

GLRI ACTION PLAN III MEASURES REPORTING PLAN

Introduction

The [Great Lakes Restoration Initiative Action Plan III](#) (Action Plan III) summarizes the actions that federal agencies plan to implement during federal fiscal years¹ 2020-2024 to protect and restore the largest fresh surface water system in the world. These actions build on restoration and protection work carried out under GLRI Action Plans I and II. Activities are conducted in the following five Focus Areas:

- Toxic Substances and Areas of Concern
- Invasive Species
- Nonpoint Source Pollution Impacts on Nearshore Health
- Habitats and Species
- Foundations for Future Restoration Actions

Measures of Progress

Twenty-three (23) Measures of Progress have been developed to track all actions implemented under Action Plan III. Fourteen (14) of these measures have annual targets and the remaining nineteen (19) measures are “indicator” measures that do not have targets. Progress under the Action Plan III measures also supports Goal 1/Objective 1.2 (Provide Clean and Safe Water) in EPA’s FY 2018-2022 Strategic Plan.

EPA is the lead agency responsible for coordinating reporting activities of the Great Lakes Regional Working Group to report on the measures in Action Plan III.

The GLRI Action Plan III Measures Reporting Plan (Measures Reporting Plan or Plan) is intended to be used by the Regional Working Group (RWG) as a tool to support consistent and accurate reporting on the measures. It is also intended to support the quality and reliability of data input into the Environmental Accomplishments in the Great Lakes (EAGL 2) information system. The EAGL 2 system is EPA’s information system for collecting results achieved under the measures through GLRI-funded projects.

Results collected in the EAGL 2 system are used in reporting to headquarters, Office of Management and Budget, and other stakeholders through the Great Lakes Restoration Initiative Annual Report to Congress.

This Plan will be updated as needed.

Summary of Significant Changes

- Results are reported using the GLRI Action Plan III Measures described in this Measures Reporting Plan.
- Agencies provide supporting documentation in EAGL 2 for all numerical results.
- Agencies conduct and record an independent review of all information before submission into EAGL 2.
- Agencies may “group” families of projects so that results are reported one time for the group, rather than individually for the group members.

¹ As used in this Plan, “FY” or “fiscal year” refers to federal fiscal years, which run from October 1 through the following September 30 (e.g., FY 2020 refers to the period from October 19, 2019 through September 30, 2020.)

How to use the GLRI Action Plan III Measures Reporting Plan

The forepart of this Plan includes information that is generally applicable to all 23 GLRI Action Plan III measures.

The Appendix to this Plan contains specific guidance for each measure. It is intended to be an easy-to-use resource for RWG Agencies submitting annual results into EAGL 2. The sections of this guidance consist of general information regarding each measure including: Measure Code, Measure Language, Description, Definitions, Acceptable Results, Unacceptable Results, When to Count Results, Measure Lead, Measure Targets, Units, Universe, Baseline, acceptable Calculation Methodologies, and any Data Limitations or Qualifications that are unique to the particular measure.

General Definitions

Environmental Accomplishments in the Great Lakes 2 (EAGL 2) Information System: The EAGL 2 information system is a GLNPO-hosted, database for RWG agencies to identify projects and report results achieved against GLRI Action Plan III Measures of Progress.

Great Lakes Restoration Initiative (GLRI): The GLRI was launched in 2010 to accelerate efforts to protect and restore the largest system of fresh surface water in the world – to provide additional resources to make progress toward the most critical long-term goals for this important ecosystem. The GLRI advances federal agency coordination through the Interagency Task Force and the Regional Working Group. GLRI Action Plan III, developed by the agencies with input from states, tribes, partner agencies, and the public, summarizes actions federal agencies plan to implement during FY 2020-2024 within the Focus Areas referenced above. For more information: <https://www.glri.us/>

GLRI-funded project means an organized activity or set of activities that is wholly or partially supported by the use of GLRI funds to achieve a common purpose.

Great Lakes National Program Office (GLNPO): Under Executive Order 13340, the Great Lakes National Program Office of the Environmental Protection Agency assists the Interagency Task Force and the Regional Working Group in the performance of their functions. The Great Lakes National Program Manager is chair of the Regional Working Group. For more information: <http://www2.epa.gov/aboutepa/about-great-lakes-national-program-office-glnpo>

Great Lakes Regional Working Group (RWG): The RWG is composed of the appropriate regional administrator or director with programmatic responsibility for the Great Lakes system for each agency represented on the Task Force including: the Great Lakes National Program Office of the Environmental Protection Agency; the United States Fish and Wildlife Service, National Park Service, Bureau of Indian Affairs, and United States Geological Survey within the Department of the Interior; the Natural Resources Conservation Service and the Forest Service of the Department of Agriculture; the National Oceanic and Atmospheric Administration of the Department of Commerce, the Department of Housing and Urban Development; the Department of Transportation; the Coast Guard within the Department of Homeland Security; and the Army Corps of Engineers within the Department of the Army. The RWG coordinates and makes recommendations on how to implement the policies, strategies, projects, and priorities of the Task Force.

| RWG Data Contact | RWG Data Reviewer | EPA Measure Lead and/or EAGL 2 Information System Administrator | GLRI Reporting Coordinator |
|--|---|---|---|
| Ensures funding recipients understand definitions from Measures Reporting Plan. | Independently review the entries by their Agency's Data Contacts. | Ensures RWG Agencies receive training on definitions of progress for each Measure. | Coordinates and collects data on an as needed basis for reporting purposes from EAGL 2 and each Measure Lead. |
| Collects progress reports from funding recipients. | Ensure supporting documentation is attached. | Ensures EAGL 2 Information System is submitted annually. | |
| Ensures internal reporting mechanism consistency with IA QAP. | Ensure data entries are consistent with supporting documentation. | Queries EAGL 2, conducts QA, and calculates total progress to send to GLRI Reporting Coordinator. | |
| Enters information into EAGL 2 for each project and measure, including supporting documentation. | | | |
| Coordinates with EPA Measure Leads. | | | |

Figure 1. GLRI Action Plan III Measures of Progress data collection and reporting.

General Procedures

EAGL 2 Data Process:

- Data is collected as described for each individual measure. The **data source** for results may be an RWG agency or their funding recipients and sub-recipients.
- Contacts designated by RWG agencies enter annual, **incremental** project information, including results and supporting documentation, into the EAGL 2 system until the project is complete and all results are entered. Supporting documentation may include workplans, progress reports, maps, charts, spreadsheets, formulas, e-mails, or other materials the agency uses to determine results. Only RWG agencies report into the EAGL 2 system.
- Data Reviewers, different from the respective contacts who entered the data, designated by RWG agencies perform independent reviews of data entries and ensure that supporting documentation has been entered.
- For each project, the EAGL 2 System automatically generates cumulative results from the end of the previous reporting period through the end of the current reporting period.
- The EPA Measure Lead reviews the reported cumulative results against applicable measures and provides general oversight for their reasonableness.

- The EAGL 2 System Administrator sums the data values with the cumulative total from the previous year (including the baseline value) to calculate the current cumulative total, which is then reported to the GLNPO Reporting Coordinator.
- The GLNPO Reporting Coordinator reviews the reported cumulative totals for completeness and reasonableness. The GLNPO Reporting Coordinator submits the cumulative total results for final programmatic reporting.
- Work plans should provide for reporting in the same units and using the same methodology as this measures Reporting Plan. Where this protocol is not followed, resulting in data being reported in a different unit or using a different methodology, Project Officers and Focus Area Leads (FALs) will establish and follow a standard process to convert reported data to the correct units or results.

Identifying applicable Measures for Projects:

- RWG agencies, including EPA, identify primary, secondary, and tertiary measures for each GLRI-funded project at the time projects are first entered in EAGL 2.
- Such applicable measures are identified in EAGL 2 if they support or contribute to Action Plan III measure results, even if they will not directly contribute “results.”
- RWG agencies may use a variety of methods to identify primary, secondary, and tertiary measures, such as a review of project workplans. Unless documentation is needed to support results, supporting documentation is not required in EAGL 2 solely for the purpose of identifying projects that support a measure but do not directly contribute numerical results. The RWG agency is responsible for storing all records and documentation used to support identification of relevant measures.
- Review carefully the description of Measure 5.2.1 (Annual Great Lakes monitoring conducted and used to prioritize GLRI funding decisions) and Measure 5.2.2 (Identify and address science priorities to support implementation of GLRI and the Great Lakes Water Quality Agreement) before identifying those measures with a project.
- Choose the applicable Action Plan III Measure(s) of Progress, even if the project previously reported under Action Plan II Measure(s) of Progress. See the Attachment 1 Crosswalk.

Project Results:

- Except as specifically described for a particular measure, only results from activities wholly or partially supported by GLRI-funded projects are counted; results from activities other than GLRI-funded projects are not counted. Results from cost-shared GLRI projects are included.
- Results may be from work directly implemented by an RWG Agency as well as work performed via subsequent contracting and granting arrangements. Only RWG agencies report results into the EAGL 2 system.
- Results are **entered for the respective reporting periods** into EAGL 2. EPA will use the EAGL 2 system to add the incremental results to get cumulative results as needed.
- Results may be realized in the current reporting period from projects funded by a previous GLRI appropriation. All results are reported using the applicable Action Plan III Measures.
- When possible, results should be attributed to the fiscal year in which they were accomplished. However, reporting should be done by the end of the first reporting period when results can be calculated and documented, even if that is after the fiscal year in which the results were accomplished. **Agencies should not attempt to change results that were previously reported.**

- If an error is found in previously reported data, that data will not generally be revised. Instead, a positive or negative entry will be made for that project in the reporting period in which the error is found, such that the cumulative reported amount will be correct.
- Each RWG agency is responsible for its own data.
- Each RWG agency is responsible for submitting into EAGL 2 the records and documentation (supporting documentation) needed to support their reported results.

Data Oversight and Quality:

- Data oversight is done by Source Data Reporting Oversight Personnel: RWG agencies, via RWG agency data contacts, in coordination with agency staff, recipients, and subrecipients.
- Source Data Reporting Oversight is done by each RWG agency. RWG agencies are responsible for ensuring that data they submit to EAGL 2 is verified and validated and is in accordance with the Measures Reporting Plan.
- Although beginning in FY 2020, RWG agencies also include supporting documentation in EAGL2, each RWG agency is responsible for storing the original records and documentation that supports their results, including a written Standard Operating Procedure to document steps followed to estimate outcomes consistently each year.
- For EPA, project officers for grants and project managers for Great Lakes Legacy Act projects (i) oversee and review information provided in grantee and contractor progress reports and (ii) submit data to EAGL 2 on the basis of those reports and communication with grantees and contractors. The EPA Measure Lead provides general oversight for the reasonableness of information that has been entered into EAGL 2 by EPA staff.
- Acceptable quality documentation is required for EPA's recipients and sub-recipients of GLRI funding when that funding is used for projects involving the use or collection of environmental data. Federal agencies must have a quality assurance and quality control system in place that will provide the needed management and technical practices to assure that environmental data used to support GLRI decisions are of adequate quality and usability for their intended purpose. EPA GLNPO's Quality Management System, combined with EPA Region 5's Quality Program in December of 2015, conforms to the USEPA Quality Management Order and is audited every five years in accordance with the Federal Policy for Quality Management.

Data Limitations/Qualifications:

- Information in the EAGL 2 system is inputted by multiple Federal agencies using different methodologies. There may be errors in classification, geo-referencing, input accuracy, as well as data omissions. Statistics from the system reflect a point in time.
- Reporting may include a data lag for data collection and could actually reflect the cumulative progress as of the previous reporting period. Because a data lag could exist for both information collection and reporting, the reported information may be from one month to a year old depending on the timing of the tracking and reporting deadlines.
- See Project Results above regarding errors found in previously reported data. Because that data will not be revised, results for a given reporting period may be higher or lower than what was actually achieved for that period, but the cumulative reported amount will be correct.

Information Systems Oversight:

- The EAGL 2 system administrator manages and oversees the EAGL 2 site; ensures RWG Agencies receive training on definitions of progress for each measure; facilitates RWG agency data entry into the EAGL 2 Information System; uses the EAGL 2 Information

System to calculate the current cumulative totals for results; and facilitates extraction and transformation of results by EPA Measure Leads and the GLNPO Reporting Coordinator.

Final Reporting Timing and Oversight:

- Final Reporting Oversight is done by the GLNPO Reporting Coordinator, in coordination with the EPA Measure Lead. Final Reporting Oversight Responsibilities include review of data reported by the EPA Measure Leads for completeness and reasonableness and submitting results for final reporting.
- Final reporting includes reporting in the annual GLRI Report to Congress.
- Final reporting is expected to be completed annually by the start of the second quarter after each fiscal year.

Key Contacts

Focus Areas/Leads. The Focus Area Leads and EPA Measure Leads oversee data transmitted and reported as final through the EAGL 2 Information System and transform transmitted data for final reporting. The Focus Areas and Focus Area Leads are:

- Toxic Substances and Areas of Concern:
Marc Tuchman (tuchman.marc@epa.gov / 312-353-1369)
- Invasive Species:
T. Kevin O'Donnell (odonell.thomas@epa.gov / 312-886-0813)
- Nonpoint Source Pollution Impacts on Nearshore Health:
Santina Wortman – Agriculture – (wortman.santina@epa.gov / 312-353-8319)
Danielle Green – Urban – (green.danielle@epa.gov / 312-886-7594)
- Habitats and Species:
T. Kevin O'Donnell (odonell.thomas@epa.gov / 312-886-0813)
- Foundations for Future Restoration Actions:
Hinchey Malloy, Elizabeth (hinchey.elizabeth@epa.gov / 312-886-3451)

EAGL Information System Administrator: Ken Klewin, GLNPO IT Specialist (klewin.kenneth@epa.gov / 312-886-4794).

GLNPO Reporting Coordinator: Mike Russ (russ.michael@epa.gov / 312-886-4013). The Reporting Coordinator coordinates with the Focus Area Leads and the EAGL System Administrator in utilizing data from EAGL 2 to meet programmatic reporting requirements.

Measure: 1.1.1. Areas of Concern where all management actions necessary for delisting have been implemented.

1. Description: This measure tracks the number of U.S. or Binational Great Lakes Areas of Concern where all management actions necessary for delisting have been implemented.

2. Definitions of terms used in this measure:

- **Great Lakes Areas of Concern (AOCs)** are severely degraded geographic areas within the Basin as described in Annex 1 of the 2012 Protocol to the U.S.-Canada Great Lakes Water Quality Agreement.
- **Management Actions Necessary for Delisting** are the actions identified by stakeholders in the AOC and the states in a Remedial Action Plan (RAP) that outlines the reasonable and realistic management actions that could be taken to remove the relevant Beneficial Use Impairments (BUIs) and, hence, delist the AOC. Such management actions are the set of local, state and federal actions that are believed to be necessary to remove the impairment. These actions may not result in the removal of a set of BUIs immediately; however, these actions are expected to allow environmental conditions to improve, leading to the eventual delisting of the AOC.

3. What results are acceptable to count for this measure?

- Completion of all of an AOC's state-identified Management Actions. Management Action examples include:
 - Completion of a remediation project that will lead to controlling contamination source(s);
 - Completion of a habitat restoration project that will lead to improving environmental conditions.

4. What results are unacceptable to count for this measure?

- Ongoing or periodic monitoring programs that provide information on environmental conditions.
- Staff work or time spent on projects that support the ongoing work at an AOC.

5. When to count results for or identify a project with this measure:

- "Project supports measure but will not have a numeric result" is selected for applicable projects.
- **Only the Measure Lead** may enter results for this measure. Results are counted only following delivery of either: (i) applicable state documentation to the effect that all the requisite work for all of the management actions at the AOC has been completed or (ii) a memo to the GLNPO Director from the applicable AOC Task Force Lead, through the appropriate EPA manager, verifying the completion of all management actions previously identified by the applicable State as necessary for delisting (e.g., a Legacy Act dredging project that takes place over a 6 month period would be considered a completed management action at the end of that 6 month period). The results of that completed work need not be realized in order for the necessary management actions to be completed.
- Although projects generally identify primary, secondary, and tertiary measures, only identify projects with this measure that directly contribute to the ultimate purpose of completing all Management Actions Necessary for Delisting. Do not identify projects with this measure that: (i) only indirectly contribute to completion of such Management Actions or (ii) begin after the AOC's delisting.

6. Measure Lead: Amy Pelka (312-886-6785 /pelka.amy@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 16 | 18 | 19 | 20 | 22 |

Units are the number of AOCs. Targets are cumulative.

8. Universe: There were once a total of 43 Great Lakes AOCs: 26 located entirely within the United States; 12 located wholly within Canada; and 5 shared by both countries. The Universe is the 31 United States or Binational AOCs.

9. Baseline: The baseline is the 12 AOCs where all management actions had been implemented as of September 30, 2018.

10. Data Source and Calculation:

(a) Data Source

GLNPO's AOC Task Force Leads provide the data for this measure from reports and other information regarding projects undertaken via GLRI funding and/or other state programs. The AOC Task Force leads are GLNPO staff members who oversee AOCs, including the tracking of BUIs and completion of management actions. Task Force Leads receive their information from State AOC program managers. Local AOC leads provide information to State AOC leads.

(b) Data Collection and Transmission

GLNPO Task Force Leads collect and track data about the management actions taken by AOC stakeholders (including state agency staff and managers and local AOC members) by reviewing reports and other information. GLNPO Task Force Leads coordinate with their state and local counterparts to verify their information. When all management actions necessary to delist the AOC have been completed, the Task Force Lead documents that fact in a memorandum (the Completion Memo) through the Measure Lead to the GLNPO Director. EPA's Measure Lead places the signed Completion Memo in AOC program files as management actions are completed.

EPA's Measure Lead annually enters the result in EAGL and delivers an e-mail into EAGL as supporting documentation.

11. Data Limitations/Qualifications:

Known sources of error include the provision of premature data by a state to the Task Force Lead.

Measure: 1.1.2. Beneficial Use Impairments removed in Areas of Concern.

1. Description: This measure tracks the number of beneficial use impairments (BUIs) removed within the 31 U.S. or Binational Great Lakes Areas of Concern (AOCs); however, since the source of information for this measure is outside of EAGL2, RWG agencies should only select measure 1.1.1, not measure 1.1.2, for projects related to this measure.

2. Definitions of terms used in this measure:

- **Approval Letter** is the letter signed by the GLNPO Director approving a state BUI removal package.
- **Great Lakes AOCs** are severely degraded geographic areas within the Basin as described in Annex 1 of the 2012 Protocol to the U.S.-Canada Great Lakes Water Quality Agreement.
- **Beneficial Use Impairments:** Any of the 14 impairments described at: <https://www.epa.gov/great-lakes-aocs/beneficial-use-impairments-great-lakes-aocs>
- The **BUI removal package** consists of a state letter and associated documentation to the effect that: (i) all management actions necessary for removal of the BUI have been completed and the applicable BUI removal targets have been met and (ii) monitoring data indicates that the BUI removal targets have been met and environmental conditions have improved such that the impairment no longer exists. The BUI removal package is submitted by the state to the GLNPO Director via AOC Task Force Leads following appropriate coordination among EPA, state staff and local entities to determine that BUI removal targets have been met.
- **Remedial Action Plans (RAPs)** address one or up to 14 BUIs associated with an AOC. State or local stakeholders establish BUI removal criteria for associated BUIs. RAPs are developed by the state for each AOC and outline the management actions needed to meet these criteria and thus remove the associated BUIs.
- A **removed** BUI indicates that the state and GLNPO Director have ratified that all management actions necessary for removal of the BUI (determined by the RAP) have been completed and the BUI removal targets have been met.

3. What results are acceptable to count for this measure?

- Monitoring data indicates that the BUI removal targets have been met and environmental conditions have improved such that the impairment no longer exists, and the applicable state has submitted a BUI removal package to the GLNPO Director, and the GLNPO Director has transmitted the Approval Letter to the state, approving the state's BUI removal package.

4. What results are unacceptable to count for this measure?

- All actions determined by the state or local stakeholder necessary through a RAP (or other removal criteria) to remove the BUI have not yet been completed.
- Monitoring data does not indicate that environmental conditions have improved to achieve the restoration targets.
- The state has not transmitted a BUI removal package to the GLNPO Director.
- The GLNPO Director has not transmitted the Approval Letter to the state.

5. When to count results for this measure:

- "Project supports measure but will not have a numeric result" is selected for applicable projects.
- **Only the Measure Lead Counts results for this measure. This measure is NOT identified for any projects. RWG agencies select measure 1.1.1 for projects contributing to BUI removal.**

- Count results only when the GLNPO Director transmits the Approval Letter to the state, approving their BUI removal package.
- The date of the Approval Letter is the date of the BUI removal.

6. Measure Lead: Amy Pelka (312-886-6785 / pelka.amy@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 93 | 101 | 109 | 118 | 128 |

Units are the number of BUIs removed. Targets are cumulative.

8. Universe: A total of 255 BUIs have been identified in 26 AOCs located entirely within the United States and the 5 AOCs that are shared by both the United States and Canada.

9. Baseline: The baseline is 80 BUIs removed as of September 30, 2018.

10. Data Source and Calculation:

(a) Data Source

The Measure Lead is the data source for results entered into EAGL for this measure. The Measure Lead uses source information collected from the GLNPO Director and the applicable U.S. state to report results for this measure.

(b) Data Collection and Transmission

The measure lead collects the BUI Removal Package and the Approval Letter indicating that all management actions necessary for removal of the BUI have been completed and the BUI removal targets have been met. EPA's Measure Lead places copies of the BUI Removal Package and the Approval Letter in AOC program files when the Approval Letter is sent.

EPA's Measure Lead annually enters the result in EAGL and delivers an e-mail into EAGL as supporting documentation.

11. Data Limitations/Qualifications:

GLNPO relies on verification by the States to provide monitoring data and supporting documentation that indicates that BUI removal targets have been met and a BUI can be removed. EPA technical staff review such requests, as input to management decisions. Known sources of error include the input of unacceptable data by a state or local partner, data that is incomplete regarding management actions and other data that may be applicable to actions in the AOC but are not relevant to actions that lead to BUI removal. When all BUIs have been removed the site is eligible for the state to formally request delisting as an AOC.

While approval itself could take up to a month after a State transmits its letter and associated documentation, no data lag is expected from the time the GLNPO director transmits the Approval Letter.

Measure: 1.1.3. Areas of Concern with a complete and approved list of all management actions necessary for delisting.

1. Description: This measure tracks the number of U.S or Binational Areas of Concern for which there is where a complete and approved list of all management actions necessary for delisting; however, since the source of information for this measure is outside of EAGL2, RWG agencies should only select measure 1.1.1, not measure 1.1.3, for projects related to this measure.

2. Definitions of terms used in this measure:

- **Great Lakes Areas of Concern (AOCs)** are severely degraded geographic areas within the Basin as described in Annex 1 of the 2012 Protocol to the U.S.-Canada Great Lakes Water Quality Agreement.
- **Management Actions Necessary for Delisting** are the actions identified by stakeholders in the AOC and the states in a Remedial Action Plan (RAP) that outlines the reasonable and realistic management actions that could be taken to remove the relevant Beneficial Use Impairments (BUIs) and, hence, delist the AOC. Such management actions are the set of local, state and federal actions that are believed to be necessary to remove the impairment. These actions may not result in the removal of a set of BUIs immediately; however, these actions are expected to allow environmental conditions to improve, leading to the eventual delisting of the AOC.
- **Management Action Lists** are the set of local, state and federal actions that are believed to be necessary to remove the relevant BUIs.

3. What results are acceptable to count for this measure?

- Management Action Lists will be accepted as complete only following both receipt of the State's finalized list AND the approval of the GLNPO Director. A management action list is the State's finalized document listing all management actions required for delisting the AOC.

4. What results are unacceptable to count for this measure?

- Anything less than the GLNPO Director's approval will not be counted.

5. When to count results for this measure:

- **Only the Measure Lead Counts results for this measure. This measure is NOT identified for any projects. RWG agencies select measure 1.1.1 for projects contributing Management Action completion.**
- This measure will be recorded in EAGL 2 once the GLNPO Director's letter of approval of the State's final Management Action List has been sent to the State.

6. Measure Lead: Amy Pelka (312-886-6785 / pelka.amy@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 22 | 24 | 26 | 28 | 31 |

Units are number of AOCs. Targets are cumulative.

8. Universe: There were once a total of 43 Great Lakes AOCs: 26 located entirely within the United States; 12 located wholly within Canada; and 5 shared by both countries. The Universe is the 31 United States or Binational AOCs.

9. Baseline: The baseline is the 18 AOCs for which there is where a complete and approved list of all management actions necessary for delisting as of September 30, 2018.

10. Data Source and Calculation:

(a) Data Source

The Measure Lead is the data source for results entered into EAGL for this measure. The Measure Lead uses source information collected from the GLNPO Director and the applicable U.S. state to report results for this measure.

(b) Data Collection and Transmission

The measure lead collects the State's finalized management action list and the GLNPO Director's Approval Letter indicating that all management actions necessary for the AOC to be delisted have been identified. EPA's Measure Lead collects the State's finalized list and GLNPO Director's Approval Letter and places these in AOC program files when the Approval Letter is sent.

EPA's Measure Lead annually enters the result in EAGL and delivers an e-mail into EAGL as supporting documentation.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 1.2.1. State and tribal organizations that collect and share information with vulnerable populations regarding the consumption of Great Lakes fish, wildlife, and harvested plant resources.

1. Description: This measure tracks the number of unique/individual State and Tribal organizations that, under GLRI-funded awards, will collect and share information with vulnerable populations regarding the consumption of Great Lakes fish, wildlife, and harvested plant resources.

2. Definitions of terms used in this measure:

- **State and Tribal Organizations:** State government, Tribes and Intertribal Commissions.
- **Collect and Share Information:** Collecting and sharing relevant information, as determined by the States and Tribes, to meet the needs of vulnerable populations in their communities.
- **Vulnerable Populations:** Specific highly exposed, highly sensitive, or highly susceptible subgroups or subpopulations within the larger population. These individuals may experience greater exposure with environmental contaminants due to racial or cultural factors, geographic area, unique activity patterns, preferences, behaviors, and various sociodemographic characteristics. These populations (e.g., women of child bearing age, subsistence anglers, various ethnic groups) may be more susceptible to chemicals or pollutants based on their sex, lifestage and disease status, nutrition status, geographic proximity to sources of exposure, and various lifestyle choices.
- **Harvested Plant Resources:** Plant and plant by-products harvested and consumed by Native American tribes and other individuals in the Great Lakes Basin.

3. What results are acceptable to count for this measure?

- The number of individual State government agencies, Tribes and Intertribal Commissions State or Tribal Organizations that have received awards, sub-awards, and any amendments that increase funding under this measure, provided that such individual entities are limited to a count of one for the year, regardless of the number of awards, sub-awards, and amendments which awarded in a given year.

4. What results are unacceptable to count for this measure?

- Summing multiple awards, sub-awards, and amendments which support this measure for each State government agency, Tribe and/or Intertribal Commission in the fiscal year results. Only one entity is counted even if multiple awards, sub-awards, and amendments increase its funding in the fiscal year

5. When to count results for this measure:

- Count results on an annual fiscal year basis once in the year when it is made.

6. Measure Lead: Jackie Fisher (312-353-1481 / fisher.jacqueline@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure. The Measure Lead will identify new awards, sub-awards, and amendments annually to provide cumulative results.

Units are the number of unique State and Tribal organizations issued an award, amendment, or sub-award.

8. Universe: N/A

9. Baseline: None. This is a new measure.

10. Data Source and Calculation:

Agencies select this measure for projects conducting the activities in this measure's definition. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results. The Measure Lead works with data contacts and project officers so that results are entered into EAGL. For a count of one, the entry itself is sufficient as supporting documentation; however, the Measure Lead ensures that additional documentation is provided to support higher counts for individual projects.

11. Data Limitations/Qualifications: Results under this measure provide an indication that organizations are involved in the collection and sharing of information with vulnerable populations; however, this measure should not be used to evaluate the quality or effectiveness of such actions.

Measure: 1.3.1. Discrete chemical monitoring and assessment activities conducted.

1. Description: This measure tracks the number of discrete chemical monitoring and assessment activities conducted under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Discrete monitoring and assessment activities** are projects that collect, analyze, and report on status and/or trends of the GLWQA Annex 3 “Chemicals of Mutual Concern” and other priority chemicals in the Great Lakes.
- **Long-term base monitoring programs** – Programs under the GLNPO base monitoring efforts that monitor contaminants in the great lakes funded under Focus Area 5, which includes the Integrated Atmospheric Deposition Network (IADN), The Great lakes Fish Monitoring and Surveillance Program (GLFMSP), and the Great Lakes Sediment Surveillance Program (GLSSP).

3. What results are acceptable to count for this measure?

- An activity is acceptable if it has completed all stages of monitoring and/or assessment in a given year.

4. What results are unacceptable to count for this measure?

- Long-term base monitoring programs that measure contaminants in the Great Lakes

5. When to count results for this measure:

- “Project supports measure but will not have a numeric result” is selected for applicable projects.
- A project can be counted when a monitoring or assessment activity has been completed.

6. Measure Lead: Derek Ager (312-353-7463 / ager.derek@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with annual results. Units are number of activities.

8. Universe: N/A.

9. Baseline: 0. This is a new effort under Action Plan III.

10. Data Source and Calculation:

Agencies select this measure for GLRI-funded projects that conduct discrete chemical monitoring and assessment activities. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results for this measure. The Measure Lead enters results into EAGL and ensures that associated supporting documentation is included in EAGL. The Measure Lead will use this information to report annually on work done to identify and address science priorities to support implementation of GLRI and the Great Lakes Water Quality Agreement.

The Measure Lead places a summary of each fiscal year's discrete chemical monitoring and assessment activities for measure 1.3.1 into the EAGL2 "General EPA document" section, or such other location as shall be developed for it.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 2.1.1. Rapid responses or exercises conducted.

1. Description: This measure tracks the number of rapid responses or exercises conducted under GLRI-funded projects with the goal of preventing the introduction of invasive species to the Great Lakes basin.

2. Definitions of terms used in this measure:

- **Conducted** means implementation has been completed. Note that some rapid response activities can span weeks or months.
- **Control** activities reduce the population of already widely established species that are commonly found in the watersheds of all Great Lakes (e.g., Eurasian Watermilfoil, Phragmites, Curly-leaf Pondweed, Round Goby).
- **Exercises** are training drills, ranging from "table top" discussions to simulated on-the-ground or on-the-water actions, in which responses to fictional scenarios are practiced.
- **Rapid** means the response takes place in a timely manner before a species becomes widely established across all Great Lakes (e.g., Eurasian Watermilfoil, Phragmites, Curly-leaf Pondweed, Round Goby). The actual amount of time may vary significantly given the specific species and the ecology of the invasion site. Note: in contrast to chemical emergencies, biological response actions may occur within days or months and, in rare cases, several years after detection. Biological response actions are typically complex and require the consideration of not just the removal of invasive species, but also the protection and/or minimization of damage to the native resources within the invasion site. Significant time may be needed for planning before a mobilization and response.
- **Response** is an on the ground/water action to eradicate a non-native species that is found in a new location or the same location in a new fiscal year. This may be a population in a new lake or even a geographically distinct location within the same lake..

3. What results are acceptable to count for this measure?

- On-the-ground or in-the-water response actions intended to eliminate populations of invasive species before they have a chance to become widely spread.
- Completion of additional rapid responses or exercises for the same population/location in subsequent fiscal years when prior-year responses were previously counted.
- Exercises to rehearse multi-agency rapid response actions, including "table-top exercises" and field exercises.
- In the case of multi-agency exercises, the result is equal to the number of agencies that act in the incident commander role.
- Acceptable responses are typically within the Great Lakes basin, but actions outside the basin are counted if they reduce the risk of a Great Lakes population becoming established, e.g., Asian Carp actions within the Chicago Area Waterway System.

4. What results are unacceptable to count for this measure?

- A response or exercise is counted once it has been completed, not upon initiation.
- Rapid responses after the primary eradication effort is completed that are at the same location within the same calendar year.
- Control actions or activities to reduce common, wide-spread invasive species from sites.

- Site visit or other activity to confirm the reported presence of an AIS in a new location – this is considered part of early detection.
- Mapping the extent of an AIS to determine what response is appropriate – this is considered an early step in the planning process for a rapid response.
- Outreach to reduce likelihood of spread to other locations
- In the case of multi-agency exercises, it is unacceptable to count an agency’s participation as an exercise if it merely supports another agency acting in the incident commander role.
- Actions outside of the Great Lakes basin that do not reduce risk of a Great Lakes invasion.
- Activities that are not from a GLRI-Funded project.

5. When to count results for this measure:

- A response or exercise is counted once it has been completed, not upon initiation.

6. Measure Lead: Kevin O’Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 8 | 8 | 8 | 8 | 8 |

Units are number of responses and exercises. Targets are annual, not cumulative.

8. Universe: N/A - The universe represents all rapid responses and exercises that could be done by GLRI-funded agencies. The universe is without limit.

9. Baseline: 8, representing an expectation that each Great Lakes State would conduct an exercise annually.

10. Data Source and Calculation:

The data source is the RWG agency that submits results to EAGL. RWG agencies collect and provide readily-available descriptions of the Response or Exercise funded by the agencies, including type of response, invasive species name, and start/end date for each year of appropriated GLRI funding. During each data call, agencies provide supporting documentation for any results they report. Agencies use best professional judgment to develop a short action narrative. The lead agency also uses best professional judgment to identify the nearest city and choose a representative date (month, year) and representative coordinates (in latitude, longitude) for the action.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 2.1.2. Projects that manage pathways through which invasive species can be introduced to the Great Lakes ecosystem.

1. Description: This measure tracks the number of GLRI-funded projects that manage pathways through which invasive species can be introduced to the Great Lakes ecosystem.

2. Definitions of terms used in this measure:

- **Aquatic** species are any species that grows, lives, or frequents water, including river, lake, coastal, and wetland environments.
- **Invasive species** are non-native species that are not intentionally introduced or managed within the Great Lakes basin ecosystem.
- **Manage** is a general term that applies to a wide range of actions that prevent introduction of invasive species, or limit its movement, beyond its current range.
- **Pathways** includes any means by which invasive species can be moved beyond their range, including: commercial shipping (ballast water and hull fouling); recreational boats (ballast, bilge, livewell and baitwell water and hull/trailer fouling); other recreational/resource users (hiking, birding, diving, hunting, shorefishing, waterplanes); aquatic organisms in commercial trade (nursery and water garden trade, bait shops, aquarium trade, and internet trade); and canals/waterways.

3. What results are acceptable to count for this measure?

- Projects that prevent the establishment of invasive species in the Great Lakes basin ecosystem, including enforcement and commercial harvesting of Asian Carp in waters connected and outside the Great Lakes basin.
- Projects that prevent the movement of species through Pathways described above.
- Projects may include but are not limited to: development of ballast water management programs, education and outreach campaigns, boat wash facilities, species risk assessments to inform management of organisms in trade, and investigations of contamination by invasive species at various points of sale (internet trade, nursery trade, bait trade, etc.).

4. What results are unacceptable to count for this measure?

- Control actions or activities to reduce common, wide-spread invasive species from sites.
- Actions outside the Great Lakes basin that do not reduce risk of invasion to the Great Lakes.
- Activities that are not associated with a GLRI-funded project.
- Rapid responses/exercises and early detection monitoring are unacceptable to count for this measure. These activities should be counted under Measures 2.1.1 and 2.1.3, respectively.

5. When to count results for this measure:

- Results for this measure are counted when a project has been sufficiently planned and funded by the RWG agency (such as through the issuance of grants, signing of contracts, etc.) such that an agency can identify it as a new record in EAGL.
- A new record in EAGL is required whenever a project is funded with a new fiscal year's appropriation; consequently, even if activities are conducted at the same place for the same purpose, those activities will count as separate projects for each new relevant appropriation that funds them.

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with annual results.

8. Universe: N/A

9. Baseline: Average of 16.25 from FY 2015 through FY 2018.

10. Data Source and Calculation:

RWG agencies enter into EAGL the applicable annual result, as a number, of projects for this measure that manage pathways through which invasive species can be introduced to the Great Lakes ecosystem. During each data call, agencies provide supporting documentation for any results they report.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 2.1.3. Early detection and surveillance activities conducted.

1. Description: This measure tracks the number of early detection and surveillance activities conducted under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Activities** are groups of similar early detection monitoring actions. A monitoring program focused on a particular species or using a particular sampling approach is a single activity.
- **Conducted** means the monitoring activity has commenced (e.g., sample collection is being conducted). Funding alone is not enough; however, the activity does not need to be fully completed to be counted. The date of the initial sample collection is considered to be when the monitoring was “conducted” during the fiscal year.
- **Early detection monitoring** means monitoring that is intended to detect populations of invasive species and communicate such detections to management agencies.

3. What results are acceptable to count for this measure?

- Monitoring activities that collect environmental data to detect populations of invasive species in the Great Lakes basin ecosystem.
- Monitoring for any species that has the potential to become established in a new location within the basin
- Monitoring activities that take place outside of the Great Lakes basin ecosystem (e.g., Asian Carp monitoring activities in the Chicago Area Waterway System) are acceptable if the intent is to prevent these species from becoming established in the Great Lakes basin ecosystem.
- Monitoring activities can include conventional fishing, electrofishing, netting, trapping, environmental DNA sampling, genomic techniques, and other molecular methodologies.
- If multiple funding streams are used to conduct a single monitoring activity in a fiscal year, report this one time under the funding stream that contributed most toward the work.
- Count multi-year monitoring activities once per fiscal year that monitoring is conducted.

4. What results are unacceptable to count for this measure?

- Individually counting multiple actions that support a single monitoring goal. Group and report as a single activity: recording of multiple samples, conducting actions on different dates, or conducting actions at multiple locations to support a single monitoring goal.
- Counting a monitoring activity more than once during a fiscal year.
- Monitoring for widely established species that are commonly found in the watersheds of all Great Lakes (e.g., Eurasian Watermilfoil, Phragmites, Curly-leaf Pondweed, Round Goby).
- Activities outside of the Great Lakes basin that do not reduce risk of Great Lakes invasion.
- It is unacceptable to count the same monitoring activity under more than one funding source. For example, if several state ANS plan grants are used to implement a single monitoring activity, it should only be reported once under the grant that provided most of the funding used to implement the work.

5. When to count results for this measure: Results “count” when the monitoring has been “conducted” as defined above. A single monitoring activity is counted once each fiscal year the monitoring activity is “conducted.”

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with annual results.

8. Universe: N/A

9. Baseline: Average of 12.25 from FY 2015 through FY 2018.

10. Data Source and Calculation:

RWG agencies enter into EAGL the applicable annual result, as a number, of early detection and surveillance activities conducted annually. During each data call, agencies provide supporting documentation for any results they report.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

2.2.1. Aquatic/terrestrial acreage controlled.

1. Description: This measure tracks the aquatic/terrestrial acreage controlled under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Aquatic/terrestrial** means all habitat types within the Great Lakes basin, whether they are covered in water or not.
- **Acreage or Acre** means the unit of area equivalent to 1/640th of a square mile or 43,560 square feet. Acres includes the total geographic area addressed by a management action, recognizing that most invasive species infestations will vary in their percent coverage. Acreage can be determined through a variety of means, including but not limited to line transects, randomized plot sub-sampling, estimation based on photographic surveys, GPS mapping, and professional judgment.
- **Controlled** means the acreage has received an initial treatment as part of a GLRI-funded project to reduce the populations of an invasive species that is widely established and commonly found in the watersheds of all Great Lakes (e.g., Eurasian Watermilfoil, Phragmites, Curly-leaf Pondweed, Round Goby).
- **Retreatment** means the subsequent treatment of an area after a previous invasive species control project period has ended, which is typically more than a single field season.

3. What results are acceptable to count for this measure?

- Controlled terrestrial, wetland, or aquatic acreage resulting from the initial treatment that reduces common, wide-spread invasive species from project sites, which may take days, weeks, months, or in some cases years.
- Acreage resulting from the Retreatment of acres that have already received an initial treatment from a previous different and distinct GLRI-funded project where the population was considered eradicated but is subsequently found and a new treatment plan is developed and enacted in a separate “phase 2” project.
- Acreage may be identified by methods using professional judgment acceptable to the GLRI funding agency including but not limited to line transects, randomized plot sub-sampling, estimation based on photographic surveys, use of GPS mapping, and manual calculations through direct observation.

4. What results are unacceptable to count for this measure?

- Acreage resulting from actions that address species that are not widely-established. (These are considered “rapid responses”.)
- Acreage that were surveyed for invasive species, but that did not receive a control action.
- Acreage resulting from activities that are not fully or partially funded through the GLRI.
- Subsequent treatment acreage during the same project period. During a single project period of 2-3 years (e.g., “phase 1” project), spot retreatments in consecutive years may be necessary to achieve project period goals but should not be included in the acreage reported. For example, if a single project lasting two years treats 20 acres in year 1, then treats 20 new

acres in year 2 as well as 2 acres of spot retreatments in areas treated during year 1, the total area reported in EAGL will be 40 acres, not 42 acres.

- Overlapping treatment acreage from the same project defined by target species. For example, if species A treatment acreage is 20 acres during the project, species B treatment acreage is 20 acres during the project, and each species overlaps for a total of 10 acres, the total area reported in EAGL will be 30 acres, not 40 acres.

5. When to count results for this measure:

- Count results when the acreage received the initial treatment to reduce the populations of invasive species. When acreage is Retreated as part of the same project, it is not counted.
- Reporting should be done in the first reporting period when results can be calculated and documented, even if that is after the reporting period in which the initial treatment occurred – do not attempt to change results that have already been reported.

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 165,000 | 171,000 | 177,000 | 183,000 | 189,000 |

Units are acres. Targets are cumulative.

8. Universe:

Not Available. The universe would represent all possible acres which could have invasive species removed in the Great Lakes. Developing such data would be a significant resource commitment beyond the scope of the GLRI.

9. Baseline:

153,569 acres. This is the total aquatic/terrestrial acreage reported to be controlled under GLRI as of September 30, 2018.

10. Data Source and Calculation:

RWG agencies enter into EAGL the applicable annual result. During each data call, agencies provide supporting documentation for any results they report.

Various methods may be used to calculate acreage including but not limited to line transects, randomized plot sub-sampling, estimation based on photographic surveys, use of GPS mapping, manual calculations through direct observation, and other methods using professional judgment acceptable to the GLRI funding agency. Partial acres should be rounded to the nearest acre.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 2.3.1. Technologies and methods field tested.

1. Description: This measure tracks the number of technologies and methods field tested under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Field tested** means completed testing in environments comparable to the Great Lakes basin ecosystem or under field-like conditions. Due to the potential risk of testing effectiveness on invasive species, some of the testing may be under simulated field conditions. Field testing is considered complete when the testing demonstrates the successful development of the technology or when testing demonstrates a technology or method is not suitable/effective for use in the Great Lakes.
- **Methods** includes new approaches or protocols for effectively using existing tools for prevention or control of invasive species.
- **Technologies** includes any type of physical, chemical, or biological management tool that prevents or controls invasive species, including but not limited to ballast water treatment technology, attractant or dispersal pheromones, electronic imaging technology, and molecular species detection tools.

3. What results are acceptable to count for this measure?

- Technologies include but are not limited to ballast water treatment technology, attractant or dispersal pheromones, electronic imaging technology, and molecular detection tools.
- Methods include improvements in timing of treatment, combining multiple technologies to increase effectiveness, and other systematic approaches for prevention or control.

4. What results are unacceptable to count for this measure?

- Technologies or methods that are not relevant to invasive species prevention and control in the Great Lakes.
- Previously proven technologies or methods that are already in use in the Great Lakes.
- Technologies or methods field tested other than by GLRI-funded projects.
- Technologies or methods for which field testing has not yet been completed.

5. When to count results for this measure:

- Results are counted when field testing has been completed as described in Section 2 above.

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with cumulative results.

8. Universe: N/A

9. Baseline: Cumulative 92 technologies and methods field tested by GLRI-funded projects as of September 30, 2018.

10. Data Source and Calculation:

The data source is the RWG agency that submits results to EAGL. RWG agencies that fund the technology development include: DOT-MARAD for ballast water technology and US Fish and Wildlife Service for technology developed for Asian Carp. State Department-GLFC funds technology for Sea Lamprey control technology; however, as the funding mechanism for GLFC is an EPA grant, EPA does that data entry. The data collected by Federal Agencies includes descriptions of the technology/methods tested and the field testing conducted and funded by the agencies. During each data call, agencies provide supporting documentation for any results they report.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 2.3.2. Collaboratives developed/enhanced.

1. Description: This measure tracks the number of collaboratives developed or enhanced under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Collaboratives** means a group of agencies and stakeholders which shares information on prevention or control technologies, best management practices, monitoring protocols, and/or the state of science of a single invasive species or several related species. Collaborations are often coordinated by a lead agency.
- **Developed** means the initiation of a new species-specific collaboration.
- **Enhanced** means support by GLRI funding resulting in a substantial improvement of a collaboration that has not already been counted in EAGL, including but not limited to a major enhancement to services offered, substantially expanding membership, or substantially expanding outreach efforts.

3. What results are acceptable to count for this measure?

- Collaboratives to better coordinate prevention or control activities for one or more invasive species, provided that the collaborative is expected to continue for several years and it was developed or enhanced by GLRI-funded projects,
- Collaboratives, such as the Asian Carp Regional Coordinating Committee and the Phragmites Collaborative, enhanced as part of GLRI-funded projects.

4. What results are unacceptable to count for this measure?

- Uncoordinated actions that prevent or control an invasive species.
- Individual collaboration meetings or events that are not expected to continue for several years.
- Collaboratives that focus on species not relevant to the Great Lakes basin ecosystem.
- Collaboratives that were not developed or enhanced by GLRI-funded projects.
- An enhancement to a Collaborative that has already been counted (i.e., no double counting).

5. When to count results for this measure:

- **Only the Measure Lead Counts results for this measure. “Project supports measure but will not have a numeric result” is selected for applicable projects.**
- Results are submitted only by the lead agency and only when the collaborative has been initiated or enhanced. A collaborative is only counted once, either upon initiation or upon the first instance of enhancement to a collaborative that was not previously counted under GLRI.

6. Measure Lead: Kevin O’Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with cumulative results.

8. Universe: N/A

9. Baseline: Cumulative total of 10 as of September 30, 2018.

10. Data Source and Calculation:

Agencies select this measure for projects implementing collaboratives, as described above. Agencies includes descriptions of their GLRI-funded actions. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results for this measure (i.e. the number of collaboratives developed or enhanced). The Measure Lead enters results into EAGL and ensures that applicable supporting documentation is also included.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 3.1.1. Estimated pounds of phosphorus reductions from conservation practice implementation throughout Great Lakes watersheds.

1. Description: This measure tracks the pounds of phosphorus estimated to be reduced as a result of conservation practice implementation under GLRI-funded projects. Results for projects in any/all Great Lakes watersheds are counted for this measure.

2. Definitions of terms used in this measure:

- **Phosphorus reductions:** an estimate of how much the average annual phosphorus load or export from the land will decrease, either because less phosphorus is applied, more is taken up by crops/vegetation, or less is transported downstream. These are predictions based on actual performance data, edge of field research or application of models.
- **Conservation practice:** on-farm behaviors and physical activities on the land or riparian area that reduce phosphorus losses to the environment from soil erosion, agricultural stormwater runoff, subsurface drainage, or application of fertilizers (including manure).

3. What results are acceptable to count for this measure?

- Results associated with the establishment of conservation practices on farm fields, at the edge of field, in drainage ditches, or in streambanks and floodplains.
- Conservation practices that will remain in place for 3 years or more.
- Calculations based on performance over a long term (30 years or more) weather simulation time period to capture and incorporate known climatic variability.
- Results from implementation that is described within a GLRI-funded contract, grant award, or legal agreement between an entity (e.g., federal or state agency, local entity) and the private landowner and/or project partner.
- Results and acres are only counted once, even if additional conservation practices occur on the same acreage, or the same practice is implemented multiple times in the project period.

4. What results are unacceptable to count for this measure?

- Results from initial grant awards or project plans that do not yet identify the specific locations where conservation practices will be implemented or secure landowner agreements to adopt behavioral/physical activities.
- Results associated with implementation of additional conservation practices on acres for which phosphorus reductions have already been calculated.
- Results for practices that will be in operation for less than 3 years.
- Results calculated using an unapproved calculation methodology (see Section 10 below).

5. When to count results for this measure:

Results are to be calculated and reported for this measure for the reporting period in which the project implementation has been sufficiently described and captured within a contract, grant award, or legal agreement between an entity (e.g., federal or state agency, local entity) and the private landowner and/or project partner. Additional progress is not reported once the initial phosphorus reduction estimate has been reported.

6. Measure Lead: Santina Wortman (312-353-8319 / wortman.santina@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|-----------|-----------|-----------|-----------|-----------|
| 1,600,000 | 1,900,000 | 2,200,000 | 2,500,000 | 2,800,000 |

Units are pounds. Targets are cumulative.

8. Universe: N/A

9. Baseline: 1,113,603 pounds.

10. Data Source and Calculation:

For most conservation practices, agencies will use a methodology developed by the NRCS specifically for Great Lakes watersheds, based on the results of their Conservation Effects Assessment Project (CEAP) studies in the region. Results for conservation practices for which performance data is not yet available from NRCS, will use other methods or models to derive the estimated phosphorus reduction, as necessary. Results and methods will be reviewed and approved by the EPA Measure Lead, in consultation with NRCS. During each data call, agencies provide supporting documentation for any results they report.

(a) Data Source

The data source may be an RWG agency or their funding recipients and sub-recipients. Only RWG agencies report into the EAGL system.

Federal agencies may use the NRCS lookup tables or another method approved by the EPA Measure Lead to calculate the phosphorus reduction before entering results into EAGL. The principal agencies reporting into the EAGL system, with their primary data sources, are expected to be:

- US Department of Agriculture – Natural Resources Conservation Service (NRCS) ProTracts Software: is a web-enabled application used to manage NRCS conservation program applications and cost share contracts with private landowners and containing associated project details including schedules of conservation practices to be implemented from application through contract completion. NRCS also uses data from their National Conservation Planning Database (NPAD) which is matched with the Protracts data.
- US Environmental Protection Agency (EPA) – EPA assistance agreements and grantee progress reports that identify the planned phosphorus reduction practice or suite of practices; an estimate of the land area impacted by planned practice or suite of practices; and the spatial location of land areas impacted by the (i.e., watersheds, counties).
- US Army Corps of Engineers (USACE) – Individual, finalized project technical and design documents used for by contractors for construction at individual project sites, indicating the land area impacted by phosphorus reduction practices and specific project elements that are employed.

(b) Data Collection

Agencies use the following approved methods for data collection and reporting.

NRCS:

- NRCS developed a series of “lookup tables” that can be applied to a land area impacted by a conservation practice or suite of practices in a watershed (HUC8 level) to calculate average annual total phosphorus reduced (lbs). These calculations are customized by practice type, practice grouping, and watershed location, incorporating local, regional conditions and processes important to phosphorus loss. There are two key practices that are not available in the lookup tables: waste storage facilities and gypsum applications. For these practices, the NRCS uses literature based benefits estimates and NRCS manure storage planning software tools to estimate P reductions.
- NRCS enters results into EAGL after NRCS Resource Assessment Branch (RAB) CEAP staff apply the lookup tables to contract information in Protracts and NPAD. Official certified USDA NRCS ProTracts data is available by mid-November for funds obligated in prior fiscal years.
- In addition, NRCS reports phosphorus reductions from project partners, such as the Great Lakes Commission’s Great Lakes Sediment and Nutrient Reduction Program. The GLC compiles phosphorus reductions from grantee progress reports and individual project workplans.

EPA:

- For EPA projects, **project officers** report **acreage** as a comment. The EPA Measure Lead enters results into EAGL after applying the same NRCS lookup tables, where possible, to project information supplied by EPA project officers in EAGL. If practices are not available in the NRCS lookup tables, EPA will use the best available information to derive a conservative estimate. Method of calculation will vary, depending on project type and grantee’s choice of model to estimate benefits of implementation, but must be an approved, recognized model appropriate for watershed planning. Acceptable models may include the EPA’s Spreadsheet Tool for Estimating Pollutant Loads (STEPL: <https://www.epa.gov/nps/spreadsheet-tool-estimating-pollutant-loads-stepl>) or The Long-Term Hydrologic Impact Assessment (L-THIA) model (<https://engineering.purdue.edu/~lthia/>).

USACE:

- USACE projects generally do not use the NRCS lookup tables as their work occurs in stream corridors and wetlands. Instead, USACE staff use the best available information to derive a conservative estimate of phosphorus reduction, based on final design specifications and specific project elements employed. A supporting watershed model such as L-THIA may be used.
- USACE enters phosphorus into the EAGL system when projects move from design to construction.

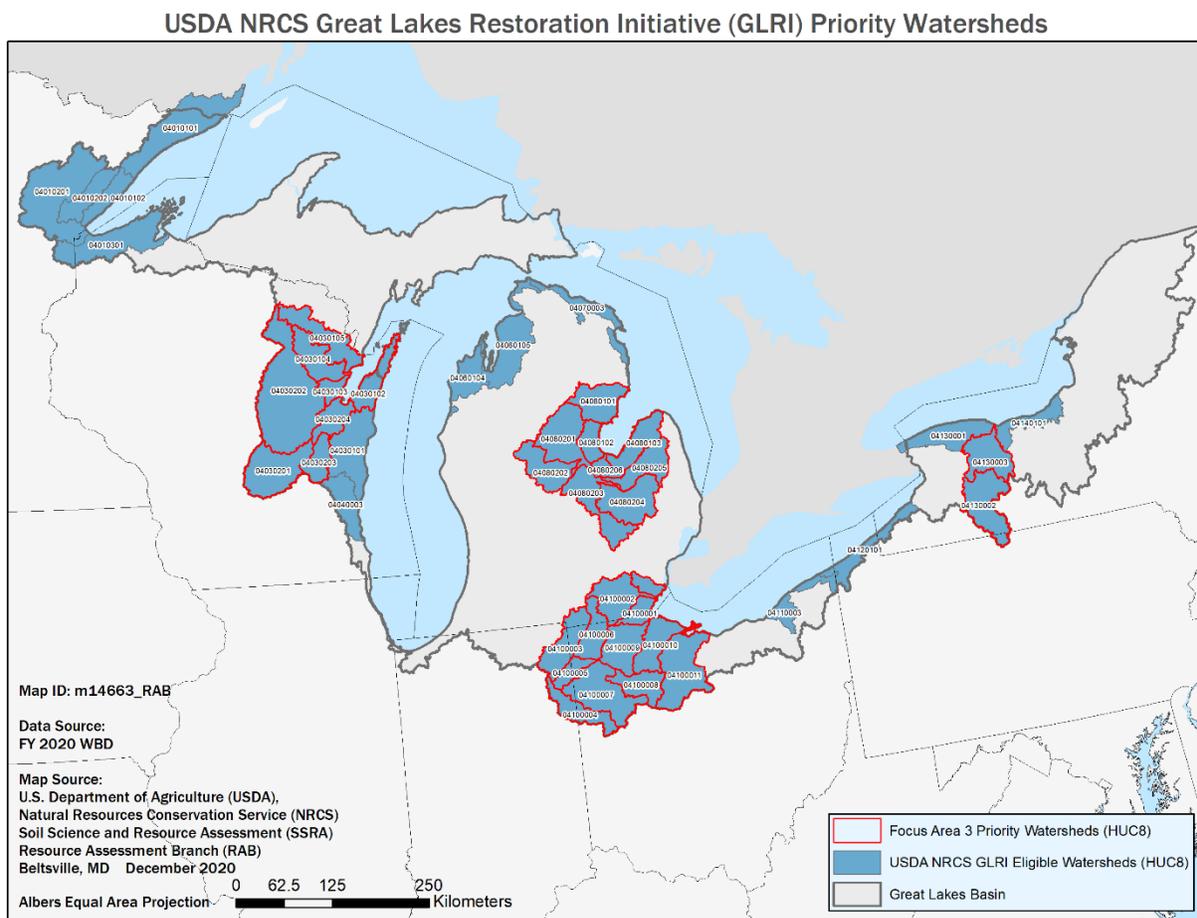
11. Data Limitations/Qualifications: The general data limitations/qualifications apply. An assumption is made that NRCS contracts with private landowners will be implemented largely as planned. It is also assumed that conservation practices will be maintained long term (results are cumulative).

Measure: 3.1.2. Acres receiving technical or financial assistance on nutrient management in priority watersheds.

1. Description: This measure tracks the cumulative number of cropland acres in specific priority watersheds that receive assistance from either GLRI or other NRCS programs to improve on-farm nutrient management.

2. Definitions of terms used in this measure:

- **Nutrient management:** managing the amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and groundwater pollution.
- **Priority Watersheds:** the Fox River and tributaries to Green Bay; the Saginaw River and tributaries to Saginaw Bay; the Maumee River and tributaries to western Lake Erie; and the Genesee River. See areas outlined in red on the map below and the respective hydrologic unit codes (HUCs).



Measure 3.1.2 tracks nutrient management adoption in the following 8-digit HUCs:

| Eight Digit HUC | Watershed Name | States |
|-----------------|----------------|--------|
| 04030102 | Door-Kewaunee | WI |

| | | |
|----------|------------------|------------|
| 04030103 | Duck-Pensaukee | WI |
| 04030104 | Oconto | WI |
| 04030105 | Peshtigo | WI |
| 04030201 | Upper Fox | WI |
| 04030202 | Wolf | WI |
| 04030203 | Lake Winnebago | WI |
| 04030204 | Lower Fox | WI |
| 04080101 | Au Gres-Rifle | MI |
| 04080102 | Kawkawlin-Pine | MI |
| 04080103 | Pigeon-Wiscoggin | MI |
| 04080201 | Tittabawassee | MI |
| 04080202 | Pine | MI |
| 04080203 | Shiawassee | MI |
| 04080204 | Flint | MI |
| 04080205 | Cass | MI |
| 04080206 | Saginaw | MI |
| 04100001 | Ottawa-Stony | MI, OH |
| 04100002 | Raisin | MI, OH |
| 04100003 | St. Joseph | IN, MI, OH |
| 04100004 | St. Marys | IN, OH |
| 04100005 | Upper Maumee | IN, OH |
| 04100006 | Tiffin | MI |
| 04100007 | Auglaize | IN |
| 04100008 | Blanchard | OH |
| 04100009 | Lower Maumee | OH |
| 04100010 | Cedar-Portage | OH |
| 04100011 | Sandusky | OH |
| 04130002 | Upper Genesee | NY, PA |
| 04130003 | Lower Genesee | NY |

3. What results are acceptable to count for this measure?

- Results from nutrient management projects funded under the GLRI or NRCS base programs (e.g. EQIP) that provide direct assistance in the form of cost sharing, soil testing, use of equipment, demonstration of technology, education or knowledge transfer on techniques to prevent the loss of manure or fertilizer applied to cropland.
- Results associated with the introduction or modification of nutrient management practices implemented on farm fields for a period of at least 3 years.
- Results from implementation that is described within a contract, grant award, or legal agreement between an entity (e.g., federal or state agency, local entity) and the private landowner and/or project partner.
- Results and acres are only counted once, even if subsequent assistance occurs on the same acreage, or assistance occurs multiple times in the project period.

4. What results are unacceptable to count for this measure?

- Results from initial grant awards or project plans that do not yet identify the specific locations where conservation practices will be implemented or secure landowner agreements to adopt behavioral/physical activities.
- Results for practices that will be in operation for less than 3 years.
- Results outside of the priority watersheds.
- Acreage is only counted one time even if receiving technical or financial assistance multiple times.

5. When to count results for this measure:

Results will be counted when the project implementation for those acres is sufficiently documented and verified by NRCS and EPA. Results will lag at least one year from actual implementation to prevent double counting across GLRI and other NRCS base programs to ensure the cumulative impacted acreage is correctly tracked against the baseline number of cropland acres available.

6. Measure Lead: Santina Wortman (312-353-8319 / wortman.santina@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|-----------|-----------|-----------|-----------|-----------|
| 2,200,000 | 2,370,000 | 2,515,000 | 2,685,000 | 2,817,500 |

Units are acres. Targets are cumulative.

8. Universe: 9,500 acres. (Previous calculation of 10,000,000 acres in Action Plan III included acreage that was not in priority watersheds.)

9. Baseline: 1,872,485 cumulative acres through FY 2017. (Previous calculation of 1,955,867 acres in Action Plan III included acreage that was not in priority watersheds.) Note that the results are only reported for these projects when those results can be calculated and available, which will be the year AFTER the technical or financial assistance is provided. For example, FY20 reporting will include acres receiving technical or financial assistance on nutrient management in priority watersheds in FY19.

10. Data Source and Calculation:

Results and methods will be reviewed and approved by the EPA Measure Lead, in consultation with NRCS.

(a) Data Source

The data source may be an RWG agency or their funding recipients and sub-recipients. Only RWG agencies report into the EAGL system. During each data call, agencies provide supporting documentation for any results they report.

The principal agencies reporting into the EAGL system, with their primary data sources, are expected to be:

- US Department of Agriculture – Natural Resources Conservation Service (NRCS) ProTracts Software: is a web-enabled application used to manage NRCS conservation program applications and cost share contracts with private landowners and containing associated project details including schedules of conservation practices to be implemented from application through contract completion. Other data sources include the National Planning and Agreements Database (NPAD) and USDA National Agricultural Statistics Service Cropland Data Layer.
- US Environmental Protection Agency (EPA) – EPA assistance agreements and grantee progress reports that identify the planned phosphorus reduction practice or suite of practices; an estimate of the land area impacted by planned practice or suite of practices; and the spatial location of land areas impacted by the (i.e., watersheds, counties).

(b) Data Collection

Data collection processes for NRCS and EPA are described below.

NRCS:

- NRCS enters results into EAGL after USDA Farm Production and Conservation Business Center pulls contracts data for the practice and NRCS Resource Assessment Branch (RAB) Analytics Lab staff analyze the contract information in Protracts along with data from the NPAD and Cropland Data Layer. Official USDA NRCS ProTracts data is available by mid-November for funds obligated in prior fiscal years.
- In addition, NRCS reports phosphorus reductions from project partners, such as the Great Lakes Commission's Great Lakes Sediment and Nutrient Reduction Program. The GLC compiles phosphorus reductions from grantee progress reports and individual project workplans.

EPA:

- EPA project officers enter data into EAGL from documents in EPA's financial tracking and award-making software. The software is used by EPA to store and organize grant award documents, including workplans that identify: (i) total phosphorus reduction

benefits; (ii) the area impacted by project elements; and (iii) behavioral/physical measures.

- EPA's Measure Lead summarizes acres by watershed and reporting period from EAGL for EPA grants.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply. In addition:

- Reporting against this measure is operating under the assumption that a field or land parcel is contracted only once using GLRI or NRCS funding. In addition, an assumption is made that contracts with private landowners will be implemented largely as planned.
- Some nutrient management practices are measured by number or linear feet or number of occurrences rather than by area. Converting these practices to acres impacted may introduce error.
- The reported acreage is the result of funding from both GLRI (reported as the GLRI amount) and NRCS (reported as leveraged funding).

Measure: 3.2.1. Estimated gallons (in millions) of untreated stormwater runoff captured or treated.

1. Description: This measure tracks the estimated number of gallons (in millions) of untreated stormwater captured or infiltrated under GLRI-funded projects, so if an agency is reporting 10,000,000 gallons, they would simply enter “10.”

2. Definitions of terms used in this measure:

- **Captured or infiltrated:** green infrastructure technologies used as means of reducing volume of urban nonpoint source pollution runoff in an effort to remove pollutants that degrade water quality of tributaries and coasts.
- **Mixed land cover watersheds:** have a combination of land use types that can differ in the proportion of use classes (e.g. urban, agricultural, forested, grasslands, open space, low density suburban).
- **Estimated volume:** Gallons (measured in millions per year) of untreated urban runoff captured or infiltrated due to implementation of GLRI-funded projects in urban areas. These gallons will be estimated for the reporting period in which they can first be identified for the project.
- **Untreated urban runoff:** nonpoint source surface runoff resulting from urbanization that is not captured or infiltrated in any way.
- **Urban watershed:** includes urban and downtown areas, city neighborhoods, suburban municipalities, and unincorporated areas characterized by encroaching urban sprawl (<http://www.indiancreekwp.org/watershed.html>)

3. What results are acceptable to count for this measure?

- Estimates of stormwater captured or infiltrated due to implementation of GLRI-funded projects in urban, rural, or mixed land cover watersheds.

4. What results are unacceptable to count for this measure?

- Results from projects implemented without the expenditure of GLRI funds.
- Results calculated using an unapproved calculation methodology (see Section 10 below).

5. When to count results for this measure:

Estimates are reported for this measure for the reporting period in which they can first be identified for the project:

- For U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), and for U.S. EPA, grants will include estimates when the project is funded.
- For U.S. Army Corps (USACE) that will generally be when the project moves from design to construction.

6. Measure Lead: Danielle Green (312-886-7594 / green.danielle@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 350 | 400 | 450 | 500 | 550 |

Units are gallons (in millions). Targets are cumulative.

8. Universe: N/A

9. Baseline: 252 million gallons cumulative through September 30, 2018.

10. Data Source and Calculation:

(a) Data Source

The data source may be USFS, USACE or U.S. EPA or their funding recipients and sub-recipients. During each data call, agencies provide supporting documentation for any results they report.

(b) Data Collection:

Only the three methods below are acceptable. The methodology that is used will be dependent on the best management practice being implemented to capture or treat runoff:

- USFS: Utilize an approved, recognized model or measurement method for stormwater interception by trees and shrubs. Report the projected annual average benefit of established trees over a 20-year time frame, incorporating a survival rate consistent with management plans. The primary method of calculation will be the i-Tree tool most appropriate to the project scope (e.g. [i-Tree Planting Calculator](#), [i-Tree Design](#)). These tools may be supplemented with information in peer-reviewed literature (e.g. [McPherson et al. 2006](#)) or site-specific models/measurements, if accepted by the Forest Service as suited to available project data. If trees are included along with other best management practices, projects may also employ methods of calculation approved in this section for use by other agencies.
- EPA: Method of calculation will vary, depending on project type and grantee's choice of model to estimate benefits of implementation, but must be an approved, recognized model appropriate for BMP planning. Acceptable models may include the National Stormwater Calculator (<http://www2.epa.gov/water-research/national-stormwater-calculator>), WinSLAMM, (<http://www.winslamm.com/>), HydroCad stormwater modeling (<http://www.hydrocad.net/>), or others.
- USACE: The Long-Term Hydrologic Impact Assessment Low Impact Development (L-THIA LID) model will be used to estimate project benefits (<https://engineering.purdue.edu/~lthia/>).

Parts of millions of gallons should be rounded to the nearest tenth of a million, so if an agency is reporting 400,000 gallons, they would enter "0.4."

11. Data Limitations/Qualifications: The general data limitations/qualifications apply. In addition: Limitations attributed to the combination of multiple models to project gallons of untreated runoff captured or infiltrated have not yet been assessed. Limitations such as the combined effects of variance and bias across several different models should be recognized until further assessment of these limitations can be conducted.

Measure: 3.2.2. Miles of Great Lakes shoreline and riparian corridors restored or protected.

1. Description: This measure tracks the number of miles of Great Lakes shoreline and riparian corridors protected from nonpoint source runoff under GLRI-funded projects and programs.

2. Definitions of terms used in this measure:

- **Shoreline** means lakeshore beaches or other land along the Great Lakes coast.
- **Riparian corridors** means the streambanks and floodplains of streams in the Great Lakes drainage basin.
- **Restored** means performing natural functions to intercept (and potentially infiltrate) runoff and prevent erosion.
- **Protected** means management measures have been implemented along the streambank or shoreline to reduce or prevent nonpoint source pollutants such as nutrients, sediment, and bacteria.

3. What results are acceptable to count for this measure?

- Miles of Great Lakes shoreline and riparian corridors that have been protected from nonpoint source runoff as a result of implementation of GLRI-funded projects and programs.
- Habitat restoration projects that have a direct and intentional nonpoint source water quality benefit (e.g. projects that stabilize streambanks to prevent erosion, infiltrate nonpoint runoff, or convert lands to natural uses to reduce nonpoint source loading to waterbodies).

4. What results are unacceptable to count for this measure?

- Shoreline hardening, dredging, or traditional sediment management projects.
- Results from restoration or protection efforts that do not address nonpoint source pollution.
- Miles that were previously reported under this measure cannot be counted again.

5. When to count results for this measure:

Progress toward this measure is counted when the planned individual project work to protect or restore applicable shoreline and riparian corridors is complete. If necessary, **results** that were achieved in an earlier period may be reported in a later period (because of a time lag associated with calculating the result and preparing the documentation that demonstrates the result).

6. Measure Lead: Danielle Green (312-886-7594 / green.danielle@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 33 | 40 | 47 | 54 | 61 |

Units are miles. Targets are cumulative.

8. Universe: N/A

9. Baseline: 26 miles cumulative through September 30, 2018. Note: a similarly titled measure “Miles of Great Lakes shoreline and riparian corridors restored or protected” was previously found in Focus Area 4. The baseline of 26 miles cumulative was calculated from EAGL entries that were determined to be for shoreline and riparian projects that addressed nonpoint source pollution and that had results reported from fiscal years 2015-2018.

10. Data Source and Calculation:

During each data call, agencies provide supporting documentation for any results they report.

(a) Data Source

The data source may be a GLRI/RWG agency or their funding recipients and sub-recipients. Only GLRI/RWG agencies report into the EAGL system. This measure includes work directly implemented as well as work performed via subsequent contracting and granting arrangements.

(b) Data Collection:

U.S. EPA and other GLRI/RWG agencies (such as US Army Corps of Engineers and US Forest Service) will report number of miles of Great Lakes shoreline and riparian corridors protected from nonpoint source runoff under GLRI-funded projects.

U.S. EPA Project Officers for the relevant U.S. EPA grants are responsible for reviewing and reporting the number of miles of Great Lakes shoreline and riparian corridors protected from nonpoint source runoff under GLRI-funded projects, as described in the Statement of Work, into the EAGL information system. Leads from RWG federal agencies are responsible for reviewing and entering this information into EAGL for their respective projects.

11. Data Limitations/Qualifications:

Statistics developed through the use of the EAGL rely on the inputted data of GLRI/RWG agencies. There may be errors in classification, geo-referencing, input accuracy, as well as data omissions. Statistics from the system reflect a point in time.

Measure: 3.3.1. Nutrient monitoring and assessment activities conducted.

1. Description: This measure tracks the number of nutrient monitoring and assessment activities (specifically their locations, as described below) conducted under GLRI-funded projects and programs.

2. Definitions of terms used in this measure:

- **Monitoring and assessment activity** means a location where one or more of the following activities occurs:
 - collection or analysis of water quality data in streams or waters of the Great Lakes;
 - characterizing nutrient sources in a watershed using aerial photos, windshield inventories, or spatial analyses of soils, slopes and hydrology;
 - watershed-based modeling of the loading and transport of nutrients to the Great Lakes.
- **GLRI-funded projects and programs** means an organized activity or set of activities that is wholly or partially supported by the use of GLRI funds to achieve a common purpose.

3. What results are acceptable to count for this measure?

Results are only acceptable from a limited number of strategically picked monitored sites that are representative of broader environmental outcomes. Results are acceptable from:

- The sites in the USGS Great Lakes Tributary Monitoring Program that represent the majority of the nutrient load to the Great Lakes: https://www.usgs.gov/centers/glri/science/nutrient-monitoring-activities?qt-science_center_objects=0#qt-science_center_objects.
- Additional nutrient monitoring sites or the locations of watershed-based assessment activities conducted on the land, in streams or in waters of the Great Lakes to understand nutrient loading and transport.

4. What results are unacceptable to count for this measure?

- Monitoring or assessment activities that are not funded wholly, or in part, under the GLRI.
- Projects that do not implement standardized protocols for water quality sampling, monitoring and statistical designs.
- One-time, ad hoc, or exploratory activities that occur at a scale or frequency that is not representative of GLRI projects and programs.
- If unsure whether the monitoring/assessment activity should be counted, check with the Measure Lead.

5. When to count results for this measure:

Results count for this measure one time during each reporting period that the monitoring or assessment activity takes place. Many sites are operational for multiple years and will report results in every year that nutrients are measured or quantified. For example:

- If monitoring took place in first part of the year and then assessment in the latter part, it would still only count as “1” activity; however, the same activity could count as “1” in each

of multiple years (i.e., if in one year the site is monitored and then the next year that data is analyzed to calculate the nutrient load, it would count in both years as “1” activity each year.

6. Measure Lead: Santina Wortman (312-353-8319 / wortman.santina@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 30 | 30 | 30 | 30 | 30 |

Units are activities. Targets are annual.

8. Universe: N/A

9. Baseline: 30 nutrient monitoring and assessment activities are expected annually. Note: this is a new measure. Targets are based on past efforts that were integrated into projects in measures 3.1 and 3.2 projects from fiscal years 2015-2018. Targets are not cumulative, but rather reflect ongoing activities anticipated during each fiscal year.

10. Data Source and Calculation:

Agencies select this measure for projects conducting nutrient monitoring and assessment activities under GLRI-funded projects. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results. The Measure Lead works with data contacts so that results are entered into EAGL and ensures that associated supporting documentation is included in EAGL by the agency identifying the monitoring or assessment activity.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 3.3.2. Nutrient or stormwater runoff reduction practices or tools developed or evaluated.

1. Description: This measure tracks the number of nutrient or stormwater reduction practices or tools developed or evaluated under GLRI-funded projects.

2. Definitions of terms used in this measure:

- **Practices** refers to recognized nonpoint source best management practices that result in reductions of nutrients or stormwater runoff.
- **Tools** are more broadly defined to include supporting technology or approaches that improve effectiveness or encourage increased implementation of best management practices.

3. What results are acceptable to count for this measure?

- Effectiveness studies of nonpoint source control structures and management measures, at a site specific or watershed scale.
- Development or evaluation of new nutrient management tools available to farmers, such as runoff risk advisories.
- Pilot projects testing innovative incentives for farmers, such as performance-based cost structures, market-based approaches, and farmer-led outreach programs.

4. What results are unacceptable to count for this measure?

- Development or evaluation activities that are not funded wholly, or in part, under the GLRI.
- Effectiveness studies that do not utilize recognized monitoring and statistical designs.

5. When to count results for this measure:

Results count for this measure during the reporting period(s) that the development or evaluation activity takes place. Many projects, such as effectiveness studies, span multiple years and will report a result of “1” each year. For example:

- if a project developed a tool in one year and evaluated the tool in the next year, it would be counted in both years (as “1” each year).
- If a project developed a tool and evaluated it in the same year, it still only counts as “1”.
- A five-year effectiveness study of a rain garden would be counted as “1” each year that the performance of the ran garden was being evaluated.

6. Measure Lead: Danielle Green (312-886-7594 / green.danielle@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 10 | 10 | 10 | 10 | 10 |

Units are practices or tools. Targets are annual.

8. Universe: N/A

9. Baseline: 10 practices or tools are expected annually. Note: this is a new measure. Targets are based on past efforts that were integrated into projects in measures 3.1 and 3.2 projects from fiscal years 2015 – 2018. Targets are not cumulative, but rather reflect individual activities anticipated during each fiscal year.

10. Data Source and Calculation:

Agencies select this measure for projects through which nutrient or stormwater reduction practices or tools are developed or evaluated under GLRI-funded projects. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results. The Measure Lead works with data contacts so that results are entered into EAGL and ensures that associated supporting documentation is included in EAGL by the agency identifying the practices or tools.

11. Data Limitations/Qualifications: None known, besides the general data limitations/qualifications.

Measure: 4.1.1. Acres of coastal wetland, nearshore, and other habitats restored, protected, and enhanced

1. Description: This measure tracks the number of acres of coastal wetland, **nearshore, and other habitats** in the US restored, protected, or enhanced as a result of GLRI-funded projects. (Previously Measures 4.1.3 and 4.1.4 under Action Plan II.)

2. Definitions of terms used in this measure component:

- **Great Lakes Coastal Wetlands:** Historical or the existing 375,000 acres of US of wetlands with a current, previous, or potential hydrologic connection to a Great Lake or connecting channel via surface or subsurface water such that water levels of the wetland are influenced by Great Lakes water levels. These can be wetlands on a Great Lake, connecting channel, river (if the river is influenced by the Great Lakes), or an isolated wetland (with a subsurface connection to the Great Lakes).
- **Nearshore and other habitats,** (excluding coastal wetlands), means all habitats within the Great Lakes basin within the following systems: open water; nearshore waters and connecting channels; coastal shore; rivers and tributaries; inland lakes and wetlands; uplands.
- **Protected** means stress to ecosystems have been prevented.
- **Restored** means the ecosystem has recovered from degradation, damage or destruction.
- **Enhanced** means the value and effectiveness of habitats and species has increased.

3. What results are acceptable to count for this measure component?

- Because individual projects generally protect, restore or enhance only a single problem or a small portion of a geographic area, many projects may be needed to completely protect, restore or enhance a habitat. For example, a habitat to be restored may need to have drain tiles removed to restore hydrology, invasive plants removed that outcompete native plants, and native plants and animals reintroduced to improve the species composition. Each could be a different project and the same acres may be counted at the completion of each individual project.

4. What results are unacceptable to count for this measure component?

- Acreage in Canada is not acceptable.
- The miles of connectivity established for aquatic species that are reported under Measure 4.1.2 cannot be converted to acres and reported under this measure; however, the restored acreage that may be associated with those miles may be counted under this measure.
- Acres that are projected, rather than realized in the reporting period, are not acceptable.

5. When to count results for this measure component:

Progress is counted when planned individual project work to protect, restore, or enhance the coastal wetland has been completed. **Progress is only counted once at the conclusion of the project.** Past results should not be changed – see General Procedures – Project Results.

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets.

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 394,000 | 406,000 | 418,000 | 430,000 | 442,000 |

Units are acres. Targets are cumulative.

8. Universe: 1,550,000 acres (US) plus additional acreage (unknown) having a previous hydrologic connection to a Great Lake or a connecting channel via surface or subsurface water such that water levels of the wetland are influenced by Great Lakes water levels as identified by the Great Lakes Wetland Consortium via an updated GIS analysis. Prior to this updated analysis, the Universe value stated in GLRI Action Plan II was 260,000 acres. As a result of changing water levels and land use management, the acreage for this “Universe” may fluctuate. The total acreage protected or restored may ultimately exceed 1,550,000 acres because the same acreage can be counted when work is done on the same acreage through different projects.

9. Baseline: 370,488 acres (cumulative) as of September 30, 2018.

10. Data Source and Calculation:

During each data call, agencies provide supporting documentation for any results they report.

Funding recipients use various methods to calculate acreage including but not limited to using standard GIS or Google Earth-type mapping tools, estimation based on photographic surveys, use of GPS mapping, manual calculations through direct observation, and other methods using professional judgment acceptable to the GLRI funding agency.

To measure acres for on-the-ground/shoreline activities, such as trash cleanup, estimate the total length of the activity as well as how far it extends onto the shoreline. Use these two dimensions to calculate the total acres searched on the ground. Similarly for on-the-water searches, estimate the total length traveled and the width of how far you can see to either side of your boat. Use these two dimensions to calculate the total acres searched in the water.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply.

Measure: 4.1.2. Miles of connectivity established for aquatic species

1. Description: This measure tracks the miles of connectivity established for aquatic species under GLRI-funded projects. (Previously Measure 4.1.1 under Action Plan II.)

2. Definitions of terms used in this measure:

- **Miles of connectivity** is the number of miles of in-stream habitat including mileage for seasonal and intermittent streams in the Great Lakes Basin.
- **Reopened** means the tributaries are available for the target species to move into as a result of bypassing or removing a barrier.

3. What results are acceptable to count for this measure?

- Tributary miles of connectivity reopened including mileage for seasonal and intermittent streams if one or more of a target species gains additional access to spawning and/or rearing habitat from the reconnection of those habitats.
- Re-opened and improved quality of tributary miles of connectivity realized from completion in the current reporting period from projects funded by a previous GLRI appropriation.

4. What results are unacceptable to count for this measure?

- Miles of connectivity beyond the next obstructed pathway are not “reopened” and are thus not acceptable.
- Miles of connectivity that are projected, rather than realized in the reporting period, are not acceptable.
- Don’t count both sides of in-stream habitat, even if restoration occurred on both sides of a stream. Treat in-stream habitat as a single line down which restoration work occurs.

5. When to count results for this measure: Progress toward this measure is counted as stream miles are reopened and/or habitat is restored that allows passage and use. That may be done either (i) sequentially for projects that sequentially open up miles or (ii) all at once for projects such as a large-scale dam removal that achieve their results at a single point in time. See General Procedures – Past Results regarding changing results and calculating results.

6. Measure Lead: Kevin O’Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|----------------|----------------|----------------|----------------|----------------|
| 5,700 | 5,900 | 6,100 | 6,300 | 6,500 |

Units are miles. Targets are cumulative.

8. Universe: N/A

9. Baseline: Cumulative 5,289 miles as of September 30, 2018.

10. Data Source and Calculation:

During each data call, agencies provide supporting documentation for any results they report. RWG agencies may use various methods acceptable to them to calculate stream miles including walking the stream, Geographic Information System, the USACE stream mile calculator, and manual calculations through direct observation.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply.

Measure: 4.2.1. Species benefited where actions have been completed to significantly protect or promote recovery of populations.

1. Description: This measure tracks the number of species benefited where actions under GLRI-funded projects have been completed to significantly protect or promote recovery of populations.

2. Definitions of terms used in this measure:

- **Actions** mean supporting science, research, population enhancements, establishment of propagation techniques, stocking, habitat restoration, habitat protection, development of management plans, implementation of management plans, and monitoring necessary to avoid extinction, maintain current populations, or increase and expand populations across the Great Lakes Basin. Actions may include supporting science or research project that identified key controlling factors of a particular species population. Actions may also include a habitat restoration or protection project that will lead to protection or recovery of a population.
- **Species** include, but are not limited to, the 17 examples identified in Action Plan III:

| | | |
|-------------------------|---------------------------|----------------------------|
| Lake trout | Great Lakes piping plover | Brook trout |
| Native prey fish | Pitcher's thistle | Native freshwater mussels |
| Wild rice | Breeding marsh birds | Lakeside daisy |
| Dwarf lake iris | Lake sturgeon | American Harts-tongue fern |
| Chittenango amber snail | Mitchell's satyr | Poweshiek skipperling |
| Rusty patched bumblebee | Moose | |

3. What results are acceptable to count for this measure?

- Completion of all of actions previously identified by GLRI federal, state, tribal and other entities necessary to reach the consensus-based species outcome during the FY2020-2024 time period:
 - Consensus-based species outcomes were identified by GLRI interagency work groups made up of and reflecting federal, state, and tribal priorities during Action Plan III development. These outcomes are not meant to mirror federal, state, or entity long-term goals for particular species. They may be interim steps towards long-term (greater than five years) goals.
 - The Measure Lead is responsible for documenting and updating species outcomes as well as associated actions necessary to reach these outcomes.

4. What results are unacceptable to count for this measure?

- Individual habitat restoration/protection or science/research efforts that are targeted to providing benefits to a species population.
- Projects initiated to reach the consensus-based outcome for a particular species may list this measure as a primary, secondary, or tertiary measure but should not enter a numeric result.

5. When to count results for this measure:

- Only the Measure Lead may enter results for this measure.

- The Measure Lead for this MOP is responsible for 1) documenting and updating specific actions that have been identified by GLRI interagency working groups and verifying projects undertaken by agencies constitute an action is completed.
- The Measure Lead will make the determination when all planned work necessary to reach a consensus-based significant outcome for a particular species is completed. Any monitoring data relevant to the outcome will be summarized to further support the consensus-based outcome for a species is reached.

6. Measure Lead: Kevin O'Donnell (312-886-0813 / odonnell.thomas@epa.gov)

7. Action Plan III Targets

| FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|---------|---------|
| 1 | 2 | 4 | 6 | 8 |

Units are number of species. Targets are cumulative.

8. Universe: N/A

9. Baseline: 0 as of September 30, 2019.

10. Data Source and Calculation:

Agencies select this measure for GLRI-funded projects where actions have been completed to significantly protect or promote recovery of populations. RWG agencies collect and provide readily-available descriptions of the activities funded by the agencies, including study design, data collection/analysis methods, and anticipated results. Agencies use best professional judgment to develop a short activity narrative. The lead agency will also use best professional judgment to identify the nearest city and choose a representative date (month, year) and representative coordinates (in latitude, longitude) for the activity.

The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results for this measure (i.e. the number of species benefitted). The Measure Lead enters results into EAGL and ensures that applicable supporting documentation is also included.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply.

Measure: 5.1.1. Youth impacted through education and stewardship projects.

1. Description: This measure tracks the number of youths impacted through GLRI-funded, place-based experiential projects for education and stewardship.

2. Definitions of terms used in this measure:

- **Experiential learning** means learning through action, experience, or discovery and exploration outside the classroom. Learning should include focused reflection and an active hands-on learning component in order to increase knowledge, develop skills, and clarify values through direct interaction between the recipient and the individual providing instruction for the educational program.
- **Impacted** means having gained new knowledge of Great Lakes science and stewardship through hands-on learning experiences.
- **Place-based** means that youth engage in a hands-on learning experience in the Great Lakes basin about the Great Lakes ecosystem.
- **Youth** means K-12 school students.

3. What results are acceptable to count for this measure?

- Youth must be impacted from a relevant GLRI-funded project, such as NPS interpretive programs, or other programs as approved of by the Measure Lead.

4. What results are unacceptable to count for this measure?

- Youth impacted through a program that is not place-based.
- Youth impacted through a program that does not consist of experiential learning.
- Youth impacted through passive online webinars, displays, brochures, videos, etc.
- Youth impacted through a program that does not consist of direct interaction with the individual providing instruction for the educational program.

5. When to count results for this measure:

Results are counted when youth have completed the educational experience as determined by individual educational program requirements.

6. Measure Lead: Nicole Singleton (312-886-5254 / singleton.nicole@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with cumulative results. Units are number of youths impacted.

8. Universe: NA

9. Baseline: A cumulative total of 377,000 youth have been reached in grades K-12 from FY2010-FY2018.

10. Data Source and Calculation:

The data source is the RWG agency that submits results to EAGL. RWG agencies collect and provide readily-available descriptions of the activities funded by the agencies, including study design, data collection/analysis methods, anticipated results, identification of the nearest city,

and representative activity dates and coordinates. Agencies use best professional judgment to develop a short activity narrative, to identify the nearest city, and to choose a representative date (month, year) and representative coordinates (in latitude, longitude) for the activity. During each data call, agencies provide supporting documentation for any results they report.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply. In addition, results from this measure are not reflective of overall Great Lakes outreach and education, but only of the educational experiences acceptable under this measure.

Measure: 5.2.1. Annual Great Lakes monitoring conducted and used to prioritize GLRI funding decisions.

1. Description: This measure annually tracks monitoring conducted under GLRI-funded projects that inform GLRI funding decisions. (Previously Measure 5.3.2 under GLRI Action Plan II.)

Projects identified with this measure include:

- EPA’s long-term monitoring programs
- CSMI intensive field year efforts
- Agency ecosystem monitoring efforts
- Remote sensing
- National Coastal Condition Assessment

This measure should not be identified for project evaluations or predictive modeling.

2. Definitions of terms used in this measure:

- **Great Lakes monitoring** refers to sampling of water, aquatic life, sediments, air, wetlands and other relevant media in order to assess the physical, chemical, and biological health of the Great Lakes ecosystem conducted through the expenditure of GLRI funds.
- **Prioritize GLRI funding decisions** refers to the use of information obtained from project evaluations, annual monitoring, and the targeting of habitats, watersheds, and species to inform GLRI budgeting decisions each year. In a given fiscal year, the RWG makes planning and budgeting decisions at multiple scales and for subsequent fiscal years.

3. What results are acceptable to count for this measure?

- The Measure Lead reports a result of “Yes” for the fiscal year if the Measure Lead indicates that annual monitoring has occurred and was used to prioritize GLRI funding decisions over the past fiscal year. That prioritization can be for funding decisions made for that year’s appropriation or for a future year’s appropriation.

4. What results are unacceptable to count for this measure?

- It is unacceptable for the Measure Lead to report a result of “Yes” for the fiscal year if an assessment conducted by the Measure Lead indicates that annual monitoring was not used to prioritize GLRI funding decisions over the past fiscal year.
- Reporting against this measure is non-numeric. Therefore it is unacceptable to report the number of projects or programs conducting annual Great Lakes monitoring.
- Do not identify project evaluations or predictive modeling with this measure.

5. When to count results for this measure:

- “Project supports measure but will not have a numeric result” is selected for applicable projects.
- Results for this measure are counted on an annual basis at the end of each fiscal year. The Measure Lead reports a result of “Yes” after reviewing a list of monitoring activities used to prioritize GLRI funding decisions over the past fiscal year.

6. Measure Lead: Derek Ager (312-353-7463 / ager.derek@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with annual results. Reporting consists of the identification of relevant projects with this measure, and a subsequent result of “Yes” for each year annual Great Lakes monitoring has been conducted and used to prioritize GLRI funding decisions. No units are attributed to this result.

8. Universe: N/A

9. Baseline: N/A. Results are identified in non-quantitative reporting.

10. Data Source and Calculation:

Agencies select this measure for GLRI-funded monitoring projects that inform GLRI funding decisions as described above. The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results for this measure. The Measure Lead enters results in EAGL and ensures that associated supporting documentation is included in EAGL.

The Measure Lead assesses whether monitoring continues to be used to inform and prioritize GLRI funding decisions using information including the identification of projects with this measure through EAGL as described above and other information as appropriate. Each year the Measure Lead generates a brief summary of how projects are used to prioritize FLGI funding with examples.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply.

Measure: 5.2.2. Identify and address science priorities to support implementation of GLRI and the Great Lakes Water Quality Agreement.

1. Description: This measure tracks efforts to identify and address cross-Focus Area science priorities to support implementation of GLRI and the Great Lakes Water Quality Agreement.

2. Definitions of terms used in this measure:

- **Science priorities** are cross-Focus Area environmental issues within the Great Lakes that require further investigation to fully understand the best management approaches. Science priorities are determined by Focus Area 5 Work Group.

3. What results are acceptable to count for this measure?

- The Measure Lead reports a result of “Yes” for the fiscal year if any project is completed and addresses a science priority.
- The Measure Lead reports a result of “Yes” for the fiscal year if any project is completed outside of the established science priorities but was determined to be a beneficial cross-focus area effort.

4. What results are unacceptable to count for this measure?

- Projects that assess effectiveness of a single restoration or protection effort will not be counted under this measure

5. When to count results for this measure:

- “Project supports measure but will not have a numeric result” is selected for applicable projects.
- Results for this measure are counted on an annual basis at the end of each fiscal year. The Measure Lead reports a result of “Yes” after an applicable project has been completed.

6. Measure Lead: Derek Ager (312-353-7463 / ager.derek@epa.gov)

7. Action Plan III Targets: None. This is an indicator measure with annual results. Reporting consists of the identification of relevant projects with this measure, and a subsequent annual report of science priorities that support implementation of GLRI and the Great Lakes Water Quality Agreement. No units are attributed to this result.

8. Universe: N/A

9. Baseline: N/A. Results are identified in non-quantitative reporting.

10. Data Source and Calculation:

The EPA Measure Lead reviews EAGL entries for these projects and makes such inquiries as necessary to identify the results for this measure. The Measure Lead enters results in EAGL and ensures that associated supporting documentation is included in EAGL.

The Measure Lead will use this information to report annually on work done to identify and address science priorities to support implementation of GLRI and the Great Lakes Water Quality Agreement.

11. Data Limitations/Qualifications: The general data limitations/qualifications apply.