

U.S. EPA Great Lakes Restoration Initiative Request for Proposals

Action: Request for Proposals for Great Lakes Restoration Initiative projects.

Summary: This Request For Proposals (RFP) solicits proposals from eligible entities for grants and cooperative agreements to be awarded pursuant to a portion of the \$475 million Great Lakes Restoration Initiative included in Public Law 111-88, the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010 which is in furtherance of President Obama's Great Lakes Restoration Initiative (the "Initiative") announced in February 2009. The President and the U.S. Environmental Protection Agency (EPA), in conjunction with 15 other federal agencies, have made restoring the Great Lakes a national priority. The Initiative builds on the prior efforts of agency, business, public interest, and other leaders which resulted in the Great Lakes Regional Collaboration Strategy (GLRC Strategy) and the Great Lakes Restoration Initiative Action Plan now being developed. This RFP represents EPA's major competitive grant funding opportunity under the Initiative and is one of several funding opportunities described in the Initiative's Interagency Funding Guide. This RFP, in conjunction with other funding opportunities under the Initiative, will be used to competitively provide funding to eligible entities to address the most significant Great Lakes ecosystem problems and efforts in five major focus areas:

- Toxic Substances and Areas of Concern, including pollution prevention and cleanup of the most polluted areas in the Great Lakes.
- Invasive Species, including efforts to institute a "zero tolerance policy" toward new invasions.
- Nearshore Health and Nonpoint Source Pollution, including a targeted geographic focus on high priority watersheds and reducing polluted runoff from urban, suburban and, agricultural sources.
- Habitat and Wildlife Protection and Restoration, including bringing wetlands and other habitat back to life, and the first-ever comprehensive assessment of the entire 530,000 acres of Great Lakes coastal wetlands for the purpose of strategically targeting restoration and protection efforts in a science-based manner.
- Accountability, Education, Monitoring, Evaluation, Communication and Partnerships, including the implementation of goal- and results-based accountability measures, learning initiatives, outreach and strategic partnerships.

State pollution control agencies, interstate agencies, Tribes, colleges, universities, and other public or non-profit private agencies, institutions, and organizations are eligible to apply for funding under this RFP; individuals and "for-profit" organizations are not eligible.

EPA anticipates issuing an additional Request for Proposals to support the Initiative in the Spring of 2010.

Under this RFP, EPA is requesting proposals from eligible entities for projects addressing the programs further described in the RFP and the Appendixes for the respective focus areas described above. Applicants may submit more than one proposal under this RFP provided that each one is for a different project and is separately submitted. EPA expects that approximately

\$120 million will be awarded under this RFP for up to approximately 400 projects (under approximately 300 awards) with approximately \$6.5 million of this amount to be awarded by the U.S. Fish and Wildlife Service (FWS) (the FWS awards will be made pursuant to the procedures established in this RFP). Project periods are generally expected to range from one to three years, except for the programs providing for five-year project periods.

Overview

Federal Agency Name: Environmental Protection Agency, Great Lakes National Program Office

Funding Opportunity Title: Great Lakes Restoration Initiative Request for Proposals

Announcement Type: Request for Proposals

Funding Opportunity Number: EPA-R5-GL2010-1

Catalog of Federal Domestic Assistance (CFDA) Number: 66.469

Awards: Approximately \$120 million is expected to be awarded under this RFP for approximately 400 projects under approximately 300 awards. If appropriate and feasible, one award may cover more than one project.

Important Dates:

- December 9 and 16, 2009 – Webinar and Public Conference Call to discuss RFP. See Section IV for further information.
- January 29, 2010 – Submissions must be received by EPA by noon, Central Standard Time. See Section IV for further submission information.
- February 28, 2010 – Beginning of preliminary selections for award.
- March-June 2010 – Continue making selections and begin making official awards.

Dates after January 29, 2010 are expected dates only and may change.

Application Information: Eligible applicants may submit proposals through a link from: <http://epa.gov/greatlakes/fund/2010rfp01>. Further submittal information is described in Section IV. This Web page will also contain information on where to obtain support or to ask clarifying questions, as well as a link to frequently asked questions (FAQs) containing answers to support questions asked by others. We encourage all applicants to register with us at <http://www.epa.gov/greatlakes/maillist> to be informed about our funding process.

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I. Funding Opportunity Description.

Introduction and Background

Under this RFP, EPA is requesting proposals from eligible entities for projects addressing the focus areas and programs described below and in Appendix I. Applicants may submit more than one proposal under this RFP provided that each one is for a different project and is separately submitted. EPA expects that approximately \$120 million will be awarded under this RFP for up to approximately 400 projects (under approximately 300 awards) with approximately \$6.5 million of this amount to be awarded by the U.S. Fish and Wildlife Service (FWS) (the FWS awards will be made pursuant to the procedures established in this RFP).

This RFP is expected to result in the award of grants and cooperative agreements (referred to collectively as “grants” hereafter), as appropriate, to implement a portion of the \$475 million Great Lakes Restoration Initiative included in Public Law 111-88, the Department of the Interior, Environment, and Related Agencies Appropriations Act, 2010 (the 2010 Appropriations Act). Information about the Initiative can be found at <http://www.epa.gov/greatlakes/glri>.

Funded activities will advance protection and restoration of the Great Lakes ecosystem in support of (i) the Great Lakes Restoration Initiative¹, (ii) Sub-objective 4.3.3 (Improve the Health of Great Lakes Ecosystems) of EPA’s Strategic Plan <http://www.epa.gov/ocfo/plan/plan.htm>, and (iii) the Great Lakes Regional Collaboration Strategy to Protect and Restore the Great Lakes <http://www.glrc.us/strategy.html>. In accordance with the Conference Report to Public Law 111-88, funds are to “supplement and expand, not supplant, base Great Lakes programs when compared to fiscal year 2009 levels.”

The statutory authority for the awards to be made under this RFP is contained in the Administrative Provisions of Title II of the 2010 Appropriations Act, which authorizes grants “...for planning, research, monitoring, outreach, and implementation in furtherance of the Great Lakes Restoration Initiative and the Great Lakes Water Quality Agreement.” The Statutory Authority to take action to implement the U.S. responsibilities under the Great Lakes Water Quality Agreement, which these awards will support, is contained in Section 118(c) of the Clean Water Act. The principal goal of the Great Lakes Water Quality Agreement is the restoration and maintenance of the chemical, physical, and biological integrity of the Great Lakes Ecosystem. For projects with international aspects the above statutes are supplemented, as appropriate, by the National Environmental Policy Act, Section 102(2)(F).

Proposals are requested for the program activities described below, and in further detail in Appendix I, under each of the following five focus areas. **Each proposal must address only one focus area and one program activity under a focus area and should not be less than any minimum nor exceed any maximum specified amount for individual projects under a program as described below and in Appendix I.** Program activities under each focus area are generally described in Section I and more fully described in Appendix I. The expected award amounts and the relative allocations for programs and focus areas are approximations which are subject to change based upon applicable considerations including, but not limited to, EPA’s

¹ Information about the Initiative is available online at <http://www.epa.gov/greatlakes/glri> and includes a draft Great Lakes Restoration Initiative Action Plan which is expected to be updated by December, 2009.

determination that different amounts or allocations would better advance protection and restoration of the Great Lakes ecosystem.

BEFORE DEVELOPING PROPOSALS, APPLICANTS MUST CAREFULLY READ THE INFORMATION UNDER EACH FOCUS AREA INCLUDING THE PROGRAM ACTIVITY SUMMARIES, THE EXPECTED OUTCOMES AND EXPECTED OUTPUTS AND THE DETAILED INFORMATION INCLUDED IN APPENDIX I FOR THE RESPECTIVE PROGRAMS. THE SUMMARY INFORMATION BELOW MAY BE HELPFUL TO APPLICANTS IN CHOOSING THE PROGRAMS FOR WHICH THEY WILL SUBMIT PROPOSALS.

As used in this RFP:

1. The term “**outcome**” means the result, effect or consequence that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective. Outcomes may be environmental, behavioral, health-related, or programmatic in nature, but must be quantitative. They may not necessarily be achievable within an assistance agreement funding period.

2. The term “**output**” means an environmental activity, effort, and/or associated work product related to an environmental goal and objective that will be produced or provided over a period of time or by a specified date. Outputs may be quantitative or qualitative but must be measurable during an assistance agreement funding period.

FOCUS AREAS

I.A. Toxic Substances and Areas of Concern. Proposals are requested for the program activities described below and in further detail in Appendix I. Before preparing proposals, Applicants must carefully review Appendix I to this RFP for more detailed information pertaining to the program activities and funding requests that may be submitted under each program. The detailed program information in Appendix I to this RFP includes information (such as background, proposal requirements, funding ranges, and expected results) of which applicants need to be aware when developing their proposal and which will be used in proposal evaluation and selection.

General Background. While certain persistent toxic substances have been significantly reduced in the Great Lakes Basin Ecosystem over the past 30 years, they continue to be present at levels above those considered safe for humans and wildlife, warranting fish consumption advisories in all five Great Lakes and the Connecting Channels. Indigenous communities and others who fish for subsistence in the basin are particularly at risk from fish contamination. Continuing sources of persistent toxic substances include releases from contaminated sediments; industrial and municipal point sources; nonpoint sources including atmospheric deposition, agricultural and urban runoff, and contaminated groundwater; and cycling of these substances within the Lakes. Efforts to restore the degraded conditions in the 30 remaining U.S. Great Lakes Areas of Concern (AOCs – see <http://www.epa.gov/greatlakes/aoc> for additional information about Great Lakes AOCs) are underway, including remediation of contaminated sediments under the Great Lakes Legacy Act (see <http://www.epa.gov/greatlakes/sediments.html>) but more needs to be

done so that “impairments of beneficial uses” (BUIs) in the Great Lakes AOCs are removed (see. <http://www.epa.gov/greatlakes/glwqa/1978/annex.html#ANNEX2>).

In addition to the well-known persistent toxics like polychlorinated biphenyls (PCBs), mercury and banned pesticides, there are chemicals of emerging concern that have been detected in the Great Lakes over the past several years which may pose threats to the health of the ecosystem. Some such chemicals are found in pharmaceuticals and personal care products for which there is very little environmental information. To protect human and ecosystem health against future threats, these substances must be better understood with respect to their potential hazards and routes of exposure, with any necessary actions taken in a timely fashion.

To strategically address these issues and make progress towards achieving the goals, objectives, and targets identified for this focus area in the draft Great Lakes Restoration Initiative Action Plan, EPA is soliciting proposals for the program activities listed below that will help achieve the expected general outcomes and outputs identified below for this focus area and the more specific results and requirements for each program as more fully described in Appendix I.

1. Coordinated Implementation of Remedial Action Plan Programs and Processes	EPA expects to provide approximately \$8.5 million for approximately 10 to 20 projects ranging in amounts up to \$2 million to advance Remedial Action Plan (RAP) implementation and development, leading to the delisting of Beneficial Use Impairments and of the Areas of Concern. See also “Habitat Restoration in Areas of Concern” in the Habitat portion of this RFP for funding devoted to delisting habitat BUIs.
2. Enhanced State/Tribe Fish Consumption Advisory Support	EPA expects to provide approximately \$4 million for approximately five to ten projects ranging in amounts up to \$1.5 million in order to improve the public’s understanding of the risks and benefits of consuming fish. The projects would improve and enhance current State fish advisory programs and could include monitoring, evaluation of risks and benefits of consuming fish, and communication to the public.
3. Health Care Provider Organization Outreach	EPA expects to provide approximately \$2 million for approximately one to five projects ranging in amounts up to \$2 million in order to improve the public’s understanding of the risks and benefits of consuming fish. The projects would challenge health care provider organizations to develop and implement a plan to integrate fish consumption risks and benefits into many aspects of their organization so that organization members and their patients are made aware of the fish consumption risks and benefits and are able to make good decisions.
4. Great Lakes Fish Monitoring and Surveillance Program (GLFMSP)	EPA expects to provide up to approximately \$6.5 million over five years beginning September 2010 for one project for management and operation of the three components of the GLFMSP: Base Program support, Emerging Chemical Surveillance, and Special Studies.
5. Integrated Atmospheric Deposition Network (IADN)	EPA expects to provide approximately \$2 million over five years for approximately one to four projects ranging in amounts up to \$2 million in order to supplement IADN in response to recommendations from the 2008 IADN Peer Review.
6. Great Lakes Sediment Core Surveillance	EPA expects to provide approximately \$2 million over five years for approximately one to three projects ranging in amounts up to \$2 million to implement a Great Lakes Sediment Core Surveillance program. The program will include open-lake-based collection of sediment cores in deep depositional zones in all 5 Lakes; age-dating of cores, and analyses for chemicals of emerging concern.

7. Screen for Chemicals of Emerging Concern	EPA expects to provide approximately \$100,000 for approximately one to two projects ranging in amounts up to \$100,000 to identify potential toxic substances which may pose a threat to the Great Lakes basin. New chemical screening will be included in Great Lakes surveillance in support of Annex 12 of the Great Lakes Water Quality Agreement, which directs the U.S. and Canada to anticipate future environmental contaminants and to set priorities for environmental research, monitoring, and regulatory action.
8. Assess Ecological Exposure and Effects	EPA expects to provide approximately \$500,000 for approximately one to three projects ranging in amounts up to \$500,000 for an Assessment of Ecological Exposure and Effects in Great Lakes fish and their potential impact on population dynamics.
9. Pollution Prevention and Toxics Reduction in the Great Lakes	EPA expects to provide approximately \$6.5 million for approximately 20 to 35 projects ranging in amounts up to \$1 million for pollution prevention and toxics reduction activities. Projects would allow for fewer toxic contaminants to enter the Great Lakes ecosystem, provide sustainable ongoing collection programs throughout the Great Lakes basin, and improved knowledge and practices of Great Lakes citizens regarding environmentally safe recycling of various waste categories.
10. Toxicant Total Maximum Daily Load (TMDL) Development in the Great Lakes Basin	EPA expects to provide up to approximately \$1 million for 8 to 12 projects ranging in amounts up to \$200,000 to directly assist and accelerate the development of TMDLs for toxicants in impaired waters [CWA 303(d) listed waterbodies] of the Great Lakes Basin. Proposals should address toxicants including, but not limited to, PCBs, mercury, dioxin, and pesticides. The end-product should include a completed watershed pollutant reduction strategy and/or a TMDL study addressing one or more toxicants.

General Outcomes and Outputs Expected for all Projects under this Focus Area²

Expected **Outcomes** for the projects under this focus area may include, but are not limited to:

- The release of toxic substances in toxic amounts is prevented or reduced and the release of any or all persistent toxic substances to the Great Lakes basin ecosystem is virtually eliminated.
- Exposure to toxic substances from historically-contaminated sources is significantly reduced through source reduction and other exposure reduction methods.
- Environmental levels of toxic chemicals are reduced to the point that all restrictions on the consumption of Great Lakes fish can be lifted.
- The health and integrity of wildlife populations and habitat are protected from adverse chemical and biological effects associated with the presence of toxic substances in the Great Lake Basin.
- Areas of Concern are cleaned up, restoring the areas and removing the Beneficial Use Impairments.

Expected **Outputs** for the projects under this focus area may include, but are not limited to:

- Delisting of Areas of Concern or measurable progress toward delisting.
- Restoration of Beneficial Use Impairments in Areas of Concern.
- Collection of or the prevention of the release of a quantified amount of e-waste, unwanted medicines, and household hazardous waste in the Great Lakes basin.

² These general outcomes and outputs are in addition to any specific results identified in Appendix I for the program activities listed under the focus area.

I.B. Invasive Species. Proposals are requested for the program activities described below and in further detail in Appendix I. Before preparing proposals, Applicants must carefully review Appendix I to this RFP for more detailed information pertaining to the program activities and funding requests that may be submitted under each program. The detailed program information in Appendix I to this RFP includes information such as background, proposal requirements, funding ranges, and expected results which applicants need for proposal development and which will be used in proposal evaluation and selection.

General Background. Progress toward restoring the Great Lakes has been significantly undermined by the effects of non-native invasive species. Over 180 non-native species now exist in the Great Lakes. The most invasive of these propagate and spread, ultimately degrading habitat, out-competing native species, and short-circuiting food webs. Prevention is the most cost-effective approach to dealing with organisms that have not arrived and could potentially threaten the lakes. New invasive species can be introduced into the Great Lakes region through various pathways, including: commercial shipping, canals and waterways, trade of live organisms, and activities of recreational and resource users. Once invasive species establish a foothold in the Great Lakes, they are virtually impossible to eradicate; however, invasive species still need to be controlled to maintain the health of the Great Lakes ecosystem. Advanced technology and innovative management practices can significantly reduce the cost of control.

Prevention and control efforts must be accelerated in order to prevent new introductions of invasive species and to minimize the further spread of the organisms to inland lakes, the Mississippi River watershed, and beyond. Federal Agencies will need to work with their partners in state, tribal, and local governments, academic institutions, industry, and non-governmental organizations to:

1. Stop the introduction of new non-native invasive species into the Great Lakes through enhanced prevention programs.
2. Control and reduce the spread of invasive species already here, through innovative technology and enhanced on-the-ground efforts.
3. Establish early detection and rapid response capabilities to deal with accidental introductions.

To strategically address these issues and make progress towards achieving the goals, objectives, and targets identified for this focus area in the draft Great Lakes Restoration Initiative Action Plan, EPA is soliciting proposals for the program activities listed below that will help achieve the expected general outcomes and outputs identified below for this focus area and the more specific results and requirements for each program as more fully described in Appendix I.

1. Great Lakes Ballast Water Technology Grant Program	Under the Great Lakes Ballast Water Technology Grant Program, EPA and FWS, in cooperation with the U.S. Coast Guard, Department of Transportation Maritime Administration, and National Oceanic and Atmospheric Administration, expect to provide approximately \$2.8 million (approximately \$2 million through FWS and \$800,000 through EPA) for approximately four to twelve projects ranging in amounts up to \$1 million for the development and verification of ballast water technology that is protective of freshwater ecosystems.
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2. Invasive Species Prevention and Control Grant Program	Under the Invasive Species Prevention and Control Grant Program, EPA and FWS expect to provide approximately \$8.8 million (approximately \$4.5 million through FWS and \$4.3 million through EPA) for approximately 10 to 30 projects ranging in amounts up to \$1 million that will prevent new introductions of invasive species into the Great Lakes basin, as well as projects that will eradicate and control invasive species already present.
3. Threat, Distribution, and Early Detection of Invasive Species Program	Under the Threat, Distribution, and Early Detection of Invasive Species Program, EPA expects to provide approximately \$500,000 for approximately one to three projects ranging in amounts up to \$500,000 to expand on initial work done by the EPA Office of Research and Development (EPA-ORD)'s Invasive Species Initiative, including work done in Duluth Harbor by EPA-ORD and FWS, to design and pilot a collaborative and cost-effective systematic threat and effects assessment and early detection monitoring network.
4. Forecasting and Synthesis of Ecosystem Effects of Invasive Species Program	Under the Forecasting and Synthesis of Ecosystem Effects of Invasive Species Program, EPA expects to provide approximately \$300,000 for one to three projects ranging in amounts up to \$300,000 that advance quantitative understanding and application of threat and effects forecasting, ecosystem services methods, and risk assessment/risk management methods. Information from these projects will help inform efforts to identify high-risk sites, species of concern, ecological effects, and restoration opportunities, with anticipated input to prevention, control, and rapid response components.

General Outcomes and Outputs Expected for all Projects under this Focus Area³

Expected **Outcomes** for the projects under this focus area may include, but are not limited to:

- The introduction of all invasive species to the Great Lakes basin ecosystem via ballast water is virtually eliminated.
- The risk of introduction of species, which are imported for various uses, into the Great Lakes is minimized.
- The spread of invasive species, by means of recreational activities and canals and waterways, beyond their current range is prevented.
- A comprehensive program for detection of newly established invasive species into the Great Lakes is developed that will provide information to Great Lakes decision makers, who will initiate rapid response actions.
- An effective, efficient, and environmentally sound program of integrated pest management for priority invasive species is developed and implemented, including program functions of containment, eradication, control, and mitigation.

Expected **Outputs** for the projects under this focus area may include, but are not limited to:

- A reduction in the rate of non-native species newly detected in the Great Lakes ecosystem.
- Number of invasive species populations in the Great lakes Ecosystem controlled to a target level, area managed, or amount of species removed.
- Increased surveillance of Great Lakes ecosystem as measured by number of sampling locations using shared monitoring plans and protocols.

³ These general outcomes and outputs are in addition to any specific results identified in Appendix I for the program activities listed under the focus area.

- Number of multi-agency rapid response plans implemented, mock exercises to practice responses carried out under those plans, and/or actual response actions.
- Number of pilot projects that demonstrate innovative prevention, containment, or control measures that are implemented.
- Development or refinement and piloting of technology that prevents the introduction of invasive species or that either contains or controls invasive species in an effective, efficient, and environmentally sound manner.
- Number of recreational and resource users that are educated on best practices that prevent the introduction and spread of invasive species.

I.C. Nearshore Health and Nonpoint Source Pollution. Proposals are requested for the program activities described below and in further detail in Appendix I. Before preparing proposals, Applicants must carefully review Appendix I to this RFP for more detailed information pertaining to the program activities and funding requests that may be submitted under each program. The detailed program information in Appendix I to this RFP includes information such as background, proposal requirements, funding ranges, and expected results which applicants need for proposal development and which will be used in proposal evaluation and selection.

General Background. The nearshore environment includes both aquatic and terrestrial features which extend variable distances away from the land-water intersection. This is the area in which most residents and visitors interact with the Great Lakes. The nearshore waters of the Great Lakes are a primary source of drinking water, supplier of fish for both personal and commercial benefit, and a recreational outlet for millions of U.S. residents and visitors. Nearshore water quality has become degraded, as evidenced by eutrophication resulting from excessive nutrients; harmful algal blooms; *Cladophora* washing ashore to make unsightly, odiferous rotting mats on beaches; avian botulism; and beach closings. The environmental stressors causing these problems include excessive nutrient loadings from both point and nonpoint sources; bacteria and other pathogens responsible for outbreaks of botulism and beach closures; development and shoreline hardening which disrupt habitat and alter nutrient and contaminant runoff; and agricultural practices which increase nutrient and sediment loadings. Additional shoreline stresses can be traced to failing septic systems, grey-water pipes, inadequate pump-out stations for recreational boats, and even invasive species.

Nonpoint sources are now the primary contributors of many pollutants to the Lakes and their tributaries. Although some nonpoint sources act on a whole-basin scale, e.g., atmospheric deposition of toxic substances, many smaller scale sources contribute to degraded water quality in Great Lakes tributaries and nearshore waters. The complexity of the pollutants and their presence in soil, water and air make pollution abatement for nonpoint sources particularly difficult to address. Control strategies to date have been inadequate to deliver the degree of stream and lake restoration necessary for the protection and maintenance of the Great Lakes. However, implementation of agricultural, urban stormwater, and other watershed best management practices can have multiple benefits, including simultaneous reductions in runoff of soils, nutrients, pesticides, and other pollutants.

To strategically address these issues and make progress towards achieving the goals, objectives, and targets identified for this focus area in the draft Great Lakes Restoration Initiative Action Plan, EPA is soliciting proposals for the program activities listed below that will help achieve the expected general outcomes and outputs identified below for this focus area and the more specific results and requirements for each program as more fully described in Appendix I.

1. Beach Forecasting Models	EPA expects to provide approximately \$800,000 for approximately 3 to 15 projects ranging in amounts up to \$250,000 to improve and refine existing predictive models, and to develop models for additional beaches, to estimate near real-time recreational water quality in order to enable beach managers to advise the public when beach water may not be suitable for swimming.
2. Beach Sanitary Surveys	EPA expects to provide approximately \$12 million for approximately 25 to 50 projects ranging from \$20,000 to \$250,000, to identify sources of contamination at Great Lakes beaches and implement actions to reduce or remove the contamination.
3. Communicating Beach Monitoring to the Public	EPA expects to provide approximately \$500,000 for approximately 5 to 20 projects ranging from \$25,000 to \$100,000 to improve the communication of beach health information to the public.
4. Improving Beach Monitoring for Bacteria	EPA expects to provide approximately \$900,000 for approximately 4 to 8 projects ranging in amounts from \$10,000 to \$225,000 to implement the use of currently available methods to improve the effectiveness of monitoring fecal indicator bacteria at Great Lakes beaches.
5. Development of Nearshore Indicators and Endpoints	EPA expects to provide approximately \$1.7 million for approximately one to three projects ranging in amounts up to \$1.7 million to extend the development and implementation of Great Lakes indicators and endpoints that link the health of coastal conditions with measures of human disturbance of the watershed. Nearshore monitoring to assess coastal conditions will further test and implement indicators and linkages to critical habitats.
6. Nearshore Waters Impairments and Stressors	EPA expects to provide approximately \$1.6 million for approximately three to eight projects ranging in amounts up to \$800,000 to identify linkages between impairments of the aquatic nearshore ecosystem (e.g., <i>Cladophora</i> growths, harmful algal blooms, botulism, eutrophication, water quality issues, etc.) and causative agents that are watershed-based (e.g., land use practices, agriculture, mining, urbanization, etc.) or aquatic-based (e.g., invasive species, altered nutrient-cycling).
7. Total Maximum Daily Loads (TMDLs) (non-toxicant)	EPA expects to provide approximately \$1.1 million for approximately four to eight projects ranging from \$50,000 to \$250,000 to directly assist and accelerate the development of TMDLs for nutrients, sediment, bacteria and other non-toxicant pollutants in impaired waters [CWA 303(d) listed waterbodies] of the Great Lakes basin or to assist the implementation of nonpoint source load allocations from existing TMDLs to meet water quality standards and goals.
8. Watersheds Best Management Practices, Planning and Implementation	EPA expects to provide approximately \$14 million for approximately 20 to 45 projects ranging in amounts up to \$1 million leading to watershed remediation (e.g., implementing watershed best management practices and measures, demonstration projects, reductions in urban and suburban nonpoint sources of phosphorus, watershed planning, water management design and implementation, watershed modeling).

9. Innovative Environmental Approaches.	EPA may provide approximately \$1 million for up to ten other projects ranging in amounts up to \$500,000 for innovative environmental approaches pertaining to the Nearshore and Nonpoint Source Pollution focus area but not otherwise described above if the proposal demonstrates that it is for a project that has a greater chance of success to achieve the outcomes and outputs identified for the Nearshore and Nonpoint Source Pollution focus area than the other activities listed above and EPA has the requisite authority to fund the project.
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General Outcomes and Outputs Expected for all Projects under this Focus Area⁴

Expected **Outcomes** for the projects under this focus area may include, but are not limited to:

- Nearshore aquatic communities consist of healthy, self-sustaining plant and animal populations dominated by native species.
- Land use, recreation and economic activities are managed to ensure that nearshore aquatic, wetland and upland habitats will sustain the health and function of natural communities.
- The presence of bacteria, viruses, pathogens, nuisance growths of plants or animals, objectionable taste or odors, or other risks to human health are reduced to levels that do not impede human use and enjoyment of the nearshore areas.
- High quality bathing beach opportunities are maintained by reducing or eliminating impairments from bacterial, algal, and chemical contamination; effective monitoring for fecal indicator bacteria; effective modeling of environmental conditions to estimate recreational water quality, where appropriate; and timely communications to the public about beach health and daily swimming conditions.
- A significant reduction in soil erosion and the loading of sediments, nutrients, and pollutants into tributaries is achieved through greater implementation of practices that conserve soil and slow overland flow in agriculture, forestry, and urban areas.
- High quality, timely, and relevant information about the nearshore areas is readily available to assess progress and to inform enlightened stakeholder decision making.
- Understanding of the causes of nutrient-related nearshore biological impairments.

Expected **Outputs** for the projects under this focus area may include, but are not limited to:

- Compilation and mapping of the highest priority watersheds for implementation of targeted nonpoint source pollution control measures.
- Number of priority Great Lakes watersheds for which remediation, restoration and conservation actions will control erosion, reduce nutrient runoff from urban and agricultural sources, and improve habitat to protect nearshore aquatic resources.
- Establishment of a baseline for total suspended solids loadings from targeted tributaries.
- Percentage decrease in soluble phosphorus loading from 2008 levels in targeted tributaries.
- Reduction in the number of incidences of harmful algal blooms, avian botulism, and/or excessive *Cladophora* growth (from 2008 levels, 2007 for Lake Michigan).

⁴ These general outcomes and outputs are in addition to any specific results identified in Appendix I for the program activities listed under the focus area.

- Establishment and implementation of elements of a comprehensive nearshore monitoring program, including a publicly-accessible reporting system, based on a suite of environmental indicators.
- Number and percentage of high priority⁵ Great Lakes beaches assessed using a standardized sanitary survey tool to identify sources of contamination.
- Number and percentage of Great Lakes beaches that will have begun to implement measures to control, manage or remediate pollution sources identified through the use of sanitary surveys.
- Percentage of beaches at which methods to improve the effectiveness of monitoring fecal indicator bacteria will be employed.
- Percentage of Great Lakes beaches at which forecast, nowcast, or predictive models will be used to improve the timeliness of decisions on beach postings to better protect public health.
- Increased percentage of agricultural lands in conservation and/or utilizing conservation tillage practices.

I.D. Habitat and Wildlife Protection and Restoration. Proposals are requested for the program activities described below and in further detail in Appendix I. Before preparing proposals, Applicants must carefully review Appendix I to this RFP for more detailed information pertaining to the program activities and funding requests that may be submitted under each program. The detailed program information in Appendix I to this RFP includes information such as background, proposal requirements, funding ranges, and expected results which applicants need for proposal development and which will be used in proposal evaluation and selection.

General Background. The health of Great Lakes habitats and wildlife depends upon the protection and restoration of ecosystems: the Great Lakes, the coastline, wetlands, rivers, connecting channels, and watersheds. Humans benefit from healthy ecosystems. Healthy Great Lakes, for example, provide us with clean drinking water; rare wildlife populate a variety of unique coastline habitats; wetlands help control floodwaters; rivers transport sediments, nutrients and organic materials throughout the watershed; forests provide oxygen while reducing erosion and sedimentation; and upland habitats produce topsoil and habitats for pollinators and bio-control agents. Fully resilient ecosystems buffer the impacts of climate change.

A multitude of threats affect the health of Great Lakes habitats and wildlife. Habitat destruction and degradation due to development; competition from invasive species; the alteration of natural lake-level fluctuations due to artificial lake-level management and flow regimes from dams, drain tiles, ditches, and other control structures; toxic compounds from urban development, poor land management practices and nonpoint sources; and, habitat fragmentation have impacted habitat and wildlife. This has led to an altered food web, a loss of biodiversity, and poorly functioning ecosystems.

To strategically address these issues and to make progress towards achieving the goals, objectives, and targets identified for this focus area in the draft Great Lakes Restoration Action Plan, EPA is soliciting proposals for the following activities and projects. These activities and projects will help achieve the expected general outcomes and outputs for this focus area as well as the more specific results and

⁵ Beaches states identify as most frequently used and/or that have the highest risk. There were 356 high priority beaches (in 2008) out of a total of 1,411 total beaches in the U.S. Great Lakes.

requirements for each activity and project under this focus area described below and more fully described in Appendix I.

1. Blueprints for Biodiversity Protection and Restoration	EPA expects to provide approximately \$800,000 for approximately three to five projects ranging from \$100,000 to \$250,000 to develop biodiversity blueprints for the Lake Michigan and Erie basins and other key sub-watersheds. The blueprints will identify, synthesize, and analyze information regarding key species, natural communities, ecological systems and abiotic processes.
2. Habitat Restoration in Great Lakes Area of Concern	EPA expects to provide approximately \$7 million to \$15 million for approximately 10 to 20 projects ranging from \$500,000 to \$1.5 million to restore habitats in Great Lakes Areas of Concern (AOCs). Restoration will improve the quality of ecosystems, lead to the delisting of habitat-related Beneficial Use Impairments, and/or lead to the achievement of blueprint-area goals.
3. Monitoring Great Lakes Coastal Wetlands	EPA expects to provide approximately \$12 million over five years for two to 15 projects ranging from \$150,000 to \$10 million to monitor coastal wetlands across the Great Lakes basin using, in part, procedures developed by the Great Lakes Coastal Wetlands Consortium. Monitoring data will provide information to decision makers about coastal wetland quality, in particular birds, amphibians, fish, invertebrates, plants, wetland extent and type, and water chemistry.
4. Restoring Great Lakes Habitats	EPA may provide approximately \$2 million for ten to twenty projects ranging from \$50,000 to \$200,000 to restore Great Lakes wetland, wetland-associated upland, coastal, upland, and island habitats, including projects supporting the goals of Lakewide Management Plans and biodiversity conservation plans such as the Binational Biodiversity Conservation Strategy for Lake Ontario. Habitat restoration will improve physical, chemical, and biological processes and ecosystem functions and maintain or improve the conditions of native fish and wildlife.

General Outcomes and Outputs Expected for all Projects under this Focus Area⁶

Expected **Outcomes** for the projects under this focus area may include, but are not limited to:

- In Great Lakes basins and sub-watersheds, key species, natural communities, ecological systems, and abiotic processes are identified and protection and restoration of wetland, wetland-associated uplands, coastal, upland and island habitats increase.
- The protection and restoration of Great Lakes aquatic and terrestrial habitats, including physical, chemical, and biological processes and ecosystem functions, maintain or improve the conditions of native fish and wildlife.
- Great Lakes decision makers use comprehensive, accessible coastal wetland data to determine coastal wetland quality and initiate specific protection and restoration actions.

Expected **Outputs** for the projects under this focus area may include, but are not limited to:

- 3-5 blueprints are developed for the Lake Superior, Michigan, and Erie basins and other key sub-watersheds.
- Projects protect and restore habitats in Great Lakes AOCs.

⁶ These general outcomes and outputs are in addition to any specific results in Appendix I for the specific program activities listed under the focus area.

- 20% of U.S. coastal wetlands are monitored and data collected for birds, amphibians, fish, invertebrates, plants, water chemistry and wetland extent and type. Data about coastal wetland birds, amphibians, fish, invertebrates, plants, wetland extent and type, and water chemistry for 400 U.S. coastal wetlands is collected according to established protocols and stored in a database.

I.E. Accountability, Education, Monitoring, Evaluation, Communication, and

Partnerships. Proposals are requested for the program activities described below and in further detail in Appendix I. Before preparing proposals, Applicants must carefully review Appendix I to this RFP for more detailed information pertaining to the program activities and funding requests that may be submitted under each program. The detailed program information in Appendix I to this RFP includes information such as background, proposal requirements, funding ranges, and expected results which applicants need for proposal development and which will be used in proposal evaluation and selection.

General Background. The Great Lakes Restoration Initiative requires additional monitoring, assessment, and coordination to succeed. Although the Initiative benefits greatly from previous scientific efforts in the Great Lakes, there are still gaps in efforts to measure and monitor key indicators of ecosystem function, to evaluate restoration progress, and to provide the information decision makers need. This information needs to be based on best available science, and compiled and communicated consistently to decision makers to allow them to assess ecosystem conditions and to track restoration progress. The public needs effective outreach and education to better understand the role it can play in protecting and restoring the Great Lakes, why it is crucial to do so, and how to effectively participate and communicate priorities.

To strategically address these issues and make progress towards achieving the goals, objectives, and targets identified for this focus area in the Great Lakes Restoration Initiative, EPA is soliciting proposals for the program activities listed below that will help achieve the expected general outcomes and outputs identified below for this focus area and the more specific results and requirements for each program as more fully described in Appendix I.

1. Assessing Indicators for the Great Lakes	EPA expects to provide approximately \$500,000 for approximately one to five projects ranging in amounts up to \$500,000 to maintain and enhance the indicator development, measurement and reporting that is part of the State of the Lakes Ecosystem Conference (SOLEC). Indicators used in assessing the health of the Great Lakes for this effort are measured by many federal and state agencies in the Great Lakes Basin, some regularly, some irregularly and some remain unmeasured. Projects are expected to enhance assessments on previously reported indicators and expand measurements to those indicators previously unmeasured.
2. Coordinated Implementation of Lakewide Management Plans (LaMPs), Programs, and Projects	EPA expects to provide approximately \$2 million for approximately 10 to 15 grants ranging in amounts up to \$1 million to strategically implement critical LaMP programs, projects, and activities not solicited for under other programs in this RFP for collaboration on a lake-basin level in LaMP programs, for public outreach/education projects, and for stakeholder and public participation in LaMP forums and networks.

3. Nearshore and Open Water Monitoring and Prediction	EPA expects to provide approximately \$1 million for one to three projects ranging in amounts up to \$1 million with a focus on efforts to assess the fluxes of nutrients (especially phosphorus and carbon) and particulates between the nearshore, offshore, and open water zones of the Great Lakes. The projects should: assess the movement and fate of nutrients in the deeper, open waters of the lakes; provide information to drive the management of nutrient loads to the Great Lakes to decrease nuisance and harmful algae in the nearshore; and/or support a Great Lakes basin-wide assessment of changes in nutrient distribution that aid lake management.
4. Annual Comprehensive Nearshore Monitoring Program	EPA expects to provide approximately \$2 million for approximately one to five projects ranging in amounts up to \$2 million to establish baseline conditions of the environmental quality of the nearshore waters of the Great Lakes as part of an annual comprehensive nearshore monitoring program.
5. Predicting Ecosystem Changes	EPA expects to provide approximately \$1 million for approximately one to five projects ranging in amounts up to \$1 million to begin development and/or expand models that can predict ecosystem changes related to climate change and invasive species. This program emphasizes invasive species and combinations of various ecosystem changes, and their effects on food webs, primary productivity, and toxic contaminant concentrations.
6. Cooperative Science and Monitoring Initiative (CSMI)	EPA expects to provide approximately \$1.25 million for approximately one to seven projects ranging in amounts up to \$1.25 million as part of the CSMI for intensive scientific planning, monitoring, assessment, and reporting (integrating with the respective LaMPs) of each of the Lakes, their connecting channels, and the international portion of the St. Lawrence River, on a 5-year rotating schedule. Of the \$1.25 million, approximately \$750,000 is expected to be used for monitoring and approximately \$500,000 is expected to be used for planning and reporting.
7. Observing Systems	EPA expects to provide approximately \$3.1 million for approximately one to five projects ranging in amounts up to \$3.1 million to implement strategic components relevant for Great Lakes decision making of the U.S. contribution to the Integrated Earth Observation System and the Integrated Ocean Observing System as part of the Global Earth Observing System of Systems. Projects should address the deployment, operation, and maintenance of buoys, gliders, autonomous underwater vehicles, or other sensors and platforms in the nearshore areas of the Great Lakes and should be developed in cooperation with Great Lakes States' enhanced tributary monitoring efforts.
8. Innovative Environmental Approaches.	EPA may provide approximately \$1 million for up to approximately ten other projects ranging in amounts up to \$500,000 for the development and implementation of innovative environmental approaches not otherwise described above if the proposal demonstrates that it is for a project that has a greater chance of success to achieve the outcomes and outputs identified for this focus area than the other activities listed above and EPA has the requisite authority to fund the project.

General Outcomes and Outputs Expected for all Projects under this Focus Area⁷

Expected **Outcomes** for the projects under this focus area may include, but are not limited to:

- A cooperative monitoring and observing system provides a comprehensive assessment of the Great Lakes ecosystem.
- Strengthened decision making and environmental management concerning the Great Lakes.

⁷ These general outcomes and outputs are in addition to any specific results identified in Appendix I for the specific program activities listed under the focus area.

- Improved understanding of environmental stressors in the Great Lakes.
- Data and information are provided in reports that are public-friendly, timely, and available on the Internet. Reports present integrated and scaled data from watersheds to lakes to Great Lakes basin-wide.
- Accessible mechanisms provide a range of opportunities for Great Lakes stakeholders and citizens to provide input to the governments on Great Lakes issues and concerns.
- Stakeholders achieve their priority LaMP goals and objectives and can measure and track their Lake-specific goals, objectives and indicators at multiple scales and through appropriate events.
- Under the Great Lakes Water Quality Agreement, restoration activities in the U.S. are coordinated with those of the Canadian federal and provincial governments.

Expected **Outputs** for the projects under this focus area may include, but are not limited to:

- Number of opportunities for collaboration, planning, data accessibility, and accountability increased through the expanded use of Internet-based technology.
- Increase in remotely-sensed data collection activities contributing to an assessment of Great Lakes productivity and biological (algal bloom) events.
- Increase in number of outreach and education efforts, including identification and revision of existing curricula to incorporate sustainable education needs for the Great Lakes that meet state and other relevant learning standards.
- Identification of a refined suite of science-based indicators for better assessment of Great Lakes ecosystem health and implementation of monitoring programs for those indicators will begin to be implemented.
- Establishment of elements of a cooperative monitoring and observing system, sufficient to provide a comprehensive assessment of the Great Lakes ecosystem. The system will integrate remote sensing, automated sampling, and shipboard monitoring.
- Implementation of priority LaMP projects, programs, or activities and an increase in partnership and stakeholder participation and collaboration in LaMP programs.

II. Award Information

Amounts, Targets, and Number of Projects. Approximately \$120 million is expected to be awarded under this RFP for up to approximately 400 projects under approximately 300 awards.⁸ The number of agreements EPA and FWS will fund as a result of this RFP will be based on the quality of proposals received, the availability of funding, and other applicable considerations. The estimated total award dollar amounts and any estimated individual project minimum or maximum amounts identified for the activities under the focus areas in Section I and Appendix I, and the estimated number of projects to be awarded under each of the program activities under a focus area are estimates only and are informational and planning targets provided for proposal preparation purposes. While proposals requesting funding below or above any estimated minimum or maximum individual project amounts identified in Section I and Appendix I for the different project activities will be considered, EPA encourages applicants to submit proposals that are not below or exceed any such specified minimum or maximum individual project amount.

The actual award amounts and number of projects awarded under each of the focus areas in Section I may differ from what is estimated for many reasons including the number of meritorious proposals received, funding availability, and other applicable considerations. In addition, EPA reserves the right to increase or decrease (including to zero) the total number of awards under each focus area (and Programs under a focus area), or change the ratio of assistance agreements it awards among the focus areas (and Programs under the focus areas). Such changes may be necessary because of the quality of proposals received by EPA in each focus area (and Program), the amount of funds awarded to the selected applicants, budget/funding availability, or other applicable considerations.

EPA reserves the right to reject all proposals and make no awards under this RFP or make fewer awards than anticipated.

Anticipated Project Start and End Dates. EPA anticipates that following preliminary selection, applicants will submit certifications and other documentation required for a full and complete funding package so that their projects could, if possible, commence by April or May of 2010. Project periods are expected to be appropriate to the proposed work and are generally expected to range from one to three years, except as specifically described for the respective program. Project periods must not exceed five years.

Awards from additional funding. EPA reserves the right to make additional awards under this RFP, consistent with Agency policy and guidance, if additional funding becomes available after the original selections are made. Any additional selections for awards will be made no later than six months after the original selection decisions.

Funding Type. Successful applicants will be issued a grant or cooperative agreement as appropriate. A cooperative agreement is an assistance agreement that is used when there is substantial federal involvement with the recipient during the performance of an activity or project. EPA awards cooperative agreements for those projects in which it expects to have

⁸ If an applicant submits multiple projects that are selected for award, if appropriate and feasible one award may cover more than one project.

substantial interaction with the recipient throughout the performance of the project. EPA will negotiate the precise terms and conditions of “substantial involvement” as part of the award process. Federal involvement may include close monitoring of the recipient’s performance; collaboration during the performance of the scope of work; in accordance with 40 CFR 31.36(g), review of proposed procurements; reviewing qualifications of key personnel; and/or review and comment on the content of printed or electronic publications prepared. EPA does not have the authority to select employees or contractors employed by the recipient. The final decision on the content of reports rests with the recipient.

Future Funding. Award of funding under this RFP is not a guarantee of future funding.

Partial Funding. In appropriate circumstances, EPA reserves the right to partially fund proposals by funding discrete portions or phases of proposed projects. If EPA decides to partially fund a proposal, it will do so in a manner that does not prejudice any applicants or affect the basis upon which the proposal was evaluated and selected for award, and, therefore, maintains the integrity of the competition and selection process.

Reporting Costs. Applicants selected for funding will be asked to provide quarterly progress reports addressing financial and work progress and to input data directly into an online database being developed for the purpose of collecting and reporting information about the Great Lakes Restoration Initiative. Proposals should include estimates of the funding expected to be needed to fund all eligible reporting costs.

III. Eligibility and Matching

Applicant Eligibility (CFDA 66.469). Entities eligible to apply for grants under this RFP include state agencies, any agency or instrumentality of local government, interstate agencies, federally-recognized tribes and tribal organizations, non-profit organizations as described in Section 501(c)(3) of the Internal Revenue Code, and other public or non-profit private agencies, institutions, and organizations. Colleges and universities that are subject to 40 CFR Part 30 or 40 CFR Part 31 are also eligible to apply for grants under this RFP. Non-profit organization, as defined by OMB Circular A-122, located at 2 CFR Part 230, means any corporation, trust, association, cooperative, or other organization which: (1) is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest; (2) is not organized primarily for profit; and (3) uses its net proceeds to maintain, improve, and/or expand its operations. Non-profit organizations described in Section 501(c)(4) of the Internal Revenue Code that engage in lobbying activities as defined in Section 3 of the Lobbying Disclosure Act of 1995 are not eligible to apply. “For profit” organizations and individuals are not eligible to apply for grants under this RFP.

Eligible Activities. Under this RFP, assistance is available to eligible applicants for planning, research, monitoring, outreach, and implementation in furtherance of the Great Lakes Restoration Initiative and the Great Lakes Water Quality Agreement. To be eligible for funding, proposed activities must be for programs, projects, or activities that are for the protection and restoration of the Great Lakes, including projects impacting connecting waterways such as Lake St. Clair and the St. Lawrence River at or upstream from the point at which the St. Lawrence River becomes the international boundary between Canada and the United States. Information about the Great Lakes Restoration Initiative can be found at <http://www.epa.gov/greatlakes/glri>. Proposals for other activities will be rejected.

Ineligible Activities. Under this RFP, EPA will not fund: water infrastructure projects that are addressed under the Clean Water and Drinking Water State Revolving Fund; basic research; land acquisition; remediation of contaminated sediments; or projects the principal purpose for which is general operating support.

Match or Cost-Share. There is no cost-sharing or matching requirement as a condition of eligibility under this competition. However, see Section IV.B.10 for additional information on applicants proposing voluntary matches and additional funds/resources to support the project.

Threshold Eligibility Criteria. These are requirements that if not met by the Applicant by the proposal submission deadline specified in Section IV will result in elimination of the proposal from consideration for funding. Only proposals from eligible entities (see above) that meet all of these criteria will be evaluated against the ranking factors in Section V of this RFP. Applicants deemed ineligible for funding consideration as a result of the threshold eligibility review will be notified within 15 calendar days of the ineligibility determination.

1. a. Proposal submissions must substantially comply with the proposal submission instructions and requirements set forth in Section IV of this RFP or else they will be rejected. However, where a page limit is stated for the proposal in Section IV, pages in excess of the limitation will not be reviewed.

- b. Proposal submissions must be received by EPA by the submission deadline identified in Section IV. Applicants are responsible for ensuring that their proposal reaches the designated person/office specified in Section IV of the RFP by the submission deadline. Neither zipped file submissions nor faxed submissions will be accepted.
- c. A proposal received by EPA after the deadline will be considered late and rejected without further consideration unless the applicant can clearly demonstrate that it was late due to EPA mishandling or because of technical problems solely attributable to the submittal Website (linked to from <http://epa.gov/greatlakes/fund/2010rfp01>) and not the applicant.
2. Proposals must be for eligible activities as described above under the section “Eligible Activities” and which support (i) the Great Lakes Restoration Initiative <http://www.epa.gov/greatlakes/glri> ; (ii) Sub-objective 4.3.3 (Improve the Health of Great Lakes Ecosystems) of EPA’s Strategic Plan <http://www.epa.gov/ocfo/plan/plan.htm> and/or (iii) the Great Lakes Regional Collaboration Strategy to Protect and Restore the Great Lakes <http://www.glrc.us/strategy.html>
 3. Applicants may submit more than one proposal under this RFP so long as each one is for a different project and is separately submitted.
 4. Each proposal must address one, and only one, focus area, and one, and only one, program activity under a focus area, as described in Section I and Appendix I of the RFP. Proposals must also meet any eligibility requirements described in Appendix I that apply to the respective program activity (e.g., a commitment to partnering with applicable State agencies as part of Section I.A.2. Enhanced State/Tribe Fish Consumption Advisory Support; demonstrations of comparability and compatibility with the existing Great Lakes Fish Monitoring and Surveillance Program as part of Section I.A.4; design requirements for Beach Forecasting Models as part of Section I.C.1, etc.). Applicants should contact the applicable individuals listed in Section VII of this RFP with any questions about the threshold eligibility requirements that may apply to a particular program area as described in Appendix I.
 5. Congress has prohibited the use of federal funds to award grants to the Association of Community Organizations for Reform Now (ACORN) or any of its affiliates, subsidiaries, or allied organizations and, therefore, in order to be eligible for funding consideration under this competition, all applicants must affirmatively indicate in their proposal that they are not subject to this prohibition. In addition, since this funding prohibition applies to subawards/subgrants and contracts awarded by grantees, applicants must consider it when preparing proposals.

IV. Application and Submission Instructions

A. General:

Applicants should submit their proposals through the submittal link on the following Internet page: <http://epa.gov/greatlakes/fund/2010rfp01>

Applicants who are not able to submit proposals via the Internet method described above should contact Lawrence Brail (312-886-7474 / brail.lawrence@epa.gov) for alternative submission instructions. Regardless of the mode of submission, proposals must meet the submission requirements specified below and be received by the submission deadline.

Proposals must be no more than fifteen single-spaced pages in length, including items B.1 through B.12 below; excess pages will not be reviewed. Each proposal must be formatted for 8½" x 11" paper and should use no smaller than an 11-point Times New Roman font with 1" margins as a single Microsoft Word, WordPerfect or Adobe Acrobat file. If you submit an Adobe Acrobat file, it must be generated by printing the document to the Acrobat Distiller, PDF Writer, or similar software, and NOT scanned in from a hard-copy (i.e., don't send us a "picture" of your proposal). Do not include more than one proposal in any file. Please do not zip the file, because we will not be able to open it.

It is recommended that confidential business information not be included in your proposal.

B. Proposal. Proposals must include the following information in the following order.

Proposal - Cover Page (it should not exceed one page):

1. **Funding Opportunity Number, Focus Area, and Program.** The RFP number is EPA-R5-GL2010-1. Identify the focus area from Section I to which the proposal relates (choose one from among "Toxic Substances and Areas of Concern," "Invasive Species," "Nearshore Health and Nonpoint Source Pollution," "Habitat and Wildlife Protection and Restoration," and "Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships"). For Program, identify the program activity listed under a focus area to which the proposal relates. Identify only one focus area and Program per proposal submission.
2. **Name of Proposal.** Please limit to 60 characters, or EPA reserves the right to change the name for its administrative convenience. Applicants who are submitting separate, complementary proposals may wish to use a proposal title with the same first words followed by a hyphen and a unique project title.
3. **Points of contact.** Individual and Organization Name. Business Address; Phone Number; Fax Number; E-mail Address; and DUNS number.

DUNS Number. All applicants must provide a Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number when applying for a Federal grant or cooperative agreement. Applicants can receive a DUNS number at no cost by calling the dedicated toll-free DUNS Number request line at 1-866-705-5711, or visiting the D&B Website at: <http://www.dnb.com>.

4. **Type of Organization.** Choose from: State agencies or interstate agencies; Tribes or tribal organizations; colleges or universities; and other public or non-profit private agencies, institutions, and organizations.
5. **Proposed Funding Request.** The total dollar amount requested from EPA.
6. **Brief Project Description.** Summarize the proposed project in a clear and succinct manner. Include environmental KEY TERMS that could be used as search terms (e.g., water quality, toxins, mercury, etc.). Do not use acronyms. Should the proposal be selected and a grant awarded, this description may be posted to the EPA Web, which has a 595 character limit to this field; EPA reserves the right to make unilateral changes to conform to posting requirements.
7. **Project Location.** Specify the project location, if applicable, including 8- or 12-digit HUC code; latitude and longitude; and State, county, city, and 5 digit ZIP Code.

Project Narrative (sections 8-12). Include the following information in these sections of the proposal for each proposed project. In addition, applicants must ensure that this section of the proposal addresses all threshold eligibility factors that apply to the project including those that are indicated in Section III and Appendix I, all proposal informational requirements that apply for a particular proposed program activity as described in Appendix I, and all of the ranking criteria in Section V.

8. **Full Project Description.** Describe with specificity the nature of the proposed project including what will be done, how, and when. Include a statement of the project's relevance to the Great Lakes, particularly to the needs and priorities of the following: (i) the Great Lakes Restoration Initiative <http://www.epa.gov/greatlakes/glri> ; (ii) Sub-objective 4.3.3 (Improve the Health of Great Lakes Ecosystems) of EPA's Strategic Plan <http://www.epa.gov/ocfo/plan/plan.htm> and (iii) the Great Lakes Regional Collaboration Strategy to Protect and Restore the Great Lakes <http://www.glrc.us/strategy.html>. Outline the steps to be taken and the significant milestones to be achieved to complete the proposed project as well as the estimated schedule of these achievements, including submittal of the final report, with dates. Include a discussion of whether and how the project is designed to be performed by the Applicant in a cost-effective manner to facilitate EPA oversight and administration of the project. This section should also include a discussion of an education/outreach plan to disseminate project results to interested parties and the potential of the project for transferability. If your proposed project is for a program activity that requires specific information described in Appendix I, include that information (e.g., demonstrations of comparability and compatibility with the existing program are required as part of a proposal pursuant to the Great Lakes Fish Monitoring and Surveillance Program described in Section I.A.4).
9. **Outcomes, Outputs, and Expected Results:** Specify the quantitative and qualitative expected outcomes, outputs and results of the proposed project, including those identified in Section I for the different focus areas and those identified in Appendix I for the different program areas and what measurements will be used to track and measure your progress towards achieving the applicable outcomes, outputs, and results. Specify the

estimated quantifiable environmental and economic outcomes, outputs, and results of the proposed project, including affected pollutants, industry sectors, economic impacts, habitats, and/or species. Include an estimate of the amount of chemicals to be “collected or prevented,” acres protected or restored, etc. Describe the quality of that estimate, including applicable limitations.

10. Collaboration, Partnerships, and Overarching Plans: Describe your plans for promoting and/or obtaining collaboration and support from the public, private, and independent sectors in performing the project in order to expand its impact, and also describe whether and how your project complements other projects or activities being performed to achieve a larger beneficial impact from your project. List the proposed groups that will be involved in the project and any related projects and studies, and what each of the groups’ roles will be in the project staffing, funding, design and implementation. Describe the type of collaboration/support proposed, how you will ensure that it will materialize during grant performance, and what role it will play in the overall project. Describe how you will coordinate activities of the project with related or complementary projects and studies.

If the project is part of any applicable overarching plan for protection and restoration of an important Great Lakes place-based effort, including LaMPs, RAPs, State Great Lakes plans, and watershed management plans, describe the purpose and effect of the project in such plan. (Such plans may cross over one or more focus areas.) Provide the Internet link (URL) for that overarching plan or, if a URL is not available, attach the plan as part of item 14 below. A cover letter which provides this information may constitute such an overarching plan. For Nearshore and Nonpoint Source Pollution projects which are part of an overarching, comprehensive plan, describe the targeted restoration potential, including the extent to which: identifiable impairments have been identified and the causes for those impairments have been clearly established; solutions to remediation of the impairments have been identified; broadly supported implementation activities have been designed; and there is potential for significant measurable results.

In addition, for projects submitted under the program in focus area I.C.8 (Watersheds Best Management Practices, Planning, and Implementation), applicants may propose a voluntary cost-match to provide additional support for the project and this may specifically be considered during the selection process for these projects as described in Section V. Applicants proposing a voluntary match for these projects should describe the voluntary match, how they will ensure it is provided during grant performance, and what role it will play in the overall project. If EPA accepts an offer for a voluntary cost-match, applicants must meet the matching commitment as a condition of receiving EPA funding. The recipient is legally-obligated to meet any proposed voluntary cost-match that is included in the approved project budget because the grant agreement includes the voluntary cost-match. Applicants may use their own funds or other resources for a voluntary cost-match if the standards at 40 CFR 30.23 or 40 CFR 31.24, as applicable, are met. Only eligible and allowable costs may be used for voluntary cost-match. Other Federal grants may not be used as voluntary cost-matches without specific statutory authority (e.g. HUD’s Community Development Block Grants).

For projects submitted under the other programs identified in this RFP, if the applicant is proposing to provide a voluntary cost-match or other form of additional funds/resources to demonstrate support for the project, they should describe that in this section of the proposal. They should also describe how they will ensure that the voluntary cost-match or other funds/resources will be provided during grant performance, and what role they will play in the overall project. Any additional funds/resources including voluntary matches, and their source, must be identified in the proposal and as appropriate on grant application forms for selected applicants. The additional funds or other resources need not be for eligible and allowable project costs under the EPA assistance agreement unless the Applicant proposes to provide a voluntary cost-match. If EPA accepts an offer for a voluntary cost-match, applicants must meet their sharing commitment as a condition of receiving EPA funding. The recipient is legally-obligated to meet any proposed voluntary cost-match that is included in the approved project budget because the grant agreement includes the voluntary cost-match. Applicants may use their own funds or other resources for a voluntary cost-match if the standards at 40 CFR 30.23 or 40 CFR 31.24, as applicable, are met. Only eligible and allowable costs may be used for voluntary cost-matches. Other Federal grants may not be used as voluntary cost-matches without specific statutory authority (e.g. HUD's Community Development Block Grants).

Any voluntary cost-match should also be identified below in the Budget section (12). If subawards or subcontracts are involved, please also refer to the discussion of those topics in Section IV.G of the RFP.

11. Programmatic Capability and Past Performance: Submit a list of federally and/or non-federally funded assistance agreements (assistance agreements include grants and cooperative agreements but not contracts) similar in size, scope and relevance to the proposed project that your organization performed within the last three years (no more than 5 agreements, and preferably EPA or other federal agreements) and describe (i) whether, and how, you were able to successfully complete and manage those agreements, (ii) your history of meeting the reporting requirements under those agreements including submitting acceptable final technical reports, and (iii) how you documented and/or reported on whether you were making progress towards achieving the expected results (e.g., outputs and outcomes) under those agreements. If you were not making progress, please indicate whether, and how, you documented why not. In evaluating applicants under these factors in Section V, EPA will consider the information provided by the applicant and may also consider relevant information from other sources, including information from EPA files and from current and prior Federal agency grantors (e.g., to verify and/or supplement the information provided by the applicant). If you do not have any relevant or available past performance or reporting information, please indicate this in the proposal and you will receive a neutral score for these factors under Section V. Failure to indicate this may result in 0 points for these factors.

In addition, provide information on your organizational experience and plan for timely and successfully achieving the objectives of the proposed projects, and your staff expertise/qualifications, staff knowledge, and resources or the ability to obtain them, to successfully achieve the goals of the proposed projects.

12. Budget. Specify in a chart, with a column that totals to the total cost of the proposal, how the total of the proposed project funds, including any Applicant matching funds, will be used for the following “budget object classes”.

a. Personnel/Salaries. Do not include costs of consultants or personnel costs of subgrantees or subcontractors.

b. Fringe Benefits.

c. Travel.

d. Equipment.

e. Supplies.

f. Contract costs.

g. Other Costs.

h. Total Direct Charges.

i. Indirect Charges.

j. Total Cost.

Management Fees: When formulating budgets for proposals, applicants must not include management fees or similar charges in excess of the direct costs and indirect costs at the rate approved by the applicant’s cognizant audit agency, or at the rate provided for by the terms of their negotiated agreement. The term “management fees or similar charges” refers to expenses added to the direct costs in order to accumulate and reserve funds for ongoing business expenses, unforeseen liabilities, or for other similar costs that are not allowable under federal assistance agreements. Management fees or similar charges may not be used to improve or expand the project funded under this agreement, except to the extent authorized as a direct cost of carrying out the scope of work.

13. ACORN Statement. Congress has prohibited the use of federal funds to award grants to the Association of Community Organizations for Reform Now (ACORN) or any of its affiliates, subsidiaries, or allied organizations and, therefore, in order to be eligible for funding consideration under this competition, all applicants must affirmatively indicate in their proposal that they are not subject to this prohibition. In addition, since this funding prohibition applies to subawards/subgrants and contracts awarded by grantees, applicants must consider it when preparing proposals.

14. Attachments (overarching plan, resumes, curriculum vitae, letters of support, scientific peer review, maps, or charts). Separately attach any overarching plan for which there is no Internet link (URL) (see item 10 above); resumes or curriculum vitae of Principal Investigators and critical staff; any relevant letters from collaborators; any applicable scientific peer review of the project which has already been completed; and applicable maps or charts. These attachments do not count toward the page limit.

C. Submission. Eligible applicants must submit proposals through the link for submittals on the following Internet page: <http://epa.gov/greatlakes/fund/2010rfp01> . Applicants who are not able to submit their proposals electronically should request information on alternate means of submission by January 8, 2010 from:

U.S. EPA - GLNPO (G-17J)

77 West Jackson Boulevard

Chicago, Illinois 60604-3590

Attention: Lawrence Brail (312-886-7474 / brail.lawrence@epa.gov)

D. Submission Deadline. Proposals, regardless of the mode of submission, **must be received by EPA by noon, Central Standard Time, January 29, 2010.** Proposals which are received by EPA after this date and time will not be considered.

E. Confidentiality. In accordance with 40 CFR 2.203, applicants may claim all or a portion of their proposal as confidential business information. EPA will evaluate confidentiality claims in accordance with 40 CFR Part 2. Applicants must clearly mark proposals or portions of proposals they claim as confidential. If no claim of confidentiality is made, EPA is not required to make the inquiry to the applicant otherwise required by 40 CFR 2.204(c)(2) prior to disclosure. However, the agency considers competitive proposals confidential and protected from disclosure prior to the completion of the competitive selection process.

Applicants should be aware that under Public Law No. 105-277, data produced under an award is subject to the Freedom of Information Act.

F. Communications with Applicants. In accordance with EPA's Assistance Agreement Competition Policy (EPA Order 5700.5A1), EPA staff will not meet with individual applicants to discuss draft proposals, provide informal comments on draft proposals, or provide advice to applicants on how to respond to ranking criteria. Applicants are responsible for the contents of their proposals.

EPA will respond to questions in writing from individual applicants regarding threshold eligibility criteria, administrative issues related to the submission of the proposal, and requests for clarification about the RFP. Submit questions using the form available from the following Internet page: <http://epa.gov/greatlakes/fund/2010rfp01>

EPA will also host two Webinars, including a public Teleconference call, during which EPA will discuss this RFP and respond to questions. Since all questions may not be able to be asked and answered during the scheduled times for the call, questions should be submitted in advance using the form mentioned above. The Webinars/conferences will be broadcast live and will be archived for future playback. Pre-registration will be required for the Webinar option, but is not required if you will be calling in on the Teleconference line. However, please note that there is a limit on the number of participants for the Teleconference, so access via the Webinar is recommended.

Webinar/Teleconference Schedule

Dates: December 9, 2009 and December 16, 2009

Time: 10:00 AM CST

Topic: EPA Great Lakes Restoration Initiative Request for Proposals

Further details, including a link for the Webinar, will be available on the Web site for the RFP at:
<http://epa.gov/greatlakes/fund/2010rfp01>

You will need the following information to participate in the Teleconference:

U.S./Canada Dial-In Number: (866) 299-3188

International Dial-In Number: (706) 758-1822

Conference Code: 1719009

If you register at <http://www.epa.gov/greatlakes/maillist> we will send you any updates to GLNPO funding information.

G. Questions and Answers Pertaining to Contracts and Subawards:

a. Can funding be used for the applicant to make subawards, acquire contract services, or fund partnerships?

EPA awards funds to one eligible applicant as the recipient even if other eligible applicants are named as partners or co-applicants or members of a coalition or consortium. The recipient is accountable to EPA for the proper expenditure of funds.

Funding may be used to provide subgrants or subawards of financial assistance, which includes using subawards or subgrants to fund partnerships, provided the recipient complies with applicable requirements for subawards or subgrants including those contained in 40 CFR Parts 30 or 31, as appropriate. Applicants must compete contracts for services and products, including consultant contracts, and conduct cost and price analyses, to the extent required by the procurement provisions of the regulations at 40 CFR Parts 30 or 31, as appropriate. The regulations also contain limitations on consultant compensation. Applicants are not required to identify subawardees/subgrantees and/or contractors (including consultants) in their proposal. However, if they do, the fact that an applicant selected for award has named a specific subawardee/subgrantee, contractor, or consultant in the proposal/application EPA selects for funding does not relieve the applicant of its obligations to comply with subaward/subgrant and/or competitive procurement requirements as appropriate. Please note that applicants may not award sole source contracts to consulting, engineering or other firms assisting applicants with the proposal solely based on the firm's role in preparing the proposal.

Successful applicants cannot use subgrants or subawards to avoid requirements in EPA grant regulations for competitive procurement by using these instruments to acquire commercial services or products from for-profit organizations to carry out its assistance agreement. The nature of the transaction between the recipient and the subawardee or subgrantee must be consistent with the standards for distinguishing between vendor transactions and subrecipient assistance under Subpart B Section 210 of OMB Circular A-133, and the definitions of subaward at 40 CFR 30.2(ff) or subgrant at 40 CFR 31.3, as applicable. EPA will not be a party to these transactions. Applicants acquiring commercial goods or services must comply with the

competitive procurement standards in 40 CFR Part 30 or 40 CFR Part 31.36 and cannot use a subaward/subgrant as the funding mechanism.

b. How will an applicant's proposed subawardees/subgrantees and contractors be considered during the evaluation process described in Section V of the RFP?

Section V of the RFP describes the evaluation criteria and evaluation process that will be used by EPA to make selections under this RFP. During this evaluation, except for those criteria that relate to the applicant's own qualifications, past performance, and reporting history, the review panel will consider, as appropriate and relevant, the qualifications, expertise, and experience of:

- (i) an applicant's named subawardees/subgrantees identified in the proposal if the applicant demonstrates in the proposal that if it receives an award that the subaward/subgrant will be properly awarded consistent with the applicable regulations in 40 CFR Parts 30 or 31. For example, applicants must not use subawards/subgrants to obtain commercial services or products from for profit firms or individual consultants.
- (ii) an applicant's named contractors, including consultants, identified in the proposal if the applicant demonstrates in its proposal that the contractors was selected in compliance with the competitive Procurement Standards in 40 CFR Part 30 or 40 CFR 31.36 as appropriate. For example, an applicant must demonstrate that it selected the contractors competitively or that a proper non-competitive sole-source award consistent with the regulations will be made to the contractors, that efforts were made to provide small and disadvantaged businesses with opportunities to compete, and that some form of cost or price analysis was conducted. EPA may not accept sole source justifications for contracts for services or products that are otherwise readily available in the commercial marketplace.

EPA will not consider the qualifications, experience, and expertise of named subawardees/subgrantees and/or named contractors during the proposal evaluation process unless the applicant complies with these requirements.

V. Application Review

Proposals meeting the threshold eligibility criteria in Section III will be evaluated based on the Criteria set forth below. Applicants should directly and explicitly address these criteria as part of their proposal submittal. Each submittal will be rated under a points system, with a total of 100 points possible. Applicants will be evaluated based on the quality and extent to which they address the criteria; the failure to provide applicable information in the proposal will likely affect the score assigned for a criterion.⁹

- A. Strategic Approach.** Applicants will be evaluated based on their strategic approach for performing the project including how they demonstrate that they will be able to timely and successfully achieve (i) the objectives and expected outcomes and outputs that apply to the focus area identified in Section I that the proposal addresses **(10 points)** and (ii) the expected results that apply to the specific program activity, as described in Appendix I, to which the proposal relates **(15 points)**.

Applicants may score higher on this criterion to the extent they demonstrate in their proposal one or more of the following elements:

- A clear connection, rather than a weak connection, to protection and restoration of the Great Lakes themselves;
- Immediacy and timeliness in project implementation (“shovel ready”) and in attaining outcomes, outputs, and expected results including protection and restoration;
- Protection or restoration potential as part of an overarching, comprehensive plan (including Lakewide Management Plans, Remedial Action Plans, State Great Lakes plans, watershed plans (including those which impact Areas of Concern), and other place-based plans);
- Potential for achieving project objectives within the project duration.

In considering the protection or restoration potential (the third bullet above) of a proposal for any Nearshore and Nonpoint Source Pollution program under Section I.C of this RFP which is part of an overarching, comprehensive plan, the project may receive a higher score to the extent that: identifiable impairments have been identified and the causes for those impairments have been clearly established; solutions to remediation of the impairments have been identified; broadly supported implementation activities have been designed; and there is potential for significant measurable results.

- B. Technical/Scientific Merit.** Applicants will be evaluated based on the technical and scientific merit of the proposed project including the soundness, logic, and reasonableness of the technical approach, including its design, objectives, and scientific viability. Results of any applicable scientific peer review of the project which has already been completed will be considered as a part of this criterion. **(20 points)**

⁹ Appendix I also contains information that pertains to the evaluation of proposals under certain specific programs.

See Appendix I Section I.A.10 (Toxicant TMDL Development) and Appendix I Section I.C.7 (Total Maximum Daily Loads-non-toxicants) for further information pertaining to the evaluation of proposals for these areas under this criterion.

- C. Measuring Progress toward Outcomes, Outputs, and Results.** Applicants will be evaluated based on their plan and approach for measuring and tracking their progress towards achieving the (i) expected outcomes and outputs identified in Section I that apply to the focus area to which the proposal relates **(5 points)** and (ii) expected results described in Appendix I that apply to the program activity to which the proposal relates **(5 points)**.
- D. Programmatic Capability.** Under this criterion, applicants will be evaluated based on their ability to successfully complete and manage the proposed project taking into account their: (i) past performance in successfully completing and managing the assistance agreements identified in response to Section IV.B of the RFP **(3 points)**, (ii) history of meeting the reporting requirements under the assistance agreements identified in response to Section IV.B of the RFP including whether the applicant submitted acceptable final technical reports under those agreements and the extent to which the applicant adequately and timely reported on their progress towards achieving the expected outputs and outcomes under those agreements and if such progress was not being made whether the applicant adequately reported why not **(3 points)**, (iii) organizational experience and plan for timely and successfully achieving project objectives **(3 points)**, and (iv) staff expertise/qualifications, staff knowledge, and resources or the ability to obtain qualified staff and resources on a timely basis, to successfully achieve project goals **(6 points)**. Note: In evaluating applicants under items (i) and (ii) of this criterion, the Agency will consider the information provided by the applicant and may also consider relevant information from other sources including agency files and prior/current grantors (e.g., to verify and/or supplement the information supplied by the applicant). If you do not have any relevant or available past performance or reporting information, please indicate this in the proposal and you will receive a neutral score for these subfactors (a neutral score is one half of the points available for the item). If you do not provide any response for these items, you may receive a score of 0 for these factors.
- NOTE: For projects involving use or collection of environmental data, the applicant's timely compliance with current American National Standard Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, ANSI/ASQC E4-1994 may also be considered.
- E. Appropriate Budget.** Proposals will be evaluated based on the reasonableness and appropriateness of the proposed budget for the level of work proposed and for the expected benefits to be achieved. **(10 points)**
- F. Project Effectiveness and Efficiency.** Proposals will be evaluated based on whether and how the project is designed to be performed by the applicant in a cost effective manner to facilitate EPA oversight and administration of the project. **(5 points)**

G. Collaboration/Partnerships (See Section IV.B 10). Applicants will be evaluated based on the extent to which they demonstrate that they will work in partnership with appropriate partners (such as government agencies (including applicable regulatory entities), community groups, businesses, stakeholders, States, Cities, and Counties) to effectively and efficiently implement the proposed project and whether their project is coordinated with and/or complements other projects or activities being performed to produce a greater positive impact from their project. This includes evaluating the Applicant's plans for obtaining collaboration and support from the public, private, and independent sectors in performing the project in order to expand its impact, the type of collaboration proposed, the likelihood that it will materialize during grant performance, and what role it will play in the overall project. **(10 points)**

H. Education/Outreach. Applicants will be evaluated based on the effectiveness of their education/outreach plans to disseminate project results including, but not limited to, whether the applicant has a demonstrated track record of outreach to inform citizens on environmental issues and the potential of the project for transferability and applicability to other places. **(5 points)**

Review and Selection Process. Eligible proposals will be evaluated, based on the criteria above, by review panels composed of Federal agency staff. There will be separate review panels for evaluating proposals submitted under each program activity described in Appendix I. Review panels will rank the proposals based on the criteria above and provide preliminary funding recommendations to management. To avoid the potential for duplicative funding for projects under the Great Lakes Restoration Initiative by different agencies, the preliminary funding recommendations may be shared with appropriate federal agencies participating in the Great Lakes Restoration Initiative to determine whether any preliminarily selected project is expected to be funded by another funding agency under the Initiative or any other known funding source.

For submissions to programs (Invasive Species – Section I.B.1 Great Lakes Ballast Water Technology Grant Program and Sections I.B. 2 Invasive Species Prevention and Control Grant Program), which may be selected for funding by either EPA or FWS, review panels will include recommendations as to which agency (EPA or FWS) should issue and manage any grants issued to the applicants. The recommendation about which agency should issue and manage grants will be based upon the agency's funding, mission, goals, resources, and experience.

In reviewing proposals submitted for projects under the program in focus area I.C.8 (Watersheds Best Management Practices, Planning, and Implementation), the review panel will also consider any voluntary cost-match proposed by the applicant (see Section IV.B.10) and provide its assessment of the proposed voluntary cost-match to the Selection Official described below who may consider it in making final selections for projects under this program.

Final selection of projects to be funded by EPA will be made by the Director of the Great Lakes National Program Office or another appropriate selection official. Final selection of projects to be funded by FWS will be made by the Deputy Regional Director for the Midwest Region or another appropriate selection official. In making the final selections, each selecting

official will consider the review panel rankings and recommendations and any duplicate funding issues as discussed above. In addition, in making the final funding decisions each selecting official may also consider program priorities, funding availability and appropriate balances of geographic and jurisdictional distribution of projects (for projects submitted under the program in focus area I.C.8 – Watersheds Best Management Practices, Planning, and Implementation – the selection official may also consider the review panel’s assessment of any proposed voluntary cost-match as discussed above). Any final selections made out of rank order from the review panel rankings will be documented and must be justified based on the factors listed above. All final funding decisions will be made by the EPA and FWS. Once selections have been made, applicants will be informed and requested to submit formal application packages.

Each federal agency will follow its own procedures for accepting and processing final applications and negotiating workplans. Following receipt and acceptance of a workplan and application acceptable to EPA (see Section VI-Issuance of Awards), a funding recommendation will be developed and forwarded to the EPA Award Official.

Conflict of Interest: All reviewers will be required to sign a disclosure of conflict of interest statement and will be removed from the review of proposals where an actual or potential conflict of interest (that cannot be mitigated) exists.

If you register at <http://www.epa.gov/greatlakes/maillist> we will send you any updates to GLNPO funding information.

VI. Award Administration

Notification: We expect to confirm proposal submission receipt within two weeks of the due date for all submissions. Shortly after the deadline, we will post a link to project information (including Title and identification number) on the following Web page:

<http://epa.gov/greatlakes/fund/2010rfp01>. ALL APPLICANTS SHOULD CHECK THIS POSTING TO VERIFY THAT THEIR SUBMISSIONS HAVE BEEN INCLUDED IN EPA'S DATABASE. See Section VII for contact information if you do not receive a confirmation or if your project is not posted. All Applicants will be contacted following selections to tell them whether or not they have been selected.

Pre-award Review for Administrative Capability. Non-profit applicants that are recommended for funding will be subject to pre-award administrative capability reviews consistent with paragraphs 8.b, 8.c, and 9.d of EPA Order 5700.8 – Policy on Assessing Capabilities of Non-Profit Applicants for Managing Assistance Awards (http://www.epa.gov/ogd/grants/award/5700_8.pdf). In addition, non-profit applicants that qualify for funding may, depending on the size of the award, be required to fill out and submit to the Grants Management Office, an Administrative Capabilities form with the supporting documents contained in Appendix A of EPA Order 5700.8.

Mandatory Training for Non-Profits. EPA requires non-profit recipients to take a course designed to help them understand assistance agreement regulations, the application process, management of their assistance agreements and the close-out process. Completion of this class is mandatory for all non-profit award recipients upon receipt of monetary actions effective October 1, 2007. Certification will be good for 3 years. See <http://www.epa.gov/ogd/>

Issuance of Awards. EPA reserves the right to negotiate appropriate changes (that do not affect the integrity of the competition or materially change the proposal), consistent with EPA Order 5700.5A1 and other applicable policies, in project terms and amounts before making final decisions and awards and reserves the right to reject all proposals and make no awards. When submitting full application packages, applicants may be asked to include greater detail and specificity for their workplans. Applicants may also be requested to satisfy data quality or peer review requirements before or shortly after awards. EPA expects to be able to issue awards within 60 days following receipt of the complete, fundable application package. Final funding decisions are based upon the complete application packages.

Administrative and Reporting Requirements. The successful applicant will be required to adhere to the Federal grants requirements, particularly those found in applicable OMB circulars on Cost Principles (A-21, A-87, or A-122), Administrative Requirements (A-102 or 110), and Audit Requirements (A-133) available from <http://www.whitehouse.gov/omb/grants>. This includes government-wide requirements pertaining to accounting standards, lobbying, minority or woman business enterprise, publication, meetings, construction, and disposition of property. EPA regulations governing assistance programs and recipients are codified in Title 40 of the Code of Federal Regulations. Those requirements, GLNPO-specific requirements currently in effect, and the application materials that will be needed by applicants can be found online at: <http://www.epa.gov/greatlakes/fund/projreqs.html> and <http://www.epa.gov/greatlakes/fund/appforms.html>.

For purposes of transparency and accountability, EPA expects to develop specific reporting requirements applicable to the Great Lakes Restoration Initiative which are expected to require grant recipients to directly report on grant progress and activities in an online database using specified formats and timeframes as a condition of their grants. Applicants should make provision for their expected reporting costs in the budget for their proposal. Applicants should look to the requirements of the American Recovery and Reinvestment Act as an example of the kind of reporting requirements which may be required by grant recipients. An acceptable final report must include statements regarding the quality of the data presented therein.

Dispute Resolution Process. Assistance agreement competition-related disputes regarding eligibility issues and EPA selections will be resolved in accordance with the dispute resolution procedures published in 70 FR (Federal Register) 3629, 3630 (January 26, 2005) which can be found at <http://www.epa.gov/ogd/competition/resolution.htm> Copies of these procedures may also be requested by contacting russ.michael@epa.gov

VII. Agency Contacts

Submit questions using the form available from: <http://epa.gov/greatlakes/fund/2010rfp01>

General RFP Contact (for administrative, eligibility, and other general RFP questions):
Michael Russ 312-886-4013 / russ.michael@epa.gov

Technical Contacts:

- Toxic Substances and Areas of Concern: Ted Smith / 312-353-6571 / smith.edwin@epa.gov
- Invasive Species: James Schardt 312-353-5085 / schardt.james@epa.gov
- Nearshore Health and Nonpoint Source Pollution: Paul Bertram 312-353-0153 / bertram.paul@epa.gov
- Habitat and Wildlife Protection and Restoration: Karen Rodriguez 312-353-2690 / rodriguez.karen@epa.gov
- Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships:
Todd Nettesheim 312-353-9153 / nettesheim.todd@epa.gov

Technical Difficulties with Online Submittal

For questions about electronic submittal of proposals to the Website:
support@greatlakesrestoration.us or call 617-354-0074 and ask for the GLRI contact.

Other Questions

For other information, including questions about whether proposals have been received please use the online form available from: <http://epa.gov/greatlakes/fund/2010rfp01>

VIII. Other Information

EPA is using this RFP to advertise the grant opportunities available from EPA and from portions of the allocation for the U.S. Fish and Wildlife Service pursuant to the first year of the Initiative. Other funding opportunities available pursuant to the Initiative are described in an Interagency Funding Guide, available online along with other information about the Initiative, at: <http://epa.gov/greatlakes/glri>.

Funding for State and Tribal capacity for LaMPs and RAPs is being negotiated separately with States and Tribes. An additional RFP in the Spring of 2010 may include requests for proposals for additional programs described in the Interagency Funding Guide, such as atmospheric deposition and climate change. That RFP and future RFPs may include an evaluation factor focusing on the extent to which applicants propose to provide a voluntary match and/or other additional funds or resources to further support proposed projects. As described in the Interagency Funding Guide, organizations interested in funding for remediation of contaminated sediments should contact tuchman.marc@epa.gov.

GLNPO will send an e-mail announcement of these and any of its funding opportunities to all who register at <http://www.epa.gov/greatlakes/maillist>.

I. Appendix I– Detailed Program/Proposal Submission Information

I.A. Toxic Substances and Areas of Concern

I.A.1. Coordinated Implementation of Remedial Action Plan Programs and Processes.

EPA expects to provide approximately \$8.5 million for approximately 10 to 20 projects ranging in amounts up to \$2 million to advance Remedial Action Plan (RAP) implementation and development, leading to the delisting of [Beneficial Use Impairments](#) (BUIs) and of the Areas of Concern (AOCs). (Note that Habitat BUIs are addressed in the Habitat and Wildlife Protection and Restoration focus area of this RFP and proposals for TMDLs related to AOCs are addressed in the Nearshore focus area. Please refer to those sections when developing proposals for those topics. It is appropriate to cross-reference the different sections when submitting a proposal for a BUI delisting project.)

Background. Great Lakes AOCs are severely degraded geographic areas within the Great Lakes Basin. They are identified by the United States (U.S.)-Canada [Great Lakes Water Quality Agreement](#) (GLWQA) (Annex 2 of the 1987 Protocol) as “geographic areas that fail to meet the general or specific objectives of the agreement where such failure has caused, or is likely to cause, impairment of beneficial use of the area’s ability to support aquatic life.” There are 25 AOCs (not including the Oswego Area of Concern, which has been delisted) within the United States Great Lakes and there are five additional shared AOCs with Canada. EPA has worked extensively with States, Tribes, and other partners in development and implementation of RAPs for each of the AOCs. As part of RAP development, each of the 30 AOCs has identified suite of BUIs and has developed BUI delisting targets to be incorporated in the Stage 2 (or equivalent) RAP, along with the necessary actions to clean up the Area along with identification of responsible agencies/entities for carrying out the actions. Once actions have been completed, and all of BUIs have been addressed and delisted, the AOC can be delisted. This work should be captured by developing a Stage 3 RAP which outlines the progress that has been made towards the removal of the BUIs and delisting of the overall AOC. Since the AOCs have now developed their delisting targets, strong and sustainable AOC management structures can strategically implement actions to delist the BUIs to implement projects in support of delisting. Additional information about AOCs and RAPs is available from:

- <http://www.epa.gov/greatlakes/aoc/rap.html>
- <http://www.epa.gov/greatlakes/aoc/rapdelistingfinal02.PDF> (Delisting Principles and Guidelines)
- <http://www.glc.org/rap/resources/>

Projects submitted under this program may include, but are not limited to, the following:

- *Comprehensive proposals* for complete AOC delisting (ideally by 2014), including implementation actions and a detailed schedule of those actions. These proposals should include actions to delist any applicable habitat-related BUIs (Degraded Fish and Wildlife Populations, Loss of Fish and Wildlife Habitat, and Degradation of Benthos) and should include the following information, or a commitment for including this information in a negotiated workplan:
 - i. for each BUI identified as impaired:

- A. detailed descriptions of all remedial and restoration actions required to delist a BUI;
 - B. a cost estimate and schedule for each of these actions, including the identification of additional funding sources, as needed; and
 - C. a detailed description and cost estimate of post-remedial monitoring, as necessary, to satisfy delisting criteria.
 - ii. for BUIs of unknown status:
 - A. a detailed description and cost estimate of the monitoring required to definitively determine the status of a BUI; and
 - B. an outline of proposed remedial actions (as above) that would be required for BUI delisting should monitoring results indicate impairment.
- Proposals for on the ground projects which will *significantly contribute* to the delisting of an AOC, including the following:
 - i. Coordination and implementation of restoration or remedial efforts that will lead to the delisting of an existing identified BUI. Projects of this type should also include post-remedial monitoring, as necessary, to satisfy delisting criteria for an individual BUI. Projects should include measures to identify quantifiable environmental results.
 - ii. Monitoring efforts aimed at evaluating the status of BUIs which require further assessment. These efforts should be sufficient in scope to lead to a definitive change in the use impairment status, for example from “unknown” to either “impaired”, “unimpaired”, or “attributable to sources outside the AOC.”
- Proposals for the development of *post-remedial monitoring plans* for measuring the achievement of BUI delisting targets and for specific monitoring needs which cannot be supported by existing monitoring programs.

Expected Results from the projects under this program may include:

- Development and implementation of special projects, studies or designs that are needed to identify actions or projects to support activities leading to the delisting of BUIs.
- Development and implementation of restoration projects in individual AOCs which address impaired beneficial uses.
- Projects leading to restoration of one or more beneficial uses or progress towards achieving a beneficial use in an AOC.
- Collection and analysis of monitoring data allowing for an AOC re-designation into Recovery Stage; or re-evaluation of existing BUIs to determine if they are still applicable.
- Development of monitoring and supporting strategies to determine if restoration activities have achieved stated delisting targets.
- Collection and analysis of monitoring data allowing for the formal delisting of an AOC.

I.A.2. Enhanced State/Tribe Fish Consumption Advisory Support. EPA expects to provide approximately \$4 million for approximately five to ten projects ranging in amounts up to \$1.5 million in order to improve the public’s understanding of the risks and benefits of consuming

fish. These projects are expected to improve and enhance current State fish advisory programs and could include monitoring, evaluation of risks and benefits of consuming fish, and communication to the public.

Fish advisory projects which may be considered under this program include, but are not limited to, those for enhancing existing State fish advisory programs to improve monitoring, to evaluate risks and benefits of consuming fish, and to effectively communicate this information to the public. These efforts may result in more frequent and better spatial coverage of monitoring of legacy chemicals in fish in the Great Lakes Basin, new chemical protocols for evaluating fish consumption risks, and increased communication of fish consumption advisories from authorized regulatory agencies. **Any proposal from an applicant that is not a State agency must include a commitment to partnering with applicable state agencies on the proposal or that proposal will be rejected.**

Expected results from the projects under this program may include:

- Protecting fish consumers in the Great Lakes from the harmful effects of environmental chemicals,
- Lowering the concentrations of mercury and PCB levels in Great Lake residents,
- More frequent and better spatial coverage of monitoring of legacy chemicals in fish in the Great Lakes Basin,
- New chemical protocols for evaluating fish consumption risks,
- Increased communication of fish consumption advisories from authorized regulatory agencies.

I.A.3. Health Care Provider Organization Outreach. EPA expects to provide approximately \$2 million for approximately one to five projects ranging in amounts up to \$2 million in order to improve the public's understanding of the risks and benefits of consuming fish. The projects would challenge health care provider organizations to develop and implement a plan to integrate fish consumption risks and benefits into many aspects of their organization so that organization members and their patients are made aware of the fish consumption risks and benefits and are able to make good decisions. Actions could include curriculum recommendations, continuing education opportunities, board examination requirements, patient history question development, and outreach campaigns.

Surveys of Great Lakes residents suggest that the most trusted environmental health information comes from health care providers. Projects under this program could include, but are not limited to: development and implementation of a plan to educate health care providers, evaluate their knowledge and provide them tools and guidance so that they can communicate an effective fish consumption message to their patients. These efforts may result in establishment and implementation of new practices within health care provider associations or organizations regarding environmental health outreach and/or increased environmental health education to health care providers within university curriculum, residency, and continuing education credit programs.

Expected results from the projects under this program may include:

- Protecting fish consumers in the Great Lakes from the harmful effects of environmental chemicals,

- Lowering the concentrations of mercury and PCB levels in Great Lake residents,
- Establishment and implementation of new practices within health care provider associations or organizations regarding environmental health outreach,
- Increased environmental health education to health care providers within university curriculum, residency, and continuing education credit programs.

I.A.4. Great Lakes Fish Monitoring and Surveillance Program. EPA expects to provide up to approximately \$6.5 million over five years beginning September 2010 for one project for management and operation of the three components of the Great Lakes Fish Monitoring and Surveillance Program (GLFMSP): Base Program support, Emerging Chemical Surveillance, and Special Studies. The recipient of any awards would be expected to work closely with EPA, Environment Canada, the current U.S. grantee operating and managing the GLFMSP, and other U.S. grantees working on Great Lakes chemical surveillance to implement the project. The recipient should also participate in the Cooperative Science and Monitoring Initiative (CSMI); provide data, reports, and interpretation; and conduct methods development (when necessary). Activities to be conducted include program management and chemical analysis for the Base GLFMSP program, program management and chemical analysis for Emerging Chemical Surveillance, and/or program management and data analysis for Special Studies to support the GLFMSP. Novel techniques and alternative studies, using GLFMSP data, to further our understanding of chemical contaminants in fish and how they relate to the health of the Great Lakes Ecosystem are encouraged.

The expected award under this program is for one project that is made up of three different elements: Base Program support (approximately 38% of the total budget over 5 years), Emerging Chemical Surveillance (approximately 46% of the total budget over 5 years), and Special Studies (approximately 16% of the total budget over 5 years). Each component is described in more detail below. **Consistent with the evaluation criteria in Section V, proposals under this program will be evaluated primarily on the merits of the GLFMSP Base Program element, followed by Emerging Chemical Surveillance activities and Special Studies. Accordingly, proposals that do not sufficiently address the criteria identified for GLFMSP Base Program support will likely not receive a high score during the evaluation process, regardless of how the other two elements are evaluated. If funding is not available in future years, priority will be given to support of the GLFMSP Base Program. Proposals for this program must include information for each of the three elements of the GLFMSP. Comparability and continuity with the existing GLFMSP is required.**

Description of Program. The GLFMSP addresses specific chemicals identified in Annex 1 of the Great Lakes Water Quality Agreement (GLWQA) in addition to serving Annexes 11 (<http://www.epa.gov/greatlakes/glwqa/1978/annex.html#ANNEX11>) and 12 (<http://www.epa.gov/greatlakes/glwqa/1978/annex.html#ANNEX12>) and is used as a platform for conducting research and monitoring activities to assess trends in contaminant concentrations of Great Lakes fish pursuant to the GLWQA. The program supports the public purposes of the GLWQA, including making high quality data available to the public and the Great Lakes scientific community. The goals of the Base Program of the GLFMSP are to:

1. Monitor, with a specified degree of confidence, temporal trends in bioaccumulative organic chemicals in the Great Lakes using top predator fish as biomonitors.
2. Screen, with a specified degree of confidence, for new compounds of concern entering the lakes ecosystem.

3. Assess the ecological health of the Great Lakes through interpretation of chemical analysis and other food web studies.

GLFMSP Base Support or Element 1, Open Lakes Trend Monitoring Program for whole fish, is directed at monitoring contaminant trends in the open water of the Great Lakes and assisting in the evaluation of the impacts of contaminants on the fishery. The existing program provides for collection, analysis, and data interpretation of whole-fish composites of lake trout (*Salvelinus namaycush*) in the size range from 600 mm to 700 mm from Lakes Michigan, Huron, Ontario, Eastern Basin of Lake Erie, and Superior, and of walleye (*Stizostedion vitreum*) in the size range of 400 mm to 500 mm from both basins in Lake Erie. Composites of each species, consisting of five whole individual fish, are analyzed for contaminants to assess temporal trends in organic contaminants in the open waters of the Great Lakes, using fish as biomonitors (Table 1). The Base GLFMSP currently utilizes an established chemical parameter list for analysis (Table 2 below). Proposals should include the current chemical parameter list for analysis. Recommendations for changes or additions to the analyte list by a potential Principal Investigator are encouraged.

Emerging Chemical Surveillance Program or Element 1A, is directed at screening for emerging chemicals in fish tissue according to their persistent, bioaccumulative, and/or toxic chemical properties. This program has utilized samples collected for Element 1 and mega composites from each lake (representing all samples from a given lake) to determine the presence of a contaminant of interest in top predator fish, help identify and guide State and Federal monitoring programs in the development of their analyte lists and priority setting, and inform the Element 1 component of the program to allow the incorporation of contaminants of concern into the routine analyte list. Retrospective analysis may be conducted upon identification of a chemical of interest through Element 1A by accessing the GLFMSP historical archive of tissue for a retrospective analysis. The archive contains both whole-fish and sport fish fillet samples.

Special Studies for the GLFMSP are directed at properly gauging the efforts of remediation and reduction efforts in the Great Lakes. These special studies will support, enhance, and inform the GLFMSP by incorporating recommendations from a 2007 Peer Review, http://epa.gov/greatlakes/monitoring/fish/reports/peer_review_quality.pdf. Examples of the types of special studies that may be proposed include:

- Stable isotope analysis to identify changes over time in food web structure.
- Analysis of chemicals in additional species, such as forage fish. Samples will be provided by EPA.
- Comparison of individual and composite analyses. Samples will be provided by EPA.
- Analysis of chemicals in fish from additional sites. Samples will be provided by EPA.
- Gut content analysis.
- Bioaccumulation and biomagnifications studies for emerging chemicals.
- Omega 3 Fatty Acid analysis.

Additional Information to Assist with Comparability and Continuity. Applicants are encouraged to use sampling and analytical methods that are comparable to the analytical methods and sampling methods previously used by the GLFMSP (<http://www.epa.gov/greatlakes/glindicators/fishtoxics/fishc.html>) to ensure comparability and continuity in data sets; however, development and optimization of methods are also encouraged. Methods development by the Principal Investigator (PI) may be necessary as the analyte list is modified. Existing methods should be used when possible. Information about the GLFMSP,

including the GLFMSP collection and homogenization Quality Assurance Project Plan (QAPP), is available on the Internet at: <http://www.epa.gov/greatlakes/glindicators/fishtoxics/fishc.html>.

In order to maintain continuity between historical GLFMSP data and future data, a set number of samples from a predetermined set of collection locations are necessary. The annual number of GLFMSP composites to be analyzed is between 50 and 60 (Table 1), plus any necessary additional quality assurance samples, including spikes, duplicates and other typical quality assurance samples. An additional 10 to 20 samples per year may also be necessary for comparison studies between Environment Canada, or other partnering labs, for cross-comparison across the basin. Prior to the receipt or analysis of any environmental samples, the award recipient will need to demonstrate comparability with existing data sets collected under this program through the analysis of a minimum of 10 check samples. These data will be received and evaluated by the EPA Project Officer prior to analysis of actual environmental samples. At the discretion of the EPA Project Officer, the PI may need to conduct a pre-award performance evaluation through the analysis of a standard reference sample to be provided by the EPA Project Officer. Potential PIs are recommended and encouraged to provide suggestions for changes and/or improvements to the GLFMSP collections; however, continuity between the historical GLFMSP and future data is required.

Table 1. Element 1 & 1A sampling locations.					
Lake	Estimated Number of Composite Samples	Sample Type	Location and Grid Number	Year	Size
Superior	10 + 1 mega lake composite per site	Lake Trout	Apostle Islands #1311	Even	600 – 700 mm
			Keewenaw Pt. #4028	Odd	600 – 700 mm
Michigan	10 + 1 mega lake composite per site	Lake Trout	Saugatuck #2210	Even	600 – 700 mm
			Sturgeon Bay #0906	Odd	600 – 700 mm
Huron	10 + 1 mega lake composite per site	Lake Trout	Rockport # 0710	Even	600 – 700 mm
			Port Austin #141	Odd	600 – 700 mm
Erie	10 + 1 mega lake composite per site	Walleye	Middle Bass Island #0904	Even	400 – 500 mm
			Dunkirk # 0424	Odd	400 – 500 mm
		Lake Trout	Dunkirk # 0424	Odd	600 – 700 mm
Ontario	10 + 1 mega lake composite per site	Lake Trout	Oswego #0623	Even	600 – 700 mm
			North Hamlin # 0713	Odd	600 – 700 mm

Table 2. List of organic chemicals to be analyzed in fish for Base and Extended Programs and estimated Method Detection Limit (MDL) expressed as ng/g wet fish tissue. Those analytes listed in bold and marked with an asterisk(*) are to be included in Element 1A of the GLFMSP.

Analyte	MDL, ng/g	Analyte	MDL, ng/g
PCB congeners	0.002 – 1.0	pp,-DDT	0.66
PCB co-planars	0.002 – 1.0	pp,-DDE	0.74
Total PCB	0.002 – 1.0	pp,-DDD	0.52
Hexachlorobenzene	1	Total DDT	.66 - .74
Octachlorostyrene	0.83	Endrin	2.86
δ-BHC (Lindane)	0.606	Mirex	1.52
α-BHC	4.7	Toxaphene & homologs	24.6
Dieldrin	0.44	PBDEs	0.001 – .10
Heptachlor epoxide b	0.52	Hg	0.521
Cis-chlordane	1.814	Fraction lipid	5%
Trans-chlordane	0.488	Percent Moisture	
Cis-nonachlor	1.95	PCDD/Fs	0.3 - 25
Trans-nonachlor	1.48	PBB-153	0.1 - .2
Oxychlordane	1.94	PFOS	0.5
Total Chlordane		*PCNs	0.2 – 6.0
*Muir /Howard priority chem. http://www.epa.gov/greatlakes/p2.html under “Latest News” Recommended chemicals for analysis from State / Tribal Fish Consumption Advisory		*Dacthal Chemicals of Interest to PI	1

*A scan and/or other detailed analytical investigations for specified list of additional analytes, such as perfluorinated compounds, musk fragrances, APEs, pharmaceuticals and other personal care products (pseudo-persistence), other flame retardants, etc., will be necessary each year in support of Element 1A. Potential Principal Investigators are encouraged to recommend additional or alternative analytes for emerging chemical surveillance and/or in support of Great Lakes Restoration Initiative priorities.

Expected results from the project under this program may include:

- Improved understanding of the fate, cycling, and bioaccumulation of priority toxic chemicals and chemicals of emerging concern in the Great Lakes;
- Determine, with a specified degree of confidence, the spatial and temporal trends of priority toxic chemicals and chemicals of emerging concern in Great Lakes fish;
- Development of analytical methods when needed;
- One or more scientific peer reviewed journal publications.

- Assessment of the risks of contaminants on the health of the Great Lakes fishery and on fish-consuming wildlife.
- Increased understanding of contaminant trends in Great Lakes fish and of the effect of contaminants on the health of the Great Lakes Ecosystem.
- Efficient program operation and management by the Principal Investigator, including sample analysis, data management, data interpretation, analytical methods development and optimization, analytical inter-comparison studies to satisfy the binational cooperative monitoring program, and submission of analytical data in the required reporting format; publication of data produced through the GLFMSP in peer reviewed journals and at scientific meetings in order to continue the availability of high quality data to the public and the Great Lakes scientific community; and frequent and effective communication between the PI and the EPA Project Officer to resolve problems, discuss status of analysis and results, etc.
- Electronic data submissions, annual data summary and interpretative reports, and annual Quality Assurance reports. Total PCB analysis data are preferred within 10 months of the receipt of homogenized samples in the laboratory while the remaining chemical analysis data (Table 2) are preferred within 1 year of the receipt of homogenized samples in the laboratory. Further details regarding this Reporting Standard are available at <http://www.epa.gov/greatlakes/glenda>.
- Recommendations on additional chemicals for analysis.
- Cooperative work with EPA in conducting statistical analyses and in completing a final trend report which includes (i) the above data, as well as data generated in prior years of this program (these data will be supplied by EPA) and (ii) recommendations for the future design of the program, including statistical power.
- Data from the GLFMSP which is uploaded into GLENDa and subsequently made available to the public and incorporated in venues such as SOLEC, the Binational Toxic Strategy, and the Internet.
- Participation in the Cooperative Science and Monitoring Initiative (See Section I.E.7), including proposals for research ideas.

I.A.5. Integrated Atmospheric Deposition Network (IADN). EPA expects to provide approximately \$2 million over five years for approximately one to four projects ranging in amounts up to \$2 million in order to supplement IADN in response to recommendations from the 2008 IADN Peer Review

(http://www.epa.gov/greatlakes/monitoring/air2/iadn/IADN_Tech_Rpt_Final_2008.pdf). EPA anticipates that there may be higher expenses in the first year associated with sampling and analytical equipment needed to measure mercury and perfluorinated compounds in air and precipitation. Recipients of any awards are expected to work closely with the IADN Steering Committee, other U.S. grantees working on chemical surveillance, and the Cooperative Science and Monitoring Initiative (CSMI) Steering Committee (see Appendix I Section I.E.7 for more information on CSMI). In their proposals, applicants should discuss how their work will further the development of the body of knowledge related to atmospheric deposition of persistent bioaccumulative toxics (PBTs) to the Great Lakes. This may include secondary use of data to further study sources, fate, and transport of PBTs to the Great Lakes region, scientific journal publications, and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research.

Projects submitted under this program may include, but are not limited to:

- Develop innovative monitoring strategies that can be employed at different locations across each of the Great Lakes as part of CSMI to identify new potential source regions of PBTs, better assess the impacts of urban areas on lake-wide deposition of PBTs, and better measure the progress of our restoration efforts.
- Incorporate passive monitoring samplers and/or other passive sampling approaches to better assess the spatial variability of atmospheric concentrations.
- Incorporate mercury monitoring at IADN (or similar Great Lakes monitoring) stations through the National Atmospheric Deposition Network's Atmospheric Mercury Initiative (<http://nadp.sws.uiuc.edu/amn>). Data on mercury deposition in the Great Lakes region (particularly reactive gaseous and particulate mercury which is usually the result of local and regional emissions) is needed to track the environmental progress of any mercury emission reduction efforts.
- Incorporate the monitoring of perfluorinated compounds at IADN stations on a routine or screening basis using appropriate sampling equipment and analytical methods.

More detailed information on IADN including sampling locations and equipment can be found on the Internet at:

<http://epa.gov/greatlakes/monitoring/air2/index.html>, and
http://www.smc-msc.ec.gc.ca/iadn/index_e.html

Expected results for the projects under this program may include:

- Improved understanding of the atmospheric fate and cycling of priority toxic chemicals in the Great Lakes region
- Improved understanding of the sources and loadings of chemicals of emerging concern entering the Great Lakes
- Better decisions by environmental managers in development and implementation of strategies to reduce the presence of priority toxic chemicals and chemicals of emerging concern in Great Lakes air, water, sediment, fish, and other wildlife.
- Quality-assured air and precipitation concentrations measurements for mercury and/or perfluorinated compounds at IADN (or similar Great Lakes air monitoring) stations.
- Determination, with a specified degree of confidence, of the atmospheric loadings and trends (both spatial and temporal) of mercury and/or perfluorinated compounds to the Great Lakes and its basin;
- One or more scientific peer reviewed journal publications.

I.A.6. Great Lakes Sediment Core Surveillance Program. EPA expects to provide approximately \$2 million over five years for approximately one to three projects ranging in amounts up to \$2 million to implement a Great Lakes Sediment Core Surveillance program. The program will include open-lake based collection of sediment cores in deep depositional zones in all 5 Lakes; age-dating of cores, and analyses for chemicals of emerging chemicals. Recipients of any awards under this program are expected to work closely with EPA, Environment Canada, other U.S. grantees working on chemical surveillance, and the Cooperative Science and Monitoring Initiative (CSMI) Steering Committee (see Appendix I Section I.E.6 for more information on CSMI). In their proposals, applicants should discuss how their work will further the development of the body of knowledge related to PBTs in the Great Lakes. This may include secondary use of data to further study sources, fate, and transport of PBTs to the Great Lakes

region, scientific journal publications, and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research.

Expected results from the projects under this program may include:

- Collection and archival of sediment cores in all 5 Great Lakes and reference lakes where applicable (e.g. Lake Siskiwit),
- Age-dating of sediment cores using appropriate scientific methods,
- Analysis of the core samples for chemicals of emerging concern (The chemicals of interest should be based off the priority chemical screening done for the Great Lakes Binational Toxics Strategy (GLBTS). More detailed information can be found online at: http://www.epa.gov/greatlakes/p2/PBT_progress.pdf),
- Data to inform Great Lakes decision makers on the presence and recent trends of chemicals of emerging concern in the Great Lakes,
- Development of analytical methods when needed.

I.A.7. Screen for Chemicals of Emerging Concern. EPA expects to provide approximately \$100,000 for approximately one to two projects ranging in amounts up to \$100,000 to identify potential toxic substances which may pose a threat to the Great Lakes basin. New chemical screening will be included in Great Lakes surveillance in support of Annex 12 of the Great Lakes Water Quality Agreement, which directs the U.S. and Canada to anticipate future environmental contaminants and to set priorities for environmental research, monitoring, and regulatory action. To address Annex 12, and in cooperation with other voluntary and regulatory domestic chemical management programs, EPA is supporting the development of a robust surveillance program to identify potential toxic substances which may pose a threat to the Great Lakes basin. Examples of the types of screening projects that may be performed under this program include, but are not limited to identification and prioritization of chemicals in commerce that may be of interest to Great Lakes monitoring programs (fish, air, avian eggs, sediment, etc.)

Expected results from the projects under this program may include:

- The development of potentially persistent, bioaccumulative, and/or pseudo-persistent substance “priorities” through a systematic evaluation of physical/chemical properties, production rates, and production locations, for Great Lakes chemical surveillance, to inform an early warning system for new chemical toxicant threats, pursuant to Annex 12 of the Great Lakes Water Quality Agreement,
- The development of standards and analytical methods for priority substances identified for surveillance in the Great Lakes, as necessary.

I.A.8. Assess Ecological Exposure and Effects. EPA expects to provide approximately \$500,000 for approximately one to three projects ranging in amounts up to \$500,000 for an Assessment of Ecological Exposure and Effects in Great Lakes fish and their potential impact on population dynamics. For many new chemicals (and even for some of the more well know new chemicals), the current approach (based on guidelines developed in 1985) for assessing potential impact on aquatic life and deriving ambient water quality criteria may not be appropriate because the current approach only focuses on acute and chronic risks. Many chemicals of emerging concern may have more subtle (chronic sub-lethal) effects on individual fish, but more profound effects on entire fish populations. These effects may include altering the normal functions of hormones that may lead to reproductive effects in aquatic organisms. To address this emerging

issue, EPA developed a white paper “Aquatic Life Criteria for Contaminants of Emerging Concern: General Challenges and Recommendations”

(<http://www.epa.gov/waterscience/criteria/aqlife/cec.html>) detailing the technical issues and recommendations to serve as a basis for modifying the 1985 guidelines. Proposed projects under this program should consider the methods and procedures identified in the recent EPA white paper and should collaborate, as appropriate, with EPA, NOAA, USGS, and FWS. Projects submitted under this program may include, but are not limited to:

- Assessment of ecological exposure and effects related to chemicals that are generally more persistent and/or bioaccumulative and/or pseudo-persistent. EPA (and grantees) and Environment Canada are beginning to identify chemicals of emerging concern in Great Lakes samples (fish, gull eggs, sediment, air, etc). Many of these chemicals were targeted for surveillance in the Great Lakes because of their persistent, bioaccumulative, and/or toxic properties. For those chemicals that have been identified as higher priorities (either through screening or measurements in the environment), a project could begin assessing the potential risks on individual species, communities, and populations.
- Identification of new, possible persistent bioaccumulative and toxic substances important in the Great Lakes region by screening of chemicals in commerce (<http://www.epa.gov/greatlakes/p2/PBTReport.pdf>). Specifically, EPA is requesting proposals that would identify an evaluation framework to try to prioritize these compounds based on potential risks. EPA is also requesting proposals that may involve laboratory and/or field experiments to screen for potential exposure and effects.
- Assessment of ecological exposure and effects related to biological endpoints in conjunction with chemical measurements. This approach addresses the broad mixtures of chemicals in the Great Lakes and probably best handles chemicals that are not as persistent or bioaccumulative but may be considered pseudo-persistent (including pharmaceuticals and personal care products). Such a project should combine field and laboratory studies in a pilot project in the Great Lakes basin to assess the ecological exposure and effects in Great Lakes fish as a result of exposure to chemicals of emerging concern and the impact on population dynamics. The components of such a study may include the following:
 - Examining fish and/or other aquatic organisms in nearshore areas for histology, vitellogenin, and other relevant biomarkers and chemical concentrations of suspected endocrine disruptors.
 - Measure chemical concentrations of suspected endocrine disruptors in nearshore waters and related effluent and/or tributary.
 - Perform laboratory experiments as appropriate to document links found in the field.
- Develop and/or apply *in vivo* or *in vitro* toxicity testing methods to field samples in either laboratory or field settings to improve effects data.
- Develop *in vivo* and/or *in vitro* methods and predictive models to assess specific modes of toxicity associated with chemicals of emerging concern in the Great Lakes.

Expected results from the projects under this program may include:

- A better understanding of ecological exposure and effects related to chemicals that are generally more persistent and/or bioaccumulative and/or pseudo-persistent,
- A better understanding of ecological exposure and effects related to biological endpoints in conjunction with chemical measurements,
- A better understanding with respect to where the largest data gaps exist overall in understanding the linkage between chemical effects and biological adversity in the Great Lakes,
- Development of *in vivo* or *in vitro* toxicity testing methods to field samples in either laboratory or field settings to improve effects data,
- Development of *in vivo* and/or *in vitro* methods and predictive models to assess specific modes of toxicity associated with chemicals of emerging concern in the Great Lakes,
- Optimization of existing and development of new analytical methods to assess biomolecular endpoints of exposure and effects using genomic/proteomic approaches (e.g., vitellogenin induction in male fish as indicator of estrogen exposure).

I.A.9. Pollution Prevention and Toxics Reduction in the Great Lakes. EPA expects to provide approximately \$6.5 million for approximately 20 to 35 projects ranging in amounts up to \$1 million for pollution prevention and toxics reduction activities. Projects should address ways to ensure that fewer toxics contaminants enter the Great Lakes Ecosystem, provide sustainable ongoing collection programs throughout the Great Lakes basin, and improved knowledge and practices of Great Lakes citizens regarding environmentally safe recycling of various waste categories. Projects submitted under this program may include, but are not limited to:

- Implement projects/actions delivering toxic reductions/pollution prevention for substances targeted by the Great Lakes Binational Toxics Strategy. Applicants should include a link or name the applicable contaminants.
- Train and mobilize citizens and communities to collect hazardous waste, minimize use of products containing hazardous materials, and develop and hold sustainable hazardous waste collection programs including, but not limited to, unwanted electronics, unwanted and expired medicines (both prescription and over the counter medicines), unused pesticides, PCBs, and mercury containing devices, from within the Great Lakes basin. These efforts may result in sustainable ongoing collection programs throughout the Great Lakes basin.
- Reduce the use of mercury in products and better manage mercury product wastes. During the evaluation process described in Section V of the RFP, the degree to which the project helps states, tribes, and local governments implement the recommendations of the Great Lakes Regional Collaboration's Mercury in Product Phase-down Strategy (<http://glrc.us/documents/MercuryPhaseDownStrategy06-19-2008.pdf>) will be considered under the evaluation criteria for "Strategic Approach."
- Promote and implement sustainable green practices at the household and community level to reduce inputs of pesticides and other potentially toxic substances into the Great Lakes (e.g., low maintenance and natural lawn care, household integrated pest management, etc.).
- Promote the adoption of sustainable agricultural practices to reduce loadings of pesticides and nutrients into the Great Lakes Basin.

- Develop/foster adoption of green chemistry/green engineering practices. Reduce or eliminate the use or generation of toxic substances including feedstocks, reagents, solvents, products and by-products during design, manufacture and use of chemical products and processes.
- Foster adoption of innovative products that would reduce the use and release of toxic substances and that are consistent with the principles of EPA's *Environmentally-Preferable Purchasing Program* (see <http://www.epa.gov/opptintr/epp>).
- Develop treatment and control technologies, including innovative sediment treatment technologies, to reduce the release of toxic substances into the Great Lakes basin (e.g., mercury releases from taconite mining operations, contaminants of emerging concern in waste water effluents).

Expected results from the projects under this program may include:

- Fewer toxics contaminants entering the Great Lakes Ecosystem,
- Sustainable ongoing collection programs throughout the Great Lakes basin,
- Improved knowledge and practices of Great Lakes citizens regarding environmentally safe reuse and recycling of various waste categories above,
- Information to help target chemicals that may stress the Great Lakes Basin for pollution prevention and reduction, including improved toxic substances source and emissions inventories,
- Removal/reductions of toxic substances from the Great Lakes Basin (quantifiable),
- Source characterization: Assessment of potential sources of persistent toxic substances which are believed to affect the Great Lakes, though not necessarily located in the Great Lakes basin,
- Indicators of progress toward the prevention of the discharge of toxic substances in toxic amounts and the virtual elimination of persistent toxic substances.

I.A.10 Toxicant TMDL Development in the Great Lakes Basin. EPA expects to provide up to approximately \$1 million for 8 to 12 projects ranging in amounts up to \$200,000 to directly assist and accelerate the development of total maximum daily loads (TMDLs) for toxicants in impaired waters [CWA 303(d) listed waterbodies] of the Great Lakes Basin. Proposals should address toxicants including, but not limited to, PCBs, mercury, dioxin, and pesticides. The end product should include a completed watershed pollutant reduction strategy and/or a TMDL study addressing one or more toxicants. If studies are developed by an entity other than the state agency, the proposal should provide for transmittal to the state for final submittal to EPA.

The end product can include an assessment of previously collected monitoring information that is acceptable to the state TMDL program and EPA. The end product should include all of the following TMDL-related components, at a minimum:

- Identification of Waterbodies, Pollutants of Concern, Pollutant Sources, and Priority Ranking
- Description of the Applicable Water Quality Standards and Numeric Water Quality Targets
- Loading Capacity - Linking Water Quality and Pollutant Sources
- Load Allocations (LAs)
- Wasteload Allocations (WLAs)
- Margin of Safety (MOS)

- Seasonal Variation
- Reasonable Assurances
- Monitoring Plan to Track TMDL Effectiveness
- Implementation Plan (optional). TMDL implementation plans are not required and EPA's final decision on the TMDLs will not be based on this information.

See <http://www.epa.gov/owow/tmdl/guidance/final52002.pdf> for additional guidance regarding these components.

Under the Criterion for Technical/Scientific Merit in Section V of the RFP, the following types of proposals may be ranked higher than others under this program:

- **Proposals reviewed and supported by state TMDL programs;**
- **Proposals that include existing relevant data collected for development of a TMDL study where the state supports using this data for the development of a TMDL;**
- **Proposals that include implementation plans, consistent with nonpoint source nine-element watershed plan guidelines;**
- **Proposals that consider the potential effects of climate change;**
- **Proposals that identify modeling approaches to be used; and**
- **Proposals that include an evaluation framework (i.e., social, administrative, and environmental indicators).**

Expected results from the projects under this program may include:

- Definition of the extent of toxicant contamination in impaired Great Lakes subwatersheds,
- Identification of potential sources of mercury and/or PCB pollution in impaired Great Lakes subwatersheds,
- Demonstrated applications of improved TMDL development methods that establish new or innovative targets and provide for improved and accelerated TMDL implementation. (For example, for TMDLs addressing stormwater-related impairments, pilot the use of new and innovative targets based on stormwater volume, percent impervious cover in the upstream watershed, the concentration of bacteria, or other targets that provide more appropriate and effective BMP implementation.),
- New tools or methods for TMDL development by using modern techniques (such as satellite imaging, GIS technology, automated data analysis, or other innovations) that would accelerate the production of maximum loading capacity calculations,
- New tools and arrangements to foster regional coordination of TMDL development when more than one state has an interest in a waterbody,
- Development of TMDLs addressing impaired Great Lakes watersheds, including pollutant loading capacities which help guide pollutant reduction efforts needed to bring impaired waterbodies into compliance with standards,
- Completed TMDL implementation plans for impaired waterbodies addressed by final TMDLs. Plans will describe the critical areas within the watershed in need of restoration, and provide the most cost-effective strategies to implement the controls identified in the TMDL to restore the polluted watersheds,
- A more advanced state of knowledge relating to the development of toxicant TMDLs in the Great Lakes Basin,
- Improved capacity of state and third-party TMDL development programs,

- Better coordination among state programs and third-party TMDL developers,
- Widespread adoption of the demonstrated toxicant TMDL methodologies in the Great Lakes, improved program development capacity, documented reductions in pollutant loadings to impaired waters,
- Reduced number of toxicant-impaired waterbodies and increased number of waters with demonstrated water quality improvement trends or attaining water quality standards.

I.B. Invasive Species

I.B.1. Great Lakes Ballast Water Technology Grant Program. Under the Great Lakes Ballast Water Technology Grant Program, EPA and FWS, in cooperation with USCG, DOT/MARAD, and NOAA, expects to provide approximately \$2.8 million (approximately \$2 million through FWS and \$800,000 through EPA) for approximately four to twelve projects ranging in amounts up to \$1 million for the development and verification of ballast water technology that is protective of freshwater ecosystems.

The Great Lakes Ballast Water Technology Program is intended to promote the development of technology that is protective of freshwater ecosystems, with a particular focus on verifying the effectiveness of treatment technology in a freshwater environment, developing tools that will help monitor the effectiveness of systems in real-time, bringing extensively-tested technologies up to full-scale shipboard demonstration, and pushing efficacy of systems toward the virtual elimination of living organisms from discharges. The goal is to encourage the development of systems which are able to reduce the concentration of living organisms to as close to zero as technologically feasible.

Expected results from the projects under this program may include:

- The development of treatment technologies that demonstrate high-performance, minimal or no residuals, environmental compliance with National Environmental Policy Act (NEPA) and water discharge requirements, and are effective in a range of salinities, including freshwater,
- Land-based verification of systems using high-confidence testing procedures, including application of the most current protocols, use of real-world volumes of water, and approaches that actively seek the lowest concentrations of organisms and detection limits possible,
- Development of verification systems that provide quantification of the durability and effectiveness of shipboard treatment systems,
- Full-scale, ship-based projects demonstrating the effectiveness and durability of systems during normal operations. Applicants pursuing shipboard testing are also encouraged to join the USCG STEP program.

I.B.2. Invasive Species Prevention and Control Grant Program. Under the Invasive Species Prevention and Control Grant Program, EPA and FWS expect to provide approximately \$8.8 million (approximately \$4.5 million through FWS and \$4.3 million through EPA) for approximately 10 to 30 projects ranging in amounts up to \$1 million that will prevent new introductions of invasive species into the Great Lakes basin, as well as projects that will eradicate and control invasive species already present. Invasive species will be addressed through one or more of the following activities: implementing on-the-ground control projects, development of new control technologies, reducing spread via canals and waterways, addressing live organisms in commerce, and/or promoting safe recreation and resource use.

The Invasive Species Prevention and Control Grant Program will support the development of a strategic approach to prevention and control activities in the Great Lakes Ecosystem through on-the-ground projects. Proposals should provide a strategic approach that coordinates landscape-level actions, uses a multi-organizational approach to implementation, works with relevant

governmental agencies, demonstrates measurable progress, includes public stewardship opportunities, and helps establish efforts that will continue beyond the project period.

Expected results from the projects under this program may include:

- Prevention of new introductions of invasive species by addressing invasion vectors/pathways (Actions can include, but are not limited to: addressing live organisms in commerce, ecologically separating canals/waterways through barriers or other approaches, performing rapid response exercises, and promoting practices by recreational and resource users that reduce the risk of spreading invasive species),
- Development, refinement, or demonstration of technology that prevents the introduction and/or reduces the spread of invasive species in an effective, efficient, and environmentally sound manner,
- Control and reduction of invasive species populations within the Great lakes ecosystem consistent with existing fish, wildlife, and other ecosystem plans/strategies.

I.B.3. Threat, Distribution, and Early Detection of Invasive Species Grant Program. Under the Threat, Distribution, and Early Detection of Invasive Species Program, EPA expects to provide approximately \$500,000 for approximately one to three projects ranging in amounts up to \$500,000 to expand on initial work done by EPA-ORD's Invasive Species Initiative, including work done in Duluth Harbor by EPA-ORD and FWS, to design and pilot a collaborative and cost-effective systematic threat and effects assessment and early detection monitoring network. These pilot projects will provide a basis for prioritizing actions, as well as provide a basis for continuous calibration and enhancement of threat assessment models for potential invasive species. This effort may also inform the development of invasive species surveillance programs.

A model for an early detection monitoring design/program is being developed using the Duluth-Superior Harbor (DSH) as an initial case study of a highly vulnerable embayment/river system. This program will fund additional complimentary studies at locations elsewhere in the Great Lakes that will, along with DSH results, lead to a general surveillance and early detection approach that can be implemented, with statistical confidence, basin-wide.

Expected results from the projects under this program may include:

- Development of a sampling effort in 2010 in an embayment/coastal ecosystem along the U.S. Great Lakes shore that provides an additional case study/informational basis for contrasting, testing, or validating with results and models from DSH sampling, as well as a subsequent taxonomic analysis of the collected benthic invertebrates, plankton, pathogens, adult fish (or larvae), aquatic vegetation, or some combination of these biological components,
- An exploration of an "oversampling" strategy that will provide an adequate information base for a variety of analytical and modeling exercises that assist in development of optimal and efficient general design strategies (A provisional definition of "oversampling" is a level of sampling that captures and identifies roughly ~90% or more of all taxa present in the chosen biological component of the system sampled. The sampling could be done on a random sampling, stratified random sampling, or other basis including a targeted/representative habitat design.),
- An assessment of the effect of sampling gear on final outcomes (More than one type of gear/sampling equipment could be considered if the design will allow a basis for evaluating the role of different gear in spatial/effort optimization analyses.),

- A collaboration on analyses that attempt to use the data for optimizing sampling and detection of rare invasive species present at low abundance levels,
- Use or development of genetic techniques for identifying taxa from complex mixtures is encouraged. This may supplement or replace traditional morphological taxonomy in the project.

I.B.4. Forecasting and Synthesis of Ecosystem Effects of Invasive Species Grant Program.

Under the Forecasting and Synthesis of Ecosystem Effects of Invasive Species Program, EPA expects to provide approximately \$300,000 for one to three projects ranging in amounts up to \$300,000 that advance quantitative understanding and application of threat and effects forecasting, ecosystem services methods, and risk assessment/risk management methods. Information from these projects will help inform efforts to identify high-risk sites, species of concern, ecological effects, and restoration opportunities, with anticipated input to prevention, control, and rapid response components. Potential threat and ecosystem effects forecasting will be applied to identify the gravest species of concern and their impacts on ecosystem service endpoints and socio-economic factors. These factors will be linked within a risk assessment/risk management approach to aid in management decisions regarding target sites, species, prevention, response and control, and restoration. This effort may also inform the development of invasive species surveillance programs.

Expected results from the projects under this program may include:

- Development of potential invasive species “watch lists” building on past efforts, world-wide invasion histories, hydro-geological tolerances/preferences, Great Lake physical-chemical attributes, and potential threat forecasting,
- Forecasting ecosystem effects of known and potential invaders (species or classes/groups) on the Great Lakes proper with respect to: lower food chain primary production, zooplankton production, and benthic invertebrates/species; and/or forage and predator fish production and species composition,
- Advancement and evaluation of invasive species impacts on ecosystem endpoints and ecosystem services, including financial valuation within the multi-trillion dollar economy of the Great Lakes, relative to other supporting, regulating, provisioning, and cultural ecosystem services,
- Application and advancement of a risk assessment/risk management paradigm for informing environmental management decisions based upon the EPA Ecological Risk Assessment Framework, with novel adjustments and additions.

I.C. Nearshore Health and Nonpoint Source Pollution

I.C.1. Beach Forecasting Models. EPA expects to provide approximately \$800,000 for approximately 3 to 15 projects ranging in amounts up to \$250,000 to improve and refine existing predictive models, and to develop models for additional beaches, to estimate near real-time recreational water quality in order to enable beach managers to advise the public when beach water may not be suitable for swimming.

Under this program, EPA is requesting proposals for the development of new predictive models, or the improvement and refinement of existing forecast, nowcast, or predictive models, to estimate Great Lakes beach water quality. Projects under this program may include, but are not limited to:

- Investigate new parameters to increase accuracy of forecast, nowcast, or predictive models.
- Investigate the use of alternate indicators or pathogens as endpoints in the models.
- Install and operate equipment to provide more accurate data and/or provide data in a near real-time format for model input.
- Pilot test models at multiple beach locations ranging from closed and open beaches with point and nonpoint sources to tributary-dominated beaches and urban or rural beaches.
- Implement the use of forecast, nowcast, or predictive models for beach closure or advisory decisions by use of signage, a Web-based system, a telephone information line, and/or dissemination of fact sheets.
- Improve tools for building empirical models including multiple linear regression, neural networks, and Classification and Regression Tree (CART) approaches.
- Apply deterministic, process-based models to predict indicator concentrations at Great Lakes beaches.
- Link watershed models (e.g., L-THIA, HSPF, SWAT, KINEROS, PCB, SPARROW), GIS, data download and analysis tools (e.g., D4EM), sanitary surveys, microbial risk assessment models, and beach empirical models to predict impacts of nonpoint sources on beach water quality.
- Investigate techniques for rapidly acquiring and inputting monitoring data into forecast, nowcast or predictive models.
- Conduct training and communication to familiarize beach managers with modeling techniques.
- Investigate Quantitative Microbial Risk Assessment (QMRA) approaches to support nowcasting and forecasting at Great Lakes beaches.

Expected results from the projects under this program may include:

- Development of new forecast, nowcast, or predictive models to estimate beach water quality, Improved predictive power of existing models,
- Refinement of existing models to better estimate recreational water quality,
- Development of a system for implementing the use of models at local beaches,
- Development of tools for building beach water quality prediction models,
- Linkage of hydrometeorology processes to water quality predictions,
- Advancement of forecast predictions of beach water quality,
- Improvement of beach managers' familiarization with forecast, nowcast, or predictive models,

- Contribute to broader applicability of forecast, nowcast, or predictive models to multiple source and beach types,
- More timely and meaningful water quality results,
- Improved public health protection and understanding of the use of forecast, nowcast, or predictive models,
- Increased knowledge of biogeochemical-hydrometeorological variables that affect beach water quality, increasing ability to forecast beach water quality and develop an effective beach management plan,
- More consistent, reliable, and cost-effective predictions,
- A better informed public on water quality issues at beaches and the use of forecast, nowcast, or predictive models.

I.C.2. Beach Sanitary Surveys. EPA expects to provide approximately \$12 million for approximately 25 to 50 projects ranging in amounts from \$20,000 to \$250,000, to identify sources of contamination at Great Lakes beaches and implement actions to reduce or remove the contamination.

Under this program, EPA is requesting proposals for the identification of sources of pollution at Great Lakes beaches, and to begin actions to reduce or eliminate the contamination. EPA especially encourages projects to be performed in the 30 U.S./Binational Areas of Concern such that any project will assist in delisting Beach Closing/Recreational Contact Beneficial Use Impairments.

Projects should be designed to reduce risk to human health at swimming beaches by identifying sources of pollution at beaches and taking measures to reduce or eliminate the contamination to reduce the number of pathogen indicator organisms to levels below established criteria. Projects submitted under this program may include, but are not limited to:

- Identification of potential pollution sources at Great Lakes beaches through use of beach sanitary surveys. Forms and guidance are available at www.epa.gov/waterscience/beaches/sanitarysurvey.
- Development and implementation of projects to reduce, manage, or eliminate contamination at Great Lakes beaches identified through the use of sanitary surveys.
- Investigation of upstream sources of pollution potentially affecting Great Lakes beaches.
- Installation of stormwater infiltration systems near Great Lakes beach areas with consistent problems.
- Assessments of sewer and storm sewer infrastructure.
- Implementation of green stormwater infrastructure approaches that can reduce, capture, and treat stormwater runoff at its source.
- Reduction or removal of impervious surfaces near beach areas.
- Re-grading of beach area and/or adjacent parking lot.
- Diversion/filtration of stormwater runoff at beach areas through installation of swales or rain gardens.
- Implementation of waterfowl management measures to prevent landing/congregation at beaches.
- Assessment of septic system function on a town or county level and prioritization for remediation.

Expected results from the projects under this program may include:

- Completion of sanitary surveys to identify potential sources of beach water contamination.
- Reduction in number of beach closures or advisories issued,
- Documentation of remediation measures taken and outcomes achieved which can be applied at other beaches,
- Development of other water quality management tools with the data collected, such as forecast models, at project beaches,
- Decrease in nuisance algal blooms and ambient water concentrations of nitrogen and phosphorus in coastal areas,
- Reduction of pollution sources impacting Great Lakes beaches,
- Improved water quality at Great Lakes beaches due to reduction in pathogen indicator organisms, algal, and chemical contamination,
- Improved protection of public health at Great Lakes beaches,
- Implementation of a holistic watershed approach to beach management, supporting a more efficiently directed beach program,
- Increased coordination and collaboration among water and health departments,
- Increased knowledge of sources of pollution impacting Great Lakes beaches for better beach management decisions.

I.C.3. Communicating Beach Monitoring to Public. EPA expects to provide approximately \$500,000 for approximately 5 to 20 projects ranging in amounts from \$25,000 to \$100,000 to improve the communication of beach health information to the public.

Under this program, EPA is requesting proposals for the communication of Great Lakes beach health information to the public. Projects should be designed to improve communication to assure beach health information is widely available to the public. Project examples include, but are not limited to:

- Establish consortium of communication professionals, scientists and local government officials to facilitate accurate, consistent, and efficient delivery of beach water quality information.
- Develop Internet-based mechanism for informing the public and the media on beach health issues.
- Develop a system for beach managers to be notified of sanitary sewer overflow (SSO) and combined sewer overflow (CSO) events which affect the Great Lakes.
- Develop a Web-based toolbox of remedial measures, funding sources, and case studies to help beach managers achieve healthy beaches.
- Conduct seminars or workshops to disseminate beach health information and training on emerging technologies and best management practices.

Expected results from the projects under this program may include:

- Development of Web-based beach health communication sites/mechanisms and/or SSO/CSO notification systems,
- Development of press packages to ensure delivery of consistent messages,
- Prompt provision to the public of beach health and/or water quality information in an easily understood format (e.g., via TV or radio weather forecaster),
- Increased signage to prohibit practices that attract nuisance wildlife,

- Increased collaboration among different groups involved in water quality, beach management, and public health,
- Collaboration with local bureaus of tourism to make available information specific to beach users,
- The public is more knowledgeable about beach water quality and the potential health effects caused by CSOs and SSOs,
- Increased public communication and outreach regarding beach health and pollution source locations in the Great Lakes, through brochures, signage, Websites, and listservs,
- Enforceable city ordinances in place which ban the use of fertilizers with phosphorus and prohibit practices that attract nuisance wildlife.

I.C.4. Improving Beach Monitoring for Bacteria. EPA expects to provide approximately \$900,000 for approximately 4 to 8 projects ranging in amounts from \$10,000 to \$225,000 to implement the use of currently available methods to improve the effectiveness of monitoring fecal indicator bacteria at Great Lakes beaches.

Under this program EPA is requesting proposals for implementing currently available rapid methods to improve water quality monitoring of fecal indicators (for example, but not limited to, *Bacteroidales*, *Enterococcus*, *E. coli* and *Clostridium*) conducted at Great Lakes beaches. Currently available rapid methods are defined as published methods for analysis of fecal indicators in surface water that require no more than four hours from sample delivery to results, and for which supporting instrumentation and reagents are readily available. Such methods include, but are not limited to, quantitative polymerase chain reaction (qPCR) and immunomagnetic separation/adenosine triphosphate (IMS/ATP) with preference to methods for which associated human health effects data are available. The focus for projects should be on methods that can provide results within four hours so that results can be made available to the public in a reasonable timeframe. Any testing of rapid methods or modifications that are needed for implementation can be included in the funding request. Funds may be used to purchase equipment for the rapid method.

Projects should be designed to allow Great Lakes beach managers to measure indicators of fecal pollution and make more timely decisions. Projects under this program include, but are not limited to:

- Determine local and/or regional laboratory capacity to implement rapid methods and/or facilitate this capacity through the development of a training program for laboratory and field personnel to perform the methods.
- Build local/regional lab capacity to implement rapid methods.
- Pilot test rapid methods at Great Lakes beaches.
- Modify and test rapid methods to enable beach managers to make timely detection and timely decisions of recreational water quality assessments.
- Characterize the relationship between rapid methods and traditional culture methods for modeling, compliance monitoring and assessment purposes.
- Evaluate ability of forecasting or nowcasting models to predict densities of fecal indicators (or their genetic markers) as determined by rapid methods at coastal recreational waters within the Great Lakes Basin.
- Identify if rapid methods can accurately quantify fecal-source samples in the watershed.

- Evaluate effects of alternative water sampling strategies at beaches on accuracy of recreational water quality assessments determined from results of rapid methods.

Expected results from the projects under this program may include:

- Increased protection of human health through more timely assessments of indicator levels and water quality when decisions are made in a timely manner,
- Steps are taken toward implementation of the rapid method for beach closure or advisory decisions,
- Improvements to the rapid method are made to ensure consistent results in a timely manner,
- Monitoring data collected using the rapid methods to provide regulators with information needed for implementation,
- Collaboration with local laboratories and beach managers to address the feasibility of providing results in a timely manner, with attention to lab space, equipment needed, staff capability, and drive time to laboratory,
- Infrastructure (trained staff, equipment and laboratories) for implementation of the rapid method is increased,
- An increased laboratory capacity for timely results of fecal indicators,
- An improved monitoring approach, characterizing beach water quality considering temporal and spatial variability,
- An improved public notification system, considering water quality as well as impacts to beach water and actions taken to improve water quality.

I.C.5. Development of Nearshore Indicators and Endpoints. EPA expects to provide approximately \$1.7 million for approximately one to three projects ranging in amounts up to \$1.7 million to extend the development and implementation of Great Lakes indicators and endpoints that link the health of coastal conditions with measures of human disturbance of the watershed. Nearshore monitoring to assess coastal conditions will further test and implement indicators and linkages to critical habitats.

The Great Lakes Environmental Indicators (GLEI) project was part of an EPA-sponsored Science to Achieve Results (STAR) project to identify indicators of coastal ecosystem health in the U.S. The five-year effort in the Great Lakes basin resulted in 14 indicators being tested and proposed. In general, the results suggest that human-induced stress in the watershed, including urban development and agricultural practices, had significant impacts on the nearshore biotic communities. Categories of indicators included birds, amphibians, wetland vegetation, fish, invertebrates, and diatoms. The identification and testing of these indicators was a research effort, and they were not further developed to be routinely implemented as part of a comprehensive monitoring program.

These indicators, plus others that may be similarly positioned as part of the State of the Lakes Ecosystem Conference (SOLEC) suite or as proposed through the Lakewide Management Plans (LaMPs) or Remedial Action Plans (RAPs) are to be reassessed. For those that are capable of being implemented on a cost-effective basis and that provide useful information for improved decision making by environmental managers, guidance will be developed for monitoring and analysis protocols. The intent is to integrate the Great Lakes coastal indicators into a monitoring program that assesses both the terrestrial stressors and the aquatic response indicators.

EPA is requesting proposal for projects to develop and implement indicators and endpoints for assessing and reporting environmental conditions in nearshore areas of the Great Lakes. Linkages are especially encouraged from environmental status of aquatic nearshore areas to stressors, including land use, land cover, agriculture practices, urbanization, or other human disturbance of watersheds. Projects are encouraged that establish or extend geographic or temporal coverage of nearshore areas and that provide timely data collection, analysis and reporting.

Expected results from the projects under this program may include:

- Comprehensive and timely assessment of environmental conditions in the nearshore areas of the Great Lakes,
- Information about the nearshore areas of the Great Lakes that is accessible, timely and useful to environmental decision makers and the public,
- Development of a suite of nearshore environmental indicators that link the health of coastal conditions with measures of human disturbance,
- Development of a comprehensive monitoring plan for nearshore waters of the Great Lakes based on indicators and endpoints,
- Implementation of the nearshore monitoring plan for data collection, analysis and reporting based on the suite of indicators,
- Development of an integrated reporting system accessible by environmental decision makers, managers, scientists and the public.

I.C.6. Nearshore Waters Impairments and Stressors. EPA expects to provide approximately \$1.6 million for approximately three to eight projects ranging in amounts up to \$800,000 to identify linkages between impairments of the aquatic nearshore ecosystem (e.g., *Cladophora* growths, harmful algal blooms, botulism, eutrophication, water quality issues, etc.) and causative agents that are watershed-based (e.g., land use practices, agriculture, mining, urbanization, etc.) or aquatic-based (e.g., invasive species, altered nutrient cycling). Environmental research, nutrient loadings estimates, and math modeling are some examples of the types of projects to be considered.

The intent of this program is to lead toward the reduction or elimination of the number and severity of incidences of nearshore nuisance problems such as *Cladophora* growth, harmful algal blooms (HABs), botulism, and other eutrophication-related issues. Environmental research and assessments are desired whose outputs will strengthen potential management actions to control undesirable aquatic biological effects.

Impairments of the aquatic nearshore ecosystem may be linked to causative agents that are watershed-based (e.g., land use practices, agriculture, mining, urbanization, etc) or aquatic-based (e.g., invasive species, altered nutrient cycling). Existing lines of evidence infer that nonpoint sources of nutrients may be contributing to the nuisance problems, but in-lake processes related to *dreissinid* mussels may also be contributing factors. The linkages between the nearshore problems and their causative agents are not yet sufficiently defined, however, to lead to definitive activities to reduce or eliminate the defined problems.

EPA is requesting proposals for projects that could include: environmental research on cause-effect relationships, nutrient loadings estimates, calculation of the maximum nutrient loadings

permissible to prevent nuisance growths of *Cladophora* and incidences of HABs and botulism, math modeling of biotic and/or physico-chemical processes, or other approaches that can lead toward managerial interventions with some expectation of successful results. The geographic extent includes the entire Great Lakes wherever the shoreline is impaired with nuisance biological problems.

Expected results from the projects under this program may include:

- Measurable reductions in nutrient loadings to Great Lakes,
- Percentage of beaches meeting bacteria standards over 95% of the time,
- Reduced extent and severity of Great Lakes algal blooms,
- Reduced miles of Great Lakes coastline negatively impacted by *Cladophora* growth,
- Identification of causal agents contributing to *Cladophora*, harmful algal blooms, botulism, or pathogens in nearshore areas,
- Math modeling of causal agents and nearshore impairments and results of management scenarios,
- Estimates of current loadings of nutrients that contribute to nearshore impairments,
- Estimates of total maximum loads to the Great Lakes, or portions thereof, to prevent nuisance biological problems,
- Development of environmental management activities that could be applied anywhere within the Great Lakes basin where the activities would mitigate problems in the Great Lakes waters.

I.C.7. Total Maximum Daily Loads (non-toxicant). EPA expects to provide approximately \$1.1 million for approximately four to eight projects ranging in amounts from \$50,000 to \$250,000 to directly assist and accelerate the development of total maximum daily loads (TMDLs) for nutrients, sediment, bacteria and other non-toxicant pollutants in impaired waters [CWA 303(d) listed waterbodies] of the Great Lakes basin or to assist the implementation of nonpoint source load allocations from existing TMDLs to meet water quality standards and goals. If studies are developed by an entity other than the state agency, the proposal should provide for transmittal to the state for final submittal to EPA.

The end product of the project can include an assessment of previously collected monitoring information that is acceptable to the state TMDL program and EPA. The end product should include a completed watershed pollutant reduction strategy and/or a TMDL study addressing one or more non-toxicant pollutants and all of the following TMDL-related components, at a minimum:

- Identification of Waterbodies, Pollutants of Concern, Pollutant Sources, and Priority Ranking,
- Description of the Applicable Water Quality Standards and Numeric Water Quality Targets
- Loading Capacity - Linking Water Quality and Pollutant Sources,
- Load Allocations (LAs),
- Wasteload Allocations (WLAs),
- Margin of Safety (MOS),
- Seasonal Variation,
- Reasonable Assurances,
- Monitoring Plan to Track TMDL Effectiveness,

- Implementation Plan (optional). TMDL implementation plans are not required and EPA's final decision on the TMDLs will not be based on this information.

See <http://www.epa.gov/owow/tmdl/guidance/final52002.pdf> for additional guidance regarding these components.

Under the Criterion for Technical/Scientific Merit in Section V of the RFP, the following types of proposals may be ranked higher than others under this program:

- Proposals reviewed and supported by a state TMDL programs,
- Proposals that include existing relevant data collected for development of a TMDL study where the state supports using this data for the development of a TMDL,
- Proposals that include implementation plans, consistent with nonpoint source nine-element watershed plan guidelines,
- Proposals that consider the potential effects of climate change,
- Proposals that identify modeling approaches to be used, and
- Proposals that include an evaluation framework (i.e., social, administrative, and environmental indicators).

Expected results from the projects under this program may include:

- Definition of the extent of non-toxicant contamination in impaired Great Lakes subwatersheds,
- Identification of potential sources of non-toxicant pollution in impaired Great Lakes subwatersheds,
- Demonstrated applications of improved TMDL development methods that establish new or innovative targets and provide for improved and accelerated TMDL implementation (For example, for TMDLs addressing stormwater-related impairments, pilot the use of new and innovative targets based on stormwater volume, or percent impervious cover in the upstream watershed, the concentration of bacteria, or other targets that provide more appropriate and effective BMP implementation.),
- New tools or methods for TMDL development by using modern techniques (such as satellite imaging, GIS technology, automated data analysis, or other innovations) that would accelerate the production of maximum loading capacity calculations,
- New tools and arrangements to foster regional coordination of TMDL development when more than one state has an interest in a waterbody,
- Development of TMDLs addressing impaired Great Lakes watersheds, including pollutant loading capacities which help guide pollutant reduction efforts needed to bring impaired waterbodies into compliance with standards,
- Completion of TMDL implementation plans for impaired waterbodies addressed by final TMDLs. Plans will describe the critical areas within the watershed in need of restoration, and provide the most cost-effective strategies to implement the controls identified in the TMDL to restore the polluted watersheds,
- A more advanced state of knowledge relating to the development of non-toxicant TMDLs in the Great Lakes Basin,
- Improved capacity of state and third-party TMDL development programs,
- Better coordination among state programs and third-party TMDL developers,

- Widespread adoption of the demonstrated TMDL methodologies in the Great Lakes, improved program development capacity, documented reductions in pollutant loadings to impaired waters,
- Reduced number of impaired waterbodies and increased number of waters with demonstrated water quality improvement trends or attaining water quality standards.

I.C.8. Watersheds Best Management Practices, Planning and Implementation. EPA expects to provide approximately \$14 million for approximately 20 to 45 projects ranging in amounts up to approximately \$1 million leading to watersheds remediation (e.g., implementing watershed best management practices and measures, demonstration projects, reductions in urban and suburban nonpoint sources of phosphorus, watershed planning, water management design and implementation, watershed modeling).

Multiple agencies conduct watershed studies and facilitate remediation, restoration and conservation activities. This program will implement existing programs, plans, and authorities to control erosion; install conservation and best agricultural management practices; improve habitat; and restore degraded areas to protect nearshore aquatic resources. Examples of practices that will reduce runoff of undesirable substances to Great Lakes waters include watershed best management practices and measures, demonstration projects, reductions in urban and suburban nonpoint sources of phosphorus, watershed planning, and stormwater management design and implementation.

Projects under this program may include, but are not limited to:

- a. Projects that will implement watershed practices to reduce export of nutrients, contaminants and soils to Great Lakes tributaries and nearshore waters. Phosphorus is the critical, limiting element for algal growth in the Great Lakes. Nitrogen also is a factor, but to a lesser extent. These nutrients can come from point sources (e.g., sewage treatment facilities, combined sewer overflows, industry outfalls) and nonpoint sources (e.g., storm runoff from agricultural lands and animal feed lots, urban and suburban storm runoff, atmospheric deposition).

These types of projects may address the following elements:

- Watershed planning assistance that leads directly to implementation actions,
- Implementation of watershed plans that address Beneficial Use Impairments at Areas of Concern,
- Water management design and implementation (GIS tools, structures, plantings, restoration),
- Agriculture Best Management Practices and incentives; soil stabilization; cover crops; soil erosion control practices; tillage practices; fertilizer application, amount and timing; buffer strips,
- Agriculture demonstration projects,
- Practices to reduce urban and suburban nonpoint source loadings,
- Lawns and golf courses runoff management,
- Non-NPDES permitted CAFO waste management practices and incentives,
- Urban and suburban nonpoint source control projects.

- b. Projects that support the accelerated implementation of best management practices and management measures contained in State approved Nine Element Watershed Management Plans or in other watershed management plans that are consistent with the components outlined in [EPA's Nine Elements Guidance](#). These plans are designed to address documented nonpoint source-related water quality problems and to help prevent future nonpoint source water quality-related problems. The plans are based upon good science, identified tracking and evaluation techniques, have measurable outcomes, developed with stakeholder/public involvement, and leverage additional resources. Applicants should identify specific components of their plan that could be implemented within 3 years.

Examples of approved Nine Element Plans can be found at:

- Minnesota: <http://www.pca.state.mn.us/water/basins/watershedplan.html>
- Wisconsin: <http://dnr.wi.gov/org/gmu/>
- Illinois: <http://www.watershed.uiuc.edu/>
- Indiana: <http://www.state.in.us/idem/4342.htm>
- Michigan: http://www.michigan.gov/deq/0,1607,7-135-3313_3682_3714_4012-95955--,00.html
- Ohio: http://www.dnr.state.oh.us/H_Nav2/Water/WatershedCoordinator/tabid/9192/Default.aspx
- Pennsylvania: <http://www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1430&q=482387>
- New York: <http://www.dec.ny.gov/chemical/23844.html>

Expected results from the projects under this program may include:

- Protected/restored nearshore aquatic resources,
- Reduced nutrient inputs to tributaries and nearshore waters,
- Reduced sediment inputs to tributaries and nearshore waters,
- Pounds of soil loss prevented in Great Lakes tributaries,
- Increased miles of agricultural buffer strips in Great Lakes tributaries,
- Reduced concentrations of soluble reactive phosphorus in major tributaries, especially during critical spring and summer storm events,
- Management Measures and Best Management Practices installed,
- Trophic status and/or biotic integrity improvements in stream or lake water quality,
- Beneficial Use Impairment and Clean Water Act Section 303(d) impairment delistings.

I.C.9. Innovative Environmental Approaches. EPA may provide approximately \$1 million for up to ten projects, ranging in amounts up to \$500,000, for advancing innovative environmental approaches pertaining to nearshore and nonpoint source issues, if the proposal demonstrates that it is for a project that has a greater chance of success to achieve the outcomes and outputs identified in Section I for the Nearshore and Nonpoint Source Pollution focus area than other activities listed under the focus area and EPA has the requisite authority to fund the project.

Under this program, EPA is requesting proposals to restore or maintain the chemical, physical and biological integrity of the nearshore waters of the Great Lakes through actions that are not

specifically addressed by items **I.C.1** through **I.C.8** above, but that are creative, demonstrate high probability for significant improvement or protection of nearshore water quality and/or biological communities, and are cost effective.

Expected results from the projects under this program may include:

- Reduced environmental stressors that impede nearshore aquatic health,
- Land use practices that ensure non-degradation of nearshore aquatic health,
- Reduced impact of unique or otherwise unaddressed nonpoint sources of pollution,
- Restoration or protection of nearshore ecosystem health.

I.D. Habitat and Wildlife Protection and Restoration

I.D.1. Blueprints for Biodiversity Protection and Restoration. EPA expects to provide approximately \$800,000 for approximately three to five projects ranging in amounts from \$100,000 to \$250,000 to develop biodiversity blueprints for the Lake Michigan and Erie basins and other key sub-watersheds. The blueprints will identify, synthesize, and analyze information regarding key species, natural communities, ecological systems and abiotic processes.

Although biodiversity inventory, assessment and planning at local and regional scales have occurred over the past decade, efforts are rarely coordinated or complete, and efforts often stop short of actions that will protect and restore ecosystem functioning and biodiversity. Protection and restoration actions require developing partnerships to help define ecological restoration priorities for the community. The Lake Ontario Lakewide Management Plan has just completed such a blueprint (“[Binational Biodiversity Conservation Strategy](#)”) and the Lake Huron partners are in the process of developing a blueprint. Blueprints for biodiversity protection and restoration will strengthen partnerships, direct protection and restoration projects, and coordinate protection and restoration efforts across the basin. Additional information is found online at: http://www.epa.gov/greatlakes/lamp/le_2008/le_2008_6.pdf (Lake Erie Lakewide Management Plan); and http://www.epa.gov/greatlakes/lamp/lm_2008/lm_2008_4.pdf (Lake Michigan Lakewide Management Plan)

Proposals for the development of blueprints for biodiversity protection and restoration in the Lake Michigan and Lake Erie basins and other key sub-watersheds are expected to:

- Demonstrate the Applicant’s organizational capability to:
 - Identify, synthesize, and analyze information regarding key species, natural communities, ecological systems and abiotic processes for a lake basin;
 - Collaborate with stakeholders to set goals and objectives;
 - Identify conservation targets; and,
 - Recommend actions to meet goals.
- Describe the organization’s ability to deliver a blueprint in a cost effective and timely manner.
- Introduce the project lead and management team. Attach resumes and/or curricula vitae.

Expected results from the projects under this program may include:

- Species, natural communities, ecological systems and biotic processes are identified for a specific watershed,
- Partners approve the watershed blueprint,
- Biodiversity conservation targets and recommended actions for a watershed are clear and achievable.

I.D.2. Habitat Restoration in Great Lakes Area of Concern. EPA expects to provide approximately \$7 million to \$15 million for approximately 10 to 20 projects ranging in amounts from approximately \$500,000 to \$1.5 million to restore habitats in Great Lakes Areas of Concern (AOCs). Restoration will improve the quality of ecosystems, lead to the delisting of habitat-related Beneficial Use Impairments (BUIs), and/or lead to the achievement of blueprint-area goals.

Projects are requested that restore habitats in AOCs and lead to the delisting of the habitat-related BUIs. Three habitat-related BUIs (Degraded Fish and Wildlife Populations, Degradation of Benthos, and Loss of Fish and Wildlife Habitat) have been identified in many U.S. AOCs. These impairments are caused by chemical, physical, and biological degradation resulting from human activities, including changes to hydrology and pollutant loadings from urban stormwater. (See endnote “i” for a description of AOCs and BUIs and for a request for comprehensive AOC delisting projects. For additional information pertaining to a pathway to delisting habitat-related Beneficial Use Impairments, see: <http://www.glc.org/spac/pdf/FishWildlifeBUI.pdf>.)

Proposals for the restoration of habitats in Great Lakes AOCs should:

- Describe activities that will be undertaken in each of the following areas: research or study, inventory and assessment, planning and project design, implementation, stewardship, monitoring, education and outreach.
- Describe how the project will restore Great Lakes habitats within AOCs and address habitat-related BUIs, including Loss of Fish and Wildlife Habitat, and Degradation of Benthos.
- Describe what will be accomplished including:
 - Estimate the number of habitat acres that will be restored to improve Great Lakes ecological functioning.
 - Estimate the miles of shoreline with natural coastal and hydrological processes that will be restored.
 - Estimate the number of acres of wetlands and forested areas that will be protected, restored and enhanced.
 - How wildlife recovery will be accelerated.
 - How the project will improve the status of specific species.
- Demonstrate technical and feasible soundness of restoration methods.
- Introduce the project lead and management team. Attach resumes and/or curricula vitae.

Expected results from the projects under this program may include:

- Acres of wetlands, uplands, coastal areas and miles of shoreline will be restored in AOCs,
- Conditions for wildlife are improved as a result of habitat restoration.

I.D.3. Monitoring Great Lakes Coastal Wetlands. EPA expects to provide approximately \$12 million for two to 15 projects ranging from \$150,000 to \$10 million to monitor coastal wetlands across the Great Lakes basin using, in part, procedures developed by the Great Lakes Coastal Wetlands Consortium. Project periods may range from one to five years. Monitoring data will provide information to Great Lakes decision makers about coastal wetland quality, in particular birds, amphibians, fish, invertebrates, plants, wetland extent and type, and water chemistry.

Great Lakes lacustrine, riverine, and barrier-protected coastal wetlands perform functions vitally important to the Lakes’ health including storing floodwaters, cycling and storing nutrients and organic materials; recharging groundwater; maintaining stream flows; filtering and trapping organic and inorganic sediment; maintaining biological productivity; maintaining breeding, foraging and staging habitat for many different species of fish and wildlife; and, sequestering carbon in peat and organic soils. An alarming number of these wetlands have disappeared or have been severely degraded over the past decades, reduced by as much as 60% to 90% in area from historic levels; approximately 217,000 hectares of coastal wetlands remain (includes both

U.S. and Canada). Disappearance and degradation are largely due to urban, industrial and agricultural expansion; invasion of exotic species; water level control; eutrophication; sedimentation; shoreline alteration; and habitat fragmentation, particularly within the lower Great Lakes. Coastal wetland monitoring will provide managers and Great Lakes decision makers with information upon which to base protection and restoration decisions. Additional information about Great Lakes coastal wetlands is found online at: <http://www.glc.org/wetlands/> (Great Lakes Coastal Wetlands Consortium).

Proposals should address the following elements:

- Demonstrate capability of monitoring utilizing coastal wetland monitoring methods as described in the Great Lakes Coastal Wetlands Monitoring Plan and others.
- List available field and laboratory equipment, including boats and trailers, with locations.
- Specify the location and number of coastal wetlands where the data will be collected.
- Describe ability to deliver data to a pre-established database in a timely manner.
- Describe what will be accomplished including:
 - Data to be collected for birds, amphibians, fish, invertebrates, plants, wetland extent and type, and water chemistry according to standard operating procedures.
 - Data to be collected that will help assess the quantity and quality of particular coastal wetlands in order to inform Lakewide Management Plan goals and objectives.
- Introduce the project lead and field and laboratory teams. Attach resumes and/or curricula vitae where appropriate.

Expected results from the projects under this program may include:

- Data collected for coastal wetland birds, amphibians, fish, invertebrates, plants, wetland extent and type and water chemistry provides a baseline of coastal wetland conditions that informs management goals and objectives.

I.D.4. Restoring Great Lakes Habitats. EPA may provide approximately \$2 million for ten to twenty projects ranging from \$50,000 to \$200,000 to restore Great Lakes wetland, wetland-associated upland, coastal, upland, and island habitats, including projects supporting the goals of LaMPs and biodiversity conservation plans such as the Binational Biodiversity Conservation Strategy for Lake Ontario (http://www.epa.gov/greatlakes/lakeont/reports/lo_biodiversity.pdf). Habitat restoration will improve physical, chemical, and biological processes and ecosystem functions and maintain or improve the conditions of native fish and wildlife. Habitat restoration will improve physical, chemical, and biological processes and ecosystem functions and maintain or improve the conditions of native fish and wildlife.

The Lake Ontario Binational Biodiversity Conservation Strategy is an example of an approved lake-wide biodiversity conservation blueprint. The Lakewide Management Plans for Lakes Superior, Huron, Michigan, Erie and St. Clair contain elements of a biodiversity blueprint. Blueprints for these lakes are in progress or expected to be developed.

Proposals for the restoration of habitats should:

- Describe activities that will be undertaken in each of the following areas: research or study, inventory and assessment, planning and project design, implementation, stewardship, monitoring, education and outreach.

- Describe how the project will restore Great Lakes habitats by improving the physical, chemical, and biological processes and ecosystem functions and maintaining or improving the conditions of native fish and wildlife and describe how the project will restore applicable blueprint areas.
- Describe what will be accomplished including:
 - Estimate the number of habitat acres that will be restored to improve Great Lakes ecological functioning.
 - Estimate the miles of shoreline with natural coastal and hydrological processes that will be restored.
 - Estimate the number of acres of wetlands and forested areas that will be protected, restored and enhanced.
 - How wildlife recovery will be accelerated.
 - How the project will improve the status of specific species.
- Demonstrate technical and feasible soundness of restoration methods.
- Introduce the project lead and management team. Attach resumes and/or curricula vitae.

Expected results from the projects under this program may include:

- Acres of wetlands, wetland-associated upland, coastal, upland, and island habitats will be restored,
- Conditions for wildlife are improved as a result of habitat restoration.

I.E. Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships.

I.E.1. Assessing Indicators for the Great Lakes. EPA expects to provide approximately \$500,000 for approximately one to five projects ranging in amounts up to \$500,000 to maintain and enhance the indicator development, measurement and reporting that is part of the State of the Lakes Ecosystem Conference (SOLEC). Indicators used in assessing the health of the Great Lakes for this effort are measured by many federal and state agencies in the Great Lakes Basin, some regularly, some irregularly and some remain unmeasured. A detailed description of SOLEC including the most recent indicator reports can be found online at <http://www.epa.gov/greatlakes/solec>. Projects are expected to enhance assessments on previously reported indicators and expand measurements to those indicators previously unmeasured.

Expected Results from the projects under this program may include:

- Information to strengthen stakeholder decision making and environmental management concerning the Great Lakes,
- Enhanced assessment of previously measured and reported SOLEC indicators,
- Quality-assured measurements supporting the assessment of unmeasured SOLEC indicators,
- Improved understanding of environmental stressors in the Great Lakes,
- Scientific journal publications and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research.

I.E.2. Coordinated Implementation of Lakewide Management Plans, Programs, and Projects. EPA expects to provide approximately \$2 million through approximately 10 to 15 grants ranging in amounts up to \$1 million to strategically implement critical Lakewide Management Plan (LaMP) programs, projects, and activities not solicited for under other programs in this RFP for collaboration on a lake-basin level in LaMP programs, for public outreach/education projects, and for stakeholder and public participation in LaMP forums and networks. See Appendix II for information about LaMP goals and priorities and other projects.

Projects under this program may include, but are not limited to:

- Support public outreach, participation, and education in support of Great Lakes and/or LaMP (and Lake St. Clair and connecting channels) goals, including Lake-specific on-board education and outreach; Great Lakes collaboration for zoos, aquariums, and museums; climate change outreach/education and adaptation projects, especially for the benefit of cities, municipalities, schools, faith-based networks, and tribes; and outreach/education to communities and networks of community environmental commissions, local watershed groups, and stakeholders on communicating best watershed and green infrastructure practices in the Great Lakes basin.
- Continue facilitation of the Lake Michigan Watershed Academy (Lake Michigan-sensitive land use and transportation planning by regional planning organizations); continuation of facilitation of the Lake Michigan Forum, including work on ports/marinas and climate change; and collection of Lake Michigan 8- and 12-digit HUC watershed data for use in the EPA “watershed central” database.
- Continue facilitation of the Lake Superior Binational Forum with special focus on the nearshore, watersheds, implementation of priority LaMP projects and on improving

communication and outreach to Lake Superior stakeholders. (Implementation of the Lake Superior AIS Complete Prevention Plan is a top priority but will be funded out of the Invasive Species focus area.)

- Support the U.S. side of the Lake St. Clair Team to continue to develop priority recommendations from the Comprehensive Management Plan for Lake St. Clair and the St. Clair River into “actionable” projects and to link those “actionable” projects to related plans within the St. Clair-Detroit Corridor and Lake Erie to further implementation of the Management Plan.

Expected results from the projects under this program may include:

- Increased number of stakeholders participating in the LaMP and GLRI programs,
- Increased understanding and knowledge about the impacts of climate change on the Great Lakes,
- Implementation of “Green Marinas” recommendations,
- Increased involvement by cities, local governments, the faith-based community and others in the LaMP/GLRI processes and programs,
- Implementation of climate change adaptation/mitigation projects and actions.

I.E.3. Nearshore and Open Water Monitoring and Prediction. EPA expects to provide up to approximately \$1 million for one to three projects ranging in amounts up to \$1 million with a focus on efforts to assess the fluxes of nutrients (especially phosphorus and carbon) and particulates between the nearshore, offshore, and open water zones of the Great Lakes. The projects should: assess the movement and fate of nutrients in the deeper, open waters of the lakes; provide information to drive the management of nutrient loads to the Great Lakes to decrease nuisance and harmful algae in the nearshore; and/or support a Great Lakes basin-wide assessment of changes in nutrient distribution that aid lake management.

Expected Results from the projects under this program may include:

- Quantification of the movement of nutrients in the Great Lakes,
- Quantification of the level of sequestration of nutrients in the sediments,
- Determination of the soluble and particulate nutrient fractions in the nearshore and offshore areas and comparison with historic fractions.

I.E.4. Annual Comprehensive Nearshore Monitoring Program. EPA expects to provide up to approximately \$2 million for approximately one to five projects ranging in amounts up to \$2 million to establish baseline conditions of the environmental quality of the nearshore waters of the Great Lakes as part of an annual comprehensive nearshore monitoring program. The recipients will coordinate among themselves, with State agencies monitoring the nearshore and with other federal agencies to establish small boat sampling of the area. The 2010 Nearshore Coastal Assessment sampling grid will serve as a basis for sampling, but will not limit expansion to other sites and/or transects, areas (harbors and embayments) etc.

Expected Results from the projects under this program may include:

- An assessment of the nearshore areas, particularly those areas of particular management concern in the Great Lakes,
- Consistent monitoring of locations that are not a part of the Nearshore Coastal Assessment program,

- Stressor-related interpretation of monitoring data to identify problems and probable causes,
- Information to drive management of the nearshore, including fisheries and water quality.

I.E.5. Predicting Ecosystem Changes. EPA expects provide up to approximately \$1 million for approximately one to five projects ranging in amounts up to \$1 million to begin development and/or expand models that can predict ecosystem changes related to climate change and invasive species.

This program emphasizes invasive species and combinations of various ecosystem changes, and their effects on food webs, primary productivity, and toxic contaminant concentrations.

Expected Results from the projects under this program may include:

- Models for each Great Lake that incorporate hydrodynamics, transport and fate, eutrophication (nutrient-based food chain model), meteorology, toxics and invasive species (present and expected),
- Sampling plans to provide needed data for the models,
- Coordinated sampling and modeling effort for each lake,
- Increased understanding of current ecosystem functions to inform environmental management decisions,
- Reliable predictions of future states of the Great Lakes,
- An ability to produce “what if” scenarios allowing Great Lakes environmental managers to understand results of management actions and effects of expected and novel stressors on the Great Lakes.

I.E.6. Cooperative Science and Monitoring Initiative. EPA expects to provide up to approximately \$1.25 million for approximately one to seven projects ranging in amounts up to \$1.25 million as part of the Cooperative Science and Monitoring Initiative (CSMI) for intensive scientific planning, monitoring, assessment, and reporting (integrating with the respective LaMPs) of each of the Lakes, their connecting channels, and the international portion of the St. Lawrence River, on a 5-year rotating schedule. Of the \$1.25 million, approximately \$750,000 is expected to be used for monitoring and approximately \$500,000 is expected to be used for planning and reporting. The CSMI is a binational effort between Canada and the U.S. to provide the environmental managers of each Great Lake, their connecting channels, and the international portion of the St. Lawrence River, with an enhanced science program that addresses their informational needs. Information needs for the connecting channels include the channels themselves as well as their affect on their downstream lake. Priorities are identified by the Lakewide Management Plan (LaMP) Management Committees, and by management committees for the connecting channels and St. Lawrence River, and coordinated through a binational CSMI Steering Committee. In 2010, CSMI will be focused on Lake Michigan. In subsequent years (2011 through 2014), CSMI will focus on Lake Superior, Lake Huron, Lake Ontario, and Lake Erie, respectively.

Projects are expected to be coordinated with state agencies, other federal agencies, and universities to support public purposes under the GLWQA and should include the following components:

- For the year 2008 intensive monitoring in Lake Ontario, a project to interpret and synthesize data collected in 2008 to include water quality, trophic status, nutrient transport patterns and

mechanisms, aquatic invasive species, fisheries and food web relationships to provide a comprehensive assessment of the Lake Ontario ecosystem. This project will include a comparison of these results with the findings of the 2003 Lake Ontario intensive monitoring year.

- For the year 2010 intensive monitoring in Lake Michigan, three to four monitoring projects which should include, but are not limited to: 1) climate change/Phragmites baseline mapping, interpretation and reporting that includes the entire Lake basin along with embayments and AOCs; 2) Phosphorus mass balance measurements (fluxes between and regeneration within phosphorus pools) for nearshore and offshore areas; and 3) trends of nutrient inputs into Lake Michigan with an emphasis on large rain events and processes at the land-water interface. Collaborative monitoring and comparable data sharing will be through the Lake Michigan Monitoring Coordinating Council for follow up interpretation and reporting.

Expected Results from the projects under this program may include:

- Quantification of nutrient inputs to Lake Michigan,
- Assessment of phosphorus cycling in Lake Michigan,
- Information to strengthen stakeholder decision making and environmental management concerning the Great Lakes,
- Scientific journal publications and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research.

I.E.7. Observing Systems. EPA expects to provide approximately \$3.1 million for approximately one to five projects ranging in amounts up to \$3.1 million to implement strategic components relevant for Great Lakes decision making of the U.S. contribution to the Integrated Earth Observing System and the Integrated Ocean Observing System as part of the Global Earth Observing System of Systems. More detailed information on the U.S. Integrated Ocean Observing System can be found online at <http://ioos.gov>. More detailed information on the U.S. effort under the Integrated Earth Observing System can be found at <http://usgeo.gov>. More detailed information on the Global Earth Observing System of Systems can be found at <http://www.earthobservations.org>. Projects should address the deployment, operation, and maintenance of buoys, gliders, autonomous underwater vehicles, or other sensors and platforms in the nearshore areas of the Great Lakes and should be developed in cooperation with Great Lakes States' enhanced tributary monitoring efforts.

Expected Results from the projects under this program may include:

- Information to strengthen stakeholder decision making and environmental management concerning the Great Lakes,
- Scientific journal publications and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research,
- Quantification of environmental data in near real-time to assess the health of the Great Lakes nearshore,
- Collection of environmental data to assess and manage Great Lakes beach health,
- Development of cost-effective monitoring methods for the nearshore.

I.E.8. Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships – Innovative Environmental Approaches. EPA may provide approximately \$1 million for up to approximately ten projects ranging in amounts up to \$500,000 for the

development and implementation of innovative environmental approaches not otherwise described above if the proposal demonstrates that it is for a project that has a greater chance of success to achieve the outcomes and outputs identified for this focus area in Section I than other activities listed under the focus area and EPA has the requisite authority to fund the project.

Expected Results from the projects under this program may include:

- Development of innovative monitoring and assessment approaches to assess the health of the Great Lakes,
- Improved understanding and assessment of the health of the Great Lakes through the use of innovative environmental approaches,
- Better decisions by environmental managers through the use of innovative environmental approaches,
- Scientific journal publications and further education of graduate students and post-doctoral candidates in Great Lakes ecosystem research.

II. Appendix II – Lakewide Management Plan Priorities and Goals

The Great Lakes Water Quality Agreement (GLWQA) calls for the development of action-oriented strategic plans entitled Lakewide Management Plans (LaMPs), agreed to by Great Lakes binational resource managers to protect, restore and maintain the Great Lakes Ecosystem. The LaMPs assess, restore, protect, and monitor the ecosystem health of each of the Great Lakes and are used to coordinate the work of all the government, tribal, and non-government partners working to improve the Lake ecosystems. A public consultation process is used to ensure that the LaMPs address the public's concerns. LaMPs for Lakes Ontario, Michigan, Erie, and Superior, the Lake Huron Binational Partnership Action Plan, and the Comprehensive Management Plan for Lake St. Clair identify the goals and priorities for these respective areas and are each considered LaMPs for the purposes of this RFP. The Binational Executive Committee recently reaffirmed that the LaMPs are the "principal mechanism for binational planning, coordination, and reporting in support of Great Lakes Water Quality Agreement commitments, including the nearshore and open waters."

This Appendix summarizes the priorities and goals of the Lakewide Management Plans for Lakes Ontario, Michigan, Erie, and Superior, the Lake Huron Binational Partnership Action Plan, and the Comprehensive Management Plan for Lake St. Clair.

- Proposals for collaboration on a lake-basin level in LaMP programs, for public outreach/education projects, and for stakeholder and public participation in LaMP forums and networks should be submitted pursuant to Section I.E.2 of the RFP.
- Proposals for other LaMP projects should be submitted to other programs in the RFP.

Following are priorities and goals of the LaMPs:

- The Lake Ontario LaMP's recently updated chapters, including the workplan in Chapter 12, can be viewed online in "LaMP 2008" at: http://epa.gov/greatlakes/lamp/lo_2008/index.html. Also available at this site are the annual Lake Ontario Update activities reports. Additional chapters of the LaMP which were not updated in 2008, can be viewed in the "2006 Biennial Report" at <http://epa.gov/greatlakes/lakeont/2006/index.html>. Lake Ontario priorities include reduction of sources and loads of critical pollutants including emerging chemicals; contaminant track-down efforts; coordination of binational monitoring efforts, particularly those related to LaMP ecosystem indicators; binational Coastal Wetlands Indicators development; restoration of bald eagle and native fish species; development and implementation of watershed management plans addressing nonpoint sources and other lake-wide basin issues; improved tributary monitoring in AOC and non-AOC areas including but not limited to, measurement of Total Phosphorus, Total Nutrients, chlorophyll a and clarity; development of a management plan to integrate AOC, nearshore and LaMP programs and projects; use of satellite imagery to track large-scale ecosystem changes such as thermal, suspended sediment, chlorophyll a, or other criteria; development of a monitoring protocol for adaptive management for possible changes in Lake Ontario–St. Lawrence River water-level control; and implementation projects supporting the "Lake Ontario Binational Biodiversity Conservation Strategy". The "Strategy" can be found online at : http://www.epa.gov/greatlakes/lakeont/reports/lo_biodiversity.pdf
- The Lake Michigan Lakewide Management Plan goals and Sustainability Targets, challenges and next steps can be viewed online at <http://www.epa.gov/greatlakes/michigan.html>. The

GLRI topics and corresponding LaMP Chapters are: Toxic Substances (contaminated sediments and fish effects LaMP Chapters 1 and 7), Invasive Species (aquatic and terrestrial invasives LaMP Chapter 8), Nearshore Health and Nonpoint Source Pollution (nutrient loadings and land use LaMP and watershed fact sheets Chapters 2, 3, 6, 7, and 12), Habitat and Wildlife Protection and Restoration (aquatic food web, wetlands, dunes and migration corridors LaMP Chapter 4) and Accountability, Education, Monitoring, Evaluation, Communication and Partnerships (LaMP Chapters 9, 10, and 11).

- The Lake Erie LaMP can be viewed online at http://www.epa.gov/greatlakes/lamp/le_2008. Specific Lake Erie LaMP priorities include an increased understanding of nutrient dynamics in the Western Basin; the development and implementation of management actions to reduce phosphorus loadings to the Western Basin, and monitoring of those actions to determine their success; the development of actions that reduce or lead to the reduction of harmful algal blooms in the Western Basin of Lake Erie; the development of habitat strategies and actions that promote sustainable biodiversity throughout the Lake Erie ecosystem; projects and activities that increase public understanding of the importance of watershed management and how land links to the tributaries to the nearshore of the lake; and actions to encourage sustainable land-usage practices that improve the water quality and habitat of the Lake Erie ecosystem.
- Lake Superior Lakewide Management Plan goals, objectives and challenges can be viewed online at <http://www.epa.gov/greatlakes/superior.html>. Priorities include reduction of the nine critical pollutants of the Zero Discharge Demonstration Program; reductions of substances of emerging concern; implementation of the Lake Superior Ecosystem Goals and Objectives; implementation of the Lake Superior Aquatics Invasive Species Complete Prevention Plan; restoration and rehabilitation of native fish populations; habitat restoration and protection; watershed management and plan implementation; reducing mining impacts on the ecosystem; land use change; and climate change adaptation and mitigation efforts.
- Lake Huron Binational Partnership Action Plan goals and priorities can be found online in the Lake Huron Binational Partnership Action Plan at http://www.epa.gov/greatlakes/lamp/lh_2008. Specific Lake Huron Binational Partnership priorities include a reduction of contaminants causing fish consumption advisories; efforts to improve beach quality and management of nearshore algae growth; an increased understanding of how nutrients and energy are partitioned and flow between the nearshore and offshore environment; restoration of the Lake Huron fishery including lake herring as part of a forage base and lake sturgeon as historic benthic feeders; restoring connectivity of tributaries while taking into account the possible movement of invasive species; protection of cold water tributaries in recognition of a warming climate; and actions that encourage sustainable land-usage practices to improve the water quality and habitat of the Lake Huron ecosystem.
- Lake St. Clair goals and priorities can be found in the Lake St. Clair Comprehensive Management Plan, available online at <http://www.glc.org/stclair>. Specific Lake St. Clair priorities include eliminating sources of bacterial contamination to Lake St. Clair tributaries; developing an Action Plan for identifying, protecting, and restoring important habitat within the Lake St. Clair watershed; restoring Anchor Bay; shoreline restoration and Phragmites

control in Anchor Bay; restoring spawning and nursery habitat in the St. Clair/Detroit River connecting channel; construction of new spawning areas in the St. Clair River Delta; and shoreline softening and wetland creation at the mouth of the Clinton River.