



Annual Quality Assurance Report to the Secretary 2021



Division of Environmental Assessment and Restoration
Water Quality Standards Program
Florida Department of Environmental Protection

2021 Annual Quality Assurance Report to the Secretary
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Florida Department of Environmental Protection

Acknowledgments

This document was prepared by staff in the Florida Department of Environmental Protection, Division of Environmental Assessment and Restoration, Water Quality Standards Program, Aquatic Ecology and Quality Assurance Section. The following reporting units within the department contributed to this report:

Ecosystems Restoration

Division of Environmental Assessment and Restoration

Water Quality Standards Program

Water Quality Monitoring Program

Watershed Monitoring Section

Regional Operating Centers

Water Quality Evaluation and Total Maximum Daily Loads Program

Watershed Evaluation and Total Maximum Daily Loads Section

Watershed Assessment Section

Water Quality Restoration Program

Watershed Services Program

WIN/STORET

GIS

Laboratories

Office of Water Policy and Ecosystems Restoration

Office of Resilience and Coastal Protection

Northwest Florida Aquatic Preserves

Central Panhandle Aquatic Preserves

Big Bend Seagrasses Aquatic Preserve

Wekiva River Aquatic Preserve

Northeast Florida Aquatic Preserves

Indian River Lagoon Aquatic Preserves

Tampa Bay Aquatic Preserves

Rookery Bay Aquatic Preserves & NERR

Esteros Bay Aquatic Preserve

Charlotte Harbor Aquatic Preserves

Florida Keys National Marine Sanctuary

Biscayne Bay Aquatic Preserves

Coral Reef Conservation Program

Guana River Marsh Aquatic Preserve, Pellicer Creek Aquatic Preserve & Guana Tolomato

Matanzas NERR

Apalachicola NERR

Rainbow-Oklawaha Florida Aquatic Preserve

Tomoka Marsh Aquatic Preserve

Lake Jackson Aquatic Preserve

Coral Protection and Restoration Program

Division of Water Restoration Assistance

Non-point Source Management Program

Deepwater Horizon

Water Supply Restoration Funding Program

Land and Recreation

Division of State Lands

Division of Recreation and Parks

Regulatory Programs

Division of Waste Management

Petroleum Restoration Program

Waste Cleanup Program

Site Investigation Section

Waste Site Cleanup Section

Federal Programs Section

Brownfields and CERCLA Site Screening

Business and District Support

Operational and Program Performance

Permitting and Compliance Assistance Program

Hazardous Waste Program & Permitting Section

Solid Waste Program & Permitting Section

Compliance Assistance Section

Waste Reduction & Registration Section

Florida Geological Survey

Division of Law Enforcement

Central District

Northeast District

Northwest District

South District

Southeast District

Southwest District

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List of Acronyms and Abbreviations

ACHD	Approved County Health Departments
AEQAS	Aquatic Ecology and Quality Assurance Section
AP	Aquatic Preserve
CA	Compliance Assistance
CEI	Compliance Enforcement Inspection
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CBP	Clean Boating Program
CD	Central District
DARM	Division of Air Resource Management
DEAR	Division of Environmental Assessment and Restoration
DEP/department	Florida Department of Environmental Protection
DLE	Division of Law Enforcement
DOD	Department of Defense Projects Section
DQO	Data Quality Objective
DRP	Division of Recreation and Parks
DSL	Division of State Lands
DWH	Deep Water Horizon
DWM	Division of Waste Management
DWRA	Division of Water Restoration Assistance
DWRM	Division of Water Resource Management
EPA	U.S. Environmental Protection Agency
FCMP	Florida Coastal Management Program
FGS	Florida Geological Survey
FRWA	Florida Rural Water Association
FUDS	Formerly Used Defense Sites
GIS	Geographical Information System Section
GWIS	Generalized Water Information System
HW	Hazardous Waste Program
IRLAP	Indian River Lagoon Aquatic Preserves
LOS	Level of Service
NASA	National Aeronautics and Space Administration
NED	Northeast District

NERR	National Estuarine Research Reserve
NOAA	National Oceanographic and Atmospheric Administration
NPL	National Priority List
NPSMP	Non-Point Source Management Program
NWD	Northwest District
OWPER	Office of Water Policy and Ecosystems Restoration
PO	Purchase Order
PPA	Performing Partnership Agreement
PWSS	Public Water Systems Supervision
QA	Quality Assurance
QAO	Quality Assurance Officer
QC	Quality Control
QMP	Quality Management Plan
QP	Quality Plan
RCP	Office of Resilience and Coastal Protection
RCRA	Resource Conservation & Recovery Act
ROCS	Regional Operating Centers Section
SD	South District
SED	Southeast District
SOP	Standard Operating Procedure
STORET	Storage and Retrieval (Database)
SW	Solid Waste Program
SWD	Southwest District
TMDL	Total Maximum Daily Loads
WAS	Watershed Assessment Section
WIN	Watershed Information Network
WMS	Watershed Monitoring Section
WQAP	Water Quality Assessment Program
WQETP	Water Quality Evaluation and TMDL Program
WQRP	Water Quality Restoration Program
WQSP	Water Quality Standards Program
WSP	Watershed Services Program
WSRFP	Water Supply Restoration Funding Program

Executive Summary

The Annual Quality Assurance (QA) Report to the Secretary of the Florida Department of Environmental Protection (department or DEP) summarizes QA activities of department programs and evaluates the effectiveness of [DEP's QA Policy \(Policy DEAR 972\)](#) for each calendar year. Established in 2009 as the QA Directive (Directive 972), revised in 2016, and converted to a policy in 2020, the QA Policy provides internal department QA policy and outlines the areas of staff responsibility for ensuring the quality of data used by the department. The QA Policy describes how the department will implement the requirements in the [QA Rules \(Chapter 62-160, Florida Administrative Code\)](#) through a distributed approach in which department reporting units develop, document and maintain a Quality System with clear QA objectives for data they generate or use. This report details the QA efforts and accomplishments made by staff throughout the department in 2021 and identifies areas for improvement needed to fulfill QA management responsibilities outlined in the QA Policy. The only part of the agency not under the QA Policy is the Division of Air Resource Management (DARM), which manages its own QA program and is not included in this report.

Although all department reporting units, excluding DARM, operate under a common QA Rule Chapter and QA Policy, QA activities vary based on the purpose and function of the program, section or reporting unit. For the 2021 Annual QA Report, Division of Environmental Assessment and Restoration (DEAR) QA staff in the Aquatic Ecology and Quality Assurance Section (AEQAS) collected information from programs via written surveys and personal communication with staff to assess the status of the Quality System for each program or reporting unit. AEQAS received information from 52 reporting units, which is an increase from 2020 when 48 units reported. This increase is due to participation of four more units within the Office of Resilience and Coastal Protection (RCP). AEQAS staff organized the QA information by the three areas of the agency: Regulatory Programs, Ecosystems Restoration, and Lands and Recreation. Department programs provided an account of tasks completed in 2021 in the following four QA categories that address one or more department policies and areas of responsibility outlined in the QA Policy: 1) Quality System; 2) training; 3) audits; and 4) data repositories.

AEQAS uses two components to assess whether department reporting units have the minimum requirements for a Quality System: the designation of QA officers (QAO) and the existence of current quality plans (QP). For 2021, most but not all reporting units had designated QAOs and current QPs that describe the policies and activities developed to help ensure that the quality of data generated or used by the program is defensible. Some QPs need to be updated to reflect changes in the organizational structure, policies and/or activities of the programs covered by the plans. Some noteworthy observations about QPs or QAOs include: 1) AEQAS has maintained yearly communication with QAOs; 2) the RCP programs finalized a QP for their Aquatic Preserves continuous monitoring activities; and 3) the Division of Recreation and Parks participated in a Quality of Science Review and made a commitment to complete revisions of their QP in 2022.

Based on the submissions from QAOs, nearly all department employees who are involved with the process of data generation, data receipt, data assessment, data storage, and data interpretation received training in 2021 to execute their assigned functions. Throughout 2021, AEQAS also hosted nine webinars and in-person trainings focused on the FDEP Standard Operating Procedures (SOPs) and Chapter 62-160, F.A.C., requirements. These trainings and webinars are advertised through emails to QAOs and announced on division monthly calls.

It is the department's policy, per the QA Policy, to audit the performance and record-keeping practices of data generators within and outside the department. However, the extent to which agency programs

conduct QA audits of any type varies widely, as does the use of established audit procedures and the oversight of required corrective actions. The Ecosystems Restoration area of the agency conducts the most audits within the agency. The need and feasibility of audits in the other areas of the agency are determined by leadership in those areas. The total number of audits conducted increased slightly within DEAR during 2021; this change reflects typical workload fluctuations. Per individual communications, more reporting units are actively evaluating the importance of audits and determining if conducting and participating in more audits is feasible for their groups.

Programs throughout the agency identified more than 60 different data repositories, both internal and external to the agency, where data are stored and retrieved for program-specific uses. Most of the reporting units that enter data have procedures in place for quality assurance and quality control (QA/QC); however, improvements should be made in the documentation of these activities, primarily by adding procedures and including reference documents in QPs. Many of the programs that retrieve data rely on the QA/QC procedures of the data provider or the review by other programs and lack documented protocols to verify data. Of the reporting units that manage data repositories, most perform QA/QC procedures for the data repositories, but not all have QA/QC procedures documented in their QPs. Most of the reporting units that retrieve and manage data have mechanisms to provide feedback to the data generator for suspect data, but not all have described the feedback mechanisms in their QPs.

The regulatory programs have determined that improved knowledge and awareness of QA/QC procedures are important to the improvement of their Quality System and have provided increased training and learning opportunities, though high turnover rates continue to be a challenge. QAOs within the Division of Waste Management have increased communication about QA issues and requested AEQAS involvement in a variety of the issues. Drinking Water and Wastewater QA workgroups made up of Division of Water Resource Management and the regulatory District staff continue to use data review checklists and met their 2021 goals for QA reviews.

Overall, DEP continues to develop and maintain a functional Quality System, but improvement is needed in the documentation of procedures that have been designed to ensure that we are making decisions based on scientifically and legally defensible data. AEQAS has maintained the increased number of training opportunities created in 2019 and will continue to add more on-demand trainings to its website. AEQAS staff met individually with QAOs to ensure they did not have any questions or concerns about QA reporting and to make sure they were aware of the available trainings and services the section offers. AEQAS continues to reach out to QAOs and managers to provide training and other QA support to program staff to promote efforts to address the specific areas identified in this report. AEQAS asks leadership to encourage staff to participate in QA trainings and to recognize QA activities as a priority in upholding DEP's values of integrity and accountability.

1. Introduction

1.1 Background and Overview

The Annual Quality Assurance (QA) Report to the Secretary of the Florida Department of Environmental Protection has been compiled for the calendar year 2021 by the Aquatic Ecology and Quality Assurance Section (AEQAS) within the Division of Environmental Assessment and Restoration (DEAR), in coordination with the Quality Assurance Officers (QAO) for the department's various reporting units and Districts. The purpose of the Annual QA Report is to provide an assessment of the status of the department's Quality System, per the functional responsibilities described in the department's QA Policy (DEAR 972). According to the Policy, DEAR is responsible for coordinating the department's Quality System, and all programs within the agency are responsible for defining and implementing their individual Quality Systems. The QA Policy is applicable to all activities that include measurements of environmental matrices for biological, chemical or physical characterization (i.e., environmental data). The only part of the agency not under the Policy is the Division of Air Resource Management (DARM), which manages its own QA program.

This report provides a review of the Quality Systems within the three primary areas of the department (Regulatory Programs, Ecosystems Restoration, and Lands and Recreation), with the focus of the evaluation on whether reporting units conducted the QA activities expected for their program activities. As in previous years, AEQAS staff sent spreadsheet questionnaires (templates) to QAOs throughout the department to gather information about their Quality System and QA activities in 2021.

1.2 Report Organization

The 2021 Annual QA Report further divides the three primary areas of the department into programs, offices and Districts. Organizational units within these areas are counted at a program level; this may vary by division as not all divisions identify organizational units as programs. For the purposes of this report, any section, program or district that responded to the AEQAS request for information is referred to as a reporting unit.

The *Quality System of the Agency* section of the report addresses the QA infrastructure of all reporting units in the department. The *Ecosystems Restoration*, *Lands and Recreation* and *Regulatory Programs* sections outline broad categories of job functions for each area to provide context for expected QA activities, and also report on the 2021 QA activities for those areas.

The 2021 reported QA activities fall into four main categories that address one or more department policies within the QA Policy:

1. **Quality System:** Report of whether the reporting unit is a data user, generator, manager, or a combination of the three; includes information on the associated data quality objectives (DQOs). Reporting units identifying themselves as data generators participate in activities that involve field sampling or laboratory analysis and are responsible for taking measures to ensure the quality of the data produced by those activities. Reporting units indicated a variety of DQO related activities, including following appropriate Standard Operating Procedures (SOPs); establishing DQOs; having procedures to evaluate and qualify data; using corrective actions when the data generated do not meet the DQOs; including pertinent QA information in their Quality Plan (QP); and revising DQOs for the data generated

in the reporting year. Reporting units that identified themselves as data users are involved in the use of environmental data generated by DEP or another source and are responsible for ensuring the quality of the data used. Data users reported on the source of data, written standards for the use of the data, data evaluation procedures, corrective actions taken when the data do not meet DQOs, inclusion of pertinent QA information in the QP, and revision of DQOs for the data used in the reporting year. Data repository managers are involved in the management of environmental databases that contain data generated and used by DEP or another source. Data repository managers reported on the source of data, written standards for the use of the data, data evaluation procedures, corrective actions taken when the data do not meet DQOs, inclusion of pertinent QA information in the QP, and revision of DQOs for the data used in the reporting year. Some reporting units are involved in any combination of data generation, data use, or data repository management.

2. **Training:** Report of whether reporting units met all training needs, percentage of employees who received training in various categories, and how many training events the reporting units held.
3. **Audits:** Report of instances where staff directly observed sample collection or analysis, conducted an in-depth review of data generation, validated and verified data records, reviewed records to reconstruct data generation, or evaluated data usability, per Rules 62-160.650, Florida Administrative Code (F.A.C.), and 62-160.670, F.A.C. Audits were placed in one of three categories:
 - a. **Performance:** Evaluation of sampler's or analyst's technique and knowledge of sample collection and field testing, lab methods or record-keeping in the field or lab. These audits verify methods and techniques are followed and are performed correctly.
 - b. **Project:** Tracking specific sample results through field records and/or lab records for data validation and usability assessment. The QA Policy refers to these audits as Data Usability Audits. The audits evaluate whether the documentation shows adherence to sampling/analytical procedures and documentation requirements.
 - c. **System:** Evaluation of procedures, equipment and documentation. These audits include lab certification audits and DEP Quality of Science Reviews.
4. **Data repositories:** Report of whether the reporting unit entered, retrieved or managed data in repositories, and if so, whether the reporting unit has QA procedures for data management in practice and documented in its QP.

2. Quality System of the Agency

2.1 Overview

A Quality System includes policies, procedures and criteria utilized to monitor, evaluate, and improve an organization's QA processes. With the adoption of the QA Policy, the department developed a structured management approach to distribute the functions necessary for the implementation of a Quality System and monitor QA requirements throughout the system.

A Quality System requires planning, implementation and assessment. Two key factors in a functioning Quality System are the use of documents to guide staff in carrying out QA activities and designating QAOs to assist

management and technical staff with the implementation and evaluation of QA activities throughout all levels of the department. The department's Quality Management Plan (QMP), which is approved by the U.S. Environmental Protection Agency (EPA), documents the Quality System for the department, with focus on department programs that receive funding from EPA. The QMP incorporates other DEP QA documents, including the QA Rules (Chapter 62-160, F.A.C.) and the QPs developed by the department programs and reporting units that detail their individual Quality Systems. The QMP Revision 9 was approved in 2020 and the latest revisions of Chapter 62-160, F.A.C., went into effect in 2017.

2.2 Quality Plans

Department programs and reporting units document their Quality System in QPs. These QPs describe the organization of the program, designate one or more QAOs, delineate staff QA responsibilities, and outline DQOs that will ensure data used by the program are appropriate and reliable. Quality System details vary among divisions, Districts and offices. It is the responsibility of each program and section administrator to ensure that their Quality System is fully operational and documented in a QP.

QPs are "living documents" and require revisions as program organization, duties and criteria evolve. AEQAS offers education and support to programs and divisions that are reviewing and updating their QPs. Upon request, AEQAS staff also conduct Quality of Science Reviews with program staff to help evaluate their Quality System, including a review of their QP to ensure QA activities are documented and carried out consistently. If administrators would like assistance from AEQAS for QP updates, they should request a Quality of Science Review. There is not a required frequency for which QPs must be updated, but for the purposes of this report AEQAS targets documents older than four years for review to determine if they are out of date and need revisions. AEQAS encourages annual review of QPs by QAOs and administrators. AEQAS publishes the QPs on the [QP webpage](#) once staff have resolved accessibility compliance issues (ADA section 508).

For the 2021 calendar year, 20 QPs were available on the AEQAS webpage, compared to 28 in 2020. Five of the 20 QPs found on the webpage were out of date and updates are in progress. DRP, FGS, DLE, and DWRA are working to update their documents as workloads allow. The regulatory Districts decided to host one QP on the website and it is posted in a draft version. This accounts for the reduction of QPs on the website from 2020 to 2021. An additional QP on the website, not associated with a reporting unit, is for the Groundwater Management Section (GMS) within DEAR, which has been absorbed by another program. While the QP for the GMS is not illustrated in the figure, it is still maintained on the AEQAS webpage since it contains relevant information for the unit that carries out the duties. A complete list of reporting units, their designated QAOs, and QP revision dates can be found in Appendix A.

Program-specific QP development efforts in 2021 worth noting include:

- The Regulatory Districts, in coordination with the Division of Water Resource Management, posted their quality assurance document containing QA/QC review goals for the Drinking Water and Wastewater programs within the Districts in 2021. This document does not yet contain all of the components of a QP.
- The Watershed Evaluation and TMDL Program finalized updates to their QP in 2021.
- The Office of Water Policy and Ecosystems Restoration, Florida Geological Survey, and Recreation and Parks are currently updating their QPs and expect the revisions to be finalized and posted in 2022.

- The Office of Resilience and Coastal Protection (RCP) reporting units are creating various quality assurance documents containing procedures for their locations to use. In 2021, a program based QP for the Aquatic Preserve Continuous Monitoring Program was completed and posted. Reorganization, COVID-19 quarantining, and staffing issues have slowed QA documentation efforts, but several aquatic preserves (RCP reporting units) initiated QP goals in 2021, including GTMNERR, whose QP is expected to be finalized in early 2022; FKNMS-AP, whose QP is in the revision stage and expected to be implemented by spring 2022; CRCP, who is expecting implementation by the end of the year; and a QP for RCP oyster monitoring is expected to be implemented in 2022. A complete list of reporting units, their designated QAOs, and QP revision dates can be found in Appendix A.

Quality Plan Status 2021

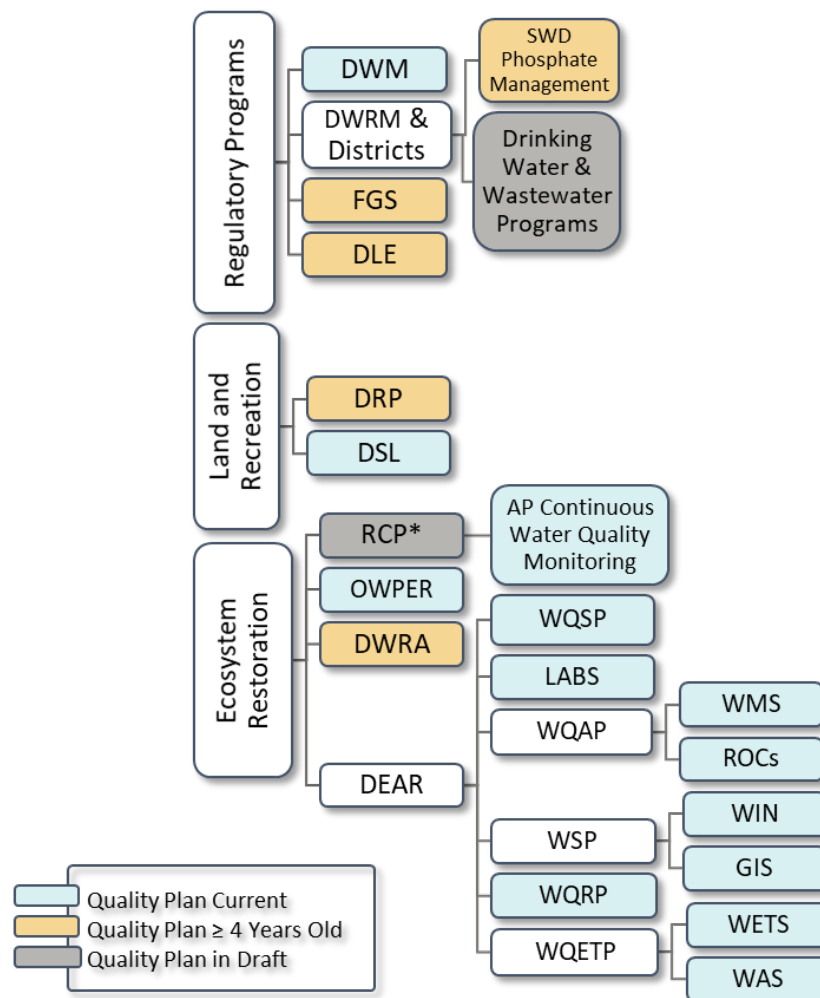


Figure 2.1. Quality Plans that are current, outdated or in revision for programs in the department’s divisions, Districts or offices for 2021. The number of plans required for each division, district or office is dependent on the program groupings included in each plan. Each color-coded box in the diagram represents a quality plan found on the [QP webpage](#). The white boxes show relationships between the work units. *All QPs for programs may not be available.

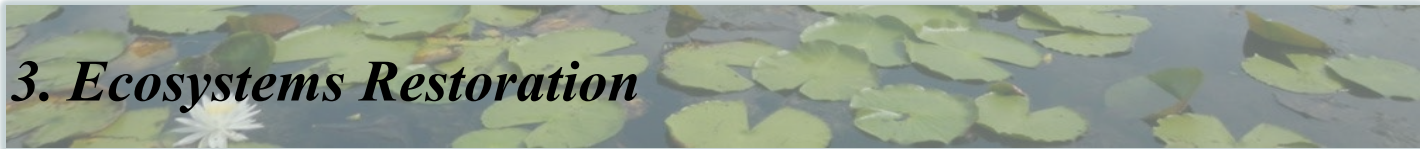
2.3 Quality Assurance Officers

The implementation of the internal policies outlined in the QA Policy requires active participation throughout all levels of the department. The department implements its Quality System through the execution of each program's QP and the coordination and direction of QA activities for the program by a designated QAO. The QA Policy lists the following duties of the QAOs: familiarity with and maintenance of Quality System documents; coordination and performance of internal and external audits; implementation of corrective actions after incidents of non-conformance with DQOs; communication with AEQAS; and attend, provide and track staff training. Division and district directors along with program and section administrators are responsible for designating QAOs to represent specific reporting units.

Currently, all of DWM, FGS, DLE, DRP, DSL, OWPER, DWRA, and DEAR have QAOs appointed for all areas of their divisions or offices. All organizational units of these divisions and officers are represented in this report. DWRM, Regulatory Districts, and RCP have QAOs appointed for some but not all areas of their divisions or offices. Consequently, some areas of those divisions or offices are not represented in this report. These organizational units are discussed generally in the overview sections of their corresponding areas of the agency.

AEQAS held quarterly teleconferences for QAOs prior to 2019. Due to low participation rates, the quarterly teleconferences were discontinued. Instead, AEQAS now participates in division and district teleconferences, as needed or requested, to share information regarding QA and to better understand the activities of programs and the existing tasks of staff. AEQAS also meets in-person with each QAO annually to better understand their programs and unique QA needs. In 2021, AEQAS maintained the increased number of trainings created in 2019, despite travel restrictions due to COVID-19, and modified existing trainings to better educate staff on QA activities and principles.

AEQAS launched an online training on the Learning Management System (LMS), *Introduction to Quality Assurance*, for individuals to access on-demand and learn the basics of DEP's quality assurance requirements and policies in 2020. During report development, reporting units were asked about their use of the training; at the time of reporting, 29 of 32 reporting units' QAOs in Ecosystems Restoration, Lands and Recreation, and Regulatory (DWM, FGS, and DLE) took the training. This training is available for all staff and should be shared to educate staff on QA principles. DEAR's director requires all DEAR employees to complete the training starting in 2021.



3. Ecosystems Restoration

The following divisions, programs and sections contributed to this report:

Division of Environmental Assessment and Restoration (DEAR)

Water Quality Standards Program (WQSP)

Water Quality Monitoring Program (WQMP)

Watershed Monitoring Section (WMS)

Regional Operating Centers (ROCs)

Water Quality Evaluation and Total Maximum Daily Loads Program (WQETMDL)

Watershed Evaluation and Total Maximum Daily Loads Section (WETS)

Watershed Assessment Section (WAS)
Water Quality Restoration Program (WQRP)
Watershed Services Program (WSP)
Water Information Network and STORET Section (WIN)
Geographical Information Systems Section (GIS)
Laboratories (LABS)
Division of Water Restoration Assistance (DWRA)
Non-point Source Management Program (NPSMP)
Deepwater Horizon (DWH)
Water Supply Restoration Funding Program (WSRFP)
Office of Water Policy and Ecosystems Restoration (OWPER)
Office of Resilience and Coastal Protection (RCP)
Northwest Florida Aquatic Preserves (NFAP)
Central Panhandle Aquatic Preserves (CPAP)
Big Bend Seagrasses Aquatic Preserve (BBSAP)
Wekiva River Aquatic Preserve (WRAP)
Northeast Florida Aquatic Preserves (NEAP)
Indian River Lagoon Aquatic Preserves (IRLAP)
Tampa Bay Aquatic Preserves (TBAP)
Rookery Bay Aquatic Preserves & NERR (RB)
Estero Bay Aquatic Preserve (EBAP)
Charlotte Harbor Aquatic Preserves (CHAP)
Florida Keys National Marine Sanctuary & Aquatic Preserve (FKNMS-AP)
Biscayne Bay Aquatic Preserves (BBAP)
Coral Reef Conservation Program (CRCP)
Guana River Marsh Aquatic Preserve, Pellicer Creek Aquatic Preserve, & Guana Tolomato Matanzas NERR (GTM)
Apalachicola NERR (ANEER)
Rainbow-Oklawaha Florida Aquatic Preserve (ROFAP)
Tomoka Marsh Aquatic Preserve (TMAP)
Lake Jackson Aquatic Preserve (LJAP)
Coral Protection and Restoration Program (CPR)

3.1 Overview and Expected QA Activities

The Ecosystems Restoration area protects and improves water quality and aquatic resources, including the Everglades, springs and coastal resources. Restoration programs work with communities, local governments and other agencies to protect and restore water quality and provide funding assistance for water restoration and infrastructure projects. The programs also coordinate the protection of Florida's submerged lands and coastal areas. This area of the agency consists of the Office of Water Policy and Ecosystems Restoration (OWPER), the Office of Resilience and Coastal Protection (RCP), the Division of Environmental Assessment and Restoration (DEAR), and the Division of Water Restoration Assistance (DWRA). For 2021, there were 32 reporting units from the Ecosystems Restoration area, which is up from the 28 that reported in 2020. This increase is due to more offices within RCP reporting. The groups within the Ecosystems Restoration area have a wide range of expected QA activities (Figures 3.1 and 3.2).

The OWPER oversees Everglades restoration activities for Florida, exercises general supervisory authority over the state's five water management Districts, and ensures effective implementation of the department's

responsibilities under the Florida Water Resources Act (Chapter 373, Florida Statutes (F.S.)). The OWPER has one QA reporting unit and six organizational units. OWPER staff perform minimal sample collection. This reporting unit primarily manages contracts, grants and purchase orders that fund environmental sample collection and laboratory analysis. They also issue permits under the Comprehensive Everglades Restoration Plan, which include environmental monitoring, and those data are reviewed by staff. In addition to managing agreements, which includes Innovative Technology Grants for harmful algal blooms, OWPER staff review the data submitted under the agreements to ensure QA requirements and deliverables are met. Staff should receive training to ensure the agreements and deliverables incorporate adequate QA measures to fulfill contracted data quality objectives (DQOs). Program staff involved in generation and review or interpretation of data should receive the required training for their daily tasks.

The RCP houses the Florida Coastal Management Program (FCMP), Aquatic Preserves (AP), National Estuarine Research Reserves (NERRs), the Coral Reef Conservation Program (CRCP), Clean Boating Program (CBP), Florida Resilient Coastlines Program (FRCP), and the Florida Keys National Marine Sanctuary (FKNMS). The CBP and FRCP do not collect environmental data and are not included in this report. The following programs, which were moved from the regulatory area into the RCP at the start of 2020, have not provided annual QA templates for this report in the past and are not discussed in this report: Beaches Field Services; Beaches, Inlets and Ports; and the Coastal Construction Control Line Program. These units new to RCP need to connect with the current QAO and evaluate what content should be included in their QP. AEQAS identified 23 organizational units within RCP, with 19 QA reporting units. Various RCP offices collect environmental data for National Oceanic and Atmospheric Administration (NOAA) projects and for the department, so some of their DQOs are aligned with NOAA expectations and some with DEP's. Depending on the location and activities of the offices within RCP, data entry into databases may be limited or stored in-house for inter-office research. The RCP also manages department contractual agreements for environmental sampling and analysis. Reportable QA information for these activities includes DQO establishment, training for SOPs, data entry, and review of data with respect to DQOs and understanding QA requirements for the management of agreements.

DEAR monitors, analyzes and assesses surface water and groundwater quality, which includes identifying, verifying and prioritizing impaired waters; developing strategies to address impairments; and implementing those strategies through comprehensive restoration action plans in partnership with local stakeholders. DEAR consists of 9 QA reporting units and eight organizational units, including the department's environmental laboratory. DEAR collects, analyzes, enters, reviews and manages data in databases, and oversees agreements that include environmental sample collection. Reportable QA information for these activities includes DQO and SOP establishment, training for SOPs, evaluation of data, and auditing data providers both internal and external to the DEAR reporting unit. DEAR also houses AEQAS, which has additional QA duties as described in this report.

DWRA is responsible for funding projects that improve the quality and quantity of the water resources of the state. The projects improve stormwater quality, reduce pollutants entering surface water and groundwater, conserve energy or water, protect springs, collect and treat wastewater, produce and distribute drinking water, provide alternative water supply, and restore habitat and enhance recreation through the Deepwater Horizon program. In prior years, DWRA reported as one unit for the entire division. Since 2020, three of six DWRA programs (Water Supply Restoration Funding Program, Nonpoint Source Management Program, and Deepwater Horizon) provided information for this report. It was determined that these are the only programs within DWRA that need to report QA activities. The primary function of this division is to manage agreements, so staff are responsible for including appropriate QA requirements in contracts and grants and reviewing deliverables to ensure adherence to those requirements. Reportable QA information for these activities includes establishment of DQOs, program-specific training related to QA requirements, and potential audits of the fund recipients.

The data reported in the following sections are based on 32 reporting units consisting of 19 from RCP, nine from DEAR, three from DWRA, and one from the OWPER. Figures 3.1 and 3.2 provide context for the QA activities that AEQAS expects reporting units to report. All program functions listed require reporting units to have and document DQOs and provide adequate QA training to staff. Entities that collect or analyze environmental samples or measurements are expected to conduct internal audits and/or be audited by external parties to ensure proper collection and analysis of data. Reporting units that use data are expected to audit external entities that provide data to the department with some established consistency and frequency. Reporting units that manage contracts, grants or purchase orders (PO) for environmental data collection or analysis may conduct audits of procured services. Reporting units that enter data, retrieve data or manage environmental data repositories must have documented procedures for QA/QC.

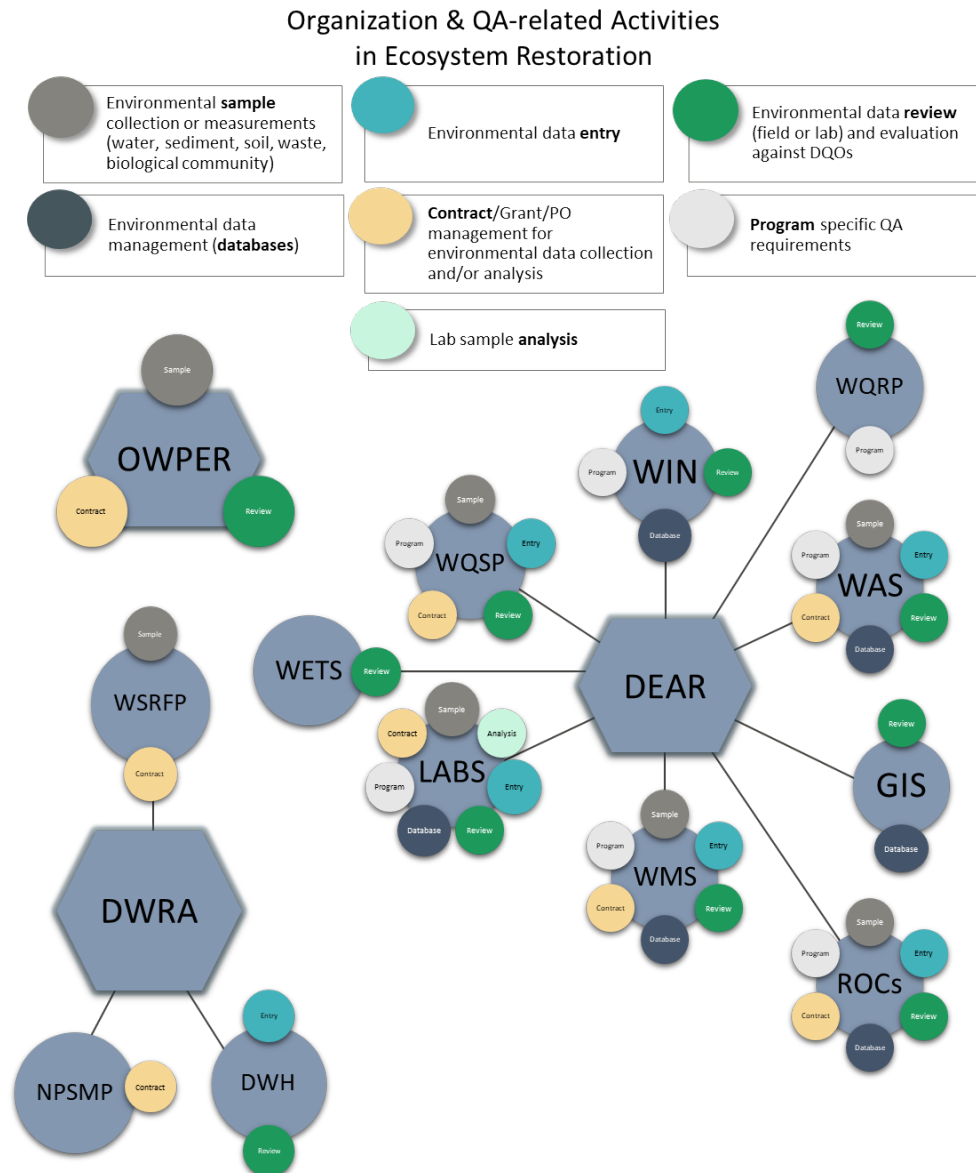


Figure 3.1. Diagram of reporting units from DEAR, OWPER and DWRA showing each work unit's functions that require QA activities, represented by color-coded circles. The circles do not indicate whether that program or section reported on that function.

Organization & QA-related Activities in Ecosystem Restoration (RCP)

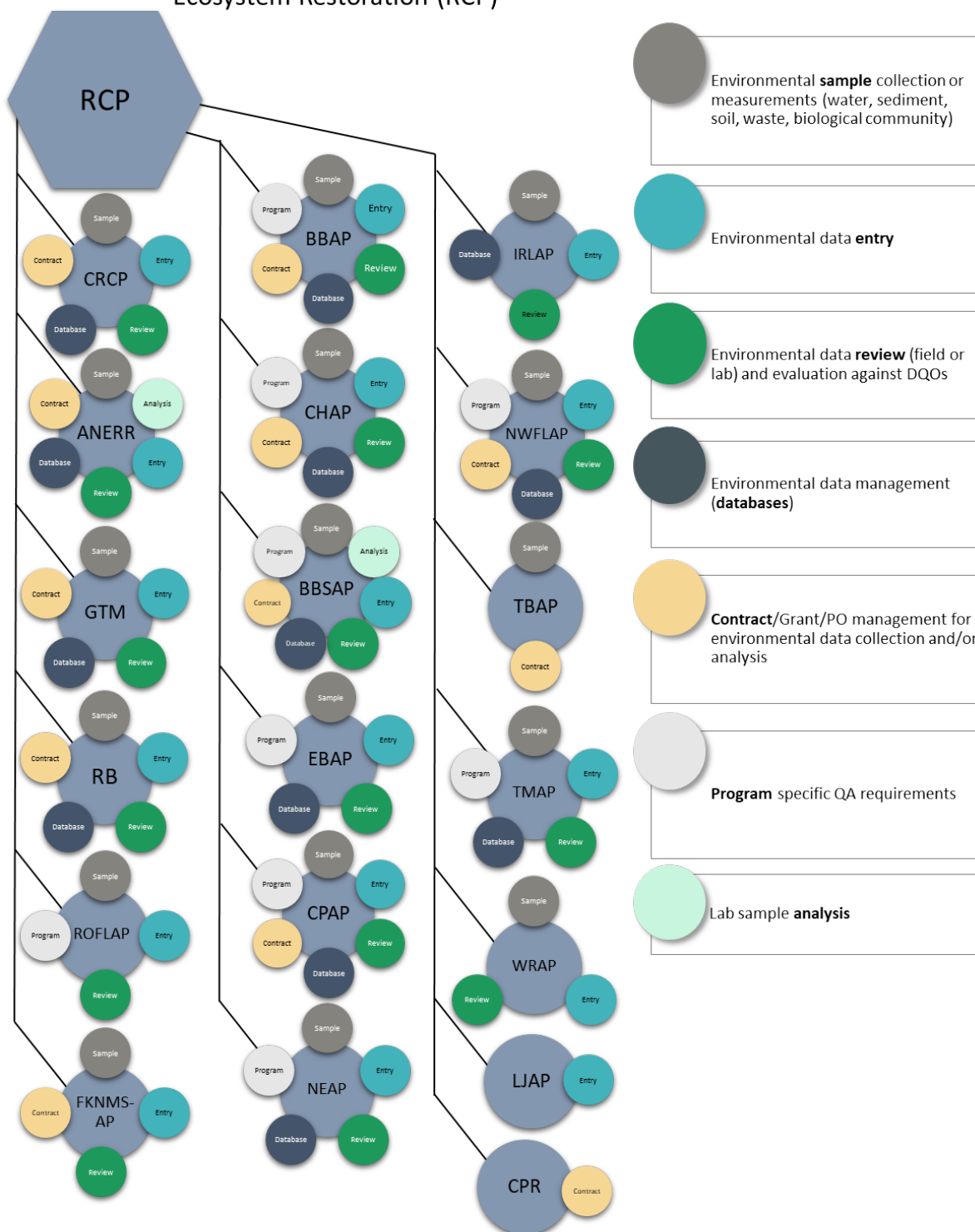


Figure 3.2. Diagram of reporting units from RCP showing each work unit's functions that require QA activities, represented by color-coded circles. The circles do not indicate whether that program or section reported on that function.

3.2 Quality System



The majority (50 percent) of reporting units from the Ecosystems Restoration area of the agency reported as data generators, users, and managers (Figure 3.3). A quarter (25 percent) reported as data generators and users, and a smaller percentage of reporting units (13 percent) reported only as data users. The last 12 percent of reporting units reported as one of the following, data generator and manager (2 units), data manager only (1 unit), and data generator only (1 unit). The data repository manager survey created for the 2021 report added the new combinations of activities not previously presented.

Self Reported Program Activities for Ecosystems Restoration

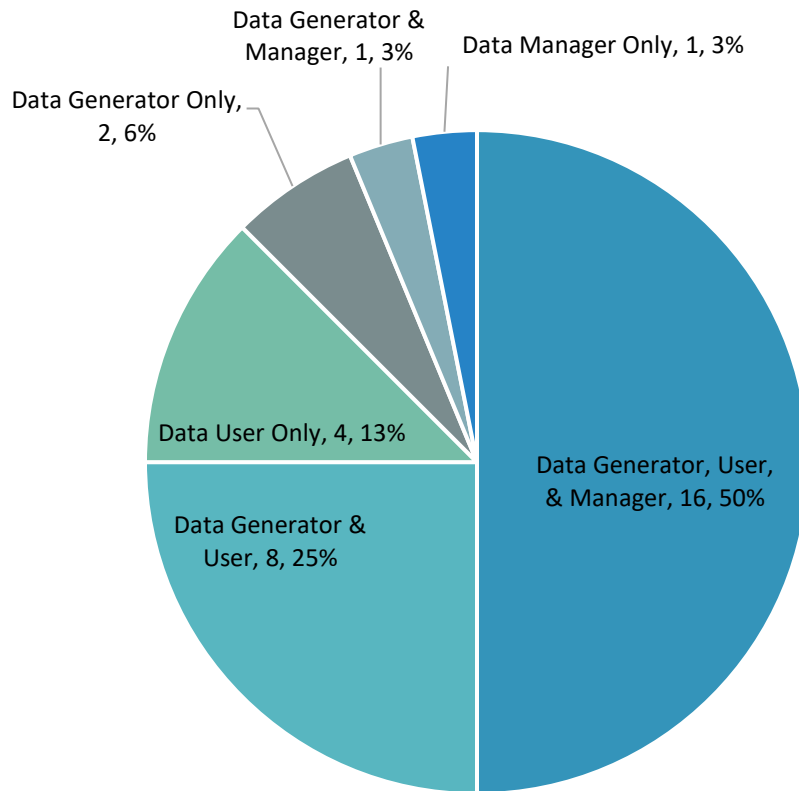


Figure 3.3. Number and percentage of reporting units within the Ecosystems Restoration area that identified their program activity functionality as data user, data generator, data manager or any combination of the three.

Percentages of reporting units with Quality System components as reported by **data generators** are illustrated in Figure 3.4. Individual reporting unit responses are located in Appendix B. All programs that generate data follow DEP SOPs, other SOPs, or a combination of both. The majority of reporting units use DEP SOPs. Only 17 of the 27 units that generate data reported that their QP incorporates all the SOPs used by the reporting unit, which means the remaining units need to revise their QPs to include references to SOPs. Twenty-three reporting units indicated they have checklists to evaluate the data generated against the DQOs. However, only 19 of the reporting units indicated the QP incorporates the checklists, and all checklists should be included or cited in QPs. Twenty-four reporting units stated that there were corrective actions for when data did not meet the DQOs, but 21 units document the corrective actions and only 17 units have the corrective actions in their QP. AEQAS

instructs reporting units to include a process for documenting corrective actions in QPs. Thirteen reporting units that generate data revised their DQOs. Twelve reporting units revised their QP in 2021, with nine reporting units finalizing their QPs. An additional five reporting units indicated finalizing their first QP, not revisions to a previously existing QP.

Data Generator Information for Ecosystems Restoration

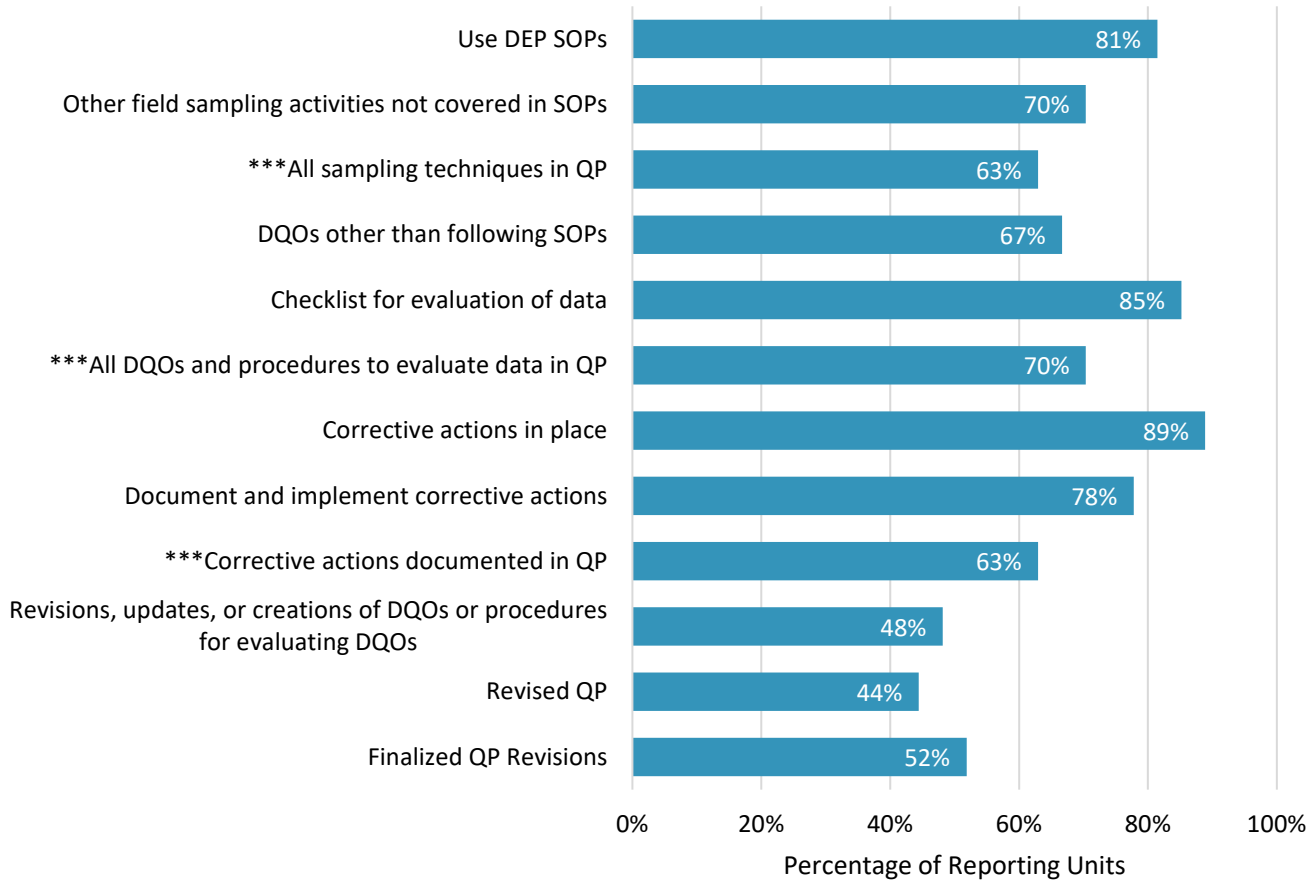


Figure 3.4. Percentage of reporting units in the Ecosystems Restoration area that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as data generator in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are 27 total data generators. See the table in Appendix B for individual reporting units’ responses to the questions. Note that reporting units that indicated that the information is not included in the QP may not have a QP.**

The percentages of reporting units with Quality System components as reported by **data users** are illustrated in Figure 3.5. Individual reporting unit responses are located in Appendix B. Twenty-two of the 28 reporting units that identified as data users have written DQOs, and 23 reporting units indicated that data used are evaluated against DQOs. Two reporting units (WRAP, NWFLAP) have written DQOs but did not report that the data used are evaluated against DQOs. Three other reporting units (NEAP, GTM, CRCP) indicated that they evaluate the data used to ensure that it meets their DQOs, but do not have the DQOs documented. Thirteen units reported

that another DEP unit evaluates the data used. Twenty-three units have a checklist for evaluation, and eighteen units documented the checklist in their QP. Twenty-three reporting units have corrective actions for instances when data do not meet DQOs and reported following up with corrective actions. Seventeen reported that those corrective actions are in their QP. Eight reporting units revised documented DQOs or procedures in 2021. Twelve reporting units reported revising their QP in 2021, with seven reporting units finalizing their revisions. An additional reporting unit indicated finalizing its first QP, not revisions to a previously existing QP. It is department policy that all data users have established DQOs and corrective actions and document them in their QP.

Data User Information for Ecosystems Restoration

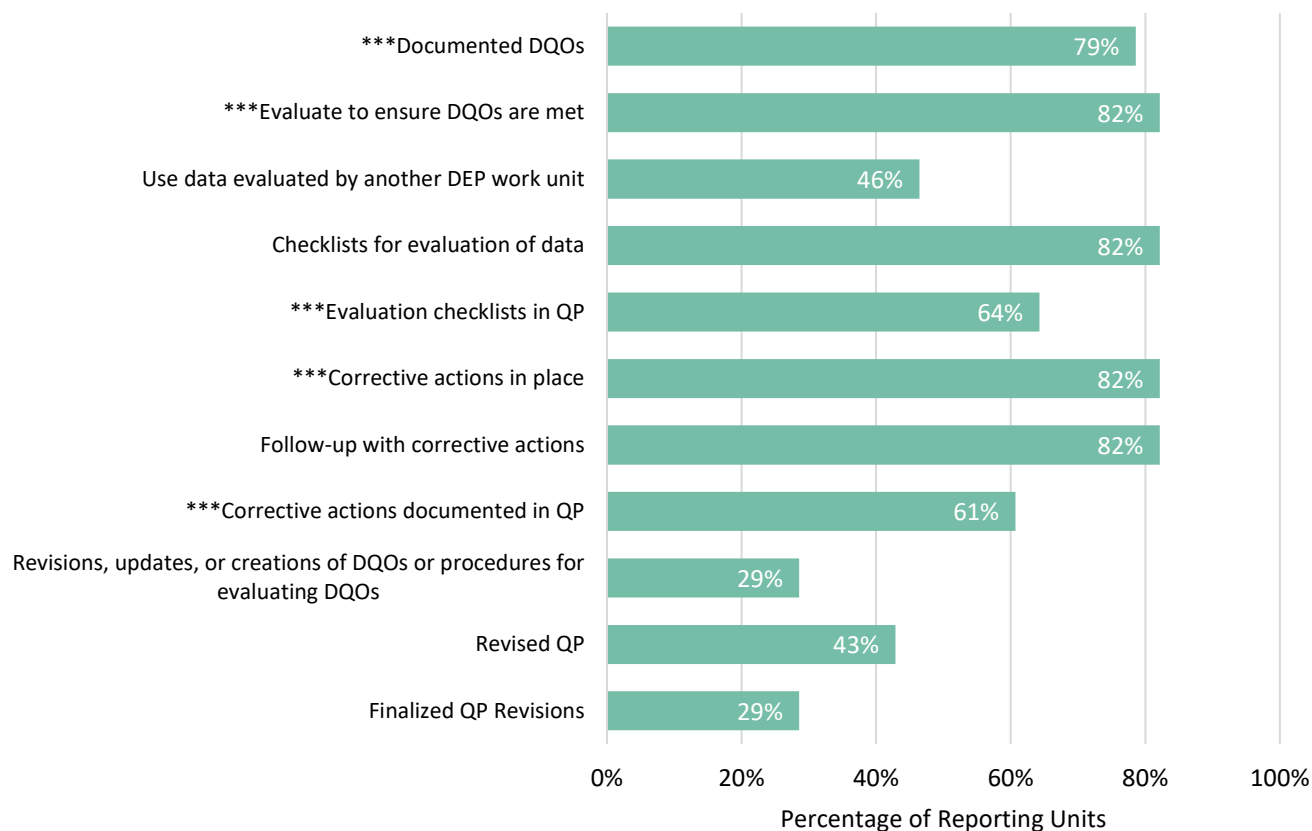


Figure 3.5. Percentage of reporting units in the Ecosystems Restoration area that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as data user in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are 28 total data users. See the table in Appendix B for individual reporting units’ responses to the questions. Note that reporting units that indicated that the information is not included in the QP may not have a QP.**

Eighteen units reported **managing data repositories** housing department environmental data. Most of the data repository managers indicated there are documented DQOs and evaluate that data in the data repositories meet the established DQOs (Figure 3.6). Eleven reporting units indicated the data in the data repositories managed

are evaluated by another DEP work unit. Seventeen data repository managers indicated using checklists to evaluate the data and fourteen incorporated the checklists in their QPs. All units should have checklists, and all the checklists should be included or cited in QPs. All stated that there were corrective actions for when data did not meet the DQOs and then follow-up to ensure corrective actions were implemented. Though, only fourteen units have the corrective actions documented in their QP. Ten units revised, updated or created DQOs or QA/QC procedures. Half of the reporting units identifying as data repository managers revised their QP and seven finalized their revisions in 2021. An additional five reporting units indicated finalizing their first QP, not revisions to a previously existing QP.

Data Repository Manager Information for Ecosystems Restoration

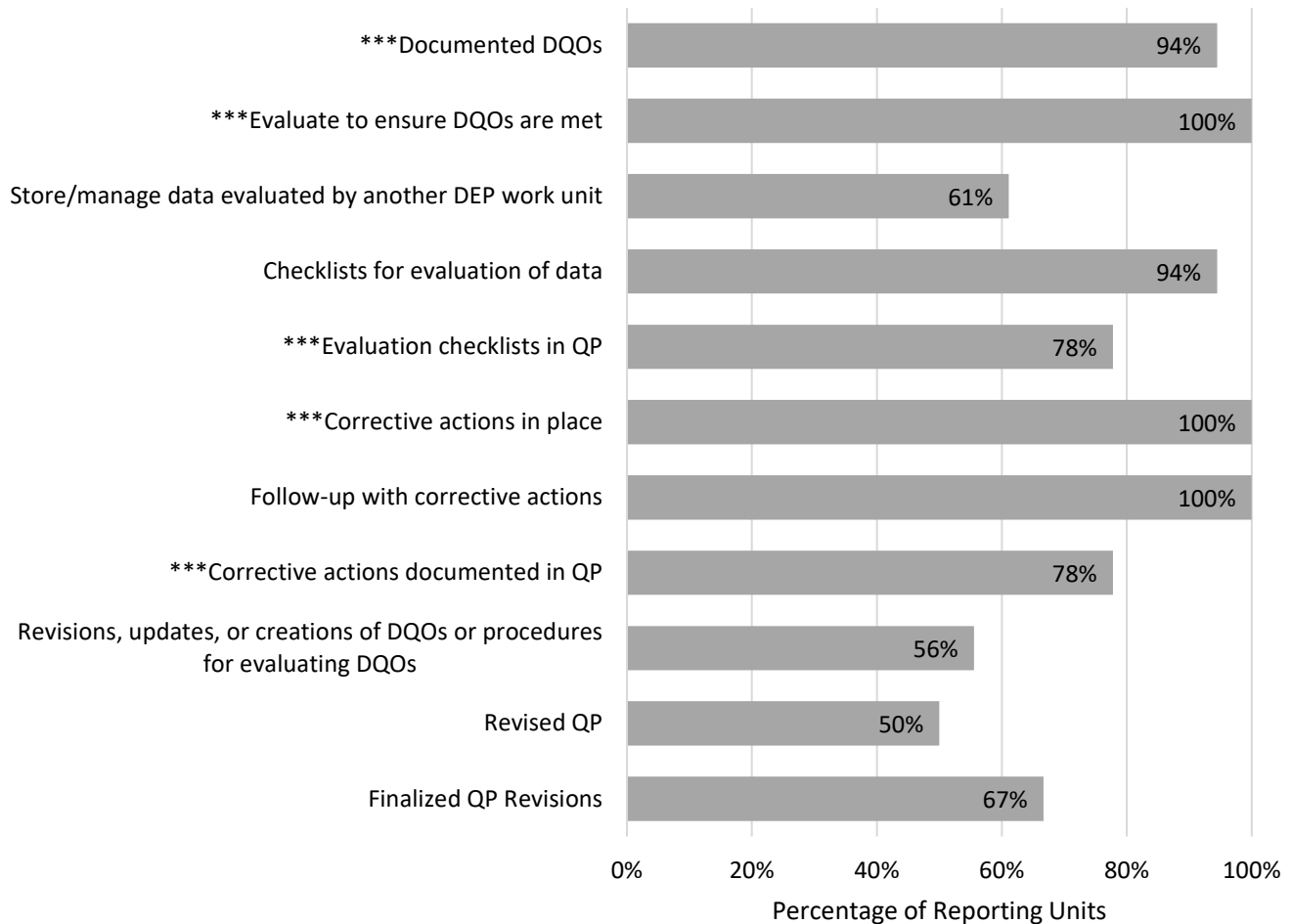


Figure 3.6. Percentage of reporting units in the Ecosystem Restoration area that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as data repository manager in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are 18 total data repository managers. See the table in Appendix B for individual reporting units’ responses to the questions. Note that reporting units that indicated that the information is not included in the QP may not have a QP.**

3.3 Training



QAOs identified QA training needs by reporting the number of staff that needed the training versus the number of staff that received the training. Combining all staff from all reporting units and the training categories, 97 percent of employees received the required training for QA tasks in the Ecosystems Restoration area. When reviewing the information from individual reporting units, five units (CPR, BBSAP, GTM, LABS, WETS) reported not meeting all their training needs, while seven reporting units did not identify training needs in 2021.

All employees in the Ecosystems Restoration area who required training in laboratory analysis, data review, and database management received the training (Figure 3.7). Four percent of employees who required training on field sampling did not receive it, only one percent of employees who required training on data entry did not receive the training, and four percent of employees who required program specific QA requirements did not receive training. However, almost a fifth (16%) of employees that needed contract/grant/PO training did not receive it in 2021.

Number and Percentage of Ecosystems Restoration Employees that Received the Required QA Training in 2021

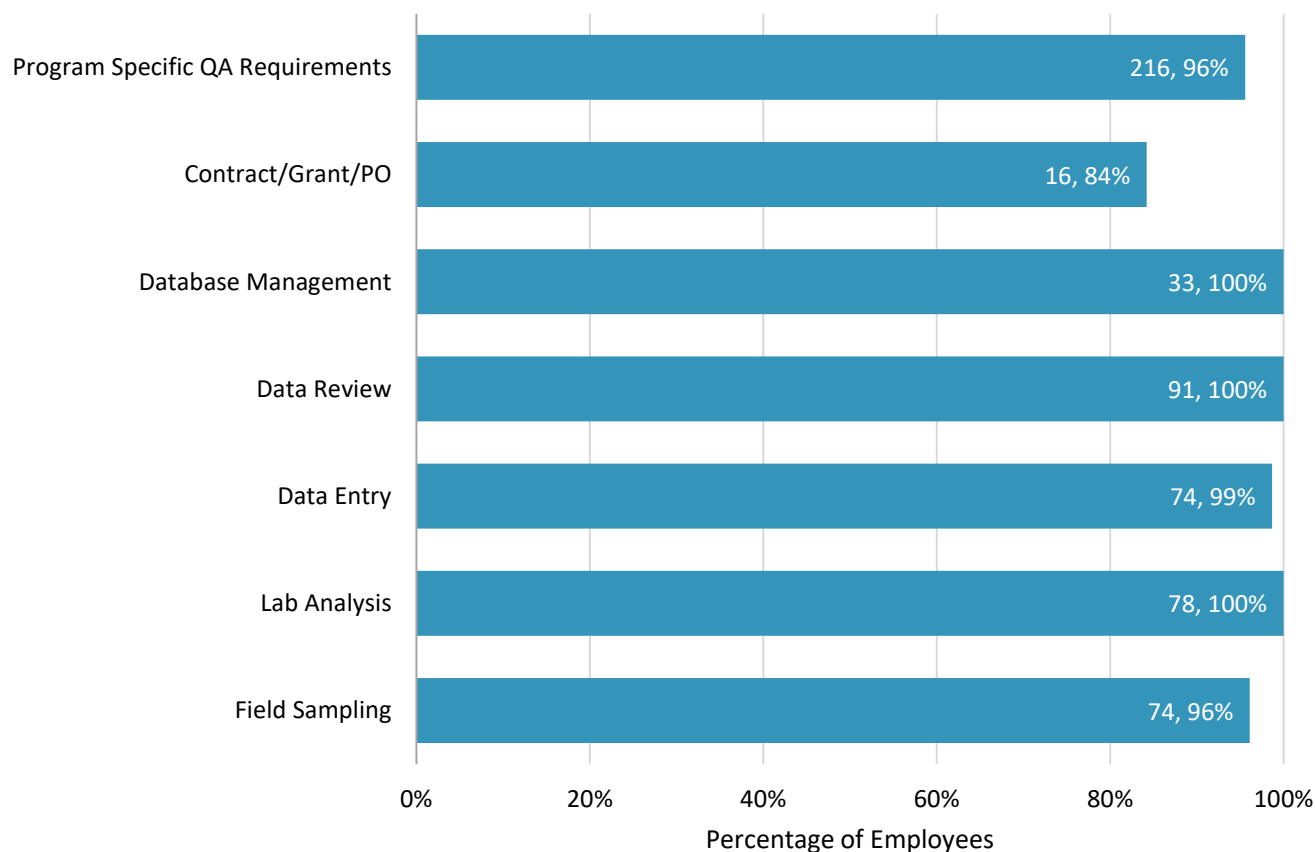


Figure 3.7. Percentage of employees in Ecosystems Restoration who required QA training in 2021 that received the training for their job responsibilities within each QA training category. Number of employees is included to provide more information.

3.4 Audits



AEQAS asked reporting units within the Ecosystems Restoration area of the agency to tally their audits from four different perspectives (Table 3.1). In total, 56 audits were reported for 2021, an increase from the 41 reported for 2020. Slight increases or decreases are expected from year to year and are based on need. Changes in audit counts and types are also attributed to COVID-19 restrictions. These 56 audits are composed of 28 performance audits, 20 project audits, and 8 system audits (Table 3.1).

Table 3.1. Audits reported by Ecosystems Restoration reporting units for 2021.

Audit Perspectives	Audit Types			Total
	Performance	Project	System	
Audits of another unit within DEP	2	4	2	8
Audits of entities external to DEP	11	5	0	16
Audits of the reporting unit by another entity	2	6	5	13
Self-audits conducted by the reporting unit	13	5	1	19
Total	28	20	8	

Reporting units were also asked a series of questions to provide more information on the audits reported. Figure 3.7 includes seven QA criteria for evaluating the audits conducted by FDEP's reporting units. They are as follows: (1) Do you generate a report for these audits? (2) Did your reporting unit track time frames of any of the audit activities, i.e., audit initiation, audit completion, or report compilation? (3) Were there written procedures or checklists for conducting these audits that ensured consistency between audits/auditors? (4) Is there a timeframe required for the audit report completion? (5) Was the report generated in the required timeframes? (6) Did the audited party respond to a preliminary audit report within a specified time frame? (7) Did your reporting unit follow up on any corrective actions for the audit? These questions are asked to better understand how reporting units manage their audits. At this time, no department-wide expectations for these criteria exist. Establishing expectations is the responsibility of the reporting units' management.

Three reporting units conducted at least one audit. Two units (WQSP and WMS) conducted audits of entities within DEP, and three units (WQSP, WMS, and BBAP) conducted audits of entities external to DEP. Most units reported generating an audit report and used checklists to conduct audits. Work units conducting audits of units within DEP had report time frames and met them, but only one unit conducting audits of an entity external to DEP had an established time frame (Figure 3.8). Only one of the three units that conduct audits from each perspective follows up with corrective actions, and only one reporting unit received responses to the report within the determined time frame. Reporting units should follow-up to ensure corrective actions are implemented and make efforts to encourage auditees to respond within the determined time frame. Auditors are not ultimately responsible for the audited parties' timeliness.

Eight reporting units were audited by an external entity or themselves in 2021. ROCs, LABs, CPAP, and BBAP indicated they were audited by an entity outside of their reporting unit, and WQSP, ROCs, LABs, ANEER, CHAP, EBAP, and BBAP conducted one or more internal audits of their work units. Of the four units that were audited by an entity outside of their reporting unit, three followed up with corrective actions. Of the seven units that conducted internal audits, six had an established frequency requirement and followed through with corrective actions. The internal audit is an important tool for work units to evaluate their practices and procedures, which provides their data users with greater confidence in the data. Units that generate data but do not conduct

internal audits should evaluate the value of internal audits and possibly include internal audit goals in their QP. Currently, ten reporting units have audit goals and the audit goals are discussed in their QP.

Expectations of Audits Conducted by Reporting Units in the Ecosystems Restoration Area

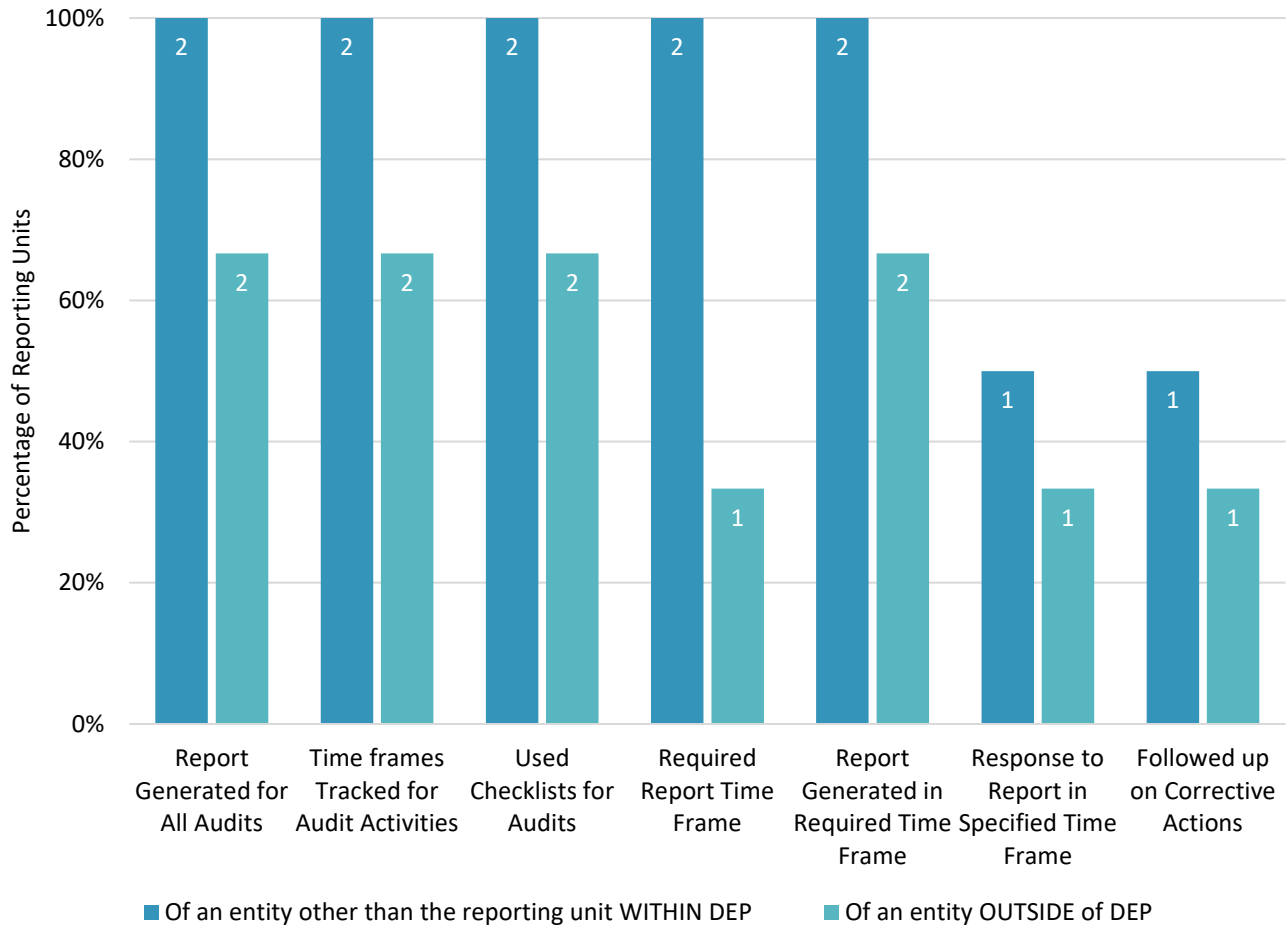


Figure 3.8. Percentages of Ecosystems Restoration reporting units meeting seven QA criteria for conducting audits in two audit categories: external audits that are conducted by the reporting unit of entities within DEP and external audits conducted by the reporting unit of an entity outside of DEP. Numbers of reporting units that answered “yes” to each criterion are included in the bars to provide more information.

3.5 Data Repositories



Of the reporting units within Ecosystems Restoration, 81 percent (26 of the 32 reporting units) indicated that staff enter data into at least one data repository. Eighty-eight percent (28 of 32 reporting units) retrieve data, and 59 percent (19 of 32 reporting units) are responsible for managing data in repositories.

Reporting units in the Ecosystems Restoration area enter data into 34 different data repositories. The majority of reporting units verify the data that are entered (Figure 3.9). However, several reporting units (WMS, CHAP, CPAP, EBAP, and FKNMS-AP) only have verification steps in place for some data that are entered. A few reporting units (IRLAP and WRAP) do not have verification steps for any of the data that are entered. To ensure that data are entered correctly, reporting units without verification protocols should determine if data verification is needed to increase the reliability of its data. Of the reporting units that verify data entry, 73% have all of the protocols documented in the QP for all the repositories, less than one-third have protocols documented for some of the repositories in which data are entered, and less than one-fifth do not have any of the protocols documented in the QP. To safeguard against data entry errors and improve data repository understanding by staff, all protocols should be documented or referenced in QPs.

Ecosystems Restoration Reporting Units with Quality Checks & Documentation for Data Entry

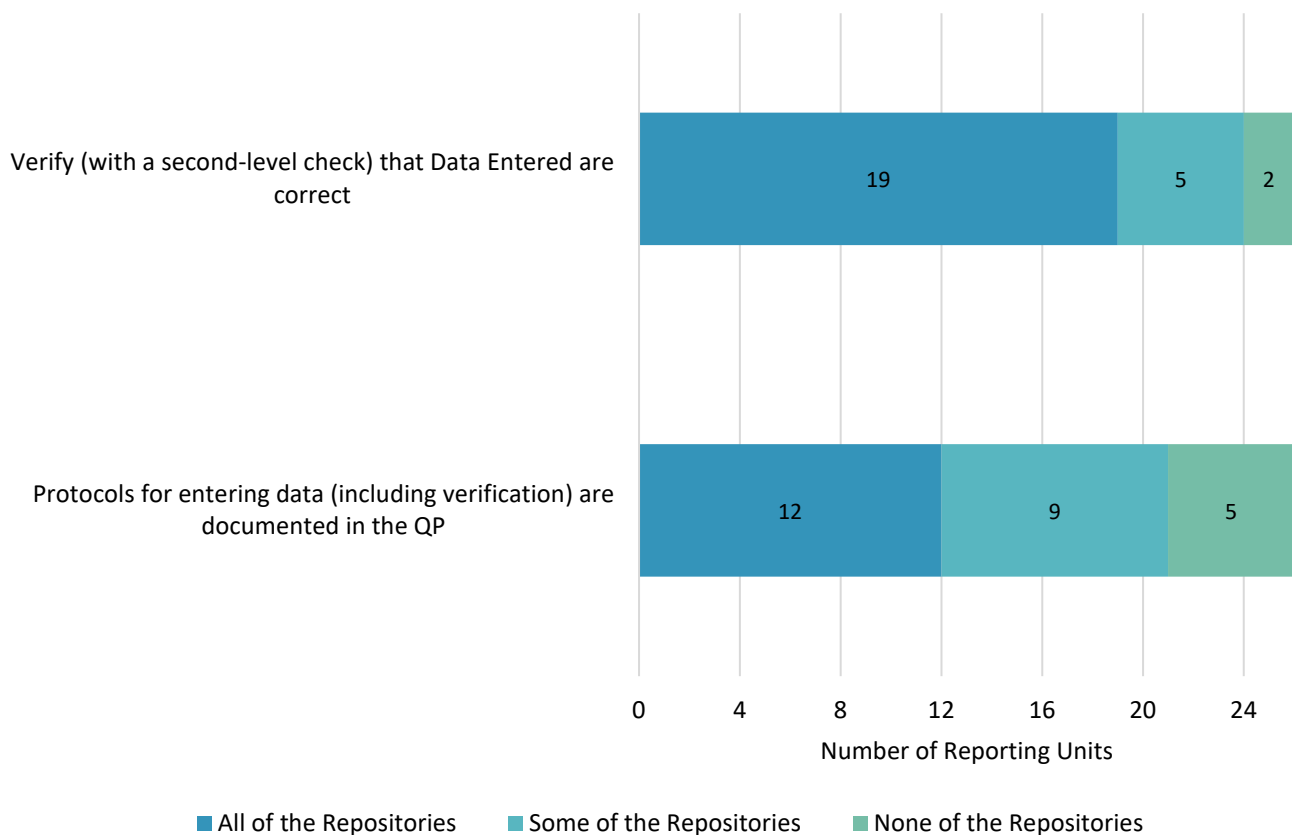


Figure 3.9. Number of reporting units in the Ecosystems Restoration area that enter data into data repositories in which data entered is verified with a second-level check for all repositories and have documented protocols in place for entering data for all repositories. Note that reporting units that indicated that the information is not included in the QP may not have a QP.

Twenty-eight reporting units retrieve data from 37 different data repositories. Almost half of the reporting units perform QA/QC checks on the data retrieved from all of their data repositories; nearly a third (WMS, ROCs, WETS, WIN, GIS, CPAP, RBAP, and NWFLAP) perform QA/QC checks on the data retrieved from some of their

data repositories; and the remaining fourth (WSRFP, DWH, EBAP, IRLAP, WRAP, CPR, and FKMS-AP) do not perform any checks on the data retrieved (Figure 3.10). Those programs that do not perform QA/QC checks on all data retrieved should determine whether QA/QC checks are necessary. Less than a third of reporting units have written protocols for the retrieval of data from all repositories, with ten units reporting that there are written protocols for some of the repositories and another ten indicating no protocols are used for retrieval. The twenty reporting units without written protocols for some or all of the data repositories used for retrieval should evaluate their QPs and include the protocols. The majority of reporting units have feedback mechanisms in place to notify the data generator of suspect data for all data repositories. Over half of the reporting units described these feedback mechanisms in their QP for all data repositories. The reporting units without feedback mechanisms for all data repositories or none of the data repositories should evaluate the need for feedback mechanisms. The reporting units without feedback mechanisms described in their QP should revise the document to include the feedback mechanisms. To obtain data consistently and uniformly, protocols for QA/QC checks, data retrieval, and feedback mechanisms for retrieving data from each data repository utilized by a unit should be in place and described in their QP.

Ecosystems Restoration Reporting Units with Quality Checks, Feedback Mechanisms, & Documentation for Data Retrieval

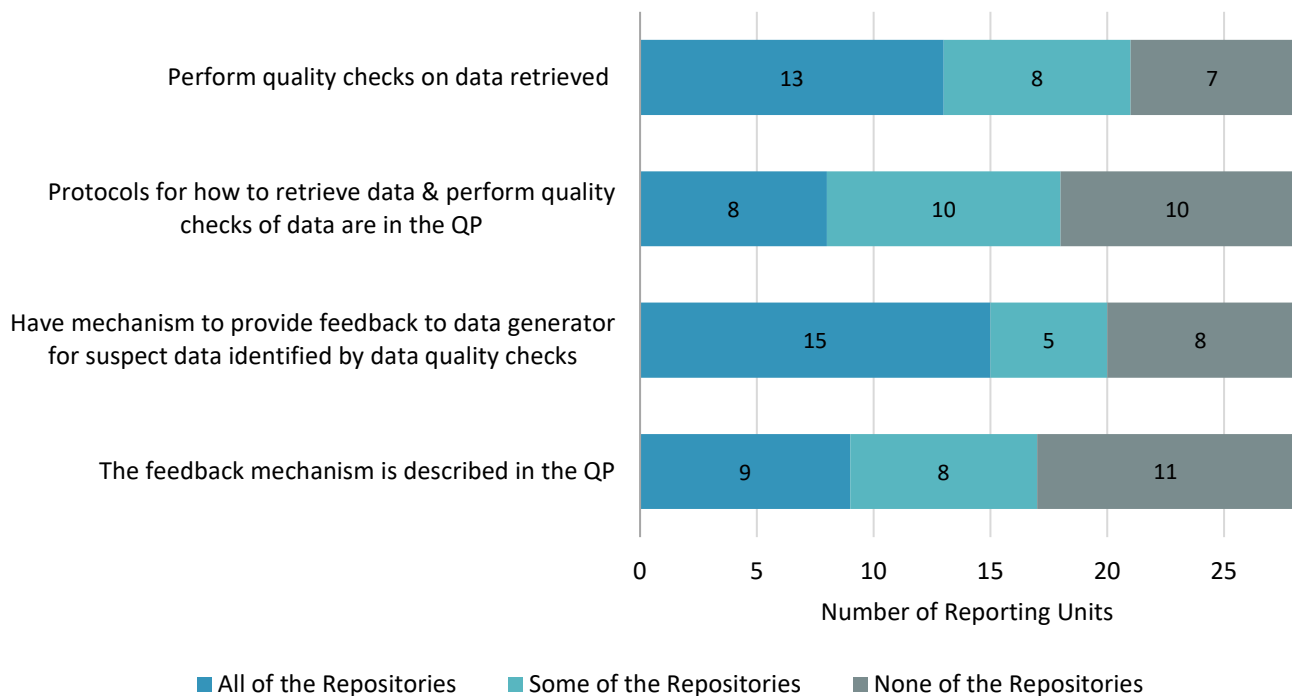


Figure 3.10. Number of reporting units in the Ecosystems Restoration area that retrieve data from data repositories in which data quality checks were performed on all data retrieved, documented protocols are in place for all repositories used, a feedback mechanism is in place to notify the data generator of suspect data for all repositories, and the feedback mechanism is described in the reporting unit's quality plan for all repositories. Note that reporting units that indicated that the information is not included in the QP may not have a QP.

Eighteen reporting units within Ecosystems Restoration manage 14 data repositories. Almost all reporting units perform checks on all data repositories managed and most of them have protocols on how to perform quality checks in their QP for all the data repositories they manage. One unit (WIN) performs checks on only some of the repositories they manage, and one unit (IRLAP) does not perform checks on any of the data stored or managed (Figure 3.11). The quarter of reporting units without written protocols for checking data should evaluate the need for checks and add relevant documentation for performing checks of stored data in the QP.

Most reporting units have a mechanism to provide feedback to the data generator for suspect data. However, only half have the feedback mechanisms documented in the QP (Figure 3.11). A few others have documented their feedback mechanism for some repositories. Reporting units without feedback mechanisms and description of the feedback mechanism for all data repositories should evaluate their QPs and include the protocols for data storage. To validate data housed, documented protocols should be in effect and described in the QP for all data repositories.

Ecosystems Restoration Reporting Units with Quality Checks, Feedback Mechanisms, & Documentation for Database Management

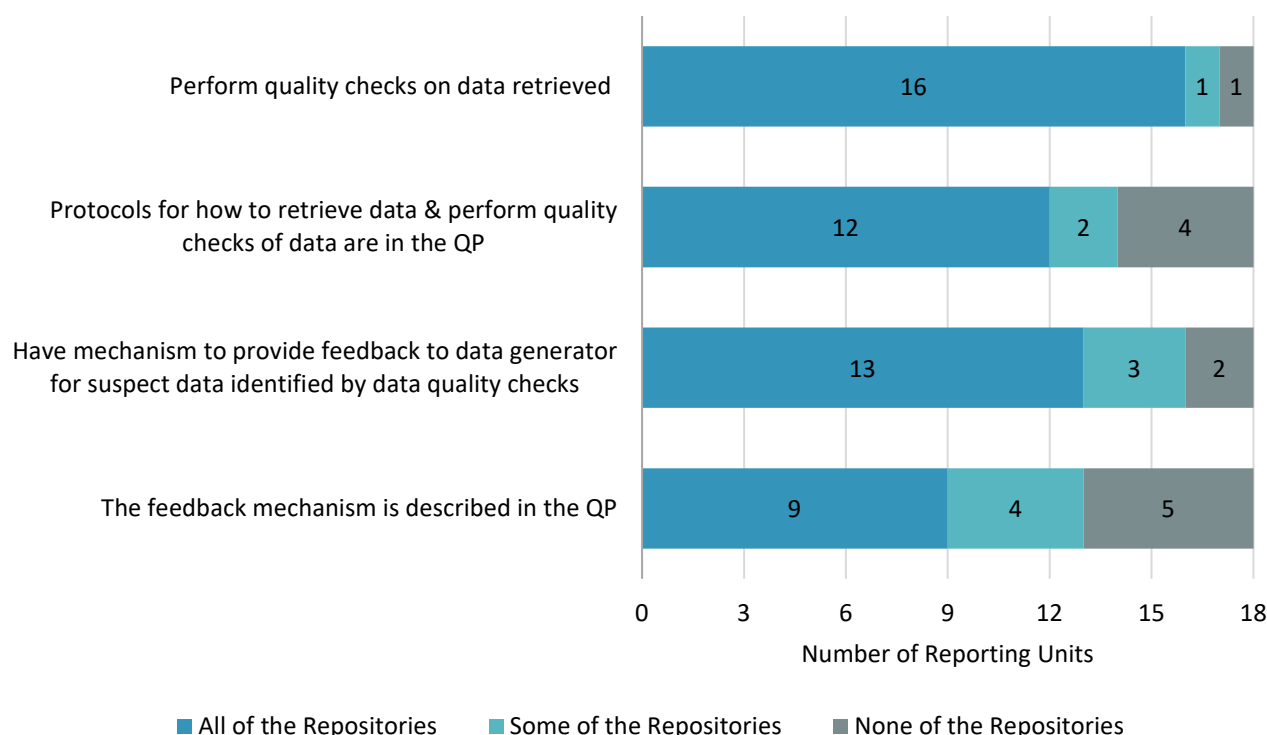


Figure 3.11. Number of reporting units in the Ecosystems Restoration area that manage data repositories in which data quality checks were performed on all repositories managed, documented protocols are in place for quality control checks of the stored data for all repositories, a feedback mechanism is provided to the data generator for suspect data for all repositories, and the feedback mechanism is described in the reporting unit's quality plan for all data repositories. Note reporting units indicating that the information is not included in the QP may not have a QP.



4. Land and Recreation

The following divisions, programs, and sections contributed to this report:

Division of Recreation and Parks (DRP)

Division of State Lands (DSL)

4.1 Overview and Expected QA Activities

The Land and Recreation area of DEP acquires and protects lands for preservation and recreation. It includes 175 state parks and trails, more than 12 million acres of public lands, and 4 million acres of coastal uplands and submerged lands. Land and Recreation includes two divisions: Division of Recreation and Parks (DRP) and Division of State Lands (DSL). DRP reports as one unit, though organizationally there are eight programs and five districts. DSL also reports as one unit, though six programs make up the division. Figure 4.1 indicates the functions of DRP and DSL that involve QA activities.

Although its primary missions are to manage public land and provide recreational opportunities for the public, DRP collects some environmental data for the department, either directly or indirectly through purchase orders. Some sampling is for research purposes, while some is for compliance with drinking water, wastewater, and bathing beach monitoring requirements. Sampling projects and procedures vary across the DRP districts based on regional needs. For all environmental data collected for programmatic use, expected QA activities include using published or recognized methods, training staff and volunteers to appropriately use the methods as well as training for data entry, data review and data management. Because DRP manages sampling agreements, it must have established data quality objectives (DQOs), training for staff to review data against the DQOs, and training to understand when to incorporate QA into agreements with the department.

DSL manages, purchases and maintains state lands and conservation easements, and is not directly involved with the collection and analysis of environmental data; therefore, DSL has limited QA reporting. DSL reports on DQOs and training related to program-specific QA requirements. In previous years, they have reported limited data retrieval, but that activity was not performed in 2021. DSL did not report contract or grant management-related QA activities in 2021, though it is known that they have managed contracts or grants in the past that need QA oversight.

Figure 4.1 provides context for the QA activities that AEQAS expects reporting units to report. All program functions listed require reporting units to have and document DQOs and provide adequate QA training to staff. Entities that collect or analyze environmental samples or measurements are expected to conduct internal audits and/or be audited by external parties to ensure proper collection and analysis of data. Reporting units that use data are expected to audit external entities that provide data to the unit with some established consistency and frequency. Reporting units that manage contracts, grants or POs for environmental data collection or analysis may conduct audits of procured services. Reporting units that enter data, retrieve data, or manage environmental data repositories must have documented procedures for QA/QC.

Program Functions that Require QA

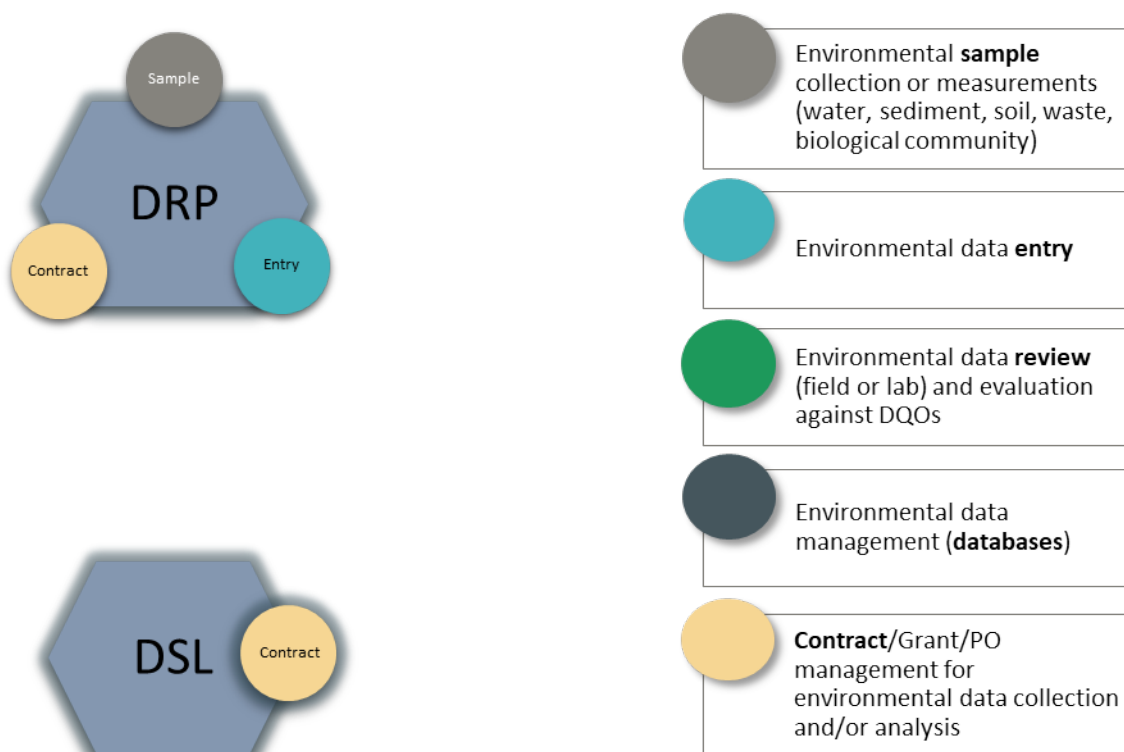


Figure 4.1. Diagram of the reporting units for DRP and DSL showing each units' 2021 functions that require QA activities, represented by color-coded circles. The circles do not indicate whether that program or section reported on that function.

4.2 Quality System



The DRP and DSL are both data users. Portions of DRP are also data generators. The DSL finalized revisions to their quality plan (QP) at the beginning of 2020 and did not need to revise their QP in 2021. AEQAS conducted a Quality of Science Review in 2021 with the DRP's QAO and other representatives to evaluate its Quality System and determine which specific QA-related tasks should be documented in this report. DRP's QP is out of date and is currently in revision to implement suggestions from AEQAS provided in the Quality of Science Review report. DRP intends to complete revisions by June 2022.

4.3 Training



DSL did not report QA training needs in 2021. DRP reported that they needed field sampling training for four staff members and all received the required training. AEQAS suggested all staff in these reporting units take the *Introduction to Quality Assurance* course available on the LMS.

4.4 Audits



The Land and Recreation Area did not report any audits. Reporting units within this area are not likely to report audits in the volume or frequency of other areas of the agency. However, environmental data collected through compliance monitoring or sampling for research is subject to audits. For example, some of the data generated by DRP is subject to performance audits.

4.5 Data Repositories



DSL reported that staff do not enter, retrieve nor manage environmental data. DRP reported that staff enter and retrieve environmental data. DRP staff verify all data entered, but do not have documented protocols for data entry and verification. QA/QC checks are not performed on the data retrieved from repositories. There is a feedback mechanism for suspect data, but the feedback mechanism is not documented in their QP. DRP is working to update its QP to incorporate the protocols for data entry. They are also evaluating the need for QA/QC checks on data retrieved and will include their feedback mechanism for suspect data in their QP.

5. Regulatory Programs

The following divisions, programs and sections contributed to this report:

Division of Waste Management (DWM)

Petroleum Restoration Program (PRP)

Waste Cleanup Program (WCP)

Site Investigation Section (SIS)

Waste Site Cleanup Section (WSCS)

Federal Programs Section (FPS)

Brownfields and CERCLA Site Screening (BCSS)

Business and District Support (DBSP)

Operational and Program Performance (OPP)

Permitting and Compliance Assistance Program (CAP)

Hazardous Waste Program & Permitting Section (HW)

Solid Waste Program & Permitting Section (SWS)

Compliance Assistance Section (CAS)

Florida Geological Survey (FGS)

Division of Law Enforcement and Emergency Response (DLE)

Regulatory Districts conducting Wastewater and Drinking Water Activities

Northeast District (NED)

Northwest District (NWD)

Central District (CD)

Southwest District (SWD)

South District (SD)

Southeast District (SED)

5.1 Division of Waste Management, Florida Geological Survey & Division of Law Enforcement and Emergency Response

The regulatory district offices (Districts), Division of Waste Management (DWM), Division of Water Resource Management (DWRM), the Florida Geological Survey (FGS), and Division of Law Enforcement (DLE), which includes the Office of Emergency Response, comprise the Regulatory Programs area of the agency. The data presented in this section of the report are based on the 12 reporting units that submitted information for 2021 from DWM, DLE and FGS, which includes all organizational units for these offices. This is the same number of reporting units as in 2020. QA activities reported for DWM in this section do not include QA activities conducted in the Districts. Discussion of the Drinking Water and Wastewater regulatory programs in the Districts and DWRM are in the next section. The DWRM division level offices are not yet included; efforts of the Districts were prioritized due to the volume and similarity of their QA activities as well as the observed inconsistencies between offices in previous years.

DWM implements state and federal laws to protect the environment from the improper handling and disposal of solid and hazardous wastes. Nine reporting units representing seven organizational units make up the DWM: District and Business Support Program (DBSP); Federal Programs Section (FPS); Brownfields and CERCLA Site Screening (BCSS); Site Investigation Section (SIS); Waste Site Cleanup Section (WSCS); Hazardous Waste Program & Permitting (HW) Section; Solid Waste Program & Permitting (SW) Section; Operation and Program Performance (OPP) Section; Permitting & Compliance Assistance Program (PCAP); and Petroleum Restoration Program (PRP). Brief responsibilities of each section/program are as follows.

The DBSP provides technical support services to the DWM and six district offices across the state. These services include professional consultation on all aspects of site assessment and remediation, including human health and ecological risk assessment.

The Department of Defense (DOD), Brownfields and CERCLA programs reported as one unit (FPS) in 2019 but were split into three distinct programs in late 2019. For the 2020 report, they are addressed in two groups as the Federal Programs Section (FPS) and Brownfields and CERCLA Site Screening (BCSS) and continue to report separately. FPS provides oversight of site rehabilitation activities, program guidance and technical support at DOD and National Aeronautics and Space Administration (NASA) sites and facilities in Florida (which also includes sites in the Formerly Used Defense Sites (FUDS) Program). BCSS works with the U.S. Environmental Protection Agency (EPA) to administer the Brownfields Program in Florida and conducts site screening assessments on sites with confirmed or suspected contamination to document if there was a release of hazardous substances and to evaluate the site for possible inclusion on the National Priority List (NPL).

The SIS investigates reports of known or suspected soil and groundwater contamination statewide and issues technical reports to support district assessment and cleanup decisions. The section also manages the State-Owned Lands Cleanup Program, which is responsible for addressing contaminated sites on land owned by the state of Florida.

The WSCS is responsible for managing the Dry-cleaning Solvent Cleanup Program, which addresses contamination resulting from the operation of eligible dry-cleaning facilities. In addition, the WSCS coordinates with EPA during EPA-managed remediation of NPL/Superfund sites in Florida. For sites that do not meet NPL criteria and have no viable responsible party, the WSCS manages these as “State-Lead” sites using state funding.

The HW Cleanup Section is working under the Resource Conservation and Recovery Act (RCRA) and is responsible for the remediation of hazardous waste sites.

The SW Section develops solid waste policy and provides technical assistance to the district offices concerning the permitting, compliance and enforcement activities associated with solid waste facilities. These facilities can include landfills, material recovery facilities, transfer stations, composting/processing facilities, and waste tire management sites.

The OPP Section provides information and technology services related to data management, reporting and presentation for DWM applications. The section is responsible for the circulation, transfer and disposition of DWM's property. The section also coordinates purchases and maintains property acquisitions, storage and disposal in accordance with DEP policies.

The PCAP implements state and federal laws related to recycling, pollution prevention, solid and hazardous waste management, and storage tank compliance. The PCAP works closely with Districts to implement permitting, compliance and enforcement activities in order to protect the environment from improper handling and disposal of solid and hazardous waste.

The PRP provides technical oversight for assessment and cleanup of sites contaminated by discharges of petroleum and petroleum products from stationary petroleum storage systems.

DLE responds to environmental pollution threats in every form, from incidents involving petroleum spills caused by vehicle accidents to chemical plant explosions and coastal oil spills. There is one reporting unit for DLE. The Districts carry out this office's responsibilities across the state. The QAOs for DLE report for the division office as well as the district offices.

FGS collects, interprets and provides information about Florida's water, mineral and energy resources. The focus of FGS is on environmental problem-solving and geological hazards as they relate to public health and safety. FGS has one reporting unit encompassing five organizational units.

Figure 5.1 provides context for the QA activities that AEQAS expects these reporting units to report. All listed program functions require reporting units to have and document DQOs and provide adequate QA training to staff. Entities that collect or analyze environmental samples or measurements are expected to conduct internal audits and/or be audited by external parties to ensure proper collection and analysis of data. Reporting units that use data are expected to audit external entities that provide data to the department with some established consistency and frequency. Reporting units that manage contracts, grants or POs for environmental data collection or analysis may conduct audits of procured services. Reporting units that enter data, retrieve data or manage environmental data repositories must have documented procedures for QA/QC.

Organization & QA-related Activities in Regulatory (DWM, FGS & DLE)

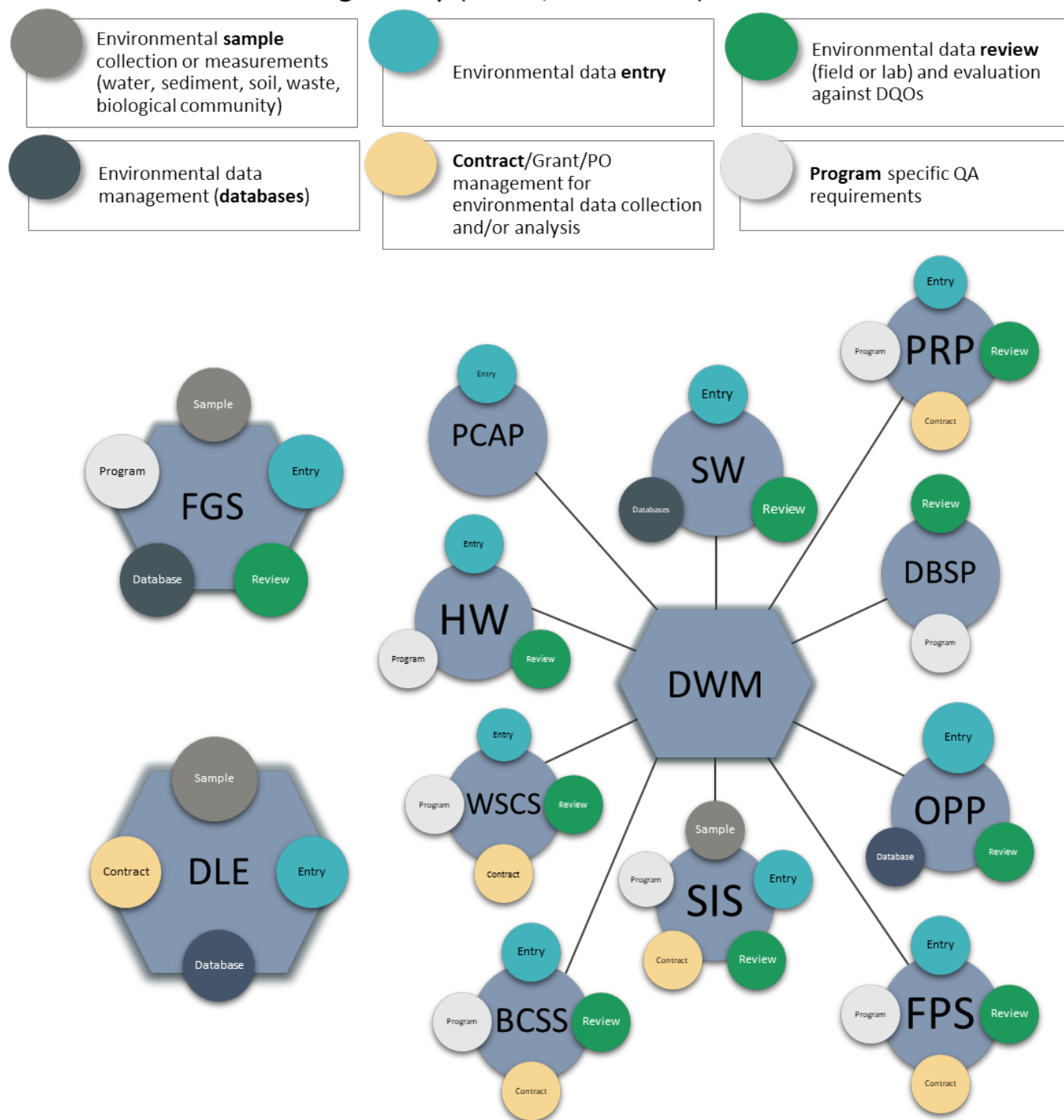


Figure 5.1. Diagram of the reporting units from DWM, FGS and DLE showing each unit's functions that require QA activities, represented by color-coded circles. The circles do not indicate whether that program or section reported on that function.

5.1.1 Quality System



Twelve units reported on the Quality System content for the 2021 Annual QA Report. Seven units reported as data users only, two units reported as data user and manager, two units reported as data user, generator and manager, and one unit reported as a data user and generator (Figure 5.2). Individual reporting unit responses to the survey are located in Appendix B. The data repository manager survey created for the 2021 report added the new combinations of activities not previously presented.

Self Reported Program Activities for DWM, FGS, & DLE

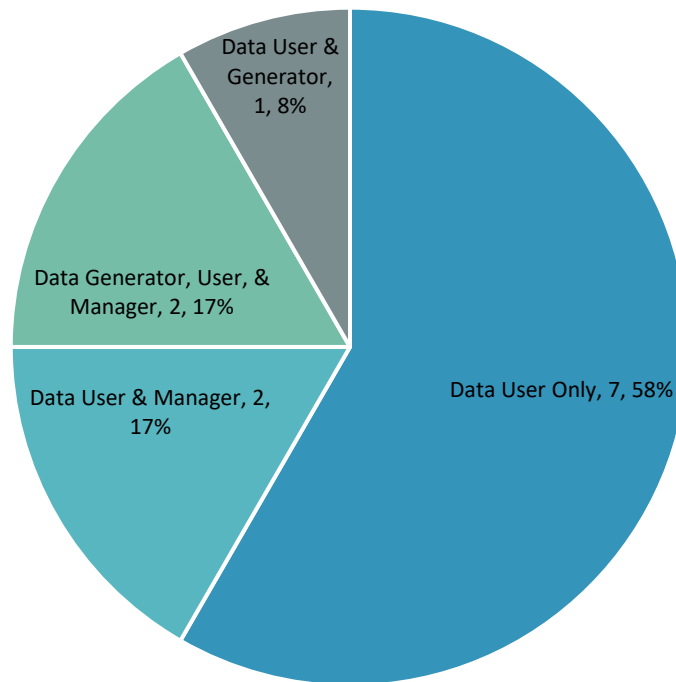


Figure 5.2. Number and percentage of units in Regulatory Programs reporting as data users, data generators or both for the 2021 QA Annual Report. There are 12 reporting units total from DWM, DLE and FGS combined.

Three units reported **generating data** for department use. Data generation includes sample collection and/or analysis. All data generating units indicated they follow DEP SOPs, other SOPs, or a combination of both (Figure 5.3). Two of the three data generating units indicated their QP incorporates all SOPs, and the remaining unit should revise their QP to include references to all SOPs used. One unit has DQOs other than SOPs and indicated having checklists to evaluate the data generated against DQOs. Two have incorporated the DQOs (including SOPs) and procedures to evaluate into the QP. All units should have checklists for data evaluation, and all the checklists should be included or cited in QPs. All units stated that there were corrective actions for when data did not meet the DQOs and the corrective actions are documented in the QP. None of the reporting units identifying as data generators revised their DQOs and corrective actions nor did they report revising their QP in 2021.

Data Generator Information for DWM, FGS, & DLE

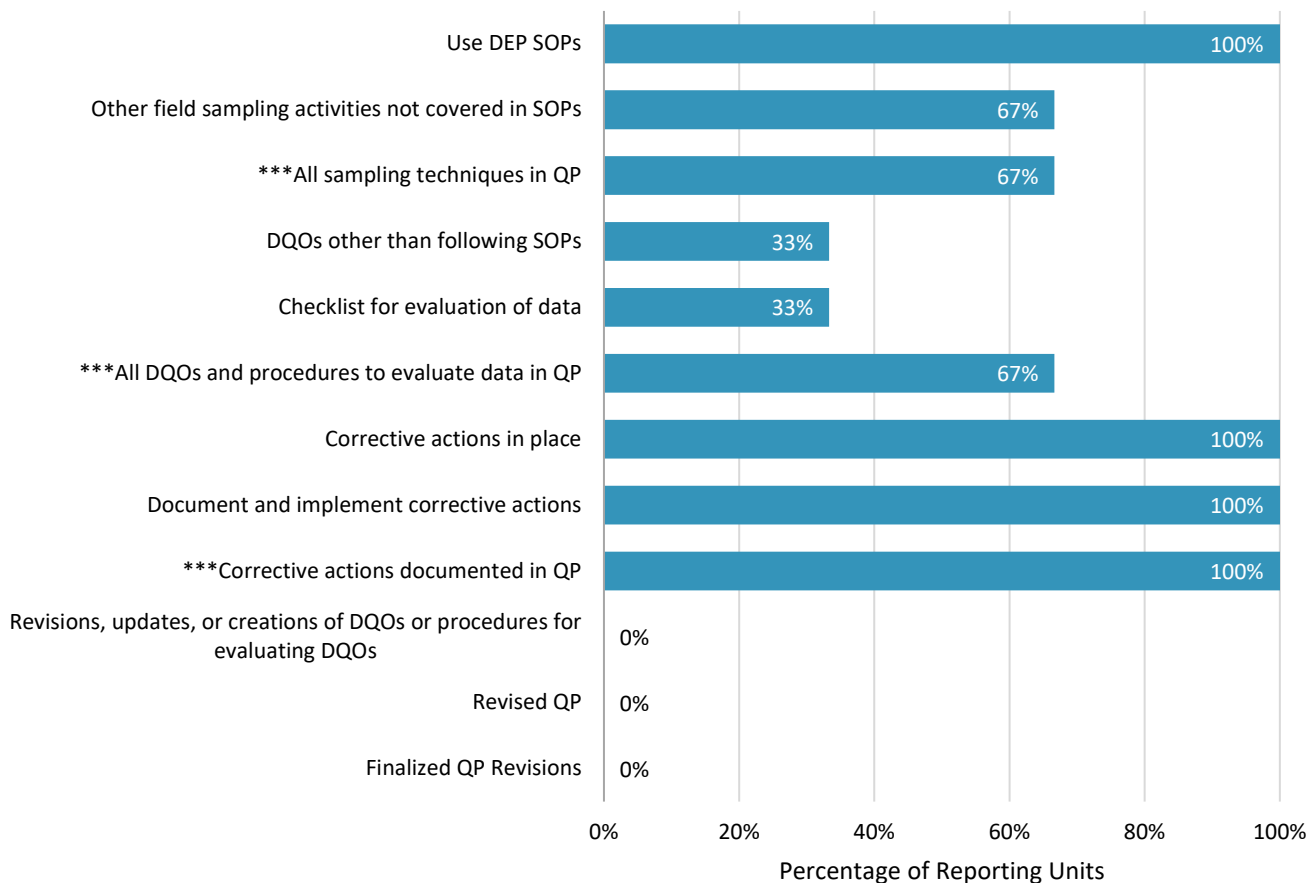


Figure 5.3. Percentage of Regulatory program reporting units that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as a data generator in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are three total data generators. See the table in Appendix B for individual reporting units’ responses to the questions.**

All 12 reporting units in DWM, DLE and FGS reported as **data users**. Ten of those 12 units reported using data generated by both the department and external sources, while two units indicated that they only use a source outside of DEP. All of the data users reported having documented DQOs for the data used, and all but one reporting units (SWS) evaluate the data used to ensure data meet the DQOs (Figure 5.4). Five units indicated that another DEP unit evaluates the data used by their reporting unit. Eight units indicated checklists for evaluating data and the checklists are incorporated into the QP. Ten units reported that corrective actions are in place when data do not meet DQOs. Nine units follow up to ensure corrective actions are implemented. Eight of the 12 reporting units with corrective actions have documented them in their QPs. No reporting units indicated revising Quality System components, though three reporting units revised their QP and indicated they were part of the finalization of the DWM QP in 2021.

Data User Information for DWM, FGS, & DLE

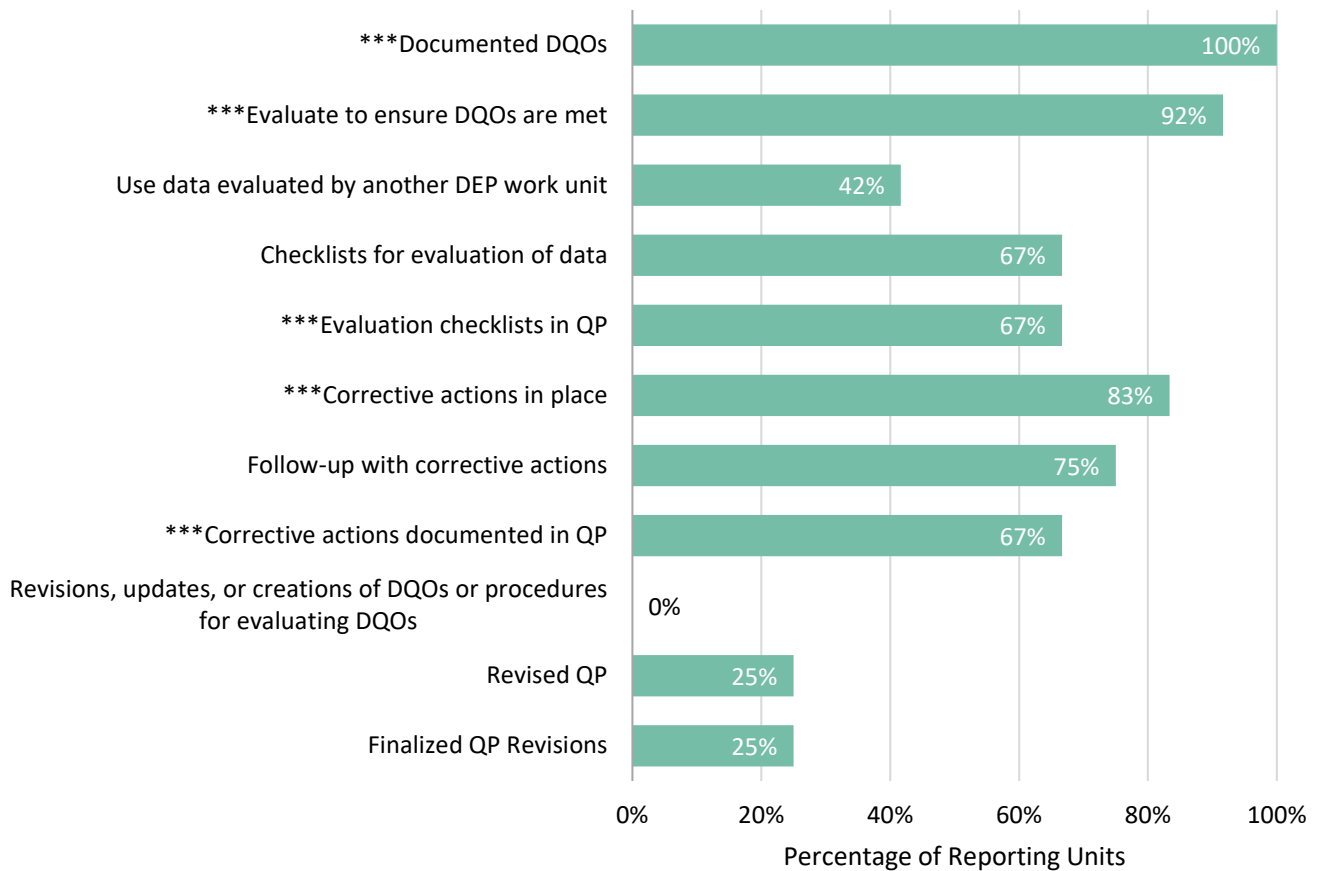


Figure 5.4. Percentage of Regulatory program reporting units that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as a data user in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are 12 total data users. See the table in Appendix B for individual reporting units’ responses to the questions.**

Four units reported **managing data repositories** housing department environmental data. All data repository managers indicated there are documented DQOs and evaluate that data in the data repositories meet the established DQOs (Figure 5.5). Two units indicated the data in the data repositories managed are evaluated by another DEP work unit. All data repository managers indicated using checklists to evaluate the data and that those checklists are incorporated in their QPs. All units should have checklists, and all the checklists should be included or cited in QPs. All units stated that there were corrective actions for when data did not meet the DQOs and the corrective actions are documented in the QP, though only three units follow-up with corrective actions. One of the reporting units identifying as a data repository manager revised their QP and finalized their revisions in 2021.

Data Repository Manager Information for DWM, FGS, & DLE

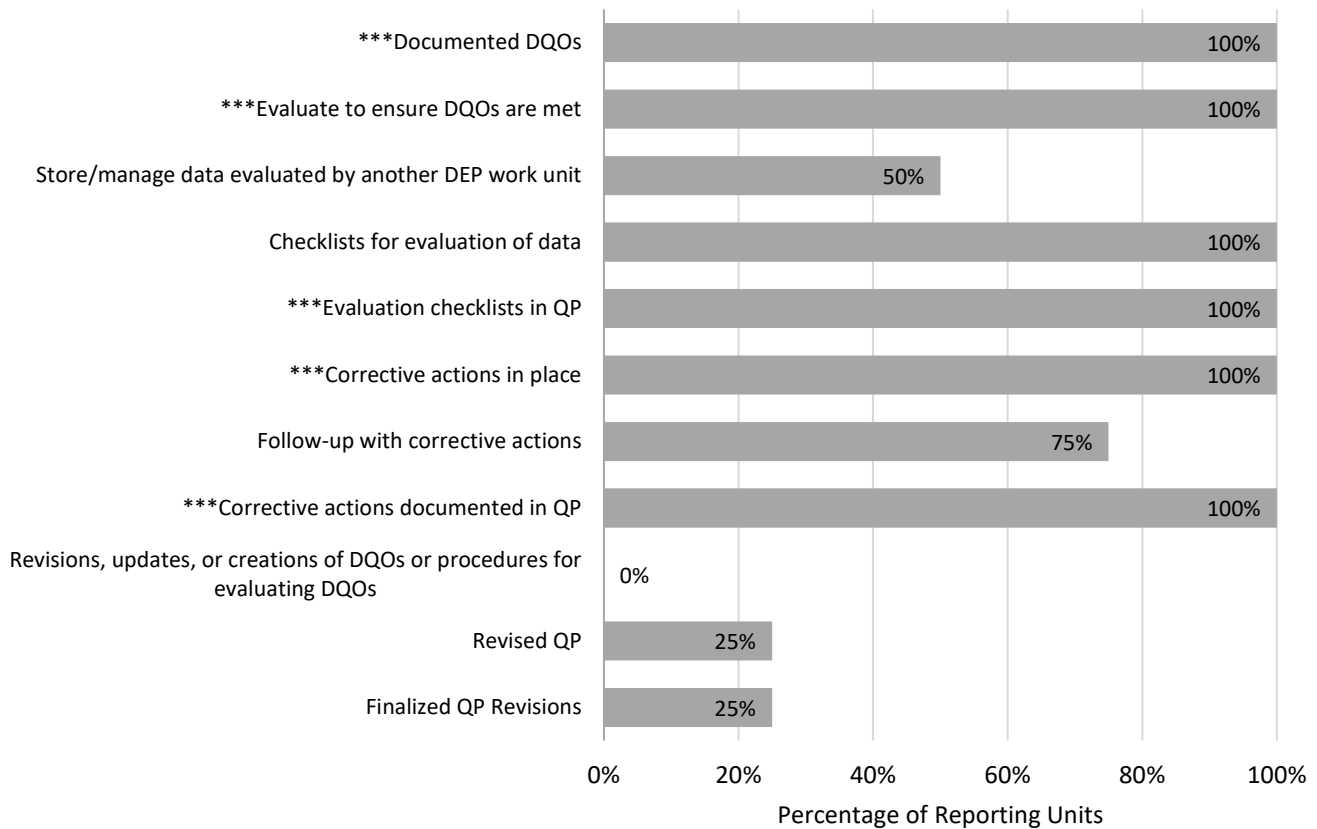


Figure 5.5. Percentage of Regulatory program reporting units that answered “yes” to dichotomous questions regarding data quality objective use and documentation specific to roles as a data repository manager in the 2021 survey template. Categories with three asterisks (*) are expected to be 100 percent. Other categories not reaching 100% are not deficiencies. There are 4 total data repository managers. See the table in Appendix B for individual reporting units’ responses to the questions.**

5.1.2 Training



QAOs reported on the number of staff that required training and those that received training. For DWM, FGS and DLE, most employees that required training received the training during 2021. Three units did not report training needs or requirements for 2021. More employees were trained on data review than any other training category in 2021 (Figure 5.6). Three reporting units (PRP, FGS, DLE) provided trainings to entities external to DEP. Approximately 300 people participated in eight external trainings.

Number and Percentage of DWM, FGS, & DLE Employees that Received the Required QA Training in 2021

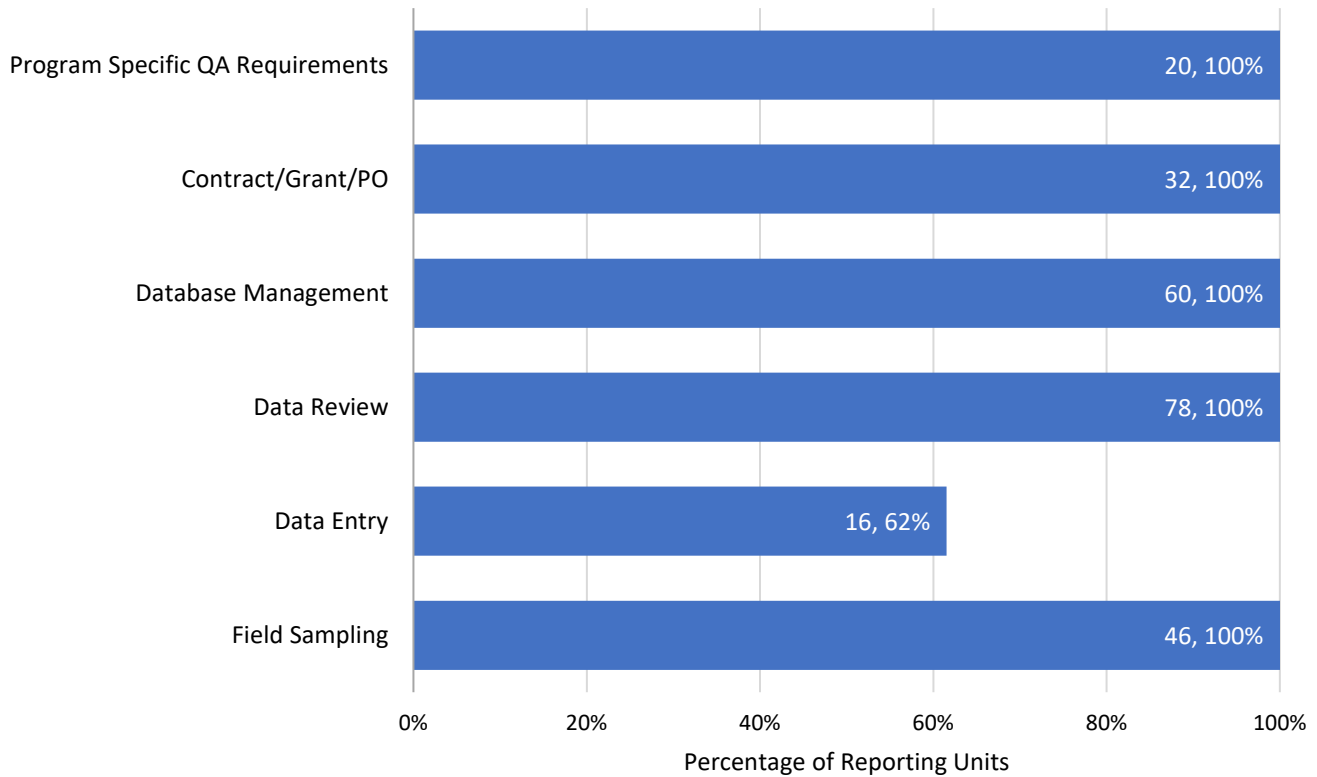


Figure 5.6. Percentage and number of employees in DWM, FGS and DLE that received training within each QA training category in 2021.

5.1.3 Audits



AEQAS asked reporting units within the Regulatory area of the agency to tally their audits from four different perspectives (Table 5.1). In total, 16 audits were reported for 2021.

HW, SIS, PCAP, and DLE were the four reporting units that conducted audits of other entities within and external to DEP in 2021. HW conducted ten audits in 2021. There were reports generated for the DLE, SIS, PCAP and HW audits. DLE and SIS followed up on corrective actions. PCAP conducted a system audit, generated a report, and tracked the completion of the audit, but did not follow up with corrective actions. All reporting units' auditors used checklists to perform the audits.

Only one reporting unit (DLE) conducted an internal audit of its unit. One reporting unit (PCAP) was audited by an entity outside of its work unit.

Many reporting units (HW, FPS, PRP, and WSCS) conduct extensive data reviews of permit packages that do not constitute an audit. Data review activities and tools are captured in section 5.1.1 of this report. Currently four

reporting units indicated having audit goals in 2021, and all four reporting units have those audit goals documented in their QPs.

Table 5.1. Audits reported by DWM, FGS & DLE reporting units for 2021.

Audit Perspectives	Audit Types			Total
	Performance	Project	System	
Audits of another unit within DEP	0	0	1	1
Audits of entities external to DEP	12	0	0	12
Audits of the reporting unit by another entity	0	0	2	2
Self-audits conducted by the reporting unit	1	0	0	1
Total	13	0	3	

5.1.4 Data Repositories



Among the reporting units of DLE, FGS and DWM, 11 of the 12 reporting units reported that staff in the unit enter data into at least one data repository. Nine of the 12 reporting units retrieve data, and four of the 12 reporting units are responsible for managing data repositories.

Reporting units of DWM, DLE and FGS enter data into 15 different data repositories. Half of the reporting units indicated they verify data entered into all repositories. Some have documented protocols for data entry for all the data repositories, while five reporting units (DLE, BCSS, SIS, WSCS, and OPP) do not. Four reporting units identified having written protocols for data entry in all repositories, one reporting unit has protocols documented in their QP for some of their repositories, while the remaining four units do not have any documented protocols (Figure 5.7). Reporting units that do not verify data entry should determine if verification would improve data quality. If verification protocols are enacted, the reporting units should document the protocols for each data repository used in their QP to ensure consistent and correct data entry. All protocols should be documented in the QP for each data repository used.

DWM, FGS, & DLE Reporting Units with Quality Checks & Documentation for Data Entry

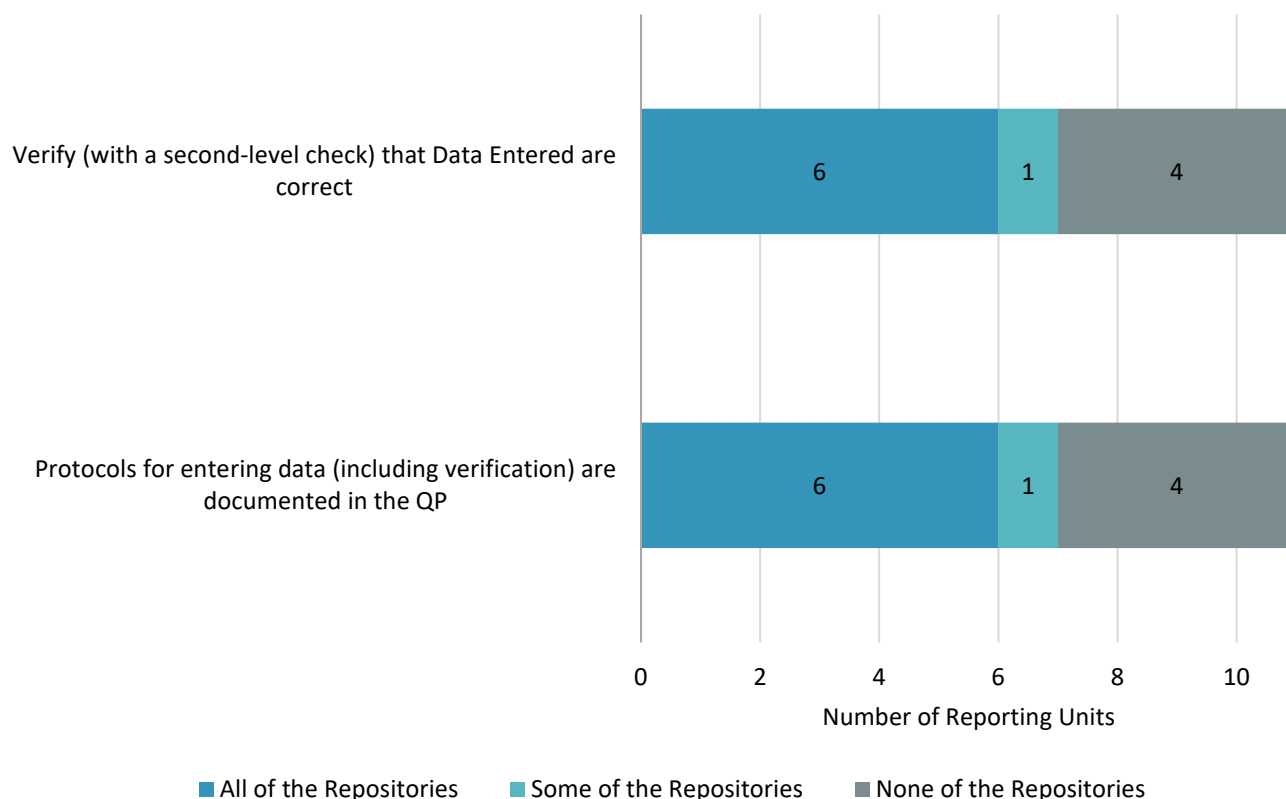


Figure 5.7. Number of reporting units in DWM, DLE and FGS that enter data into data repositories in which data entered is verified with a second-level check for all repositories and documented protocols are in place for entering data for all repositories.

More than half of the reporting units that retrieve data perform QA/QC checks on the data retrieved from 15 data repositories (Figure 5.8), but not all of them have documented protocols for how they retrieve all data. Three reporting units (PRP, SIS, and OPP) do not perform any QA/QC checks on the data retrieved from any data repositories. To obtain data consistently and uniformly, the reporting units without QA/QC checks for data retrieval should evaluate their need for protocols and determine if QA/QC checks are appropriate. If those checks are deemed appropriate and implemented, the reporting units should document the protocols in the QP. Most of the reporting units that retrieve data have a mechanism to provide feedback to the data generator regarding suspect data for all repositories. One reporting unit has feedback mechanisms described in their QP for contacting data generators for all repositories and two reporting units indicated their QP contains the mechanism for some repositories. Six reporting units did not have any feedback mechanisms documented in their QP. Feedback mechanisms help maintain data quality throughout the data retrieval and use process. Reporting units without these mechanisms should evaluate the value of the protocol and include it in their QP if it is decided protocols are valuable.

DWM, FGS & DLE Reporting Units with Quality Checks, Feedback Mechanisms & Documentation for Data Retrieval

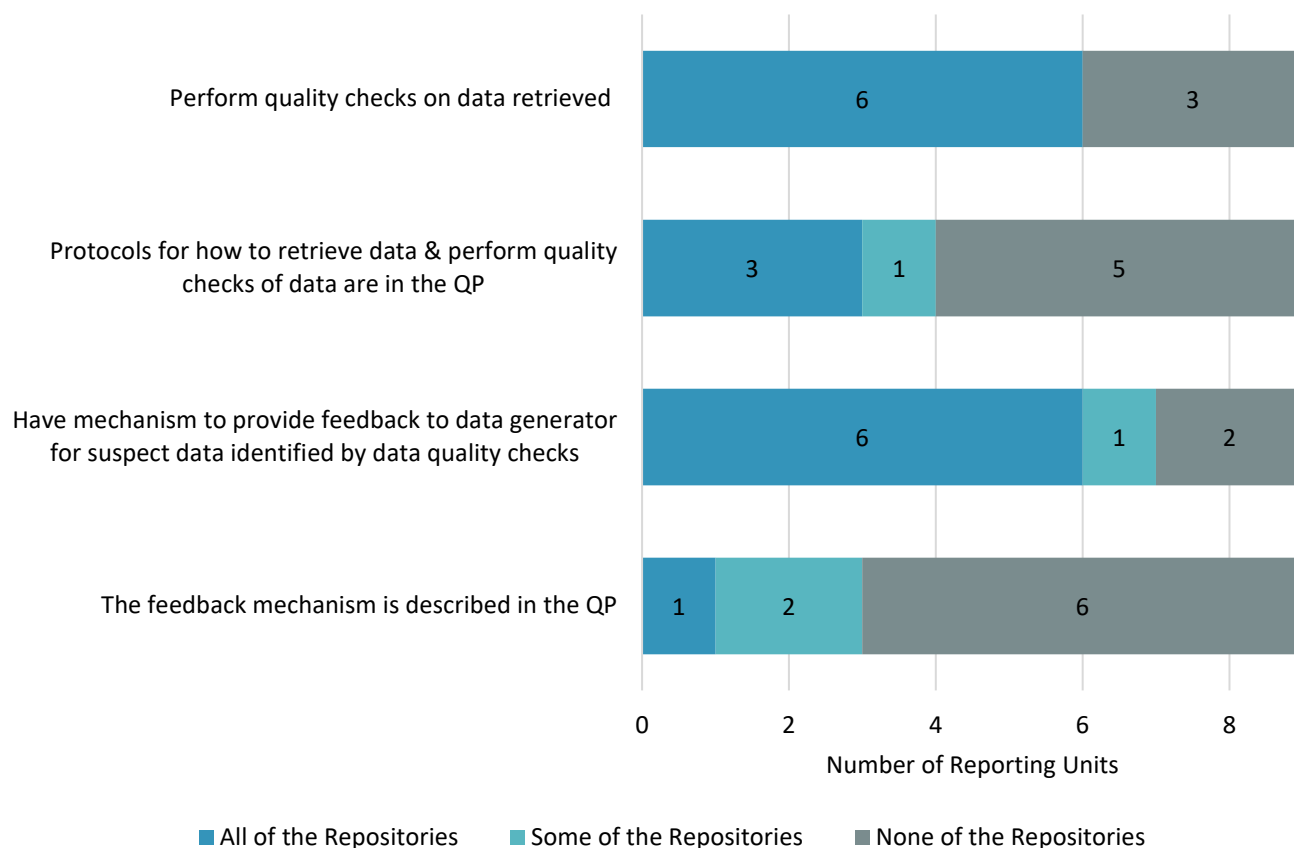


Figure 5.8. Number of reporting units in DWM, DLE and FGS that retrieve data from data repositories in which data quality checks were performed on all data retrieved, documented protocols are in place for all repositories used, a feedback mechanism is in place to notify the data generator of suspect data for all repositories, and the feedback mechanism is described in the reporting units' quality plan for all repositories.

Four reporting units manage 9 different data repositories. Nearly all of those reporting units perform checks on all repositories managed and have written QC protocols of the stored data. Only one (OPP) does not perform QA/QC checks on any repositories, nor does it have protocols in its QP for QC checks (Figure 5.9). This reporting unit should evaluate the need to perform checks on stored data. If quality checks are found necessary, the protocols should be documented in their QP. All of the reporting units managing data repositories have mechanisms to provide feedback to the data generator regarding suspect data. Most reporting units document the mechanism for providing feedback for all data repositories in their QP. For the validity of data housed, documented protocols should be in effect for all data repositories. The remaining reporting unit should include its feedback mechanism for suspect data in their QP.

DWM, FGS, & DLE Reporting Units with Quality Checks, Feedback Mechanisms, & Documentation for Database Management

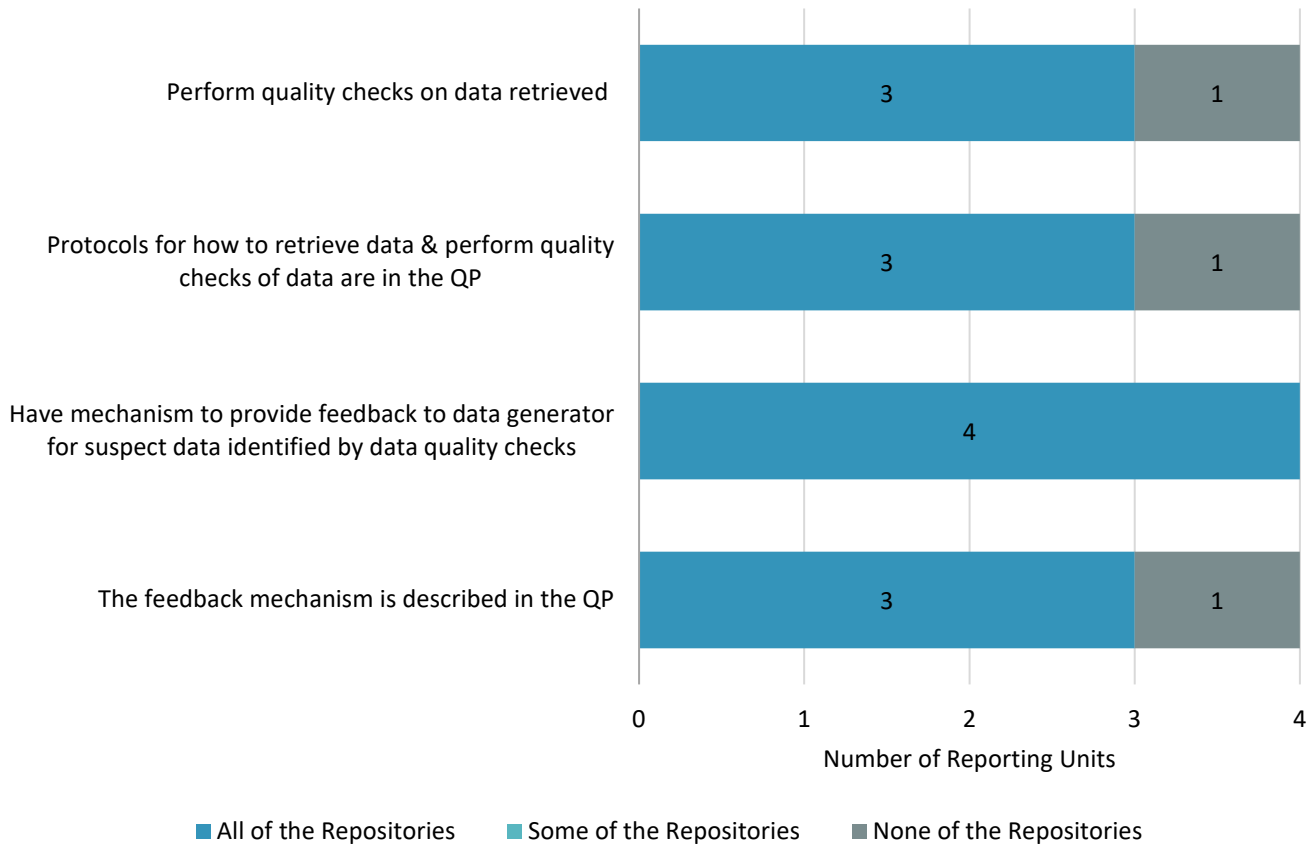


Figure 5.9. Number of reporting units in DWM, FGS and DLE that manage data repositories in which data quality checks were performed on all repositories managed, documented protocols are in place for quality control checks of the stored data for all repositories, a feedback mechanism is provided to the data generator for suspect data for all repositories, and the feedback mechanism is described in the reporting units' quality plan for all data repositories.

5.2 District Wastewater and Drinking Water Programs

The Division of Water Resource Management (DWRM) and the Regulatory Districts are responsible for implementation of state laws providing for the protection of the quality of Florida's drinking water, groundwater, rivers, lakes, estuaries and wetlands from permitted discharges or activities, and reclamation of mined lands. The Regulatory Districts currently report on QA activities related to wastewater (domestic and industrial) and drinking water compliance. As the QA process for the water regulatory programs is explored and managerial buy-in occurs, additional programs will be added as reporting units. The DWRM division office is not included due to the priority to create consistent QA processes and goals across district offices. AEQAS will reach out to DWRM programs in the division office to discuss QA goals and expectations for future iterations of this report.

As identified in the 2017 Annual Report, the QA system for the water regulatory programs was inconsistent between the division office and the district offices. Recognizing the need for a unified Quality System, regulatory staff began an in-depth evaluation of the QA processes for the Drinking Water and Wastewater programs.

In 2018, following a two-day QA workshop, DWRM created Drinking Water and Wastewater workgroups with support from AEQAS and established: 1) specific QA functions for Drinking Water and Wastewater Programs; 2) the role of the subject matter experts and the QAOs; 3) checklists and guidance documents for the QA activities; and 4) the level of effort for the QA evaluations. These efforts are described in more detail below.

Throughout 2019 and into 2020, DWRM leadership worked to document the QA goals and efforts expected of the district offices. QAOs were appointed in the district and division offices, and it was determined that QA efforts would be reported per district. For this report, reporting is limited to trainings and data review activities.

The primary QA function of the Drinking Water and Wastewater regulatory programs is to review environmental data they receive to ensure that sample collection and measurement or analysis meets the department's QA requirements. To carry out that function, the division office created data review checklists for both programs and determined the frequency with which these checklists are used. Training for the use of checklists was held in May 2020, and the checklists were distributed in July 2020 with implementation and goals distributed in September 2020. DWRM provided a quality assurance document that includes training requirements and easy access to the checklists. The Districts offices currently use the checklist uniformly.

5.2.1 DWRM - The Drinking Water Program in the Districts

The state of Florida implements the Federal Safe Drinking Water Act and its corresponding Florida Safe Drinking Water Act via Florida's Public Water Systems Supervision (PWSS) program. The program is administered by DEP and the approved county health departments (ACHDs). The goal is to protect the public health of Floridians by providing safe drinking water. The program administers permitting of construction of facilities, compliance with water quality standards and monitoring requirements, operator staffing, enforcing violations, and response to natural disasters. The program also partners with the Florida Rural Water Association (FRWA) under grant agreement to support the program.

5.2.1.1 Drinking Water in the Districts - Training

Training is provided throughout the year to division and district staff, the ACHDs and facility operators. For the 2019 report, DWRM leadership provided a list of training specifically related to drinking water QA. The Drinking Water Regulatory Program tracked whether the required QA-related trainings were completed between September 1- December 31, 2020. For the 2021 report, they tracked the entire calendar year. The six Regulatory Districts reported 83 percent of staff that needed training received the training required (Figure 5.10). Three Districts reported that not all staff that needed training received it. This is due to high turnover rates and limited seating in trainings. A total of 34 employees throughout the Districts received training for drinking water QA activities in 2021, with 35 needing it and five staff members receiving the training without needing it.

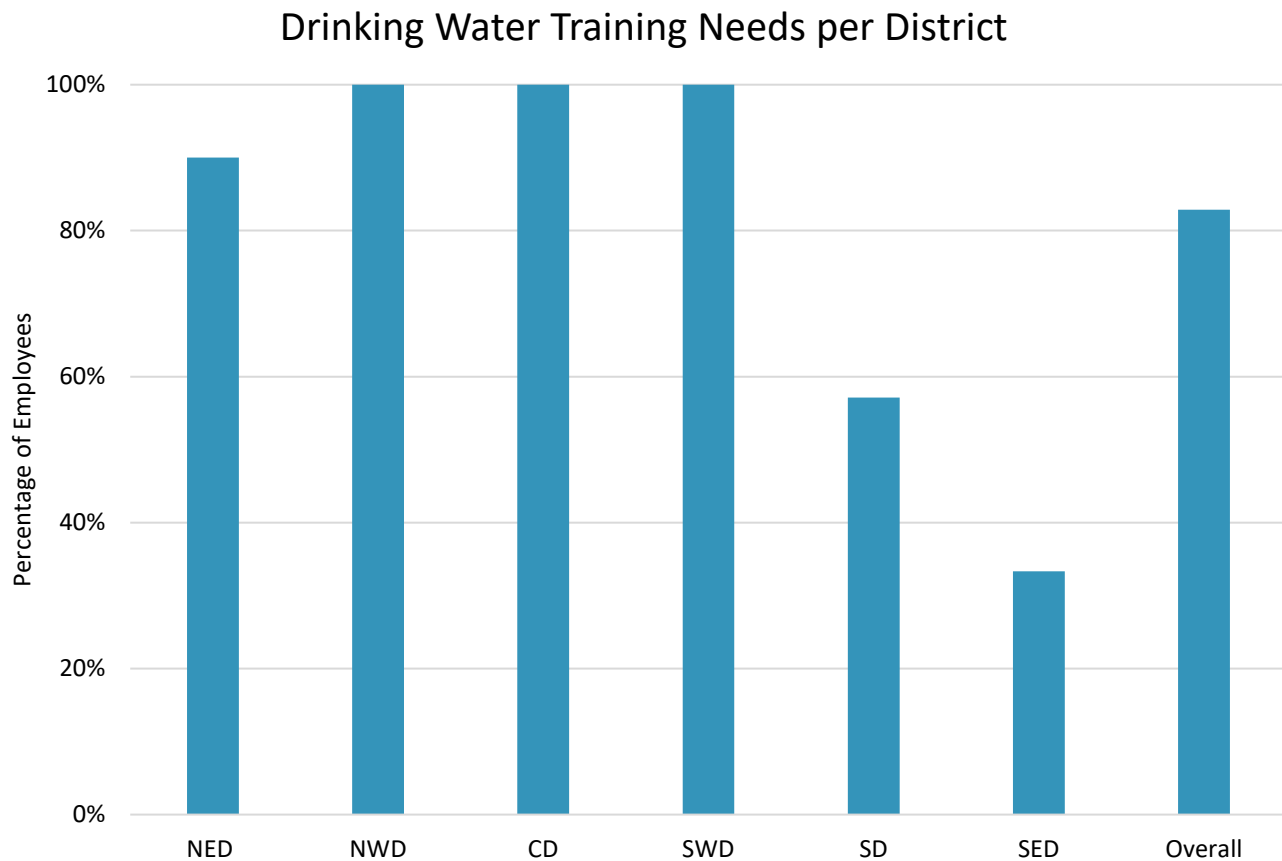


Figure 5.10. Percentage of employees that received needed training for Drinking Water QA activities in the Regulatory Districts.

5.2.1.2 Drinking Water in the Districts – Audits/Data Review

Prior to 2018, the types of audits reported for the Drinking Water Programs were inconsistent and not representative of program QA functions. Through collaborative efforts between the division, Districts, and AEQAS, the workgroup was able to identify all of the drinking water reports and data sets that will be reviewed for QA objectives and set goals for the percentage of reports that are to be reviewed. Leadership determined the QA review process should be applied to five percent of the total Level of Service (LOS) commitments for the following reports: bacteriological reports, chemical reports and monthly operating reports.

All Districts met the QA review goals (Figure 5.11). In total, almost 200 hours were spent on the review of drinking water documents and reports. All reviews were conducted with checklists developed by the QA workgroup established in 2018.

Drinking Water Data Reviews per District

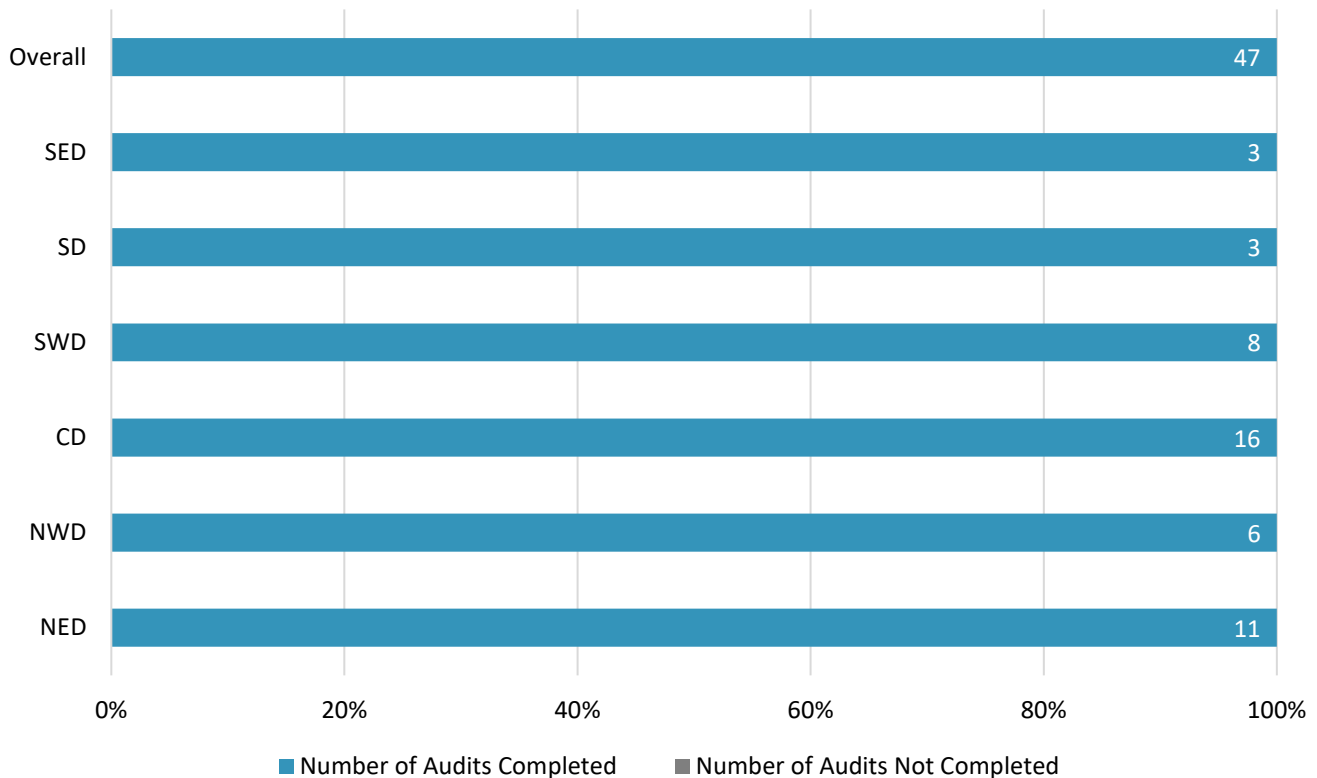


Figure 5.11. Data reviews conducted by each district and overall. Blue bars reaching one hundred percent indicate the data review goals were met in the district. Numbers in the bar indicate the count of data reviews.

5.2.2 DWRM - The Wastewater Program in the Districts

The Wastewater Management Program regulates domestic and industrial wastewater discharges. This program within DWRM is responsible for the development and administration of rules and policies that regulate these discharges, and the district offices are responsible for the permitting activities. Similar to the Drinking Water Programs, the QA functions of these programs were reviewed by the division, Districts, and AEQAS in response to inconsistent QA implementation and reporting. The wastewater QA workgroup was able to identify the types of reports and data sets that require QA review as well as the level of effort. Checklists and SOPs for use of the checklists have been developed to accompany each of these reports and data sets.

5.2.2.1 Wastewater in the Districts - Training

The Wastewater Management Programs conducted training for division and district staff throughout the year and provided a list of required training for their staff for the 2019 report. The Wastewater Regulatory program in the district offices tracked whether the required QA-related trainings were completed between September 1-December 31, 2020. For the 2021 report, they tracked the entire calendar year. Five of the six Regulatory Districts reported all staff that needed training received it (Figure 5.12). Only one district reported not all staff received needed training due to frequent staff turnover. A total 39 employees throughout the Districts were

trained for wastewater QA activities in 2021 with 38 needing it and two staff members receiving the training without needing it.

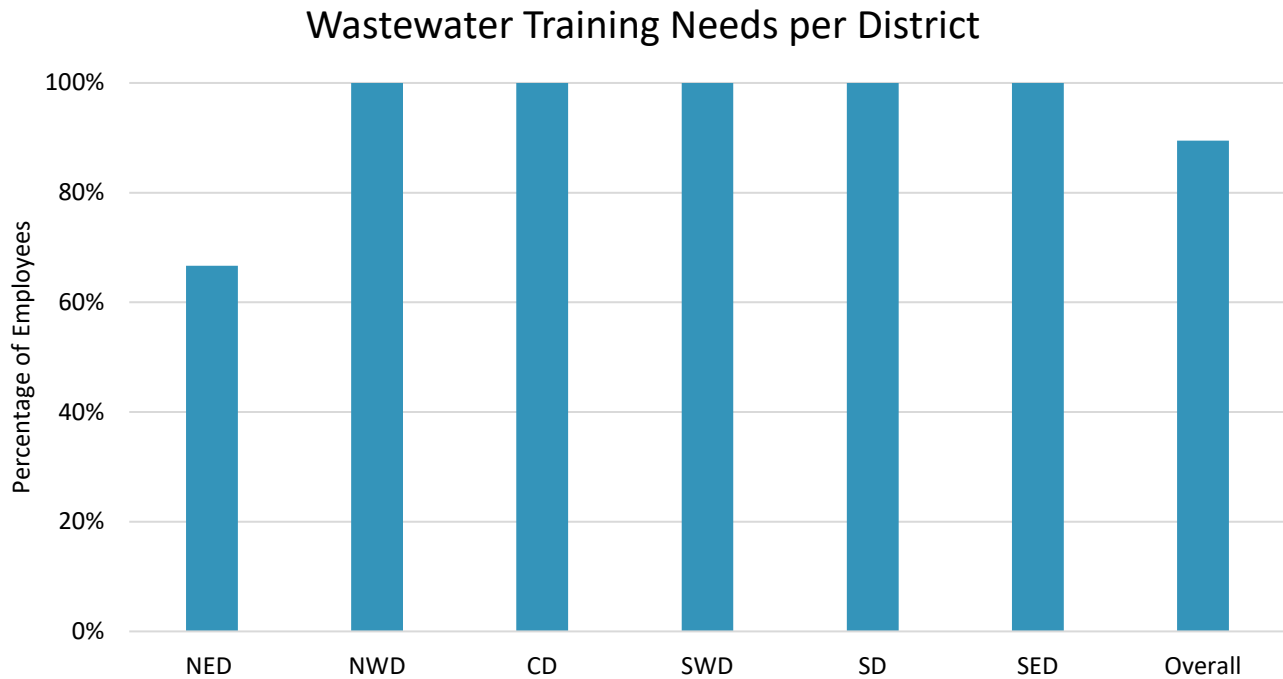


Figure 5.12. Percentage of employees that received needed training for Wastewater QA activities in the Regulatory Districts.

5.2.2.2 Wastewater in the Districts - Audits/Data Reviews

District offices are required to conduct a set number of inspections as part of their annual Level of Service (LOS) commitments for the EPA Performance Partnership Agreement (PPA). The expectation is to conduct at least one Compliance Evaluation Inspection (CEI) on each wastewater and stormwater facility with an active discharge or located in priority watershed areas annually. The wastewater QA workgroup determined that, beginning July 1, 2020, staff will review QA elements for 5% of facilities annually at the time of inspection, but the long-term goal is for each facility to receive a QA review within the permit renewal cycle.

The following reports and forms are reviewed for QA objectives at a level of 5% of the total number of regulated facilities annually: Discharge Monitoring Reports (DMR) (Pre-treatment, Surface water, Land application, Reuse, Groundwater, UIC, and Biosolid), Field Sheets, Chain of Custody Forms, Lab Reports, Groundwater Reports, Reclaimed Analysis Reports, Annual DMRs for Specific Parameters, Bacteriological Reports for Crypto and Giardia, Toxicity Reports, DEW/PET, and Quality Reports for DMR.

All Districts met their data review goals, with three Districts exceeding the goal by one review each for a total of 120 QA components as part of inspections (Figure 5.13). In total, the QA reviews required 530 hours of district staff's time.

Wastewater Data Reviews per District

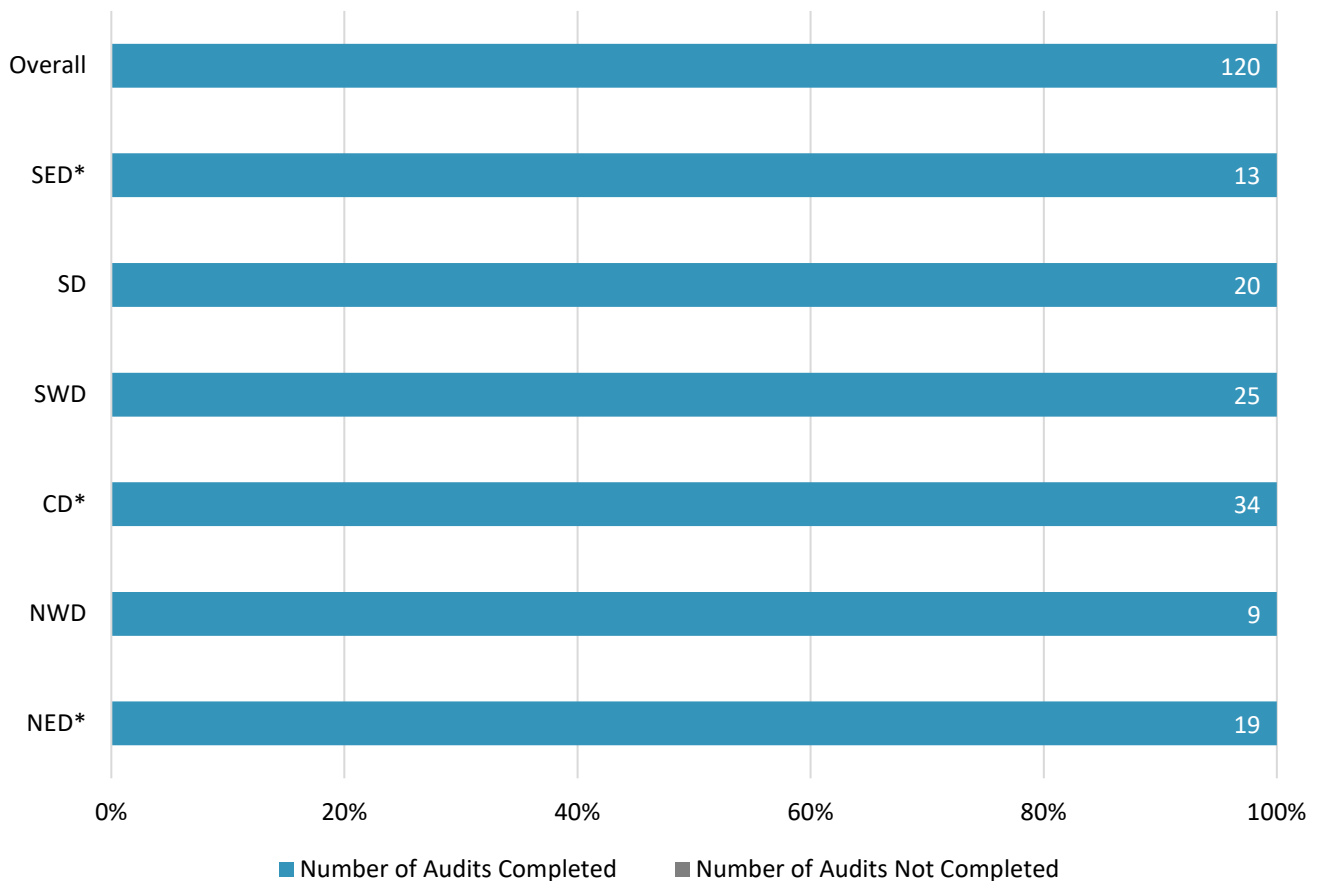


Figure 5.13. Data reviews conducted by each district and overall. Blue bars reaching one hundred percent indicate the data review goals were met in the district. Numbers in the bar indicate the count of data reviews. Districts with a * next to their acronym conducted more data reviews than their established goal.

6. Summary of QA Activities, Successes and Goals

6.1 Quality System

AEQAS uses two components to assess whether department reporting units have the minimum requirements for a Quality System: the existence of current quality plans (QP) and the designation of QA Officers (QAO). In 2021, most divisions and Districts have QPs, but some do not, and others have QPs that need to be updated. Within DEAR, WETS updated its QP in 2020 and finalized it in early 2021. In addition, GIS, WIN, ROC, WMS, and WQSP provided updated or new QPs to AEQAS for posting on the website in 2021. The Office of Water Policy and Ecosystems Restoration and Division of Recreation and Parks are updating their QPs and expect the revisions to be finalized in 2022. RCP has developed a QP for the continuous monitoring program carried out by all APs, but individual RCP work units do not have QPs and continue to work with AEQAS on the best approach

to establish these QPs. DWRM provided a draft quality assurance document for the Drinking Water and Wastewater compliance within the Districts and the division in 2021; it was posted to the website, but it does not yet contain all of the components of a QP. DWM finalized its QP in 2021, but the regulatory Districts did not adopt the DWM division-wide QP.

Some reporting units still have not incorporated all QA/QC elements and expectations into their QPs, and they should make efforts to do so in 2022. AEQAS will give training as needed on the components of a QP in order to guide programs that do not have a QP or need to improve their QP how to establish the appropriate documentation for their Quality Systems. A [recorded training](#) is available on the AEQAS website providing an overview of DEP quality plan requirements and components. In addition, AEQAS is available to assist Department programs with their QP updates. AEQAS conducts Quality of Science Reviews for programs that want their QPs reviewed and their Quality System evaluated for consistency between documentation and QA/QC activities.

Most reporting units have designated QAOs. DWRA added two new QA QAOs to ensure that all programs within their division have the QA support and contact needed. The Regulatory Districts, RCP and DWRM should appoint QAOs for other programs following the evaluation of QA activities within those programs. With the implementation of the *Introduction to Quality Assurance* training on LMS, the majority of QAOs have been trained on QA concepts.

Some programs within RCP and parts of DWRM did not report on QA-related activities for the 2021 report. The parts of DWRM needing to report include: Mining and Reclamation, Oil and Gas, Phosphate Management, Submerged Lands, Compliance and Enforcement, NPDES Stormwater, and Aquifer Protection. The parts of RCP needing to report may include: Florida Coastal Management Program, Clean Boating Programs, Clean Vessel Act Grant Program, Florida Resilient Coastlines Program, Statewide Ecosystem Assessment of Coastal and Aquatic Resources Program, Outer Continental Shelf Program, Beach Field Services Program, Beach Management Funding Assistance Program, Beaches, Inlets and Ports Program, Coastal Construction Control Line Program, and Coastal Engineering and Geology. Management and QAOs need to actively collaborate within their reporting units to meet expectations outlined in the “Areas of Responsibility” section of the [QA Policy](#) to ensure that the data generated and data used by their reporting units are defensible and meet applicable DQOs. AEQAS is available to facilitate and guide RCP and DWRM to help meet the expectations described in the QA Policy. AEQAS met again with QAOs individually in 2022, as in 2021 and 2020, to assist them with their reporting and help them understand their responsibilities. AEQAS is continuing to reach out and working to improve collaborative efforts with management and the current QAOs to identify expectations for QA activities.

6.2 Ecosystems Restoration

The programs and sections of DEAR, OWPER, DWRA, and the APs and NERRs within RCP make up the 32 reporting units within Ecosystems Restoration. The number of reporting units has consistently risen over the last 2 years, though there still may be additional organizational units within RCP that should report in future years. The reporting units within Ecosystems Restoration function under an established Quality System, though improvements are needed in documentation of the Quality System and data repository use by all units.

In the Ecosystems Restoration area, the data generators reported an increase in the citation of all SOPs utilized in their QPs. The majority of the data generators have checklists for evaluating the data produced and an increase was observed in the reporting units using checklists. Though not all the data users who have checklists incorporated the checklists in their QP, there has been a steady increase of checklist incorporation in QPs since

2017. Data users showed an increase in the documentation of DQOs and evaluation of data against the DQOs. There has also been an increase in the reporting units that follow up with corrective actions; however, there has not been an increase in the documentation of those corrective actions in the QP by both data generators and users. Also, the majority of data users have established consistent procedures for data evaluation in the last three years. Several reporting units classified as data repository managers. The data repository manager category did not previously exist in this report and 2021 is the first-year data repository managers reported Quality System components; previously they were categorized as “neither data user nor generator.”

Nearly all of the employees received required QA training in 2021, and some employees received training that was not required. The areas where staff did not receive required training falls under field sampling, contract/grant management, and program specific requirements. AEQAS will increase the number of contract/grant trainings in 2022 to meet this need and will consider recording the training for staff to access on demand. Overall, training opportunities and employees receiving needed training has remained consistent since 2017.

Reporting units in the Ecosystems Restoration area performed various field and lab audits, with project audits as the most common. The number of audits has been fairly consistent since 2017. The majority of programs that conducted audits generated reports and used checklists; however, improvement is needed for receiving timely responses for audit reports and follow up with corrective actions. Some reporting units have established auditing goals, though not all have documented the goals in their QPs. AEQAS continues to work with QAOs and their management to establish audit goals and encourage them to document the goals in their QPs. Few performance or project audits are being conducted for research contracts and grants, and this is an area where more effort may be needed, as this area of the department manages and increasing number of these projects. AEQAS can provide guidance and offer audit shadowing events to other reporting units to train staff on how to conduct audits.

The majority of reporting units enter data into and retrieve data from repositories. Most units verify all entered data, but less than half of those have written protocols for data entry and verification. Less than half of the units perform QA/QC checks on all the data retrieved and many of those units document the procedures. Most of the units that retrieve data have established feedback mechanisms to initiate corrective actions for suspect data found in their data repositories, and more than half document the procedures in their QPs. Several reporting units are responsible for managing data repositories and most perform QA/QC checks on the repository records. The majority of the units have a mechanism to provide feedback to the generator for suspect data, but greater effort should be placed on documenting the corrective actions process. Overall, documentation of procedures for data repositories has improved over the last year.

6.3 Lands and Recreation

Both the Division of State Lands (DSL) and the Division of Recreation and Parks (DRP) have designated QAOs. DSL has an up to-date QP but has not reported training needs nor audits in the last four years. Although DSL is a data user, it did not report any data repository activity involving environmental data.

DRP did not report QA activities for 2018 or 2019 but has provided information for 2020 and 2021. AEQAS is in communication with DRP and completed a Quality of Science Review in March 2021 to discuss the QA activities conducted throughout the division, review the DRP QP, and work to establish QA activity goals for future reporting. DRP is currently updating their QP with goals to complete revisions by July 2022.

6.4 Regulatory Programs

6.4.1 Division of Waste Management, Division of Law Enforcement, and Florida Geological Survey

Twelve reporting units participated in the 2021 report for DWM, DLE and FGS. The majority of reporting units from this group identified as data users only, about a quarter generate data and a third manage data repositories. Nearly all data generators report the utilized SOPs are included in their QP. All the data generators have corrective actions in place when data do not meet DQOs, and the corrective actions are implemented and documented in their QPs. All data users have documented DQOs and almost all evaluate data to ensure that DQOs are met. Most data users have checklists to review the data they use, and the checklists are incorporated in their QPs. Several reporting units classified as data repository managers, a new category in the 2021 report.

Most staff within DWM, DLE and FGS received required QA training. Data entry is the only category where all staff did not receive the required training. QAOs commented they are satisfied with AEQAS participating in monthly calls and the frequent training opportunities.

Sixteen audits were reported by DWM, FGS and DLE reporting units; there was no substantial change in the number of audits reported from year to year. Thirteen audits conducted by reporting units (three additional audits were conducted of these work units) utilized checklists and generated reports. However, not all had required time frames for audit completion nor did the reporting units follow up with the corrective actions. Several reporting units conduct extensive data review of permit packages that are not included as audits. This report did not include DWM audit activities that may have been conducted in the Districts.

DWM, FGS, and DLE maintained verification of data entered and retrieved from data repositories in 2021. There is some improvement of documentation of these procedures, though there are still reporting units that need to improve implementation and documentation of QA/QC procedures for data entry and retrieval. Most reporting units that retrieve data have a mechanism for providing feedback to entities that enter data. All reporting units that manage data repositories have a mechanism for providing feedback to the entities that enter data. AEQAS encourages staff to continue to improve the documentation for all activities involving the entry, retrieval and management of data repositories.

The updated DWM QP was finalized in 2021 to include more information about QA activities and criteria. However, the regulatory Districts did not participate in the update nor did they adopt the QP updates. DWM leadership achieved the following QA goals in 2021:

1. Published the QP on the AEQAS webpage.
2. Encouraged staff to communicate with AEQAS regarding QA questions and concerns.
3. Consulted the QA team on various projects that require deviations from the QA requirements in Chapter 62-160, F.A.C.

In 2022, the DWM continues to improve knowledge and awareness of proper QA/QC procedures, and update and refine, as necessary, the existing 2021 DWM QA/QC guidance. Additionally, they have established the following goals:

1. Continue improving knowledge and awareness of proper Quality Assurance and Quality Control (QA/QC) procedures by continued training and learning opportunities through presentations, webinars and QA/QC focused discussion groups.
2. Participate in Quality of Science Reviews.

3. Update and refine as necessary the existing 2021 DWM QA/QC guidance.
4. Find a suitable replacement to the QA/QC screening software ADaPT.

6.4.2 DWRM & Districts

Through 2018-2020, DWRM developed and implemented QA processes due to the findings of the 2016 and 2017 Annual Reports. Through 2021, the Regulatory Districts have continued the QA efforts and procedures. However, other DWRM programs still need to evaluate their Quality System and provide information for this report. The long-term goal is for all DWRM programs to have an established Quality System and provide information for this report.

Drinking Water and Wastewater workgroups, which included representatives from the division office and the district offices, established: 1) specific QA functions for Drinking Water and Wastewater programs; 2) the role of the subject matter experts and the QAOs; 3) checklists and guidance documents for the QA activities; and 4) the minimum level of effort for the QA evaluations.

DWRM has met the following goals for 2021:

1. Posted a draft QP applicable to the Districts listing training resources and expectations for QA reviews for drinking water and wastewater programs.
2. Increased communication regarding QA expectations of the Districts.
3. Maintained or exceeded established level of QA reviews.

Based on comments provided by the Districts, the following goals are suggested for DWRM and the Districts:

1. Improve/finalize guidance documents and QA SOPs.
2. Complete the QP with additional information about staff training, DQOs, etc.
3. Ensure that staff are trained on the QA requirements to assist in QA review process.
4. Maintain current number of QA reviews needed for each program.

6.5 Overall Conclusions and Continuing Efforts

The maintenance of an effective Quality System for the agency is an adaptive and evolving process. AEQAS recognizes the following highlights and continuing efforts to improve QA processes for the 2022 reporting cycle.

2021 Highlights:

- AEQAS met with 27 QAOs one on one to ensure QA requirements are understood.
- AEQAS maintained the nine trainings given in previous years and began providing in-person trainings again.
- DRP participated in a Quality of Science Review and committed to updating their QP in 2022.
- RCP finalized a QP for the continuous monitoring program for the Aquatic Preserves.
- Regulatory District Drinking Water and Wastewater programs met all QA review goals.
- AEQAS completed a survey to obtain anonymous feedback from QAOs and managers about the report and AEQAS efforts.

AEQAS Continuing Efforts and Goals:

- Assist in the continuous refinement and documentation of DEP reporting unit Quality Systems.

- Begin a series of Quality of Science Reviews for DWM programs.
- Update the *Introduction to Quality Assurance* training to include data repository managers.
- Work with OWPER to develop quality assurance resources for the review of innovative grant project plans.
- Evaluate the sufficiency of QA review of contracts/grants deliverables.
- Facilitate and support QA communications between Regulatory division and district offices.
- Work with DWRM division office programs to establish reporting QA expectations and goals.
- Compile revisions needed to Chapter 62-160, F.A.C., the QA Rules, and incorporated documents.

Overall, DEP continues to develop and maintain a functional Quality System, but improvement is needed in the documentation and organization of procedures that have been designed to ensure that we are making decisions based on scientifically and legally defensible data. AEQAS asks leadership to encourage staff to utilize the introductory QA training available on LMS and take advantage of [on-demand QA trainings](#). By recognizing QA activities as a priority, DEP's core values of the integrity and accountability are upheld.

Additional training resources related to the department's [Quality Assurance policies and support documents](#) can be found online at <https://floridadep.gov/dear/quality-assurance/content/training-presentations>. AEQAS also provides instructor led trainings on the following topics:

- FDEP SOP trainings (e.g. surface water, groundwater, bioassessment methods)
- Data Review
- Quality Plan development
- QA for Contracts/Grants/Purchase Orders

*Appendix A: QA Officer and Quality Plans by Reporting Unit as of February 2022***DIVISION OF WASTE MANAGEMENT**

QA Officers	LOCATION	PROGRAM/OFFICE Represented	QUALITY PLAN TITLE	QP DATE
Nadine Brooks	TLH	Federal Programs Section	Division of Waste Management	July-2021
Allison Hankins and Kelly Crain	TLH	Brownfields and CERCLA Site Screening	Division of Waste Management	July-2021
Karlee Fowler	TLH	Waste Cleanup/Site Investigation	Division of Waste Management	July-2021
Breck Dalton	TLH	Waste Cleanup/Waste Site Cleanup	Division of Waste Management	July-2021
Amber Igoe	TLH	Hazardous Waste	Division of Waste Management	July-2021
Chad Fetrow	TLH	Solid Waste	Division of Waste Management	July-2021
Chris Bayliss	TLH	Petroleum Restoration Program	Division of Waste Management	July-2021
Elena Compton	TLH	District and Business Support	Division of Waste Management	July-2021
Clark Moore	TLH	Operational and Program Performance	Division of Waste Management	July-2021
Jeff Gregg	TLH	Permitting and Compliance Assistance Program	Division of Waste Management	July-2021

DIVISION OF WATER RESOURCE MANAGEMENT

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Jamie Shaker, Katie Downey	TLH	Drinking Water	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Savanna Harrison	TLH	Wastewater	Division of Water Resource Management's Draft Quality Plan	Feb-2021

FLORIDA GEOLOGICAL SURVEY

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Mitra Khadka	TLH	Florida Geological Survey	Florida Geological Survey	Dec-2017

DIVISION OF LAW ENFORCEMENT

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Precious Boatwright & Amanda Lanphere	TLH	Division of Law Enforcement	Office of Emergency Response Quality Plan	Apr-2017

DISTRICTS

QA Officers	LOCATION	PROGRAM/OFFICE Represented	QUALITY PLAN TITLE	QP DATE
Herndon Sims, Shane Tierney, Joni Petry, Shannon Taylor	Jacksonville	Northeast District	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Dana Vestal, Alex Webster, Early Joey Whibbs	Pensacola	Northwest District	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Lu Burson, Jenny Farrell	Orlando	Central District	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Stephen DAcquisto	Temple Terrace	Southwest District	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Lisa Self, Jocelyn Labbe	West Palm	Southeast District	Division of Water Resource Management's Draft Quality Plan	Feb-2021
Lucy Blair, Gary Maier	Fort Myers	South District	Division of Water Resource Management's Draft Quality Plan	Feb-2021

DIVISION OF ENVIRONMENTAL ASSESSMENT AND RESTORATION

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
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Jessica Patronis	TLH	WQSP/Aquatic Ecology and Quality Assurance	Water Quality Standards Program	Dec-2021
Chandra Chandrasekhar	TLH	DEP Laboratory, Scientific Services Support Program	DEP Laboratory Quality Plan	Jan-2020
Evelyn Becerra	TLH	WQAP/Watershed Assessment	Watershed Assessment Section Quality Plan	Mar-2020
Jason Storrs	TLH	WQAP/Watershed Monitoring	Watershed Monitoring Section Quality Plan	Jun-2021
Kalina Warren & Alicia Hogue	CD & TLH	WQAP/Regional Operations Center	Division of Environmental Assessment and Restoration, Regional Operation Centers	June-2021
James Albright	TLH	WQE & TMDL/Watershed Evaluation & TMDL	Watershed Evaluation and TMDL Section QP	Jan-2021
Anita Nash	TLH	WQRP/Watershed Planning and Coordination	Watershed Planning and Coordination Section (BMAPS) Plan	Jul-2018
Lisa Schwenning	TLH	Office of Watershed Services-WIN	Watershed Services Program, WIN Section Quality Plan	April-2021
Janis Morrow	TLH	Office of Watershed Services-GIS	Watershed Services Program, GIS Section Quality Plan	Jan-2021

OFFICE OF RESILIENCE AND COASTAL PROTECTION

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Kathryn Petrinec & Samantha Howe	Ponte Vedra Beach & TLH	RCP	Varies by location; some offices have QA documents that have not been submitted to AEQAS.	Unknown
	All	RCP	Office of Resilience and Coastal Protection Aquatic Preserve Continuous Water Quality Monitoring Program Quality Plan	April-2021

OFFICE OF ECOSYSTEM PROJECTS

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Mailin Sotolongo-Lopez	TLH	Office of Water Policy & Ecosystem Projects	Office of Ecosystem Projects	Jan-2018

DIVISION OF WATER RESTORATION ASSISTANCE

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Lauren Coleman	TLH	Water Supply Restoration Funding Section	Division of Water Restoration Assistance	Jul-2017
Amanda Peck	TLH	Nonpoint Source Management Program	Division of Water Restoration Assistance	Jul-2017

DIVISION OF STATE LANDS

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Melanie Orozoco	TLH	State Lands	Division of State Lands	Jan-2020

DIVISION OF RECREATION AND PARKS

QA Officer	LOCATION	PROGRAM	QUALITY PLAN TITLE	QP DATE
Gregg Walker	TLH	Division of Recreation and Parks	Division of Recreation and Parks Quality Plan	Dec-2012

Appendix B: Template responses from data generators and users about Quality System activities and documented components

A “1” in the column indicates the unit answered “Yes”, a “0” indicates they answered “No”, and “N/A” is the indicator for a response of not applicable. Rows with asterisks associated with the first column are expected to be answered “Yes” by all reporting units.

Responses from data generators from Ecosystems Restoration (DEAR, OWPER and DWRA) used for Figure 3.4

Data Generators	WQSP	LABS	WAS	WMS	ROCs	WETS	WQRP	WIN	GIS	OWPER	WSRFP	DWH	NPSMP
Use DEP SOPs	1	1	1	1	1	1	N/A	N/A	0	1	1	N/A	N/A
Other field sampling activities not covered in SOPs	0	0	0	1	0	1	N/A	N/A	0	1	0	N/A	N/A
***All sampling techniques in QP	1	1	1	1	1	1	N/A	N/A	0	1	1	N/A	N/A
DQOs other than following SOPs	1	1	1	1	1	1	N/A	N/A	0	0	0	N/A	N/A
Checklist for evaluation of data	1	1	1	1	1	0	N/A	N/A	1	1	1	N/A	N/A
***All DQOs and procedures to evaluate data in QP	1	1	1	1	1	1	N/A	N/A	1	1	1	N/A	N/A
Corrective actions in place	1	1	1	1	1	1	N/A	N/A	1	1	1	N/A	N/A
Document and implement corrective actions	1	1	1	1	1	1	N/A	N/A	0	1	0	N/A	N/A
***Corrective actions documented in QP	1	1	1	1	1	1	N/A	N/A	0	1	0	N/A	N/A
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	0	1	0	1	1	1	N/A	N/A	0	0	0	N/A	N/A
Revise QP	1	1	1	1	1	1	N/A	N/A	1	1	0	N/A	N/A
Finalized QP revisions	1	1	1	1	1	1	N/A	N/A	1	1	0	N/A	N/A

Responses from data generators from Ecosystems Restoration (RCP) used for Figure 3.4

Data Generators	ANERR	BBSAP	CHAP	CPAP	EBAP	GTM	NEAP	ROFLAP	TMAP	RB	NWFLAP	IRLAP	BBAP	CRCP	TBAP	WRAP	LJAP	CPR	FKNMS-AP
Use DEP SOPs	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	N/A	1
Other field sampling activities not covered in SOPs	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	N/A	1
***All sampling techniques in QP	0	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	N/A	0
DQOs other than following SOPs	1	0	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	N/A	0
Checklist for evaluation of data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	N/A	1
***All DQOs and procedures to evaluate data in QP	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	N/A	0
Corrective actions in place	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	N/A	1
Document and implement corrective actions	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	N/A	1
***Corrective actions documented in QP	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0	0	N/A	0
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	N/A	1
Revise QP	0	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	N/A	0
Finalized QP revisions	N/A	1	1	1	1	0	1	N/A	1	N/A	1	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A

Responses from data users from Ecosystems Restoration (DEAR, OWPER and DWRA) used for Figure 3.5

<i>Data Users</i>	WQSP	LABS	WAS	WMS	ROCs	WETS	WQRP	WIN	GIS	OWPER	WSRFP	DWH	NPSMP
<i>Use data generated by DEP or other source</i>	Both	N/A	Both	Both	DEP	Both	Both	N/A	Both	Both	Both	Both	Other
<i>***Documented DQOs</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	1
<i>***Evaluate to ensure DQOs are met</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	1
<i>Use data evaluated by another DEP work unit</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	0
<i>Checklists for evaluation of data</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	1
<i>***Evaluation checklists in QP</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	1
<i>***Corrective actions in place</i>	1	N/A	1	1	1	1	1	N/A	0	1	1	1	1
<i>Follow-up with corrective actions</i>	1	N/A	1	1	1	1	1	N/A	0	1	0	1	1
<i>***Corrective actions documented in QP</i>	1	N/A	1	1	1	1	1	N/A	0	1	0	1	1
<i>Revisions, updates, or creations of DQOs or procedures for evaluating DQOs</i>	0	N/A	0	0	1	1	0	N/A	0	0	0	0	0
<i>Revise QP</i>	1	N/A	1	1	1	1	0	N/A	1	1	0	0	0
<i>Finalized QP revisions</i>	1	N/A	0	0	1	1	N/A	N/A	0	0	N/A	N/A	N/A

Responses from data users from Ecosystems Restoration (RCP) used for Figure 3.5

<i>Data Users</i>	ANERR	BBSAP	CHAP	CPAP	EBAP	GTM	NEAP	ROFLAP	TMAP	RB	NWFLAP	IRLAP	BBAP	CRCP	TBAP	WRAP	LJAP	CPR	FKNMS-AP
<i>Use data generated by DEP or other source</i>	Another	DEP	DEP	Both	Both	Both	DEP	Both	DEP	Both	DEP	Both	Both	Both	N/A	Both	N/A	Both	Both

***Documented DQOs	1	1	1	1	1	0	0	1	1	1	1	1	1	0	N/A	1	N/A	0	0
***Evaluate to ensure DQOs are met	1	1	1	1	1	1	1	1	1	1	0	1	1	1	N/A	0	N/A	0	0
Use data evaluated by another DEP work unit	0	0	0	1	0	1	0	0	1	1	0	0	1	0	N/A	0	N/A	0	0
Checklists for evaluation of data	1	1	1	1	1	1	1	1	1	1	1	0	1	1	N/A	0	N/A	0	0
***Evaluation checklists in QP	0	1	1	1	1	1	0	0	1	0	1	0	1	0	N/A	0	N/A	0	0
***Corrective actions in place	0	1	1	1	1	1	1	1	1	1	1	1	1	1	N/A	0	N/A	0	0
Follow-up with corrective actions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	N/A	0	N/A	0	0
***Corrective actions documented in QP	0	1	1	1	1	1	1	0	1	0	1	0	1	0	N/A	0	N/A	0	0
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	0	0	1	1	1	1	0	0	0	0	0	0	1	0	N/A	0	N/A	0	0
Revise QP	0	0	1	0	1	1	0	0	0	0	0	0	1	0	N/A	0	N/A	0	1
Finalized QP revisions	N/A	N/A	1	1	1	0	0	0	0	0	0	0	1	0	N/A	0	N/A	0	0

Responses from data repository managers from Ecosystems Restoration (DEAR, OWPER and DWRA) used for Figure 3.5

Data Users	WQSP	LABS	WAS	WMS	ROCs	WETS	WQRP	WIN	GIS	OWPER	WSRFP	DWH	NPSMP
Store/Manage data generated by DEP or other source	N/A	DEP	Both	Both	DEP	N/A	N/A	Both	N/A	N/A	N/A	N/A	N/A

***Documented DQOs	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
***Evaluate to ensure DQOs are met	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Store/Manage data evaluated by another DEP work unit	N/A	0	1	0	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Checklists for evaluation of data	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
***Evaluation checklists in QP	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
***Corrective actions in place	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Follow-up with corrective actions	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
***Corrective actions documented in QP	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	N/A	1	0	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Revise QP	N/A	1	1	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Finalized QP revisions	N/A	1	N/A	1	1	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A

Responses from data repository managers from Ecosystems Restoration (RCP) used for Figure 3.5

Data Users	ANERR	BBSAP	CHAP	CPAP	EBAP	GTM	NEAP	ROFLAP	TMAP	RB	NWFLAP	IRLAP	BBAP	CRCP	TBAP	WRAP	LJAP	CPR	FKNMS-AP
Use data generated by DEP or other source	Another	DEP	DEP	Both	DEP	Both	DEP	N/A	DEP	Both	DEP	DEP	Both	Both	N/A	N/A	N/A	N/A	N/A
***Documented DQOs	1	1	1	1	1	1	1	N/A	1	1	1	1	1	0	N/A	N/A	N/A	N/A	N/A
***Evaluate to ensure DQOs are met	1	1	1	1	1	1	1	N/A	1	1	1	1	1	1	N/A	N/A	N/A	N/A	N/A

<i>Use data evaluated by another DEP work unit</i>	0	1	1	1	1	1	0	N/A	1	1	0	0	1	0	N/A	N/A	N/A	N/A	N/A
<i>Checklists for evaluation of data</i>	1	1	1	1	1	1	1	N/A	1	1	1	1	1	0	N/A	N/A	N/A	N/A	N/A
<i>***Evaluation checklists in QP</i>	0	1	1	1	1	1	1	N/A	1	0	1	0	1	0	N/A	N/A	N/A	N/A	N/A
<i>***Corrective actions in place</i>	1	1	1	1	1	1	1	N/A	1	1	1	1	1	1	N/A	N/A	N/A	N/A	N/A
<i>Follow-up with corrective actions</i>	1	1	1	1	1	1	1	N/A	1	1	1	1	1	1	N/A	N/A	N/A	N/A	N/A
<i>***Corrective actions documented in QP</i>	0	1	1	1	1	1	1	N/A	1	0	1	0	1	0	N/A	N/A	N/A	N/A	N/A
<i>Revisions, updates, or creations of DQOs or procedures for evaluating DQOs</i>	0	0	1	1	1	1	1	N/A	0	0	0	0	1	0	N/A	N/A	N/A	N/A	N/A
<i>Revise QP</i>	0	0	1	0	1	1	0	N/A	0	0	0	0	1	0	N/A	N/A	N/A	N/A	N/A
<i>Finalized QP revisions</i>	0	1	1	1	1	0	1	N/A	1	0	1	0	1	0	N/A	N/A	N/A	N/A	N/A

Responses from data generators from Regulatory (DWM, FGS and DLE) used for Figure 5.3

<i>Data Generators</i>	OPP	PRP	SIS	BCSS	FPS	SWS	WSCS	DBSP	CAP	HW	FGS	DLE
<i>Use DEP SOPs</i>	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1

Other field sampling activities not covered in SOPs	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	0
***All sampling techniques in QP	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	1
DQOs other than following SOPs	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	0
Checklist for evaluation of data	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	0
***All DQOs and procedures to evaluate data in QP	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1
Corrective actions in place	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1
Document and implement corrective actions	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1
***Corrective actions documented in QP	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	1
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0
Revise QP	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0
Finalized QP revisions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Responses from data users from Regulatory (DWM, FGS and DLE) used for Figure 5.4

Data Users	OPP	PRP	SIS	BCSS	FPS	SWS	WSCS	DBSP	CAP	HW	FGS	DLE
Use data generated by DEP or other source	Both	Both	Both	Both	Both	Another	Both	Both	Both	Another	Both	Both
***Documented DQOs	1	1	1	1	1	1	1	1	1	1	1	1
***Evaluate to ensure DQOs are met	1	1	1	1	1	0	1	1	1	1	1	1

<i>Use data evaluated by another DEP work unit</i>	1	0	1	1	0	1	0	0	0	0	1	0
<i>Checklists for evaluation of data</i>	1	1	0	1	1	0	0	0	1	1	1	1
<i>***Evaluation checklists in QP</i>	0	1	0	1	1	1	0	0	1	1	1	1
<i>***Corrective actions in place</i>	1	1	0	1	1	1	1	0	1	1	1	1
<i>Follow-up with corrective actions</i>	1	1	0	1	1	0	1	0	1	1	1	1
<i>***Corrective actions documented in QP</i>	1	1	0	1	1	1	0	0	0	1	1	1
<i>Revisions, updates, or creations of DQOs or procedures for evaluating DQOs</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Revise QP</i>	1	0	0	0	1	0	0	1	0	0	0	0
<i>Finalized QP revisions</i>	1	N/A	N/A	N/A	1	N/A	N/A	1	N/A	N/A	N/A	N/A

Responses from data repository managers from Regulatory (DWM, FGS and DLE) used for Figure 5.4

<i>Data Users</i>	OPP	PRP	SIS	BCSS	FPS	SWS	WSCS	DBSP	CAP	HW	FGS	DLE
<i>Store/manage generated by DEP or other source</i>	DEP	N/A	N/A	N/A	N/A	Another	N/A	N/A	N/A	N/A	Both	Both
<i>***Documented DQOs</i>	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1
<i>***Evaluate to ensure DQOs are met</i>	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1
<i>Store/manage data evaluated by another DEP work unit</i>	1	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	1	0
<i>Checklists for evaluation of data</i>	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1
<i>***Evaluation checklists in QP</i>	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1

***Corrective actions in place	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1
Follow-up with corrective actions	1	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	1	1
***Corrective actions documented in QP	1	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	1	1
Revisions, updates, or creations of DQOs or procedures for evaluating DQOs	0	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	0
Revise QP	1	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	0
Finalized QP revisions	1	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A