5. INTERPRETING & ANALYZING THE RESULTS

The NH Method provides an important tool for the reliable and consistent evaluation of wetland functions. An important step in the assessment of wetland functions is the analysis and interpretation of the results. There are many different ways to display and interpret the results of a wetland evaluation. This section offers some general guidance for reviewing the completed data forms and using the Excel Spreadsheet described in Section 3, page 1). Several examples provide more detailed guidance on some different ways that results can be interpreted, including:

- Ways of presenting the data
- Identifying high priority wetlands
- Reporting the results of the wetland evaluation
- Using the information for establishing wetlands policy
- Identifying wetland restoration opportunities
- Documentation to obtain funding for wetland conservation projects
- General outreach and education.

A. Wetland Evaluation Report

There are three important components for compiling a wetland evaluation report: Maps, Data, and Narrative Description.

1. Reference to the Wetland Maps and Study Area Maps (see Section 2. C)

The map/s generated for each wetland and any modifications made as a result of field evaluation should be included in the report for each wetland. Each map should have the title of the study, the wetland name and or number, a north arrow indicating orientation of the map and a map scale. A publication date is also helpful. Sample maps are provided in Appendix E.

2. Evaluation Data

- **Evaluating multiple wetlands in a study area:** The Excel Spreadsheet includes a Score Summary Sheet for comparing functional scores for multiple wetlands in a study area. The data entered in each column is automatically taken from the Excel spreadsheet for each wetland evaluated. It uses the Average Score that each wetland received for each of the twelve functions evaluated by the NH Method. Using this summary sheet, the user can easily determine:
    - Highest scoring functions in each wetland
    - Lower scoring functions in each wetland (potential candidates for restoration)
    - Which wetlands have the largest number of high scoring functions?
    - Which wetlands are flagged for noteworthy features?
    - For each function, which wetlands score highest or lowest for that function?

  Section B that follows provides additional guidance on a more detailed interpretation of results.

  In general, those wetlands that score high for a number of functions are likely to be wetlands of high importance within the study area. Those wetlands that score high for only one

function may also be deemed important if that one function is the most highly valued in the study area.

- **Evaluating single wetlands in a study area:** Use the Single Wetland Score Summary Sheet provided at the end of this section (available as a Word Document on the NH Method Website), or use the Excel Score Summary for that wetland. Using this summary sheet, you can determine:
    - Which functions are scoring highest or lowest for that wetland. Potential candidates for restoration may be identified by reviewing the lower functional scores.
    - Remaining analysis depends on the purpose of the single wetland evaluation.

3. Narrative descriptions of the study area wetlands

A written description or narrative of each wetland is important because it allows the user to identify important features of the wetland that might otherwise get lost in the data and helps the user focus on the attributes of each wetland that give rise to its functions and values.

In order to help the user with the analysis of the results, it is important to refer back to the individual wetland maps and the study area map that were created to help answer the evaluation questions. To gain a sense of the importance of a wetland, it is useful to look at the juxtaposition of the wetland relative to other wetlands, streams, lakes, ponds, rivers and watershed boundaries.

A detailed description of each wetland can help formalize the analysis. The description should reference:

- the Summary Scores for the wetland/s in the study area,
- specific comments or notes made about each wetland on the evaluation sheets,
- the wetland maps and any other maps prepared as part of the evaluation, and
- photos taken of the wetland (with photo point location and direction indicated on the base map.

All of these items become part of the final report for the study with documentation for each wetland evaluated.

Below is a list of factors to include in the wetland description. A sample wetland description is given in Appendix E.

A good wetland description should include as much of the following information as is available:

- Wetland Identification (could be a number, such as Wetland 1, but sometimes a name, such as Hart's Wetland.
- Wetland photos and the location/orientation of the photo. Photos can be numbered according to a corresponding photo log that includes a description of what is seen in the photo, or the description can be included as a caption to that photo.
- Wetland Size (round up to whole acres, and if the wetland is less than one acre, in square feet as well).
- The name of the HUC 12 Watershed in which the wetland is located.
- The size of the wetland watershed that was used in the evaluation.
- The number of inlets to the wetland and whether they are perennial or intermittent. If you know of ephemeral inlets, you can mention these as well.
- The number of outlets from the wetland and whether they are perennial or intermittent.

- Note if there is a well-defined channel within the wetland, and if there is, describe the channel. Is it straight with deep cut banks that do not allow the water to interact with the adjacent soils, or is the channel sinuous or diffuse with much interaction between the surface water flows in the channel and the adjacent vegetation in the wetland?
- State the dominant NWI classification code: For example, PEM1E, and write out what that stands for: PEM1E – Palustrine, persistent emergent vegetation, seasonally flooded/saturated. If there are other NWI class codes of importance to the evaluation, then also mention them.
- Are there upland islands? Is there open water? If so, describe these features. State how many upland islands there are. Provide the acreage of open water and estimate its depth. Describe any open water/vegetative interspersion.
- Describe the dominant plants that were found within the NWI classification codes mentioned above. Are there invasive plants in the wetland or in the adjacent upland?
- Describe any wildlife or wildlife sign observed. Is the wetland located in an area identified as critical wildlife habitat in the NH Wildlife Action Plan?
- Describe how the wetland is connected to other wetlands via stream channels, either above and/or below it. If these other wetlands were evaluated as part of the study, then mention these wetlands by their Wetland Names and or Identification Codes.
- Describe the wetland functions that the wetland received a high score for and the reasons why it ranked highly for those functions. This is where the comments entered onto the data sheets for each function are put to use. Is the wetland located in a source-water protection area? Is it located in a large unfragmented landscape that has been identified as a high ranking habitat area by the NH Wildlife Action Plan? These and many other parameters can be discussed here. Describe low scoring functions and explain why they scored low.

B. Ways of Presenting the Data

Several examples are given to provide the user with ideas for their own use. Since each wetland evaluation project is different, the interpretation of the assessment data will be unique to each project. With the advent of new GIS technologies, remote data, and presentation media, there is no limit to the ways in which the assessment data can be communicated to interested parties.

Certain types of presentations can enhance the Wetlands Report components (Maps, Data and Narrative Description), and that is where creativity can play a large role in effectively communicating the findings of wetland evaluation. Table 5.1 summarizes a few presentation options for the user.

Table 5.1. Sample ways of presenting the results using different media

Media Type	Maps	Data	Narrative	Comments
Written Report	X	X	X	The standard written report contains all three components. With variously sized maps (see below), charts and tables that summarize the data, as well as written descriptions of each wetland that was assessed and how they compare to others.
Slide Show	X	X	X	A slide show (e.g. PowerPoint) can be a very effective tool for communicating the value of a wetland to a wide audience. When comparing the results of a town-wide assessment, it should contain summary tables, maps, and highlighted bullets on functional values.
Web Site	X	X	X	Making the NH Method assessment available on the web promotes broad readership and direct use of the data. Keep in mind that certain types of information may be inappropriate, such as rare species locations and parcel boundary data.
Digital Catalog	X	X		Some libraries have digital 'file catalogs' that can allow password-protected users to access the data and maps from a local assessment project. This is sometimes a more appropriate way to allow users to review individual wetland data sheets and supporting maps instead of in one bound, gigantic report.
CD/DVD	X	X	X	A good follow-up project for the map & narrative report is the transcription of the data and maps into an audiovisual file that includes a narrated, visual review of the wetlands in a given area. This can often be done with inexpensive video recorders and media processing programs.
Interactive Reporting	X	X		Another potential follow-up project to a wetland evaluation is s the creation of data forms (hard copy or digital) for reporting wildlife species observed, water quality data collected, water table levels, and other monitoring data that may have been collected from selected wetlands.

Presenting Wetland Evaluation Maps

Appendix E illustrates ways in which maps can be presented for viewing using the GRANIT Data Mapper. It includes a subject wetlands location map, a watershed map with a topographic map background, an individual wetland map showing NWI, hydric soils, and aquifer data, and a soils map for the area around the evaluation wetland. Section 2.C. of the NH Method describes the data layers that go into these maps as well as some options for creating these base maps. If the user has GIS capabilities or has assistance from a professional to create individual wetland base maps, two possible formats can be used. The first example focuses on the National Wetlands Inventory (NWI) cover classes (including any open water areas) and is presented using a USGS topographic map as the base. (Figure 5.1) Note that this map includes a title block, wetland evaluation unit identifier, a legend, a location map inset, and an accuracy disclaimer.

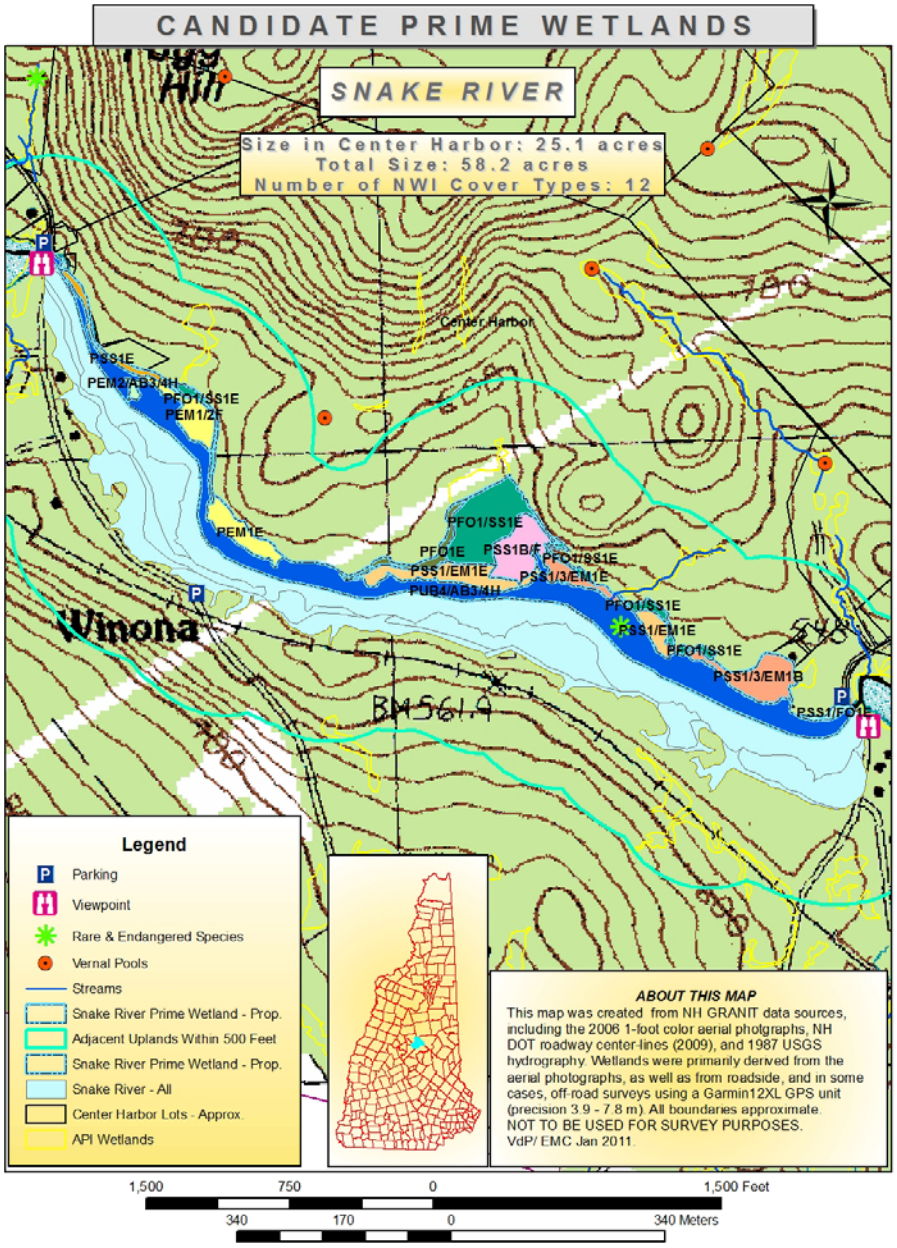

Figure 5.1 NWI Wetland Classes shown on a topographic map base

A second type of base map format that can be used is one that includes hydric soil information as well as a 500-foot upland area around the wetland, shown by a line that demarcates the areas area where Ecological Integrity (Function 1) and Wetland-Dependent Wildlife Habitat (Function 2) questions can be answered. This example is shown on an aerial photo base map (Figure 5.2):

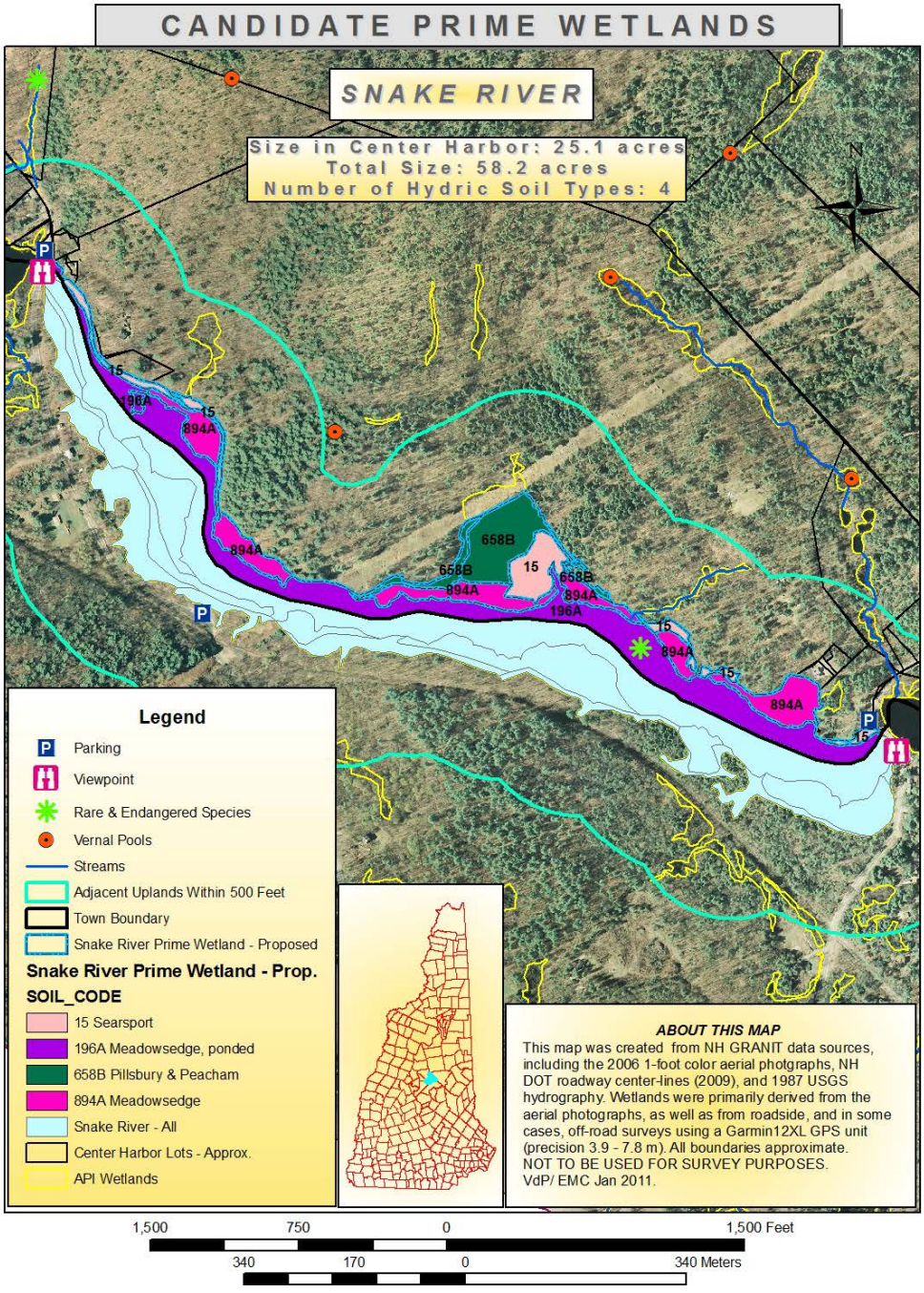

Figure 5.2 NWI Wetland Classes shown on an aerial photo background

These two examples provide the basic information necessary to answer most of the map-based (rather than field-based) questions in the NH Method and are also a first step in analyzing the results of the assessment. For example, the above maps show that there is very little disturbance and few structures in the adjacent 500-foot upland area for the study wetland and so **Ecological Integrity** will score relatively high. There is ample open water habitat and an undisturbed buffer on the north side and so **Wetland-**

Dependent Wildlife Habitat will likely score fairly high. Good parking exists adjacent to the wetland and viewpoints overlook low-growing marshes and open water, which will likely lead to relatively high scores for **Scenic Quality** and **Educational Potential**. **Wetland-based Recreation** will likely also score high, although **Sediment Trapping** and **Nutrient Transformation** will likely only get moderate scores because of the predominance of non-persistent vegetation, a fairly straight stream channel and moderate flood storage capacity. The dense bordering vegetation shows a potentially high score for **Shoreline Anchoring**, and the presence of rare species in a marsh-dominated habitat that serves a public drinking water supply area will flag several features in the **Noteworthiness** function.

The maps also show that more than half of the wetland lies within an adjoining town, so some degree of cooperation will be required if any type of long-lasting protection measure is proposed. The topographic base map indicates that the wetland is directly connected to other open water bodies, and a quick view of the GRANIT Data Mapper or GIS base layers indicates that this wetland provides a critical link between two very highly used recreational lakes. The overall value of this wetland is therefore easily conveyed in the map product, but how does it compare to other wetlands in this town?

Having access to GIS mapping on a personal desktop can add tremendous value to the results of a NH Method wetland assessment. Where a study involves multiple wetlands, the user can display comparison values among wetlands on a single map. The following example (Figure 5.3) shows how **Ecological Integrity** can be displayed as a gradient color among six different prime wetlands based on the average scores for that function.

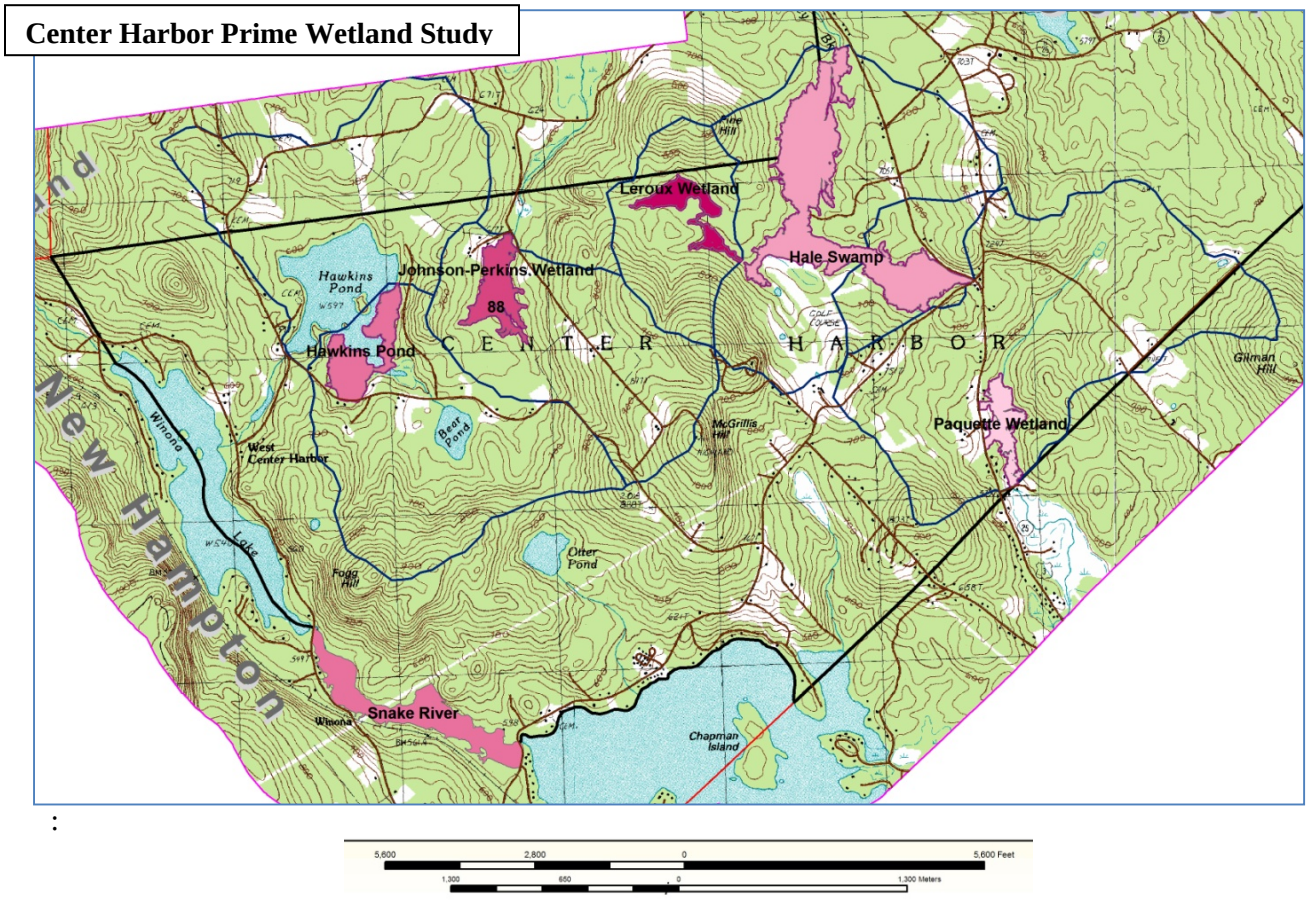

Figure 5.3. Gradient mapping of Ecological Integrity for six wetlands in Center Harbor. [Note: Average Function Scores are between 0 and 1.0 based on the scoring system used in the 1991 NH Method. The higher the score the darker the shade of pink.]

Any one of the Average Function Scores can be mapped on a gradient scale that reflects the range of values calculated for each function.[1] Several function scores can be shown at once by including a visual bar chart displaying the 12 Average Function Scores for each wetland evaluated, as shown Figure 5.4.

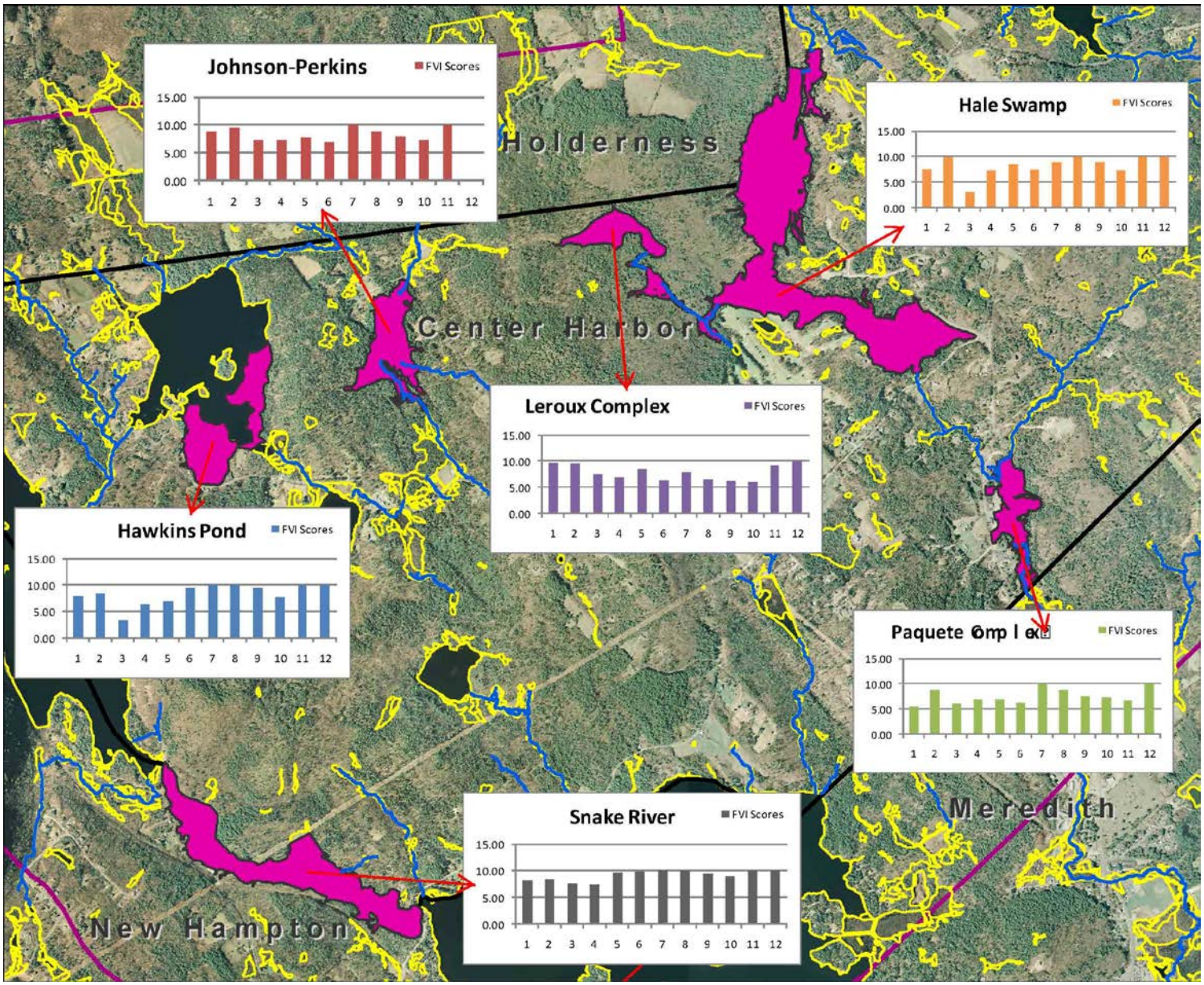

Figure 5.4. Sample wetland assessment showing Functional Value Average Scores

[1] Using a GIS mapping program such as ArcMap,™ these gradient values can be classified according to *natural breaks* (as was performed above), equal intervals, standard deviation or any other logical interval system that is appropriate.

Maps can also show conservation priorities in an area where wetlands are a stated conservation target in a given municipality. For example, this can be done on a wildlife habitat basis if the wetland-dependent wildlife function is a priority (Figure 5.5).

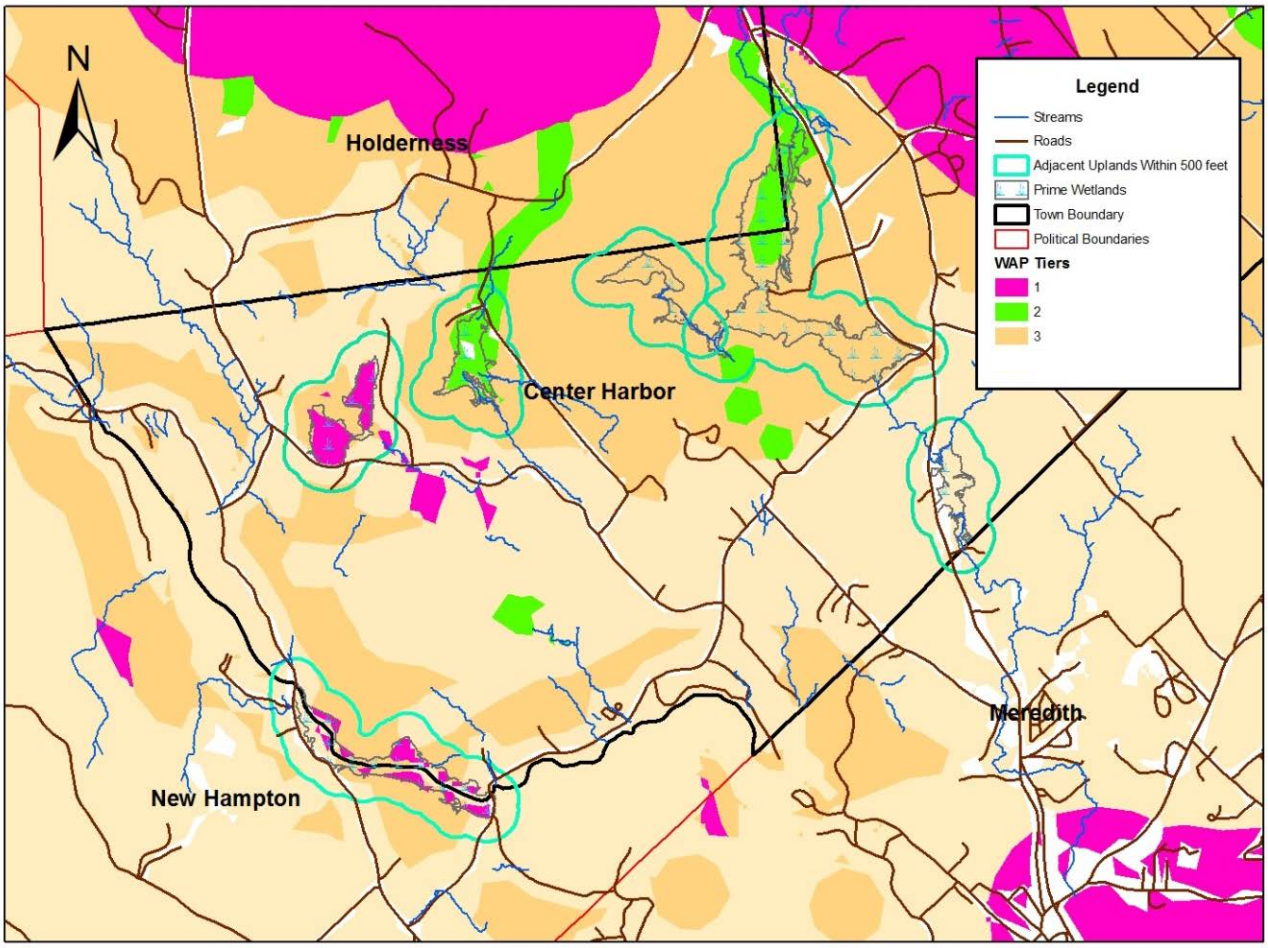

Figure 5.5. Wetlands and the adjacent 500-foot upland areas shown on the 2010 Wildlife Action Plan Highest Ranked Habitats map. Tier 1 habitat (in pink) is the Highest Ranked Habitat in the State, followed by Tier 2 (in green), which is Highest Ranked Habitat in the Biological Region, followed by Tier 3 (in orange) which shows Supporting Landscapes. From a wildlife habitat standpoint, this map shows which wetlands include the highest quality wetland habitat.

Presenting Mapped Data in Tables and Charts

The data contained in maps can also be presented in tables and charts in the wetland evaluation report. While some maps may include the actual data from the evaluation (as shown in the examples above), many reports use stand-alone tables and charts that summarize the evaluation data. An example of such a table includes the size and location information about the wetlands that were evaluated. Table 5.2 provides an example that was derived from the above maps.

Table 5.2. Sample Wetland Evaluation Summary Table for Wetland Size and Location

CENTER HARBOR PRIME WETLAND INVENTORY - SIZE & LOCATION						
CODE	**WETLAND NAME**	**SIZE (acres)**	**SIZE (Acres in Center Harbor)**	**TAX MAP #'s**	**NEAREST ROAD(S)**	**ZONING**
1	Paquette Wetland Complex	18	18	Sheet 4	Route 3	RR, C
2	Hale Swamp	123	97	Sheet 3	Route 3, Waukewan Road	RR
3	Leroux Wetland Complex	18	18	Sheet 1, 3	McCrillis Hill Road	RR
4	Hawkins Pond	31	31	Sheet 1	Hawkins Pond Road, Piper Hill Road	RR
5	Johnson-Perkins Wetland Complex	26	26	Sheet 1	Piper Hill Road	RR
6	Snake River	58	25	Sheet 1	Winona Road	RR
	Total Acres of Wetland in Study Area	**275**	**215**	**ZONING KEY:**	**RR = Rural Residential; C = Commercial**	

The wetland code can be any number or letter combination that makes sense for the evaluation. These codes can be used as markers on a map, or in a table where the full wetland name does not easily fit. Codes can also be of use in portable data loggers, GPS units, PDA's, etc. The wetland name can use local geography, such as the vernacular name for the swamp, marsh or water body associated with the wetland. It does not have to carry the name(s) of the landowners but if it does permission needs to be granted in advance. Tax map and lot information, as well as road location is very useful for helping citizens recognize where the wetlands are, and is required information should any of the wetland be nominated as prime wetlands either locally or with the state. The land use zoning codes provides information about the current and potential use of the land, and aids the user in answering some of the evaluation questions in the NH Method.

A second table that can be used in wetland evaluation reports and can form part of the analysis is derived directly from answers in the NH Method. This "working table" can be a handy reference sheet to review when considering options for conservation, regulatory setbacks, and other protection alternatives. Table 5.3 uses data from the Center Harbor example to illustrate this.

Table 5.3. Sample summary chart of important wetland attributes derived from evaluation data sheets and map work

NAME	SIZE (acres)	# NWI classes	# upland islands	% Fill	% Very poorly drained soils	Stream Length (ft)	Open Water (acres)	Shore-land (feet)	Education area	Scenic view area	Recrea-tion area
Hawkins Pond #1	31	10	0	0	95	0	85	2679	2	26	31
Johnson-Perkins #2	26	10	0	0.01	82	217	4	1829	2	16	4
Paquette Complex #3	19	11	9	27	77	1996	4	3093	19	7	19
Leroux Complex #4	18	10	3	0	90	2200	3	2614	7	2	3
Hale Swamp #5	123	18	12	0.01	93	108	17	9235	14	31	2
Snake River #6	58	9	0	0.01	89	5640	20	6861	3	50	58

Beginning with the left columns of Table 5.3:

- The **Wetland name** and **size** is derived from the wetland evaluation mapping process and provides the context for the remainder of the table's information.
- **# NWI types** refers to the number of different wetland classes according to the National Wetlands Inventory information (see Section 2.C. on preparing wetlands inventory maps). The number of NWI classes helps indicate the vegetative diversity of the wetland and directly relates to the wildlife habitat value.
- **# Upland Islands**, likewise, also helps characterize the habitat value of each wetland.
- **% Fill** provides information about the *Ecological Integrity* of the wetland as well as the opportunity for restoration (percent of fill in the wetland).
- **% Very poorly drained soils -** The amount of very poorly drained soil indicates how wet the wetland evaluation unit is and provides the necessary data for prime wetlands. Check the prime wetlands website for updated information regarding soils requirements for prime wetlands http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wt100-800.pdf .
- The amount of **Open water** and **Shoreland** associated with streams and/or ponds in the wetland also provides context for prime wetland designation and highlights the water quality (sediments and nutrients) & recreation functions.
- The size of the **educational area**, the **scenic/viewing area**, and the area suitable for **wetland-based recreation** relate to the cultural values of wetlands. These data are derived directly from the data forms and are usually determined in the field.

The final table that all wetland evaluation reports should include is the Average Score Summary Table for all 12 functions. This summarizes the Average Function Scores for all wetlands included in a study. Table 5.4 provides an example using the Center Harbor wetlands:

Table 5.4. Sample Summary Table showing average scores for all 12 Functions

WETLAND CODE	SIZE (acres)	AVERAGE SCORES FOR EACH FUNCTION											
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1	18	5.5	8.8	6.0	6.8	6.9	6.1	10.0	8.8	7.5	7.2	6.7	**10.0**
2	**123**	7.5	**9.8**	3.0	7.3	8.5	7.4	9.0	**10.0**	9.0	7.3	**10.0**	**40.0**
3	18	**9.6**	9.5	7.5	6.9	8.5	6.4	8.0	6.5	6.2	6.0	9.2	**30.0**
4	31	7.9	8.4	3.4	6.3	6.8	9.4	**10.0**	**10.0**	**9.5**	7.7	**10.0**	**20.0**
5	26	8.8	9.4	7.2	7.2	7.8	6.8	**10.0**	8.8	8.0	7.3	**10.0**	10.0
6	58	8.3	8.4	**7.6**	**7.4**	**9.6**	**9.8**	**10.0**	**10.0**	**9.5**	**9.0**	**10.0**	**50.0**

	ROSE	Highest values among all assessed wetlands
	GREEN	Second highest values among all assessed wetlands
	BLUE	Third Highest Values among all assessed wetlands

1 = Ecological Integrity
2 = Wetland-Dependent Wildlife Habitat
3 = Fish & Aquatic Habitat
4 = Scenic Quality
5 = Educational Potential
6 = Wetland-based Recreation
7 = Floodwater Storage
8 = Groundwater
9 = Sediment Trapping
10 = Nutrient Transformation
11 = Shoreline Anchoring
12 = Noteworthiness

Charts can provide the same information as most tables, but in variable and creative ways. The standard bar chart is very effective since it offers a visual (vertical or horizontal) depiction of the average scores derived from the NH Method evaluation. Bar charts can address single functional value sets for one or more wetlands, as shown in the Johnson-Perkins Wetland Functional Value summary (Figure 5.6) and the Ecological Integrity summary (Figure 5.7).

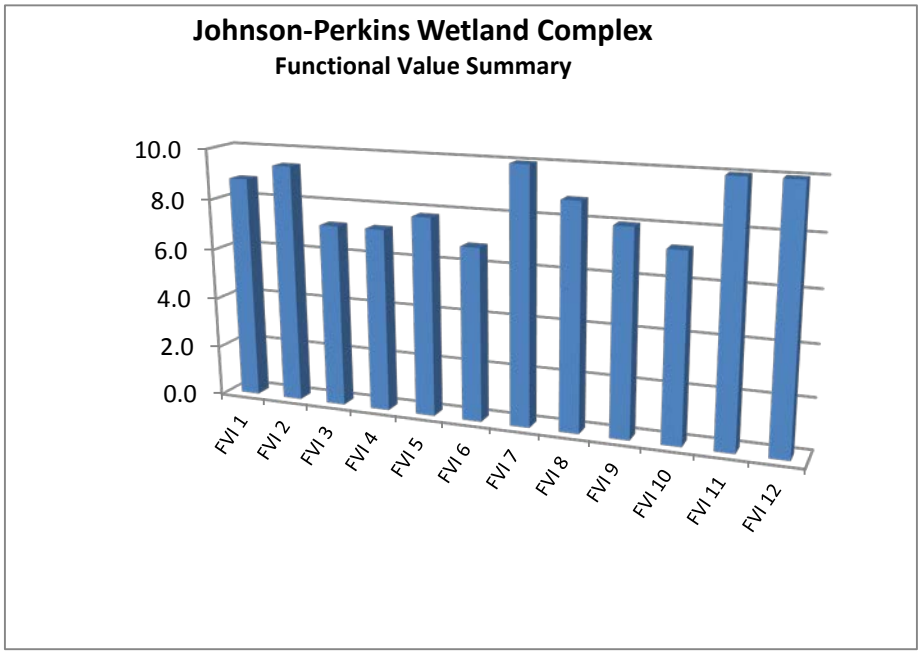

Figure 5.6. Sample Functional Value Summary for single wetland

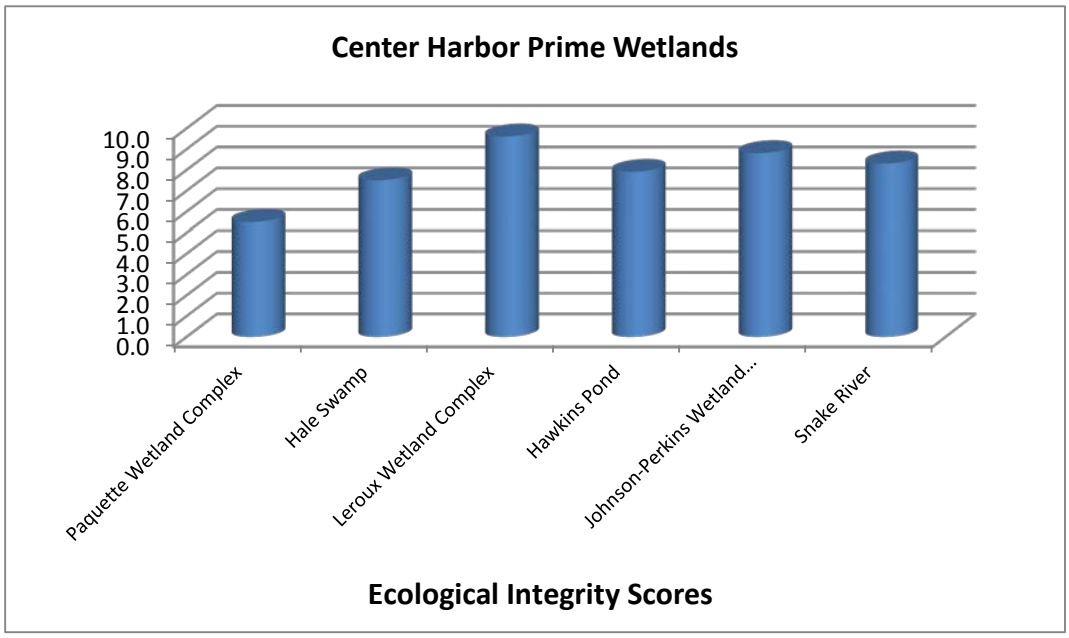

Figure 5.7. Sample chart showing the Average Function Scores for Ecological Integrity in the six Center Harbor Wetlands.

Bar charts can also address multiple functional values for a single or multiple wetlands. Figure 5.8 shows the average scores for all 12 functions in the six Center Harbor wetlands.

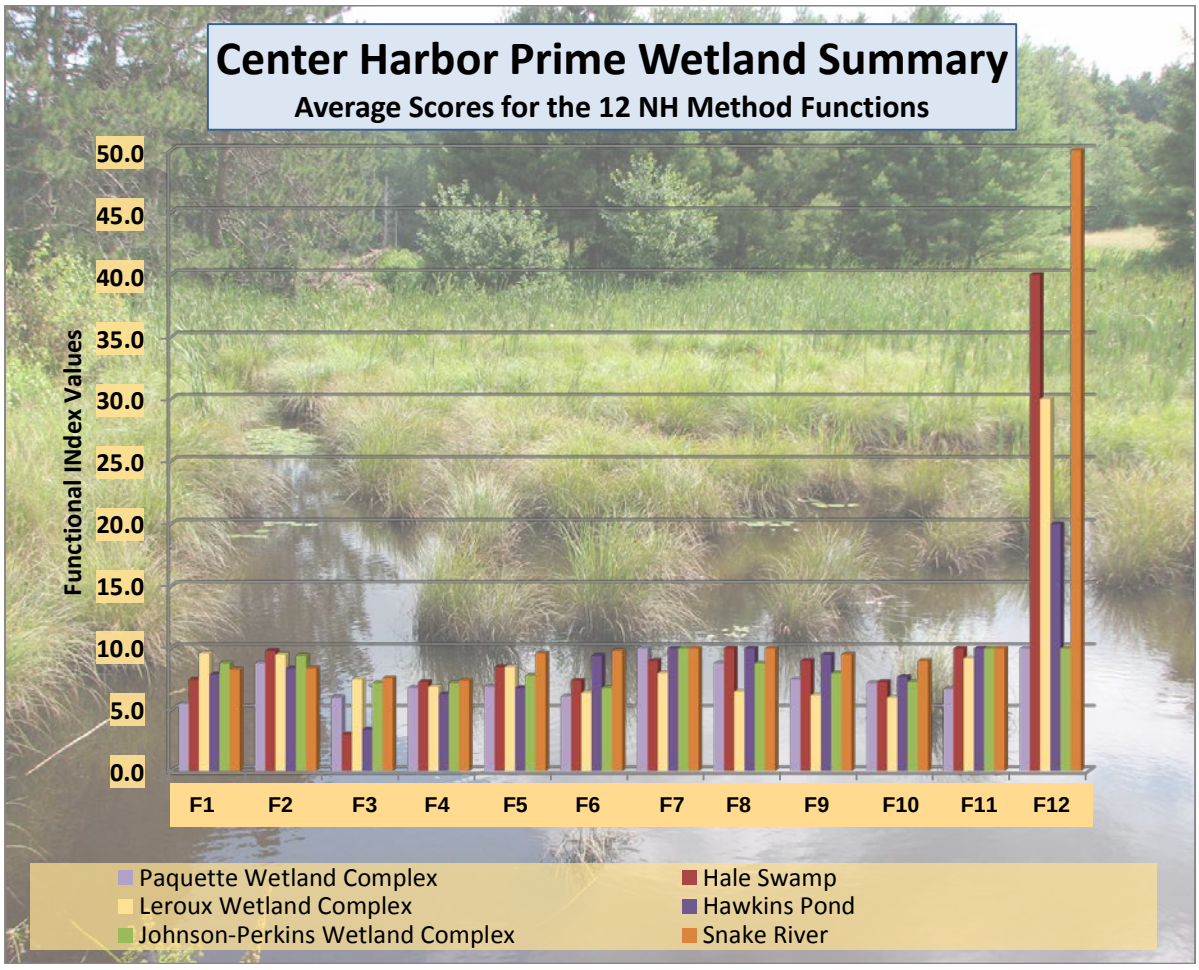

Figure 5.8. Sample bar chart showing a comparison of all Average Function Scores for all wetlands

Combination charts can also provide excellent visual displays of data. As an example, Figure 5.9 shows the scores for Wetland-Dependent Wildlife Habitat with the size of each wetland (the red line graph) compared with the Average Function scores (shown as blue bars):

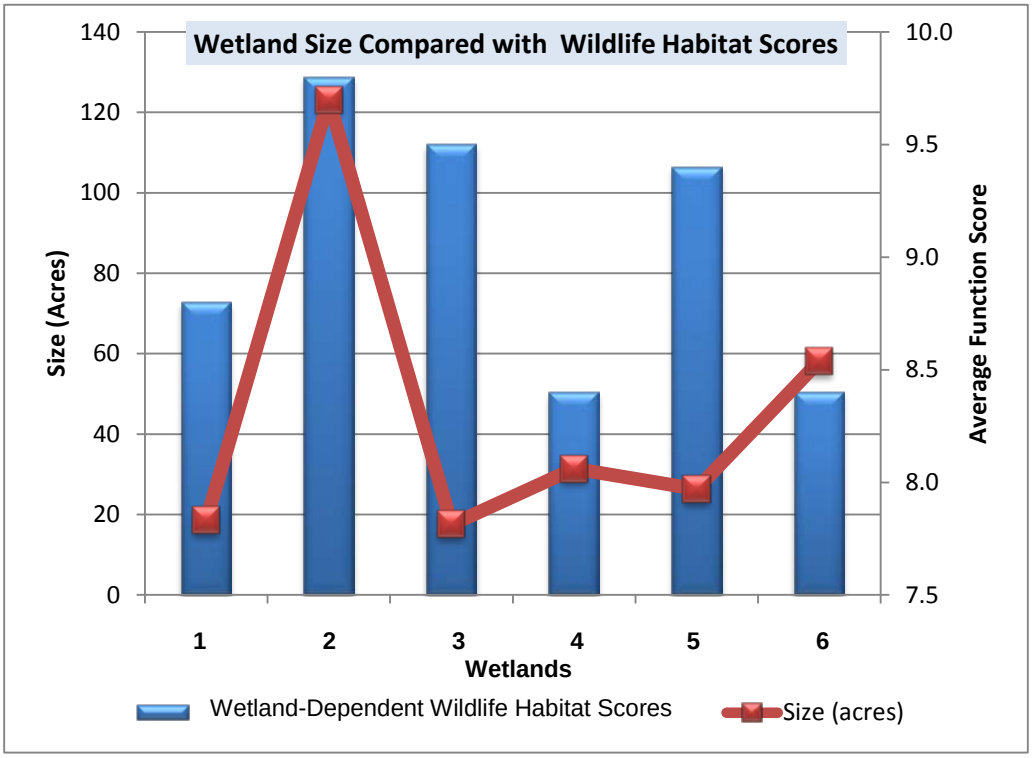

Figure 5.9. Sample summary chart comparing size with Wetland-Dependent Wildlife Habitat scores

A number of other chart combinations and styles are possible, including ones that highlight a particular master plan or land use goal such as protecting wetlands to prevent flood damage or maintain water quality. In the case of flood damage prevention the Flood Storage Function (Function 7) can be shown for each wetland in each major watershed identified in a study in order to better understand how each contributes to preventing floods (Figure 5.10)

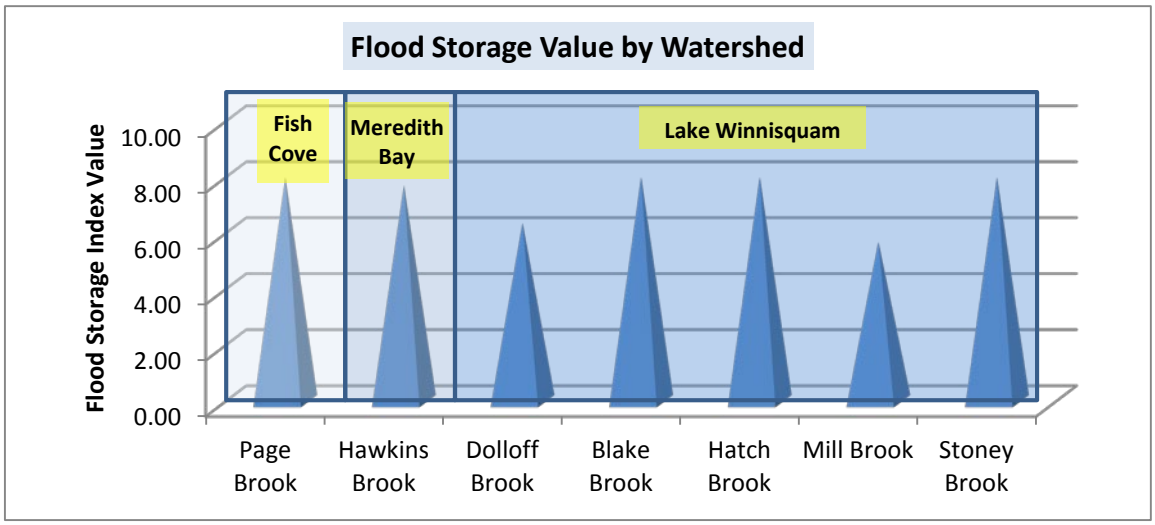

Figure 5.10. Sample chart showing Flood Storage Index Value by watershed for each wetland

When looking at the maintenance of water quality, two or more wetland functions can be compared sequentially in a given watershed in order to better understand how each wetland contributes to that goal (Figure 5.11).

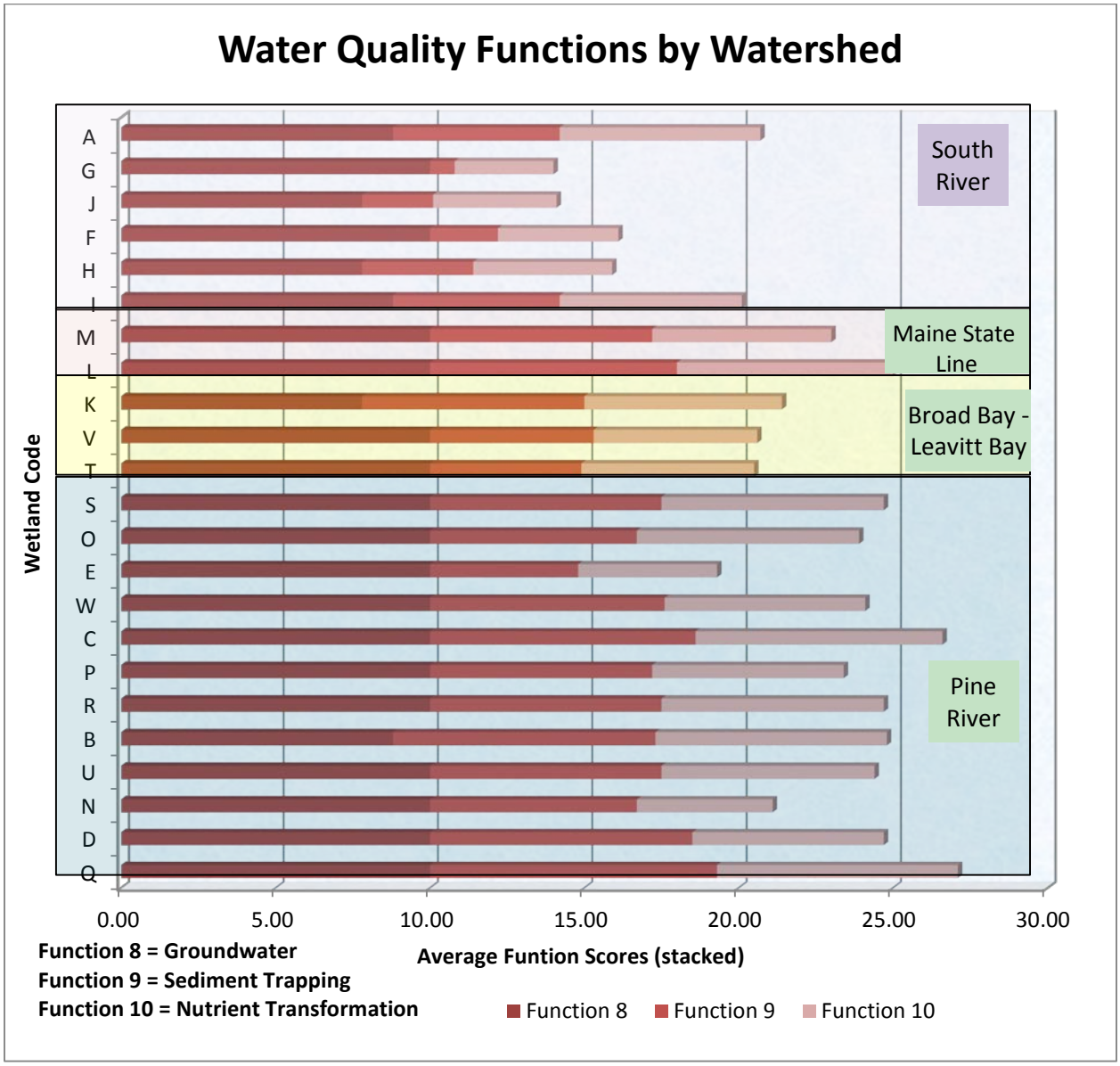

Figure 5.11. Sample chart illustrating a comparison of all three water quality functions grouped by watershed

C. How To Apply The Results To Wetland Protection Actions

The analysis of wetland scores is just the first step in targeting wetland protection applications that follow. In general, these applications can be organized into four areas:

- Education & Outreach
- Conservation Planning
- Policy & Regulatory Decision-Making
- Identifying Restoration Opportunities

While these applications are often inter-related, there are different types of information that can be derived from the results of the NH Method assessment. The discussion below highlights some commonly used wetland evaluation results for each activity.

Education and Outreach

As noted in Section 2 (How the NH Method Works) of the NH Method, there are a number of decisions that need to be made at the outset in terms of which audiences will receive and review the results generated by the NH Method. The very process of identifying, mapping, and evaluating wetlands in a given area will often engage a number of individuals and organizations that will learn about, publish and use information about the evaluations being completed. Perhaps the best outreach tool for a municipal application of the NH Method is the incorporation of volunteers involved in the inventory evaluation. Equally important is the support offered by the municipal officials who will need to understand and sign off on a project that entails a number of costs. State agencies will also need to understand the results of the wetland assessment, whether in conjunction with prime wetland designation, comments on a pending wetland permit application, or the impacts of development on water quality. Each audience will need to be briefed on both the methodology and the results of the wetland evaluation.

The use of a Powerpoint™ slide show or similar type of visual presentation to a particular audience can provide the necessary information to both initiate a project and report on the results. Public forums are a required part of any decision-making process and a well-tailored presentation can make a big difference in the outcome of any wetland protection initiative.

Brochures, posters, maps, newspaper articles and web sites are just a few of the other forms of media that can be used to convey the importance of wetland functions and the need to protect wetlands in a given area. Public recreation trail maps often highlight wetland areas for hiking, hunting, fishing, or other forms of outdoor recreation. Interactive web sites can present valuable information about local wetlands and can also be used to solicit input on identifying wildlife

species that frequent these areas. In one town that engaged in a wetlands inventory, an easel with a flipchart was put in the general store for citizens to write down wildlife sightings around the town's wetlands. Pictures were encouraged, and many of these ended up on the town's web site. This is a good way to involve ordinary citizens.

Conservation Planning

A map of the priority wetlands that were identified during a wetland evaluation project is a first step in determining whether or not a particular wetland can be protected. "Protected" in this sense refers to either outright acquisition of the fee title, or obtaining permanent easement restrictions (voluntary on the part of the landowner) on the parcels that comprise the target wetland. Critical to the understanding of land ownership patterns is a municipal tax map that can be obtained at the town hall. In many municipalities of the state these tax maps are now available digitally and can be downloaded either as image documents (e.g. as .pdf or .tif files) or as computer generated map files (e.g. shapefiles). The latter are more robust in that they can be viewed with the state conservation lands layer as an overlay, which quickly offers the user a view of where protected parcels currently exist. Figure 5.12 provides an example for some of the prime wetlands in Meredith:

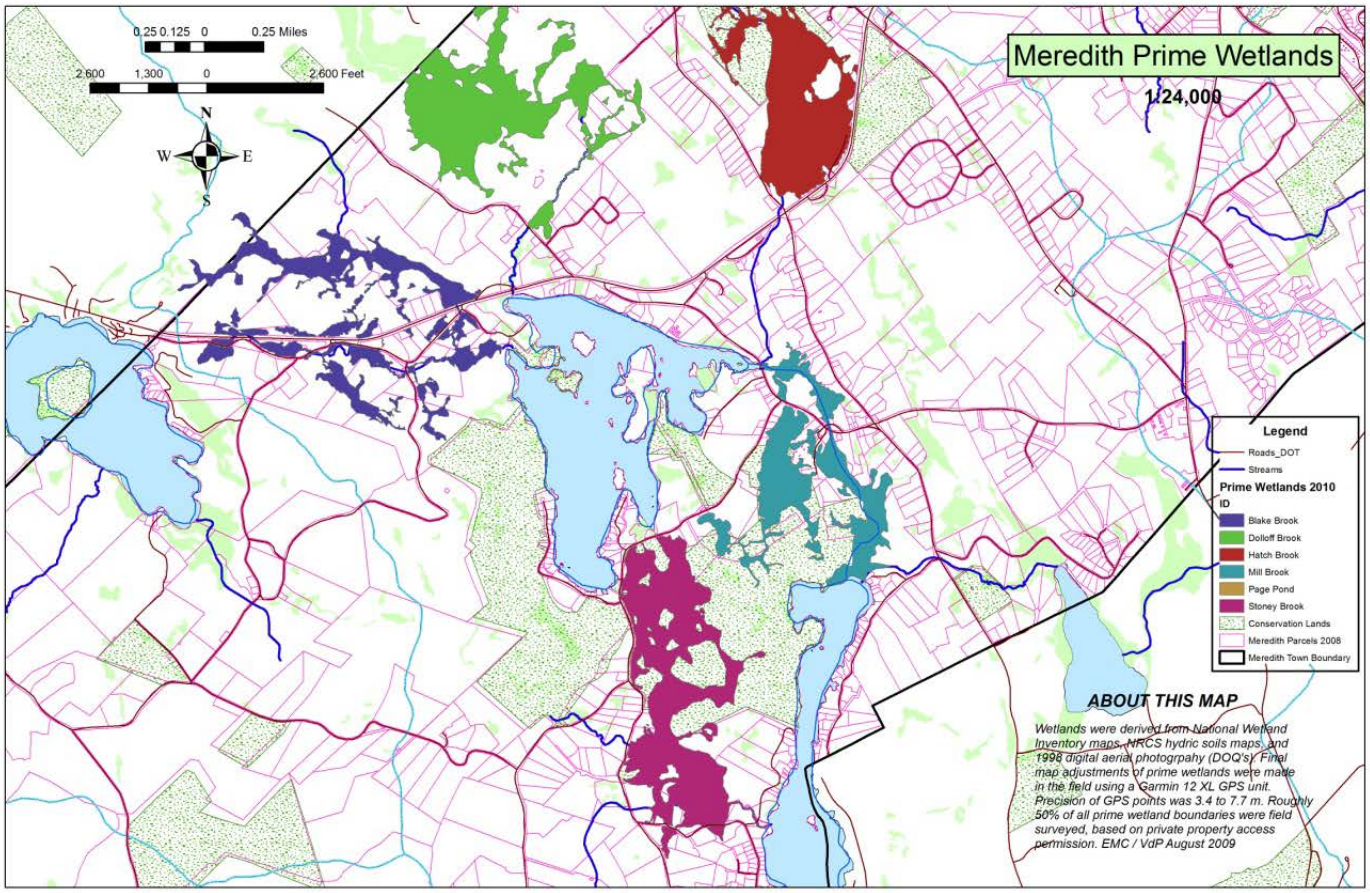

Figure 5.12. Sample tax map showing wetlands in relation to existing conservation parcels. Each wetland is color coded to easily distinguish one from another. Conserved areas are show in stippled green.

A table that summarizes the amount of conservation land associated with each target wetland is also very useful as an outreach tool and one that can help substantiate funding requests. Table 5.5 provides an example for six high scoring wetland complexes in Meredith.

Table 5.5. Sample table showing the amount of protected land associated with each wetland

MEREDITH PRIME WETLANDS					
Wetland Name	**ACRES**	**# of Parcels**	**# Cons. Parcels**	**Ac. in Cons.**	**% protected**
Dolloff Brook	192.2	12	0	0	0
Blake Brook	137.3	77	2	8.4	6.1
Mill Brook	132.9	51	5	28.3	21.3
Stoney Brook	207.2	29	2	118.4	57.2
Hatch Brook	213.0	19	2	76.4	35.9
Page Brook	281.4	29	8	203.2	72.2

Further analysis of the potential for future wetland conservation requires inquiries about landowner interest and willingness. If the land owner is willing, then next steps involve survey status, appraisal information, clear title and assessment of the costs involved. While outright donations of land or development rights are optimal, most protection efforts require the fund-raising and due diligence associated with any land conservation transaction. Wetlands that have been highly ranked through use of the NH Method can provide significant incentives for municipalities, land conservation organizations, and individuals to protect them and the land around them. The multiple resource values associated with prime wetlands, for example, can be conserved in perpetuity to the benefit of both landowners and residents of the municipality in which they are found.

Policy & Regulatory Decision-Making

Perhaps the most commonly cited reason for conducting a NH Method evaluation of wetlands in a given area is to support eventual passage of some type of regulatory mechanism that helps protect wetlands and water resources. Whether the goal is to ensure long-term flood storage capacity, drinking water supplies, or wildlife habitat, a comprehensive set of laws and rules that regulate land use in and adjacent to wetlands can have long-lasting impacts on how wetland resources are treated by the general public. A frequent use of a wetland inventory that initially identifies where wetlands are is to support a Wetlands Conservation Overlay District as a part of a town's zoning ordinance. Similarly, a frequent use of a wetlands evaluation is to support variable protection mechanisms relating to setbacks and buffers around wetlands. The following briefly describes the generalized steps in this process:

Generalized Steps for the Establishment of Local Wetland Regulations

1. Locate, identify, and map all wetlands in a given municipality, watershed, etc.
2. Classify each wetland vegetation class.
3. Establish size and/or average function score thresholds for those wetlands being evaluated.
4. Complete NH Method evaluation for each wetland that meets minimum criteria.
5. Complete the analysis and interpretation of the wetland assessment results.

A Wetlands Conservation Overlay District can be established through the Warrant Article process once Steps 1 and 2 are completed. This generally results in a "one-size-fits-all" approach to wetland protection where standardized setbacks are created for all wetlands in a town. After steps 3 – 6 are finished variable buffer setbacks can be created either through the state's prime wetland designation process or through another set of protective regulations that operate at the local level. Under RSA 482-A:15 *prime wetlands* are defined as being of such an unspoiled, fragile, or sensitive nature that they are significant wetland resources deserving of special protection. As of 2011, the state's rules require that a public hearing be held if any activity is proposed to occur in the prime wetland or within 100 feet of its edge. Check http://des.nh.gov/organization/commissioner/legal/rules/documents/env-wt100-800.pdf for updates to prime wetland rules. The designation process is clearly spelled out in Env-Wt Chapter 700 rules and requires considerable effort on the part of the town to complete the approval process.

Wetland Restoration Opportunities

A simple comparison of the average scores for Ecological Integrity will often indicate the opportunity for restoration for a given wetland complex. Low scores that result from previous fill, roadway or railroad crossings, blocked culverts or bridges, dams, or intensive land use in and adjacent to the wetland provide strong indications of restoration opportunity. For example, while wetlands in an urban setting may score very low on the wetland functions because of their proximity to development, one needs to take account of their "natural" habitat that provides respite from the built environment. It is understood that these "urban wetlands" not only may have enhanced educational and scenic value in the context of their location, they may also provide excellent opportunities for restoring or enhancing compromised function (note that these wetlands can also be flagged under the Noteworthiness Function).

The Aquatic Resource Mitigation (ARM) Fund in New Hampshire is the state's version of the *In Lieu Fee Program*, one that awards up to several millions of dollars per watershed for wetland restoration activities. A comprehensive wetland assessment using a methodology such as the NH Method is required in order to apply to the fund for money to pay for restoration activities. The NH method provides an 'existing conditions' report that can be compared with Function Scores that could be increased through various restoration, enhancement, or preservation options. For more information, refer to http://des.nh.gov/organization/divisions/water/wetlands/wmp/faq_arm_funds_committee.htm

While Ecological Integrity offers a 'one-stop shopping' approach to identifying restoration opportunities, any combination of functions can be analyzed for opportunities to improve the functioning of a given wetland. A wildlife enhancement approach may, for example, require the removal, enlargement, or replacement of a blocked, perched, or otherwise inoperable culvert that is blocking wildlife passage. Not only will this improve aquatic wildlife passage, it may also improve water quality and alter downstream hydrology in beneficial ways for groundwater recharge, flood dissipation, or nutrient transformation. Removal of invasive species is another activity that can enhance wildlife habitat. If town-wide goals are known and prioritized, wetlands that have compromised functions in these areas can be targeted for enhancement. Many of the compromised functions can be improved with good planning, adequate funding, and hard-working volunteers.