

MASTER'S PROJECT

LOCAL WETLAND PROTECTION

IN

THE HUDSON VALLEY

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ABSTRACT

A 2001 US Supreme Court decision limiting the scope of Section 404 of the Clean Water Act by eliminating federal authority over isolated wetlands has shifted the burden for regulating wetlands to states and local governments. Given New York State's current wetland regulations, the gap in the federal wetland regulations cannot be filled at the state level. This study centered on the question of whether local wetland protection ordinances can fill this regulatory gap.

Local wetland protection laws in the Hudson Valley were surveyed to provide insight into how many municipalities have local wetland protection ordinances, and to provide data as to the level of wetland protection. Of the 240 towns and villages located in the 10 counties in the Hudson Valley, only 30 percent have local wetland protection laws. Most of these municipalities also regulate buffers around wetlands and watercourses. Almost half of the municipalities with ordinances regulate wetland areas down to a no minimum size threshold and includes isolated wetlands, which therefore exceeds federal wetland regulations and fills this regulatory gap.

The study also included an analysis of municipalities that recently have passed, failed or is currently pursuing wetland protection ordinances to determine what challenges and issues were faced and what elements of the law required compromising. Officials

agreed getting the public involved early in the procedures was the most important issue. Political alignment was proved to determine the likelihood of a municipality to have such ordinances. Municipalities that failed to implement wetland protection regulations appeared to result from misinformation or a lack of information provided to the public. The most controversial element of these regulations is the buffer areas. Most towns had to compromise on the buffer areas. A grandfathering clause was also significant in getting the public to endorse the new regulations. Typically, activities surrounding residential and agricultural properties were important issues. Several recently passed wetland and watercourse regulations were the result of public concern for health and safety issues, such as flooding events.

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INTRODUCTION

Wetlands have been drained and filled in the United States since the time of Colonial America. It is estimated that the land that would eventually become the contiguous United States had approximately 221 million acres of wetlands. As of the mid-1980's only about 103 million acres, or less than half remained (Dahl et al, 1991). In the years between the mid-1950's and mid-1970's, the United States saw a significant loss of wetlands. It is estimated that between the mid-1980's and late 1990's 60,000 to 80,000 acres of wetlands were lost annually.

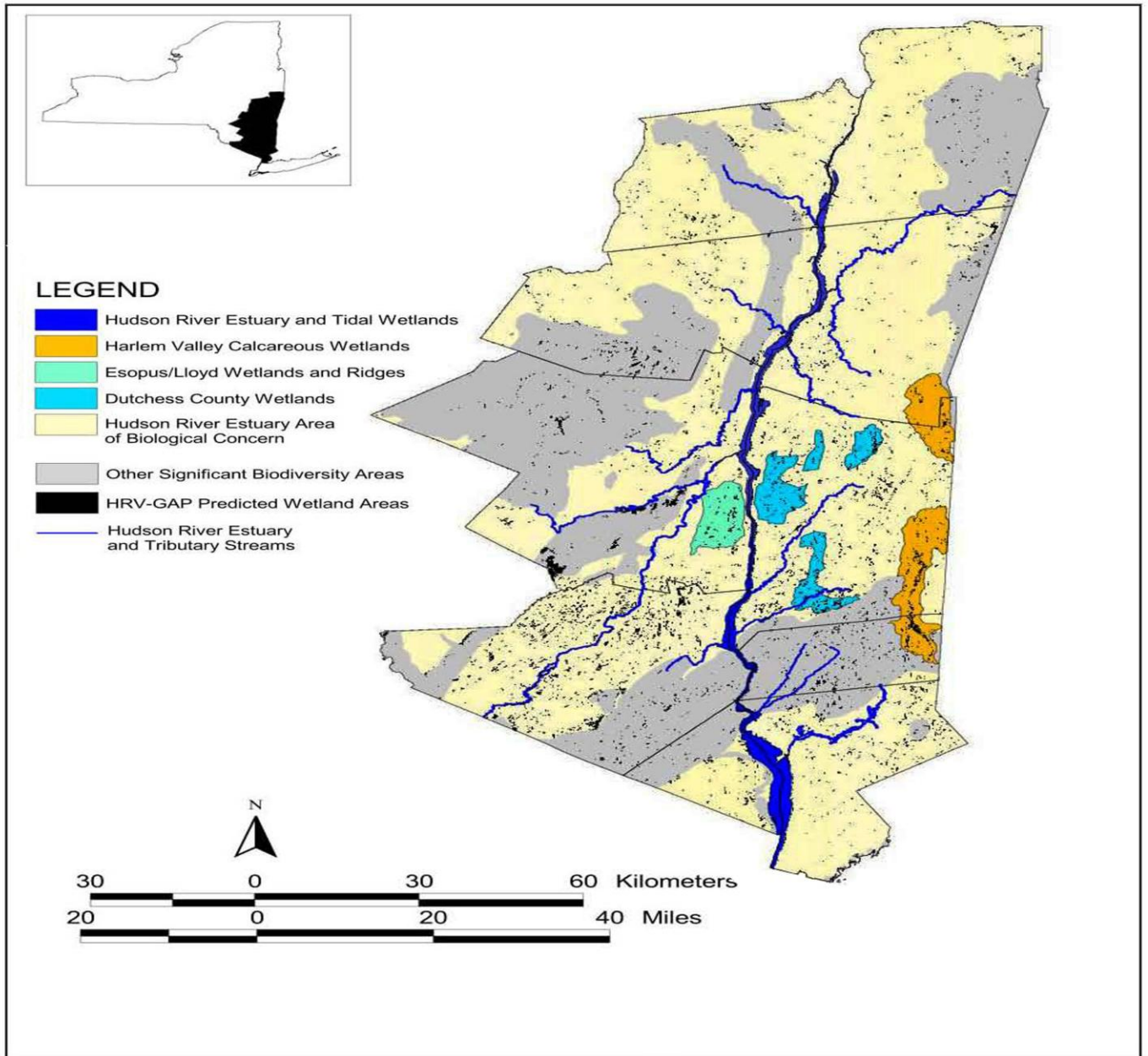
Like many states, New York State has lost a significant amount of wetland area. By the mid-1980's, New York had lost approximately 60 percent of its estimated original wetlands base (EPA, 2001). As of the mid-1990's, only an estimated 2.4 million acres remain in New York. Much of these wetland areas lie within the Adirondack and Lake Plain ecological zones. Other areas, like the Hudson Valley and Coastal Lowland ecological zones, contain significantly less wetland area, with an estimated 170,000, and 21, 000 acres of wetlands, respectively. The Hudson Valley had the greatest relative loss of wetlands in the state between the mid-1980's to the mid-1990's with a loss of over 4,400 acres (Huffman & Associates, 1999). The Hudson Valley encompasses less than 13 percent of the state's land area and contains about seven

percent of the States' wetlands. However, of the 57 wetland types found in New York State 29 are located in the Hudson Valley (Howard, et al., 2002). The region's diverse habitat types support an equally high degree of wildlife diversity with approximately 90 percent of the more than 400 mammals, birds, reptiles and amphibians native to New York found in this area.

The Hudson Valley is the valley adjacent to the Hudson River which includes 10 counties, extending from Westchester and Rockland Counties in the south up to Columbia and Albany Counties in the north (Figure 1). This region is characterized by hilly topography, and consequently many wetlands are defined by these valleys and depressions and are not expansive. These smaller wetland areas are some of the most ecologically and economically valuable habitats in the Hudson Valley as well as one of the most threatened. Most of the wetland impacts in the Hudson Valley are due to urbanization.

The federal government regulates all wetlands under Section 404 and 401 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act. The federal wetland regulatory agency responsible for overseeing these regulations is the U.S. Army Corps of Engineers (ACOE). The principal state regulations in New York are the Freshwater Wetlands Act, the Tidal Wetlands Act, and the Adirondack Park Agency (APA) Act. The New York State Department of Environmental Conservation (NYSDEC) regulates the

Figure 1 Wetlands in the Hudson Valley



Freshwater Wetlands Act, under Article 24 of the New York State Environmental Conservation Law (ECL), and the Tidal Wetlands Act under Article 25 of the ECL. Within the Adirondack Park, the Adirondack Park Agency administers both the Freshwater Wetlands Act and the APA Act. The Adirondack Park Agency regulates wetlands over one acre in size or any size wetland adjacent to open water.

In 2001 the U.S. Supreme Court issued a decision, Solid Waste Agency of Northern Cook County (SWANCC) vs. United States Army Corps of Engineers (531, US 159, 2001) which now limits the scope of Section 404 of the Clean Water Act as applied to isolated wetlands. The decision affirms the “primary responsibilities and rights of the States” over land and waters. By limiting the federal Section 404 program, the decision has shifted more of the economic burden for regulating wetlands to states and local governments. The question then is will state and local wetland regulations fill the gap in the federal wetland regulations?

In New York State, wetlands 12.4 acres (5 hectares) in size and larger are regulated by the NYSDEC. Under Article 24 of the NYS ECL in order for any of these wetlands to be regulated by the state they must be placed on an official NYSDEC Freshwater Wetlands Regulatory Map. Occasionally, certain wetlands determined to be of “unusual local significance” are also regulated. New York State is the only state in the Northeastern United States with such a large acreage threshold to regulate wetlands (see Table 1).

Table 1: Wetland Regulations in the Northeastern United States

State	Size	Isolated Wetland Protection
Connecticut	No size threshold	Yes
Maine	No size threshold	Yes
Massachusetts	No size threshold	Yes
New Hampshire	No size threshold	Yes
New Jersey	No size threshold	Yes
New York	12.4 acres	No
Pennsylvania	No size threshold	Yes
Rhode Island	No size threshold	Yes
Vermont	No size threshold	Yes

The Freshwater Wetlands Act requires the NYSDEC to map all those freshwater wetlands that are subject to jurisdiction of the law. The NYSDEC reports that it regulates over 15,000 wetlands throughout the state. However, according to the US Fish & Wildlife Service, National Wetland Inventory Maps, over 281,000 palustrine

wetlands are located in New York State. The differences in number and wetland areas can be attributed to mapping criteria. It is estimated that 40 to 60 percent of the wetlands found in the Hudson Valley are less than the 12.4 acre minimum size limit to be regulated by the state. In addition, the elimination of federal regulation of isolated wetlands has resulted in approximately 20 percent of New York's wetlands being unprotected. (Environmental Advocates of New York 2006). Given New York State's current wetland regulations, the gap in the federal wetland regulations cannot be filled at the state level.

Across the United States approximately 5,000 local wetland protection regulations currently exist (Kulser, 2003). Within the Hudson Valley it has been estimated that perhaps no more than five percent of the towns have local wetland protection regulations. Article 24 of the ECL allows municipalities to co-regulate state wetlands, either pursuant thereto or in accordance with Municipal Home Rule Law. The Municipal Home Rule Law authorizes every local government to adopt laws relating to its "property, affairs, or government", so long as those enactments are not inconsistent with the Constitution or any general law. So where communities do decide to co-regulate, their regulations must be at least as stringent, and may be more protective,

than Article 24. Municipalities can also regulate wetlands that have not been designated by the state.

Some communities in the Hudson Valley are acting to make sure isolated wetlands are also being protected. These small and sometimes “isolated” wetlands are rarely isolated from an ecosystem perspective, and provide valuable services to human communities. Isolated wetlands, like other wetlands, contribute to groundwater recharge and floodwater retention and because they serve as nutrient sinks, they help maintain water quality. In the Hudson Valley, small wetlands are important habitat for plants and animals and are key to maintaining the Hudson River’s globally important amphibian and reptile diversity. Many of these amphibians need these small wetlands or vernal ponds for breeding. The average vernal pond size varies greatly – several square feet to several acres, and are considered isolated. These small ecosystems would not be regulated by the ACOE. A few municipalities in the Hudson Valley have regulations that specifically addressed vernal ponds.

The NYSDEC regulates an “Adjacent Area” consisting of a 100 foot buffer, measured horizontally from the boundary of the wetlands, around each state wetland. The ACOE regulations do not include a buffer requirement. Many local governments in the Hudson Valley that have wetland protection regulations also have jurisdiction over land use in the buffer areas surrounding wetlands.

At the federal level, watercourses are protected and included in the Clean Water Act as “waters of the US”. At the state level, New York State watercourses are also protected. The policy of New York State as set forth in Title 5 of Article 15 of the Environmental Conservation Law is to preserve and protect lakes, rivers, streams and ponds. The NYSDEC regulates watercourse bed and banks as well as within 50 feet of the banks for a stream with a classification and standard of C(T) or higher. All waters in the state are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Watercourses can have a classification A, B, C and D. The classification A is assigned to waters used as a source of drinking water. Classification B indicates a best usage for swimming and other contact recreation, but not for drinking water. Classification C is for waters supporting fisheries and suitable for non - contact activities. The lowest classification and standard is D. Waters with a classification A through C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning. At the local level, several municipalities in the Hudson Valley have a watercourse ordinance providing protection to the watercourse. Some municipalities also regulate a buffer around watercourses. Across the United States, the width of a watercourse buffer varies from 20 to 200 feet within watercourse ordinances (Heraty, 1993).

OBJECTIVES

The purpose of this research was as follows:

To survey local wetland protection laws in the Hudson Valley to provide insight into how many municipalities have local wetland protection ordinances. Due to the US Supreme Court “SWANCC Decision” data would be collected to determine what level of wetland protection is provided. Additionally, because watercourses are considered “waters of the US” by the ACOE, watercourse protection ordinances would also be included in the survey.

To analyze municipalities that recently have passed local wetland protection ordinances to determine what challenges and issues were faced and what elements of the law required compromising.

To analyze municipalities that are currently pursuing local wetland protection ordinances to determine what challenges and issues they are facing.

To analyze municipalities that have tried to enact a local wetland protection ordinance but failed to determine what challenges and issues were faced and why the ordinance failed to pass.

My objective for this research is to be able to determine why certain municipalities have been successful or not in passing wetland protection regulations and what is needed in local ordinances if they are going to adequately protect wetland resources.

METHODOLOGY

To develop a comparative analysis, zoning and building officials in all 240 towns and villages within the Hudson Valley were contacted to see if wetlands protection laws were adopted. If local wetlands regulations existed, the following information was obtained: the date of adoption; minimum size of wetland area that is regulated; and width of regulated upland buffers adjacent to wetlands, if any. Municipality officials were also surveyed to see whether watercourse or stream protection ordinances were implemented. If a municipality had a watercourse protection ordinance it was determined whether regulated buffers adjacent to the watercourse also existed.

Additional research consisted of a thorough literature review and analysis of passed, proposed and failed local wetland protection ordinances from 2005 to date, within the 10 counties of the Hudson Valley. Municipality officials consisting of planning board chairmen, town supervisors, village mayors, and/or environmental commission chairmen that were directly involved with the process were consulted in person and by phone. For the 10 municipalities which recently passed wetland protection regulations, I was interested in answering the following questions: What were the challenges and issues faced during the drafting of the law? What elements of the law may have required compromise in order to satisfy public concerns? For municipalities proposing wetlands protection regulations I was interested in answering the question: What

challenges and issues are being faced by the board? Within the Hudson Valley, a total of five municipalities were in the process of proposing wetland protection laws. For municipalities with failed wetlands protection laws, why did the law fail? A total of five municipalities had wetland protection laws that failed to be adopted within the last five years.

RESULTS

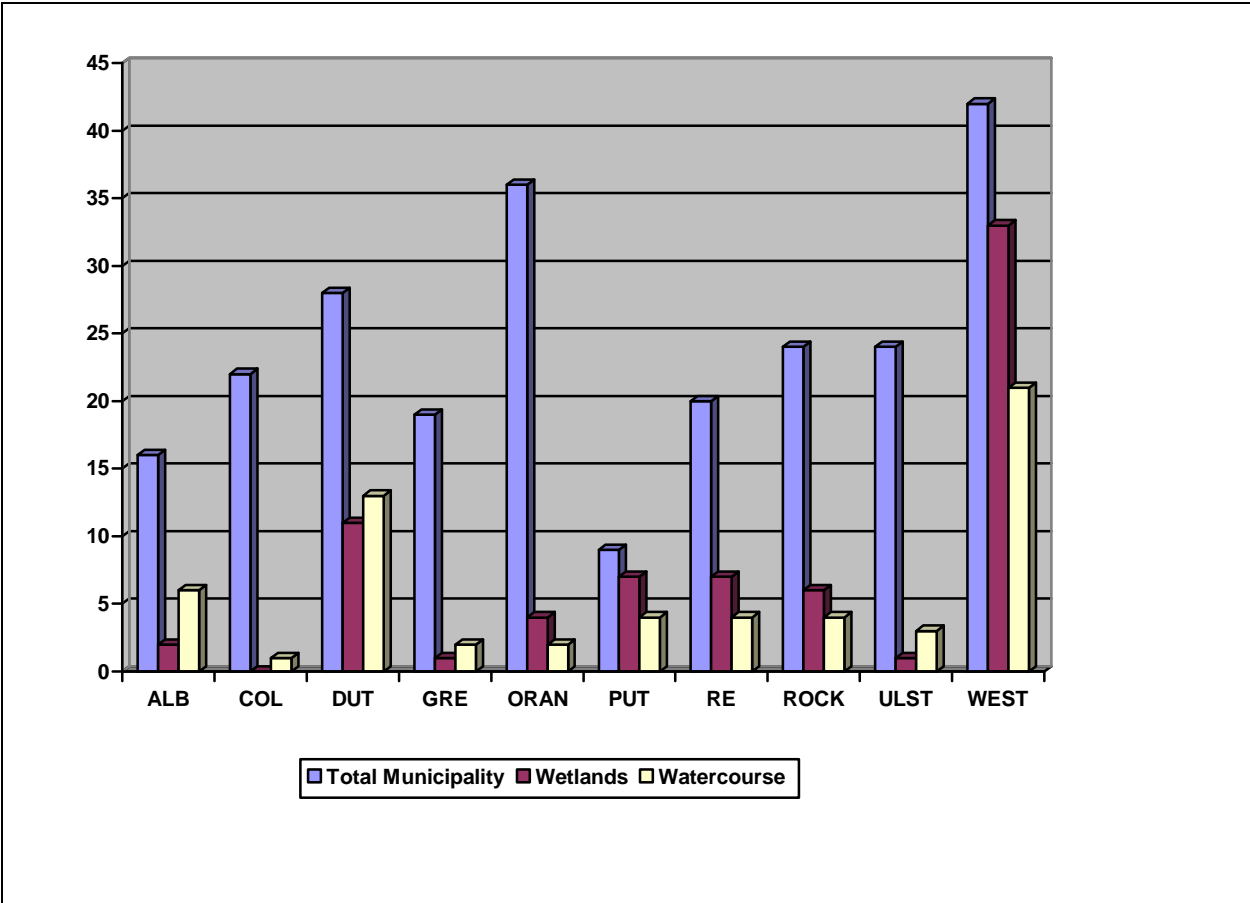
The Hudson Valley consists of 10 counties comprised of 240 towns and villages. Seventy-two of which have wetland protection ordinances. These represent slightly less than one-third (30 percent) of the municipalities in the Hudson Valley. The municipalities in Columbia County had 70 local wetland protection ordinances. In Greene County only one municipality had a wetland protection ordinance. These counties also represent the lowest population densities in the Hudson Valley, Greene County with 76 people per square mile and Columbia County with 99 people per square mile. Additionally, the southern portion of Greene County contains the Catskill Forest Reserve, parklands owned, in part, by the NYSDEC. In Ulster County only one of 24 municipalities had local wetland ordinances. Ulster County is the largest county in the Hudson Valley at over 742,353 acres. The northern portion of Ulster County also contains the Catskill Forest Reserve.

In contrast, Westchester County had the most local wetland protection ordinances: 79 percent (33 of the 42 municipalities). This county is the most developed, has the highest population density with 2,134 people per square mile and is the second wealthiest per capita in the Hudson Valley. The Westchester County Soil and Water Conservation District has been a strong supporter of the protection of waterbodies, watercourses, wetlands and flood plains.

The Westchester County Soil and Water Conservation District was originally created in 1967 to address flooding issues and has since developed a program with a distinct suburban/urban conservation orientation. The County has been the initial force behind most of the municipalities creating their own wetland protection ordinances. Almost half of the municipalities in the county adopted components of the first edition of the Westchester County Soil and Water Conservation District's *Model Ordinance for Wetland Protection* (1988).

Putnam County was the second highest county, with 78 percent, or seven out of nine municipalities. Although Putnam is the second smallest county in the Hudson Valley, it has the highest percentage of wetland acreage and is also the wealthiest per capita (the second wealthiest county per capita in New York State in 2009). Figure 2 is a bar graph, indicating by county the total number of municipalities, municipalities with wetland protection regulations, and municipalities with watercourse protection regulations. Tables 2 through 11 list the municipalities by county, indicating which towns have local wetland protection ordinances and which do not.

Figure 2 Summary Bar Graph



Total number of municipalities, number of municipalities with wetland protection regulations, and municipalities with watercourse protection regulations for each county in the Hudson Valley.

Most municipal officials state that wetlands ordinances took approximately two years to implement; some took up to five years. There was considerable variation within the wetland regulations reviewed. Most municipalities used the general definition to define wetlands, which included the three-parameter approach, hydrophytic vegetation, hydric soils and hydrology. Some towns further defined the definition using either the *Corps of Engineers Wetlands Delineation Manual* (1987) or the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989). The NYSDEC defines wetlands primarily using the hydrophytic vegetative parameter. The size of the regulated wetlands varies greatly from no minimum threshold to a minimum of 12.4 acres, the same minimum size regulated by the NYSDEC. Many municipalities used a minimum of one-tenth acre because the ACOE allows for disturbance to wetlands under one-tenth acre under the Nationwide Permit Program. Several municipalities also regulated a “buffer” or “adjacent area” around wetlands. Over 90 percent of the municipalities that had a local wetland protection ordinance regulated buffers around wetlands. Typically, buffer areas consist of 100 feet from the wetland boundary. Some municipalities used a variable buffer size based upon such factors as soil type, slope or wetland size, which was the most common. Exempt activities within buffer areas typically included public health, emergency work, maintenance and repair of existing structures, and in some cases, agricultural activities.

Regulated activities were consistent from town to town. Some towns included the restricted use of chemicals. Several towns included forestry practices within their

wetland ordinances. Permit applications varied considerably from town to town with whom the permit would be filed with and the various town boards for decision and enforcement. The criteria for permits were similar among towns, though some require the posting of a performance bond when the permit is approved. Both civil and criminal penalties were permissible for violations. However, fines ranged widely for first and second violations.

A total of 60 municipalities in the Hudson Valley (25 percent) had watercourse ordinances. Some municipalities also regulated watercourses and waterbodies. Over 86 percent of the municipalities that had a local watercourse protection ordinance also regulated buffers around the watercourses. Typically, buffer areas consisted of 100 feet from the high water boundary of the watercourse. Some municipalities used a variable buffer size, based upon factors such as watercourse state classification or size.

Local government approaches include adopting official wetland maps, usually NYSDEC Freshwater Wetland Maps and/or USFWS NWI maps and incorporating wetland maps into their policies. The NYSDEC Freshwater Wetlands Maps basic mapping process involves first interpreting aerial photos and drawing the wetland areas 12.4 acres or larger onto an aerial photo, then transferring the wetland boundary from the air photo to the 1:24,000, 7 1/2 minute quadrangle topographic maps. The original wetland maps were filed between 1984 and 1987. The purpose of NWI survey was not to map all wetlands and deepwater habitats, but rather, to use aerial photo interpretation

techniques to produce thematic maps that show the larger types that can be identified by such techniques. The objective was to provide better geospatial information on wetlands than found on the USGS quadrangle topographic maps. The NYSDEC Freshwater Wetlands Maps and the US Fish & Wildlife Service, National Wetland Inventory Maps (NWI) were reviewed for each county. Total wetland acreage, number of wetlands and percent of county in wetlands for both state and NWI were calculated using digital maps with a GIS program and are shown in Table 12. NYSDEC regulates 3,170 wetland areas encompassing 178,359 acres throughout the Hudson Valley. NWI Maps depict 83,485 wetland areas encompassing 269,252 acres within the same region. Due to these mapping criteria, there are significant differences in number and wetland areas between the NYSDEC Freshwater Wetlands Maps and the NWI maps. NWI maps significantly underestimate the extent of wetlands. Based upon years of field experience conducting wetland delineations, it is my estimate that there up to two times more wetland areas in existence in the Hudson Valley than depicted on the NWI maps, especially in forested areas. A study in the Chesapeake Bay area indicated up to three times more existing wetland areas than shown on the NWI maps (Tiner, et al, 1994).

In analyzing municipalities that recently passed, failed to pass, or are currently pursuing these regulations, all officials agree early public involvement in the procedures is the most important issue. Several recently passed wetland and watercourse regulations were the result of public concern for health and safety issues such as flooding events. Certain elements of the law required compromise in order to satisfy public concerns.

Buffers are the most controversial of the wetland protection laws and as a result, several towns have not applied buffers around wetlands and watercourses to any individual lot upon which a residence already exists. Most municipalities would exempt agricultural properties from these new regulations. Grandfathered zoning conditions and allowing a variance from the zoning law for further relief was a typical concession many towns adopted to get the public to endorse the new regulations. Politics play a significant role in most municipalities. All municipalities that have failed to enact a local wetland law have been controlled by the Republican Party. Most - but not all - municipalities that recently passed wetlands protection regulations were led by Democratic leaders.

Table 2 - Albany County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Berne	No	No			
Town of Bethlehem	No	Yes (2007)			100
Town of Coeymans	No	No			
Town of Colonie	No	Yes (2007)			100
Town of Green Island	No	No			
Town of Guilderland	Yes (old) DEC only	Yes	12.4 acres	100	100
Town of Knox	No	No			
Town of New Scotland	No	No			
Town of Rensselaerville	Yes (2007)	Yes (2007)	No Min.	100	
Town of Westerlo	No	Yes			
Village of Altamont	No	No			
Village of Colonie	No	Yes (1995)			50
Village of Green Island	No	No			
Village of Ravena	No	No			
Village of Voorheesville	No ('76 revoked)	No			
Village of Menands	No	No			

Table 3 - Columbia County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Ancram	No	Yes			150
Town of Austerlitz	No	No			
Town of Canaan	No	No			
Town of Chatham	No	No			
Town of Claverack	No	No			
Town of Clermont	No	No			
Town of Copake	No	No			
Town of Gallatin	No	No			
Town of Germantown	No	No			
Town of Ghent	No	No			
Town of Greenport	No	No			
Town of Hillsdale	No	No			
Town of Kinderhook	No	No			
Town of Livingston	No	No			
Town of New Lebanon	No	No			
Town of Stockport	No	No			
Town of Stuyvesant	No	No			
Town of Taghkanic	No	No			
Village of Chatham	No	No			
Village of Philmont	No	No			
Village of Kinderhook	No	No			
Village of Valatie	No	No			

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
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Town of Amenia	No	No			
Town of Beekman	No (Drafted 08)	No			
Town of Clinton	Yes (2009)	Yes	1/2 Acre	50/100	100
Town of Dover	No	Yes			50/100
Town of East Fishkill	Yes (2007)	Yes	1/2 acre	50/75/100	50
Town of Fishkill	Yes (2003)	Yes	1 acre	50/75/100	30/50
Town of Hyde Park	No (Passed in '09 overturned)	No			
Town of LaGrange	Yes (1994)	Yes	1 acre	50/75/100	20/200
Town of Milan	Yes	Yes	No Min.	100	100
Town of Northeast	No	No			
Town of Pawling	Yes	Yes	¼ acre	100	100
Town of Pine Plains	No	Yes			100
Town of Pleasant Valley	Yes (2003)	Yes	1/2 acre	25/50/75/100	25/100
Town of Poughkeepsie	Yes (2003)	Yes	1 acre	50/100	5/200
Town of Red Hook	No	No			
Town of Rhinebeck	Yes (2009)	Yes	No Min.	100	100
Town of Stanford	No	No			

Table 4 - Dutchess County

Table 4 - Dutchess County

Continued

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Union Vale	No	No			
Town of Wappinger	Yes (2005)	Yes	No Min.	100	100
Town of Washington	Yes (2008)	Yes	1/2 Acre	100	100
Village of Fishkill	No	No			
Village of Millbrook	No	No			
Village of Millerton	No	No			
Village of Pawling	No	No			
Village of Red Hook	No	No			
Village of Rhinebeck	No	No			
Village of Wappingers Falls	No	No			
Village of Tivoli	No	No			

Table 5 - Greene County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Ashland	No	No			
Town of Athens	No	No			
Village of Athens	No	No			
Town of Cairo	No	No			
Town of Catskill	No	No			
Village of Catskill	No	No			
Town of Coxsackie	No	No			
Village of Coxsackie	Yes	Yes	No Min.	50	50
Town of Durham	No	No			
Town of Greenville	No	No			
Town of Halcott	No	No			
Town of Hunter	No	No			
Village of Hunter	No	No			
Town of Jewett	No	No			
Town of Lexington	No	No			
Town of New Baltimore	No	Yes			100
Town of Prattsville	No	No			
Village of Tannersville	No	No			
Town of Windham	No	No			

Table 6 - Orange County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Blooming Grove	No	No			
Town of Chester	Yes (1976)	Yes	No Min.	100	50/100
Town of Cornwall	No	No			
Town of Crawford	No	Yes			50
Town of Deerpark	No	No			
Town of Goshen	No	No			
Town of Greenville	No	No			
Town of Hamptonburgh	No	No			
Town of Highlands	No	No			
Town of Minisink	Yes	No	No Min.	100	
Town of Monroe	Yes (1990)	No	No Min.	100	
Town of Montgomery	No (Failed)	No			
Town of Mount Hope	No	No			
Town of New Windsor	No	No			
Town of Newburgh	No	No			
Town of Tuxedo	No	No			
Town of Walkkill	No (Failed)	No			
Town of Warwick	No	No			
Town of Wawayanda	No	No			
Town of Woodbury	No	No			

Table 6 - Orange County

Continued

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Village of Chester	No	No			
Village of Cornwall	No	No			
Village of Florida	No	No			
Village of Goshen	No	No			
Village of Harriman	No	No			
Village of Highland Falls	No	No			
Village of Maybrook	No	No			
Village of Monroe	No	No			
Village of Tuxedo Park	No	No			
Village of Unionville	No	No			
Village of Washingtonville	No	No			
Village of Greenwood Lake	No	No			
Village of Montgomery	No	No			
Village of Kiryas Joel	No	No			
Village of Walden	Yes (1976 r. 1986)	No	No Min.	100	
Village of Warwick	No	No			

Table 7 - Putnam County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Village of Brewster	No	No			
Town of Carmel	Yes (1994)	Yes	5,000 sq ft.	100	100
Village of Cold Spring	No	No			
Town of Kent	Yes (88) Under Review	No	1 acre	100	
Village of Nelsonville	Yes (80's)	Yes	¼ acre	100	50
Town of Patterson	Yes (2005)	No	½ acre		
Town of Phillipstown	Yes	Yes	No Min.	100	100
Town of Putnam Valley	Yes	Yes	1/2 Acre	100	100
Town of Southeast	Yes (2003)	No	1/10 acre	100/200	

Table 8 - Rensselaer County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Berlin	No	No			
Town of Brunswick	No	No			
Village of Castleton On Hudson	Yes	Yes			
Town of East Greenbush	Yes (2008)	Yes	No Min.	25/100	50
Village of East Nassau	No	Yes			30
Town of Grafton	Yes (1976) DEC Only	No	12.4 acres	100	
Town of Hoosick	No	No			
Village of Hoosick Falls	No	No			
Town of Nassau	Yes (86 r. 08)	Yes	No Min.	30	30/100
Village of Nassau	No	No			
Town of North Greenbush	No	No			
Town of Petersburg	Yes (1976)	No	No Min.	100	
Town of Pittstown	No	No			
Town of Poestenkill	No	No			
Town of Sand Lake	Yes (1976)	No	No Min.	100	
Town of Schaghticoke	No	No			
Village of Schaghticoke	No	No			
Town of Schodack	Yes (1976) DEC Only	No	12.4 acres	100	
Town of Stephentown	No	No			
Village of Valley Falls	No	No			

Table 9 - Rockland County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Village of Airmont	Yes	Yes	1/10 acre		
Vil of Chestnut Ridge	Yes (1987)	Yes	1/10 acre	100	100
Town of Clarkstown	No	No			
Vil GrandView- Hudson	No	No			
Town of Haverstraw	Yes (1976)	No			
Village of Haverstraw	No	No			
Village of Hillburn	No	No			
Village of Kaser	No	No			
Village of Montebello	Yes (2004)	No	1/10 acre		
Vil of New Hempstead	Yes (1984)	Yes	1/10 acre	100	100
Village of New Square	No	No			
Village of Nyack	No	No			
Town of Orangetown	No	No			
Village of Piermont	No	No			
Village of Pomona	No	No			
Town of Ramapo	No	No			
Village of Sloatsburg	No	No			
Village of South Nyack	No	No			
Village of Spring Valley	No	No			
Town of Stony Point	No	No			
Village of Suffern	No	No			
Village of Upper Nyack	No	Yes (2007)			
Village of Wesley Hills	Yes(84 r. 02)	No	1/10 acre		
Vil of West Haverstraw	No	No			

Table 10 - Ulster County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Denning	No	No			
Town of Esopus	No	No			
Town of Gardiner	No (Drafted)	Yes			100
Town of Hardenburgh	No	No			
Town of Hurley	No	No			
Town of Kingston	No	No			
Town of Lloyd	No	No			
Town of Marletown	No	No			
Town of Marlborough	No	No			
Town of New Paltz	No	No			
Town of Olive	No	No			
Town of Plattekill	No	No			
Town of Rochester	No	No			
Town of Rosendale	No	No			
Town of Saugerties	No	No			
Town of Shandaken	No	No			
Town of Shawangunk	No	No			
Town of Ulster	No	No			
Town of Wawarsing	No	No			
Town of Woodstock	Yes (2009)	Yes	No Min.	50/100	30-100
Village of Ellenville	No	No			
Village of New Paltz	No	Yes (1977)			20
Village of Saugerties	No	No			
City of Kingston	No	No			

Table 11 - Westchester County

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland Size	Wetland Buffer (Feet)	Stream Buffer (Feet)
Village of Ardsley	Yes (2003)	Yes	No Min.	25	25
Town of Bedford	Yes (73 r. 91)	Yes	No Min.	100	100
Village of Briarcliff Manor	Yes (73 r. 76)	No	No Min.	50/100	
Village of Bronxville	No	No			
Village of Buchanan	Yes (1988)	Yes	No Min.	100	100
Town of Cortlandt	Yes (87 r. 89 r. 04)	Yes	No. Min.	100	100
Vil of Croton-On-Hudson	Yes (88)	Yes	1/4 acre	100	100
Village of Dobbs Ferry	No	No			
Town of Eastchester	No	No			
Village of Elmsford	No	No			
Town of Greenburgh	Yes (76 r. 79 r. 03)	Yes (1991)	No Min.	100	100
Town & Vil of Harrison	Yes (76)	Yes	No Min.	100	50
Village of Hastings-On-Hudson	Yes (92)	No	0.5 acres	100	
Village of Irvington	Yes (91)	Yes	No Min.	100	25
Village of Larchmont	Yes (76)	No	1/4 acre	100	
Town of Lewisboro	Yes (87 r. 90 & 95 r. 04)	Yes	No Min.	150	150
Town of Mamaroneck	Yes (76 r. 86)	No	1/4 acre	100	
Village of Mamaroneck	Yes (77 r. 07)	No	2,500 sq. ft.	100	
Town & Vil of Mt. Kisco	Yes (91)	No	No. Min.	100	
Town of Mt. Pleasant	Yes (76 r. 94)	Yes	No Min.	50	50
City of Mount Vernon	Yes	No	No Min.	25	
Town of New Castle	Yes (79 repealed 90 r. 92 r. 01)	Yes	1/10 acre	100	
City of New Rochelle	Yes (76 r. 96 r. 09)	No	1/4 acre	50	
Town of North Castle	Yes (76 r. 81, 90 & 91)	Yes	No Min.	100	
Town of North Salem	Yes (87 r. 88)	No	No Min.	100	

Table 11 - Westchester County (Continued)

COMMUNITY	Wetland Ordinance	Stream Ordinance	Minimum Regulated Wetland	Wetland Buffer (Feet)	Stream Buffer (Feet)
Town of Ossining	Yes (76 r. 94 r. 98)	Yes	½ acre	100	50
Village of Ossining	Yes (76) DEC Only	No	12.4 acre	100	
City of Mount Vernon	Yes	No	No Min.	25	
Town of New Castle	Yes (79 repealed 90 r. 92 r. 01)	Yes	1/10 acre	100	
City of New Rochelle	Yes (76 r. 96 r. 09)	No	1/4 acre	50	
Town of North Castle	Yes (76 r. 81, 90 & 91)	Yes	No Min.	100	
Town of North Salem	Yes (87 r. 88)	No	No Min.	100	
Town of Ossining	Yes (76 r. 94 r. 98)	Yes	½ acre	100	50
Village of Ossining	Yes (76) DEC	No	12.4 acre	100	
City of Peekskill	Yes (76) DEC Only	No	12.4 acre	100	
Village of Pelham Manor	No	No			
Village of Pleasantville	Yes (87)	Yes	No Min.	50	50
Village of Port Chester	No	No			
Town of Pound Ridge	Yes (71 r. 82 & 86)	No	1/4 acre	150	
City of Rye	Yes (91 r. 92)	Yes	No Min.	100	100
Village of Rye Brook	Yes (94 r. 03)	Yes	No Min.	100	100
Town & Vil of Sacarsdale	Yes (76)	Yes	No Min.	25	25
Village of Sleepy Hollow	Yes (90 r. 91)	Yes	No Min.	100	100
Town of Somers	Yes (76 r. 90 r. 97 r. 03)	Yes	5,000 sq. ft.	100	
Village of Tarrytown	Yes (76 r.r. 03)	Yes	No Min.	150	150
Village of Tuckahoe	No	No			
City of White Plains	No	No			
City of Yonkers	No	No			
Town of Yorktown	Yes (76 r.91)	Yes	1,000 sq. ft.	100	100

Table 12

Wetland Statistics

County	NYSDEC			USFWS NWI		
	Regulated Wetland Area (Acres)	% of County in Wetland	Number of Wetlands	Wetland Area (Acres)	% of County in Wetland	Number of Wetlands
Albany	9,394	3	181	15,589*	5*	5,243*
Columbia	22,959	6	351	32,634	8	11,176
Dutchess	33,,231	6	594	40,556	8	19,740
Greene	11,538	3	161	13,376*	3*	4,180*
Orange	29,716	6	569	46,893	9	12,388
Putnam	13,510	9	238	17,529	11	3,258
Rensselaer	12,692	3	283	28,474	7	8,579
Rockland	3,304	3	67	7,701	6	2,412
Ulster	27,716	3	398	44,415	6	10,692
Westchester	14,299	5	328	22,085	7	5,817
Total Hudson Valley	178,359	5	3,170	269,252	8	83,485

- Digital NWI data not complete for Greene and Albany Counties.

DISCUSSION

In answering the question of whether local wetland regulations can fill the gap in the federal wetland regulations – the solution is to protect even the smallest sized wetlands by providing regulations that protects wetlands with a no minimum size threshold requirement, and also protect isolated wetlands. Currently, about half of the 72 municipalities that have local wetlands ordinances in the Hudson Valley regulate wetlands with no minimum size. Several local governments do recognize the challenges of natural resource protection and the limitations that the state and federal regulations have to protect these resources. They also understand the important ecological and economical benefits that these resources provide.

With less optimal land available for development, current proposals before planning boards have the potential to impact wetlands or watercourses. Prior to adopting wetland and watercourse regulations, many towns have few tools available in their subdivision regulations and zoning law to protect these systems.

In order to protect these resources municipalities need to know where wetlands are located. Some town officials refer to the NYSDEC Freshwater Wetland Maps as the official town maps, which miss wetland systems that would be regulated by the federal government or the town itself, if they did have a local wetland ordinance. Many town officials interviewed, including planning board members and building inspectors,

consistently made reference to the NWI maps as the “federal wetland” maps. Studies show that the NWI significantly underestimate the amount of wetland areas. NWI maps are not a substitute for federal wetland jurisdiction. Using a combination of the NWI maps, NYSDEC maps, and county soil survey maps which are produced by the National Resource Conservation Service (previously Soil Conservation Service), it is the best option for general planning purposes and remotely identifying wetland areas.

Buffers around wetlands and streams further protect the functions and values these systems provide. The purpose of municipalities adopting wetland and stream buffers includes natural resource protection as well as public health and safety, such as the control of flooding and the prevention of water pollution.

The data reveals that for municipalities with wetland and watercourse buffer regulations, buffer boundaries are invisible to property owners and even the local governments themselves. Without defined boundaries, urban buffers face enormous pressure from encroachment, disturbance, and other incompatible land uses. When dealing with state wetlands and local wetland protection ordinances with buffers, developers are required to delineate a wetland buffer on concept, or final plans for purposes of development review. However, few jurisdictions required that buffer boundaries be clearly delineated in the field. This omission is significant as boundaries are needed on the plans to stake out the limits of disturbance around the buffer during construction. The absence of buffer limits on construction-stage plans increases the risk that contractors will encroach

or disturb the buffer. Local governments also contribute to the invisibility of buffers by not recording their boundaries on their own official maps. Several municipalities with local wetland protection ordinances found landowners and developers aware of their regulations. However, a bigger problem arises when properties are sold and new owners start disturbing wetlands and/or buffers. Towns should consider the requirement of signs to be posted along a wetland and/or buffer edge.

Municipalities faced a variety of challenges and issues during the drafting of these protection laws. Opponents typically were property rights advocates, large land holders, land developers, and some groups like the Realtors Association and Home Builders Associations. Some felt the regulations, if too restrictive of development, were actually regulating development which would be more of a zoning regulation. Many town officials feel that there was misinformation as well as a lack of information for both town officials and the public when pursuing these types of regulations. Representative questions included: With state and federal wetlands regulations in place what is the need for the local regulation? Why the need more government with overlapping regulations? Is it necessary to protect these vernal ponds since they are extremely small and are dry most of the year? Why create buffers? How do such regulations impact property values? How would these regulations benefit our local economy?

The economic value of these ecosystems is one of the most difficult for town officials to interpret. In New Jersey, wetlands provided the largest dollar value of ecosystem

services at \$9.4 billion per year for freshwater wetlands (NJDEP, 2007). The loss of ecological services performed by wetlands at the local level translates to direct economic costs for the community when artificial remedies are necessary to replace these services. For example, New York City found that it could avoid spending \$3.8 billion on new water treatment plants by investing \$1.5 billion in the purchase of land around the reservoirs upstate.

Landowners have challenged wetland regulations as a taking and courts are examining these regulations. A legal taking is when landowners are denied all economic use of an entire parcel of privately owned land. However, courts have broadly upheld wetland regulations. Communities need to understand that they are likely to win if their regulations are soundly conceived and they do not deny all non-nuisance, economic uses of whole parcels. Wetland regulations, like other land use controls, enjoy a presumption of constitutionality and a landowner who challenges the regulations has a strong burden to show their unconstitutionality. Courts have also been favorable to regulations adopted consistent with a larger, state or federal program.

The very nature of the Municipal Home Rule Law makes consistent and effective wetland protection difficult. With 240 municipalities in the Hudson Valley, local land use decisions have the potential to adversely affect overall environmental quality. Several local governments recognize the challenges of natural resource protection and the

limitations that the state and federal regulations have to protection these resources. They also understand the important ecological and economical benefits that these resources provide. Local municipalities are the first line of defense for protection of their natural resources.

The quote by Luna Leopold, Aldo Leopold's son, sums it up well, "water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land". Our wetland resources serve as a link between land and water and by protecting our wetlands we will also be protecting our water.

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