

## **Testimony of Ed Friedman, Bowdoinham. LD 2187**

**2-25-26**

Senator Tepler, Representative Doudera and members of the ENR Committee,

Please vote ought to pass on LD 2187 with the caveats it includes an amendment upgrading the Androscoggin River between Worumbo and Gulf Island Pond dams from Class C to Class B.

And,

That bill language be amended so as to not intentionally or unintentionally restrict the abilities of citizen water monitoring groups to meaningfully impact improvement of Maine's waters through regulatory means, including reclassification. Specifically, language that may unintentionally or intentionally require continuous monitoring and phosphorus monitoring (in Rules since June) put attainment of these parameters out of reach of virtually all DEP-Volunteer River Monitoring Program group due to cost and technical capacity (data amounts and expertise).

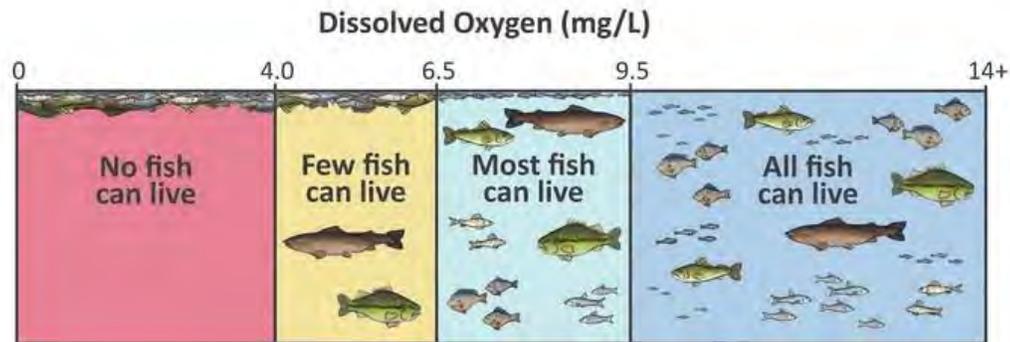
### **Current Exhibits Include:**

- 1. Dissolved oxygen matters**-Class C minimum levels are just that for aquatic life-minimal. (2 cites included)
- 2. Legal.** Three legal opinions from water law experts are included- Upgrading classification to comply with actual water quality conditions is the law. Conservation Law Foundation (2008), Greenfire Law (2020), Sells Law (2025)
- 3. Clean rivers have a positive economic impact**-Local communities want a clean river (comprehensive plan excerpts) and 2 studies

## Dissolved Oxygen, Why does it matter?

If dissolved oxygen levels are too low, fish and other aquatic animals may suffocate and die. Very low oxygen levels in lakes and rivers happen most often at the end of winter after a long ice-cover period, or at the end of summer when algae growth has peaked and is beginning to degrade.

In polluted systems with too many nutrients, an overgrowth of plants, animals, and bacteria cause the oxygen to be used up quickly, sometimes causing fish to suffocate.



☞ Dissolved oxygen below 5.5 mg/L will negatively affect most fish and fish life stages. Each type of fish requires a different amount of dissolved oxygen to live.

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<https://datastream.org/en-ca/guidebook/dissolved-oxygen-do>

## EPA Fact Sheet on Dissolved Oxygen

[https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet\\_do.pdf](https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet_do.pdf)

DO is an important indicator of the overall biological health of a waterbody and is required for a waterbody to support aquatic life. It is generally measured in the field along with water temperature, turbidity (clarity), specific conductance, and pH. This information is then assessed against water quality standards to determine whether the water is fit for aquatic life.

Figure 1 is a generalized illustration of how DO affects fish health – sensitivities vary by species. In the range labeled as “too low”, DO is too low to support fish. In the “stressful” range, DO conditions impede spawning and reproduction, and limit growth and activity. A higher DO is needed to be “supportive” of fish spawning, growth, and activity. Different levels of DO are required to support aquatic life depending on the species present and their stages of life (spawning, larvae, etc.). Trout, for example, require higher DO, while carp can survive in lower DO conditions. Among the macroinvertebrates, many immature insects require a high DO content, while other species such as aquatic worms and snails can tolerate lower DO concentrations. Hypoxic (low DO concentration) or anoxic (virtually no DO) conditions do not support fish or macroinvertebrate populations.

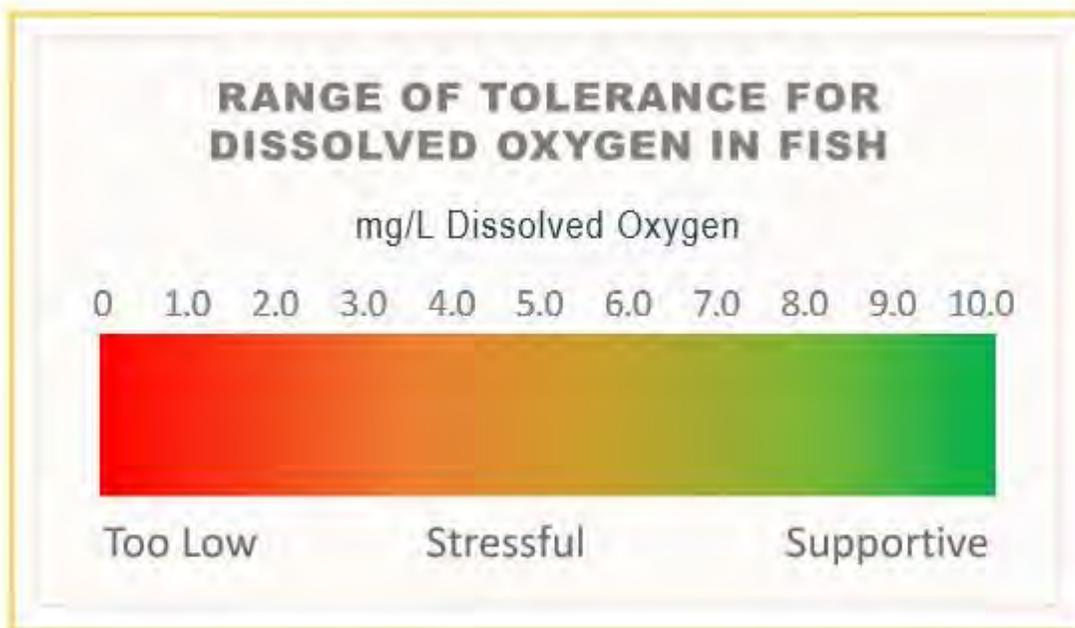


Figure 1. General freshwater fish tolerance for dissolved oxygen concentrations – tolerances vary by species.

**A Legal Opinion: Excerpt from Conservation Law Foundation BEP Comments 10/2/2008  
The Lower Androscoggin River**

*“The Department’s refusal to recommend an upgrade violates the legal standard in the Clean Water Act that a state shall revise its standards to reflect uses and water quality actually being attained. 40 C.F.R. §131.10(i). See also id. §131.6(d); 38 M.R.S.A. §464(4)(F). Thus, the Committee’s [or Board’s] analysis must be based on existing water quality-not hypothetical modeling with point sources operating at maximum licensed discharge. Indeed, the Committee [or Board] is specifically prohibited from considering maximum licensed loads because both state and federal regulations prohibit consideration of waste discharge or transport as a designated use. 40 C.F.R. §131.10(a); 38 M.R.S.A. §464(4)(F)(1)(d).*

*CLF strongly disagrees with the Department's recommendation and rationale for not upgrading this river segment. The Department has stated that proponents must provide water quality data and modeling showing "the likelihood of attainment of Class B water quality criteria at maximum licensed loads." See Reclassification Memorandum at 29. This makes no logical, legal or economic sense. First, no one operates at maximum licensed loads; rather a large buffer is generally built into all permits to avoid violations. Thus, DEP is requesting an impossible and unnecessary showing.*

*Second, the Department's recommendation violates the legal standard in the Clean Water Act that a state shall revise its standards to reflect uses and water quality actually being attained. 40 C.F.R. §131.10(i). See also id. § 131.6(d); 38 M.R.S.A. § 464(4)(F). Thus, the Board's analysis must be based on existing water quality - not hypothetical modeling with point sources operating at maximum licensed discharge. Indeed, the Board is specifically prohibited from considering maximum licensed loads because both state and federal regulations prohibit consideration of waste discharge or transport as a designated use. 40 C.F.R. § 131.10(a); 38 M.R.S.A. § 464(4)(F)(1)(d).*

*Third, as many of the dischargers in this watershed have already recognized, water quality upgrades are generally good for surrounding communities. As has been shown over and over again, clean water is an economic boon. Examples abound throughout New England, including the recent revival of Boston Harbor, the Portland Waterfront, the Auburn Riverfront, and the resurgence of Merrymeeting Bay and the Kennebec River. The Androscoggin River deserves the same.*

*CLF believes that the data, including both dissolved oxygen levels and recreational uses, shows that existing uses in the lower Androscoggin have improved over time and that the river currently attains the higher bacteria and dissolved oxygen standards set forth in the Class B designation. As noted by the Department, it has no reason to question the data; indeed, it has relied upon data supplied by the proponent in prior reclassifications. Therefore, barring a showing that the data is invalid, the Board must recommend upgrading this section.”*

**Memorandum of Law**

RE:            Reclassification of the Lower Androscoggin River to Class B  
From:          Rachel Doughty, Greenfire Law, PC  
Date:          March 31, 2020

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The lower Androscoggin must be designated Class B because of its demonstrated achievement of the minimum standards for that classification. Maine has for many years resisted upgrading the water quality classification of the Lower Androscoggin from Class C to Class B by eliding the non-discretionary state and federal anti-degradation policy with the use attainability analysis, which can only be used to remove legally-designated uses.

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### Analysis

Maine Department of Environmental Protection (DEP) is presently preparing recommendations to the legislature as part of the State's triennial mandatory review of water quality standards.<sup>1</sup> Under the federal and Maine anti-degradation laws, DEP must recommend a change in use classification for the lower Androscoggin from Class C to Class B because that is the standard of water quality it is actually achieving the overwhelming majority of the time. Maine may not avoid reclassification of the lower reach based on hypothetical, once-in-a-decade modeled events. Nor may the lower Androscoggin be kept in Class C to permit the greatest flexibility to accommodate industrial waste assimilation as a priority.

#### **I. Maine DEP has a nondiscretionary duty to recommend the lower Androscoggin for reclassification because it attains the Class B standard.**

Under federal and Maine law, a water quality standard is composed of narrative or quantitative criteria, designated uses, and an anti-degradation policy. The Clean Water Act (CWA) and Maine's anti-degradation policy require that "[w]hen the actual quality of any classified water exceeds the minimum standards of the next highest classification, that higher water quality must be maintained and protected. The board shall recommend to the Legislature that that water be reclassified in the next higher classification."<sup>2</sup> Simply put, if actual data show that the lower Androscoggin in fact meets the standard for a Class B water, then the Maine Board of Environmental Protection has a non-discretionary duty to recommend to the legislature that it be so classified.

#### **A. Field data demonstrates the lower Androscoggin meets Class B water quality criteria.**

Actual field data shows the lower Androscoggin achieves Class B water quality criterion for dissolved oxygen (DO). Maine's dissolved oxygen criterion for Class B is:

The dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration may not be less than 9.5 parts per million and the 1-day minimum dissolved oxygen concentration may not be less than 8.0 parts per million in identified fish spawning areas.<sup>3</sup>

FOMB has monitored the River since 1999 following EPA and or DEP protocols.<sup>4</sup> Using these DEP-approved protocols FOMB collected data spanning the years 1999 to present--731 individual DO

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<sup>1</sup> 33 U.S.C.S. § 1313(c)(1).

<sup>2</sup> 38 M.R.S. § 464.4.F.4 (emphasis added); see also 40 C.F.R. § 131.20(i) ("Where existing water quality standards specify designated uses less than those which are presently being attained, the State shall revise its standards to reflect the uses actually being attained.").

<sup>3</sup> 38 M.R.S. § 465.3.B.

<sup>4</sup> Exhibit 29, *Friends of Casco Bay EPA Quality Assurance Plan* under which FOMB operated until 2018, Exhibit 34, *MDEP VRMP Sampling Protocols* also used since 2009, Exhibit 28 FOMB, *Volunteer River Monitoring Program 2009-2018* (including DO and *E. coli* data) See also Exhibits 30 (Auburn Boat Launch DO data 2010-

samples--on the lower Androscoggin.<sup>5</sup> Of these samples, only 16--two percent--fell below the Class B 7mg/L criterion for DO, mostly within the acceptable range of calibration error of 0.6 mg/L.<sup>6</sup> Thus, actual sampling of the lower Androscoggin demonstrates attainment with the DO criterion for Class B 98% of the time.<sup>7</sup>

Likewise, field data shows the lower Androscoggin achieves Class B water quality criterion for *E. coli*. Maine's *E. coli* criterion for Class B is:

Between May 15th and September 30th, the number of *Escherichia coli* bacteria of human and domestic animal origin in these waters may not exceed a geometric mean of 64 per 100 milliliters or an instantaneous level of 236 per 100 milliliters. In determining human and domestic animal origin, the department shall assess licensed and unlicensed sources using available diagnostic procedures.<sup>8</sup>

*E. coli* sampling has been done since 2006. Again, the results were overwhelmingly above the Class B criterion.<sup>9</sup>

DEP, in its 2018 Proposed Reclassifications seemed to imply that if a scenario can be imagined and modeled demonstrating a once in ten year failure to meet a criterion of a water quality standard for a particular class, then the reach cannot be reclassified to the standard it meets the overwhelming majority of the time.<sup>10</sup> The law is not that inflexible—certainly not in the direction implied.

First, there is no requirement to show even that the *actual* Class B water quality numeric standards need be attained one hundred percent of the time in every section of the reach being reviewed, much less that some remote, modeled scenario should dictate the classification of the reach. For example, some of the more stringent chemical criteria are stated as averages, meaning that measurements above and below that

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2011), 35, 36, 37 (Applied Biomonitoring-FOMB Reports covering DO and *E. coli* for years 2009-2012) and 38 (Complete FOMB raw data.1999-2019).

<sup>5</sup> See Exhibit 38 (FOMB Complete WQ Data Files and Exhibits).

<sup>6</sup> See Exhibit 27, Peter Milholland, *Quality Assurance Project Plan for Friends of Casco Bay Citizen Stewards Water Quality Monitoring Program* (Sept. 15, 2006) p. 52 (describing calibration protocol) and Table 2. Under the federal EPA Quality Assurance Plan governing DO sampling for Friends of Merymeeting Bay and Friend of Casco Bay, during annual refreshers there was an allowance of 0.6 mg/L leeway between test reading and calibrated sample. In other words, a DO test result of as low as 6.4 would be within acceptable parameters for attainment of 7mg/L, the Class B standard. The occasional low DO reading over the years has generally been on the order of 6.8 or 6.9 well within the allowed margin of error.

<sup>7</sup> Calculated from Exhibit 38 (FOMB Complete WQ Data Files and Exhibits).

<sup>8</sup> 38 M.R.S. § 465.3.B.

<sup>9</sup> See attached, Exhibit 26: *Geometric means chart for 2006-2019*; See also, Exhibit 38: FOMB Complete WQ Data Files and Exhibits 35, 36, 37: Applied Biomonitoring Reports 2010, 2011, 2013

<sup>10</sup> In a October 25, 2019, letter to Senators Libby and Claxton (Exhibit 30), the DEP stated at page 3 that it considered the anti-degradation mandate “in the full context of the water quality laws including the sections of law that establish the conditions under which a discharge may be licensed.” So, citing findings made when determining the waste assimilative capacity of the water, the DEP concluded that a water cannot be recommended for a more protected classification if it cannot meet that standard in a modeled “7-day low flow that can be expected to occur with a frequency of once in 10 years.”

number are to be expected.<sup>11</sup> Additionally, instances of non-attainment are anticipated as a designated use is maintained by law, “whether or not that use is being attained.”<sup>12</sup> Finally, the EPA explicitly directs that “States are encouraged to designate uses that the State believes can be attained in the future.”<sup>13</sup>

Second, flexibility is allowed in assessing the proper classification based upon the unique natural features of the water at issue. For example, some natural conditions, such as the incoming tides from Merrymeeting Bay and Sediment Oxygen Demand may cause the lower Androscoggin to fail to achieve a water quality criterion from time to time. But these natural conditions expressly may not be used to determine non-attainment of a use.<sup>14</sup>

DEP’s interpretation would moor a reach to its lowest possibly quality days rather than pulling it towards its best uses attained since the Clean Water Act was adopted—and that is the exact opposite of what the law requires. After all, the purpose of the Clean Water Act is to eliminate water pollution, not to accommodate it by preventing progress towards more protective standards because of exceptionally rare hypothetical events.<sup>15</sup>

**B. The actual uses of the lower Androscoggin are consistent with Class B designation.**

Currently, the lower Androscoggin “[f]rom its confluence with the Ellis River to a line formed by the extension of the Bath-Brunswick boundary across Merrymeeting Bay in a northwesterly direction” is designated Class C.<sup>16</sup> The designated uses of Class B and Class C are substantially the same, differing only in whether the habitat supported by the reach is characterized as unimpaired:

**Class B:** waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under

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<sup>11</sup> See, e.g., 38 M.R.S. § 465.3.B (describing even the most stringent criterion for Class B dissolved oxygen as a 7-day *mean*).

<sup>12</sup> 38 M.R.S. § 464.2-A.F.

<sup>13</sup> Section 2.4

<sup>14</sup>

Where natural conditions, including, but not limited to, marshes, bogs and abnormal concentrations of wildlife cause the dissolved oxygen or other water quality criteria to fall below the minimum standards specified in section 465, 465-A and 465-B, those waters shall not be considered to be failing to attain their classification because of those natural conditions.

38 M.R.S. § 464.4.C.

<sup>15</sup> See 33 U.S.C. § 1251(a) (“The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this Act—(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985.”)

<sup>16</sup> 38 M.R.S. § 467.1.A(2).

Title 12, section 403; navigation; and as habitat for fish and other aquatic life. The habitat must be characterized as unimpaired.<sup>17</sup>

“‘Unimpaired’ means without a diminished capacity to support aquatic life.” 38 M.R.S. § 466.11. The lower Androscoggin has and does support unimpaired aquatic life, and is not listed as impaired on this section for any relevant parameter.<sup>18</sup> Biological monitoring of the freeflowing sections of the Lower Androscoggin demonstrates attainment of Class B aquatic life standards.<sup>19</sup>

In determining what uses must be protected and maintained, the DEP may consider the actually designated uses contained in the Class B and C standards, as well as:

- (a) Aquatic, estuarine and marine life present in the water body;
- (b) Wildlife that utilize the water body;
- (c) Habitat, including significant wetlands, within a water body supporting existing populations of wildlife or aquatic, estuarine or marine life, or plant life that is maintained by the water body;
- (d) The use of the water body for recreation in or on the water, fishing, water supply, or commercial activity that depends directly on the preservation of an existing level of water quality; [ . . . ] and
- (e) Any other evidence that, for divisions (a), (b) and (c), demonstrates their ecological significance because of their role or importance in the functioning of the ecosystem or their rarity and, for division (d), demonstrates its historical or social significance.<sup>20</sup>

The lower Androscoggin provides exceptional and unique habitat. It feeds tidal wetlands that have been recognized by the U.S. Fish and Wildlife Service “highest value habitat,” including for multiple rare inter-tidal plants and endangered, threatened and species of special concern (e.g., creeper, tidewater mucket, yellow lamp mussels, dry land sedge, etc.). It sustains, silver maple floodplain and birch-oak rocky communities. It is a spawning and nursery area for endangered short nose sturgeon, and Atlantic salmon

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<sup>17</sup> 38 M.R.S. § 465.3.A (emphasis added)Compare:

**Class C:** Class C waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as a habitat for fish and other aquatic life.

38 M.R.S. § 465.4.A.

<sup>18</sup> It is listed as impaired for PCBs, but so are other reaches that are designated Class B.

<sup>19</sup> See Exhibit 31, Maine Department of Environmental Protection, *Lower Androscoggin River Basin Water Quality Study Modeling Report* (March 2011), Appendix D (Station 954 (below Pejepsot Dam, free-flowing) attained Class B aquatic life standard.) Other stations were taken from impoundments and impoundments attained Class C aquatic life criteria, which by law must be treated as attaining A or B criteria in these locations. 38 M.R.S. § 464. 10.A(1). See also Exhibit 32 (FOMB annotations to Exhibit 31, *Appendix D* (Aquatic Life)).

<sup>20</sup> 38 M.R.S. § 465.4.F.

and threatened Atlantic sturgeon. Other significant diadromous fish including alewives, blueback herring, sea lamprey, American eel striped bass, rainbow smelt and American shad. The river provides sites for multiple bald eagle nests [13 to GIP], and several Peregrine falcon nests.<sup>21</sup>

The maintenance of a clean and lower Androscoggin is a critical economic resource to Maine as well.<sup>22</sup> It is well loved for recreation-fishing, hiking and paddling.<sup>23</sup> As a result, there is overwhelming support for reclassifying the Lower Androscoggin to protect it as an economic and recreational asset.<sup>24</sup>

And, even if water has degraded since the Clean Water Act was adopted, any “uses which have actually occurred on or after November 28, 1975, in or on a water body whether or not the uses are included in the standard for classification of the particular water body” must be protected in the absence of a use attainability analysis and a specific finding to eliminate a use.<sup>25</sup>

The lower Androscoggin clearly meets the use, criteria, and anti-degradation components for Class B waters and DEP’s analysis should end here with a recommended change to that classification for the Board.

## **II. DEP has relied on inappropriate factors to recommend against reclassification in the past.**

In previous years DEP staff recommended against reclassification of the Androscoggin to Class B for the following reasons, none of which is appropriate in the face of actual attainment of the Class B standard:

- a) Under modeled “critical” once-in-a-decade low flow, high temperature conditions, the lower Androscoggin might fail to meet Class B standard,
- b) Waste discharge permits might have to be altered and might not be allowed at all under Class B designation because of the requirement to consider modeled once-in-a-decade low flow, high temperature conditions,
- c) Impoundments create low dissolved oxygen concentrations, and
- d) Upstream pollution.

### **A. Pollution assimilation modeling cannot be used to overcome classification based on demonstration of uses actually being attained.**

DEP’s recommendation against reclassification of the lower Androscoggin primarily was based on modeling. DEP determined that “the existing models provide sufficient information to support the Department’s previous assessment that there is no feasible approach to ensure attainment of Class B

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<sup>21</sup> See Exhibits 9 to 18

<sup>22</sup> See Exhibits 8,15, 16, and 17.

<sup>23</sup> See *id.* and Exhibits 18-22 (describing protected lands and trails along the River).

<sup>24</sup> Exhibit 7 (compiled support letters); Exhibit 8 (Economic Benefit Articles), Exhibit 6 (Comprehensive Plan Excerpts).

<sup>25</sup> See 38 M.R.S. § 464.F.(1).

dissolved oxygen criteria in the lower Androscoggin River.”<sup>26</sup> But the models DEP relied upon are used to minimize risk of harm to aquatic resources when permitting a discharge, not to determine whether a use is present in a river stretch. As such, they are designed to be conservative in permitting harmful impact to waters—emphasize worst-case scenarios to build in a margin of safety to guard against degradation of the nations’ waters. The models are not intended to be used to thwart the purpose of the anti-degradation policy.

What DEP essentially did was perform a perfunctory Use Attainability Analysis to argue that the River should not be classified as the law would otherwise require.<sup>27</sup> But, a Use Attainability Analysis is appropriate in only two circumstances: when designating a use not included in the CWA and if removing a designated use.<sup>28</sup> DEP has been called upon to do neither of these things with regard to the lower Androscoggin, and the DEP may not use a use attainability analysis to avoid its *non-discretionary obligation* to recommend reclassification to a higher standard reflective of actual use and water quality.<sup>29</sup> Only *after* a use has been designated may the DEP perform a Use Attainability Analysis and consider the sort of things put before the Board here (e.g., economic effect on permits of reclassifying the River).<sup>30</sup>

Essentially, there is *supposed to be* a rebuttable presumption that water quality standards consistent with actual water quality should stand.<sup>31</sup> And, there is no ability to constrain a reach at a lower classification where the water is actually attaining the designated uses and standards of a more protective classification.<sup>32</sup> Thus, there is not properly room for a Use Attainability Analysis here. Anti-degradation policy—the ratcheting always towards improved quality--ensures that water quality is continually improved over time and that improvements are maintained. Effectively, DEP’s attachment of proof of attainment under the most dire possible modeled scenario reverses the ratchet direction of the state and federal anti-degradation policy and statute.

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<sup>26</sup> Oct. 25, 2019 Kavanaugh letter at pp. 7-8.

<sup>27</sup> To remove a designated use, DEP must make a number of findings demonstrating why that use is not attainable, hold a public hearing, and demonstrate that the conditions of 40 C.F.R. § 131.10(g) are met.<sup>27</sup>

<sup>28</sup> 38 M.R.S. § 464.2-A.A; *see also* 40 C.F.R § 131.10(h).

“‘Use attainability analysis’ means a structured scientific assessment of the factors affecting the attainment of a designated use in a water body. The assessment may include consideration of physical, chemical, biological and economic factors.” 38 M.R.S. § 466.11-A.

<sup>29</sup> 38 M.R.S. § 464.4.F.4 (“When the actual quality of any classified water exceeds the minimum standards of the next highest classification, that higher water quality must be maintained and protected. The board shall recommend to the Legislature that that water be reclassified in the next higher classification.”) (emphasis added).

<sup>30</sup> *See above*, Section I, discussing what the Board can consider in making its classification recommendation.

<sup>31</sup> *Idaho Mining Ass’n v. Browner*, 90 F. Supp. 2d 1078, 1097-98 (D. Idaho 2000).

<sup>32</sup> *Kan. Nat. Res. Council, Inc. v. Whitman*, 255 F. Supp. 2d 1208, 1209 (D. Kan. 2003)

**B. Use of the water body to receive waste water discharges is not a permissible consideration in establishing appropriate classification.**

There are no other factors that should be considered in determining what class the lower Androscoggin is actually attaining. DEP expressly may not take into account industrial discharge capacity needs in determining uses.<sup>33</sup>

DEP improperly invited consideration of the waste-assimilative capacity of the River as part of the reclassification review, stating that waste permitting limits “is an important requirement [to consider] when a reclassification is being evaluated. . . It is highly recommended that the Legislature fully understands any new licensing requirements that will be imposed on any discharge prior to a reclassification decision being made.”<sup>34</sup> In short, the DEP was directing the legislature to be careful not to eliminate the ability of the water legally to support the waste disposal needs of industry, which is not allowed.<sup>35</sup>

**C. Naturally occurring conditions cannot be used as evidence of non-attainment of water quality standards.**

DEP’s analysis of dissolved oxygen deficiency relied on naturally occurring conditions. “Where natural conditions, including, but not limited to, marshes, bogs and abnormal concentrations of wildlife cause the dissolved oxygen or other water quality criteria to fall below the minimum standards specified in sections 465, 465-A and 465-B, those waters shall not be considered to be failing to attain their classification because of those natural conditions.”<sup>36</sup>

**D. Upstream conditions must be ameliorated rather than used as an excuse to avoid protecting downstream water quality.**

DEP concluded that “river sampling showed a nutrient loading from sources upstream.”<sup>37</sup> The States designation of those upstream sources should not negatively impact downstream waters.<sup>38</sup> Further, “[n]o waste load allocation can be developed or NPDES permit issued that would result in standards being violated. With respect to antidegradation, that means existing uses must be protected, water quality may not be lowered in [Outstanding Natural Resource Waters], and in the case of waters whose quality exceeds that necessary for the section 101(a)(2) goals of the Act, an activity cannot result in a lowering of

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<sup>33</sup> 38 M.R.S. § 465.4.F (d) (“Use of the water body to receive or transport waste water discharges is not considered an existing use for purposes of this antidegradation policy”); 40 C.F.R. § 131.10 (“In no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States.”)

<sup>34</sup> Exhibit 33, Oct. 25, 2019 letter at p. 5.

<sup>35</sup> See above, n. 33.

<sup>36</sup> 38 M.R.S. § 464.4.C.

<sup>37</sup> Oct. 25, 2019 letter at 7.

<sup>38</sup> 40 C.F.R. § 131.10(b).

water quality unless the applicable public participation, intergovernmental review, and baseline control requirements of the antidegradation policy have been met.”<sup>39</sup>

### **III. Conclusion**

In conclusion, the DEP should present to the Board of Environmental Protection and the legislature the factual basis for the lower Androscoggin’s attainment of Class B criterion and character and refrain from including within that recommendation any argument that might be construed as a Use Attainability Analysis.

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<sup>39</sup> U.S. EPA, Clean Water Act Handbook, Chapter 4, p. 14.

October 22, 2025

Maine Board of Environmental Protection  
Attention: Meagan Sims,  
Division of Environmental Assessment  
Bureau of Water Quality  
Maine Department of Environmental Protection  
17 State House Station  
Augusta, ME 04333-0017

SUBMITTED ELECTRONICALLY

RE: Comments by FOMB in Support of Grow L+A's Proposal Regarding the 2025 Triennial Review of Water Quality Standards, Re-classification of the Lower Androscoggin River Segment, Gulf Island Pond to Worumbo Dam from Class C to Class B.

Dear Ms. Sims,

These comments are submitted on behalf of Friends of Merrymeeting Bay ("FOMB") for inclusion into the administrative record in this matter and in response to the Board of Environmental Protection ("BEP") review of recommendations submitted by the Department of Environmental Protection's (the "Department") recommending denial of reclassification for the Lower Androscoggin River between Gulf Island Pond and Worumbo dam from Class C to Class B. FOMB's comments here are in support of the proposal submitted by Grow L+A and not intended to supplant the full, detailed data and analysis FOMB has provided in the testimony given by Ed Friedman and Scott Sells on behalf of FOMB at the recent hearing on October 16, 2025, but to supplement and update that information. Accordingly, the FOMB October 16 hearing comments, June 29 written comments to the DEP and October 16 testimony are fully incorporated into these comments by this reference.

**I. "It's the law" – why the Board is required to re-classify in this case.**

**1. FOMB has demonstrated that the Lower Androscoggin below Great Island Pond meets Class B standards through actual field data, accordingly the Board is required to recommend to the legislature that the segment be re-classified.**

The law governing the Board's mandatory actions in this matter states:

When the *actual* quality of any classified water exceeds the minimum standards of the next highest classification, that higher water quality *must* be maintained and protected.

Pursuant to [subsection 3, paragraph B](#), the board *shall* recommend to the Legislature that that water be reclassified in the next higher classification. (emphasis supplied)<sup>1</sup>

At the outset it must be noted that the Department is not disputing the Lower Androscoggin is actually meeting Class B standards. It is also not disputing the integrity or sufficiency of the field data collected by FOMB under the U.S. Environmental Protection Agency or the Department's protocols in any way. The Department even concedes that the riverine segment meets Class B standards but that "In-stream data for DO show that Class B criteria were not always attained."<sup>2</sup> The same "not always attained" observation can be said for any riverine segment under any classification. An unusually hot day or unpermitted discharge can easily accomplish this. This is also a somewhat questionable observation since there is simply no existing technology in place to continuously monitor river segments throughout the segment, and the statutory and regulatory scheme, including the language cited above, does not establish an "always" standard.

Setting aside for the moment the impracticality of requiring a river segment to attain its classification twenty-four hours a day, seven days a week in order to achieve re-classification<sup>3</sup> there is an even more egregious flaw in this "not always" observation, particularly where modeled results are being used to justify the denial of re-classification. Taken to the extreme, there would never be any re-classifications under the statute as modeling parameters could continue to be adjusted to be inconsistent with the reality of actual field data. FOMB submits that this is not what the statute requires or intends.

Further the Department asserts that: (1) exceeding the minimum standards of the next highest classification, such as for DO, must occur under critical water quality conditions to trigger the reclassification requirement; (2) modeling results which indicate that Class B DO criteria may not be attained in the segments in question during critical water quality conditions is a factor to consider in reclassification; or (3) consideration of critical flow conditions and full licensed loads or that any other condition in NPDES discharge permitting somehow can prevent mandatory reclassification.<sup>4</sup> None of these pre-conditions are required under 38 M.R.S. § 464(4)(F)(4) or any other statutory requirement and if the legislature had intended to have these preconditions as a trigger to the Board's mandatory obligations it would have explicitly said so.

## **2. The underlying reason why re-classification to a higher class is necessary.**

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<sup>1</sup> 38 M.R.S. § 464(4)(F)(4).

<sup>2</sup> Maine DEP 2025 Triennial Review of Water Quality Standards, Department Recommendations at page 72 <https://www.maine.gov/dep/bep/2025/10-16-25/TR%20recommendations.pdf> (the "Department Triennial Review Recommendations").

<sup>3</sup> For example, if the Department was to undertake rulemaking and require 24 hour compliance as a re-classification requirement, and it was somehow measurable, each stream segment classified in the state of Maine, regardless of its current classification, would risk being out of compliance the moment it was found not meeting its classification standards and would presumably have to be downgraded. That is an outcome FOMB suggests is in no-one's interests and is contrary to the anti-degradation intent of the Clean Water Act and Maine's Water Quality laws.

<sup>4</sup> Department Triennial Review Recommendations at 72-74.

The reason for re-classification here is pretty straightforward, for Androscoggin fisheries and wildlife to re-establish and thrive in the watershed, the water quality classification system under federal and state law has to work the way it is intended to work and not be subverted by pollutant dischargers, or misinformed or incorrect agency judgement. At the end of the day the objective is cleaner water – that is the basic outcome the law intends. This benefits recreational users as well and the economic benefits of clean water, including without limitation the positive economic benefits of recreational use, are well documented. As the statute clearly states it is actual reclassification to ambient conditions that is the mechanism for locking in improvements in water quality and preventing subsequent degradation.

As set forth in more detail below, under Maine law, when a riverine segment meets the water quality standards for a higher classification, re-classification is non-discretionary. Here the graphed actual field data FOMB has collected during one of the driest, drought conditions in years, showing mean averages and individual sample results, submitted to the Department for each specific site.<sup>5</sup> That is actual data for specific sites throughout the riverine segment in question that can be analyzed in connection with the Grow L+A proposed upgrade.

There is therefore no preclusion that prevents individual site data from being analyzed, and while the Department might take issue with the geometric mean (“Geomean”) graphs FOMB has supplied which are based on actual field data, it must also consider that this protocol, or the averaging of data to determine compliance – is also typically used in the very NPDES program it administers and is specified in the state water quality standards. FOMB submits that here, where actual field data is demonstrating attainment, that the actual data are sufficient and uncontroverted and the Board must reclassify the Lower Androscoggin to Class B.

Accordingly, there are therefore really only two legal issues for the Board to consider – what the law says it must do, and whether there is any statutory interpretation that provides for any exceptions, circumstances or judgement on the part of the Department that would prevent it from complying with the plain language of the law.

Here, these issues must be resolved in the context of the legal standard in the Clean Water Act and Maine statutes that requires a state to revise its water quality standards and classifications to reflect uses and water quality *actually* being attained.<sup>6</sup> There is also Maine statutory language that explicitly states what the Department must consider in reclassification, specifically:

1. Whether the actual data demonstrates the river segment in question meets Class B narrative and quantitative water quality criteria; and
2. Whether the actual designated uses are consistent with Class B designation, and
3. Whether re-classification is consistent with Maine’s anti-degradation statute.

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<sup>5</sup> See FOMB October 16, 2025 Comments at pages 3, 5-9, 15, and 20-37.

<sup>6</sup> See: 40 C.F.R. § 131.10(i) designated use requirement: “Where existing water quality standards *specify designated uses* less than those which are presently being attained, *the State shall revise its standards to reflect the uses actually being attained.*” (emphasis supplied), and § 131.6(d) (anti-degradation required); and 38 M.R.S. § 464(4)(F)(4) “When the *actual* water quality of any classified water exceeds the minimum standards of the next highest classification, that higher water quality must be maintained and protected.” (emphasis supplied).

The Department’s analysis and recommendation is inconsistent with this standard and ignores these specific criteria in favor of other external factors that are inappropriate and arbitrary when Class B standards are being maintained by actual data and the actual uses of the river are consistent with Class B designation.

**3. The Plain language of the statute is clear - the legal standard is mandatory and not discretionary.**

First, the plain language of the law itself is not ambiguous in any way. The Clean Water Act and Maine’s anti-degradation policy require that “[w]hen *the actual* quality of any classified water exceeds the minimum standards of the next highest classification, that higher water quality *must* be maintained and protected. The board *shall* recommend to the Legislature that that water be reclassified in the next higher classification.”<sup>7</sup> The use of the terms “must” and “shall” have commonly accepted meanings and are, in any normal context, non-discretionary and obligatory. The term “actual” is similarly commonly known as referring to “real” and not “theoretical”.<sup>8</sup> Reclassification guidelines soliciting proposals for the Triennial Review go further noting: “Maine’s Water Quality Classification System is *goal-based*. When proposing an upgrade in classification, *recommend waters that either presently attain, or with reasonable application of improved treatment or Best Management Practices (BMPs) could reasonably be expected to attain, the standards and criteria of a higher proposed class.*”<sup>9</sup>

**a. The Department’s own method of statutory interpretation results in an outcome consistent with the language of the statute – re-classification to Class B.**

**i. The Department’s method of statutory interpretation and the language of 38 § 464 (4).** In June 3 of 2021 the Board received testimony from Kevin Martin, Compliance and Procedures Specialist for the Department in another matter involving the Department’s interpretation of statutory language.<sup>10</sup> During that testimony, he specifically spoke of how the

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<sup>7</sup> 38 M.R.S. § 464(4)(F)(4); see also 40 C.F.R. § 131.20 (a) “If such new information indicates that the uses specified in section 101(a)(2) of the Act are attainable, the State shall revise its standards accordingly....”

<sup>8</sup> The word “shall” in the context of a statute is defined in Black’s Law Dictionary as “In common or ordinary parlance, and in its ordinary signification, the term ‘shall’ is a word of command and ... must be given a compulsory meaning.” Black’s Law Dictionary 1233 (5th ed.1979) and as a generally imperative or mandatory term. The term “must” is universally accepted as an obligatory term and “actual” as is specifically defined by Black’s Law Dictionary to mean “real; substantial; existing presently in act having a valid objective existence *as opposed to that which is merely theoretical or possible.*” (emphasis supplied).

<sup>9</sup> Maine Department of Environmental Protection, 2024 “Submission Guidelines - Proposals to Change the Water Quality Classification of Maine Waters” at 4.

<sup>10</sup> Mr. Martin provided testimony at the June 3<sup>rd</sup>, 2021 Board of Environmental Protection meeting, all references and direct quotations from him were obtained from a recording of the meeting available from the Board of Environmental Protection.

department interpreted statutory language and the interplay of classification statutes and the legislature.

This is highly relevant here as there appear to be competing statutory arguments – the Department appears to assert or conclude that the statute is NOT mandatory, or if it is there are other laws or exceptions that must be considered; and FOMB and others assert that the circumstances warrant an exercise of the mandatory duty imposed on the Board based on the plain language of the law.

**ii. The explicit language.** During his testimony, Mr. Martin testified that the Department first looks to the text of the statute, the “explicit language” and the use or non-use of explicit language in frequently used phrases throughout the statute to divine legislative intent.

Here, using that approach, the Department should be looking at the terms “must,” “shall” and “actual” in the statute to determine whether there is any use or non-use that would suggest specific exemptions or differing circumstances that could be considered where the *only* condition explicitly stated uses those terms.

That choice of wording is explicit and exclusive, “actual” water quality is used by the legislature – *not* modeled or hypothetical or imagined or “full licensed waste discharge load” water quality tied to other considerations. Thus here, under Mr. Martin’s guidelines - there is no evidence of *any* legislative intent that there is any discretion on the part of the Department to use hypothetical modeling or anything else besides actual data showing actual water quality to comply with the statute. Importantly – the Department doesn’t even assert that there is any such legislative intent – only its own “guidance” somehow allows it to divine the legislative intent of 38 M.R.S.A §464 from other water quality statutes. That is not the law here.

**iii. Other considerations.** Mr. Martin further testified that absent specific provisions there *may* be an argument that indicates a legislative intent to consider other circumstances. Clearly since the Department itself has not asserted ambiguity, this must be what the Department is relying on with its own interpretation of the statute – they appear to ask “Is this what the legislature means when they say “*actual* water quality” and that higher water quality “*must* be maintained and protected” and that the Board “*shall recommend* to the legislature the water be re-classified”? That is, after all the plain language used by the legislature in the statute.

However, here there is no ambiguity or omission. There is no need to go elsewhere to determine what the legislature has done when it uses words like “actual,” “shall,” and “must” their plain meaning and intent are clear. The only circumstance when it is appropriate to consider other laws or divine some other legislative intent is if there is ambiguity or omission in the statute. Here there is none and there are clear words indicating a specific legislative intent.

**iv. An important limitation.** Nevertheless, the Department frequently, and by its own admission, not only looks at the plain language but also “the circumstances surrounding individual cases.” But it does so with an important caveat. As Mr. Martin further testified to the Board “the department is tasked with interpreting these classification statutes and identifying what the legislature intended when it wrote them. It is *important that the department not*

*interpret these statutes in such a manner that creates inconsistencies or absurdities.”* (emphasis supplied).

**v. The result here.** Therefore, under the Department’s own stated method of statutory interpretation, the Department itself imposes an important limitation to looking beyond the plain language – no inconsistencies or absurdities. Unfortunately, here the Department has used the premise of looking elsewhere, specifically the NPDES discharge permit program and other environmental statutes, to find a basis to recommend denial. As set forth more fully below, this unfortunately has led the Board into the “inconsistent and absurd” territory it is now faced with. On one hand the plain, mandatory language of the statute, on the other, the Department’s justification, not only in some cases outside the written mandates of the law, but those that will lead to the very inconsistencies and absurdities it professes must be avoided.

**b. The actual field data show the river segment meets Class B numeric criteria.** For example, FOMB has supplied undisputed data that has been collected during extreme drought conditions showing that for the overwhelming majority of time the segment of the Lower Androscoggin below Gulf Island Pond meets Class B standards. This includes Class B compliance with specific numeric water quality criteria. These data show that the specific Class B dissolved oxygen (“DO”) standards<sup>11</sup> are met here.<sup>12</sup> Similarly E. coli requirements for Class B waters<sup>13</sup> also are met here,<sup>14</sup> aquatic life in free flowing, non-hydropower impoundments also met here.<sup>15</sup> *These data are undisputed.*

**c. The Class B designated use criteria are also met.** Again, there is explicit, plain language that states what the designated uses are and what the Department (and the Board) can consider. The explicit classification criteria are as follows:

The Class C, current classification,<sup>16</sup> and the Class B, proposed classification<sup>17</sup> designated uses differ only in whether the habitat supported in the reach is characterized as unimpaired.

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<sup>11</sup> 38 M.R.S. § 465(3)(B) states “[t]he dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration may not be less than 9.5 parts per million and the one-day minimum dissolved oxygen concentration may not be less than 8.0 parts per million in identified fish spawning areas.”

<sup>12</sup> FOMB October 16, 2025 Comments at pages 4-6.

<sup>13</sup> 38 M.R.S. § 465(3)(B) states that “[b]etween April 15th and October 31st, the number of Escherichia coli bacteria in these waters may not exceed a geometric mean of 64 CFU per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval.

<sup>14</sup> FOMB October 16, 2025 Comments at 5-7.

<sup>15</sup> FOMB October 16, 2025 Comments at pages 20-37.

<sup>16</sup> 38 M.R.S. § 465(4)(A) states “Class C waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as a habitat for fish and other aquatic life.”

<sup>17</sup> 38 M.R.S. § 465(3)(A) states “Class B waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited

“Unimpaired” means “without a diminished capacity to support aquatic life.”<sup>18</sup> The Lower Androscoggin has and does support unimpaired aquatic life and is not listed as impaired for any relevant parameter. *Again, the Department does not dispute this.*

**d. The Class B aquatic life standard is also met.** Extensive sampling for benthic invertebrates (BMI) was undertaken during 2021 at FOMB expense from Brunswick to Site A4 in the current proposal reach. BMI Index as modeled by DEP all show Class B attainment for Sites A2, A3 and A4 in the current proposal, the only free flowing sites. Other sites are covered under the hydropower exemption.<sup>19</sup>

**e. The anti-degradation factors are also met here.** Further, in determining what uses need to be protected and maintained, the Department may consider, on a case-by-case basis, certain antidegradation factors. Maine statute specifically provides that:

In making its determination of uses to be protected and maintained, the department shall consider designated uses for that water body and:

- (a) Aquatic, estuarine and marine life present in the water body;
- (b) Wildlife that utilize the water body;
- (c) Habitat, including significant wetlands, within a water body supporting existing populations of wildlife or aquatic, estuarine or marine life, or plant life that is maintained by the water body;
- (d) The use of the water body for recreation in or on the water, fishing, water supply, or commercial activity that depends directly on the preservation of an existing level of water quality; [ . . . ] and
- (e) Any other evidence that, for divisions (a), (b) and (c), demonstrates their ecological significance because of their role or importance in the functioning of the ecosystem or their rarity and, for division (d), demonstrates its historical or social significance.<sup>20</sup>

Here again, the Lower Androscoggin segment meets even these criteria *and the Department does not dispute that it does*. So even if the Department manages to avoid the reality of Class B numeric standards being met by actual field data, there is *no dispute that the designated uses are also consistent with Class B designated uses. This fact, and the department’s own statutory interpretation method completely ends any possible further analysis the Department should conduct under the law*. There is absolutely no other indication of legislative intent to indicate it should consider anything other than the actual water quality. That is what is required to conform with the goals of classification standards as explicitly stated by the legislature, nothing more.

**f. The unreasonable outcomes when inappropriate considerations are used.** The Department did not stop where its own analysis and method dictated it should. Instead, it layered

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under Title 12, section 403; navigation; and as habitat for fish and other aquatic life. *The habitat must be characterized as unimpaired.*” (emphasis supplied).

<sup>18</sup> 38 M.R.S. § 466(11).

<sup>19</sup> See <https://www.mainelegislature.org/legis/statutes/38/title38sec464.html> and at FOMB October 16, 2025 Comments at pages 20-33.

<sup>20</sup> 38 M.R.S. § 465(4)(F).

hypothetical modeling results as a surrounding circumstance, even when actual data was and continues to be available. The purpose of the Clean Water Act is to prevent or eliminate water pollution, not to accommodate it by preventing reclassification towards more protective standards. This is particularly so where the basis for denial is a rare or exceptional occurrence such as modeled or imagined maximum pollutant loading. FOMB submits that it is patently unreasonable to use theoretical or hypothetical data that is inconsistent with the reality of actual facts and data to justify deviating from clear and explicit legal requirements. It also leads to an absurd and capricious result – willfully ignoring actual data and reality – and that is exactly the kind of inconsistency and absurd result that the Department itself professes it cannot do.

Legal inconsistencies notwithstanding, the practical effect of this also means that those who have to obtain a NPDES permit to degrade water quality, i.e. pollute the river, somehow override the legislative intent to maintain and protect the higher water quality. That is also patently absurd, as set forth below, the Federal Clean Water Act (under which those point source discharge permits were issued) and Maine’s anti-degradation statutes in no way intend for point source or non-point source pollution discharges to provide an exemption from water quality classification mandates.

FOMB asserts that even considering the economic impact that these waste dischargers *might* incur to come into compliance with the upgraded Class B standard, that impact has to be weighed against the positive economic benefits of cleaner water and its designated uses including the economic benefits of increased recreational use in the area.

**4. The rationale given by the Department to recommend *against* re-classification is inappropriate and, in some cases, unlawful.**

Simply put, the Department’s “interpretation” of the statute is that certain other additional factors must be taken into account or considered. In summary these factors include:

- Under modeled “critical” once-in-a-decade low flow, high temperature conditions, the lower Androscoggin might fail to meet Class B standard,
- Waste discharge permits might have to be altered and might not be allowed at all under Class B designation because of the requirement to consider modeled once-in-a-decade low flow, high temperature conditions, and
- Upstream and instream pollution (point and non-point source discharges) somehow can prevent lower reaches from being reclassified.

Importantly, none of these factors are appropriate when confronted with a segment of water that is actually meeting water quality standards and designated uses. Again, there is nothing – *nothing* - in the statute that allows for this and the overwhelming legal basis for both the Federal Clean Water Act and Maine’s Anti-degradation statute explicitly say so.

**a. Hypothetical modeling for a once in a decade extreme event does not comply with the statute.** Pollution assimilation modeling, the same modeling used for NPDES permitting, cannot be used to avoid re-classification where there is actual data available. The models used and relied upon by the Department are used to minimize harm to aquatic resources when the

department permits a pollutant discharge – *not* to determine whether a designated use is present in a particular riverine segment. This is an improper conflation of two very different statutes with two very different purposes and not unsurprisingly leads to inconsistent and absurd results.

- Discharge permit standards emphasize worst case scenarios to protect and build in a margin of safety for discharge permit purposes. Unlike re-classification statutes, their purpose is to limit the discharge of pollutants, not to deny reclassification of a riverine segment.
- There is no indication they are or were ever intended to thwart federal and state anti-degradation or reclassification laws.

Anti-degradation policy is clear under federal and state law – the intentional movement towards improved water quality ensures that water quality is continually improved and that the improvements are maintained, not degraded or held hostage by imagined modeling scenarios.

The Department has also stated that proponents of re-classification must provide water quality data and modeling showing the likelihood of attainment of Class B water quality criteria at maximum NPDES licensed loads since the Department does not foresee the ability to ensure attainment of Class B standards under critical conditions.<sup>21</sup> This is also an absurd requirement – there is no evidence that any waste discharger operates at maximum licensed loads; rather a large, discretionary buffer is generally built into all NPDES discharge permits<sup>22</sup> to avoid violations that may occur under theoretical and extreme conditions. This is a permit requirement to prevent pollutant discharge, *not* a re-classification requirement involving the collection of actual field data. *Unless all maximum licensed loads are actually discharged simultaneously under critical flow conditions*<sup>23</sup> (defined as “7Q10”), *there is no way to collect actual data to demonstrate compliance under these conditions.* Thus, DEP is requesting an impossible and unnecessary showing, *exactly the kind of absurd result it purports to find as unacceptable.*

FOMB further suggests that the data collected in 2025 was under extreme drought conditions, suggested by some to be the third or fifth driest year in at least the last twenty years strongly suggesting that that the *actual* field data showing Class B attainment was collected under “7Q10” conditions. USGS actual Auburn flow levels vs 96 year median as documented in the FOMB

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<sup>21</sup> See the Department’s Triennial Review Recommendations at 73.

<sup>22</sup> See FOMB 2020 proposal for Reclassification of the Lower Androscoggin River, Exhibit 40 <http://cybrary.fomb.org/pages/20210502%20Exhibit%2040%20Andro%20Dischargers%20Actual%20vs.%20Licensed%202012-2013.pdf>.

<sup>23</sup> To determine if a discharge to waters of the State of Maine could cause or contribute to non-attainment of water quality standards, the Department, relies on its existing statutory authority derived from 38 M.R.S. § 464(4)(D) which states: “Except as otherwise provided in this paragraph, for the purpose of computing whether a discharge will violate the classification of any river or stream, the assimilative capacity of the river or stream must be computed using the minimum 7-day low flow that can be expected to occur with a frequency of once in 10 years.” Thus in writing a permit the Department typically uses in its reasonable potential analysis a “7Q10” standard, which is the lowest 7-day average that occurs (on average) once every 10 years as the maximum flow of the discharge allowed by permit. There is however, discretion built into the statute for certain toxic substances and nutrients discussed infra at note 26.

October 16 testimony are quite clear. The failure to model compliance under such conditions is not relevant when there is actual field data to suggest Class B compliance.

**b. The existence of waste discharge permits that may need to be altered or not allowed under Class B designation due to modeled results is not a requirement for re-classification.** This is a critical flaw in the Department’s reclassification denial. The Department’s analysis must be based on *existing* water quality-not hypothetical modeling with point sources operating at maximum NPDES licensed discharge. Further, the Department expressly must *not* take into account industrial discharge capacity needs in determining uses for a water segment reclassification. Indeed, the Board is specifically prohibited from considering maximum licensed loads because both state and federal regulations prohibit consideration of waste discharge or transport as a designated use.

For example, under Maine law the “[u]se of water body to receive or transport waste discharges is not considered for an existing use for the purposes of this anti-degradation policy.”<sup>24</sup> Similarly, under federal law: “[i]n no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the United States.”<sup>25</sup>

Here, the Department improperly used consideration of the waste assimilative capacity of the river, specifically waste NPDES permitting limits as expressed in point source discharge permits, as part of its re-classification review. *This is expressly prohibited under federal and state statute and regulation.*

**c. Finally, upstream or instream pollution, such as nutrient loading, has no bearing whatsoever on denying reclassification of a specific segment under the Clean Water Act – it would result in exactly the opposite outcome intended.**

The State of Maine administers its water quality program under the federal Clean Water Act, and as such the provisions and guidance under the CWA must also be adhered to. Under federal Law the state’s responsibilities are explicit: “*The state’s designation of those upstream sources should not negatively impact downstream waters.*”<sup>26</sup> (emphasis supplied). Therefore, the Department cannot, under any circumstance, use negative impacts of upstream designations as justification for denying re-classification when the standards are met. That would be exactly the kind of “negative impact” the CWA explicitly forbids.

This is further confirmed in EPA Agency Guidance which states: “[n]o waste load allocation can be developed or NPDES permit issued that would result in standards being violated. With respect to antidegradation, that means existing uses must be protected, water quality may not be lowered in [Outstanding Natural Resource Waters], and *in the case of waters whose quality exceeds that necessary for the section 101(a)(2) goals of the Act, an activity cannot result in a lowering of water quality unless the applicable public participation, intergovernmental review, and baseline control requirements of the antidegradation policy have been met.*” (emphasis supplied).

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<sup>24</sup> 38 § M.R.S. § 465(4)(F)(1)(d).

<sup>25</sup> 40 CFR § 131.1 (a).

<sup>26</sup> 40 C.F.R Sec. 131 (b).

FOMB is unaware that the Department has untaken any such intergovernmental review, or reviewed whether baseline control requirements of Maine’s anti-degradation policy have been met here. It appears that the Department has done just the opposite – used the NPDES discharge requirements and upstream water quality as the basis to deny re-classification to a higher, improved water quality classification downstream. It’s clear from both the federal statute and guidance that the intent of the NPDES permit program is not intended to prevent water quality standards from being met or prevent improvement to water quality - here not to allow upstream or instream pollutants to negatively impact the improvement of downstream waters and by extension their potential reclassification to a higher class. Put simply, if the Department, as part of *its* guidance is going to consider other laws in re-classification under a mandatory statute, it must comply with the language and guidance of those other laws to make sure it does not result in an inconsistent or absurd outcome.

**d. Accordingly, using the Department’s own method of statutory interpretation, and the explicit language of federal and state statute, regulation and guidance – there is no reasonable legal interpretation that would justify denial.** There is no dispute over whether the Class B standards or the designated uses are being met here. However, the external considerations used by the Department in denying reclassification are not in accordance with the federal and state statute, regulation and guidance or the express purposes underlying those laws. Further, there is no assertion by the Department that the legislature intended to provide an exception for the rationale it has provided. It appears, on closer scrutiny to have done just the opposite. Here the Department’s and the Board’s inquiry is limited to only limited specific circumstances that must be examined – (1) whether the river segment meets the higher classification and (2) whether the designated uses are consistent with Class B designation and antidegradation laws. That’s it. The Department has made no showing that the actual data is disputed or that the designated uses are inconsistent with Class B designation. Instead, it offers justification for denial that is inconsistent with the plain language and purpose of the very statutes and programs it itself administers.

**5. There is a better, more practical alternative than exposing the Board to statutory liability.**

**a. The Department has more discretion under the NPDES point source discharge program to ease the transition to a higher classification standard.** As stated above,<sup>27</sup> rather than conflate the NPDES program with a non-discretionary statute, FOMB suggests the data, here the information reported by the permittees themselves,<sup>28</sup> confirm that there is room to adjust those permits so as to ease any economic impact reclassification might have over time. This is because (1) these permits typically have a 5 year time frame; (2) the NPDES permits requirements are based on a worse case discharge scenario; and (3) the Department has the

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<sup>27</sup> See Paragraph 4 (a) above – NPDES discharge permit standards emphasize worst case scenarios to protect and build in a margin of safety for discharge permit purposes, this margin of safety will need to be adjusted so that dischargers can comply with new Class B water quality standards.

<sup>28</sup> See: NPDES permit data compiled as Exhibit 40 to FOMB 2020 Upgrade Proposal (which the Board recommended). The data are reported discharges for one year and typical of annual NPDES discharges.

discretion under the statute to adjust the discharge requirements over the permit duration to reflect the actual pollutant discharge, with a smaller, more realistic buffers based on actual discharges. While basing permits on a 7Q10 standard is required, there is no apparent reason why licensed discharge loads should not better reflect actual discharges with a smaller buffer.<sup>29</sup> For example, basing discharge permits on a rolling average or maximum actual discharge plus a reasonable buffer would more realistically reflect actual water quality impairment. Simply put, as long as there is a smaller buffer built in there is always room for expansion, but overall within any given permit period discharge permits would be closer aligned with reality. In this way an abrupt permit impact due to re-classification to a higher Class B (or any other class where there is significant impact on NPDES dischargers) could be avoided and the transition phased in over time.

Stated another way, the Department has more discretion under the NPDES permit program it administers than it does where a mandatory statute requires re-classification under its plain language. FOMB asserts that when a segment is deemed to meet a higher water quality classification, the better approach is to re-classify the segment and take the 5 year NPDES permit window to transition upstream dischargers into compliance, revising the margin or buffer dischargers that are permitted under over time, thereby easing the economic impact. FOMB also notes that the upstream and instream NPDES discharge permits in question, are still operating on expired permits – making this an ideal time to transition to a higher classification. Eventually dischargers will need to meet Class B standards, the data show that, in most cases, there is ample room under existing discharge requirements to phase this in over the life of the permits.

## **II. Conclusion.**

FOMB has submitted actual field data and continues to collect data confirming the Lower Androscoggin below Gulf Island Pond meets Class B criteria virtually all, if not all of the time. This is probably the fifth Triennial process it has participated in, in addition to numerous other formal and informal presentations to the Department and the legislature. By any reasonable standard, the actual field data FOMB has submitted in support of Grow L+A's upgrade proposal is no different, and in fact more compelling due to the conditions under which it was obtained than the data supplied to justify the upgrade from Worumbo Dam to Merrymeeting bay.

As with that last Lower Androscoggin upgrade, the Board is again face to face with a mandatory statute it must either adhere to or risk legal exposure in connection with its final agency action. Unfortunately, the law does not permit the kind of justification the Department is attempting, presumably to accommodate upstream or instream pollutant dischargers who are resisting re-classification on the basis of its potential economic impact. Environmental regulatory

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<sup>29</sup> Unlike the mandatory language discussed at length in these comments, 38 §464(4)(D) contains the following *discretionary* language: “The department *may* use a different flow rate only for those toxic substances regulated under section 420 and for those nutrients specified in department rules. To use a different flow rate, the department must find that the flow rate is consistent with the risk being addressed.” (emphasis supplied). Thus, unlike reclassification standards, the department has wide latitude to address nutrient discharges and toxic substances addressed under 38 §420 under different discharge parameters over the term of the permit.

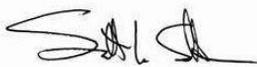
compliance is a cost of doing business – that has been the case since the Clean Water Act and Maine’s anti-degradation water quality laws were enacted. Importantly the positive economic impacts of cleaner water must also be considered.

Here, however, the Department has (and has had) other options rather than putting the parties and the Board in this position. It can recommend reclassification of the segment to Class B and use the Department’s discretion under the NPDES program, which it administers, to ease the transition for upstream dischargers to come into compliance with Class B standards. This is not to say FOMB is suggesting the Department abandon the requirements of that program either and allow non-compliance under those permits. Instead, it appears the actual data, reported by the very permittees opposed to re-classification, show there is room to adjust and gradually phase their permits into compliance with the higher classification. Particularly now, where these permits have not yet been renewed.

The river currently attains the higher bacteria, aquatic life and dissolved oxygen standards set forth in the Class B designation. As noted by the Department, it has no reason to question the data; and it has even relied upon data supplied by FOMB in prior reclassifications. There is also no dispute as to whether the designated uses of the segment of the river are somehow inconsistent with Class B designated uses or any antidegradation provisions. There is also no assertion that the legislature intended anything other than this result and it is confirmed using the statutory analysis of the Department’s own expert. Further, the Department has not legally justified its deviation from that statutory language with the reasons it has given.

Therefore, under the circumstances presented here, the actual data obtained and the plain language and purpose of the re-classification statutes, the Board must recommend to the legislature the re-classification of the Lower Androscoggin from Gulf Island Pond to Worumbo Dam from Class C to Class B.

Respectfully submitted this 22th day of October, 2025.



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# Lower Androscoggin River Community Comprehensive Plan Excerpts

## **Lisbon 2011**

### Natural Resources

#### Pg. 17 - Overview

Wildlife should be considered a natural resource similar to surface waters or forest land. Although there are many types of habitat important to our numerous species, there are four which are considered critical. They include wetlands, riparian areas (shorelands of ponds, rivers and streams), major watercourses, deer wintering areas, large undeveloped blocks of land, as well as other unique and/or critical habitats. Generally, loss of this habitat will not have an immediate negative impact on wildlife populations; however, the cumulative loss will reduce the capacity of an area to maintain and sustain viable wildlife population.

The Natural Areas Program which compiles information on Maine's rare, endangered or otherwise significant species has stated that, *Strophitus undulatus*, a fresh water mussel, is found in the Androscoggin River. There is also a Bald Eagle nesting site along the Androscoggin River.

Wetlands, of any size, are important natural resources. They store large volumes of water thereby reducing flooding and later release excess water to aid in flow maintenance. They also serve as recharge areas for ground water and are vital habitats for various plants, animals and fish.

The Androscoggin River is the most significant surface water resource within Lisbon. With the improved water quality of the Androscoggin, the potential for recreational uses of both the water and shorelines has increased.

#### Pg. 18 - Policy

Maintain wetland values. Recognize the multi-use values of the Androscoggin River and support state efforts to improve or enhance its water quality. Maintain the quality of all surface waters located within its boundaries.

#### Pg. 42 - Shared River Corridor

Changing conditions and attitudes stimulated a comprehensive approach to water resource management in the Androscoggin River basin. Improved water quality has renewed opportunities for fisheries and recreational uses; an expanding environmental consciousness has provoked interests in protecting natural values. The river should be viewed not only as an industrial asset, but as a natural resource asset and focal point for downtown/village development and redevelopment.

Because the Androscoggin River is a shared resource of significant importance, the communities at the southern end of its drainage should work toward joint efforts to achieve its full values.

#### Sabattus River

The Sabattus River flows from Sabattus Lake in Sabattus and joins the Androscoggin River between Lisbon Center and Lisbon Falls. Historically the River has had one of the lower water quality classifications. Dams along the River help maintain flows and water levels. The town of Lisbon and Sabattus need to work together to improve water quality and the recreational values.

Pg 119 Natural Resource Findings

With the improved water quality of the Androscoggin, the potential for recreational uses of both the water and shorelines has increased.

### **Auburn 2011**

Pg 12 & 13

#### **A.3 ANDROSCOGGIN AND LITTLE ANDROSCOGGIN RIVERS**

*Goal A.3: Protect the water quality and shoreline of Auburn's rivers to preserve the environmental and economic value of these areas.*

#### **ANDROSCOGGIN RIVER**

The water quality of the Androscoggin River is not as good as it should be. Its water quality is affected by activities within in the City, within municipalities upstream, and by industries such as NextEra Energy Resources and paper mills. Auburn should continue to work with surrounding communities on efforts to improve the quality of the river.

#### **Objective A.3.1:**

**The state's water quality classification for the river should be increased from a Class C to a Class B by 2012.**

*Strategies to achieve this objective:*

#### **Strategy A.3.1.a (Also Strategy A.3.2.a):**

Support the Maine Department of Environmental Protection (DEP) in its efforts to improve water quality throughout the Androscoggin River Corridor.

#### **Strategy A.3.1.b (Also Strategy A.3.2.b):**

Work with the Androscoggin Land Trust and other conservation organizations to purchase land and/or conservation easements along critical portions of the Androscoggin River.

#### **Strategy A.3.1.c (Also Strategy A.3.2.d):**

Support and assist organizations such as the Androscoggin River Alliance, the Androscoggin Land Trust, Maine Rivers, and the Atlantic Salmon Federation in their efforts to improve the Androscoggin River and restore fish populations.

**Strategy A.3.1.d:**

Continue funding efforts to eliminate the remaining Combined Sewer Overflows (CSOs).

**Strategy A.3.1.e:**

Collaborate with major industries and landowners to develop land/trail management plans to protect the river and establish adjacent recreational areas to enhance public access.

**Strategy A.3.1.f:**

Continue to limit additional development in the undeveloped portions of the watershed (including most of areas along North River Road and Riverside Drive) by designating these areas Agricultural/Rural in the Future Land Use Plan.

**LITTLE ANDROSCOGGIN RIVER**

Water quality concerns along the Little Androscoggin River include potential threats from surrounding urban and industrial land uses. Protections around the river include Shoreland Zoning and Resource Protection Zoning. Auburn should continue to work on efforts to improve the quality of the river.

**Objective A.3.2:**

The state's water quality classification for the river should be increased from a Class C to a Class B by 2012 to protect the natural and scenic quality of the Little Androscoggin River shoreline.

**Topsham 2019**

Pg 76

Having a stronger connection to the rivers is both a quality-of-life and economic opportunity for the Town and should be the focus of conversations to make this goal a reality.

Pg. 79

The return of millions of river herring to Merrymeeting Bay and improvement of water quality on the Androscoggin River are fantastic successes; we shouldn't stop there. In the Recovery of Maine's Coastal Fisheries John Lichter notes "Maine's people and communities would benefit from additional ecological recovery. Our economy depends largely on a clean, natural environment that allows both tourism and the extraction of natural resources such as commercial fisheries."

Pg 105.

## Water Quality

The health of the rivers and Merrymeeting Bay and the protection of drinking water resources are top priorities for residents. Pollution prevention strategies and ongoing water quality monitoring should be prioritized, with a focus on preservation of higher quality systems and aquifers.

Pg. 192

The tidal portion of the Androscoggin offers the most extensive fisheries in Topsham. This provides significant recreational and economic opportunities. Coastal fisheries in the Androscoggin include American eels, sea-run brook trout, shad, blue back herring, alewives, northern pike, and striped bass. Atlantic salmon have been identified entering the fish ladder at the Brunswick Hydro Dam Fish Ladder in the past, but in very small numbers.

## **Brunswick 2006**

Pg 35

Brunswick's Natural Resources: The Town has a wide range of natural resources: large areas of unfragmented forest that provide habitat for the full array of indigenous species; open fields that provide habitat for threatened species; freshwater wetlands and vernal pools that provide habitat for amphibians; the Androscoggin river and its tributaries that are regaining their recreation value due to continually improving water quality and fisheries; aquifers that provide drinking water to a large portion of the population; and coastal waters that provide recreational opportunities and the sustainable harvest of marine species.

Pg 38

Action 4: Prepare a concept plan for the Androscoggin River Corridor for recreational purposes.

Pg 42

Action 5: Support the concept of the north end of Brunswick's downtown as a recreational "hub" along the Androscoggin corridor, including the bike/path walkway to Cook's Corner, the canoe/kayak portage area, the swinging bridge, the waterfront park, the fish way, the boat launch site on Water Street, and the rowing club.

## **Durham 2018**

Pg 11

To protect identified rare and endangered species and habitats from degradation.

Pg 45

Andro impaired by historic pollution and ongoing discharges from upstream communities

Pg 46

To protect significant surface water resources from pollution both point and non-point source, and improve water quality where needed.

Pg. 50

To coordinate with local groups, neighboring communities and regional and state resource agencies to protect shared critical natural resources.

Pg 61.

Maintain public access to the Androscoggin River, Runaround Pond and Chandler Brook areas for boating, fishing and swimming and to work with nearby property owners to address concerns.

## **Lewiston 2017**

Pg. 83

Though the river is still a popular destination for anglers of river fish, it remains an underutilized recreational resource.

Pg. 89

Protecting riparian habitats protects water quality, maintains habitat connections, and safeguards important economic resources including recreational and commercial fisheries.

**NEWS RELEASE – September 13, 2006**  
**Northeast-Midwest Institute, Washington DC**

**Buffalo Area Homeowners to Benefit from River Clean-up**

**Contact:** Nicole Mays, Northeast-Midwest Institute (202 584 3378)  
Dr. John Braden, University of Illinois (217 333 5501)

**Buffalo, NY.** Residential property values near the Buffalo River could increase by as much as \$140 million if contamination in the river is eliminated, according to a study conducted by the University of Illinois and the Northeast-Midwest Institute.

Findings of the study will be officially released September 15, 2006 at a community forum in Buffalo. The forum will be open to the public and feature a presentation by Dr. Braden concerning the results of the two-year study. Other speakers include Buffalo Mayor Byron Brown; State Senator Mark Schroeder; Mary Beth Giancarlo Ross of U.S. EPA's Great Lakes National Program Office; Abby Snyder of New York State's Department of Environmental Conservation; Jill Spisiak Jedlicka with Buffalo Niagara Riverkeeper; Helen Domske with New York Sea Grant and University at Buffalo; and Nicole Mays of the Northeast-Midwest Institute.

Pollution from past industrial and municipal discharges and disposal of waste earned the Lower Buffalo River designation as one of 43 "Great Lakes Areas of Concern (AOC)" by the International Joint Commission, the U.S.-Canadian government organization concerned with water quality. The major sources of pollution are contaminated bottom sediments and non-point source pollution. Contaminants of concern include PCBs, PAHs, heavy metals and industrial organics. PCBs (polychlorinated biphenyls) are known to affect human reproduction, fetal development, and neurological functions, and harm fish and other aquatic species.

Through a two year study, the Northeast-Midwest Institute in Washington, D.C. and economists from the University of Illinois and Georgia State University have gauged the economic value to local homeowners of clean-up of the Buffalo River AOC. The study focuses on the benefits to homeowners specifically in Buffalo, Cheektowaga, Lackawanna, Hamburg, and West Seneca, as well as Blaisdell and Sloan. The results of the study suggest that eliminating the pollution would make the area a more desirable place to live and increase property values.

Researchers collected data from housing sales in Erie County in the years 2002 through 2004, and directly surveyed 850 recent home buyers in Erie County. Results of the study of housing sales data indicate that the polluted state of the river currently is depressing single-family, owner-occupied property values by \$80 to \$140 million<sup>1</sup>, or six to nine percent of the assessed residential property values in the area studied. Clean-up could be expected to raise the property values commensurately. The negative effects of the pollution appear concentrated near the river and to its south. Further to the north in Buffalo and Cheektowaga, property values seem to be affected more by other industrial areas, highways, and rail corridors than by the pollution in the Buffalo River.

These housing sales data findings were further bolstered by homeowner responses to direct surveys on their willingness to pay more for residential properties if the AOC were cleaned up. Based on the responses to the surveys, residents within five miles both north and south of the river would be willing to pay on average approximately 15% more for homes if the contaminated area were cleaned up. Relative to the median property value in the area, this translates into a \$543 million addition to the assessed values of current properties.

The estimated benefits of Buffalo River clean-up generated in the study apply only to single-family residential property owners living within five miles of the river. However, preliminary analysis of multi-family properties suggests that current prices are depressed proportionately more than for single-family homes and could benefit from river cleanup. In addition, river improvements might attract new residents and businesses to the area.

The study was funded by the Great Lakes National Program Office, U.S. Environmental Protection Agency and the College of ACES, University of Illinois at Urbana-Champaign.

<sup>1</sup> All dollar values are expressed in year 2004 (4<sup>th</sup> quarter) purchasing power. Subsequent inflation in housing prices would increase the current dollar values.

**Disclaimer:** Until the methods and results described here have been reviewed by qualified scientific peers and published in the peer-reviewed literature, they must be considered preliminary. The opinions, findings, and conclusions of this study are solely those of the authors and do not necessarily reflect the views of the sponsors.

NEWS RELEASE – September 19, 2006  
Northeast-Midwest Institute, Washington DC

Sheboygan Area Homeowners to Benefit from River Clean-up

Contact: Nicole Mays, Northeast-Midwest Institute (202 584 3378)  
Dr. John Braden, University of Illinois (217 333 5501)

Sheboygan, WI. Residential property values near the Sheboygan River could increase by as much as \$108 million if contamination in the river and neighboring land areas were eliminated, according to a study conducted by the University of Illinois and the Northeast-Midwest Institute.

Findings of the study will be officially released September 21, 2006 at a community forum in Sheboygan. The forum will be open to the public and feature a presentation by Dr. Braden concerning the results of the two-year study. Other speakers include Sheboygan Mayor Juan Perez; State Senator Joe Leibham; Marc Tuchman of U.S. EPA's Great Lakes National Program Office; James McNelly of Wisconsin's Department of Natural Resources; Jon Gumtow with the Sheboygan River Basin Partnership; and Nicole Mays of the Northeast-Midwest Institute.

Pollution from past industrial discharges and disposal of waste earned the Sheboygan River designation as one of 43 "Great Lakes Areas of Concern (AOC)" by the International Joint Commission, the U.S.-Canadian government organization concerned with water quality. The major sources of pollution are contaminated bottom sediments and non-point source pollution. Contaminants of concern include PCBs, PAHs, and heavy metals. PCBs (polychlorinated biphenyls) are known to affect human reproduction, fetal development, and neurological functions, and harm fish and other aquatic species.

Through a two year study, the Northeast-Midwest Institute in Washington, D.C. and economists from the University of Illinois and Georgia State University have gauged the economic value to local homeowners of clean-up of the Sheboygan River AOC. The study focuses on the benefits to homeowners specifically in Sheboygan, Sheboygan Falls, Kohler, and the surrounding townships. The early results of the study suggest that eliminating the pollution in the AOC would make neighboring towns a more desirable place to live and increase property values significantly.

Researchers collected data for housing sales in Sheboygan County in the years 2002 through 2004, and directly surveyed 850 recent home buyers in Sheboygan County. Results of the study of housing sales data indicate that the polluted state of the river currently is depressing single-family, owner-occupied property values by \$8 to \$108 million<sup>1</sup>, or one to seven percent of the assessed residential property values in the area studied. Clean-up could be expected to raise the property values commensurately. The negative effects of the pollution appear greatest close to the river and diminish with distance from the river, with properties east of the Waelderhaus Dam suffering the highest reduction in values.

These housing sales data findings were further bolstered by homeowner responses to direct surveys on their willingness to pay more for residential properties if the AOC were cleaned up. Based on the responses to the surveys, residents within five miles both north and south of the river would be willing to pay on average approximately 10% more for homes if the contaminated area if the area were cleaned up.

The estimated benefits of Sheboygan River AOC clean-up generated in the study apply only to single-family residential property owners living within five miles of the river, though cleanup of the AOC east of the Waelderhaus Dam would likely have a positive effect on other property types as well. Property value increases are however, only one of the ways that benefits from remediation of the Sheboygan River AOC would be realized by local residents. Clean-up might also attract new residents and businesses to the area.

The study was funded by the Great Lakes National Program Office, U.S. Environmental Protection Agency and the College of ACES, University of Illinois at Urbana-Champaign. The results are preliminary and will be refined through further analysis.

<sup>1</sup> All dollar values are expressed in year 2004 (4<sup>th</sup> quarter) purchasing power. Subsequent inflation in housing prices would increase the current dollar values.

**Disclaimer:** Until the methods and results described here have been reviewed by qualified scientific peers and published in the peer-reviewed literature, they must be considered preliminary. The opinions, findings, and conclusions of this study are solely those of the authors and do not necessarily reflect the views of the sponsors.