



February 6, 2015

Ms. Robin Johnson
U.S. Environmental Protection Agency – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Mr. David Ferris
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

Re: The Buzzards Bay Coalition's Comments on the Draft NPDES No. MA 0100030 for the Town of Marion Water Pollution Control Facility

Dear Ms. Johnson and Mr. Ferris,

The Buzzards Bay Coalition ("Coalition") has reviewed the US Environmental Protection Agency's ("EPA") Draft National Pollutant Discharge Elimination System ("NPDES") Permit ("Draft Permit") for the Town of Marion ("Permittee" or "Town" or "Marion") Water Pollution Control Facility ("WPCF") located at 50 Benson Brook Road in Marion, Massachusetts, and provides its comments below.

About the Coalition

The Coalition is a nonprofit membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. We represent more than 8,000 individuals, families, organizations, and businesses in Southeastern Massachusetts and have approximately 470 members in Marion. Staff and volunteers have collected nutrient-related water quality samples from Marion's coastal waters since 1992 and a number of our members use and enjoy Aucoot Cove and Sippican Harbor through swimming, kayaking, boating and fishing.

The Coalition's Comments on the Draft Permit

The Coalition fully endorses the provisions of the Draft Permit that will reduce the nutrient load to Aucoot Cove and Sippican Harbor, including stricter limits on nitrogen discharges and the requirement that Marion cease the use of unlined lagoons for placement, storage and disposal of sludge and wastewater. These conditions will improve the water quality in Aucoot Cove and Sippican Harbor, both of which are nutrient impaired water bodies. The Coalition offers the following comments on the Draft Permit and urges the EPA to act quickly to issue a Final Permit.

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Comment 1: Nutrient discharges from the WPCF must be reduced to address impaired water quality.

Massachusetts Surface Water Quality Standards (“SWQS”) classify Aucoot Cove and Sippican Harbor as Class SA waters which are designated as excellent habitat for fish, other aquatic life and wildlife.¹ In certain waters, that excellent habitat may include eelgrass. The SWQS provide that Aucoot Cove and Sippican Harbor shall be suitable for shellfish harvesting and shall have excellent aesthetic value.² Furthermore, state SWQS require that dissolved oxygen in Class SA waters shall not be less than 6.0 mg /L.³

Coalition data illustrate that Aucoot Cove and Sippican Harbor are beyond their ability to assimilate current nitrogen discharges.⁴ Figure 1 shows that Aucoot Cove falls short of the state dissolved oxygen numeric criteria of 6.0 mg/L a majority of the time. These data also show degraded water quality due to the excessive amounts of chlorophyll in the water column violating the aesthetic value requirements of the SWQS.

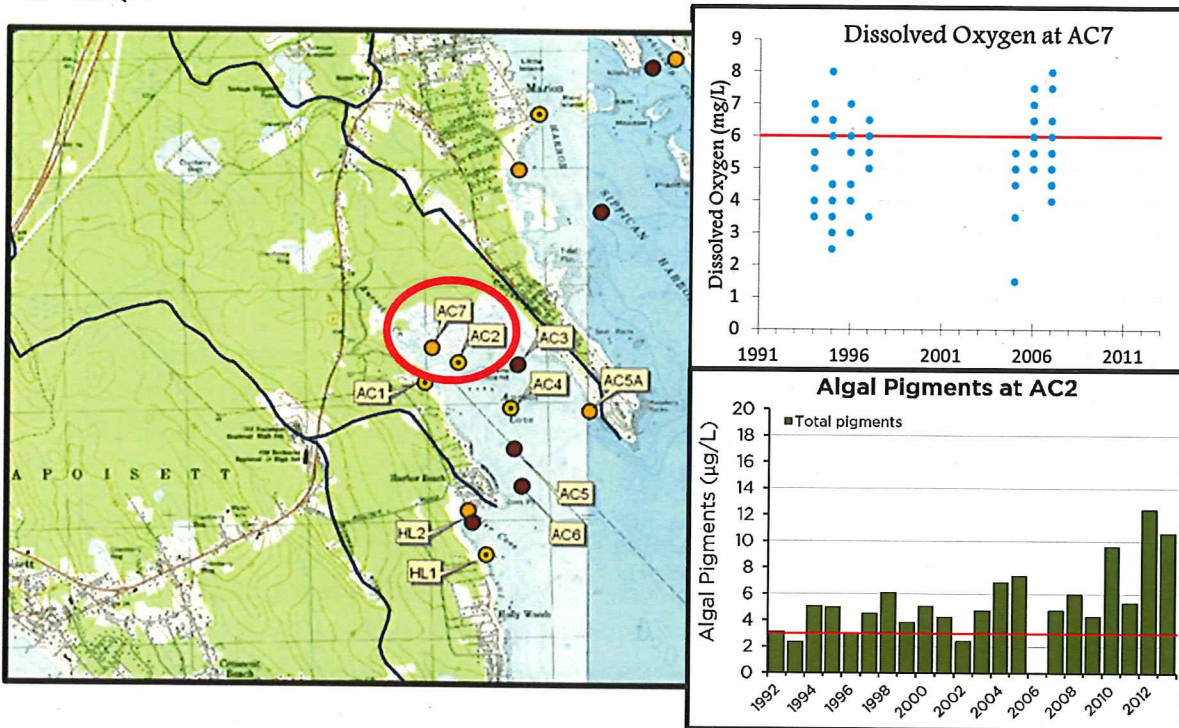


Figure 1. Coalition water quality monitoring data for Aucoot Cove at stations AC7 and AC2.

¹ 314 CMR 4.06(5).

² 314 CMR 4.05(4)(a); Draft NPDES Fact Sheet (Fact Sheet) for Permit No. MA0100030 at 5.

³ 314 CMR 4.05(4)(a)(1).

⁴ Note that Coalition water quality data is collected with strict adherence to an EPA-approved Quality Assurance Project Plan. Williams, T., and C. Neill (2014). Buzzards Bay Coalition Citizens’ Water Quality Monitoring Program, “Baywatchers”, 5 Year Quality Assurance Project Plan.

Figure 2 illustrates the same condition in Sippican Harbor which also fails to satisfy the minimum state dissolved oxygen numeric criteria a majority of the time and exceeds the maximum amount of algal pigments at all times.

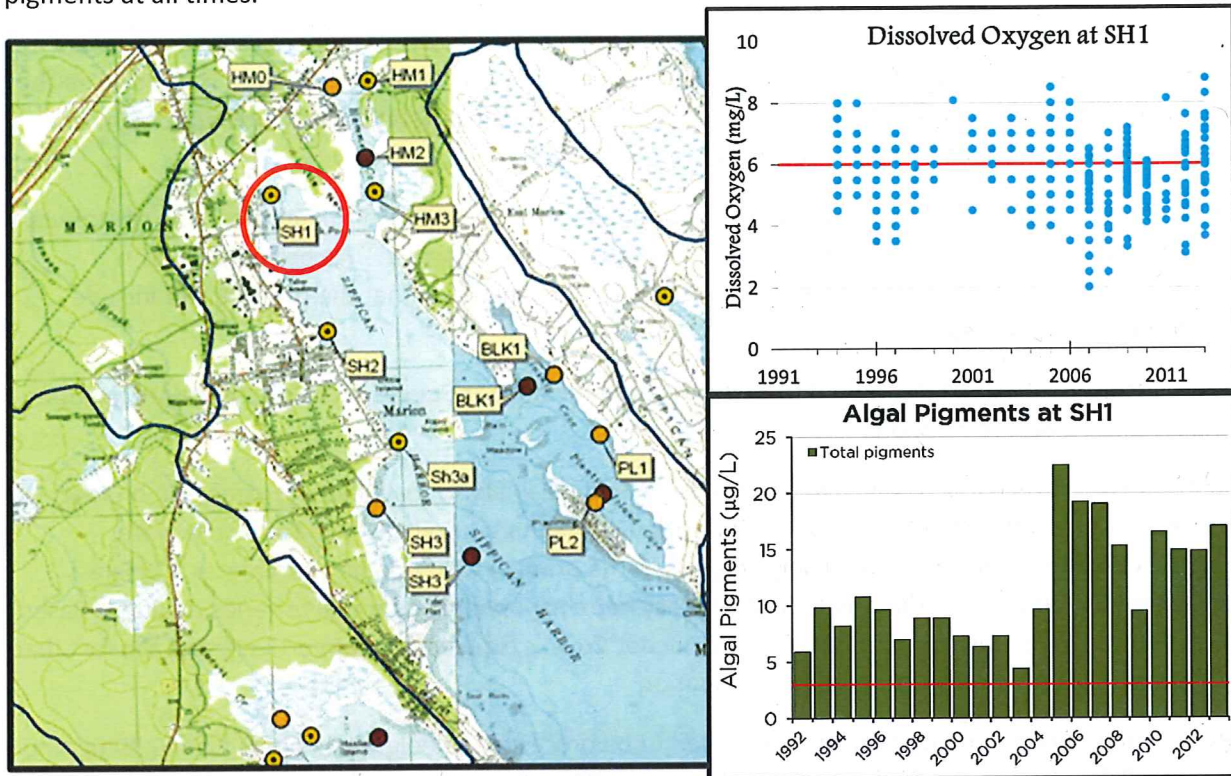
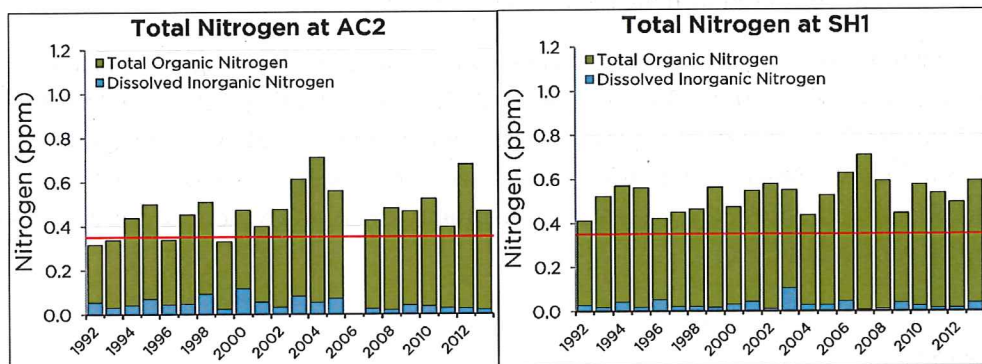


Figure 2. Coalition water quality monitoring data in Sippican Harbor at monitoring station SH1.

In addition, Massachusetts has found that a nitrogen level of 0.35mg/L can be protective of eelgrass habitats in other Buzzards Bay estuaries.⁵ However, as Figure 3 illustrates, Aucoot Cove has consistently exceeded this nitrogen threshold for the last two decades. The same condition exists in Sippican Harbor.

Figure 3.



⁵ Howes B., S. W. Kelley, J. S. Ramsey, R. Samimy, D. Schlezinger, E. Eichner (2005). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for West Falmouth Harbor, Falmouth, Massachusetts. Massachusetts Estuaries Project, Massachusetts Department of Environmental Protection. Boston, MA at 133; Howes B., S.W. Kelley, J.S. Ramsey, R. Samimy, D. Schlezinger, E. Eichner (2006). Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for Pinneys Harbor-Eel Pond-Back River System, Bourne, Massachusetts at 121.

In light of these data, it is not surprising that Aucoot Cove and Sippican Harbor are listed as impaired for total nitrogen, as well as for dissolved oxygen, and nutrients/eutrophication biological indicators on the Massachusetts 2012 Integrated List of Waters ("303(d) List"). Those listings require development of a total maximum daily load ("TMDL") for those waterbodies.

Therefore, EPA's determination that existing nitrogen levels in the WPCF effluent cause and contribute to water quality violations in Aucoot Cove and Sippican Harbor is correct.⁶ Accordingly, Section 301(b)(1)(C) of the Clean Water Act and 40 CFR 122.44(d)(1) mandate that the Draft Permit include conditions to reduce nutrient discharges from the WPCF.

Comment 2: The Draft Permit's nitrogen threshold for Aucoot Cove is scientifically sound, justified and reasonable.

The Draft Permit recognizes that Aucoot Cove is beyond its ability to assimilate nitrogen and on that basis establishes a threshold nitrogen concentration of 0.35mg/L total nitrogen to restore water quality.⁷ EPA adopts this threshold using eelgrass as the primary water quality parameter.⁸ Eelgrass serves a critical function within the estuarine ecosystem by providing essential fisheries habitat.⁹ Based on its depth, strata, and other characteristics, Aucoot Cove is expected to support eelgrass; the fact that it does not is evidence of water quality degradation.

EPA identifies a range of nitrogen levels believed to be protective of eelgrass habitats from 0.39mg/L to less than 0.3mg/L.¹⁰ In the Draft Permit, EPA adopts 0.35mg/L as a target nitrogen concentration based on the median total nitrogen concentration at monitoring station AC3, a location within Aucoot Cove which currently supports eelgrass.¹¹ However, even at a nitrogen concentration of 0.35mg/L at station AC3, the coverage of eelgrass in Aucoot Cove has continued to diminish over time. EPA itself recognizes this trend: "GIS data collected by MassDEP and analyzed by EPA indicate that eelgrass coverage in Aucoot Cove has retreated from its historical extent."¹²

EPA's selected threshold of 0.35mg/L may be consistent with the nitrogen thresholds established in other estuaries in and around Buzzards Bay, but given the on-going trend of eelgrass loss a threshold closer to 0.3mg/L is appropriate. In fact, MassDEP has identified ideal nitrogen levels protective of eelgrass at below 0.3mg/L.¹³ It is common practice to establish a more conservative and therefore more protective nitrogen threshold when some uncertainty exists and a more conservative nitrogen threshold is justified for Aucoot Cove.

⁶ Fact Sheet at 18.

⁷ *Id.* at 20-21.

⁸ *Id.* at 18.

⁹ *Id.* at 15.

¹⁰ *Id.* at 17.

¹¹ *Id.*

¹² *Id.* at 18.

¹³ *Id.* at 17.

Comment 3: The unlined lagoons are a clear source of pollution.

In addition to the discharge of treated wastewater through Outfall 001 to Aucoot Cove,¹⁴ the WPCF also operates 20 acres of unlined sewage lagoons for equalization and storage of wastewater during high flows and for scum and sludge disposal.¹⁵ In response to declining coastal water quality throughout Marion, the Coalition initiated an investigation in 2009 to assess whether the WPCF's unlined sewage lagoons were leaking untreated wastewater to the groundwater and to Marion's sensitive coastal estuaries.

Documents obtained from Marion and the Massachusetts Department of Environmental Protection as part of a 2009 public records request include speculation that the lagoons are a source of pollution. Specifically, the WPCF's 1995 Draft Wastewater Facility Plan and its May 2001 Draft Wastewater Facilities Plan both stated that "[t]here are two possible sources of contamination from the treatment facility: the wastewater lagoons and the septage lagoons."¹⁶ The 1995 Plan goes on to report that Well 1 contained nitrate levels above primary drinking water standards and total nitrogen concentrations as high as 19.4 mg/L.¹⁷

In April 2010, after receiving Marion's endorsement, the Coalition hired the Horsley Witten Group, Inc. ("HWG") to conduct an environmental assessment to determine whether the lagoons were leaking. HWG concluded that the lagoons were leaking and that the raw effluent from the lagoons was infiltrating the underlying groundwater.¹⁸ Water quality samples taken from groundwater monitoring wells showed nitrogen levels as high as 10.2mg/L, above primary drinking water standards, with the highest levels found closest to the sewage lagoons.¹⁹ HWG recommended that "the sewage lagoons be lined with an impermeable geotextile membrane to prevent further leaking from the bottom and the sides of the sewage lagoons."²⁰

The Coalition notified the EPA via a February 26, 2013 letter, attached here, of the state of the lagoons and the potential on-going violations and requested immediate action. The EPA has correctly determined that the unlined lagoons are not being properly maintained and operated and the nitrogen from the leaking lagoons is contributing to nutrient impairments in Aucoot Cove and Sippican Harbor.²¹ The HWG's environmental assessment also determined that the leaking lagoons were contributing to the impairment of the Sippican River, a 303(d) listed impaired waterbody.²² The Permittee must make

¹⁴ *Id.* at 6.

¹⁵ *Id.*

¹⁶ Town of Marion Draft Wastewater Facilities Plan, Camp Dresser & McKee, June 1995 at 6-10; Town of Marion Draft Wastewater Facilities Plan, Camp Dresser & McKee, May 2001 at 2-3.

¹⁷ Town of Marion Draft Wastewater Facilities Plan, Camp Dresser & McKee, June 1995 at 6-15.

¹⁸ Environmental Assessment of the Marion Wastewater Treatment Plant Sewage Lagoons, Horsley Witten Group, April 29, 2011, at 9.

¹⁹ *Id.*

²⁰ *Id.*

²¹ Fact sheet at 19.

²² Cite to HW Report directly.

controlling exfiltration from the lagoons a top priority. Eliminating the lagoons as a nitrogen source will have a significant benefit to Marion's coastal waters.²³

Comment 4: The Coalition supports Permit Special Condition, Part IE, "Special Conditions Related to Lagoon Operations".

The WPCF uses unlined lagoons for equalization and storage of wastewater during high flows exceeding the WPCF capacity and during storm events as well as for the regular disposal of scum, waste activated sludge and flier backwash from the WPCF.²⁴ The lagoons leak regulated pollutants to the groundwater. The EPA explains that the practice of surface disposal of sewage sludge requires proof that groundwater is not contaminated.²⁵ While it is theoretically possible to offer such proof, it is usually only realistic if the sewage sludge unit has a liner and a leachate collection system.²⁶ Here, there is no liner or leachate collection system and all evidence demonstrates that the wastewater and sewage sludge are contaminating the groundwater. Marion has offered no evidence to the contrary.²⁷

Federal regulations require that all facilities and systems of treatment and control, including all related appurtenances, be properly operated and maintained at all times.²⁸ This requirement applies to the WPCF's wastewater lagoons. The Coalition agrees with EPA's determination that the practice of sludge disposal in unlined lagoons is inconsistent with proper operation and maintenance requirements of the WPCF.²⁹ Analogous to a wastewater treatment facility operating with leaking pipes, the operation of leaking, unlined lagoons is inconsistent with federal requirements and the Coalition supports the Draft Permit conditions requiring Marion to cease the placement, storage, and disposal of sludge and other treatment related solids in unlined lagoons, cease the use of the unlined lagoons for storage of wastewater, and abate any ongoing contamination of groundwater occurring as a result of sludge and other wastewater solids that were deposited in the unlined lagoons.

The Coalition recognizes that the performance of the WPCF's sequencing batch reactors has been notable over the last four years. An average total nitrogen discharge of 3.46 mg/L signifies that the WPCF can successfully treat the wastewater discharging from Outfall 001 to Aucoot Cove.³⁰ However, the Permittee's operation and maintenance of the lagoons is out of date and in violation of federal law. The Coalition urges the Permittee to focus on lining or otherwise remediating the lagoons in order to comply with federal regulation and reduce a significant nitrogen source to the Town's sensitive coastal waters.

²³ Fact Sheet at 23.

²⁴ *Id.* at 6.

²⁵ *Id.* at 20.

²⁶ *Id.*

²⁷ *Id.* at 19.

²⁸ 40 CFR §122.41(e); Fact Sheet at 19.

²⁹ Fact Sheet at 19.

³⁰ *Id.* at 16.

Comment 5: Water quality in Aucoot Cove demands a strict total nitrogen effluent limit for the WPCF.

EPA must determine whether pollutants “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion” of the narrative criteria set forth in state water quality standards.³¹ Once EPA makes such a determination, it must establish limits on such pollutants without consideration of the cost, availability or effectiveness of treatment technologies. Those limits must be as stringent as necessary to achieve the SWQS.³²

Here, EPA establishes 0.35mg/L total nitrogen as the level of nitrogen necessary to achieve water quality standards and protect eelgrass. EPA determines that at an average effluent nitrogen concentration of 3.46mg/L at Outfall 001 combined with the discharge from the lagoons, the WPCF has the reasonable potential to cause or contribute to violations of those water quality standards.³³

To establish an effluent limit at the WPCF, EPA calculates the acceptable loading rate of nitrogen to Aucoot Cove to achieve the 0.35mg/L total nitrogen at 34.45lbs/day.³⁴ Yet, the current nitrogen load to Aucoot Cove is 68.90lbs/day for which the WPCF is responsible for 59.50lbs/day; 13.75lbs/day from Outfall 001 and 45.75lbs/day from the lagoons.³⁵ In order to meet SWQS, EPA finds that nitrogen sources to Aucoot Cove must be reduced by half and the WPCF must reduce its load to 25.05lbs/day from 59.50lbs/day. An effluent limit of 3.0mg/L on Outfall 001 alone cannot meet these loading requirements and achieve SWQS.³⁶ The nitrogen load from the lagoons must also be eliminated.

Comment 6: The interim total nitrogen effluent limit should be lowered to 4.0mg/L.

The Coalition urges the EPA to establish a lower interim total nitrogen effluent limit. Footnote 7 on page 4 of the Draft Permit establishes an interim nitrogen limit of 5.0 mg/L total nitrogen limit from April through October. The Coalition urges the EPA to establish an interim permit limit of 4 mg/L. The critical need to reduce nitrogen to Aucoot Cove together with the WPCF’s ability to achieve an average effluent concentration of 3.46 mg/L total nitrogen supports an interim limit of 4mg/L total nitrogen.

Comment 7: The Draft Permit establishes a reasonable compliance schedule for achieving compliance with the Lagoon Condition (Condition I.E.) in Draft Permit Condition I.F.

The Coalition supports those conditions in the compliance schedule which require the Permittee to develop a plan to achieve compliance with the lagoon condition in Permit Condition I.E.

Permit Condition I.F.1 requires the town to submit a plan within 12 months to achieve compliance with the lagoon requirement (Permit Condition 1.E.) with complete compliance within 48 months. This is a clear and reasonable requirement. The compliance schedule in Permit Condition I.F. goes on to state that if the permittee seeks to line the lagoons or seeks to implement an alternative method for sludge

³¹ 40 CFR §122.44(d)(i); Fact Sheet at 8.

³² 40 CFR §122.44(d)(1), (5); Fact Sheet at 8.

³³ Fact Sheet at 18.

³⁴ *Id.* at 22.

³⁵ *Id.* at 21-22.

³⁶ *Id.* at 22.

disposal and wastewater storage that full construction of the liner and/or alternative solution is required within 36 months of the effective date of this permit. It is the Coalition's position that this timeframe is reasonable and adequate.

In the event that the Permittee decides to pursue an alternative method for sludge disposal or wastewater storage (other than lining the lagoons) it must be made clear that in addition to ceasing the disposal of sludge and other treatment related solids, and ceasing the use of the lagoons as storage of wastewater, that existing wastewater and sludge currently within the lagoons must be removed and properly treated and disposed of within 36 months of the effective date of the permit.

Comment 8: The Draft Permit's total nitrogen effluent limit compliance schedule is too generous.

The Draft Permit proposes to grant the Permittee 60 months, the entire term of the permit, to implement facility improvements required to meet the 3.0 mg/L total nitrogen effluent limit. This appears to be an overly generous timeframe given the evidence that the WPCF currently achieves an average total nitrogen limit of 3.46 mg/L.³⁷ The Coalition supports the requirement that the Permittee submit an alternatives analysis/facilities plan to EPA for improvements required to achieve the total nitrogen limit within 12 months after the effective date of the permit in requirement I.F.3. However, the Coalition urges the EPA to require that full implementation of that plan be achieved within 36 months of the effective date of the permit.

Comment 9: Clarification requested on Permit Condition I.F.2.

Condition I.F.2 allows the Permittee to "supplement such reductions" for a higher total nitrogen limit at the Outfall sufficient to meet the SWQS. This condition also requires that "such plan" include any additional non-point source and stormwater reductions that the Permittee implements. It is not clear what the phrase "such reductions" in this condition refers to or what and when such a "plan" must be completed. Lastly, this provision lacks an implementation timeframe.

If the intent of this condition is to allow the Permittee to demonstrate that the load from other sources of nitrogen can be reduced ("such reductions") in an amount to meet SWQS and justify a higher total nitrogen effluent limit on Outfall 001, then clarifications are needed including inclusion of a timeframe to submit a plan for an alternative nitrogen reduction strategy. In the event that the Permittee avails itself of this opportunity, the Draft Permit must require that a plan showing the reduction of sources of nitrogen to Aucoot Cove in an amount sufficient to meet SWQS be submitted to EPA and be made available for public comment. Furthermore, that plan must be fully implemented within 36 months of EPA's approval of the plan.

Comment 10: The phosphorus limits are reasonable.

The Draft Permit proposes a phosphorus limit of 0.2mg/L to be achieved within 60 months of the effective date. This is a reasonable limit. While the general phosphorus limit for free-flowing streams is

³⁷ *Id.* at 16.

typically 0.1mg/L, EPA justifies the higher phosphorus limit based on a site-specific evaluation of the receiving waters.³⁸

Comment 11: The continued operation of leaking lagoons violates state groundwater discharge regulations.

In addition to violating provisions of federal law, Marion's continued operation of leaking lagoons violates the Massachusetts Groundwater Discharge Permit Program Regulations. Those rules prohibit the discharge of pollutants into ground waters of the Commonwealth without a permit.³⁹ It defines "discharge of pollutants" as "any addition of any pollutant or combination of pollutants to Waters of the Commonwealth from any source" and "pollutant" as "any element or property of sewage. . . in whatever form and whether originating at a point or non-point source, which is or may be discharged, drained or otherwise introduced into. . . waters of the Commonwealth." A "discharge[] of pollutants" includes operation of an "unlined pit, pond, lagoon, or surface impoundment in which wastewaters or sludges are collected, stored, treated, or disposed and from which a liquid portion seeps into the ground." "Waters of the Commonwealth" is defined as ". . . all waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters, *ground waters*, and vernal pools." (emphasis added).⁴⁰

The HWG report concluded that waters from the lagoons were leaching into the groundwater and were the source of elevated nitrogen levels below the lagoons. Marion does not have a groundwater discharge permit for the lagoons' discharge and because the WPCF and the lagoons were designed to receive and do receive more than 10,000 gallons per day, the WPCF is not exempt from the Groundwater Discharge Permit Program requirements.

Conclusion

Strict nitrogen reduction requirements are required in order to meet SWQS for Aucoot Cove and Sippican Harbor. Overall, the Draft Permit establishes reasonable and scientifically supported limits. A nitrogen threshold at least as protective of 0.35mg/L will reduce the amount of nitrogen discharging to Aucoot Cove and should result in progress towards compliance with SWQS. The Coalition urges the EPA to issue a Final NPDES consistent with these comments as soon as possible.

Sincerely,



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cc: Town of Marion Board of Selectmen

³⁸ *Id.* at 25.

³⁹ 314 CMR 5.03.

⁴⁰ 314 CMR 5.02.