

CHAMPLAIN HUDSON
ENVIRONMENTAL TRUST:
PROJECT F. OYSTER REEF
DEVELOPMENT AND RESTORATION

REQUEST FOR PROPOSALS:

Bottom Type and Oyster Density Sampling and
Mapping: Hudson River from Yonkers
(Yonkers Yacht Club) to West Harlem Piers
(125th street)

Release Date: October 23, 2024

Notice of Intention to Apply (Optional): November 1, 2024

Proposal Due Date and Time: 5:00 pm on November 13, 2024

Expected Award Notification Date: December 9, 2024

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I. Background and Introduction

Historically, the Hudson River, New York Harbor, and Long Island Sound supported one of the largest oyster (*C. virginica*) populations in the world, sustaining a rich and diverse community of aquatic organisms. However, by the early 20th century, overharvesting, waterfront development, dredging, and water pollution led to the collapse of the eastern oyster population.

Oyster monitoring studies from the Hudson River near Tappan Zee have shown consistent natural oyster recruitment in the area, suggesting existence of a sufficient natural population to ensure adequate recruitment for successful oyster reef restoration. Studies of the population south of the Tappan Zee have found that oysters are also recruiting in the Lower Hudson and Harlem Rivers, but at lower densities. The first phase of this project will map the bottom type and locations of the remnant oyster populations to facilitate the development of spatially explicit oyster population density estimates and provide insights on locations in the Lower Hudson River (Figure 1) to enhance and expand these existing populations.

A. Champlain Hudson Environmental Trust (CHET)

The Champlain Hudson Power Express transmission project will install and operate a transmission cable carrying power from Quebec to a converter station in Astoria, Queens. Certificate Condition #165 of the Order Granting the Certificate of Environmental Compatibility and Public Need (Certificate) established the \$117.13 M [Lake Champlain Habitat Enhancement, Restoration, and Research/Habitat Improvement Project Trust Fund](#) (CHET). CHET is governed by a nine-member committee, the Environmental Trust Governance Committee (ETGC¹). The Hudson River Foundation is the Trust Administrator.

The Hudson River Foundation and the ETGC are working collaboratively to implement a portfolio of the “Priority Projects” contained in the Certificate. This RFP is soliciting proposals to implement components of one of the Priority Projects: CHET Project F. Oyster Reef Development and Restoration.

B. Scope of Services

The Hudson River Foundation seeks a (“Consultant”) to conduct a baseline assessment and mapping of bottom type and oyster density in the Hudson River from Yonkers in the north to 125th St. in the south (Figure 1B). A complimentary project, under a separate program of NEWIPCC and the Hudson River Estuary Program, will collect similar data from Piermont Pier in the north to Yonkers in the south (Figure 1A).

The requested activities (“Scope of Services”) are outlined in Section II. The Scope of Services provides a condensed summary of the required survey activities. The Consultant is requested to develop and describe their approach for conducting the surveys, including the sampling gear, the number of transects, and the number of samples.

¹ Adirondack Park Agency, The City of New York, NYS Council of Trout Unlimited, NYS Department of Environmental Conservation, NYS Department of State, NYS Department of Public Service Commission, Riverkeeper, Inc., Scenic Hudson, Inc., Transmission Dev. Inc., Certificate Holder

C. Available Budget

The total budget to implement the data collection, data analysis, and mapping activities described in the Scope of Services and fulfill the project's reporting and other obligations cannot exceed One Hundred Thousand Dollars (\$100,000).

II. Scope of Services

A. Survey Area and Sampling Design

Data collected for this study is intended to be complimentary with data previously collected to evaluate oyster distributions in the vicinity of the Mario M. Cuomo Bridge (AKRF 2016a, AKRF 2016b, AKRF 2021, Princeton Hydo, 2013, Princeton Hydo, 2015) and data planned to be collected under a complimentary of NEWIPCC and the Hudson River Estuary Program.

The sampling design should follow a systematic sampling design. The total number of samples that will be collected within the available budget should be determined by the applicant. The applicant should describe the rationale and approach used to determine the design. The plan should describe the proposed number of transects (east – west) from 125th to Yonkers (~ 20 km), including the distance between each transect line (e.g. 50 transect lines spaced every 400m) and the distance between samples collected across each transect line spanning the width of the river (e.g. 50m spacing across the 50 transects averaging 1.7 km in length would result in ~1,700 samples).

B. Sediment Grab Samples

To be consistent with prior work, the applicant should consider collecting the sediment grab samples with a Peterson dredge with a sample area of 1.0 ft². If another type of bottom sampler is proposed, the applicant should describe the expected benefit and overall rationale for the change in gear. A photograph of the contents of each grab sample should be taken, and the geo-location (GPS) for each sample and any problems encountered during collection should be recorded.

C. Sediment Type and Bottom Characterization

The sediment grab samples will be used to characterize the dominant sediment type and major bottom characteristics of the sample.

1. Sediment type will be determined by visual-tactile estimation in the field, following the methods in the Natural Resources Conservation Service field guide for describing soils (Schoeneberger et al. 2012), and follow the classification scheme used in the NYSDEC Benthic Mapping Project (Figure 2) and classified into one of nine bottom types: 1) gravel, 2) muddy gravel, 3) sandy gravel, 4) mud, 5) gravelly mud, 6) sandy mud, 7) sand, 8) gravelly sand, 9) muddy sand.
2. Bottom characterization will be determined in the field and will describe in detail the contents of the sediment grab sample. Table 1 extracted from Princeton Hydo (2013) illustrates the type of information that should be recorded for each sample.

D. Oyster Characterization

The number and size (shell length to the nearest mm) of all live oysters encountered should be recorded.

E. Data analysis and Mapping

Maps of the data collected and summary statistics on the oyster data (e.g., size frequency distribution) should be developed. Raw data and summary tables should be provided in Microsoft Excel. Maps of bottom type and oyster density should be provided in ArcMap shapefile format, TIFF images, and PDF files. The maps and associated attribute tables should include the bottom classification scheme described in section C.1. Metadata files should clearly define the data collected and the collection methods and procedures.

III. Deliverables and Timelines

A. Required Pre-Survey Planning Documents

The following pre-survey planning documents are required to be completed prior to initiating any data collection or analysis activities. HRF will issue a “Notice to Proceed” only after the Consultant has submitted and HRF has approved these two documents.

- 1. Survey Plan**

The Scope of Services (Section II) outlines the survey activities to be implemented under the project. The Consultant is responsible for reviewing the Scope of Services and proposing the most appropriate survey design, sampling protocols, and analysis methods.

- 2. Quality Assurance Plan**

The Consultant will develop a Quality Assurance Plan (QAP) that establishes the quality assurance (QA) and quality control (QC) standards and procedures to be applied to the collection and analysis of the data under the survey. The QAP must be approved by HRF prior to undertaking any data collection activities.

Due 4 weeks after signed contract.

B. Deliverables

- 1. Final Report**

At the end of the project, the Consultant will provide a final report and final mapping products, including the data collected any deviation from the planned data collection or analysis.

- 2. Data Deliverables**

At the end of the project, the Consultant will provide HRF with the complete and final data files and metadata files.

- 3. Mapping Deliverables**

At the end of the project, the Consultant will provide final maps of the grab sample data including maps of the bottom type and oyster density.

IV. Qualifications

The Consultant and team members must meet the following qualifications:

1. Demonstrated experience and capacity to successfully implement the full suite of activities outlined in the Scope of Services.
2. Access to a vessel(s) and field equipment that is suitable to implement the required data collection activities.

- References that confirm the Consultant's experience with the activities outlined in the Scope of Services. The consultant should submit two (2) applicable references, including name, title, and contact information for each as well as a brief description of the specific services provided.

VI. Evaluation

Proposals should respond to the requirements of this RFP in a straightforward and concise manner. Proposals will be evaluated based on staff qualifications, experience, technical approach, and cost effectiveness. All proposals will be reviewed and evaluated by a review panel consisting of HRF staff and relevant experts.

Criteria for proposal evaluation include:

- Experience and capacity to implement the Scope of Services
- Cost effectiveness including the total number of samples collected and analyzed.

V. Proposal Submittal

1. Notice of intent to apply (optional, due 5:00 PM Eastern Time, November 1, 2024)

HRF welcomes a brief notice of intent to apply, including the expected project lead and primary team members. Please send the Notice of intent to James Lodge via email to:

jlodge@hudsonriver.org by **5:00 PM Eastern Time, November 1, 2024**.

2. Questions about the RFP (optional)

You may submit questions about the RFP to James Lodge via e-mail to: jlodge@hudsonriver.org.

3. Full Proposal (due 5:00 PM Eastern Time, November 13, 2024)

Proposals must be submitted by **5:00 PM Eastern Time, November 13, 2024** via HRF's proposal portal. <https://proposalcentral.com/ProposalGI.asp?SectionID=13272&ProposalID=-1>

The full proposal will contain the following elements:

- Lead Researcher*– Contact information, institutional affiliation, and a 2-page CV.
We strongly recommend that you create your account and update your personal profile in HRF's application portal as soon as possible. If your institution is not already registered in the portal, it can take up to two days to validate that institution. Anyone on your team who needs access to the proposal (e.g., institution signing official, fiscal officer, grant administrator, co-PI) should do the same.
- Key Personnel*– Include personnel roles (i.e., Co-PI, Contractor, Subcontractor, or Other Team Member) and institutional affiliations. Note that 2-page CVs are required for Co-PIs.
- Proposal Abstract* (limited to 1600 characters – approximately 250 words)
- Research Team* (limited to 3200 characters – approximately 500 words)– A description of the proposed team members. Include a brief explanation of each team member's expected contributions. This should convey how each Team member's individual expertise is suited to achieve the goals and deliverables of the project.

5. *Project Description* (limited to 3 pages, pdf)– The full project description. The proposal should be as succinct as possible and should address all the project components described in Section II, including justification of the proposed survey design, sampling gear, and methodology.
6. *Budget and Justification*– The projected expenditures and budget justification for each project component. Instructions on how to format the budget will be included in the proposal portal.
7. *Professional References*– A list of two (2) applicable references, including name, title, and contact information for each, as well as a brief description of the specific relationship.

References

AKRF. 2016a. Tier 3 Progress report, Oyster research and restoration plan, New NY Bridge Project. AKRF, Inc., New York City. Submitted March 16, 2016. Retrieved from https://www.hudsonriver.org/wp-content/uploads/2023/05/Tier-3-Progress-Report_March2016-Final.pdf

AKRF. 2016b. Tier 3 Progress report, Oyster research and restoration plan, New NY Bridge Project. AKRF, Inc., New York City. Submitted November 30, 2016. Retrieved from https://www.hudsonriver.org/wp-content/uploads/2023/05/Tier-3-Progress-Report_November2016.pdf

AKRF. 2021. 2020 post-construction oyster monitoring final report. AKRF, Inc. New York City. The Governor Mario M. Cuomo/New NY Bridge Project at Tappan Zee Oyster Substrate and Water Quality Monitoring. Retrieved from <https://www.hudsonriver.org/wp-content/uploads/2021/09/TZB-Final-Report.pdf>

Princeton Hydro. 2013. Oyster Density Determination Tappan Zee Bridge Hudson River Crossing Project Westchester and Rockland Counties, New York, New York. Submitted to: AKRF, Inc. Hanover, Maryland.

Princeton Hydro. 2015. Tier 2 Oyster sampling report, Tappan Zee Bridge Hudson River crossing project, Westchester and Rockland Counties, New York. Submitted to: AKRF, Inc. Hanover, Maryland. https://www.hudsonriver.org/wp-content/uploads/2023/05/PH-Oyster_Tier_2_Report.pdf

Figures



A. Hudson River Estuary Program
Monitoring Survey Boundary

B. Champlain Hudson Environmental Trust
Monitoring Survey Boundary

FIGURE 1 SAMPLING AREA FOR A. HUDSON RIVER ESTUARY PROJECT AND B. CHAMPLAIN HUDSON ENVIRONMENTAL TRUST

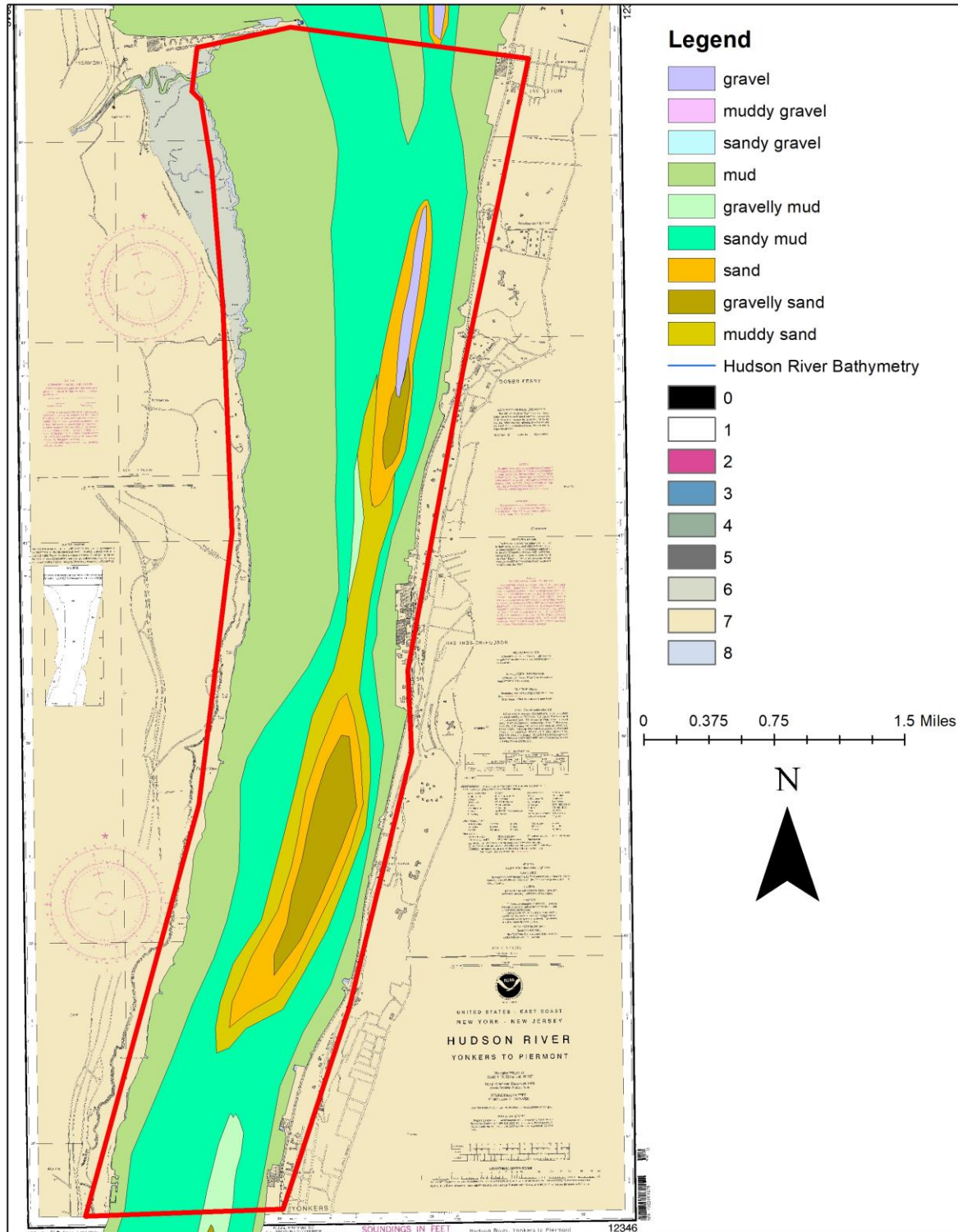


FIGURE 2 BOTTOM TYPE CLASSIFICATION SCHEME FROM THE NYSDEC BENTHIC MAPPING PROJECT

Tables

Table 1. Description of Sediment Type from Princeton Hydro (2013) Report

Station	Sediment Description	Frequency
Fb-13	Loose brown silts primarily. Spent shells up to 20% of the sample with a little shell hash. All the shells look quite aged.	0
Fb-14	Mostly loose, brown silts. A moderate amount of spent shells, up to 10%, and a little shell hash.	1
Fb-15	The sample is primarily spent shells with some brownish fines.	3
Fb-16	Primarily spent shells with a bit of clumpy gray fines. Very little shell hash. The shells are quite degraded, but there is some ribbed mussel colonization.	0
Fb-17	Brown fines overlaying clumpy gray silts and clay. A decent quantity of shell hash and spent shells, but the shells are quite degraded. Found one large live clam.	0
Fb-18	Two distinct strata. Brownish fines with sand and some shell hash. Underneath, clumpy gray fines with some spent shells. Some gravel in the matrix up to 3 cm.	0
Fb-19	A mix of brown and gray silts with about 10% shell hash. Includes minor amounts of sand and gravel up to 5cm. A number of spent shells found colonized by barnacles and a few ribbed mussels.	2
Fb-20	Brown fines and some shell hash overlying a more consolidated layer with about 20% coarser materials including shell hash, spent shells, gravel, and even some small cobble.	0
Fb-21	Mostly shell hash and spent shells with very few fines.	3
Fb-22	Mostly shell hash, from fine to coarse grained, and large spent shells. Some brown fines in the matrix. Ribbed mussels and barnacles colonized the shells.	0
Fb-23	An upper stratum of loose brown fines, underlain by more consolidated gray fines. Some very fine organic detritus. A few spent shells, quite degraded.	0
Fb-24	Loose brown and black fines. Around 20% of the sample is spent shells and another 10% shell hash.	0
Fb-25	Mostly coarse shell hash and spent shells, quite aged. This is embedded within loose, brown silt.	0
Fb-26	Mostly shell hash, from fine to coarse. Some spent shells, but highly degraded.	0
Fb-27	Sample is primarily shell hash and spent shells, underlain by a plastic, dark gray clay.	3
Fb-28	A mix of brown and gray fines, fine shell hash, and spent shells. The shells are colonized by ribbed mussel.	0
Fb-29	Mostly dark gray silt with some fine shell hash. Spent shells comprise 15% of the matrix. Shells look quite aged and well embedded in the sediment.	0
Fb-30	Fairly dense with spent shells. The remainder is loose brown silt with very little shell hash.	5