**[Insert Project Name, NFWF ID No., Grant Type. Complete Information in Document Header] Example: “Shell Recycling Planning to Restore Long Island Sound Oyster Reefs and Shorelines (CT)”, NFWF Project No. 73270, Project Type: Planning/Design.**

 **QUALITY ASSURANCE PROJECT PLAN**

To be inserted by NFWF Project Funded under EPA LI-00A00XXXX, FC.RXXX

COMPLETED PLAN PREPARED BY:

**[Insert name here]**

**[Date]**

Refer correspondence to:

**[Name, organization, address, telephone, and email]**

*(Note to All Grantees: Instructions in this QAPP Template are given in bold, highlighted type. Make sure to complete or revise all sections and remove any underlining. Also, ERASE the instructions, including this one, as you complete the QAPP for your specific project. Make sure to define acronyms/abbreviations when they initially appear in the text (i.e., mg/L, NTU, etc.). Make changes in other places as necessary.* *If a section is not applicable to your project, delete the template text, replace with “N/A”, and include an explanation regarding why the section is not applicable. Template instructions should be addressed in narrative form, not Q&A)*

Please read the entirety of this document. Do not fill in information without reading the whole document. It is necessary to fully understand the contents of this Quality Assurance Project Plan (QAPP) in order to complete the required components successfully. Every QAPP will be unique and responsive to the proposal approved by NFWF. Please note that the QAPP is to be a stand-alone document.

qapp Approvals PAGE

All Approval Signatures and notification of approval from EPA/NFWF required prior to project start:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**[Insert Name]**

Project Lead, **[Insert Organization]**

**[Insert Title]**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**[Insert Name]**

**[Insert Role and Organization. Delete if not applicable. Copy and add additional signatories as appropriate. Delete extra spacing so that signatories fit on this single page. This expedites the signatory process]**

**[Insert Title]**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lynn Dwyer

Program Director, Northeast Coastal
National Fish & Wildlife Foundation

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**[EPA Signatory – to be inserted by NFWF upon QAPP Approval]**

**[U.S. Environmental Protection Agency]**

**[Insert Title]**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Elizabeth Wright

U.S. Environmental Protection Agency

Project Officer, National Fish and Wildlife Foundation, Long Island Sound Futures Fund

**(WHEN DOCUMENT IS COMPLETE \_ RIGHT CLICK ON Table of Contents and ‘UPDATE FIELD” then “UPDATE ENTIRE TABLE”)**

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**[Verify numbering here and against text at completion of QAPP]**

# 1 PROJECT MANAGEMENT

## 1.1 Contact Information

[Please provide the name and phone number of project personnel as applicable. Include an Organization Chart if your project team is comprised of multiple project partners and/or more than five (5) team members. Only include project partners if they are involved in project activities discussed in the QAPP.]

All personnel listed below in Table 1 will receive copies of this Quality Assurance Project Plan (QAPP), and any approved revisions of this plan. Once approved, this QAPP will be available to any interested party by requesting a copy from the project management.

**Table 1: Project Team Contact Information**

|  |  |  |
| --- | --- | --- |
| **Title** | **Name (Affiliation)** | **Phone Number/E-mail** |
| Project Manager |  |  |
| Data Collection Team Lead |  |  |
| Environmental Scientist |  |  |
| National Fish and Wildlife Foundation (NFWF) Program Manager  | Lynn Dwyer, NFWF | Lynn.Dwyer@NFWF.org |
| QA Officer **[This person should not be involved in data collection. If title does not apply to anyone on the Project Team then add “ / QA Officer” after the Project Manager Title and delete this line]**  |  |  |

**Describe the roles and responsibilities of key project team members. Key project team members would actively work on one or more phases of your project. If volunteers or students are part of the project team, summarize their role and reference to later sections of the QAPP that discuss training details (i.e., Section 1.5, 2.0). Include the names, duties, and responsibilities of all parties and/or groups involved in the key aspects of your project. Clarify the intended data user(s) for each data collection activity as applicable.**

**[EXAMPLE ONLY – EDIT AS APPLICABLE TO YOUR PROJECT**

PROJECT MANAGER (Name) has the overall responsibility for ensuring that the project meets the project objectives and quality standards. The Project Manager will be the responsible for overseeing all activities conducted on this project including schedule adherence, budgeting, and oversight of all scope-related activities. Scope-related activities include assigning project tasks to personnel, data collection, data analysis, interpretation, communication, and final reporting. The Project Manager will also coordinate all program/project needs related to project personnel and convene periodic project-planning meetings.

## Project Objectives and Approach

**[Insert your condensed proposal narrative here. Modify according to your project specific objective and address the following in this section:**

* Clearly state or list the objectives of your project and what the project is intended to accomplish.
* What methods/surveys/data collection activities will be implemented to achieve these objectives?
* What is the geographic scope for your project? Add a map of the project area as an Appendix and reference in this section. Please be sure that the map does not include sampling locations unless these locations are the focus of the secondary data collection, modeling, or geospatial assessment.
* Provide background to support the project objectives, including previous work/grants, team experience, and relevant context for your project.
* Discuss whether the project must comply with agency legislation, permits, comprehensive management plans, or organizational goals
* If applicable, discuss actions under different grants or regional programs that may have provided supporting framework or strategy for your project objectives.
* Why are secondary data collection, modeling, or geospatial assessment the best approach for achieving the project objective?
* Discuss what type of secondary data collection, modeling, or geospatial assessment is being implemented for this project.
* If conducting a modeling assessment, describe the model, provide a reference (if applicable), and a version number. Discuss why this model is the best fit for the project, and who selected it for use.

The objective of this document is to identify the quality assurance components that are necessary to implement the project activities under the **[Insert project name]**. This objective will be achieved by using the following methodology [**Specify methodology, survey type, or any other data collection activities associated with the project]**) to collect, assess and/or determine **[Insert information type. ex.: county-level population data]**.

**[Briefly list/discuss the sites or project area to be evaluated as part of this project. Explain the process for site selection here or in section 1.3 if certain decision criteria were or will be applied to select sites for assessment. If sites are not selected yet, discuss the criteria you will use to choose project area/sites and why]**

The overall project timeline is [**Insert dates**]. Data collection will begin **[Insert start/stop dates for this activity. If timeline is not determined yet, discuss the potential timeline or that it will be determined at a later date]**

**[****If you are collecting secondary data, including GIS layers, and know the sources please include them in Table 2 below or provide as an appendix. If utilizing a geospatial application or model for data assessment, list the constituents to be evaluated in Table 2. Remove example Table 2 that is not applicable to your project and re-number tables as needed**]

Table 2 lists the constituents/data sources that are required to be evaluated or assessed through the project data collection.

**[EXAMPLE ONLY – REMOVE OR EDIT AS APPLICABLE TO YOUR PROJECT**

Table 2 Constituents to be Evaluated [For Geospatial/Modeling Projects]

| **Constituent** | **Unit** |
| --- | --- |
| Vegetation | Type preference |
| Fencing | Color preference |
| Site Access | Private/Public/Limited |

Table 2: Constituents to be Evaluated [For Secondary Data Assessment]

| **Constituent** | **Unit** | **Data Reference [Add full citation and weblink for data source]** |
| --- | --- | --- |
| Vegetation | %cover |  |
| Population Density | # of persons/mi2 |  |
| Wetland | type of wetland |  |

**[If secondary data sources are not known, discuss or list potential sources of information (e.x. NOAA precipitation data or county-level population data). Explain parameters to be researched, why these are the appropriate parameters for your project, and who selected them.]**

**[Clarify whether volunteers, students, or other individuals that require training would be involved in data collection, assessment or modeling activities. Describe training for these individuals, as applicable, including methodology, timing, and primary responsibility for training.]**

## 1.3 Data Quality Objectives

**[READ THROUGH HIGHLIGHTED INSTRUCTIONS BEFORE COMPLETING]**

[Data quality objectives (DQOs) will define project data collection design, including

1) when and where to collect environmental data or information (if identified in section 1.2, state here and reference section 1.2),

2) the acceptable level of data uncertainty and decision errors for the study (also discussed in section 1.4),

3) number of assessments/evaluations/resources, why is this the appropriate study design to meet project objectives

4) why the information or data type you are collecting or data assessment is appropriate to meet your project objectives, and

5) who is making these decisions, how, and when were they made?

Questions to consider when completing this section:

* How is the quality of your data/information being ensured? Examples may include
	+ an explanation of the experience of the project team,
	+ proper training and oversight of data collectors,
	+ adherence to accepted methods and protocols to achieve project objectives, including citations for methods and protocols,
	+ only using certain types of data /information with specified quality standards; or
	+ using lessons learned from successful past projects that were similar to this project design, providing a summary of past projects.
* How were sites/geographic scope selected for this project? (May be discussed in section 1.2 and referenced to here or vice versa – but MUST be discussed in one of the sections and reference to in the other)
	+ Why is the geographic scope or sites for evaluation or assessment appropriate to achieve the project objectives?
	+ What was the decision criteria to select geographic scope or sites for evaluation or assessment (if discussed in section 1.2, reference to that here or vice versa – but MUST be discussed in one of the sections and reference to in the other)? Who made these decisions and when?
* Why was the data being collected chosen to address the project objectives and what information will it be providing?
* If the data is not collected as planned, how will that affect the project/project objectives?
* Describe approach for analyzing data including formulas, calculations, units, definitions of terms, and statistical analysis, will be included and defined

**For Secondary Data Collection and Geospatial Analysis:**

* Define the temporal boundaries for sources. How recent does it need to be? Will you use the most recent available data? Why or why not?
* If data layers or sources represent a varying time scale, will data be comparable?
* If data layers or sources represent varying geography, will data be comparable?
* What it is the process for determining secondary data or geospatial data is accurate, reliable, and complete? Where did the data come from? How was it collected? What is the margin of error on the source data?

**For Modeling projects**

* What assumptions will need to be made to use the model?
* Is any calibration required?
* Will any specialized equipment or training be required to utilize the model?
* What is the source for data inputs (see criteria above if using secondary data)?
* Identify key data inputs and any data processing elements that allow for evaluation and assessment of the model outputs to meet project objectives.

**MAIN THEME FOR THIS SECTION and SECTION 1.4: When completed, these sections will identify the required information and criteria which will support developing quality data collection designs or processes. These sections should discuss how the project will ensure that the type, quantity, and quality of environmental data/information used in decision-making will be appropriate for the intended application. It should help the reader understand why this data/information provides the material necessary to answer study questions and meet project objectives.]**

## 1.4 Quality Assurance Objective Criteria

The Quality Assurance Objectives (QAOs) define a tolerable level of potential decision error for data collected on a project. They help to define the DQOs and clarify the project objectives further. The QAOs are then used as comparison criteria during data quality review by [explain the group that is responsible for collecting data/information] to determine if the minimum requirements have been met and the data may be used as planned.

[**This section specifically outlines the range of information would be acceptable for use on your project.**

* How will the project team know data collected or model outputs are “fit for use” on the project and not an error or unacceptable for reporting? Discussion must support text in sections 1.3, 3.0 and 4.0
* What is the decision criteria to select secondary data, geospatial information, or the model for use based on the project objectives?
* What are the potential limitations of data being used for this project? If applicable, specify acceptance criteria for each matrix and measurement (analytical) parameter and indicate QC sample or activity associated with the quality indicator.

**For Modeling or Geospatial Analysis**

* Identify resolution and accuracy required for data input
* Who will review the outputs or results to make sure they are clear, unbiased, and objective?
* What margin of error would be acceptable for outputs/analysis and why?

What data quality indicators will be used to qualify the data? (Consider accuracy, precision, consistency, any validation or processing metrics key to your data)

* How will it be determined that the results satisfy the purpose of the project? Clarify if there a specific range of data outputs that are acceptable?
* Identify specifications regarding geospatial coordinate data and data accuracy
* Identification any topology, labeling, attribute accuracy, and other processing quality indicators for map digitizing (data gap identification etc.), if required •
* Identify criteria to be met in ground-truthing satellite imagery, as required for your project
* Identify any metadata requirements to ensure consistency, this can be project-defined or a reference to a standard (append documents if applicable).

**For Secondary Data Assessment**

* What are the qualifiers for accepting information to support the project objectives? Does information need to be
	+ geographically relevant to a specific area
	+ a specific type of information (e.g. federal government agency resource) or developed by a specific author
	+ inclusive of a certain level of quality
	+ in compliance with a management plan or legislative requirements
	+ representative of a specific timeframe
	+ other requirements for using information?

What data quality indicators will be used to qualify the data?

If this information is already described in section 1.3, then just reference discussion here.

**If all data collected will be accepted for use on the project, then add an explanation regarding why this is appropriate. Note that this section must support text in sections 1.3, 3.0 and 4.0.]**

## 1.5 Documentation and Records

**[Include the following in this section:**

* Description of Staff/Volunteer/Intern/Student Training documentation and records as applicable.
* Explain how data and information will be transferred between project partners (ex. secure file share).
* Describe or list reports to be prepared as part of this project, including information to media outlets or government agencies, and how reports or media would be distributed. If no reports or media will be developed as part of this project then clarify here**.]**

All records generated by this project will be stored at **[Insert name here**] main office. Copies of this QAPP will be distributed to all parties involved with the project, including signatories and the data acquisition team. Any future changes or amendments to the QAPP will be held and distributed in the same fashion. Copies of previous versions of the QAPP will be clearly marked as “superseded by Revision #” so as not to create confusion.

The records of all project information and data used to complete the activities of the project will be retained for at least seven years from the date of data acquisition, report, or application.

# 2 DATA ACQUISITION

[**Edit as applicable to your project. Describe data collection/assessment staff and staff training if not described in Section 1 and address the following:**

* Discuss which team members participate in secondary data collection/geospatial analysis/modeling and what the process is for data collection or analysis.
* If conducting a secondary data search, list and explain search criteria. Who selects the search criteria and what is the process for determining search criteria?
* How will the data collection or assessment be recorded and by whom?
* Reasoning for any electronic data collection devices.
* If a specific data log or record-keeping system will be used to track data collection, attach as an Appendix and reference here]

DATA COLLECTION PROCEDURES

All data collection and assessment activities will be adequately and consistently documented [**describe how adequacy and consistency in documentation will be confirmed**] to ensure defensibility of any data used for decision-making, as described in section **[insert section where this is discussed**] and to support data interpretation.

**For all projects, discuss the following:**

* How will information be filed or organized for data analysis and QA review?
* Will secondary data be organized into a database or summarized in a synopsis? Who would do this?
* When will this occur?
* Who is responsible for filing and documenting data and/or analysis results?
* To ensure transparency and defensibility in the decision-making process, how will the project team document why certain models, project reports and/or existing data were not used?
* Describe the data format (e.g., electronic, hardcopy) and how data will be maintained for the project. If data are obtained from databases, include as much accompanying quality control, temporal, locational data, etc. as needed to document and verify the quality of the data.

**For Modeling/Geospatial Projects**

* Identify data collection devices, how you will handle alternative collection if needed, and data processing requirements (any requirements around speed, sequencing, or calibration).
* Identify key meta data and valid values (assuming these were discussed in terms of consistency in Section 1.3 – expand upon details or requirements here as needed. Reference to any standards or developed protocols)

# 3 QUALITY CONTROL REQUIREMENTS

**[Edit as needed to be project-specific]**

## 3.1 Measurement Performance Criteria

The overall QA objective for this project is to develop and implement procedures for data collection and reporting that will provide results that are scientifically defensible. Specific procedures for reporting of data, internal QC, audits, and corrective action are described in the other sections of this QAPP [**Please elaborate on or revise this section as appropriate to your project]**

## 3.2 Internal Quality Control

Internal QC is achieved by review of the [**model results/secondary data records**] by the QA/QC Specialist **[or insert title from Section 1.0.]** to ensure that results are within the specified QC objectives discussed in sections 1.3 and 1.4 [**be sure QC objectives are defined in sections 1.3 and 1.4**].. The internal QC components of a data collection and analyses program will ensure that the data of known quality are produced and documented. **[Discuss timing and process for QA/QC review of information once it is input to a database or other online filing system. Who from the project team would do this and when?** **Describe how problems will be resolved, including chain-of-command, and documentation process. Include examples of types of corrective actions that might be implemented (e.g., access other data sources, loosen or tighten acceptance criteria)]**

# 4 DATA MANAGEMENT

[**Elaborate on this process or revise as appropriate****.** **If project data or information is being used for data sharing purposes (such as data sharing to a public site or into another system external to the project team) discuss how quality control will be ensured for data processing requirements and validation external to the project team]**

Copies of **[model results/secondary data records]**, original preliminary and final reports, and electronic media reports will be kept for review by the **[Insert organization name].**.

**[Model results/secondary data records]** are checked and signed by the project **[Insert “leader”, “manager”, etc.]**. They will identify any results where information is incorrect, missing, or inadequate [**what would identify a response as “inadequate”?**]. Such data will be marked as unacceptable by and will not be entered into the electronic data base and/or otherwise used for project analysis, reporting or other purpose. **[Clarify if this process applies to your project. Include the timeframe for completing this check, post-data collection and whether there would be a need to repeat data collection or modeling assessment and/or re-train data collectors if results are unacceptable.** **If consensus is required by the project team for decision-making, explain the consensus process here**]

The data generated will be converted to a standard database format [**revise to be accurate to your projec**t] maintained by **[who will be responsible for data entry and management?]** and available for NFWF staff review when requested. This review is for QA/QC purposes only and will not be used for any other purpose. All project information will remain confidential. See Section 4.2 for additional information on this data reporting requirement.

After data entry or data transfer procedures are completed for each [**insert type of data collection/assessment event**], data will be inspected for data transcription errors [**how long after data collection and by whom? How are errors determined (reference sections 1.3-1.4)? What happens to data found to have errors?],** After the final QA checks for errors are completed, the data will be added to the project database. [**Specify who would do this and the timeframe, post-data collection. Describe how data will be used for reporting as applicable]**.

## 4.1 Data Assessment Procedures

Data and information collected must be consistently assessed and documented to determine whether project QAOs discussed in section 1.4 have been met, quantitatively assess data quality and identify potential limitations on data use. Assessment and compliance with quality control procedures will be undertaken during the data collection phase of the project. [**Reiterate, describe or reference the QC procedures for this project]**.

## 4.2 Data to be Included in QA Summary Reports

During the project, NFWF may require periodic reporting, as noted below. Table 3 summarizes the types of data to be reported and the method in which that information will be delivered to NFWF staff.

**[Remove lines not applicable to your project (e.g., remove the line for BMPs if you are not using). Please be sure this table matches the table in Appendix D]**

|  |
| --- |
| **Table 3: QA Summary Reporting Data** |
| Data | Data Description | Reporting Method | Frequency |
| Best Management Practice (BMP) Data | Raw data from project reports in units of miles, linear feet, acres, individuals, etc. | Metrics uploaded to NFWF online system. | Annually and at NFWF Request during the closeout procedure |
| Monitoring Data | Raw data on project effectiveness, ambient water quality in priority watershed, stormwater flow, project conclusion data, etc. | Raw data, reports, and/or spreadsheets submitted through NFWF online system through the Final Programmatic Report. | At NFWF Request during the closeout procedure |
| Geospatial Data | Google polygon maps, latitude/longitude info, watershed segment | Uploaded via NFWF online system map page | At NFWF Request at application, during any Map Update Tasks, and during the closeout procedure |

At project completion, the data collection team will provide copies of the [**secondary data collection log**]. At a minimum, information must be provided to NFWF staff according to the QA Summary Report template, included as Appendix D.

## 4.3 Reporting Format

All results meeting data quality objectives and results having satisfactory explanations for deviations from objectives will be reported in the QA Summary Report. Results will be reported to NFWF at project completion as noted in Section 4.2 above. Reports may be submitted electronically along with the final programmatic report.

# 5 DATA VERIFICATION AND USABILITY

## 5.1 Self-Assessment, Data System Audits

**[Explain how project will ensure the data is collected consistently. EPA asks that you describe how the project will periodically assess consistency of data collection during project delivery. Write a short paragraph or synopsis on how this will be accomplished by the project team.**

**Examples of self-assessments are things like periodic training updates comparing how volunteers or others are collecting data for the same project question, spot checks on data to document consistency, comparisons of photos taken to make sure they are the same type of photo, blind double data collection etc. Don’t create anything new, just describe what you will be doing as it works within project.]**

# 6 REFERENCES

**[EXAMPLE ONLY] [Edit as applicable to your project and remove example references below not used for this project. Be sure all references listed in this section are cited in the main body text of the QAPP]**

U.S. EPA 1983. Methods for Chemical Analysis of Water and Wastes. EPA-600/4-79-020, third edition

U.S. EPA 1988. Methods for Determination of Organic Compounds in Drinking Water (EPA-600/4-88/039)

EPA/600/R-99/080 2000. Guidance on Technical Audits and Related Assessments for Environmental Data Operations

# Appendices

A) Project Geographic Scope Map(s)

1. Secondary Data Table
2. Modeling Information
3. QA Summary Report

APPENDIX D – At Project Close Out

[Insert Project Name]

QA Summary Report - Components

This project resulted in **[Insert deliverable description]**. This work product received the required nature and scope of QAPP oversight appropriate for the intended use of the data.

The data sets, data products and other supporting QA documentation is/are maintained on file with the assigned research staff as noted in the QAPP until **[Insert date].**

All QAPP elements were met and completed according to the procedures and methods outlined therein.

**NFWF QA Summary Reports will be submitted to NFWF annually and at project completion as requested. The QA Summary reports will include the following information, as appropriate –**

1. QA Summary Closeout reports include the extent to which projects are implemented according to the stated scope of work and the methodologies specified in this QAPP in their final programmatic reports.
2. Significant changes to the objective, scope, or methodology of environmental data collection or use of environmental technology require the review and approval of the NFWF Program Manager and the NFWF QA reviewer. Therefore, if needed, appropriate revisions to this QAPP will be completed and submitted to the NFWF Program Manager for review and approval prior to implementation of changes.
3. Additionally, periodic QA Summary Reports will be submitted to NFWF annually, if requested, according to the table, below.

**The following table summarizes the types of data to be reported and the method in which that information will be delivered to NFWF staff.**

|  |  |  |  |
| --- | --- | --- | --- |
| Data | Data Description | Reporting Method | Frequency |
| Best Management Practice (BMP) Data | Raw data from project reports in units of miles, linear feet, acres, individuals, etc. | Metrics uploaded to NFWF online system. | Annually and at NFWF Request during the closeout procedure |
| Monitoring Data | Raw data on project effectiveness, ambient water quality in priority watershed, stormwater flow, project conclusion data, etc. | Raw data, reports, and/or spreadsheets submitted through NFWF online system through the Final Programmatic Report. | At NFWF Request during the closeout procedure |
| Geospatial Data | Google polygon maps, latitude/longitude info, watershed segment | Uploaded via NFWF online system map page | At NFWF Request at application, during any Map Update Tasks, and during the closeout procedure |