Regional Fish Habitat Assessment User Needs Report

What is the utility of a regional Chesapeake Bay watershed fish habitat assessment?

What do you need to improve the watershed?

Habitat scientists from around the Chesapeake Bay watershed are looking to **better understand your information needs** for project and land-use planning. The goal of this effort is to compile data and resources that habitat and land-use project designers, planners, and implementers can easily access and utilize to improve and increase the effectiveness of their work.

How can we help you?

With your input, compiled resources and data would be made available in a regional habitat assessment that would include the Chesapeake Bay Watershed (District of Columbia, Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia). The habitat assessment would focus on factors that impact the quality and quantity of fish habitat in your specified region, the species that utilize that habitat, and identify the factors/stressors influencing fish habitat.

How can you share your needs?

To help ensure this assessment is relevant and beneficial to you, **please complete this online survey by March 16, 2018**. In **less than 10 minutes** you can answer 20 questions related to your experience and project or planning needs. Keep in mind that many land-use plans and habitat projects that you may work on have an impact on fish habitat even if that is not the primary focus. We request that you please participate even if fish habitat is not a primary project goal of your work.

Where will your response go?

A summary of the responses will be provided at a workshop on fish habitat stressors and assessment needs in April 2018. Your collective responses will be used to guide decisions and discussions for a future regional habitat assessment and the potential development of other resources.

Thank you for your valuable input!

If you have any concerns or questions about this survey, please contact Gina Hunt at (410) 948-9836.

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I. Introduction

A workshop will be held on April 25-26 2018 to focus on identifying and ranking factors and stressors influencing fish habitat function throughout the Chesapeake Bay Watershed. This workshop will build on the initial listing from the Chesapeake Bay Program Fish Habitat Team's Management Strategy and the approach in the National Fish Habitat Assessment. The workshop will focus on building a framework for a regional Chesapeake Bay watershed fish habitat assessment.

It was recognized early in the workshop planning process that the utility of a regional assessment was unknown. Who would use the assessment and what did they need it to include? A guiding principal for the assessment framework is that it should support planning and management decisions. Therefore, a user-needs questionnaire was developed to determine what land use and restoration planners, and habitat and fish managers need in a fish habitat assessment. The results are compiled in this report to serve as guidance at the fish habitat workshop. With the end in mind, workshop participants will be better informed to build a framework for a regional fish habitat assessment.

II. Summary of Key Findings

Responses were received from one-hundred-forty-eight (148) individuals throughout the Chesapeake Bay watershed. The questionnaire was designed to inform the development of a regional Chesapeake Bay fish habitat assessment. The majority of respondents (70%) stated they would use a regional assessment. However, they also acknowledged that it needs to complement the tools or prioritization methods they are already using.

All spatial tools listed in the questionnaire were recognized by some respondents. The tools in which respondents had the most familiarity are listed below. However, it is unclear if the top tools are the most frequently used because of utility or marketing.

- Chesapeake Bay United States Geological Survey Data
- Water Quality Standards Attainment (Clean Water Act 303d lists)
- United States Geological Survey Tool
- The Nature Conservancy Tools
- Eastern Brook Trout Joint Venture

Respondents indicated the most important information to be included in the assessment is:

- Water quality degradation – nutrient, sediment, and emerging contaminants
- Development/urban land use
- Impervious surface – patterns of growth and impervious surface percentage
- Wetland distribution and type
- Agricultural land use
- Invasive species distribution and abundance (e.g., zebra mussels, rock snot, hydrilla)

The majority of respondents requested the smallest scale for the assessment, *less than 1:24,000*, but some mentioned that the scale should be based on the available data in the area. There were no suggestions for utility or requirements specific to fishery management. However, there was some preference toward information, including economic impact, of recreational fish species.

III. Methodology

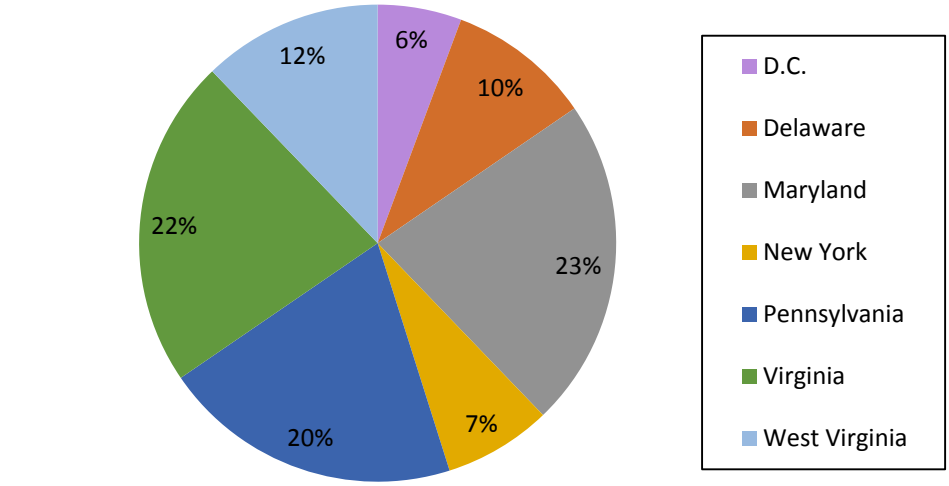
The questionnaire, developed by the workshop steering committee, consisted of 19 questions. While the invitation was clear that the questionnaire was inquiring about the utility of a fish habitat assessment, many questions purposefully omitted the specificity of "fish habitat" in the question. Because the audience was not

necessarily familiar with this term, the questions were more vague and referred to a "habitat" assessment. The questionnaire was available online through Survey Monkey from February 22, 2018 through March 16, 2018. It was distributed directly to **767** people by email and it was sent in newsletters from several state planning associations and the Chesapeake Stormwater Network. The open rate to the direct emails was forty percent.

II. Detailed Findings

Respondents: A total of 148 individuals responded to the questionnaire. The majority of responses (65%) were received from people that received the questionnaire with direct contact through survey monkey. The total responses on each question may not be 148 because individuals were not required to answer all questions. There was response from each jurisdiction in the Chesapeake Bay watershed as illustrated in Chart 1.

Chart 1.



More respondents (41%) work in local government than any other sector. This could have an influence on the overall response to certain questions. For example, this may explain the significant number of respondents (74 of 148) who work with Watershed Implementation Plans (WIP). These plans are detailed strategies for how to meet pollutant reduction goals. They are generally implemented on the local level. Though Maryland, Virginia, and Delaware comprise a majority of the responses and have both tidal and non-tidal waters, a majority of respondents (64%) work in freshwater (cold or warm water streams) systems. This response could be a reflection of the high number of local government respondents.

Chart 2.

Most respondents work in restoration, but there was broad experience in other areas. The activities of the respondent's organization or agency are reported in Chart 2. In addition, 64% of respondents are actively involved in planning or implementing habitat conservation or restoration projects. One of the expected uses of the potential assessment is planning for land conservation and restoration projects. The experience and organizational activity represented indicates we received responses from the appropriate potential user group. It is not possible to tell if research and monitoring responses are from fishery managers. Therefore, this is one intended audience from which we may be lacking input.

Tools/Data Sets:
The questionnaire asked the respondent's familiarity with twenty-seven spatial tools. With such a long list, it was surprising that all tools received some response. However, twenty-six respondents indicated they were not familiar with any of the spatial tools listed. AdaptVA, Virginia Blue Infrastructure, and National Fish Habitat Partnership Data System all received the least with three responses each. The top quartile of tools selected is provided in Table 1.

Table. 1. Top Quartile of Tools

The Nature Conservancy Habitat Prioritization Tool	21
Climate Change predictors	23
Eastern Brook Trout Joint Venture	31
The Nature Conservancy Tools	33
United States Geological Survey Tool	37
Water Quality Standards Attainment (Clean Water Act 303d lists)	40
Chesapeake Bay United States Geological Survey Data	45

While respondents stated they were familiar with many spatial tools, very few mentioned a tool when asked how they identify or select sites for restoration or conservation work. A complete list of responses is provided in the Appendix I. In addition to the tools or prioritization responses, there were some common themes. Many responses fell into a theme of client/landowner interest, funding, or citizen complaints, and often a combination of these reasons are used in selecting sites.

Utility of an Assessment:
Seventy percent of respondents indicated that they would use a regional habitat assessment to prioritize potential sites for restoration/conservation. Some additional responses, provided below, indicated potential utility, but it would need to complement their current process or tools.

- Maybe - I would need to see how it interfaces with current program
- Maybe but would need more information first on how it would like with our ongoing tools
- Only if it also evaluates human habitat needs and waterfront recreational access
- Potentially - depending on the nature of the developed product I could see it being a component feeding into our process
- Not sure; there are so many different mapping tools already available!
- This could be used in conjunction with other tools or prioritization methods. If all other things were equal, habitat needs could rank one site above another.
- We already have a couple regional habitat assessments available. The recently developed Watershed Resources Registry (statewide) and the Nature Conservancy's tool (for much of the state).
- Yes, however we use Trout Unlimited's Eastern Brook Trout Conservation Portfolio combined with funding priorities and mapping/business plans developed by the National Fish and Wildlife Foundation and partners.

Data in:
The questionnaire asked preference for the types of data that should be included in the assessment to be useful. Eighteen types of data were provided. Respondent's choices were unlimited and they were able to suggest other data not listed. The responses are ranked in Table 2 from highest (most popular) to lowest.

Table 2. Data Needed in the Assessment.

Water quality degradation – nutrient, sediment, and emerging contaminants	77
Development/urban land use	66
Impervious surface – patterns of growth and impervious surface percentage	65
Wetland distribution and type	60
Agricultural land use	59
Invasive species distribution and abundance (e.g., zebra mussels, rock snot, hydrilla)	58
Fish species distributions and abundance	57
Fragmentation by dams and culverts/barriers to fish migration	55
Shoreline armoring/hardened shoreline	43
Climate change – annual and seasonal patterns and trends	43
Dissolved oxygen	41
Fishing activities (recreational or commercial)	35
Submerged aquatic vegetation (underwater grasses) distribution and trends	34
Water withdrawals	33
Conductivity	30
Salinity	29
Climate change – sea level rise, at risk shorelines	28
Mines	23

The respondents were asked an open-ended question regarding the species that are important to their management efforts. There were 89 responses, but only a few answers appeared with enough frequency to enumerate. Trout, alone and with other species, was the most often mentioned of any fish resource. Ten responses stated "all aquatic species" and 28 respondents stated they were not sure. By association, game fish species (recreational) including brook trout and black bass were the most common responses.

Information Out-

In addition to selecting data to be included in the assessment, respondents had the opportunity to select the types of information they would want from the assessment tool. An objective of the workshop is to identify the necessary information and analytical approaches to assess the condition and vulnerability of fish habitat in the Chesapeake Bay Watershed. Both "habitat condition" and "habitat vulnerability" scored very high for information needs. There was no significant difference in the frequency of the responses; however, "potential mitigation measures" was also frequently requested.

In an open-ended question, respondents were asked what other information they needed beyond that listed in the questionnaire. The responses were varied, but some noteworthy comments are listed below.

Table 3. Additional Information

Accurate ranges and abundances
Actual species locations
Any updated data is beneficial.
assessment of current habitat conditions
CEC data, pharmaceuticals, microplastics
Class A wild trout shapefile, naturally reproducing trout shapefile.
completed project sites
DO data, recent Bay bottom type survey data

Easily accessible and discernible historic fish species data for all waters.
Economic values
fish passage improvement opportunities that would achieve the most impact on habitat
High resolution land use/cover data including impervious cover (something better than NLCD; likely specific to all of PA)
Horseshoe crabs, SAV distribution
identification/mapping of natural stream barriers, greater resolution of hydrography (eg better than NHD+)
Location of existing restoration projects
Long-term temperature forecasting within headwater streams
Macro invertebrate surveys Bacterial Microbiomes Pathogen (bacterial and viral) assessments Farm-level agricultural practices including animal densities
Maps of areas currently inhabited by each invasive plant species
Priority preservation / habitat restoration sites based on sea level rise inundation.
success measures for different habitat practices
temperature, invasive species mapping and distribution
temporal data on anadromous and semi-anadromous species.
Trends and helpful restoration efforts to improve the ecosystem even with development
We don't have staff or money for monitoring, and we don't have local experts on animal species (only plants), so at this point just about any data would be helpful for us.

Scale:
The scale of an assessment is often determined by data availability, but it is also important to determine the end users need. The questionnaire offered three scale options (with examples and illustrations). The majority (45) of respondents requested the smallest scale offered, *less than 1:24,000*. Other suggestions included the HUC 12 scale or smaller and the ability to switch from a Google Earth to Topo map scale. This suggests a hierarchical assessment based on the scale of the available data in an area. Most respondents (24 and 28 respectively) also requested the data be aggregated at the county or reach (a continuous stretch of stream or river) level. This aggregate question only received 80 total answers and may not have been well understood by respondents.

Sources of Information:
If a regional assessment is developed it will be important to know how to reach the intended users to inform or market the tool. The questionnaire sought to identify the respondent's go-to source for information of this type. There were 79 respondents, but most people listed more than one trusted source. Some respondents listed individual people that they contact for information, but most often a state agency was listed. The water quality agencies (MD Department of Environment, PA Department of Environmental Protection, VA Department of Environmental Quality) received the most responses. The state natural resource agencies were also mentioned frequently. There were significantly fewer responses that mentioned planning commissions or conservation districts.

The respondents also provided contacts that they thought should be contacted regarding the utility of an assessment. There were a myriad of responses with no general theme. But these are contacts that may be used post-workshop for additional information.

Recommendations:
The respondents were clear that they could use a regional assessment; however, they already have many tools available to them. Generally, conservation and restoration projects are opportunistic. They have a willing landowner, concerned citizens, funding available or a combination of these reasons to pursue a project in a certain area. For most, tools are secondary in their selection process.

In order to make a fish habitat assessment tool meaningful to respondents, it will need to work well with their existing tools and processes. It will need to provide resolution at a local scale and provide information that has been otherwise unavailable or scattered in its availability. As one respondent suggested, "varying degrees of resolution are going to be important to the different stakeholder. Being able to adjust to those different resolutions is going to be crucial to the efficacy of the tool in the end."

Once developed, marketing the tool through the trusted sources that the respondent's already use will be critical. These were identified as the state water quality and natural resource agencies.

In their own words, below are some recommendations for the assessment from the respondents:

- More education of local technical staff is needed to show how useful it could be.
- …don't forget about the smaller, highly urbanized communities. While our existing habitats may not be as pristine as the more suburban counties, we still need help, and because we're smaller we don't have the resources on staff or the money to pay consultants for those resources, so something like a regional habitat assessment would be very useful to us. But it would need to include information on the urban areas.
- Success measures for different habitat practices
- Information that is readily available and understandable to the general public - what are the public benefits of habitat restoration…
- It needs to be in a form that local decision makers can understand and relate to... impacts on the economy, tourism, taxes...

There are some areas and requests that warrant consideration for additional research, but are beyond the scope of the workshop and the assessment. There is a desire by respondents to have economic impact information on fish resources and habitat projects. While the tourism impacts of recreational fishing to an area can be identified, it is more difficult to quantify the economic benefits of a project that benefits fish habitat. In addition, respondents would like an assessment to provide information on fish habitat condition and vulnerability, and identify the associated mitigation measures. The workshop will identify and prioritize factors and stressors, but it will stop short of identifying the best mitigation measures for the prioritized factors and stressors.

It is unclear if fisheries managers had significant participation in the questionnaire. Therefore, it is recommended that information would need to be gathered from the managers to determine the utility of an assessment to that sector.

Appendix I: Survey Questionnaire with Response Totals

1. **Name?**

2. **Multiple Choice: Who do you work for?**

Academic	7
Consulting	10
Federal	7
Interstate (e.g., SRBC, ICPRB)	1
Local	60
Non profit	23
Other (please specify)	11
State	25
Grand Total	**143**

OTHER:
1. Conservation District
2. Conservation District
3. Contractor
4. Volunteer Donegal Chapter TU
5. I'm a Pa Master Naturalist volunteer
6. Planning District Commission
7. Regional Government
8. retired
9. retired land owner
10. Utility Cooperative
11. Volunteer

3. **Checkboxes: What jurisdiction(s) does your organization work in? Check all that apply.**

D.C.	14
Delaware	24
Maryland	55
New York	18
Pennsylvania	50
Virginia	55
West Virginia	30
None of the above	2

4. **Checkboxes: What nearby aquatic habitat could be affected by your projects or land use planning? Check all that apply.**

Tidal saltwater nearshore and intertidal	52
Freshwater non-tidal (cold and upstream waters)	100
Freshwater non-tidal (warm)	85
Freshwater tidal	54
Don't know	6
None of the above (provide answer below)	4

NONE OF THE ABOVE:
1. Wetland
2. While my agency does, I do not perform projects in my current role, nor do I directly participate in land use planning. I do, however, lead and participate in conservation design planning, which impacts all of the habitats listed here.
3. North east River, Brackish
4. Wetland

5. Checkboxes - What activities is your organization involved with? Check all that apply.

Advocacy	36
Legislation	35
Conservation planning	76
On-the-ground conservation (implementation)	81
Restoration planning	91
On-the-ground restoration (implementation)	92
Communication	72
Education	84
Public access	55
Research and monitoring	71
None of the above	2
Other (please specify)	17

OTHER:
1. Chesapeake Bay Critical Area
2. Creating local land use policy based on local data.
3. enforcement of CBPA and MS4 permit
4. Highways
5. QDMA and Crep.
6. land use planning
7. Land Use Planning
8. Land use planning/zoning; comprehensive planning; floodplain management; subdivision ordinance implementation; enforcement of environmental regulations
9. Landscape Management
10. Local government land use
11. Municipal Planning
12. Planning & Zoning
13. Planning and Zoning related functions-site plan review, Critical Area monitoring.
14. regional planning
15. Regional Planning, i.e. Water Supply and Hazard Mitigation Planning
16. regulatory
17. Town & Green Team within Town

6. Multiple Choice: Are you actively involved in planning or implementing habitat conservation or restoration projects?

Yes	80
No	31
Other (provided below)	14

OTHER:
1. As much as I am allowed

2. As related to permit issuance for construction
3. Do stream or wetland restorations count?
4. Formulating Comprehensive Plan
5. I evaluate projects
6. Indirectly through CREP
7. Living Shoreline Project
8. Occasionally, but not currently
9. Raingardens
10. We are currently rehabbing a trail project that runs through sensitive marsh areas.
11. We direct local folks to places that can do habitat conservation/restoration
12. We work with developers to conserve nontidal wetlands through the use of open space developments and the maintenance of the Resource Protection Area.
13. Where required IAW state and federal regulation
14. Writing manuscript based on completed project

7. Are your efforts associated with Watershed Implementation Plans?
(Watershed Implementation Plans are detailed strategies developed by jurisdictions in the Chesapeake Bay to help determine how the jurisdictions will meet their nitrogen, phosphorus, or sediment reduction goals.)

Yes	74
No	37
Not sure	13

8. Select all tools/datasets you're familiar with or have used for previous projects. Check all that apply.

AdaptVA	3
Virginia Blue Infrastructure	3
Chesapeake Bay Fish Passage Prioritization Tool	17
Chesapeake Bay United States Geological Survey Data	45
Climate Change predictors	23
Virginia Comprehensive Coastal Resource Management Portal	9
Eastern Brook Trout Joint Venture	31
FishStats	6
Landscope	5
Maryland Greenprint	12
Maryland Coastal Atlas	9
Maryland iMAP: Biota	14
Maryland Water Monitoring Site Mapper	11
North Atlantic Landscape Conservation Cooperative	9
National Fish Habitat Partnership Fish Habitat Assessments	10
National Fish Habitat Partnership Data System	3
North Atlantic Aquatic Connectivity Collective	11
North Atlantic Landscape Conservation Cooperation	9
The Nature Conservancy Tools	33
The Nature Conservancy Habitat Prioritization Tool	21
Shoreline Managers Assessment Mapper	5
Virginia Coast Geospatial and Educational Mapping System (GEMS)	14
Virginia DCR Conservation Lands Database	18
Virginia Department of Environmental Quality GIS Database	16

Virginia Department of Game and Inland Fisheries Database	16
United States Geological Survey Tool	37
Water Quality Standards Attainment (Clean Water Act 303d lists)	40
None of the Above	26
Other (provide answer(s))	15

OTHER:

1. Census Data; VA Dept of Health Shoreline Sanitation Data; Natural Heritage Database; VA Dept. of Historic Resources Data
2. Have tried to educate myself on tools but not sure what I have used.
3. I have used these tools for past planning projects.
4. In-house restoration project database
5. Locally created current land use geodatabase with stream buffers.
6. MD Critical Area, shoreline protection monitoring and enforcement.
7. National Wetlands Inventory, Ches Bay Sustainable Landscape Maintenance Manual
8. NJDEP imap
9. Not certain all the tools they are using.
10. Pa DCNR, 18 acres in crep
11. STEPL other project models related to Section 319
12. Trout Unlimited Eastern Brook Trout Conservation Portfolio
13. USGS National Water Information System (NWIS) USGS BioData USEPA Chesapeake Assessment Scenario Tool (CAST) Chester County Stream Conditions Program USEPA Enforcement and Compliance History Online (ECHO) eMapPA
14. VIMS Shoreline inventory
15. Watershed Resources Registry www.watershedresourcesregistry.org

9. How do you identify or select sites for restoration or conservation?

1. Connectivity analysis via NAACC 2. landscape connectivity prioritization via TNC Barrier Prioritization Tool 3. 303d lists, Priority Waterbody Lists 4. local groups identifying stream corridor deficiencies
1. We focus efforts on marginal brook trout habitat within close proximity to intact brook trout habitat 2. We heavily focus efforts in karst systems to ensure long-term temperature resiliency under varying climate scenarios
Accessibility (i.e. land owner interest/willingness), erosion issues
As an NRCS employee, assistance is provided through voluntary methods, using conservation technical assistance and or farm bill programs.
As an outcome of mapping storm water conveyance for MS4 compliance.
As part of the comprehensive planning process, which takes in account multiple, integrated ecological, topographical and economical issues.
as related to the Chesapeake Bay Critical Area Law
As the landowner I have enrolled in stream CREP and completed an in stream habitat restoration funded by NRCS.
based on interests of participants in our group of colleges and universities
Based on local data and ownership
Based on mitigation needs and location/watershed
Based on need of cooperating agencies and national mission.
Based on relative contribution to larger scale, deliberately aligned watershed planning and conservation design conventions (e.g. Cross-GIT priorities which align closely with Nature's Network outputs.

based on remediation sites
Based on water quality impairments.
Based on what we can get funding for with grants or what Green team can address ourselves.
Biological data, logic and an intimate knowledge of my resource.
By erosion complaints from citizens, by investigating priority watersheds, and prioritizing based on degree of erosion and potential for uplift.
CITIZEN CONCERN/COMPLAINTS PROBLEMS IN CITY FROM AREA CONCERN FOR PRESERVATION
Client interest
Cold or potentially coldwater,willing landowner,wild trout
Community needs, IPs, funding, partner needs
concerned citizens approaching us and elected officials bringing concerns
Conservation through GreenPrint Targeted Ecological Areas Restoration through Chesapeake Bay Trust Fund priority maps - projects selected based on nutrient reduction efficiencies..and secondarily based on habitat benefits
Conservation would just include education about issues and increase in local zoning restrictions - we use GIS to analyze local parcel, land use, soils, floodplain, wetland, infrastructure location, building/development location, local knowledge of current problems areas, etc.
Cooperatively with the state agency responsible for fish
Dependent on project type, client, and goals.
description of model
development request
DNR
Done by partner organizations
Either through 319 Watershed Based Plan for specific pollutants, or by consideration by Trib Team of projects proposed to us by Chesapeake Bay stakeholders
Environmental Ranking
For some sites, we are asked to provide assistance to other organizations/agencies, and for other sites, we have used existing watershed restoration plans and available funding opportunities to help guide project selection.
Generally landowners bring areas of concern to our attention and we prioritize them as we see fit.
GIS
GIS, site visits
I work with Lancaster County Conservancy, TU, the Conservation District, and the Alliance for the Chesapeake Bay.
Identified by partner organizations, areas that are pre-permitted, areas part of large-scale restoration
In conjunction with proposed projects
In Rockville, stream restoration projects are prioritized for high erosive sediment loads from streambanks, threat to infrastructure or private property, and (lesser) ease of access and limited forest/wetlands impacts

It depends a lot on the project. A lot of times I get contacted by interested parties about sites. Other times it can be where funders identify. If I'm selecting a site I look to see where the project would have the most benefit.
Landowner requests.
local government desk top resources
Location in the watershed. Risk of acute and chronic impacts to the surrounding community and hydrologic systems. Response and remedial action to incidents or wstorm events
Look for sites that are in poor condition and try to turn them around then begin management...
Looking for sites or series of sites that bring the highest return and connect to previous projects.
Municipal property with sensitive areas.
My group's involvement is via TMDL development and that schedule is developed according to our Watershed Framework, a 5 year rotating basin approach, and the schedule defined by addressing impaired waters in an efficient manner.
needs of landowner
Non buildable areas and buffers
observation
On the ground and GIS analysis of potential project sites that will sufficiently offset stream and wetland impacts associated with Section 404 CWA permits.
others identify sites I evaluate them
PA Fish and Boat Commission has created a prioritization process using our fisheries survey data as the main data input. We needed a prioritization process to cover the entire commonwealth. Our process currently allows us to prioritize within any geographic region or watershed across the commonwealth.
Poquoson has established Resource Protection Areas and requires wetlands delineation on development projects. Plum Tree Island National Wildlife Refuge makes up a significant part of the city's land mass and about half of our tidal wetlands. We participate as much as we can with the USFWS and the Corps on restoration/planning efforts for this resource.
Position not at forefront of site selection
Primarily impairments (i.e. TMDL, 303(d) list), local stakeholder involvement.
Primarily voluntary donations from citizens for FEMA acquisition projects (the current Board had chosen to no continue the acquisition program)
Prioritization
Prioritized sites based on partnerships, land ownership (conservation easements), fish habitat, and water quality improvement opportunities.
Priority sites are typically identified through Hazard Mitigation and Source Water Protection Plans for our Drinking Water Utilities.
Priority watersheds and sub watersheds, funding requirements, willing landowner.
Project-specific
Proximity to water resources, amount of pollution reductions, ownership
Ranking sheet, conservation plans, public demand, environmental need
recommend prioritized sites based on gamefish surveys

Restoration Areas are selected based upon periodic maintenance schedule of Cooperative Infrastructure needs.
rfp. GIS. GIS combined with on the ground research.
Sampling, familiarization of resources within my district, quantification or visual assessment of habitat, species dependent evaluation and management of habitat
Select impaired waters have been chosen. Based on willing partners, sites are chosen and implemented annually over the past 10 years.
Site identification and selection vary across BMPs. Here is a process that is generally used across all the BMPs we implement: 1. Set strategy for compliance with TMDLs, MS4 permit requirements, and federal/state/local regulations. This includes identifying regions where specific outcomes are required (e.g. watersheds or land use planning areas), measuring the gaps between the required outcome and current status, and establishing milestones and deadlines for closing each gap in each region. 2. Referring to existing site inventories (from e.g. small watershed action plans and TMDL implementation plans), set BMP specific implementation targets to meet the milestones and deadlines from step 1. If the milestones and deadlines cannot be met with BMPs identified in existing inventories, plan additional site identification processes. Site identification may begin ASAP, or may be scheduled in the future to support future milestones and deadlines, as appropriate for the situation and BMP. Site identification begins with office based site screening, utilizing existing GIS and remote sensing data, monitoring data, citizen and staff reports, and engineering plans. Site identification may include new field based evaluations, such as SWAP upland and stream corridor assessments. Note that for many BMPs, site inventories have a shelf life due to changes to conditions in the field, restoration science, and regulatory requirements. Therefore, the greatest emphasis is on BMP targets for the next milestone (e.g. targets may be porfolios of specific sites), and targets for future milestones may lack details (e.g. targets may be a quantity of BMP implementation without specific sites identified.) 3. Use BMP portfolios from step 2 to request funds, staff, equipment, contracts, and other resources necessary for BMP implementation. 4. Prioritize and select sites. Prioritization is based on proximity to deadlines for required outcomes, benefits of each site towards required outcomes (e.g. nitrogen load reduction), benefits outside required outcomes (e.g. habitat improvements, building community support), and cost. Selection follows the prioritized list, and is constrained by resources available (see 3 above) and operational realities (e.g. mobilization costs of staff, contractors and equipment can make it inefficient to jump large distances between sites). Initial prioritization and selections are usually revised based on conditions found in the field.
Site Plan driven or on City owned property.
Site review after area identified by team member
Sites initially identified primarily via watershed management plans, stakeholder and intra-agency inquiries and requests. Sites are then desktop screened. Qualifying sites are field scoped with developed semi quantitative protocol in part based on parameters from BANCS, Pfankuch, EPA rapid habitat
Sometimes prioritized geospatially but mostly ad-hoc. If there's a non-forested stream, that property is a target
Through complaints, watershed surveys, WIPs, assessments
Through county WIP priorities
Through inspections and referrals.
Through park planning, environmental assessments, and money earmarked for specific activities.
Through partners or listening to counties (Maryland)
Through Regional Planning which includes local government, state agencies and non-proffitt organizations
Through watershed management planning - to reduce sediment transport in streams
TNC prioritization tool and focus watersheds

Use ranking sheets to determine sites of greatest need. Sites are usually brought to our attention from landowners.
Usually based on proximity to perennial streams
usually identified by clients-County, NGO
Variable, typically they are identified based on a combination of feasibility and cost-effectiveness for sediment and nutrient reduction. Which is typically derived from some sort of stream assessment.
Visual observation; referrals; government and ngo referrals
Watershed Assessments
We are a local government. The town council and committees work on planning. Garrett Park is an arboretum and on the National Trust for Historic Preservation.
We bid on permitted projects only
we don't actively seek; we direct local folks (that come to us that have a concern or issue) to companies that can assist them in evaluation or restoration projects
We focus on priority (local, state, and federal) watersheds looking at comprehensive watershed implementation (i.e. effects from ag. operations, streambank erosion, and dirt and gravel roads). We also focus efforts based on active watershed organizations and willing landowners.
We had a stream assessment conducted by a consultant several years ago and have been using that as our starting point. We are conducting a new stream assessment for certain streams now. Currently, we consider only streams that we can get credit for the Chesapeake Bay TMDL in our restoration efforts.
We work in cooperation with PA Department of Environmental Protection to identify streams to target for monitoring of sediment movement during storm flow as well as pesticide cycling through the hydrologic system.
When a mitigation site is needed, we look for locations, preferably within or near WVDOH right-of-way, that could use some improvement.
when issues need to be resolved
Where it is deemed in the public interest, and where local gov't can get the necessary permissions & easements of right-of-way from private property owners.
Willing land owner & funding availability
WIP
work with conservation districts and watershed groups
Would likely be first noted based on institutional/professional knowledge of someone working on or near the project.

10. Could you see yourself using a regional Habitat Assessment to prioritize potential sites for restoration/conservation?

Yes	80
No	15
Not applicable	11
Other (Specified below if could use it for another purpose)	19

OTHER:

1. Another department in my agency might - I don't directly to that type of work
2. Better question for others in the organization.
3. I don't think this can be effectively done with coarse-scale modeling. I'm more interested in techniques that would include side-scan sonar. Actual quantification of instream habitat. As far as riparian issues, concentrations of agriculture, wasting Ag lands, and missing riparian zones are easy

to identify for someone that is familiar with their management district.
4. I would like to see if it has application to the Pocomoke City, MD.
5. I'm a private 70 acre landowner
6. maybe - I would need to see how it interfaces with current program
7. Maybe but would need more information first on how it would like with our ongoing tools
8. No. We have already prioritized sites and land uses.
9. Not certain
10. Not sure.
11. Only if it also evaluates human habitat needs and waterfront recreational access
12. Perhaps, if the data was accurate and detailed enough.
13. Possibly
14. Potentially - depending on the nature of the developed product I could see it being a component feeding into our process
15. Rockville is fairly urban and our streams don't show much variation in habitat quality.
16. This could be used in conjunction with other tools or prioritization methods. If all other things were equal, habitat needs could rank one site above another.
17. useful when evaluating potential development near critical areas
18. We already have a couple regional habitat assessment available. The recently developed Watershed Resources Registry (statewide) and the Nature Conservancy's tool (for much of the state).
19. Yes, however we use Trout Unlimited's Eastern Brook Trout Conservation Portfolio combined with funding priorities and mapping/business plans developed by the National Fish and Wildlife Foundation and partners.

11. If yes, what data should be included for the assessment to be useful? Check all that apply.

Water quality degradation – nutrient, sediment, and emerging contaminants	77
Fragmentation by dams and culverts/barriers to fish migration	55
Shoreline armoring/hardened shoreline	43
Mines	23
Water withdrawals	33
Development/urban land use	66
Agricultural land use	59
Impervious surface – patterns of growth and impervious surface percentage	65
Fishing activities (recreational or commercial)	35
Salinity	29
Conductivity	30
Dissolved oxygen	41
Submerged aquatic vegetation (underwater grasses) distribution and trends	34
Climate change – annual and seasonal patterns and trends	43
Climate change – sea level rise, at risk shorelines	28
Fish species distributions and abundance	57
Invasive species distribution and abundance (e.g., zebra mussels, rock snot, hydrilla)	58
Wetland distribution and type	60
Not applicable	2
Other (specify below)	8

OTHER:
1. Geomorphic conditions (e.g. stream erosion) . Additional biotic indicators of stream health (e.g. macroinvertebrates). Additional sources of temperature impairments (e.g. wet ponds)
2. Better question for applicable departments than me.
3. Existing/failed conservation/restoration efforts, especially upstream, major upstream dischargers (NPDES permit holders)

4. Fine sediments. Riparian land use! Pesticide presence. Cyanobacteria metrics, such as phycocyanin levels, biomass, recent concerning cyanotoxin presence, nitrogen and phoshporus concentrations + vegetative biomass (total nutrients in the system), ESTROGENICITY! STEAM WIDTH TO DEPTH PROFILES - and how that is changing rapidly and what is expected in the future.
5. If available, all data should be evaluated as effective predictors for conservation prioritization (let data decide which is best)
6. Most of this info is available if you know where to look
7. Subsidence rates
8. SWCD/NRCS Best management practice project sites, riparian buffer acreage, existing restoration sites.
9. Vegetative invasive species - vines, trees, shrubs

12. If yes, Select the types of information you would want a habitat assessment tool to provide for your region. Check all that apply.

Habitat vulnerability/risk to degradation	76
Condition of fish habitat	68
Fish species utilization	52
Driving factors influencing habitat change	61
Potential mitigation measures (e.g., planting riparian vegetation	72
Not applicable	2
Other (specify below)	6

OTHER:
1. Ability to also evaluate/use variables that predict condition
2. adaptive species and zones near urban land use areas
3. best opportunities for culvert improvements and dam projects for fish passage
4. Better question for applicable departments than me.
5. public lands (easier implementation)
6. wildlife management

13. If yes, what map scale is most appropriate so you could use a regional Habitat Assessment to improve your work?

<1:24,000 e.g., Google Earth image	45
1:100,000 eg State Atlas, Gazatteer	5
1:24000 e.g., USGS Topomap	17
Don't know	18
Other (please specify below)	7

OTHER:
1. HUC 12 or less as well as the above
2. Scale based on data
3. It would be great if you could switch from a Google Earth to Topo map.
4. Local GIS Mapping
5. perhaps something like HUC 12, which is often the scale of a 319 watershed based plan and the area a watershed group might cover
6. There is so much good local data that it would seem that a regional assessment would only be an information resource. Local data is almost always preferable when it comes to actually targeting land for specific uses.
7. Watershed - tributary level! Fine scale.
8. 1:2400. Scale relevant to urban BMP site identification and selection.

14. If yes, How would you want the data grouped (aggregated) in the map tool?

County	24
Don't know	11
Entire Bay watershed	1
In Bay – major tributary	3
In Bay – subestuary	2
Not applicable	1
Reach (a continuous stretch of stream or river)	28
River	9
State	2
Stream order (grouped by the number of stream branches from that segment of stream)	11

15. If yes, what species are important to your management efforts?
This was an open-ended question therefore the answers are not enumerated.

All
All
all
All
All
All native aquatic organisms
all salt water and fresh creatures, birds and bats
All species that affect a construction timeline. Different species will close the construction schedule for a period of time which is predetermined on each pan set.
All trees and wildlife.
aquatic species (in streams), riparian species
bass, crappie, perch, blue crab
Bobwhite Quail
brook trout
Brook Trout
Brook Trout
brook trout
brook trout
brook trout clupeids- herrings and shad moronids- striped bass and white perch yellow perch American eel American brook lamprey
Brook Trout Madison Cave Isopod
brook trout smallmouth bass associated coldwater fishes
Brook Trout, Brown Trout, Rainbow Trout and American Eel.
brook trout, eel passage, smallmouth bass, fish that host mussels to repopulate mussel communities
brook trout/small mouth bass
Brown and rainbow trout, smallmouth bass, sunfish
Clupeids, Yellow Perch, Striped Bass
cold water fisheries, macroinvertebrates

Cold water sport fish (especially native trout). Fish species indicative of healthy streams, as specified in the MBSS fish IBI metrics relevant to our area (coastal plain and eastern piedmont): *Benthic fish species *Intolerant fish species *Lithophilic spawning species *Round-bodied sucker species *Top predator fish species *Invertivore fish species *Algivore fish species *Herbivore fish species *Filter feeder fish species
Coldwater fluvial fish and exotic/invasive species
Deer, rabbits, raccoons
depends on the site
Don't know
Don't know
don't know
Eastern brook trout
Eastern brook trout, alosines, American eel, migratory gamefish (striped bass), freshwater mussels, sturgeon
Eastern Brook Trout, American Eel, Native mussel spp.
Eel
Fish health in relation to all fish species and those species that they rely on to achieve a healthy ecosystem. However, as an employee working for the WV DNR, there is a high priority placed on sport fish. Many of my stream fisheries have been burdened by altered riparian zones, sedimentation, high levels of nutrient influx, and channels that are getting wider and shallower, dramatically reducing the amount of habitat for larger, sport fish and, thus, poorer diversity, evenness, and sport fishing/recreational opportunities. This also increases the impacts to stream bottom organisms due to rising and falling stream levels (impervious surfaces as well) and the quantity of harmful algal blooms that we have (no shading from riparian, excessive nutrients, sunlight bombarding the shallow substrate. The same can be said for our state managed lakes, which are receiving the same harmful impacts.
Freshwater streams
hellbender, trout
I am not active in management efforts.
Invasive species, trout streams
James spiny mussel
Native cold and warm water species.
native species, wildlife and plantings
None currently identified.
None directly, but we mainly focus on created habitat for macroinvertebrates.
Our scope is not species specific.
Oysters
Oysters; menhaden, striped bass, SAV, blue crabs, hard clams, razor clams, soft shell clams, shad, river herring
People - access to nature, recreation, sea level rise adaptation
Perch, catfish, mussel, crab,
Primarily game fish species including Brook Trout (cold water) and black basses and other centrarchids (warmwater)
Really all of them, but prioritize species most utilized in aquaculture, i.e. oysters, clams, crabs, menhaden
Recreational fish species
RTE species Commercial and recreational importance - economic value
Shad, eel, Eastern Elliptio mussel, hellbender, brookies, smallmouth Bass
small mouth bass,red eye bass, some trout,very limited,sunfish
Spartina alterniflora spartina patens ammophila breviligulata crassostrea virginica

Threatened and Endangered Species.
Trout
Trout
Trout
Trout
Trout
Trout
trout (esp brook trout), freshwater mussels, threatened and endangered listed species (eg hellbenders), state species of greatest conservation needs
Trout and other cold water species. Aquatic and non-aquatic insects that are necessary for coldwater restoration. Native trees, shrubs, plants
Trout, baitfish
Typically we don't focus on an individual species. In the past small mouth bass have been of importance.
varies by project
vegetation
We don't know what species are or should be important to us. We need help.
We think the bay program already does a great job of identifying important species.
Wetland species; endangered and threatened; general habitat protection for quality of life impacts
whatever keeps the fishing tournaments - bass
Wild Trout

16. What other data would be helpful for you to have that you currently do not have access to?

Accurate ranges and abundances
Actual species locations
All State collected data.
Any updated data is beneficial.
As a volunteer , beyond my scope
assessment of current habitat conditions
Canvasing water depths throughout the Potomac drainages, stream widths, better access to compiled and analyzed trends in water quality for our streams.
CEC data, pharmaceuticals, microplastics
central location to share data sets
Chesapeake Conservancy style GIS
Class A wild trout shapefile, naturally reproducing trout shapefile.
Climate change temperature modeling. Tree stand data.
completed project sites
Current available data sources have been sufficient for the purposes of managing habitat issues
data transparency rather than simplified indices
DO data, recent Bay bottom type survey data
Easily accessible and discernible historic fish species data for all waters.
Economic values
elevation data (LiDAR DEM) aggregated per county economic viability of conservation efforts
Endangered species in area, none currently known.

Expanded information on dangers of invasive species, animal and botanical. Economic value of conservation activities/services/activities in Lancaster County
external agency habitat priorities to identify overlap for leveraging
fish passage improvement opportunities that would achieve the most impact on habitat
High resolution land use/cover data including impervious cover (something better than NLCD; likely specific to all of PA)
Historical aerial imagery
Horseshoe crabs, SAV distribution
How do I know what I don't have access to?
Hyperlocal assessment of habitat, species, risks
I do not need additional data. Chesapeake Conservancy is providing stream monitoring for temperature, sediment, nutrient load, and electro-shocking for fish counts.
identification/mapping of natural stream barriers, greater resolution of hydrography (eg better than NHD+)
Information that is readily available and understandable to the general public - what are the public benefits of habitat restoration; cost benefit analyses; impacts of poor decision making and lack of regulatory compliance on habitats and resulting impacts on the economy (tourism; recreational and commercial fishing; beach closures, etc.)
Land areas where runoff is a particular concern to aquatic species.
land owner contact info
Landowner data base
Location of Cultural resources
Location of existing restoration projects
Long-term temperature forecasting within headwater streams
Macro invertebrate surveys Bacterial Microbiomes Pathogen (bacterial and viral) assessments Farm-level agricultural practices including animal densities
Maps of areas currently inhabited by each invasive plant species
Mitigation banking districts
Nitrogen levels of water being discharged from spring and seeps in Karst areas.
northern long ear bat
Not sure. Most of what I need or use is readily available.
Not sure. Perhaps relative capacity of local conservation and restoration partners to perform work, and measures of community/landowner willingness to support or allow work by sub-watershed.
Not sure; there are so many different mapping tools already available!
Nothing on fish.
nutrient, turbidity, dissolved oxygen, grasses
Parcel data information. What BMP's have been completed on each parcel.
parcel data to overlay with high-resolution land cover
Priority preservation / habitat restoration sites based on sea level rise inundation.
run-off data
Same as data I checked before - anything animal/habit or climate/sea level change
State, Independent studies, Historical
stream reach and small drainage areas that are ranked for their conservation and restoration value to fish habitat.
success measures for different habitat practices
temperature, invasive species mapping and distribution
temporal data on anadromous and semi-anadromous species.
Trends and helpful restoration efforts to improve the ecosystem even with development

We don't have staff or money for monitoring, and we don't have local experts on animal species (only plants), so at this point just about any data would be helpful for us.
Widespread data on aquatic populations (fish and macros). We certainly only have spot data on this from MBSS.
Wild Brook Trout streams

17. Who is your primary contact(s) to obtain information (tools / data) for your organization? (Example: State Agency, Planning Association.) Please specify.

WVDEP
Anne Arundel County, MD DNR
Bill Merrey Baltimore County
Cecil County GIS, Chesapeake Bay Critical Area
Chad Thompson: Water Resources Registry. John Wirts: DEP water quality data. Chesapeake Bay Program workgroups: other various tools.
Chesapeake Bay Foundation, Chesapeake Conservancy, US Fish and Wildlife, Penns Valley Conservation Association, PA Fish and Boat Commission
Conservation District,USFW
David Thorne (WVDNR) for fish community and water quality data.
DEP, PFBC, county planning office
Department of Natural Resources, Critical Area Commission
DEQ, DCR, FEMA, EPA, ACOE, SWCD GWRC
DNR
DNR, MDE.
First State Data (Delaware GIS Consortium)
Frederick County, MDE, MDP
Hampton Roads Planning District Commission
I tend to contact the Conservation Districts because they are local and tend to know the issues in their Counties.
Internet sources
Internet; state agencies; VIMS
It varies by information need.
Joe Petroski (GIS)
Land and Resource Management
Local trout unlimited chapter. Donegal Chapter
Lower Eastern Shore Regional Office of Planning
Maryland coastal bay's program
Maryland Dept of Environment
Maryland Dept. of Natural Resources, Maryland Fish & Wildlife Conservation Office
Maryland iMap, County agencies, MDP PropertyView
MD DNR
MD DNR
MD DNR iMap database
MDE and MD DNR
MDE, VDEQ, DOEE and other local jurisdictions for the construction regulations, specifications and guidelines and the compliance regulations.
MDP

Multiple. Depends on project. County level through national.
n/a, we use publicly available geodata
national and federal maps
Natural Resources Conservation Service, Department of Conservation and Recreation, local county government.
North Atlantic and Appalachian Landscape Conservation Cooperatives
NYSDEC - GIS
Other state agencies
PA DEP
PA DEP, PAFBC, USGS
Pa Fish & Boat Comm.
PA Fish and Boat Commission
PaDEP
PADEP, PA fish and Boat , DCNR, US Fish and wildlife, SRBC
Penn State Extension. Strouds. PA Fish and Game. Lancaster County Conservation District. Chesapeake Bay Alliance.
PFBC, Div of Habitat Mgmt and Div of Fish Mgmt; County Conservation Districts, DEP
PGC Harrisburg
Planning & Zoning Director
Potter County Planning Dept., PASDA
President, Donegal TU
Rob Pierce, Planning & Development Director
State Agency - MD DNR
State agency- Fisheries
state agency staff - fisheries service
state agency, WVDNR, BTJV
State, Local, Consultants
the Hampton Roads Planning District Commission; VA DCR; VA DEQ
trout unlimited (Maryland)
USGS, PA-DEP, PA Fish and Boat Commission, PA Game Commission, PA Department of Conservation and Natural Resources
VA DCR, USFW, VA DGIF, VMRC, VIMS,
VA DEQ, DGIF
VADEQ, USACE
Va-DEQ, USGS, Va-DMME
varies based on site
VIMS, VITA, MPPDC
Virginia DEQ
VMRC; VIMS; word of mouth
Watershed associations and local government (also get background data from national and state sources such as USGS, PA-DEP, etc.)
We obtain information from several state agencies (DEQ, DCR), non-profit organizations (FOR, Wetlands Watch) and educational institutions (VIMS).
WV NRCS State Wildlife Biologist
WV TAGIS, WVCA
WVDNR
WVDNR, USFWS, TU Science Team

18. What other organizations or contacts should we connect with to determine whether a regional Habitat Assessment would be useful to local organizations and government agencies? Please provide their contact info below:

Central Shenandoah Planning District Commission, Trout Unlimited
Clearwater Conservancy of Central PA, Inc; Regional Trout Unlimited Offices, Western Pennsylvania Conservancy, NFWF
County Farmland Protection Boards Drinking Water Utilities
County Soil Conservation Districts, Riverkeepers Network, County and municipal public works agencies
Delaware Dept. of Natural Resources, sister jurisdictions.
DNR, Chesapeake Bay Critical Area
DNREC - Div. of Watershed Stewardship
DRBC, SRBC, Three Rivers Quest
Federal
Kent County Planning, Queen Anne's Council Planning, Kent County Soil Conservation, Queen Anne's County Soil Conservation
Lanc. Conservation District
Lancaster County Conservation District. lancasterconservation.org/ Penn State Extension https://extension.psu.edu/lancaster-county
Local Watershed Assessments and Local NPDES MS4 managers (DPW or Planning & Zoning)
Lower Shore Conservancy
Maryland Critical Area Commission, Maryland Department of the Environment
Maryland Department of Planning - Chuck Boyd Local watershed groups, land trusts, river keepers Local government planning offices - MACO and MML
Maryland department of planning to incorporate statewide development plan information.
Maybe the Hampton Roads Planning District Commission.
Middle Peninsula Planning District - Public Access Authorities - www.mppdc.com
Montgomery County
MSRA and contracting and development organizations (AGC, USGBC, NAHB) They need to know how and why habitat assessments are needed and the results of the assessments.
Northern Virginia Regional Commission, Northern Virginia Soil and Water Conservation District (but please don't forget about us smaller, urban areas in NOVA when you contact these larger groups)
Pa Tu
Suzy Campbell, Danielle Watson, and Andrea Walker
South River Federation
Too early in my involvement to give knowledgeable reply
Trout Unlimited
Trout Unlimited Pennsylvania Fish and Boat Commission
Trout Unlimited - Phil Thomas
USFWS NOAA
usgs nawqa data, epa habitat assessment data
WVDEP, WVDNR,

19. Is there anything else you think we should know about the utility of a regional Habitat Assessment?

Agricultural landscapes are not degraded habitats. Water quality baseline improvement plans should not ignore local land use plans. Habitat assessment needs to be in context with active resource management not based on an undisturbed wilderness ideal.
An ArcGIS Online map with downloadable data is always helpful. GIS feature service data also helpful.

For organizations responsible for compliance with TMDLs and NPDES permits, the utility of tools like a regional habitat assessment is a function of how much the tool assists the organization on the following tasks, listed in order of highest to lowest potential utility: 1. Compliance with existing permit and TMDL requirements. 2. Elimination of impairments for which TMDLs have been issued. 3. Elimination of impairments for which TMDLs have yet to be issued. 4. Helps the organization obtain or increase support (monetary or political) for their program. 5. Anything else the tool helps with.
How intermediate scale regional assessment is connected and inter-operable with both sub-scale and larger scale similar assessments.
I think most importantly is the fact that most people who would benefit from such a tool in WV have just undertaken a year plus effort to develop a regional watershed planning tool (WRR)
If a regional assessment of habitat is done, it should be coupled with regional water quality/chemistry assessments, and data should be made broadly publicly available.
In Northern Virginia there is a tendency to focus on the larger counties (Fairfax, Loudoun, etc.) and to forget about the smaller, highly urbanized communities. While our existing habitats may not be as pristine as the more suburban counties, we still need help, and because we're smaller we don't have the resources on staff or the money to pay consultants for those resources, so something like a regional habitat assessment would be very useful to us. But it would need to include information on the urban areas.
Is the Maryland National Capital Area Park and Planning Commission involved?
It needs to be in a form that local decision makers can understand and relate to... impacts on the economy, tourism, taxes...
Many regions of PA need to prioritize stream stability before traditional habitat structures can be incorporated, especially glaciated regions.
more education of local technical staff is needed to show how useful it could be
Our work is driven by water quality requirements under the Clean Water Act - we do not generally plan for habitat but use tools that should provide collateral benefits
Please, Please, Please, help the public make the connection of how certain species habitat conditions impacts human health and economics.
Public Awareness is critical for connecting the residents with their local waterways.
Suggest checking out CAPS program (http://www.umasscaps.org/)
The application of such assessments are much more valuable when specific projects or sites for improvement are identified. Even more so, relating habitat impairments and improvements to community goals, such as flooding resiliency and nutrient management, engenders much greater interest toward planning efforts.
The results should be accessible to environmental contractors and the developers, contractors and organizations we serve.
There are a lot of redundant efforts going on at a regional scale. It would be helpful if various groups would work together and communicate better.
There are already a lot of mapping tools available.
This town is entirely within the Delaware Bay watershed (Smyrna & Leipsic Rivers) - not a part of the Chesapeake Bay watershed
Unless we can regulate the problematic land use in this region, the rest is useless. I could sum up 95% of my problems that revolve around the way our streams and their directly adjacent landscapes are treated. We can model our landscape and our surface waters until we've exhausted all of our funding, which is diminishing at the time. We need to regulate agriculture to prevent impacts to aquatic health and habitat. If we can't do that, we need to buy land and restore it.
Varying degrees of resolution are going to be important to the different stakeholder. Being able to adjust to those different resolutions is going to be crucial to the efficacy of the tool in the end.