8	New watershed classification systems published and evaluated for adoption by regional state water quality managers.	EPA /ORD NCER	2007
Improve Watershed and Water Quality Modeling (Need #5)			
Water Quality MYP Long Term Goal 1 APG	Provide first generation protocol to classify eutrophication models for nutrient load allocation in coastal systems.	EPA ORD NHEERL	2004
Water Quality MYP Long Term Goal 3 APG	Provide updated models for storm water management and for allocating suspended solids and sediment loads and related uncertainties for mixed land use watersheds	EPA ORD NERL/NRMRL	2003
Water Quality MYP Long Term Goal 3	Demonstrate the application of updated models for allocating suspended solids, sediment, and nutrient loads among major and permitted sources	EPA ORD	2005

Project	Description	Sponsor	Schedule
APG	in mixed land use watersheds	NRMRL/NERL	
Ecosystems Research Long Term Goal 2 Nutrient Modeling Goal 8	Final STAR reports published on advances in nutrient cycling and modeling and their application to risk management decisions	EPA/ORD NCER	2006
Ecosystems Research Long Term Goal 2 Water/Watersheds Goal 8	Reports on the Linking of Environmental and Social Performance Measures to evaluate various land-use change scenarios on Stream Ecosystems and Watersheds	EPA/ORD NCER	2004
Mercury Research Long Term Goal 1 Goal 8.3	Hold workshop/SOS on mercury with emphasis on Fate and Transport in watershed(s) and ecosystem impacts.	EPA/ORD NCER	2004
Ecosystems Research Long Term Goal 3 Water/Watersheds Goal 8	Final technical reports and journal articles from STAR investigators describing new monitoring and assessment approaches and integrated decision support tools for use by watershed managers to prioritize, plan, and implement cost-effective projects to restore stream habitat and biota.	EPA/ORD NCER	2003
Ecosystems Research Long Term Goal 3 Water/Watersheds Goal 8	Final STAR reports on applying landscape models, and developing methods/tools for watershed restoration.	EPA/ORD NCER	2003
Water Quality MYP Long Term Goal 3 APG	Provide an updated suite of models, classification schemes, and landscape characterization methods for allocating suspended solids, sediment, pathogen, nutrients, and toxic chemical (metals and PBTs) loads among all sources in mixed land use watersheds	EPA ORD NRMRL/NERL	2007
Ecological Assessment Research Goal 8	Multi-scale, multi-pathway, multi-media cumulative exposure assessment models. Tools and technologies developed in this research will address ecosystem exposures to multiple stressors (chemical, biological, physical) through multiple pathways (atmospheric deposition, non-point and point sources, soil contamination, biomagnification) across media boundaries and with an increasing emphasis on biological endpoints.	EPA ORD NERL	2003
Field Calibration and Verification of Pathogen	Evaluation of the magnitude and character of <i>Cryptosporidium parvum</i> oocysts from controlled plots to verify and calibrate a transport model.	WERF	Not available

Project	Description	Sponsor	Schedule
Transport Model (00-WSM-3)			
Assessment of Availability and Use of Hydrodynamic, Runoff, and Fate and Transport Models (99-WSM-5)	Review and assess available models, and develop a selection criteria and process to determine the most appropriate model(s) for a particular situation.	WERF	Not available
Improve Uncertainty Analysis and Statistical Techniques for TMDLs (Need #6)			
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	New statistical design and analysis approaches to probabilistic and landscape monitoring.	EPA /ORD NCER	2005
Improve the Science Base Concerning All Stressors (Pollutants and Pollution) and Their Impacts (Need #7)			
Water Quality MYP Long Term Goal 1 APG	Provide suites of relevant fish, shellfish and wildlife species endpoints suitable for setting regional-scale habitat protection criteria for coastal systems, along with preliminary reviews of methods, modeling approaches, and available data for relating habitat alteration to changes in those species.	EPA ORD NHEERL	2002
Water Quality MYP Long Term Goal 1 APG	Provide methods for linking habitat alteration stressors and mercury to the regional problems of Great Lake Loons and to the flow-network alterations for Pacific Northwest salmon.	EPA ORD NHEERL	2003
Mercury Research Long Term Goal 1 Goal 8.3	Evaluate mercury cycling in complex ecosystems; including, air/water interface to accurately assess TMDLs for Hg and predict methylmercury concentrations in water and fish. Focus is on human exposure as the ecological endpoint.	EPA /ORD NCER	2004
Mercury Research Long Term Goal 1 Goal 8.3	Evaluate the impact of numerous stressors on Common Loon productivity, including an assessment of mercury exposure and mercury bioaccumulation in avian species.	EPA /ORD NCER	2006
Mercury Research Long Term Goal 1 Goal 8.3	Evaluate the physical and chemical processes that control the speciation and distribution of Hg in mine wastes and its release from mine sites.	EPA /ORD NCER	2004
Ecosystems Research	New indicators of plant, fish, and invertibrates developed for wetland	EPA /ORD	2005

Project	Description	Sponsor	Schedule
Long Term Goal 1 Ecosystem Condition Goal 8	ecosystem integrity and assessing wetland health in the West.	NCER	
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Development of new indicator(s) for evaluating the health of coral reefs.	EPA /ORD NCER	2002
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Published reports on new ecosystem indicators for evaluating the health of urbanizing midwestern watersheds; and for evaluating the health of large floodplain landscapes.	EPA /ORD NCER	2002
Water Quality MYP Long Term Goal 1 APG	Provide demonstration stressor-response relationships and/or models linking loss and alteration of habitat to selected fish, shellfish and wildlife endpoints.	EPA ORD NHEERL	2004
Water Quality MYP Long Term Goal 1 APG	Provide indices of vegetation, wetland, and watershed habitat integrity based on support for selected fish, shellfish, and wildlife assemblages	EPA ORD NHEERL	2005
Water Quality MYP Long Term Goal 1 APG	Provide suites of habitat alteration-biological response relationships and generalization/extrapolation schemes suitable for developing borad-scale habitat criteria for streams and coastal systems, and provide approaches for evaluating combined effects of habitat alteration and other stressors	EPA ORD NHEERL	2008
Environmental Fate of Wastewater-Derived Chemicals (01-ECO-3-CO)	Assessment of the rate and mechanisms by which chemical contaminants are removed during wastewater treatment and after treated effluents are discharged. Improve analytical methods and identify removal mechanisms.	WERF	Not available
Multiple Stressors Research (00-ECO-2)	Develop conceptual model to determine relative risk of individual stressors in multistressor systems. Design a multiyear study of lab and field work to test model.	WERF	Not available
Whole Effluent Toxicity (WET) Testing; Improving Reliability (00-ECO-1)	Characterization of WET test variability, and evaluation of existing and new methods.	WERF	Not available
Sources of <i>Cryptosporidium</i> in	Identification of sources and magnitude of <i>Cryptosporidium</i> by	WERF	Not available

Project	Description	Sponsor	Schedule
Watersheds (99-HHE-2)	characterization of land uses.		
Physical Effects of Wet Weather Flows on Aquatic Habitats (00-WSM-4)	Review of literature on the impact of urban drainage patterns and flow on the physical characteristics of aquatic habitats.	WERF	Not available
Impacts of Major Point and Non-Point Sources on Raw Water Treatability (99-HHE-4CO)	Effort to define the extent of the problem of point and nonpoint source dischargers on water quality and treatability, and identify data gaps and future research needs	WERF	Not available
Address numerous stressor-specific issues identified through the Strategic Planning and Research Coordination process (Need #8)			
Water Quality MYP Long Term Goal 1 APG	Classification schemes to optimize efficiency in developing suspended solids and sediment criteria	EPA ORD	2005
Water Quality MYP Long Term Goal 1 APG	Provide methods for developing water quality criteria based on characterization of population-level risks of toxic chemicals to aquatic life and aquatic-dependent wildlife	EPA ORD NCEA/NHEERL	2005
Water Quality MYP Long Term Goal 1 APG	Summary of biological response profiles for suspended solids and sediments in marine and freshwater systems	EPA ORD	2006
Water Quality MYP Long Term Goal 1 APG	Models that predict and scale biological responses to suspended solids and sediment using assessment endpoints that support management decisions	EPA ORD	2007
Water Quality MYP Long Term Goal 1 APG	The scientific basis for suspended solids and sediment criteria for marine and freshwater systems	EPA ORD	2008
Water Quality MYP Long Term Goal 1 APG	Provide scientific foundation for establishing site-specific nutrient threshold criteria to protect submerged aquatic vegetation and other sensitive components of food webs	EPA ORD NHEERL	2006
Water Quality MYP Long Term Goal 1 APG	Provide methods for extrapolating chemical toxicity data across exposure conditions and across endpoints, life stages, and species which can support assessment of risks to aquatic life and aquatic-dependent wildlife for chemicals with limited data	EPA ORD NHEERL	2006

Project	Description	Sponsor	Schedule
Water Quality MYP Long Term Goal 1 APG	Provide approaches for evaluating the relative and cumulative risks from toxic chemicals, with respect to risks from nonchemical stressors, on populations of aquatic life and aquatic-dependent wildlife at various spatial scales	EPA ORD NHEERL/NCEA/ NERL	2008
Water Quality MYP Long Term Goal 2 APG	Provide data and science basis for characterizing the human health risks from pathogens in recreational waters and scaled for use by States and watershed organizations	EPA ORD NERL/NHEERL* *Not listed in current MYP; revised MYP will include epi studies	2005 (This date needs to be extended. Epi studies end in FY06)
Improve Consideration of Atmospheric Deposition in TMDLs (Need #9)			
Mercury Research Long Term Goal 1 Goal 8.3	Complete work which will lead to a reasonably understanding of the chemical/physical transformation and speciation of mercury in air and cloud water and subsequent deposition to ecosystems .	EPA /ORD NCER	2006
Improve Guidance for Allocation Development and Methods to Translate Allocations into Implementable Control Actions (Need #10)			
Improve Information on BMP Restoration or Other Management Practice Effectiveness, and the Related Processes of System Recovery (Need #11)			
Water Quality MYP Long Term Goal 3 APG	Provide monitoring methods and indicators and guidance for their use in determining the design effectiveness of restoration and management in mixed land use watersheds	EPA ORD NRMRL	2004
Water Quality MYP Long Term Goal 3 APG	Provide identification and assessment of alternative methods for increasing the assimilative capacity of watersheds	EPA ORD NRMRL/ NHEERL	2004
Water Quality MYP Long Term Goal 3 APG	Provide a comprehensive set of performance and cost data for controlling nutrients, suspended solids, sediments, pathogens, toxic chemicals (metals and PBTs), and flow variations within mixed land use watersheds draining to freshwater and coastal system	EPA ORD NRMRL/NCER/N HEERL	2006
Evaluation of the Functions and Effectiveness of Riparian Forest Buffers (99-WSM-4)	Quantification of the hydrologic and water quality effects of buffer zones in urban/suburban areas to establish correlations with different types of buffers and water quality to measure their impacts on discharges and runoff.	WERF	Not available

Project	Description	Sponsor	Schedule
Establishment of a Statewide Framework for Nutrient Trading in Maryland (97-IRM-5E)	Guidance for developing a watershed-based trading program.	WERF	Not available
Post-Project Monitoring of BMPs/SUDS to Determine Performance and Whole-Life Costs (01-CTS-21-T)	Determine the costs of selected BMPs and sustainable urban drainage systems (SUDS), their relationship and ongoing maintenance activities, design, and costs.	WERF	Not available
Innovative Metal Removal Technologies for Urban Stormwater (97-IRM-3)	Effort to improve understanding of the mechanistic fate of metals in urban stormwater runoff through treatment systems.	WERF	Not available
Stormwater Thermal Enrichment in Urban Watersheds (00-WSM-7-UR)	Michigan case study to identify the optimal management design to mitigate stormwater and their associated thermal impacts.	WERF	Not available
Develop Adaptive Implementation Approaches for Doing TMDLs (Need #12)			
Make Monitoring More Program-Relevant and Results-Relevant (Need #13)			
Assist States in Monitoring Design Development (Need #14)			
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Emerging cross regional coastal issues arising from EaGLE's Program collaborative efforts. Development of "state of the art" and innovative ecological indicators for evaluating the health of coastal ecosystems.	EPA /ORD NCER	2004
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Evaluation of new regional scaling approaches for use in EPA protocols and reports on new regional scaling/assessments and multi-scale effects of forest and landscape fragmentation on net ecosystem productivity.	EPA /ORD NCER	2004
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	New ecological indicators, including genetic and landscape, developed and evaluated using EPA's Indicator Guidelines.	EPA /ORD NCER	2004
Revisit the Scientific Basis for Use Designation (Need #15)			

Project	Description	Sponsor	Schedule
Assist States in Translating Narrative Standards into Numeric Criteria (Need #16)			
Ecosystems Research Long Term Goal 1 Aquatic Ecosyst.& Ref. Cond. Goal 8	Resource/ecosystem classification schemes and reference conditions published and evaluated.	EPA /ORD NCER	2004
Ecosystems Research Long Term Goal 1 Aquatic Ecosyst.& Ref. Cond. Goal 8	Develop ecosystem classification and reference conditions in support of biocriteria.	EPA /ORD NCER	2004
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Develop indicators of nutrient status and coastal wetland productivity based on plant pigments.	EPA /ORD NCER	2006
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Development of: Optical indicators of habitat suitability for submerged aquatic vegetation; molecular indicators of dissolved oxygen (DO) stress in blue crabs and shrimp; and microbial biofilms tested and evaluated as indicators of ecosystem integrity.	EPA /ORD NCER	2005/2006
Ecosystems Research Long Term Goal 1 Ecosystem Condition Goal 8	Development of multimetric diatom indices in order to diagnose gradients of environmental stressors in the Great Lakes region.	EPA /ORD NCER	2006
Methods Development for Addressing Narrative Criteria in the TMDL Process (Project 01-WSM-1)	Review of existing TMDLs for narrative criteria to evaluate technical strengths and weaknesses, and recommend improvements to narrative standards.	WERF	Not available
Clarify and Quantify Selected Parameters Used in Criteria Definitions (Need #17)			
Assessment of the Occurrence and Ecological Significance of Endocrine Disrupting Chemicals in Watersheds (99- ECO-3)	Assessment of the temporal and spatial variability of endocrine disrupting biomarkers.	WERF	Not available
Mercury; Assessment of	Evaluation of methods from which mercury water quality criteria are	WERF	Not available

Project	Description	Sponsor	Schedule
Methods and Data to Revise Water Quality Criteria for Aquatic Life and Wildlife (99-ECO-2)	derived.		
Reassessment of Cyanide Criteria for Aquatic Life (01-ECO-1)	Data review and critique for fresh and marine water and sediments, prey and tissue residues, and wildlife effective doses.	WERF	Not available
Ability to Discriminate Chemical Versus Habitat Limitations (97-WSM-1)	Survey of Existing Methodologies to identify data sets for chemical and habitat stressors and their effects on in-stream aquatic life. Develop guidance for water quality managers to discriminate between chemical and physical stressors.	WERF	Not available
Develop and Improve Biocriteria and Address Other Criteria Gaps, Particularly Pathogen Criteria (Need #18)			
Water Quality MYP Long Term Goal 1 APG	Demonstrate bioassessment methods to establish biocriteria for a range of designated uses in freshwater systems within eastern U.S. rivers.	EPA ORD NERL	2004
Water Quality MYP Long Term Goal 1 APG	Demonstrate bioassessment methods to establish biocriteria for a range of designated uses in freshwater systems within mid-western U.S. rivers	EPA ORD NERL	2006
Newport Bay Pathogens TMDL Study (99-ECO-8-UR)	Potential template for doing future TMDLs for fecal coliform, including modeling.	WERF	Not available
Validation Study Using Instream Biological Assessments to Evaluate Urban and Watershed-Scale Use Attainment (01-WSM-3)	Evaluation of how bioassessment can be used to evaluate water quality on a watershed scale and aquatic life use designations in urbanized areas	WERF	Not available
Ecosystems Research Long Term Goal 4 Ecosystem Assessment Goal 8	Reports from STAR Grants on nested ecological indicators for use in an integrated assessment in the Mid-Atlantic and developing methodologies for predicting expected biological community condition at unsampled locations in western streams.	EPA /ORD NCER	2005
Evaluate Defensible Scientific Standards for Listing and De-Listing (Need #19)			
Water Quality MYP	Provide the scientific foundation and information management scheme	EPA ORD	2003

Project	Description	Sponsor	Schedule
Long Term Goal 2 APG	for the 303(d) listing process including a classification framework for surface waters, watersheds and regions	NHEERL	
Water Quality MYP Long Term Goal 2 APG	Provide EPA Regions and States decision support systems consistent with resource availability and that enable diagnostic assessments for listing impairments via 303(d) and for inferring causes of listed impairments across multiple scales for freshwater and coastal systems	EPA ORD NHEERL/NERL/ NCEA/NRMRL	2007
Navigating the TMDL Listing and De-Listing Process (Project 00-WSM-2)	By reviewing case history, develop a scientifically defensible and practical process for listing and de-listing waterbodies.	WERF	Not available
Improve Support for Protecting Unimpaired Waters from Degradation (Need #20)			
Strategies for Sustainable Water Resource Management (00-WSM-6)	Development of a framework that integrates risk and human dimensions for effective long-term watershed management.	WERF	Not available



FINAL

Great Lakes Strategy 2002

A PLAN FOR THE NEW MILLENNIUM

*A Strategic Plan for the Great Lakes Ecosystem
Developed by the U.S. Policy Committee for the Great Lakes*





***INTRODUCING THE GREAT LAKES STRATEGY 2002:
A PLAN FOR THE NEW MILLENNIUM***

Developed by the U.S. Policy Committee for the Great Lakes

As the largest freshwater system on the face of the earth, the Great Lakes ecosystem holds the key to the quality of life and economic prosperity for tens of millions of people. While significant progress has been made to restore the environmental health of the Great Lakes, much work remains to be done. Chemical or biological contaminants still limit our ability to eat the fish we catch, prevent us from swimming at our public beaches, and can make us vulnerable to health problems. Natural areas have been degraded, and the diversity of our fish and wildlife populations is increasingly threatened. The U.S. Policy Committee has developed ***Great Lakes Strategy 2002*** to advance Great Lakes protection and restoration efforts in the new millennium.

Great Lakes Strategy 2002 was created by the U.S. Policy Committee – a forum of senior-level representatives from the Federal, State, and Tribal agencies responsible for environmental and natural resources management of the Great Lakes – to help coordinate and streamline efforts of the many governmental partners involved with protecting the Great Lakes. The Strategy focuses on multi-Lake and basin-wide environmental issues and establishes common goals that the governmental partners will work toward. It supports existing efforts underway, including Lakewide Management Plans and Remedial Action Plans for Areas of Concern, by addressing issues that are beyond the scope of these programs and helping integrate them into an overall basinwide context. It also advances the implementation of the United States’ responsibilities under the Great Lakes Water Quality Agreement of 1987.

The Strategy was developed cooperatively by the Federal, State, and Tribal members of the U.S. Policy Committee, with the consultation of the Great Lakes public. Public workshops were held throughout the basin – in Duluth, Chicago, Detroit, and Niagara Falls – to solicit comments from local governments, industry, non-governmental environmental organizations, and the general public. Together we have developed a shared, long-range vision for the Great Lakes:

***The VISION – The Great Lakes Basin is a healthy natural environment for wildlife and people.
All Great Lakes beaches are open for swimming.
All Great Lakes fish are safe to eat.
The Great Lakes are protected as a safe source of drinking water.***

In support of this vision, the member agencies of the U.S. Policy Committee commit to work together to “protect and restore the chemical, physical, and biological integrity of the Great Lakes Basin Ecosystem.” The Strategy sets forth specific objectives and actions that will reduce contaminants, restore habitat, and protect the living resources of the basin. Specific objectives in this ambitious plan include:

- By 2005, clean-up and delist 3 Areas of Concern, with a cumulative total of 10 by 2010.
- By 2007, reduce concentrations of PCBs in lake trout and walleye by 25%.
- By 2007, establish 300,000 acres of buffer strips in agricultural lands.
- By 2010, 90% of Great Lakes beaches will be open 95% of the season.
- By 2010, restore or enhance 100,000 acres of wetlands in the Basin.
- By 2010, substantially reduce the further introduction of invasive species, both aquatic and terrestrial, to the Great Lakes Basin Ecosystem.
- Accelerate the pace of sediment remediation, leading to the clean-up of all sites by 2025.

Great Lakes Strategy 2002 will guide the efforts of the governmental partners in the U.S. Policy Committee for several years. Working with the broader Great Lakes community, the U.S. Policy Committee looks forward to implementing this “Great Plan for the Great Lakes.”

For more information on the Great Lakes Strategy 2002, see: <http://www.epa.gov/glnpo/gls/index.html>