

Quality Management Plan (2020-2025)

For

Barneгат Bay Partnership

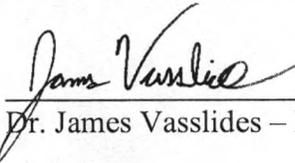
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June 18, 2020

Dr. L. Stanton Hales, Jr. – Director

date



June 18, 2020

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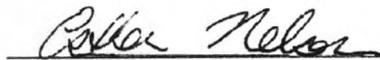
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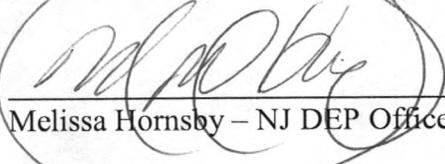
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1 MANAGEMENT AND ORGANIZATION

1.1 QUALITY ASSURANCE POLICY STATEMENT

1.1.1 INTRODUCTION

As part of the National Estuary Program, the Barnegat Bay Partnership (BBP) is an ongoing cooperative effort among Federal, State, and Local government agencies, academic institutions, nongovernmental organizations, and businesses which developed the Comprehensive Conservation Management Plan (CCMP) for the Barnegat Bay.

Established in 1987 under the Section 320 of the Clean Water Act (33 U.S.C. §1330; as amended by P.L. 100-4 and P.L. 114-162), the National Estuary Program (NEP) was developed to protect economically and environmentally sensitive estuaries across the United States by engaging all user groups. The BBP is one of only 28 such programs nationwide.

1.1.2 Quality System Goals and Objectives

The BBP has developed and integrated quality assurance practices into all phases of the environmental data collection activities under its funding purview. These quality assurance practices are focused on ensuring that all data used by the BBP (*i.e.*, existing data or “secondary” data¹) and generated through BBP funding are scientifically valid, defensible, of high quality, and designed to meet data user requirements¹.

This Quality Management Plan (QMP) seeks to define and describe the quality assurance and quality control policies and responsibilities prescribed by the BBP in accordance with statements of quality assurance and peer review policies by the EPA Administrators and EPA Order CIO 2105.0. This document intends to link the management policies, objectives, and principals of the BBP with the procedures described in appropriate Quality Assurance Project Plans (QAPPs) and Standard Operating Procedures (SOP) which are designed to produce data of high quality. The policies stated in this Quality Management Plan pertain to any BBP project for which a QAPP is required, which are typically U.S. Environmental Protection Agency (EPA)-funded monitoring and assessment programs, research studies, and restoration projects. For such projects, these policies are to guide program staff in the uniform implementation of requirements for all grants, contracts, cooperative and interagency agreements involving environmental data collection. In instances where QAPPs are not prepared (projects funded through other non-EPA sources), data generation and usage will follow best possible quality assurance practices in

¹ References to environmental data collection throughout this document include the generation of new data (activities that involve the measurement and collection of physical, chemical, or biological parameters) and the use of existing or “secondary” data (data or information that is used but that have not been newly generated).

the spirit of this Quality Management Plan.

1.1.3 Policy

It is the policy of the Barnegat Bay Partnership that the Quality Assurance Program will strive to ensure that all environmental data generated, processed, or used by the BBP, will be: (1) scientifically valid; (2) of acceptable completeness, representativeness, and comparability; (3) appropriate to meet the data quality objectives and intended use for any given project; and (4) of documented quality. It is also the policy of the BBP to rely on its Science and Technical Advisory Committee (STAC) to ensure that data used are of the appropriate quality, and that all reported data will include, where possible, documentation of precision and accuracy. The quality of the data generated under the auspices of the Program shall, where possible, meet or exceed all State, Regional and National Program Office requirements. This policy shall be implemented to ensure that environmental data acquisition efforts funded by the BBP consistently strive to employ best possible quality assurance procedures throughout the entire environmental data collection process from study design through data access. In cases of secondary data use, the BBP will rely on its STAC and affiliated technical workgroups to identify appropriate data, use best scientific judgment regarding quality, and to document its quality.

1.2 ORGANIZATIONAL CHART

The Barnegat Bay Partnership is directed by a Director and functions under the guidance of a Policy Committee composed of the representatives from the U.S. Environmental Protection Agency Region II (EPA R2), the New Jersey Department of Environmental Protection (NJDEP), Ocean County College, Ocean County Board of Chosen Freeholders, Ocean County Mayor's Association, and a Citizen Representative. The Partnership's organizational structure is described in Figure 1.

The BBP also has an Advisory (Management) Committee, a Science and Technical Advisory Committee (STAC), and a Communication and Education Committee (CEC), as well as several standing subcommittees, which generally are comprised of state and federal agency representation (Figure 2).

The BBP Program Scientist will serve as the program's Quality Assurance Officer. The Program Scientist is a voting member of, and the staff liaison to, the STAC. If the Program Scientist is the lead investigator of a project then the BBP Director will assume the role of Quality Assurance Officer for that project.

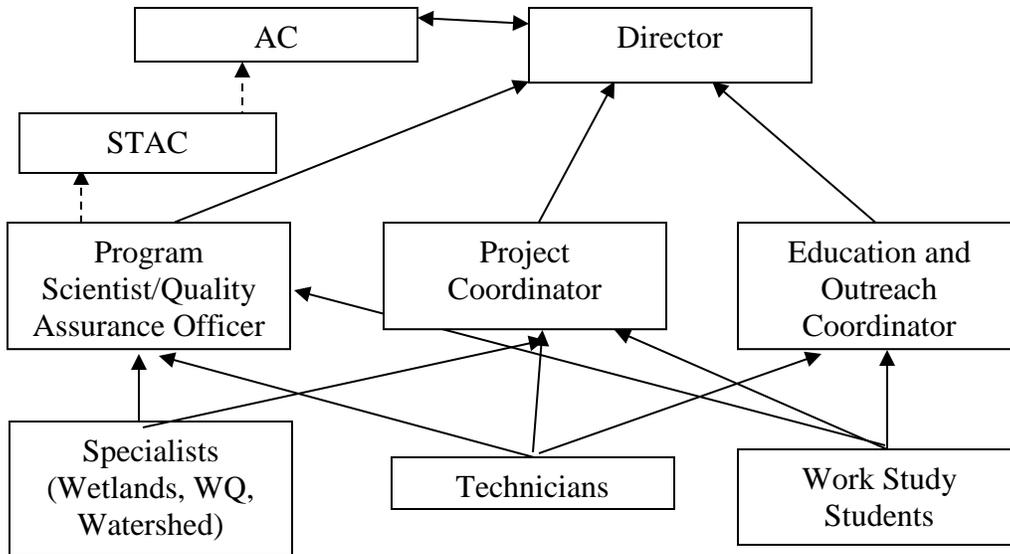


Figure 1. Organizational Chart of the Barnegat Bay Partnership

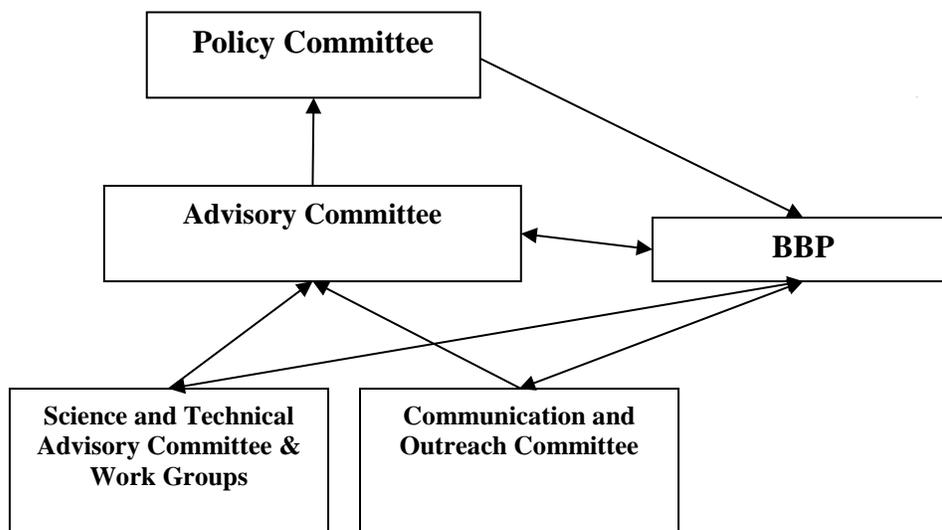


Figure 2. Committee Structure of the Barnegat Bay Partnership

1.3 RESPONSIBILITIES

1.3.1 Organization, Delegations, and Responsibilities

The Director of the BBP has overall program management responsibilities for all activities including generation and use of data of documented quality and management responsibilities for the development, implementation, and continued operation of the BBP's Quality Assurance Program. Specific quality

assurance management and implementation responsibilities are assigned to the Quality Assurance Officer and other staff members.

The authority and responsibility for managing the quality assurance activities within the BBP have been delegated to the Program Scientist, whose responsibilities include serving as the Quality Assurance Officer. The Quality Assurance Officer has the overall responsibility for the development, implementation, and continued oversight of the BBP Quality Assurance Program. The BBP's Quality Assurance Officer reports directly to the BBP Director.

Typically, the Quality Assurance Officer is not the underlying authority of the groups generating, compiling, and evaluating the data. However, when the BBP Program Scientist is the authority, the responsibilities of the Quality Assurance Officer will be transferred to the BBP Director. If a problem area is identified, the BBP Director, serving as Quality Assurance Officer, will contact the EPA Region 2 Office of Quality Assurance for guidance.

The following list enumerates the responsibilities of the BBP Quality Assurance Officer:

- Serves as the official BBP contact for all quality assurance and quality control matters of the Barnegat Bay Partnership;
- Coordinates the BBP's quality assurance matters with Federal and State quality assurance managers to insure that all methods and quality assurance policies are in accordance with current EPA National and Regional guidelines;
- Prepares the BBP's Quality Management Plan;
- Reviews the Quality Management Plan and revises it if changes are necessary;
- Oversees quality assurance and quality control activities within the BBP.
- Identifies and delegates responsibility for responding to quality assurance and quality control needs, and ensures timely answers to requests for guidance or assistance.
- Ensures that appropriate QAPPs are current and approved prior to initiating work for any grants, contracts, cooperatives, or interagency agreements involving collection of environmental data;
- Ensures that problems and deficiencies identified in technical audits and data analysis are resolved;

- Includes statements in the BBP's solicitations, grants, cooperative and interagency agreement that provide appropriate quality assurance guidance and, if necessary, requirements;
- Arranges for training regarding quality assurance requirements and procedures for BBP program staff and for recipients of BBP funding, when requested or deemed appropriate; and
- Establishes criteria for the acceptability of quality documentation in BBP quality assurance reports;
- Ensures that QMP revisions and final QAPPs and any subsequent revisions are provided to the EPA project officer; and
- Maintains QMPs and approved QAPPs on the BBP website.

Other BBP staff members (See Figure 1) have the responsibility for ensuring that the recipients of federal funds associated with projects requiring QAPPs implement the quality assurance activities required by EPA as stated in BBP grants and cooperative and interagency agreement guidance, and are documented with the assistance agreement. The responsible staff member ensures all statements of work include specific guidance and criteria about the quality of environmental measurements expected. The responsible staff member must obtain agreement from the BBP's Quality Assurance Officer on all matters affecting quality assurance; however, the responsible staff member is ultimately responsible for resolving problems and deficiencies identified in technical reviews, audits, and data analyses.

1.3.2 Communications

There are many forms of communication for ensuring that quality assurance is integral to environmental data collection efforts. The BBP Quality Assurance Officer will review the Quality Management Plan annually to reconfirm the suitability and effectiveness of the approved quality management practices, and will document this review in writing to the EPA Project Officer and NJDEP Program Manager. When available, staff members and extramural vehicle recipients receive grants management training which includes the most recent requirements of the quality assurance plan. These requirements would be communicated to grantees and assistance agreement holders via the grant guidance, which is described in Section 4 below.

Staff members and grant recipients shall notify the BBP's Quality Assurance Officer immediately of any problem areas identified. Necessary changes will be jointly outlined and staff members will institute corrective actions. A follow-up review of the required changes will be made by the BBP's Quality Assurance

Officer and the staff member to verify that problems have been corrected. The BBP Quality Assurance Officer will inform the BBP Director and EPA Project Officer of any problem areas identified and the corrective actions proscribed, as well as the results of the follow-up review.

If a dispute regarding quality assurance matters should arise, the BBP Quality Assurance Officer will consult with the appropriate personnel at the US EPA Region 2 Office of Quality Assurance. The guidance received from this consultation will be transmitted to the BBP Director, who has overall program management responsibility.

1.4 RESOURCES FOR THE QUALITY ASSURANCE PROGRAM

Resources to implement the BBP's Quality Assurance Program, including training and appropriate internal reviews, will be identified in the BBP's annual workplan for relevant program personnel. For grant awardees, the Request For Proposals clearly identifies that resources for compliance with the BBP's Quality Assurance Program are to be provided within the budgets of specific projects for which QAPP are required.

2 QUALITY SYSTEM AND DESCRIPTION

The goal of the BBP's Quality Management Program is to ensure that each funded project involving the collection of environmental data includes sufficient planning for the development of well-defined project goals and data quality objectives. These objectives need to be supported by implementation of sampling design, collection, and analysis protocols such that the resultant data completely and accurately address the project's goals.

2.1 DESCRIPTION

It is the policy of the BBP that:

Monitoring and assessment, research, or restoration projects or programs funded by EPA to the BBP that generate new or uses existing environmental data will develop and implement a QAPP addressing the required major elements and will ensure that adequate resources (both monetary and staff) are provided to support the quality assurance effort. For other types of projects, such as projects funded by other entities, the BBP will not typically prepare formal QAPPs because of capacity and resource limitations. However, in those cases the BBP will attempt to adhere to best available scientific and data quality assurance principles in the spirit of this Quality Management Plan. So the specific requirements in this policy pertain only to EPA-funded projects for which a formal QAPP is explicitly required by EPA.

Each QAPP will specify the detailed procedures required to assure quality data. QAPPs must be jointly approved by the BBP's Quality Assurance Officer and

the responsible staff member prior to data collection as evidenced by their signatures on the QAPP document.

All environmental data generated or used by the BBP through direct funding or matching funding will be of known and acceptable quality as defined in the data quality objectives of QAPPs. The data quality information developed for all environmental data will be documented.

All funded environmental data collection efforts with QAPPs will include acceptable quality assurance requirements.

The intended use(s) of the data will be defined before the data collection effort begins, so that appropriate quality assurance measures may be applied to ensure a level of data quality commensurate with the monitoring objectives. The determination of this level of data quality shall also consider the prospective data needs of secondary users. Data quality objectives will be established to ensure the utility of the environmental data for its intended use and as guidance for preparation of QAPPs, where they are required. The intended data uses, level of quality, specific quality assurance activities, and data acceptance criteria needed to meet data quality needs will be described in environmental data collection sections of appropriate QAPPs.

Quality assurance activities will be designed in the most cost effective fashion possible without compromising data quality objectives.

In some circumstances the program does use secondary data from external sources. Under the auspices of the BBP Quality Assurance Officer, the BBP will work with these data providers to inform them of the quality assurance requirements, where appropriate.

Data of the best quality available will be preferred. However, data with deficiencies or gaps will not necessarily be excluded; such data could still be valuable to illustrate the state of knowledge and uncertainties in estuary conditions, and make the case for better or additional monitoring programs.

When secondary data is used for an environmental project, the QAPP will determine if the quality of the data is sufficient for the current project objective(s) and intended use and will include data quality acceptance/rejection criteria.

2.2 PRINCIPAL COMPONENTS OF THE QUALITY SYSTEM

There are several components to the BBP's Quality Assurance Program to carry out these policies. The program consists of the development and maintenance of Quality

Management Plans, Data Quality Objectives, and QAPPs, where appropriate. EPA Quality System for Environmental Data and Technology documents can be found at www.epa.gov/quality/.

2.2.1 Data Quality Objectives

Data quality objectives are statements of the quality of environmental data required to support BBP decisions or actions. Data quality objectives establish the level of risk or uncertainty that the BBP is willing to accept from the environmental data it needs in order to make a defensible decision. Data quality objectives represent a major planning element which delineates a formally structured process whereby it is determined what environmental data are needed, what data quality is required, and what the appropriate balance is between time, resources, and data quality.

2.2.2 Quality Assurance Project Plans

As stated above, QAPPs are required for all BBP projects which involve the collection of environmental data. In such cases, the QAPP is required to document all aspects of the project's sampling design, sample collection, analysis, quality control, and data management activities. Within the BBP's purview, these projects are typically connected to ongoing monitoring and assessment efforts covering a wide variety of physical-chemical-biological data collection efforts, and may for example include data on ground water quality, surface water quality, sediments, atmospheric conditions, living resources, and remotely sensed habitat data.

A QAPP is a formal document describing the methods for collecting and assessing environmental data, quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. The BBP maintains an archive of approved QAPPs and associated guidance documents and links on its website at <https://www.barnegatbaypartnership.org/protect/barnegat-bay-science-and-research/quality-control-and-quality-assurance/>.

Where needed, QAPPs are submitted to the responsible staff member along with the draft grant or assistance application or listed as a deliverable to be received within 30 days of the acceptance of the subaward agreement. The initiation of data collection or data use activities must not begin until a QAPP has been approved by the appropriate approval authority. If extramural organizations are involved, they will be required to review and agree to the BBP QAPPs prior to the initiation of data collection or compilation. The requirements for QAPPs are defined in *EPA Region 2 Guidance for the Development of Quality Assurance Project Plans for Environmental Monitoring Projects* (EPA, 2004). For any questions not covered in the preceding document, a more comprehensive reference document would be *EPA Requirements for Quality Assurance Project*

Plans (QA/R-5); (EPA 2001).

For ongoing environmental data collection programs, QAPPs must be reviewed annually and updated whenever any changes occur in the collection, sample handling and storage, laboratory analysis, quality control, and data management activities, or any changes to key personnel. The funding recipient's Quality Assurance Officer should submit a document to the responsible staff member detailing their review of the QAPP and suggestions of any changes to be made based upon the past years' experience and upcoming expectations.

2.2.3 Quality Management Plans

In accordance with 40 CFR 30.54 and 31.45, organizations conducting environmental programs funded by EPA that acquire, generate, compile, or use environmental data and technology are required to establish and implement a quality system. Recipients of contracts, grants, or cooperative agreements shall describe their quality assurance system in a written Quality Management Plan. A Quality Management Plan describes a quality system in terms of the organizational structure, functional responsibilities of management and staff, line of authority and required interfaces for those planning implementing and assessing all activities conducted. Quality Management Plans must be prepared in accordance with *EPA QA/R-2: EPA Requirements for Quality Management Plans* (EPA 2001) and be submitted for review and approval to the EPA Region II Quality Assurance Manager. Prior to the initiation of environmental data collection and/or compilation activities, each of the extramural organizations assisting in data collection or usage for BBP projects requiring QAPPs must be provided with time to review and agree to the requirements before the BBP's Quality Assurance Officer will approve initiation of work.

2.2.4 Standard Operating Procedures

Standard Operating Procedures (SOPs) are documented methods for performing certain routine or repetitive tasks. These tasks include such operations as sampling, sample tracking, analysis, glassware preparation, instrument or method calibrations, preventative and corrective maintenance, internal quality control, data reduction, and analysis. SOPs should be expressed in terms of fixed protocols which must be followed. Where options exist, these should be clearly described and criteria for selection of alternatives must be included.

The SOPs should be written by personnel performing the task routinely so that the actual practices may be recorded. SOPs shall be prepared as a formal document and will be submitted to the BBP Quality Assurance Officer for review. This review will include an audit of the procedure to be followed to ensure that it is written in a logical, stepwise manner. The BBP Quality Assurance Officer will then approve the SOP, maintain it in a permanent file, and make it available for reference in future QAPPs.

Standard Operating Procedures may be prepared for the following types of tasks, as appropriate: specific sampling site selection; sampling and analytical methodology; probes, sample collection devices, storage containers, and sample additives such as preservatives; special precautions such as holding times and protection from heat; federal reference, equivalent and alternate test procedures; instrumentation selection and use; calibration and standardization; preventative and remedial maintenance; documentation, sample custody, transportation, and handling procedures; data handling assessment procedures; and specific quantitative determinations of precision, accuracy, completeness, representativeness and comparability. SOPs should be reviewed annually for accuracy and updated as needed.

2.2.5 Information Management System

The BBP maintains an information management system for environmental data collected as part of intramural projects only. The system is based in Microsoft Access with a customized data entry interface, and is hosted on a dedicated BBP server located at Ocean County College. An explanation of the database architecture, procedures for data entry, and metadata associated with each of the projects can be found in the document *Barnegat Bay Partnership Research Database Metadata*, which is accessible upon request. Environmental data collected by extramural vehicles are maintained by outside organizations in accordance with the approved QAPP.

The BBP maintains a separate information management system for environmental data collected through its continuous water quality monitoring network. Data from three separate water quality stations are transmitted via cellular telemetry in near real time (hourly) to both the NJDEP and BBP. The NJDEP makes these data available on a state supported website (<http://njdep.rutgers.edu/continuous/>) with a disclaimer that the information has not be through a quality control process. On a quarterly basis the BBP uploads quality-controlled data to the NJDEP website for archival storage and retrieval. Details regarding the water quality monitoring network, including the information management system, can be found in the QAPP for the project.

The BBP has systems in place for how to manage data files and maintain confidentiality where necessary (*e.g.* under legally binding terms in Data Sharing Agreements). Where appropriate, all data collected for EPA-funded projects requiring a QAPP will be peer reviewed by impartial members of the STAC or its affiliated technical work groups.

2.3 PROGRAMS SUPPORTED BY THE QUALITY SYSTEM

Barnegat Bay Partnership programs designated for extramural uses involving educational or outreach activities are excluded from the requirements of the BBP Quality Assurance

Program.

Barnegat Bay Partnership science and technical programs which involve collecting environmental data will comply with the policies listed in this QMP. As noted above, data collection or usage projects requiring QAPPs will consist of monitoring and assessment activities that are EPA or NJDEP-funded. The BBP also generates or uses many other forms of data, sometimes funded by other entities, for which QAPPs are not required; however, in such cases the BBP will strive to incorporate the best possible quality assurance in keeping with the principles of this Quality System.

3 PERSONNEL QUALIFICATION AND TRAINING

To ensure that the BBP Quality Assurance Officer has received sufficient training to adequately administer the requirements of this Quality Management Plan, they must attend at least one quality management training event per year. Attendance at a training event may include, but is not limited to, webinar participation, attendance at a workshop or other quality management presentation, or review of online quality management materials. Documentation of attendance at said event (agenda, presentation materials, receipts) will be kept as a permanent part of the BBP Quality Management Plan file. If there is a question as to the applicability of a given event, or the level of attendance documentation necessary, the BBP Quality Assurance Officer will request clarification from EPA R2 Office of Quality Assurance.

As part of the overall Quality Management Program, the BBP Program Office will also regularly host presentations from the EPA Region 2 Office of Quality Assurance staff on changes to quality management requirements, QAPP preparation, and other topics deemed appropriate by R2 staff. Program office staff, sub-awardees, and potential collaborators and sub-awardees will be strongly encouraged to attend.

4 PROCUREMENT OF ITEMS AND SERVICES

When necessary for the BBP to obtain the use of outside services for the collection of scientific data related to a scientific or implementation grant, BBP staff will ensure that the relevant Quality Assurance requirements are included in the scope of work / subaward agreement for the project partner/contractor. Therefore, when a QAPP is required for the BBP, all outside partners/contractors will be required to be knowledgeable about and adhere to the BBP's QAPP for that project. In the absence of a QAPP, partners and contractors will be held to the same quality assurance standards as the BBP, subject also to peer review by the STAC or its subgroups.

The BBP may use data that are generated under the auspices of other federal, state or academic programs. If existing (secondary) data is to be used by the BBP or its subawardees, it must be addressed within a QAPP. An assessment of the secondary data must be performed to determine if the quality of the data is sufficient for the project's objective(s) and intended use. For data beyond the direct control or influence of the decision makers and users at the BBP, the BBP will

actively work with these organizations to encourage development of consistent guidance materials on data quality, and ideally, QAPPs.

4.1 REVIEW AND APPROVAL OF RESPONSES TO SOLICITATION

In many cases, primary data collection will be performed by the BBP or by program partners and collaborators, and as such those activities should ideally be included under the requirements of a project-specific QAPPs or best possible quality assurance practices. In the event that the BBP finds a need to seek the services of an outside contractor to perform data collection services which can be competitively bid, the process would be initiated through advertisement of a grant funded opportunity (GFOs) or request for qualifications, with advertisements in newsletters, the BBP's website and other means. Once proposals were received, they would be initially screened by the BBP for administrative requirements, necessary applicant designations (*e.g.*, nonprofit status), and other requirements specified by the GFO. Once the proposals were initially screened, the BBP may, where appropriate, seek input from the STAC or external peer reviewers for technical review against a predetermined set of criteria found in the GFO. In such cases, the STAC or external peer review results will be considered by the BBP's Director, along with quality assurance considerations by the BBP's Quality Assurance Officer, for a final selection.

5 DOCUMENTATION AND RECORDS

Every data set generated or funded by the BBP will be accompanied by a related metadata file (or tab linked to the data file) documenting the source of the data, the contact for additional information, the sponsoring and collecting organizations, the reasons for collecting the data, published documents or reports associated with the data, and other items. Documentation on database files is essential for drawing meaningful interpretations of the data contained in the database. In addition, proper data base management is dependent upon structured, easy-to-use documentation.

Quality related documents developed by the BBP, such as SOPs, datasheets, or QAPPs for long-term monitoring projects are required to include document control. The version of the document will appear on the cover page and will consist of a sequentially numbered identifier and date (*i.e.* Document Name, Version 1, July 20XX). Prior versions of the document will be kept on file indefinitely in order to identify changes between versions.

All electronic versions of quality related documents reside on the BBP's computer system, which is backed-up regularly by the Information Technology staff at Ocean County College, our host institution. Quality Management Plan documentation (SOPs, audit reviews, other system documents) are saved to a QMP specific folder, while project specific quality related documents are maintained within the project specific files. All final documents are to be saved as Adobe pdf files and labeled as "final" in the file name. Full access to the BBP computer system is provided to BBP full-time staff only, though all BBP staffers have the capability to retrieve documents for review and printing.

6 COMPUTER HARDWARE AND SOFTWARE

At the present, the BBP primarily uses hardware and software that are commercially available. Software programs include common platforms such as the Microsoft Office suite. In addition, the following scientific software are available for the future analysis of environmental data: ArcGIS with various extensions, R.

If future requirements involve additional scientific programs, appropriate modifications will be made to this Quality Management Plan.

7 PLANNING

The planning process begins with program-wide environmental data collection priorities documented in the CCMP for the Barnegat Bay. The program selects and ranks potential projects and solicitations based on the project's ability to meet one or more objectives set forth in this Plan. Technical expertise is provided by in-house staff and from members of advisory committees.

7.1 REVIEW AND APPROVAL OF QAPPS

Effective management of a data collection program requires periodic assessment of the quality of data being obtained to establish a basis to determine when and if corrective action may be needed. To ensure that this assessment occurs, all environmental data collection efforts funded by the BBP for projects where a QAPP is required shall have established mechanisms for adhering to the requirements within that plan as approved by the BBP's Quality Assurance Officer and the responsible staff member. Specifically, a QAPP shall ensure that:

- The level of data quality needed will be determined and stated before the data collection effort begins; and
- All environmental data generated or used will reflect the quality and integrity established by the QAPP.

A QAPP documents the data quality objectives or "acceptance criteria" for a project, identifies the critical measurements to be performed, and discusses the quality assurance activities to be conducted during the sampling, analytical and validation phases of the project. All QAPPS shall adhere to QA/R-5, EPA Requirements for QAPPS (EPA 2001). Where possible, document control format as exhibited in this document shall be utilized.

For all appropriate environmental data collection activities, a draft QAPP is provided for review and approval at least 30 days prior to the initiation of data collection or data

compilation activity. The responsible BBP staff member shall notify the BBP Quality Assurance Officer regarding the processing of the grant during the planning phase. The staff member listed as the principal investigator on a project for which a QAPP is required must obtain concurrence from the BBP Quality Assurance Officer on all matters affecting quality assurance.

QAPPs shall be reviewed and approved in the context of the project data quality objectives prior to environmental data collection or compilation. The BBP Quality Assurance Officer shall be responsible for the review and approval of QAPPs. EPA Region 2 will perform an auditing role to ensure compliance with this QMP and EPA's overarching Quality Policy. At any time, and on a case by case basis, the BBP Program Office can request assistance from the EPA Quality Assurance Manager, and/or the EPA can elect to perform a review. Any QAPPs approved by the BBP will also be forwarded to the BBP's EPA R2 Project Officer for their records. Every two years, a list of QAPPs approved by the BBP will also be forwarded to the EPA R2 QA Team, EPA R2 BB Program Coordinator, and the NJDEP Office of Quality Assurance for their records.

For any proposed project which exceeds \$15,000 the BBP QAO will contact the NJDEP's STAC member to determine if the NJDEP has an interest in reviewing and approving the QAPP to ensure the data or any findings or recommendations from the project can be used by the NJDEP. The NJDEP STAC member will have 30 days to identify the appropriate personnel within the NJDEP to whom the QAPP should be sent. If the NJDEP chooses not to review the QAPP, the BBP will be the sole approval authority.

The ability of the BBP to approve QAPPs on behalf of EPA Region 2, and the NJDEP for projects less than \$15,000, was determined after the completion of a one-year transition period evaluating the quality assurance capabilities of Dr. James Vasslides, the BBP's Senior Program Scientist. Should Dr. Vasslides no longer serve as the BBP's QAO the parties will revisit the oversight roles of the agencies to determine if an oversight/transition year during which the parties will jointly review QAPPs will be required.

The BBP Quality Assurance Officer shall notify the responsible staff member immediately of any problem areas identified in any review of the QAPP. Necessary changes will be jointly determined, and the responsible staff member will outline the corrective actions. A follow-up review of the required changes will be made by the BBP Quality Assurance Officer. In cases where the BBP Quality Assurance Officer is the responsible staff member and problem areas are identified in the review of the QAPP by the BBP Director, the necessary changes will be jointly determined with the BBP Program Director. Any discrepancies regarding the QAPP will be forwarded to the EPA for its review and approval.

The BBP Quality Assurance Officer maintains a current file of all approved Quality Assurance Program Plans. Upon completion of the environmental data collection activities, the responsible staff member shall also assess the actual performance of the

planned activity and subsequent results according to the criteria described in the QAPPs. Distribution lists of personnel who need to receive quality assurance reports and information are to be maintained by the BBP Quality Assurance Officer.

The BBP's compliance with EPA QAPP requirements is contingent upon receiving appropriate levels of assistance from EPA for review and approval of completed QAPPs.

8 IMPLEMENTATION OF WORK PROCESSES

The appropriate BBP staff member will monitor work processes accomplished through collaborative efforts and subawards. Activities and outputs of the projects are presented to the staff or STAC. Each project is overseen by a BBP staff member, who is responsible for initiating the project, reviewing the progress reports, receiving applicable data, and receiving reports.

9 ASSESSMENT AND RESPONSE

9.1 TECHNICAL SYSTEMS AUDIT

Technical systems audits, which focus on the actual quality control in environmental measurement data collection systems, will be performed in the first year of each project by the BBP Quality Assurance Officer. The audit addresses an examination of calibration records, sampling and measurement procedures, general laboratory conditions, support systems, equipment and facilities, maintenance and repair records, control charts, *etc.* Technical systems audit reports are prepared by the BBP Quality Assurance Officer and are provided to the responsible staff member. Necessary changes will be jointly determined, and the responsible staff member will outline the corrective actions. A follow-up review of the required changes will be made by the BBP Quality Assurance Officer. Written documentation of each step in the audit will be prepared and will be maintained in the project's file in accordance with this QMP and the project QAPP.

9.2 MANAGEMENT ASSESSMENTS

As part of the annual Quality Management Plan review process, senior management will annually review and assess the adequacy of the quality system to meet the needs of the BBP. Furthermore, EPA Region 2 will conduct an audit of the BBP's implementation of its QMP a minimum of once every three years. The BBP will send a Quality Assurance Summary Report to the EPA QA Team, the BBP Program Coordinator, and the NJDEP OQA at least once in three years which will include a list of QAPPs reviewed and audits conducted. The BBP management also undergoes routine management systems reviews where management controls, training, resources, personnel and accomplishments are undertaken and reviewed by EPA Office of Water, Oceans, and Wetlands every four years. The written results of the BBP annual QMP internal audit, EPA R2 QMP audit,

EPA OWOW review, and all subsequent correspondence generated as a result will be maintained in accordance with Section 5 of this QMP.

10 QUALITY IMPROVEMENT

All staff members are responsible for quality improvement within their areas. Senior managers communicate critical activities of the BBP at staff meetings and solicit input for improvements. The BBP Quality Assurance Officer is responsible for the overall quality improvement program, the function of which is to identify the cause and consequence of a problem and suggest actions to prevent its recurrence.

REFERENCES

- 40 CFR 30, Code of Federal Regulations, “Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations.” (URL: <https://www.govinfo.gov/app/details/CFR-2002-title40-vol1/CFR-2002-title40-vol1-part30>)
- 40 CFR 31, Code of Federal Regulations, “Uniform Administrative Requirements for Grants and Cooperative Agreement to State and Local Governments.” (URL: <http://www.osp.state.or.us/OEM/Library/44CFR/44cfr13.html>)
- Barnegat Bay National Estuary Program. 2002. *Comprehensive Conservation and Management Plan*. (URL: <http://bbp.ocean.edu/pages/129.asp>)
- EPA Order 5360 A1 (May 2000), *EPA Quality Manual for Environmental Programs*, U.S. Environmental Protection Agency, Washington, DC. (URL: <http://www.epa.gov/quality/qs-docs/5360.pdf>)
- EPA Order 5360.1 A2 (May 2000), *Policy and Program Requirements for the Mandatory Quality Assurance Program*, U.S. Environmental Protection Agency, Washington, DC. (URL: <http://www.epa.gov/quality/qs-docs/5360-1.pdf>)
- U.S. Environmental Protection Agency, 2004. *US EPA Region 2 Guidance for the Development of Quality Assurance Project Plans for Environmental Monitoring*. April 12, 2004.
- U.S. Environmental Protection Agency, 2001. *EPA Requirements for Quality Management Plans (QA/R-2)*, EPA/240/B-01/002, Office of Environmental Information. (URL: <http://www.epa.gov/quality/qa/docs.html>).
- U.S. Environmental Protection Agency, 2001. *EPA Requirements for Quality Assurance Project Plans (QA/R-5)*, EPA/240/B-01/003, Office of Environmental Information. (URL: <http://www.epa.gov/quality/qa/docs.html>).