# Public Input on General Electric's August 25, 2023 Reach 5A Baseline Restoration Assessment Report

December 2023

**CITY OF PITTSFIELD**

DEPARTMENT OF COMMUNITY DEVELOPMENT
CITY HALL, 70 ALLEN STREET, RM 205, PITTSFIELD, MA 01201

November 20, 2023

Christopher Smith
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5 Post Office Square | Boston, MA 02109
Submitted via email to smith.christopher@epa.gov

Re: *Rest of River Reach 5A Baseline Restoration Assessment Report Comments*

Dear Mr. Smith:

The City of Pittsfield is pleased to submit the following comments on the *Housatonic River – Rest of River Reach 5A Baseline Restoration Assessment Report (10/2023).* We appreciate the opportunity to work with SKEO to review the very technical document and provide comments on this report.

1. The Reach 5A Baseline Assessment Report (BRA) report provides a detailed baseline ecological inventory and assessment of pre-remediation conditions and functions of the affected habitats within Reach 5A. This information will serve as the foundation for meeting the restoration performance standards. The data presented in this document captures conditions of a watershed contaminated by polychlorinated biphenyls (PCBs). Restored conditions will ultimately reflect an impacted natural setting. Available and forthcoming PCB data could help identify portions of habitat areas that have low contamination, which would be more appropriate to use as a baseline for the performance standard that the after-remediation data will be compared to.

   *Pittsfield comment to EPA: Will the data presented in the BRA be sorted to characterize the habitat conditions associated with low PCB concentrations thereby setting the restoration goals more appropriately to natural (unaffected by contamination) setting conditions?*

2. The Reach 5A BRA Report provides a summary of the foundational physical, chemical and biological data that will help define whether restoration of disturbed areas in the ROR achieves performance standards. The performance standards, as described in the Revised Final Permit, Section II.B.1.c.(1), on pdf page 21, are to:

   (a) Implement a comprehensive program of restoration **measures** that address the impacts of the Corrective Measures on all affected ecological resources, species and habitats, including but not limited to, riverbanks, riverbed, floodplain, wetland habitat, and the occurrence of threatened, endangered or state listed species and their habitats; and

   (b) Return such areas to pre-remediation conditions (e.g., the functions, values, characteristics, vegetation, habitat, species use and other attributes), to the extent feasible and consistent with the remediation requirements.

   While the document does provide a robust amount of historic and recent baseline data, it does not identify or describe suitable "measures" to define whether performance standard #2 has been met. It seems appropriate that all the data for a given habitat type could be compiled to identify biological endpoints (parameters that can be quantified by measurements such as species richness, diversity and density) indicative of an ecosystem's function and health. For instance, vernal pool function is to support the presence of obligate and facultative wildlife species such as amphibians, fairy shrimp and other species. Therefore, a suitable vernal pool "measure" to determine the success of achieving performance standard #2 would be "the presence of vernal pool indicator species such as fairy shrimp, woods turtle and other species (identified based on vernal pool specific baseline species that occur) …".

   *Pittsfield comment to EPA: The Reach 5A BRA Report should be revised to identify suitable, quantifiable measures/biological endpoints to be used to determine the success of achieving the performance standard of "returning areas disturbed by remediation activities to pre-remediation conditions."*

3. The Revised Final Permit identifies three General Performance Standards, and the appropriate Corrective Measures necessary to meet the Performance Standards (pdf pages 17 – 21). They include Biota (pdf pages 19 and 20) which include a Short-Term Biota Performance Standard: average total PCB concentration of 1.5 milligrams per kilogram (mg/kg) wet weight, skin off, in fish fillet in each entire reach of the river and Backwaters to be achieved within 15 years of completion of construction-related activities for that reach and a "Long-Term Biota Monitoring Performance Standard which is an average total PCB concentration of 0.064 mg/kg, wet weight, skin off, in fish fillet in each entire reach of the river, 0.00018 mg/kg in Backwaters, and 0.075 mg/kg in duck breast tissue."

TASC previously commented on the BRA Work Plan about the lack of information describing fish fillet and duck breast tissue collection as part of the BRA field activities. Since tissue PCB concentrations are two important performance standards, the collection of baseline tissue concentrations is an important measure to gather for each segment (and pond) within the ROR area. There are possible fishing supported backwater areas within Reach 5A that could serve as suitable monitoring locations. Since the opportunity for tissue collection during baseline studies has passed, it may be appropriate to capture samples during remedy construction when fish may be entrained/caught in best management practice structures set in place to contain sediment and soils moving down river during remedy construction. GE may want to incorporate incidental fish tissue sample collection as part of their construction activities for Reach 5A. Furthermore, as per information provided within the document (Section 3.3.3 Biological communities, pdf page 40-41, last paragraph) there are a diversity of fish species within the river. It would be appropriate for EPA to identify the suitable species that represents applicable fillet tissue for human health consideration (for instance, it may be preferred to acquire fillets from species routinely fished for recreationally such as largemouth bass, northern pike or brown bullhead catfish).

*Pittsfield comment to EPA: Will fish fillet and duck breast tissue samples be collected as part of baseline investigation efforts to define PCB concentrations? If so, it would be appropriate for GE to incorporate incidental fish tissue (from target species defined by EPA) sample collection during remedy construction on Reach 5A.*

4. The Reach 5A BRA Report presents an abundance of baseline data that captures a spectrum of seasonal conditions; however, it is recommended that monitoring continue up until the point when construction begins. Climate changes and significant seasonal variations affecting stream flow are ongoing and need to be monitored. In addition, this ongoing monitoring would enhance data sets for backwaters habitats which are currently limited, and also assist in observing achievement of performance standards.

   *Pittsfield comment to EPA: Will monitoring be continued throughout the ROR area in order to capture ongoing climate and seasonal affected conditions to river flows, and observe achievement of performance standards over time?*

5. Reach 5A performance standard achievement will take time to monitor and determine success. Habitats such as the riverine habitat lend themselves to creation of quantified measurement tracking by river mile. For instance, Section 3.2.2 describes the Rapid Bioassessment Protocol (RBP) physical habitat survey that was completed for 18 riverine stations in Reach 5A (pdf page 30). The measured changes in physical, chemical and biological features (as summarized in the RBP data collection efforts) could be tracked over the years to determine how successful achievement of performance standards is accomplished by river mile. GE may want to construct a river mile based tracking system that manages all quantified

measures for the riverine habitat to present results on an annual basis and be able to determine precisely the areas that may need restoration amendment.

*Pittsfield comment to EPA: Does GE plan on tracking physical, chemical and biological measurement changes by definable location (such as river mile) to enable observation of restoration success or amendment need over time?*

6. Similar to Comment #5 above, the Reach 5A BRA provides comprehensive data describing plant communities in the habitats (see Table 6-14 on pdf page 206-208). Reach 5A performance standard achievement could be demonstrated with the use of static/continuous plant community test plots that are delineated in areas undisturbed vs. disturbed. The measurements of plant community recovery over time in these fixed environments may provide compelling measures of restoration success.

   *Pittsfield comment to EPA: Does GE plan on tracking restoration success in plant communities within each habitat type with the use of monitoring plots within both undisturbed and disturbed settings?*

7. The Reach 5A BRA Report identifies a few biological measures (such as plant community diversity and species richness) that would be useful to demonstrate restoration success. In addition to plants, benthic macroinvertebrates (as identified in Section 3.2.3 pdf page 32 through 34) may be useful communities to measure restoration, and there are species of interest or sensitive species of value that may be useful indicators of restoration success. TASC identified a few possibilities, such as:

   - Triangle floater mussels – As stated on pdf page 27, "the 2011 Massachusetts Natural Heritage and Endangered Species Program (MNHESP) report noted that one of the state's best populations of this species was documented in the Housatonic river. This species was a state-listed species but has since been de-listed."
   - Wood frog (*Lithobates sylvaticus*)
   - The four local species of salamander (*Ambystoma* spp.)
   - Any state-listed species with substantial species habitat overlapping Reach 5A such as the Wood Turtle (*Glyptemys insculpta*) as identified in Table 8-1 (pdf page 237)
   - Nesting birds such as Bank Swallows and the Belted Kingfisher
   - Silver maple – this tree species was identified as the dominant riparian vegetation type. Its recovery as the dominant species in the future would be a measure of restoration success.

   *Pittsfield comment to EPA: Will GE include measures of the presence/absence of species of interest as part of their measures to determine restoration success?*

8. Section 3.1.6, pdf page 26, describes example area evaluations completed in 2010. Four of six example areas occur in Reach 5A and provide considerable information

on historic ecological conditions and functions. It may be useful to use these example areas for current and future monitoring since such a strong historical foundation of data exists. If possible, permanent sampling/field measurement locations or plots could be established for routine monitoring data gathering to measure and observe restoration over time (refer to Comments #5 and 6 above).

*Pittsfield comment to EPA: There would appear to be value in using the Reach 5A example areas as static areas for current and future monitoring.*

9. The Reach 5A BRA Report provides an inventory of degraded habitats and certain habitat restoration resources present by riverbank bank station (Table 4-16 pdf page 169). It is not clear how the restoration resources will be stored and used for eventual remedy restoration. In addition, it seems appropriate to determine if any of the degraded habitats could serve as potential mitigation areas (if needed in order to comply with requirements set forth in the Massachusetts Endangered Species Act as described in the Revised Final Permit; refer to Comment #10 below) for those habitats that will demonstrate a cumulative loss of function. The Report does not clearly define if any of the identified degraded habitats are suitable for restoration or mitigation.

   *Pittsfield comment to EPA: Can the document could be revised to further describe how restoration resources are to be used and to include a determination of degraded habitat areas that could be used for future mitigation of habitats unable to meet restoration performance standards?*

10. As stated within the Revised Final Permit, GE is obligated to comply with Applicable or Relevant and Appropriate Requirements (ARARs) including, but not limited to, any activities to satisfy the separate net benefit mitigation standard in the Massachusetts Endangered Species Act (MESA) described in Section II.E of the permit (pdf page 104), which states that the Commonwealth will work with GE and EPA to minimize impacts and to ensure that an adequate long-term net-benefit mitigation plan for the affected state-listed species is designed and implemented, as required by 321 CMR 10.23(2)(c) of the MESA. Now that an understanding of the baseline conditions is known and presented within this document, it seems prudent for GE and Massachusetts Division of Fisheries and Wildlife (MassDFW) to proactively coordinate to identify suitable mitigation strategies for habitats of concern since substantial portions of Reach 5A encompass NHESP Priority Habitats (shown in Figure 8-1, pdf page 270) including important Core areas (shown in Figure 8-2 pdf page 271). There may be suitable areas that can serve as mitigation settings within the delineated disturbed areas identified within this report that will compensate for habitat loss. Given that the next step in the Reach 5A process is to document the remedial design, it may be prudent to identify possible hydrologic linkages to be created or enhanced to create a suitable mitigation area during Reach 5A remedy installation.

    *Pittsfield comment to EPA: Wondering if coordination with MassDFW could occur proactively to determine if any delineated disturbed areas may be useful for mitigation*

*of impacts to important habitats? This coordination may be timely and important to the next Reach 5A step to document remedy design which may need to incorporate any hydrologic linkage needed to create the mitigation area.*

11. Comment #3 above restates the Short-Term Biota Performance Standard of 1.5 milligrams per kilogram (mg/kg) wet weight, skin off, in fish fillet in each entire reach of the river and Backwaters to be achieved within 15 years of completion of construction-related activities for that reach, which is in conflict with the scheduling for the documentation of the "Performance Standards Compliance Plan" defined as a site-wide deliverable to be provided no later than one year prior to the anticipated date for completion of all remediation activities in Reach 5 (as described within Section 5.3 of the Final Revised Statement of Work, pdf page 76). Given the considerable amount of time required to complete "all remediation activities in Reach 5," it is unclear if achievement of the short-term biota performance standard will be adequately documented within the Performance Standards Compliance Plan.

    *Pittsfield comment to EPA: The Performance Standards Compliance Plan needs to be documented earlier than scheduled in order to capture Reach 5A short-term biota performance standard compliance timing. Or will this information be contained in a different deliverable?*

12. The U.S. Supreme Court issued a decision in the case of Sackett v. Environmental Protection Agency on May 25, 2023. In turn, the agencies are interpreting the phrase "waters of the United States" (WOTUS) consistent with the Supreme Court's decision in Sackett. The agencies are developing a rule to amend the final "Revised Definition of 'Waters of the United States'" rule, published in the Federal Register on January 18, 2023, consistent with the U.S. Supreme Court's May 25, 2023, decision. While the Army Corps awaits the Revised Definition of the "Waters of the United States" rule, the Corps is not completing any approved jurisdiction determinations. The status of certain wetlands may be in flux during the time period when the ROR remedy and restoration efforts are being completed. It seems appropriate to retain the current delineated wetland footprint areas as the assumed future restoration wetland area as a conservative assumption.

    *Pittsfield comment to EPA: Wondering EPA's thoughts on whether the recent WOTUS status change will affect currently defined wetlands within the ROR.*

13. Section 7 of the BRA describes the Reach 5A inventory methods and results for vernal pools. It is unclear within the document if the presence or absence of vernal pool important species is a measure to be carried forward to determine restoration success. Section 7.4 appropriately acknowledges the functional value of vernal pools "to provide suitable breeding habitat for obligate vernal pool species, the most common being wood frogs, fairy shrimp, and spotted salamander, and/or they provide breeding habitat for at least two facultative vernal pool species" (pdf page 113). However, this Section does not summarize the results of field measurements defining the presence or absence of species that help define if a pool meets

Massachusetts certification standards. Table 7-1, pdf page 219, provides biological data gathered from historical, 2018 and 2019 field investigations. Furthermore, the Vernal Pool Characterization blank field form provided in Appendix F (pdf pages 920 through 922) does not contain any inventory methods for these species. It is important to recognize that the vernal pool certification program was established to register the locations of all vernal pools, regardless of jurisdiction, that meet the biological and physical features of "Vernal Pool Habitat" in the Massachusetts Wetland Protection Act (WPA); i.e., those that provide essential breeding habitat for certain amphibians that require vernal pools (310 CMR 10.04, 10.57(1)(a)(3), 10.57(1)(b)(4), and 10.58(1)). The Reach 5A BRA relies on an ecological measure to rank each vernal pool to determine the relative value of pools in a community. Exemplary pools have "two or more indicator species and/or greater than 25 egg masses" indicating that wildlife occurrence is a distinct element necessary to render a vernal pool as being valuable.

*Pittsfield comment to EPA: Will important species reliant on vernal pools be used consistently as a measure of vernal pool restoration success?*

14. Vernal pools do not support fish because they dry out annually or at least periodically. Some may contain water year-round, but are free of fish as a result of significant drawdowns that result in extremely low dissolved oxygen levels. The wood frog (*Lithobates sylvaticus*) and the local species of salamander (*Ambystoma* spp.) have evolved breeding strategies intolerant of fish predation on their eggs and larvae; the lack of established reproducing fish populations is essential to the breeding success of these species. Monitoring for the presence/absence of fish in vernal pools seems important to achieve appropriate vernal pool restoration success.

    *Pittsfield comment to EPA: Will vernal pool observation for the presence/absence of fish be a component to future restoration monitoring to ensure the remediation does not impact the status of the vernal pools as vernal pools?*

15. As described in the BRA, the determination of presence/absence of federal threatened or endangered species relies upon standard resources provided by the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) program. This information is very useful in conducting a preliminary assessment identifying species of interest within a defined area. The BRA states that the IPaC online mapping tools was consulted in August 2023 (pdf page 115). Use of this information raises several questions:

    - The information provided through the IPaC resource is routinely updated based on species status. The presence/absence of a species will change over time. Given that the entire ROR remedy efforts will take a considerable amount of time, it is important to query the iPaC system on a routine basis to be sure information is current.

- IPaC is a project planning tool that streamlines the USFWS environmental review process. The information provided through the IPaC resource is preliminary and represents the first step towards consultation with the U.S. Fish and Wildlife if necessary. It is not clear if the USFWS has been contacted to provide their opinion or review of the threatened or endangered species determination presented in this document.

*Pittsfield comment to EPA: Will federally protected species queries using the USFWS IPaC system be routinely checked through the ROR remedy process, and will the results and interpretation presented by GE within the BRA be reviewed by the USFWS?*

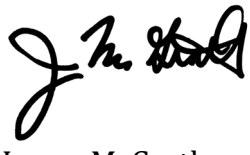
16. TASC identified an online historic ecological inventory of Housatonic River fisheries completed in 1993 (Chadwick & Associates, Inc. 1993 Housatonic River Fisheries), which is not discussed in the BRA. This document provides an historic evaluation of fisheries conditions throughout the river and may be of use to supplement the Reach 5A BRA and other ROR RU specific BRAs.

    *Pittsfield comment to EPA: Is this resource of use to add to the Reach 5A BRA report (and other forthcoming BRA reports)?*

17. Backwater Habitats are unique settings that can be geographically affected by flows. Section 5.2.2 describes the six backwater swales in Reach 5A. As acknowledged on pdf page 66, the BW 5A-1 backwater habitat was likely formed from a remnant meander scar of the Housatonic River. It is unclear if all backwater habitats have been identified and if appropriate baseline characterization has been conducted for the backwaters. Given the Reach 5A channel-disturbing remedy efforts (complete sediment removal) forthcoming, there is the potential for the remediated river channel to create meander scars and new backwater habitats. This emphasizes the importance to understand true baseline ecological conditions in backwaters to provide the data necessary to compare to post-remediation characterization.

*Pittsfield comment to EPA: Has sufficient backwater habitat baseline information been collected to be used in case new backwater areas are created because of Reach 5A remedy efforts?*

Sincerely,



James McGrath
Park, Open Space, and Natural Resource Program Manager

November 27, 2023

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Via Email: R1Housatonic@epa.gov and smith.christopher@epa.gov

Re: **GE-Pittsfield/Housatonic River Site Rest of River (GECD850)**
**Reach 5A Baseline Restoration Assessment Report/**
**Restoration Performance Objectives and Evaluation Criteria Report**

Dear Mr. Smith:

On behalf of Mass Audubon, I submit the following comments on the Reach 5A Baseline Restoration Assessment Report and the Restoration Performance Objectives and Evaluation Criteria Report. As noted in our previous comments on this project, Mass Audubon is both a directly affected landowner - at our Canoe Meadows Wildlife Sanctuary in Reach 5A of the Rest of River area - and as a statewide conservation organization, we have a broader interest in the conservation and restoration of the Housatonic River Valley ecosystem for the benefit of both people and wildlife.

Mass Audubon's Senior Conservation Ecologist for our Central/West Region, Tom Lautzenheiser, reviewed the documents and provided the following comments.

Summary Comments

The baseline assessment is extensive, documenting the complex habitat features supporting a diversity of plant and animal life. We recommend that the monitoring and corrective action plans include anticipated climate change impacts. Monitoring should be more frequent, especially in the first three years, and should include biological parameters. More intensive invasive species controls and lower thresholds for invasive species management are warranted, since even small percentages of invasives in a highly disturbed area can result in habitats dominated by invasives over time.

Baseline Restoration Assessment

The Reach 5A Baseline Restoration Assessment (BRA) Report compiles the results of an extensive field data collection effort by many people over approximately two decades, creating a detailed portrait of the physical and

biological (and chemical, as applicable) characteristics of the Housatonic's riverine, riverbank, backwater, upland and wetland floodplain, and vernal pool habitat types, and the rare species that use them[1]. Lingering over the entire report is the question, "if this is how this place is with PCBs, what would it be without them?" Unfortunately, we cannot know, but if the remediation and restoration program can re-establish the functions and processes described within the report's various habitat types while reducing the risk of PCB-related ecological and human health harms, the stage will be set for broad ecosystem recovery.

*Climate Change*

As presented in the BRA, the Housatonic River, with its various habitat types, is a complex, dynamic ecosystem, and the report commendably captures much of the variability of physical and biological characteristics in the study area. Yet the report seems incomplete without a presentation of the potential effects of climate change on the various habitat types, even on a coarse/provisional basis. (Indeed, the term "climate change" only occurs once in the entire report, in relation to monarch butterflies.)

The baseline documented in the BRA is shifting inexorably with changes in temperature averages and extremes, as well as altered precipitation patterns relative to much of the 20th century climate. If the restoration program is designed around the conditions documented in the BRA, it will miss its opportunity to adapt to the conditions that restored plant communities and engineered structures (in natural channel design, for example) are projected to face in the coming decades. Tools like the U.S. Forest Service's Climate Change Tree Atlas (https://www.fs.usda.gov/ccrc/tool/climate-change-tree-atlas) should be considered when determining planting plans, for example. Hydrological modeling driving bank and channel design decisions should reflect ongoing and anticipated changes in storm frequency and severity. The Northeast hosts a robust community of climate adaptation researchers and practitioners in academia, NGOs, and state and federal agencies; EPA and GE should consider whether this community could have an advisory role in restoration design development.

As noted in previous comments, the restoration plans and corrective action measures need to take into consideration the changes in precipitation patterns that are occurring due to climate change, notably increasing intensities of precipitation events as well as increasing drought frequency.

*Baseline Quantification*

The BRA presents hundreds of pages of field data forms, photographs, and other documentation of ecological conditions from the study area over decades. Richly descriptive narrative summaries of the characteristics of and functional assessment for each habitat type are also provided. What seems to be missing, however, is a more distilled quantitative analysis of these data, which could be used to develop restoration targets. In addition to species richness in each plant community, for example, other diversity indices (such as evenness) could be calculated; hydroperiod and other metrics from vernal pools could be summarized with basic statistics. Tabular summaries, including mean, range, standard deviation, etc., as appropriate, of collected field data would help quantify baseline conditions and facilitate restoration design.

[1] Mass Audubon appreciates the selection of the report's cover photograph, an aerial view down the river valley from the vicinity of West Pond at Canoe Meadows—a more quintessential image of Reach 5A, with the river flanked by wetlands, fields, and forests, would be hard to find.

Restoration Criteria Report

*Restoration Objective Types*

The major restoration objectives identified for riverine, riverbank, backwater, impoundment, floodplain wetland, upland floodplain, and vernal pool habitat types are based primarily on physical/structural parameters, such as re-establishing pre-remediation hydrology, limiting erosion/scour, creating various habitat features, and attaining 80 percent cover of native target plant species in a variety of habitat types. Such physical parameters are important for evaluating success but are not sufficient.

The remediation monitoring program should include biological parameters such as macroinvertebrate community characterization within riverine and other aquatic habitat types, and plant community composition metrics (e.g., diversity and evenness indices, similarity to reference sites, etc.) within planted restoration areas. Evidence of breeding populations of obligate amphibian species should be collected as part of any vernal pool monitoring as well. Many of these measures are proposed to be evaluated in year seven following the completion of restoration activities, but tracking these parameters annually will facilitate a more quantitative and nuanced evaluation of the changes on restored areas over time.

Ultimately, all interested parties desire a biologically diverse Housatonic River system with ecologically insignificant residual PCBs. To this end the Revised Final Permit includes short- and long-term biota monitoring performance standards for fish fillets and/or duck breast tissue, which will provide a general index of PCB levels in the environment. Potentially other organisms could/should also be included in tissue sampling; PCB levels in long-range migratory waterfowl such as ducks probably do not reflect local exposure. Frogs or turtles (such as snapping turtle) that spend most of their lives in contact with area sediments could be alternative sampling targets. In any case, the restoration criteria described in this report do not include PCB sampling from soils or biota, which should be metrics of primary interest and included in any evaluation of restoration performance, consistent with the established cleanup target concentrations.

*Monitoring Frequency and Duration*

Section 5.1 of this report specifies that two monitoring visits will be conducted per year for the first three years following completion of restoration activities, and once per year in the fourth, fifth, and seventh years. Drawing from Mass Audubon's own experience with complex ecological restoration projects, this monitoring schedule is inadequate for identifying and responding effectively to potential problems with establishing native plant species and communities. It is encouraging that Section 6 (Preliminary Maintenance/Corrective Action Program) identifies many plant establishment challenges and proposes appropriate BMPs to address them. But various challenges, including deer and beaver herbivory, vole damage, drought stress, sediment erosion and/or deposition, and invasive plant competition, can emerge over various time scales, for some a season or more, and others even in less than a day. The monitoring plan for at least the first two years should include quarterly visits at a minimum and provide flexibility for increasing visit frequency or extending the monitoring period beyond seven years.

*Invasive Plant Management*

Invasive plant species represent an important challenge to the success of efforts to restore the functions and characteristics of ecological communities affected by remediation activities. As described, there seems to be some ambiguity about the extent to which invasive plant populations will be managed in the post-remediation period. For instance, two criteria for riverbank and floodplain restoration are:

- Mean percent cover of native target species is equal to or greater than 80 percent in each design plant community type; and
- Mean percent cover of invasive or likely invasive plant species…is equal to or less than 10 percent in each design plant community type *or equal to or less than a percent cover documented at reference sites*… [emphasis added].

Footnotes explain that certain sections of riverbank and floodplain are dominated by invasive plant species prior to remediation, and that remediation activities may not be sufficient to limit the establishment of these species post-remediation. In these invasive plant dominated areas, does the 80 percent cover goal for native target species, and the related 80 percent survivorship goals, still apply? Or, if a reference community had, for example, 80 percent cover of invasive plant species, would that override the goals for native target plant species establishment?

The latter interpretation is not acceptable. While GE is not especially responsible for the current distribution of invasive plant populations throughout the Rest of River site, the remediation offers perhaps the best opportunity to improve the ecological condition of affected areas through a concerted invasive plant management program. Moreover, the continued presence of major invasive plant occurrences within or adjacent to remediated areas will inevitably lead to the degradation and eventual failure of restoration efforts. Managing invasive plant populations throughout and in the vicinity of the area affected by remediation activities is necessary for restoration success.

A Massachusetts example of riparian invasive plant management success on the East Branch of the Westfield River offers some hope for the future of the Housatonic River. In a multi-year effort led by the Department of Conservation and Recreation (DCR) and its partners in the Westfield River Watershed Invasive Species Partnership (WISP), dense and widespread invasive plant populations along approximately 4 miles of riverbank and adjacent floodplain in the Gilbert A. Bliss State Forest were reduced to minor occurrences. Target species included Japanese knotweed, round leaf bittersweet, and glossy buckthorn, a similar assortment as occurs along the Housatonic River. Working around rare plant and animal populations, contractors used physical and chemical techniques to remove invasive plants without substantial non-target effects; managing lingering and newly establishing invasive plant occurrences on the site is now a matter of annual maintenance. GE's implementation of a similar effort along the Housatonic would greatly improve the restoration program's chances of success.

*Beavers*

Beaver is a keystone species along the Housatonic River, and beavers are highly likely to recolonize areas affected by remediation. Restoration plans should anticipate and accommodate beaver activities, including potentially facilitating their presence to help reestablish the complex natural community/habitat type occurrences documented in the baseline assessment. Beaver presence and activity should be tolerated unless roads, buildings, or other essential infrastructure become affected, and flooding issues should be addressed through beaver-friendly flow control structures wherever possible. (Protecting planted trees from beaver herbivory is likely to be needed in areas targeted for forest restoration. Yet dense plantings of seedlings or live stakes could be used in these areas and beyond to provide a rapid recovery of preferred beaver food species, enabling beaver presence while also allowing large trees to regrow.) The restoration plans should include flexibility to adjust the locations of specific habitat types if beaver activities alter hydrology.

*Monitoring to Assess Ecological Function*

As noted above, the report proposes a year seven visit to assess the ecological function of restored areas. This is a complicated assessment, because, for example, rebuilding a floodplain forest takes much longer than 7 years—though monitoring can indicate whether the restoration is "on track" or not. Ideally, by that time the assessment of ecological function would only be a formality to document patterns and trajectories already observed/anticipated during each previous monitoring visit, rather than uncovering failures to achieve restoration objectives.

As ecological restoration is still something of an art as well as a science, different observers may disagree about whether a certain condition qualifies as success. A restoration project of this magnitude, sophistication, and public interest should include an independent, third-party assessment throughout the restoration process. The local academic community could be a good resource for this, engaging students and faculty in restoration evaluation. Staff from the Massachusetts Division of Fisheries and Wildlife/Natural Heritage and Endangered Species Program should also be included in providing qualitative and quantitative project oversight and evaluation.

*Next Steps*

We understand that restoration design is an iterative process, with this report describing high-level project performance objectives and future reports addressing specific design features within each remediation unit. Mass Audubon is keenly interested in understanding remediation and restoration details as they affect Canoe Meadows and other areas within the Rest of River site. We hope that there will be opportunities for review and comment as these further documents and plans are prepared.

Thank you for the opportunity to review these reports, and for your consideration of these comments.

Regards,

Stephen Hutchinson
Senior Regional Director
Mass Audubon
shutchinson@massaudubon.org

Citizens for PCB Removal Comments

**GE-Pittsfield/Housatonic River Site Rest of River (GECD850)**

**Reach 5A Baseline Restoration Assessment Report**

**November 25, 2023**

The basis of this report is to describe the general conditions of the Housatonic River and what might be expected following any remediation activities during Rest of River remedial actions in Reach 5A.

The main concern of CPR for all of these actions is not to return the Housatonic to what would be considered current conditions following those remedial actions, but to go further than what GE may believe they have an obligation to provide.

CPR DEMANDS that following so many years of living with a contaminated river that the Housatonic River be restored to a vibrant, clean, fishable, swimmable and healthy river system. This is our one chance to make things right for the citizens and communities who should be able to enjoy the river without fearful concerns.

None of this contamination of PCBs was caused by any other entity than GE and they are solely responsible to right their wrongs.

Nothing else is acceptable.

Additionally, it is imperative that we learn and know of actual designated staging areas that will be used during the remedial actions. They are referred to in this document but without actual site declarations on any of the maps or figures.

Charles Cianfarini
Interim Executive Director
Citizens for PCB Removal