MEMORANDUM

TO: National Team for Enabling Source Water Protection Project
FROM: John Crotty, The Trust for Public Land
DATE: May 14, 2010
RE: Shoreland and Source Water Protection Programs

QUESTIONS PRESENTED

I. What states require source water protection plans before permitting new sources, and as such:
   (a) how were those requirements passed,
   (b) have other states implemented alternative source water protection tools, and

II. What states have shoreline or shoreland protection laws and programs in place, and more specifically:
   (a) what is the substance of those laws,
   (b) how are they implemented, particularly at the municipal level, and

OVERVIEW AND ANALYSIS

I. Requirement of Source Water Protection Plans Prior to Permitting New Sources

(a) State Laws and How They Were Passed

The Safe Drinking Water Act requires states to develop EPA-approved programs to develop and carry out Source Water Assessment Programs (SWAP) to monitor all source waters in the state.[1] The federal requirements of a SWAP include a delineation of a source water assessment or protection area, an inventory of the potential contaminants of concern to that area, and an assessment of the susceptibility of the water source to contamination. Only two states, Vermont and Utah, mandate by statute that public water suppliers go beyond the federal standards to develop Source Protection Plans (SPP) prior to permitting new sources of drinking water.[2]

The Vermont Water Supply Division has a federally approved SWAP that includes many pre-existing requirements for source water protection. Beyond the federal requirements, Vermont's Source Water Protection Program (SWPP) requires water suppliers to create a SPP to manage potential risks and plan for emergency scenarios.[3] The SWPP distinguishes between three types of systems and regulates accordingly:

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[1] U.S. Environmental Protection Agency, Source Water Protection, Basic Information, http://cfpub.epa.gov/safewater/sourcewater/sourcewater.cfm?action=Basic.

[2] For an overview of state protection measures that fall short of requiring a SPP *see generally* Association of State Drinking Water Administrators, *Information on Source Water Protection to Assist State Drinking Water Programs* (November 2007), *available at* http://www.protectdrinkingwater.org/images/stories/asdwa_informationonswprotectionreport.pdf (last visited May 13, 2010)

[3] Vermont Department of Environmental Conservation, Water Supply Division, Fact Sheet, *How Do We Protect Public Water Sources in VT?*, *available at* http://www.anr.state.vt.us/DEC/watersup/spa/SourceProtectGuidance.pdf (last visited May 12, 2010)

1. public community water systems include municipalities, mobile home parks, or retirement communities that serve at least 25 residents year round or has at least 15 service connections;
2. non-transient, non-community (NTNC) public water systems include schools, factories or office buildings with their own source of water that serve at least 25 of the same people over six months per year; and
3. transient, non-community (TNC) public water systems, such as restaurants, motels or campgrounds, serve 25 or more people a day for more than 60 days a year with their own source.[4]

In Vermont, public water source protection started in the late 1970's with the employment of hydrogeologic methods to site new public community water supplies.[5] In 1982, Wellhead Protection Areas were mapped for most municipal systems.[6] Furthermore, during the early 1980s, the Department of Health promulgated regulations regarding the permitting of new water systems.[7] Since 1985, the delineation of Public Water Source Protection Areas (SPA) has been required for all proposed new sources for public community water systems.[8] Since 1992, public community and NTNC water systems required an approved SPP in order to receive an operating permit.[9] Currently, those systems which do not have a SPP are issued a Temporary Operating Permit that includes a schedule of compliance for submission of a SPP.[10] For TNC systems, SPPs are not required but the Water Supply Division must complete Source Water Assessments.[11]

The State of Utah's Drinking Water Source Protection (DWSP) program was implemented in 1993 to provide water systems with a tool to help protect wells and springs from accidental contamination.[12] The Utah Department of Drinking Water (DDW) oversees the development of all public drinking water.[13] While these requirements cover both existing (those developed prior to July 26, 1993) and new sources,[14] compliance is voluntary regarding existing sources used by TNC water systems. [15]

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[4] *Id*; conversation with Dennis Nealon, Hydrogeologist, Vermont Water Supply Division, May 7, 2010.
[5] Vermont Department of Environmental Conservation, Water Supply Division, Source Water Protection Program, http://www.anr.state.vt.us/DEC/watersup/swapp.htm.
[6] *Id*.
[7] Conversation with Dennis Nealon, Hydrogeologist, Vermont Water Supply Division, May 7, 2010.
[8] Vermont Department of Environmental Conservation, Water Supply Division, Source Water Protection Program, http://www.anr.state.vt.us/DEC/watersup/swapp.htm.
[9] *Id*. A "permit" is defined as a document issued by the Secretary, giving a designated person approval to operate and/or construct, alter or renovate a specific water system or drinking water facility. Vermont Water Supply Rule, Subchapter 21-2, Definitions and Abbreviations.
[10] Vermont Department of Environmental Conservation, Water Supply Division, Source Water Protection Program, http://www.anr.state.vt.us/DEC/watersup/swapp.htm.
[11] *Id*.
[12] State of Utah Department of Environmental Quality, Division of Drinking Water, *Ground Water Source Protection User's Guide* 5 (November 2008) (hereinafter *Utah User's Guide*), *available at* http://www.drinkingwater.utah.gov/documents/spec_services/gw_source_protection_users_guide.pdf (last visited May 13, 2010).
[13] Email from James H. Martin, P.G., Utah Division of Drinking Water, May 13, 2010.
[14] *Id*.
[15] Utah Department of Environmental Quality, Source Protection Program, http://www.drinkingwater.utah.gov/source_protection_intro.htm.

The first step in developing a source by a public water system is the development of a Preliminary Evaluation Report (PER) to be reviewed and approved by DDW.[16] Secondly, the public water supplier must develop a Drinking Water Source Protection (DWSP).[17] A DWSP plan is intended to be a working document – a kind of "how-to" handbook – to be used on a regular basis by the public water supplier to protect the source.[18] Finally, PERs must be refined to meet the requirements for DWSP Plans within one year of the PER approval letter date.[19] The state will not issue an operating permit for any new source unless the DWSP plan is in place and approved. In fact, the state will assess points against the system for failure to develop plans, which can lead to the system becoming unapproved.[20]

The genesis of the Utah requirements was the legislative process: a bill requiring public water systems to develop source protection plans.[21] Thereafter, there was extensive public input – water system representatives, the public at large, and regulators – in the development of the source protection rules.[22] The original rule came into effect on July 26, 1993, with several minor revisions occurring over the years.[23] The legislature passed a requirement in 2008 that all counties with populations greater than 100,000 people must have a source protection ordinance meeting state requirements by the spring of 2010.[24]

(b) Alternative Implementation Tools – Water Supply Watershed Programs

North Carolina's Water Supply Watershed Program (WSWP) provides an alternative method of source water protection. The state has established watershed classifications that set minimum standards for development according to density bonuses, density averaging and other flexibility measures; local governments have enacted ordinances in compliance with those standards.[25] Development is restricted according to different areas within classifications, such as: built-upon areas (the measure of the hard surfaces or impervious cover for a site); critical areas (land adjacent to a water supply intake where risk associated with pollution is greater than from remaining portions of the watershed); and protected areas (land within five miles and draining to the normal pool elevation of water supplies/reservoirs or within ten miles upstream and draining

[16] Utah Department of Environmental Quality, Source Protection Program, http://www.drinkingwater.utah.gov/source_protection_intro.htm.
[17] *Id*.
[18] Utah User's Guide, pg. 21 (stating that the implementation schedule is one of the most important sections of the DWSP plan because it is a summary list containing the strategies that will be carried out by public water systems to protect their sources).
[19] *Id*. at 9.
[20] E mail from James H. Martin, P.G., Utah Division of Drinking Water, May 13, 2010.
[21] *Id*.
[22] *Id*.
[23] *Id*.
[24] *Id*; *see* Utah Code Ann. § 19-4-113 (2009).
[25] For a more in depth delineation of the classifications *see* N.C. Department of Environment and Natural Resources Division of Water Quality, *A Guide to Surface Freshwater Classifications in North Carolina* (2009), *available at* http://portal.ncdenr.org/c/document_library/get_file?uuid=d76209a2-b65e-4bc9-8be4-fa3c17e2b5b4&groupId=38364 (last visited May 14, 2010).

to a river intake).[26] Only 20 percent of North Carolina's land area actually lies within water supply watersheds.[27]

WSWP restrictions include the use of buffers in the context of agricultural and development activities.[28] For agriculture, ten foot buffers measured landward from a stream bank are required in critical areas; while development activities throughout the watershed require buffer along perennial waters with minimum widths of 30 feet for low-density development and a 100 feet for high-density development.[29] The WSWP, however, employs flexible density measures to allow for development. For example, local governments may use 10 percent of non-critical areas for new or expanded development up to a 70 percent built-upon area limit without stormwater control if it employs a low-density option to the rest of the watershed.[30] Depending upon the watershed classification, the low-density development may achieve a 24 percent built-upon area (equivalent to 2 dwelling units per acre); under the high-density option, developments may reach a 70 percent built-upon area.[31]

Watershed water supply protection in North Carolina has an involved history. The Environmental Management Commission (EMC) and the Division of Water Quality (DWQ) have administered a protection program since 1986.[32] Counties and municipalities originally administered the WSWP on a voluntary basis, whereby they adopted and enforced land use control ordinances to address nonpoint pollution sources.[33] DWQ administered measures that included limitations on the number and type of wastewater discharges. In 1989, the general assembly ratified the Water Supply Watershed Protection Act (WSWPA), which mandated the EMC to adopt minimum statewide water supply protection standards and reclassify existing surface water supply watersheds. EMC and DWQ undertook a public outreach and comment period to undertake the reclassification of waters and adopt Water Supply Watershed Protection Rules.[34] Local governments subject to the rules submitted ordinances in compliance with the statute. The WSWPA came under constitutional fire in 1996 when the North Carolina Appellate Court decided that the general assembly failed to give guiding standards in the implementation of the legislation and its delegation of the power to enforce minimum standards to the EMC. The following year, the North Carolina Supreme Court overturned the Appellate Court's decision.[35] Massachusetts's Watershed Protection Act (WsPA) is a 1992 law that protects the sources of water in the Quabbin Reservoir, Ware River, and Wachusett Reservoir. The Act established restrictions on certain land uses in sensitive areas of these watersheds in order to protect water

[26] N.C. Department of Environment and Natural Resources Division of Water Quality, Frequently Asked Questions, http://portal.ncdenr.org/web/wq/swp/ws/wswp/faqs.
[27] *Id*.
[28] *Id*. Property owners are encouraged, but not required, to maintain a 25 foot vegetative/undisturbed buffer next to a stream. *Id*.
[29] *Id*.
[30] *Id*. (stating that the "10/70 provision" is available within WS-II, WS-III, and those WS-IV water supplies where the local government allows only development using the low-density option).
[31] *Id*.
[32] N.C. Division of Water Quality, Water Supply Watershed Protection Program History, http://portal.ncdenr.org/web/wq/swp/ws/wswp/history.
[33] *Id*.
[34] *Id*.
[35] *Town of Spruce Pine v. Avery County*, N.C. Supreme Court. No. 431A96, filed 24 July 1997 (holding that the statutes are not an unconstitutional delegation of legislative authority to an administrative agency).

quality, yet allow for development.[36] The WsPA is administered by the Division of Water Supply Protection and applies only to towns in the aforementioned watersheds.[37] There are two main protection divisions that regulate land use in different manners.[38] The "Primary Protection Zone" is located within 400 feet of the reservoirs and 200 feet of tributaries and surface waters. Within that zone, alterations (including construction, excavation, grading, paving, and dumping) are prohibited.[39] The "Secondary Protection Zone" extends between 200 and 400 feet of tributaries and surface waters, and on land within flood plains, over some aquifers, and within bordering vegetated wetlands. The Secondary Protection Zone prohibits the storage, disposal or use of toxic or hazardous materials; alteration of wetlands; and more dense development.[40]

II. Shoreland Protection Plans

There are several states with comprehensive statutes and programs dedicated to shoreland or shoreline protection. A few other states protect riparian and littoral lands on a more limited basis. States have passed such measures to protect a variety of natural resources from water quality to wildlife habitat, as well as to conserve shore cover and open space for the public. The statutes vary in terms of protection measures, permitting processes, enforcement, the role of municipalities in the implementation, and the treatment of non-conforming structures. The following provides an overview of substance of the state measures.

(a) State Laws and Programs

The Northeast.[41] Maine's Mandatory Shoreland Zoning Act (MSZA) requires municipalities to establish land use controls for the following areas: (1) all land areas within 250 feet of ponds and non-forested freshwater wetlands that are 10 acres or larger; (2) rivers with watersheds of at least 25 square miles in drainage area; (3) coastal wetlands and tidal waters; and all land areas within

[36] Massachusetts Department of Conservation and Recreation, Division of Water Supply Protection, *2008 Watershed Protection Plan Update Volume 1: The DCR Watershed System* 1 (Office of Watershed Management, December 2008), *available at* http://www.mass.gov/dcr/watersupply/watershed/documents/2008dcrwppv1system.pdf (last visited May 14, 2010)

[37] Interestingly, the jurisdiction of the WsPA is tied to computerized mapping information from the United States Geological Survey and the Federal Emergency Management Agency. Affected parcels were identified and notified in November 1994 that the WsPA affected their land. Massachusetts Department of Conservation and Recreation, Watershed Protection Act, http://www.mass.gov/dcr/watersupply/watershed/wspa.htm.

[38] Exemptions to the restrictions (which themselves are subject to qualification) include: uses, structures and facilities lawfully existing as of July 1, 1992; construction of a single-family dwelling on an existing vacant lot; minor changes to an existing structure; and the division of an existing parcel to create an additional building lot.[38] 350 Code Mass. Reg. § 11.05 (1994).

[39] Other prohibited activities include the generation, storage, disposal or discharge of pollutants. 350 Code Mass. Reg. § 11.04.

[40] 350 Code Mass. Reg. § 11.04 (providing a complete list).

[41] *See generally*, Allyson Bennett, Joshua Hurd, and Louisa Pollard, *Riparian Zone Protection in Vermont: Assessment of Current Regulations and Models for Future Action* 7-11 (Rockefeller Center at Dartmouth College: January 23, 2008), PRS Policy Brief 0708-01 (providing an excellent summary of Shoreland protection in Maine, New Hampshire, and Massachusetts).

75 feet of certain streams.[42] Municipalities are required to adopt, administer, and enforce their own shoreland zoning ordinances and map. The state, via the Department of Environmental Protection, provides technical assistance to the municipalities. Where a municipality has not adopted its own ordinance, the state will adopt its minimum standard – the model *State of Maine Guidelines for Municipal Shoreland Zoning Ordinances* - for that municipality.[43] The MSZA guidelines divide the shoreland zone into six land use districts: resource protection, limited residential, limited commercial, general development, commercial fisheries/maritime activities, and stream protection. For each district, different types of land uses are prohibited, permitted without a formal permit, or allowed with a permit from a Code Enforcement Officer, the Planning Board, or a Local Plumbing Inspector.[44]

New Hampshire's Comprehensive Shoreland Protection Act (CSPA) establishes minimum statewide standards for the subdivision, use, and development of shoreland bordering public waters.[45] The CSPA establishes three areas of protected shoreland with varying restrictions:

1. a primary building setback and waterfront buffer 50 feet from the reference line wherein all ground cover must remain intact,
2. a 150-foot natural woodland buffer from the reference line that limits impervious surfaces, and
3. a protected shoreland 250 feet from the reference line that also places limitations on the construction of impervious surfaces as well as, *inter alia*, requires approval for subdivision.[46]

A state shoreland protection permit is required for most new construction, excavation and filling activities within the protected shoreland.[47] CSPA enforcement falls to the Department of Environmental Services Commissioner, but municipalities may take local enforcement measures such as an injunction or the imposition of civil penalties.[48] Nonconforming structures located within protected shoreland may be repaired, renovated or replaced if the existing footprint is not expanded and the functional use of the structure is unchanged.[49]

Massachusetts protects riparian lands via the 1996 River Protection Act (RPA). The primary enforcement mechanism is a 200-foot setback from the mean annual high water mark (the Riverfront Area) that is reduced to 25 feet in higher populated and more densely populated

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[42] Maine Bureau of Land and Water Quality, Mandatory Shoreland Zoning, Issue Profile, http://www.maine.gov/dep/blwq/docstand/ip-shore.htm (*hereinafter* Maine Issue Profile). Also see Maine Rev. Stat. § 439-A (4)-A (2010).

[43] Roughly 60 of 450 municipalities have "state-imposed" ordinances. Maine Issue Profile. For a copy of the Guidelines see http://www.maine.gov/sos/cec/rules/06/096/096c1000.doc.

[44] Maine Issue Profile.

[45] Public waters include: lakes, ponds, and artificial impoundments greater than 10 acres in size; coastal waters and associated tidal rivers; and all year-round flowing rivers of fourth order or higher and all rivers and river segments designated as protected under RSA 483:15. N.H. Rev. Stat. Ann. § 483-B:4 XVI (2010).

[46] Reference line refers to the surface elevation of lakes and ponds, the highest observable tide line for coastal waters, and ordinary high water mark for rivers. N.H. Rev. Stat. Ann. § 483-B:4 XVII (a)-(c). For a summary of the restrictions see N.H. Dept of Envt'l Services, R*SA 483-B CSPA: A Summary of Standards*, http://des.nh.gov/organization/divisions/water/wetlands/cspa/documents/summary_standards.pdf (hereinafter Summary of Standards).

[47] N.H. Rev. Stat. Ann. § 483-B:5-b (exempting, *inter alia*, timber harvesting and the construction of public roads).

[48] N.H. Rev. Stat. Ann. §§ 483-B:5, 8.

[49] N.H. Rev. Stat. Ann. § 483-B:11.

municipalities.[50] Permits are required to perform activities within the Riverfront Area. To receive a permit, the applicant must demonstrate to a local conservation commission that the project will have no significant adverse impact on the Riverfront Area and that there is no practicable and substantially equivalent economic alternative.[51] The commissions issue determinations on such activities and conduct site reviews. Potential penalties for violations include a maximum $25,000 fine levied by the Department of Environmental Protection or two years imprisonment. Certain activities, such as projects approved to be built within the riverfront area before August 7, 1996, are grandfathered or exempted from Riverfront Area requirements.[52]

The Midwest. Minnesota's Shoreland Management Act (SMA) regulates all land within 1,000 feet of a lake and 300 feet of a river and its designated floodplain according to system of classification.[53] The state's Department of Natural Resources (DNR) set statewide minimum shoreland standards that apply to all lakes greater than 25 acres (10 acres in municipalities) and rivers with a drainage area two square miles or greater.[54] They restrict the use and development of shoreland property employing a variety of tools: a sanitary code, minimum lot size and water frontage, building setbacks and heights, land use restrictions, the limitation of impervious surfaces to less than or equal to 25 percent of the total lot, and subdivision and PUD regulations.[55] Local governmental units with shorelands are required to adopt these or stricter standards into their zoning ordinances.[56] Furthermore, local governments are responsible for the administration and enforcement of shoreland management controls – often taking violators before a Planning Commission, levying late fee payments or penalties, or requiring remediation of a site.[57] They must also require upgrading or replacement of any existing, on-site sewage treatment system identified as a nonconformity under statutorily established programs.[58]

Wisconsin DNR, via the Navigable Waters Protection Law, sets minimum standards for counties to adopt shoreland protection-oriented zoning regulations in unincorporated areas, as well as for cities or villages to establish shoreland-wetland zoning ordinances. Regulations apply to lands within a 1,000 feet from lakes and 300 feet from rivers and its floodplain and employ multiple protection tools: minimum lot size regulations, structure setbacks, vegetative buffer zones, and impervious surface standards.[59] Shoreland ordinances adopted by each county require permits

[50] Wetlands Protection – Riverfront Area, 310 CMR § 10.58 (2), *available at* http://www.mass.gov/dep/service/regulations/310cmr10a.pdf (last visited May 7, 2010).
[51] 310 CMR § 10.58 (4). For an overview of permitting requirements see Riverfront Protection Act Q&A, http://www.mass.gov/dep/water/resources/riverqa.htm. For an example of conservation committee by-laws and regulations see Town of Wellesley Wetlands Protection Committee, http://www.ci.wellesley.ma.us/Pages/WellesleyMA_NRC/wetlands/wetland0708.pdf.
[52] 310 CMR § 10.58 (6)
[53] Minnesota Department of Natural Resources, A Guide for Buying and Managing Shoreland, http://www.dnr.state.mn.us/shorelandmgmt/guide/standards_tables.html (hereinafter Minnesota Guide). For classifications see Minn. Stat. Ann. § 6120.3200 (4).
[54] Minnesota Guide.
[55] *Id.*
[56] *Id.*
[57] Minn. Stat. Ann. § 6120.3900 (1) (establishing local authority to enforce the provisions).
[58] Minn. Stat. Ann. § 6120.3900 (4)(A).
[59] *See* 649 Wisc. Admin. Reg. § 115.06 (January, 2010).

for all new construction, development, reconstruction, structural alteration or moving of buildings and structures, and the regular inspection of permitted work in progress.[60] Counties must establish penalties for ordinance violations and may enforce through the use of injunctions to prevent or abate a violation.[61]

Lands to be zoned or regulated under Michigan's Great Lakes Shorelands Management Program include those lands: adjacent to a Great Lake or connecting waterway within 1,000 feet landward from ordinary high water mark; adjacent to waters affected by Great Lakes levels landward of ordinary high water mark; and between the ordinary high water mark and the water's edge.[62] Michigan's Department of Environmental Quality (DEQ) has designated areas wherein local governments may adopt protective management and zoning ordinances, specifically:

1. high risk erosion areas where the recession of the landward edge of an active erosion zone occurs at an average annual rate greater than 1 foot per year based on a minimum of a 15 year period;
2. flood risk areas that located within the 100 year floodplain of a Great Lake or connecting waterway in approved floodplain studies; and
3. environmental areas that are necessary for the preservation and maintenance of fish and wildlife.[63]

In the absence of the enactment of zoning ordinances by a local government entity, Michigan DEQ will enforce statewide rules and permits.[64] Permits are required for a variety of uses, including erecting, installing, moving, or enlarging permanent structures in designated high-risk erosion or flood risk areas.[65] Furthermore, building setbacks and ground cover requirements may be enforced in designated areas.[66]

The Mid-Atlantic. Members of the Chesapeake Bay Agreement have attempted to address shoreland protection as part of their overall effort to combat the environmental degradation of the Bay. In Maryland, for example, the Critical Areas Act mandates a 100 foot forested or naturally vegetated buffer around all tributary streams within a Critical Area,[67] while the Nontidal Wetlands Act requires permits for excavating, filling, changing drainage patterns, disturbing the water level or water table, grading and removing vegetation in a nontidal wetland or within a 25-

[60] 649 Wisc. Admin. Reg. § 115.06 (4).
[61] 649 Wisc. Admin. Reg. § 115.06 (4)(j).
[62] Mich. Comp. Laws § 324.32301(d) (2010).
[63] Mich. Comp. Laws § 324.32301; see §§ 324.32308-10 for authority to enact shoreland protections.
[64] Mich. Admin. Code §§ 281.22(7) (high-risk), 281.23(11) (environmental), 281.24(14) (allowing local governments one year to enact the necessary ordinance for flood-risk areas).
[65] Mich. Admin. Code §§ 281.22(7), 281.24(6). For a summary of general shoreland management permit requirements see http://www.deq.state.mi.us/documents/deq-lwm-wetlands-shoremgmtGPspreadsheet.pdf.
[66] *See, e.g.*, Mich. Admin. Code § 281.22(10) (permitting DEQ to require a setback of 30 or more feet if a bluff or dune is unstable due to height, slope, wind erosion, or groundwater seepage).
[67] The 1984 Critical Area Act (CAA) followed commitments made in the Chesapeake Bay Agreement. The CAA was intended to control land use adjacent to the Bay in order to minimize the negative impacts of shoreline development on the Bay ecosystem. University of Maryland Environmental Law Clinic, *Enforcement in Maryland's Critical Area: Perception and Practice* 7-9 (May 2006) (hereinafter *Critical Area Enforcement*), *available at* http://www.law.umaryland.edu/programs/environment/documents/final_critical_area_report.pdf (taking the CAA to task for its lack of enforcement bite).

foot buffer.[68] Moreover, regulations promulgated under Virginia's Chesapeake Bay Preservation Act require local governments in tideland areas to establish Resource Protection Areas that include nontidal wetlands and water bodies with perennial flow.[69] Resource Protection Areas require a buffer area of not less than 100 feet in width.[70]

The Northwest. Washington's Shoreline Management Act (SMA) applies to "shorelines of the state" including: streams and rivers with greater than 20 cubic feet per second mean annual flow, lakes 20 acres or larger; shorelands that extend 200 feet landward from the edge of these waters; biological wetlands, and some or all of the 100-year floodplain.[71] Under the SMA, each city and county with "shorelines of the state" must prepare and adopt a Shoreline Master Program (SMP) based on state guidelines but tailored to specific community needs.[72] The SMP functions as a shoreline-specific combined comprehensive plan, zoning ordinance, and development permit system.[73] Towns, cities and counties are the primary regulators, while the state Department of Ecology (DoE) acts in a support and advisory role. However, SMPs and subsequent amendments do require DoE approval.[74] "Substantial" development on shorelines of the state requires a permit. Substantial development is defined as a development with a fair market value equal to or greater than $5000 or that materially interferes with the normal public use of shorelines.[75]

(b) Regional or Municipal Implementation

The various state shoreland or shoreline management programs mentioned above share a commitment to local implementation. Those levels of commitment, however, exist on a sliding scale of deference to local governments.

On one end of the scale is New Hampshire. The state's Department of Environmental Services implements the permitting scheme and enforces it, while the local governmental entity plays a nominal, voluntary role. In the middle of the scale lie the states that set minimum standards that manifest in local ordinances, such as setback requirements, buffer zones, and development restrictions. Local government entities are required to adopt these measures or provide stricter ordinances. Those entities enforce the ordinances according to state requirements. Most of the states surveyed lie at this juncture of statewide standards and local implementation: Minnesota, Wisconsin, Michigan, Maine, and Massachusetts. At the far end of the scale – that in which the

[68] Maryland Department of the Environment, Nontidal Wetlands Protection Programs, http://www.mde.state.md.us/assets/document/wetlandswaterways/protection.pdf.
[69] For more information see Virginia Department of Conservation and Recreation, *Resource Protection Area: Onsite Buffer Area Delineation*, http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/documents/GuidanceDocs/RPA_buffer_delineation_rev090615.pdf.
[70] 9 Va. Admin. Code § 10-20-80(B)(5) (2008).
[71] Wash. Rev. Code § 90.58.030(2).
[72] State of Washington Department of Ecology, Introduction to the Shoreline Management Act, http://www.ecy.wa.gov/programs/sea/sma/st_guide/intro.html.
[73] *Id.*
[74] Wash. Admin. Code § 173-26 (2007) (stating that DoE is limited to a decision on whether or not the proposed changes are consistent with the policy and provisions of the SMA and SMP guidelines).
[75] Wash. Rev. Code § 90.58.030(3)(e). For permitting requirements see Wash. Admin. Code § 173-27-010 to 173-27-220.

state gives the most deference to the local government – sit Washington and Maryland. The state of Washington does require municipalities to adopt shoreline master programs, and it can approve or disapprove SMPs, but planning and administrative responsibility rests with local governments.[76] In Maryland, local jurisdictions have the authority to make development decisions while the state-level Critical Area Commission's power is limited to discretionary challenges of local Critical Area decisions.[77]

Shelburne County provides an excellent example of shoreland protection implementation and enforcement in Minnesota.[78] Shelburne ordinances provide that any alteration to shoreland property requires a permit from the Shelburne County Zoning Office prior to any work being done.[79] Remediation entails high cost to the county and landowner: an "After the Fact Permit" fee, reimbursement of County Zoning and Attorney staff time, and the cost of restoring the landscape.[80] Failure to comply with county-ordered restoration is a misdemeanor that may be prosecuted.[81]

There are also regional approaches to shoreland protection in Minnesota. For example, an effort to develop Alternative Shoreland Management Standards began as part of the governor's Clean Water Initiative pilot project in the north-central lakes area (Aitkin, Cass, Crow Wing, Hubbard, and Itasca counties).[82] In the second phase of the project, the 34-member Shoreland Advisory Committee reached a general agreement on a set of alternative shoreland standards that addressed issues particular to the lakes region.[83] Now, local governments may consider employing the alternative standards within the framework of existing shoreland ordinances. The alternative standards provide additional tools for local governments to address increasing development, such as advanced subdivision controls, multiple shoreland lake classifications on a single lake, and sensitive area districts for lakeshore segments where development standards follow natural environment lake class standards.[84]

On the other hand, the SMP of King County, Washington illustrates the flexibility of shoreline protections in states with almost exclusive local development and implementation. The current SMP was adopted in 1978, but pursuant to a 2003 state mandate, an update was transmitted to the King County Council in August 2009.[85] Private properties located along major shorelines or

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[76] *See* Ryan Carson, Note, *Chinks in the Armor: Municipal Authority to Enact Shoreline Permit Moratoria After Biggers v. City of Bainbridge Island*, 31 SEATTLE UNIV. L. R. 177, 177-80 (evaluating the scope of local authority regarding shoreline protection).
[77] *See Critical Area Enforcement*, pgs. 11-13.
[78] *See generally* Sherburne County Zoning Ordinance, Shoreland District, *available at* http://www.co.sherburne.mn.us/scip_web_files/zoning_upload/zoning/ordinance/2122448a456e9dd421.pdf.
[79] Shelburne County Zoning Administration, Environment-Shorelands, http://www.co.sherburne.mn.us/zoning/environ/shorelands.php.
[80] *Id.*
[81] *Id.*
[82] Minnesota Department of Natural Resources - Waters, Alternative Shoreland Management Standards, http://files.dnr.state.mn.us/waters/watermgmt_section/shoreland/alt_shore_standards_paul.pdf.
[83] *Id.*
[84] *Id.*
[85] King County, Shoreline Management, FAQs, http://www.kingcounty.gov/environment/waterandland/shorelines/program-update/faq.aspx.

within their floodplains are subject to SMP management and permit requirements.[86] Pertinent provisions include: existing agricultural activities cannot be modified; joint use docks or piers are preferred, if circumstances do not allow a single dock or pier may be allowed; mining is allowed within the shoreline jurisdiction.[87] The updated plan will bring some changes. For example, environmental designations and accompanying restrictions will be expanded from four to eight and, more specifically, the ability to obtain permits to build a dock will be eased, eliminating current limits tied to zoning and density.[88]

[86] *Id*.
[87] *Id*; *see generally* King County Ordinances, Chapter 25, Shoreline Management, *available at* http://www.kingcounty.gov/council/legislation/~/media/Council/documents/Clerk/CodeFiles/34_Title_25.ashx.
[88] *Id*.

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	New Hampshire	Maine	Massachusetts	Washington	Minnesota	Wisconsin
Act	**Comprehensive Shoreland Protection Act** (effectively amended in 2008)	**Mandatory Shoreland Zoning Act** (1971)	**River Protection Act** (1996, amending the 1963 Wetland Protection Act)	**Shoreline Management Act** (1972)	**Shoreland Management Act** (1969)	**Shoreland Management Program** (authorized by Navigable Waters Protection Law (1966))
Protection Measures	• Applies to lakes, ponds, & impoundments > 10 acres, coastal waters & tidal rivers, 4th order or higher yr-round rivers and protected segments/rivers • Shoreland divided into zones relative to "reference line": • Primary Building Setback and Waterfront Buffer (w/in 50 ft) - primary structures must be set back at least 50 ft - intact natural ground cover - waterfront buffer maintained • Natural Woodland Buffer (50-150 ft from reference line) - for lots ≥ ½ acre: at least 50% of area not covered by impervious surfaces must be maintained in unaltered state - for lots < ½ acre: at least 25% of area must remain in unaltered state • Protected Shoreland (250 ft) - limits impervious surface area - new lots subject to subdivision approval - requires setbacks for septic systems by soil type - restricts building of waste facilities, junk yards, etc.	• Requires municipalities to establish land use controls for: - land areas w/in 250 ft of ponds and non-forested freshwater wetalnds ≥ 10 acres - rivers w/ watersheds of at least 25 sq miles drainage - land areas w/in 75 ft. of certain streams • Divides lands into districts: - Resource Protection - Stream Protection - Limited Residential - Limited Commercial - General Development 1 - General Development 2 - Commercial Fisheries & Maritime Activities • Areas are assigned to districts based on assessment of whether development will adversely affect water quality • Districts allow certain activities at all times, allow certain activities with a permit, or prohibit certain activities entirely.	• Designates river front area as extending out 200 feet from mean high water mark • Building setback w/in area - setback reduced to 25 ft in municipalities with populations > 90,000 or densities > 9,000 / sq. mi • Prohibits projects that could potentially harm riverfront area quality or water way • Must obtain permit before beginning site work for projects proposing to build within the river front area	• Requires cities and counties to prepare and adopt a Shoreline Master Program (SMP) in accordance w/ state guidelines • Applies to shorelands that extend 200 ft landward from edge of lakes ≥ 20ac, streams/rivers ≥ 20 ft^3/sec, and marine waters • Development on shoreline must be consistent w/ SMP - construction, drilling, dumping, etc. or interference normal public use of water/shorelines • "Substantial" development requires permit - FMV ≥ $5000 or materially interferes w/ normal public use of water/shorelines • Assigns env't designation to assure existing eco. functions are protected and regulates accordingly: - high-intensity - shoreline residential - urban conservancy - rural conservancy - natural - aquatic	• Requires municipalities to adopt into land use controls • Applies to all lakes ≥ 25 ac (10 in municipalities) & rivers w/ drainage area ≥ 2 $mi.^2$ • Regulates all land w/in 1000ft of a lake & 300 ft of a river & its designated floodplain regarding: - lot width & area - structure setback - shore impact zone - area adjacent to lake/river critical to water quality, habitat, and visual screening - sewage setback • Classifies rivers for allowable development: remote, forested, transition, agricultural, urban & tributary • Building elevation ≥ 3 ft about highest water elevation • Sewage system elevation ≥ 3 ft above highest groundwater level or bedrock - conforming treatment system req'd for future development & site improvements • Impervious surfaces ≤ 25% of total lot	• Requires, according to min DNR standards: - cities/villages to establish shoreland- wetland zoning ordinances - counties to adopt zoning regs protection of shorelands in unincorporated areas • Applies to lands w/in 1,000 feet from lake/pond/flowage & 300 feet from river/stream /landward of flood plain from ordinary high−water mark • Min lot size reqs in shoreland areas: 20k ft^3 (unsewered) and 10k ft^3 (sewered) • Structure setback: 75 ft (except: piers, boat hoists and boathouses) • Vegetative buffer zone: 35 ft inland - prohibits removal (w/ some exceptions) • Impervious Surface Stnds: - apply to construction, reconstruction, expansion, replacement or relocation w/in 300 ft of high water mark - max of 15% on portion of lot - 15 – 30% w/ permit requiring mitigation plan
Permitting Process	• If permit required, must apply to DES. E.g., earth excavation w/in protected land. • Application fee: $100 + $.10 / sq.ft. of area affected by proposed activities. Goes to wetlands and shorelands review fund. • Exemptions: timber harvesting, construction of public roads, utility lines, and public water access facilities	• Permits must be submitted to Code Enforcement Officer or planning board. • Valid for one year after the date issued and must be posted at worksites. • Applicant must prove a project does not adversely affect the purposes and provisions of the Act.	• Overseen by town Conservation Committees • Permit Fee: varies depending on type of work • Applicant has burden of proof that project doesn't adversely affect riverfront area • Sign bearing MA DEP file number for specific project must be present at building site	• Processed by local gov - pre-application conference b/t staff, applicant, agencies w/ jxn - application requirements: site plan, utilities, info on natural shoreline environment, etc. - public comment period - technical review & decision • Sent to Dept. of Ecology - approves, approves w/ conditions, or denies - no direct approval authority over common SDPs - if inconsistent w/ SMP, may file appeal w/ Hearings Board • Exemptions: normal maintenance, single family residences, some farming, etc.	• Local govs must provide for admin and enforcement of their shoreland management controls by establishing permit procedures for building construction, installation of sewage treatment systems, and grading and filling.	• County/muncipality must create system of permits for new construction, development, reconstruction, structural alteration or moving of buildings and structures • A copy of all applications shall be required to be filed in office of zoning administrator

The table's categories were adapted from Allyson Bennett, Joshua Hurd, and Louisa Pollard, *Riparian Zone Protection in Vermont: Assessment of Current Regulations and Models for Future Action* (Rockefeller Center at Dartmouth College: January 23, 2008), PRS Policy Brief 0708-01.

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Enforcement	• NH DES commissioner, with the advice and assistance of several relevant departments, is primarily responsible • Before State takes enforcement action, commissioner must inform local governing body	• Municipal Code Enforcement Officer - responsible for keeping track of permitted projects w/in municipality - required to conduct on site inspections for permitted sites & any property reported for suspected violations • Violators subject to $100-$5000 fines if infractions are not corrected promptly	• MA DEP, town Conservation Committees, environmental officers, or any other officers with policing power are authorized to enforce • Violators subject to fines of up to $25,000 or imprisonments of up to two years	• Towns, cities, and counties are the primary regulators • Civil and criminal penalties, cease and desist orders, corrective action orders, requiring that a permit be obtained (after the fact)	• Each local government is responsible for enforcement of its shoreland management controls • Counties often send people who illegally alter shoreline before Planning Comm'n • Violators may be required to pay a late fee or penalty, and purchase the appropriate permits, or may remediate site • If citation is issued, the violation is a misdemeanor.	• Must establish appropriate penalties for violations including forfeiture • Compliance w/ ordinance shall be enforceable by use of injunctions to prevent or abate a violation
Municipal Role	• May adopt stricter standards • May voluntarily assist w/ permitting process & enforcement of permit conditions by conducting on-site inspections and generating reports. • Can enforce provisions through cease and desist orders, seeking injunctive relief, or civil penalties. • Penalties and fines collected by county are remitted to municipality.	• Permitting and enforcement conducted at municipal level via locally appointed Code Enforcement Officer & Planning Board. • State considers Act to be a model and encourages municipalities to form own guidelines that were as strict or stricter than Act • 60 towns actually use unaltered state guidelines	• Main authority in permitting and enforcement process • Town Conservation Committees oversee the permitting process and are involved in enforcement - appointed by mayor or Board of Selectmen	• Primary responsibility for initiating planning required by the act and administering the regulatory program. • May amend SMPs to reflect change in local circumstances, new info, or best practices - requires public notice and possibly public involvement	• Minimum standards are intended to be incorporated into local gov shoreland management controls • Local gov is responsible for admin and enforcement of shoreland management controls • May adopt and enforce more restrictive controls • Township must demonstrate to county board that proposed ordinance and admin is at least as restrictive as county's prior to final adoption	• Ordinances implemented, monitored & enforced at county & municipal level • DNR provides advice and assistance, & issues a certificate of compliance when a county/city/village has complied • DNR reviews amendments
Non-Conforming Structures	• Owners of an individual undeveloped lot are permitted to build single family residential dwelling • Nonconforming structures built prior to July 1, 1994 w/in protected shoreland may be repaired/renovated/ replaced if functional use is equivalent & existing footprint isn't expanded. • Structures b/t building setback & reference line shall not be altered so as to extend the structure closer to the water, except for addition of dock or open porch.	• Usually buildings that predate the existence of the ordinance and are sited too close to the water, including distances from tributary streams • May be repaired and maintained, without a permit, provided no expansion occurs • Non-conforming structures that existed on January 1, 1989 may be expanded by > 30% during remainder of its lifetime. - based on floor area and volume as existed on January 1, 1989 - only applies to part of building w/in required setback	• Structures built prior to enactment of Act are exempt.	• In circumstances where existing uses and properties become non-conforming w/ regard to regs, master programs should include provisions to address such situations in a manner consistent with achievement of the policy of the act and consistent with legal limitations	• Local govs must require upgrading or replacement of any existing, on-site sewage treatment system identified as a nonconformity under statutorily established program • Systems installed according to applicable local standards in effect at time of installation may be considered as conforming unless determined to be failing • Except systems using cesspools, leaching pits, seepage pits, or other deep disposal methods, or systems w/ less soil treatment area separation above groundwater than required by ch. 7080, shall be considered nonconforming • Nonconformities except on-site sewage treatment systems must be managed according to applicable state statutes & local gov official controls	• May not prohibit continuation of lawful use of structure or property that exists when an ordinance/amendment takes effect which is not in conformity • Expansion of existing home < 75 feet allowed where owner can build 2nd story or add-on vertically if existing house ≥ 35-feet back from water • Expansion of physical footprint of non-conforming structure must offset environmental impact - Counties will set specific mitigation requirements • No spending limits on repairs to existing non-conforming residences w/in 75 feet of water's edge

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	Michigan	Vermont	Maryland			
Act	**Great Lakes Shorelands Management Program** (under Natural Resources and Envt'l Protection Act (1994))	**Act 250 (1970)**	**Critical Area Act** (1984, amended in 2002)			
Protection Measures	• Applies to land that: - borders/adjacent to a Great Lake or connecting waterway & situated w/in 1,000 ft landward from OHWM - borders/adjacent to waters affected by Great Lakes levels landward of OHWM - land b/t OHWM & water edge • Local govs req'd to adopt management & zoning ordinances for areas (determined by DEQ) of: - high risk erosion: recession of landward edge of active erosion zone occurring at avg. annual rate ≥ 1 ft per year based on min 15 yr period - flood risk: w/in 100-yr floodplain of Great Lake or connecting waterway in approved floodplain studies - environmental: determined to be necessary for preservation & maintenance of fish/wildlife • Sets permits for different sized structures relative to setback lines • Regs soil/vegetation alteration	• Applies to lands b/t normal mean water mark of a lake, pond or impoundment > 20 acres and a line not less than 500 feet nor more than 1,000 feet from that mark • Advisory in nature - sec. of natural resources shall: - make studies, establish policies and make plans for efficient use, conservation, development and protection of VT's water resources - prepare and provide general recommended standards and criteria for bylaws - assist the regional planning commissions in preparing appropriate sample bylaws • Zoning bylaws may permit, prohibit, restrict, regulate, and determine land development specific uses of land and shoreland facilities	• Affects lands w/in 1000 ft of tidal waters/wetlands • Classified, based on land use: - Resource Conservation Area - Limited Development Areas - Intensely Developed Areas • Buffer Zone: requires 100 ft natural vegetation landward from Mean HWL of tidal waters or edge of tidal wetlands and tributary streams - exceptions: hardship + proof of no negative impact to water quality & habitat; access/ water-dependent facilities - clearing for exceptions must be mitigated via Buffer Mgmt Plan approved by local jxn • Impervious Surfaces: - ≤ 15% of land in LDA/RCAs - for lots ≤ ½ ac in residential use before Dec 1, 1985, then ≤ 25% of parcel; local gov may allow 500 ft^3 more; - if ½ ac < lot < 1 ac, may exceed 15% up to 5.445 ft^3 - if < 1 ac and part subdivision approved after Dec 1, 1985, may not exceed 25%			
Permitting Process	• In the absence of an approved local ordinance, must first apply for and obtain DEQ permit - if proposing to erect, install, move, or enlarge permanent structure designated high-risk erosion or flood risk area - if proposing to dredge, fill, grade, or alter soil, natural drainage, or vegetation w/in designated environmental area • May contest permit disapproval if petition filed not more than 60 days after notice • Fees: $50 (addition to existing single-family home) to $500 (commercial or multi-family residential project)	• Depends on municipality	• Most residential building permits can be reviewed and approved by local government. • If permit involves a variance or special exception, then Critical Area Commission (CAC), a state agency, will review and comment on the proposed project			

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Enforcement	• Circuit court, upon petition and DEQ showing rule violation, shall issue any necessary order to the defendant to correct violation or to restrain defendant from further violation of the rule	• Depends on municipality	• Only local jxns have the authority to make decisions on what development to allow. • CAC's power to challenge local Critical Area decisions is limited and entirely discretionary - CAC reviews and approves local jxn CA Programs and amendments - CAC staff reviews and comments on subdivisions, site plans, variances, and other local development proposals w/in CA			
Municipal Role	• County, city/village, or township may zone shoreland • In absence of enacted zoning ordinances, DEQ will enforce • Existing/amended zoning ordinances that regulate a high-risk, flood risk, or environmental area shall be submitted to DEQ for approval or disapproval	• Any municipality may adopt freestanding bylaws in conformance w/ secretary's plan, including, as a part of zoning or unified development bylaws, the regulation of development and use along shorelands, flood or other hazard areas	• Each local jxn maintains sovereignty in creating, adopting, and implementing its local program in accordance with the CAC's Criteria • Authorized under the Critical Area Act to change a land use designation and allow development at a density or intensity which exceeds the limits of a site's original designation (a growth allocation)			
Non-Conforming Structures	• Permanent structure which doesn't conform to req'd setback distance at time of designation or which became nonconforming due to erosion or to a change in the required setback distance • Existing structure not in conformity w/ elevation req of flood risk area shall not be altered/enlarged/extended that increases nonconformity	• Depends on municipality	• Local jxns can adopt grandfathering provisions allowing certain pre-existing uses to continue even though they may be inconsistent with the new law			

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