

## **Title 5, 310 CMR 15.000, Natural Resource Nitrogen Sensitive Area**

### **Regulatory Amendments and**

### **Watershed Permit New Regulations, 314 CMR 21.00**

#### **Commonly Asked Questions**

##### **Why is MassDEP proposing new regulations that will affect some coastal areas?**

In some coastal areas, particularly on Cape Cod, the Islands, and Southeastern Massachusetts, there is a problem with too much nitrogen pollution in estuaries and embayments. Septic systems contribute significantly to this nitrogen load. For example, on Cape Cod 85% of the wastewater disposal is through septic systems. In Buzzards Bay the single largest source of nitrogen is septic systems. Other sources include lawn and garden fertilizers, agricultural runoff, and stormwater runoff. This excess nitrogen pollution in coastal waters, like estuaries and embayments, causes a problem known as eutrophication.

##### **Why is MassDEP proposing to address the problem through its Title 5 system regulations? Isn't there another way this can be regulated?**

MassDEP is obligated by 310 CMR 15.000, often referred to as Title 5, to establish minimum standards for the proper siting, construction, upgrade, and maintenance of on-site sewage disposal systems and the appropriate means for the transport and disposal of septage in order to protect public health, safety, welfare and the environment. These on-site sewage disposal systems are often referred to as septic systems or Title 5 systems.

MassDEP already regulates nitrogen effluent from Title 5 systems by making sure that septic systems that are close to drinking water wells are designed and operated in a manner so that pollutants, like nitrogen, do not jeopardize reliable safe, drinking water sources. This is done under the existing Title 5 regulations, 310 CMR 15.000, specifically 310 CMR 15.214 and 15.215. There are, however, currently no state regulatory requirements to reduce nitrogen that enters coastal bays and estuaries from sources like septic systems. The proposed regulations would amend the existing Title 5 regulations to control nitrogen from Title 5 systems. The amended regulations are intended to reduce nitrogen loads that impact coastal waters.

##### **What is eutrophication and why is it a problem?**

Eutrophication results from excess nitrogen causing accelerated growth of algae and invasive plants and weeds. The invasive aquatic plants thrive on the excess nitrogen; they grow, die and decay rapidly, depriving the existing plants and animals of the diverse and healthy environment they need to survive. This overgrowth deprives many aquatic plants and animals of oxygen and the sunlight they need to live—their environment is essentially smothered by the accelerated and dominant growth of nuisance and invasive plants, weeds, and algae.

Fish and shellfish populations have declined significantly, along with aquatic plants in their ecosystems, like eelgrass. The eutrophication also causes some coastal waters to become cloudy and murky and smell bad, including some harmful algal blooms which can be toxic when

inhaled. Eelgrass and bay scallops are gone from many parts of Buzzards Bay because of nitrogen pollution.

Nitrogen is one type of nutrient that causes eutrophication. Another kind is phosphorus, which is mostly associated with causing eutrophication in freshwater.

### **How else can we gauge the seriousness of the problem and what is a TMDL?**

Today, many of the bays and estuaries violate state water quality standards, making them unsuitable for their intended uses of recreation and supporting aquatic life. Scientists have reached that conclusion by determining the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that pollutant – here, it is nitrogen. This determination is presented as a Total Maximum Daily Load, or TMDL. There are at least 30 TMDLs that have been approved by the U.S. Environmental Protection Agency showing excessive amounts of nitrogen in waterbodies throughout Southeastern Massachusetts, the Cape, and the Islands; other studies are currently under way.

### **Why is this environmental problem also an economic problem?**

The water quality in bays and estuaries may have far-reaching impacts on peoples' daily lives. A poll of residents by the Cape Cod Commission "reiterated the importance of water-based recreation, and revealed up to one-fifth of the population might consider stopping water based recreation all together or leaving the Cape if local waters were to become too polluted due to high levels of nitrogen." Water Quality and Cape Cod's Economic Future: Nitrogen Pollution's Economic Impact on Homes and Communities (Mahesh Ramachandran, Ph.D., [capecodcommission.org](http://capecodcommission.org)). According to the Cape Cod Area Wide Water Quality Management Plan Update (page S-i), "[n]itrogen is impacting coastal water quality. About 80% of the nitrogen that enters Cape Cod's watersheds is from septic systems. The conditions it creates destroy animal habitat and result in frequent violations of water quality standards indicated in part by fish kills and diminished shellfisheries. The Cape Cod seasonal economy relies on the water that surrounds the region and the degraded water quality is negatively impacting important economic drivers including coastal property values. Restored coastal water quality is an environmental and economic imperative."

### **What will happen if nothing is done to address the problem?**

If nothing is done, the nitrogen in coastal waters will continue to be a problem and the water quality will likely continue to deteriorate in some areas. Animal life that usually thrives on the ocean floor, such as scallops and mussels will probably continue to die off in certain locations. Ecosystems that decline in this manner, may eventually collapse. The water quality is becoming increasingly degraded, disrupting the ecosystem and, at times, making it unusable for humans. According to the Cape Cod Area Wide Water Quality Management Plan Update (page S-ii), persistent water quality problems will have far-reaching impacts: "Cape Cod's water resources drive the regional economy. They attract visitors in the summer months and make the Cape a desirable place to live for year-round and seasonal residents. Continuing and increasing nitrogen loading of Cape Cod's embayment watersheds will further degrade coastal water quality, adversely impacting environmental, economic, and societal norms. The economic impact of doing nothing to restore coastal water quality will be significant, affecting every homeowner in the region."

### **What coastal areas would be affected by the new septic system requirements?**

MassDEP's initiative would automatically designate 30 watersheds on Cape Cod that have a nitrogen TMDL as Nitrogen Sensitive Areas when the initiative becomes effective, which will likely be in early 2023. All septic system owners in those areas will have to upgrade their systems with the Best Available Nitrogen Reducing Technology within 5 years from designation, **unless** the community applies for and obtains a Watershed Permit or files a Notice of Intent within 18 months of designation to obtain a Watershed Permit. A map of currently possible Nitrogen Sensitive Areas can be found here: [310 CMR 15.000: Septic Systems \(Title 5\)](#)

Watersheds on Cape Cod without a TMDL will be evaluated in the future to determine if they should be designated as Nitrogen Sensitive Areas. Likewise, for watersheds not on Cape Cod, MassDEP will decide in the future after further study whether they should also be designated as Nitrogen Sensitive Areas. If these watersheds are ultimately designated as NSAs, septic system owners in watersheds with excess nitrogen levels would have to upgrade their septic systems with Best Available Nitrogen Reducing Technology, **unless** the community applies for and obtains Watershed Permit or within 18 months of designation files a Notice of Intent to obtain a Watershed Permit.

### **What is a Nitrogen Sensitive Area?**

Nitrogen Sensitive Areas are areas where the discharge of nitrogen through a septic system would be detrimental to the environment or public health. The Title 5 regulations already designate Nitrogen Sensitive Areas to protect drinking water under 310 CMR 15.214 and 15.215. Those Nitrogen Sensitive Areas are certain public and private drinking water supply protection areas where the current Title 5 regulations set certain limitations on the amount of nitrogen that a Title 5 system can discharge in those areas.

The proposed amendments to Title 5 will not change those drinking water designations. They will, however, regulate a new type of Nitrogen Sensitive Area, known as a Natural Resource Nitrogen Sensitive Areas. MassDEP would designate a Nitrogen Sensitive Area pursuant to Title 5, 310 CMR 15.214, when a rigorous scientific study has demonstrated that the watershed is adversely impacted by nitrogen. Examples of those types of studies include TMDLs approved by EPA, Massachusetts Estuary Project reports accepted by MassDEP, and other Scientific Evaluations that meet the criteria set forth in the regulations at 310 CMR 15.002 and 15.214. It should be noted, however, that even if an area has a TMDL, an MEP report, or another Scientific Evaluation demonstrating nitrogen impacts, the area would not be a Nitrogen Sensitive Area until MassDEP makes that designation which includes a public process pursuant to the proposed amended regulations. As discussed above, that designation will happen automatically for watersheds on Cape Cod with a TMDL when the draft regulations become effective.

### **What is Best Available Nitrogen Reducing Technology and what kind of nitrogen removal technology would I have to upgrade to if I am required to obtain an upgrade?**

Systems that must be upgraded will have to incorporate Best Available Nitrogen Removal Technology. The proposed regulations define that technology as: "(1) An alternative system certified by the Department for general use pursuant to 310 CMR 15.288 which has the lowest

effluent Total Nitrogen performance value when the Disposal System Construction Permit application is filed; (2) an alternative system granted provisional approval by the Department pursuant to 310 CMR 15.286; or (3) an alternative system approved by the Department for piloting pursuant to 310 CMR 15.285, provided that for an alternative system granted provisional approval or an alternative system approved for piloting such system has a Total Nitrogen performance value less than or equal to the lowest alternative system certified by the Department for general use pursuant to 310 CMR 15.288 when the Disposal System Construction Permit application is filed for either system.”

### **What is an innovative/alternative (IA) septic system and will it work in a home that is only used seasonally?**

An IA system is a system that differs from a conventional septic system (one that meets Title 5 specifications) in design (either whole or in part) or materials and provides at least equivalent performance or enhanced performance. Alternative nitrogen removal systems are enhanced alternative treatment units, which may qualify as Best Available Nitrogen Reducing Technology. These systems go through a rigorous performance evaluation prior to achieving General Use approval in Massachusetts. The performance evaluation includes installations at homes, some of which are seasonal. Many technologies have the ability to “seed” or startup a system for proper treatment at seasonal facilities.

### **What is a Watershed Permit?**

A Watershed Permit is a new, innovative approach to provide communities the opportunity to develop and implement solutions for addressing water quality challenges. The permit would enable the community to employ a greater range of solutions to address its water quality needs, including alternative or innovative approaches to reduce the amount of nitrogen and other nutrients that are discharged in the watershed. The Watershed Permit is typically based on a community’s “Watershed Management Plan,” which is a long-term plan to address an existing water quality impairment to restore and protect water quality. The Watershed Permit would utilize an adaptive management approach, requiring permittees to monitor, evaluate and report results, and to adjust and modify the strategies and practices as needed to address community-based causes of the water quality impairments. The Watershed Permit is a 20-year permit.

As an example of a Watershed Permit, the towns of Brewster, Chatham, Harwich, and Orleans entered a joint Pleasant Bay Watershed Permit over 5 years ago. In their first five years they were able to achieve approximately 80% of the projected nitrogen reduction goals.

### **Will I have to upgrade my existing Title 5 septic system?**

If your system is on Cape Cod and it is in a watershed with a nitrogen TMDL you will need to add nitrogen removal to your Title 5 system within 5 years from when the regulations become effective—that is when the watersheds on Cape Cod with TMDLs will be automatically designated as Nitrogen Sensitive Areas. **However, your system will generally be exempt from this mandatory 5-year upgrade if your community seeks and ultimately obtains a Watershed Permit** for that watershed.

Other Cape watersheds without a TMDL and off-Cape coastal watersheds may, after further evaluation, be designated in the future as Nitrogen Sensitive Areas. Within 5 years of that

designation, existing septic systems would have to comply with the mandatory upgrade requirement.

**How much time do I have to upgrade my septic system?**

If you have an existing system on Cape Cod in a watershed with a Nitrogen TMDL, you will have 5 years from the date the amendments to the Title 5 regulations become effective (promulgated/enacted as law) to upgrade your Title 5 system, unless your community seeks and ultimately obtains a Watershed Permit. Your community will also be able to temporarily pause the 5-year upgrade requirement by filing a Notice of Intent to obtain a Watershed Permit within 18 months of the Nitrogen Sensitive Area designation. It is not necessary to file a Notice of Intent. Instead, the community's application for and receipt of a Watershed Permit within 5 years will also alleviate Title 5 system owners of the mandatory five-year upgrade. If your community files a Notice of Intent, the pause in the 5-year upgrade requirement will last either until the community withdraws its Notice of Intent or is removed by MassDEP from the permitting process because the community fails to demonstrate reasonable progress towards receiving a Watershed Permit. If the community obtains a Watershed Permit for the watershed the 5 year requirement no longer applies, unless the community withdraws from the permit or it is revoked. Upon withdrawal or revocation, the upgrade requirement would be revived, requiring septic system upgrades within 5 years from the date of the Nitrogen Sensitive Area designation or two years from the date of withdrawal or revocation, whichever is longer.

**I live in a Nitrogen Sensitive Area, but it is unclear if I have to upgrade my Title 5 system because my community has not yet decided whether to pursue a Watershed Permit, what should I do?**

You remain obligated to upgrade your Title 5 system within 5 years from when MassDEP designated the area as Nitrogen Sensitive, unless your community files a Notice of Intent to pursue a Watershed Permit for the watershed within 18 months from the designation date or applies for and obtains a Watershed Permit.

**Is it necessary to have a complete Watershed Management Plan to apply for a Watershed Permit?**

No. If the community has a Comprehensive Wastewater Management Plan, Comprehensive Water Management Plan, or a Targeted Watershed Management Plan, the community can supplement those plans with any information that is necessary to provide all the information that is required as part of a Watershed Management Plan.

**My town already has a Comprehensive Wastewater Management Plan or a Targeted Watershed Management Plan and it is already taking steps to reduce nitrogen pollution. Because this is a new regulatory initiative, will it slow down my town's ongoing progress?**

No, the Watershed Permit Regulations are intended to be flexible and accommodate ongoing initiatives to the extent practicable and consistent with the regulations.

**What are some of the strategies that a community can implement through a Watershed Permit to reduce nitrogen in embayments and estuaries?**

Watershed Permits incorporate a comprehensive approach to decrease pollutants (like nitrogen). The permit may include several types of strategies that can work together for particular

watersheds. Examples include: permeable reactive barriers, natural attenuation enhancement through cranberry bog restoration, natural attenuation enhancement through inlet widening, Innovative Alternative Septic Systems, conventional sewerage, package treatment facilities, fertilizer reduction, stormwater management, and many more strategies.

**What if we share the watershed with a neighboring town, can we get a joint permit?**

Towns that share a watershed can enter into an intermunicipal agreement and submit a joint application for a watershed permit. Although this is not a requirement, there are advantages to collaboration such as cost sharing, shared compliance monitoring and sampling, improved ability to apply for funding due to the potential wider impact of funds, cost savings from economies of scale (depending on the implementation strategies), and increased efficiency of information sharing. Towns that share a watershed will generally only be responsible for their proportional contribution of nitrogen entering the watershed.

**How can I find out if my municipality is applying for a Watershed Permit?**

You should contact your municipal government to find out if it plans to apply for the Watershed Permit or file a Notice of Intent for a Watershed Permit.

**How can I find out if I'm located in a Nitrogen Sensitive Area or a nitrogen impacted watershed that has not been designated as a Nitrogen Sensitive Area?**

MassDEP will identify those areas on its website: [310 CMR 15.000: Septic Systems \("Title 5"\) | Mass.gov](#). It is important to remember that only those watersheds on Cape Cod with a nitrogen TMDL will automatically become Nitrogen Sensitive Areas when the proposed regulations become effective. For any other area to become a Nitrogen Sensitive Area, MassDEP must formally make that designation in the future.

**What involvement does the town have with Title 5 septic systems?**

Local town boards of health have the primary obligation to enforce regulations related to Title 5 septic systems. MassDEP is obligated to provide oversight and assistance as needed. Also, the town can help to secure financing for individual systems and provide loans for these upgrades. More information about this financial assistance can be found at this website: [310 CMR 15.000: Septic Systems \("Title 5"\) | Mass.gov](#).

**My town has a problem with pollution causing excessive algal growth in freshwater ponds. Does this regulatory initiative address that problem?**

The eutrophication in freshwater ponds is primarily caused by another type of nutrient called phosphorus. Communities that obtain a Watershed Permit have the ability to address phosphorus pollution in freshwater bodies with that permit.

**What are sources of nitrogen?**

Fertilizers, stormwater runoff, and septic systems all contribute nitrogen to watersheds. The majority of Cape Cod's nitrogen pollution is from septic systems, which make up 85% of the Cape's wastewater disposal.

**What if I'm building a new Title 5 septic system?**

After the effective date of the regulations, if you are building a new septic system on Cape Cod in a watershed with a nitrogen TMDL and the community does not have a Watershed Permit that waives the requirement to upgrade the system to Best Available Nitrogen Removal Technology, you will have to incorporate approved nitrogen removal technology into the Title 5 septic system during construction. This requirement will also apply to other watersheds if they are designated Nitrogen Sensitive Areas.

**Is there funding available to assist individuals with upgrading their Title 5 systems?**

Yes, funding is available for septic system upgrades through the Community Septic Management Loan Program. The purpose of this program is to provide funding in the form of low-cost loans to allow communities to devise a Community Inspection Plan or a Local Septic Management Plan. Both plans must always include the provision of financial assistance to homeowners using betterment agreements. Usually, a homeowner pays off the betterment loan over time, as an additional line item on their property tax bill. If a betterment lien exists against a property, it jumps ahead of any other outstanding debt on the property. Additional information can be found here: [Community Septic Management Loan Program](#)

**Is there funding available to assist communities with obtaining and implementing a Watershed Permit?**

Yes, information can be found here: [310 CMR 15.000: Septic Systems \("Title 5"\) | Mass.gov](#)