

**State of Vermont
Water Resources Board**

**Re: Lake Bomoseen Wetland
Town of Hubbardton, Vermont**

Docket No. WET-02-04

ADMINISTRATIVE DETERMINATION

This decision pertains to a petition filed by the Vermont Natural Resources Council (VNRC) and the Rutland County Audubon Society (Audubon) with the Water Resources Board (Board), seeking reclassification of the Lake Bomoseen Wetland (LBW or Wetland Complex) in the Town of Hubbardton, Vermont, from Class Two to Class One and expansion of the protective buffer zone from a presumptive 50 feet to 100 feet in width. The LBW is approximately 450 acres in area and located on the northern end of Lake Bomoseen.

As explained below, the Board concludes that the LBW is so exceptional and irreplaceable in its contribution to Vermont's natural heritage, for all functions except functions 5.1 and 5.10, that it merits reclassification from Class Two to Class One, the highest level of protection under the Vermont Wetland Rules (VWR). See VWR, Sections 4.1(a), 4.4 and 7. Furthermore, the Board concludes that a uniform protective buffer zone of 100 feet, with the exception of a 50-foot buffer zone on Ledgemere Point, is warranted pursuant to VWR Section 4.3.

I. PROCEDURAL BACKGROUND

On July 26, 2002, VNRC and Audubon, through counsel Kelly D. Lowry, Esq., filed with the Board a Petition for the Reclassification of the Lake Bomoseen Wetland (Petition). The Petition was filed pursuant to 10 V.S.A. § 905(7)-(9) and Section 7, VWR.

On August 13, 2002, a Notice of Petition was sent to those persons required to receive notice, pursuant to Section 7.4(a), VWR. Moreover, a Notice of Petition was published in the *Rutland Daily Herald* on August 14, 2002, as required by Section 7.4(a), VWR. Interested persons were provided 30 days from the date of published notice to file with the Board written comments and any requests to participate in the hearing.

The Board held a public hearing on September 17, 2002, at the Hubbardton Town Offices in Hubbardton, Vermont.

Many persons filed timely written comment in response to the Notice of Petition and/or participated in the public hearing on September 17, 2002. Copies of all filings and a complete list of persons attending the hearing are found in the Petition file, Docket No. WET-02-04. Agencies,

municipalities, and organizations that filed written comment and participated through representatives at the public hearing in this matter were:

Petitioners VNRC and Audubon;
Vermont Agency of Natural Resources (ANR);
Vermont Agency of Transportation (VTrans);
Hubbardton Selectboard, Planning Commission, and Board of Listers;
Castleton Selectboard and Planning Commission;
Fair Haven Selectboard; and
Lake Bomoseen Association (LBA)

Additionally, Senator John P. Crowley, Senator Hull P. Maynard, Jr., Representative Robert Helm, and Representative David Rogers participated in the hearing.

In response to a request from the LBA, the Board granted an extension of the public comment period to October 1, 2002. LBA completed its technical filings on October 1, 2002. The Petitioners filed their final responsive comments on October 3, 2002. Over eighty written comments, including comments from LBA and the Petitioners, were filed between the period of August 14, 2002, and October 3, 2002.

On October 8, 2002, the Board conducted a Site Visit to observe the LBW and visit select properties adjacent to the LBW identified by the Petitioners and the LBA, as well as a portion of Vermont Route 30 which crosses the Wetland Complex.¹ For a list of all persons who participated in the Site Visit and a summary of the sites observed by the Board, see Report of October 8, 2002, Water Resources Board Site Visit, Docket Item 119.

The Board deliberated on October 29, 2002, and voted unanimously to reclassify the LBW from Class Two to Class One based on the record before it. The Board, however, decided to reopen the public comment period to allow the filing of written comment on the limited question of whether it should vary the presumptive 100-foot buffer zone that is provided for Class One wetlands under Section 4.3, VWR. December 17, 2002, was the deadline set for public comment on this issue. The Board received eighteen written comments on the buffer zone issue, including supplemental technical information from the Petitioners on December 17, 2002.

The Board continued its deliberations on January 7 and 28, 2003, and decided to retain the current uniform 50-foot protective buffer zone for lots on Ledgemere Point adjacent to the LBW, but in all other areas surrounding the Wetland Complex, a majority of the Board agreed to expand the protective buffer zone to the presumptive 100 feet in width provided for in Section

¹ Board Vice-Chair John D.E. Roberts, convened the Site Visit, given the absence of Chair David J. Blythe. Other Board members present and participating were Lawrence Bruce, Jane Potvin, and Mardee Sánchez.

4.3, VWR. This matter is now ready for decision.

II. BOARD'S AUTHORITY AND THE SCOPE OF THE PROCEEDING

Title 10 V.S.A. § 905(7) authorizes the Board to: "Adopt rules for the identification of wetlands which are so significant that they merit protection." Section 905(7) also provides that:

Any determination that a particular wetland is significant will result from an evaluation of at least the following functions which the wetland serves:

- (A) provides temporary water storage for flood water and storm runoff;
- (B) contributes to the quality of surface and groundwater through chemical action;
- (C) naturally controls the effects of erosion and runoff, filtering silt and organic matter;
- (D) contributes to the viability of fisheries by providing spawning, feeding and general habitat for freshwater fish;
- (E) provides habitat for breeding, feeding, resting and shelter to both game and nongame species of wildlife;
- (F) provides stopover habitat for migratory birds;
- (G) provides for hydrophytic vegetation habitat;
- (H) provides for threatened and endangered species habitat;
- (I) provides valuable resources for education and research in natural sciences;
- (J) provides direct and indirect recreational value and substantial economic benefits; and
- (K) contributes to the open-space character and overall beauty of the landscape.

Title 10 V.S.A. § 905(8) authorizes the Board to "[a]ct on petitions, or on its own motion, to designate specific wetlands as significant, when considered under the criteria established in subdivision (7) of this section." Title 10 V.S.A. § 905(9) provides, in relevant part, that the Board has authority to "[a]dopt rules protecting wetlands which have been determined under subdivision (7) and (8) of this section to be significant; provided, however, that the rules may only protect the values and functions sought to be preserved by the designation."

In 1990, the Board adopted the Vermont Wetland Rules implementing its statutory authority to protect significant wetlands. VWR (adopted Feb. 7, 1990; eff. Feb. 23, 1990). Since 10 V.S.A. § 905(7)-(9) contemplated that *only* significant wetlands would be subject to State jurisdiction and protection, the Board adopted rules to help distinguish between wetlands that are functionally "significant" and those that are not.

First, the Board created a presumption that all wetlands identified on the National Wetland Inventory (NWI) Maps for the State of Vermont (1978), with certain noted exceptions,

would initially be classified as Class Two “significant” wetlands.² VWR, Section 4.2(B).

Second, in order to provide the greatest level of protection to Vermont’s most significant wetlands, the Board established the concept of Class One wetlands. VWR, Sections 4.1(a). Class One wetlands are defined as “those wetlands that in and of themselves, based on an evaluation of the functions in Section 5, are exceptional or irreplaceable in their contribution to Vermont’s natural heritage and are therefore so significant that they merit the highest level of protection under these Rules.”³ VWR, Section 4.1(a). A preliminary list of wetlands with the potential to qualify for Class One status was attached to the rules in Appendix A. VWR, Appendix A (eff. 1990).

Third, in order to protect the functions of significant wetlands as contemplated by 10 V.S.A. § 905(9), the Board established a presumption that, until it determined otherwise, a Class Two wetland would have a 50-foot buffer zone while a Class One wetland would have a 100-foot

² The use of NWI Maps to designate significant wetlands was upheld by the Vermont Supreme Court in the matter, Secretary, Agency of Natural Resources v. Irish, 169 Vt. 407 (1999). A unanimous Court wrote:

... [t]he Vermont Wetland Rules provide that all wetlands identified on the NWI maps for the State of Vermont, and all wetlands contiguous thereto, are presumed to be Class Two wetlands, which in turn are presumed to serve the functions that qualify a wetland as significant. See Wetland Rules §§ 4.1, 4.2. These rules were the product of a 1988 Agency [of Natural Resources] study of the Vermont wetlands identified on the NWI maps. Based on a random sample, the study found that over 93% of the evaluated NWI wetlands were significant based upon one or more of the eleven criteria set forth in 10 V.S.A. § 905(7).

In light of the over 220,000 acres of NWI wetlands in Vermont, the Board’s decision to designate all of the NWI wetlands as significant, based upon the high percentage of the sample meeting the statutory criteria, was reasonable. The statute [10 V.S.A. § 905(7)] does not explicitly require a separate and detailed evaluation of every wetland designated as significant, and we cannot say that the Board’s reliance on the Agency study constituted error. [Citation omitted.] Furthermore, the Wetland Rules afforded defendant, or any other affected landowner, the opportunity to petition the Board to reclassify the wetland, and areas contiguous thereto, to a higher or lower classification. See Wetland Rules § 7. Accordingly, the Board’s classification of the NWI wetlands was not clearly erroneous.

³ Wetlands that are neither Class One nor Class Two are deemed Class Three. They are Class Three wetlands either because they do not appear on the NWI Maps for Vermont and have never been evaluated by the Board *or* because, when last evaluated, they were determined not to be sufficiently significant to merit State protection under the VWR. VWR, Sections 4.1(c) and 4.2(c).

buffer zone. VWR, Section 4.3.⁴

Fourth, because the statute granting the Board authority to act on petitions or on its own motion did not specify what process the Board should use to identify, designate and protect significant wetlands, the Board established procedures in its rules for doing so. VWR, Sections 5 and 7. Under Section 7.1, a person in interest may petition the Board to, among other things: “[d]etermine whether to reclassify a wetland to a higher or lower classification” and “[d]etermine whether the size or configuration of a buffer zone associated with a significant wetland should be modified.”⁵ VWR, Sections 4.4 and 7.1(a),(c). This case-by-case approach to deciding a wetland’s functional significance and determining the appropriate protective buffer zone requires a functional analysis under Section 5 of the rules, which incorporates the eleven statutory criteria contained in 10 V.S.A. § 905(7).⁶

Section 7 of the rules calls for a notice-and-comment proceeding resulting in the issuance of an administrative determination by the Board. VWR, Section 7.4(a); see also, Procedural Rule 17. Unlike a contested case proceeding, the Board is not required by law to hold a public hearing. It may hold a public hearing as it deems necessary and, as a general rule, it holds such a hearing when it receives timely filed written requests pursuant to Section 7.4(a). VWR, Section 7.4(a); see also, Re: Tinmouth Channel Wetland Complex, Docket No. WET-01-07, Administrative Determination at 2-3 (Dec. 13, 2001) (no hearing requested and no hearing held). Likewise, the Board may, but is not required, to conduct a site visit. When the Board conducts a

⁴ Under the most recent amendments to the rules, a conditional use determination for an activity occurring *within* a Class One wetland may be issued *only* to meet a compelling public need to protect public health or safety. VWR, Section 6.3(a) (adopted Dec. 10, 2001; eff. Jan. 1, 2002). A conditional use determination for an activity occurring within a Class One buffer zone must meet the same standards required for an activity in a Class Two wetland – namely, the review standards in VWR, Sections 6.3(b) and 8.5(a) and (b).

⁵ Under Section 7.1, only the following persons or entities are entitled to file petitions: “a state agency, a regional planning commission, a municipality, a municipal planning commission, a municipal conservation commission, an affected landowner, 15 or more persons in interest, or an organization in interest with 15 or more members.”

In response to a petition or on its own motion, the Board also may determine which functions make a wetland significant, determine the boundaries of a significant wetland, and determine whether an area shown as a wetland on an NWI map [VSWI] is in fact not a wetland. VWR, Section 7.1(c)-(d) (eff. 2002).

⁶ Section 5 combines statutory functions 10 V.S.A. § 905(F) and (E) into VWR, function 5.4 (Wildlife and migratory bird habitat), to create a total of *ten* functions under Section 5 of the rules. The Board also has created sub-criteria for a number of the functions in order to clarify what specific wetland characteristics must be present in order for a given wetland function to be deemed “significant.”

hearing and a site visit, it is for the purpose of obtaining information concerning the characteristics of the wetland and its surroundings to help it assess that wetland's significance for certain functions as required by 10 V.S.A. § 905(7) and VWR, Section 5, and to determine what buffer zone is appropriate to protect the functions for which that wetland is deemed significant.

In the present proceeding, the Board on its own initiative gave notice of the Petition with the intent to hold a public hearing. It received much public comment during the 30-day comment period provided for in VWR, Section 7.4(a), and it in fact extended the public comment period twice, once immediately following the public hearing at the request of the LBA and again, on the Board's own motion, to obtain more public comment concerning what buffer zone should be imposed. The Board conducted a well-attended public hearing in the Town of Hubbardton, where the LBW is located, and it conducted a half-day site visit of the LBW and adjacent properties, organized by the Petitioners and the LBA.

III. ISSUES

The Petitioners maintain that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage and therefore so significant that it merits the highest level of protection under the VWR. Section 4.1(a), VWR. Accordingly, they have petitioned the Board to reclassify the LBW pursuant to Section 7, VWR. The Petitioners assert that the wetland complex serves eight (8) of the ten (10) functions listed in Section 5, VWR, at such a significant level that the LBW warrants reclassification from Class Two to Class One. These functions are: 5.2 (Surface and ground water protection), 5.3 (Fisheries habitat), 5.4 (Wildlife and migratory bird habitat), 5.5 (Hydrophytic vegetation habitat), 5.6 (Threatened and endangered species habitat), 5.7 (Education and research in natural sciences), 5.8 (Recreational value and economic benefits), and 5.9 (Open space and aesthetics). A Class One wetland has a presumptive protective buffer zone of 100 feet in width, unless otherwise designated by the Board. Section 4.3, VWR.

Accordingly, the Board must decide:

- (1) Whether to reclassify the LBW from Class Two to Class One, based on an evaluation of its functions; and
- (2) What buffer zone(s) should be imposed to protect any functions that are exceptional and irreplaceable.

IV. FINDINGS OF FACT

Based on the information contained in the record of this proceeding, including the Petition as supplemented, and all written and oral public comment timely received, the Board makes the following findings of fact.

A. Description of the Wetland, its Characteristics, and Surroundings

1. The LBW is located entirely within the Town of Hubbardton, Vermont. It is located on the northern end of Lake Bomoseen and is approximately four hundred and fifty (450) acres in size.
2. The LBW is depicted on the USGS Bomoseen quadrangle map and NWI Map #16A (VSWI map, Hubbardton (Nov. 20, 2002)).
3. Lake Bomoseen encompasses two thousand four hundred and five (2,405) acres and is located in the towns of Castleton and Hubbardton in Rutland County. Water enters the northern end of the lake and the LBW from Austin Pond and several small streams. Lake levels are controlled by a dam at the outlet at the southern end of the lake. Lake Bomoseen drains south into the Castleton River, which flows into the Poultney River before finally flowing into Lake Champlain.
4. The LBW is located in the Taconic Mountain biophysical region of Vermont. There are several natural community types within and bordering the LBW that have been documented by ANR. These are Red Maple Swamp, Hardwood-Cedar Swamp, Intermediate Fen, Cattail Marsh, Deep Rush Marsh, and Shallow Shrub Swamp.
5. Lake Bomoseen and the LBW are utilized extensively by hunters, anglers, boaters, swimmers, tourists, and shoreline residents for recreation and for enjoyment of its scenic beauty.
6. There is very little development adjacent to the western and northern portions of the LBW, in part because the State of Vermont owns lands adjacent to the Wetland Complex, most notably Bomoseen State Park.
7. At the far southeasterly end of the LBW, there is dense residential development located on Ledgemere Point.
8. Adjacent to the eastern portion of the LBW, there are areas of undeveloped land and scattered residences, a store, a campground and a marina, all accessed from Vermont Route 30.
9. Vermont Route 30 parallels the eastern shore of Lake Bomoseen and crosses the LBW at a couple of locations. One location, known as the “causeway,” is a depressed stretch of

highway, subject to ice build-up in winter. Ice on the “causeway” is a significant safety hazard to motorists. VTrans plans to correct this situation by raising the elevation of the “causeway” by approximately two-and-a-half feet and by widening the shoulders. VTrans also plans to install culverts, do repaving, and make other improvements to Vermont Route 30 in or adjacent to the LBW.

B. Performance of Wetland Function 5.1 (water storage for flood water and storm runoff)

10. While the LBW is large and has physical space for flood water expansion, it is physically and hydrologically connected to Lake Bomoseen.
11. In general, wetlands contiguous with larger water bodies are secondary to the larger water body in terms of their role in storing water and in flood control, to the extent that the lake itself serves this purpose. For this reason, the LBW’s effectiveness and importance for water storage is limited in relation to that served by Lake Bomoseen. Therefore, the LBW is not significant for this function.

C. Performance of Wetland Function 5.2 (surface and groundwater protection)

12. The LBW provides improved water quality for Lake Bomoseen and downstream water bodies through removal of nutrients and sediments attributable, in part, to various land uses in the watershed including septage and runoff from roads, farms, and residences.
13. The LBW has characteristics commonly associated with wetlands that act as sinks for phosphorus and nitrogen and this enhances their ability to transform nitrogen into an atmospheric gas through denitrification. With respect to the LBW, these characteristics include the periodic flooding of the stream in the northern end of the Wetland Complex, a ratio of open water to wetland size of less than 10 to 1, and the presence of a mineral soil lens with relatively high alkalinity.
14. The LBW exhibits a significant sediment retention function. The LBW, especially in the areas containing marsh communities, has fine mineral soils and an absence of dead forest or scrub-shrub area, and the wetland is permanently flooded or saturated. Additionally, the marshes’ dense erect, persistent vegetation is wider than 20 feet, which causes water to flow slowly through the LBW and provides a physical catch for the sediment. This drop in velocity allows sediment to drop out of suspension, and contributes to the LBW’s ability to trap and retain sediments and moderate the adverse water quality effects of soil erosion and stormwater runoff.

D. Performance of Wetland Function 5.3 (fisheries habitat)

15. Lake Bomoseen has one of the most diverse fisheries in the State. Anglers in the lake seek

yellow perch, blue gills, large mouth bass, smelt, black crappie, northern pike and brown trout. Trophy-sized brown trout, bass, and pike have been taken from the lake.

16. The fact that the LBW is a large wetland complex adjacent to a large lake makes it important fisheries habitat within the lake ecosystem. The LBW's diverse habitat, scale, and flow conditions create high quality habitat for fish and other aquatic biota, and provide excellent spawning, nursery, feeding, and cover habitat for a variety of fish. Thus, the LBW adds to the diversity and quantity of fishes within the lake, including game fish.
17. While the LBW is a relatively small percentage of the entire lake area, it contains a disproportionately large percentage of the lake's entire littoral zone. Taking into account only the area of the wetland that is accessible to fish, this portion is roughly 30% to 40% of the lake's littoral zone. This is significant because the littoral zone is the part of a lake where light intensity is sufficient to allow for the growth of rooted aquatic vegetation. The rooted vascular plants and attached algae support a diverse invertebrate community including aquatic insects, amphipods and snails. Fish feed on these invertebrates and find cover in the lush vegetation. The littoral zone of a lake is critical in providing food, cover and spawning opportunities for fish.
18. The LBW provides important spawning habitat for game species like northern pike and large mouth bass. These fish actually migrate from other parts of the lake to the Wetland Complex in the spring to spawn and deposit eggs. The eggs of pike adhere to the submerged vegetation of the wetland. The bass actually excavate nests in the LBW to deposit eggs. Perch, pumpkinseed, bluegill and many species of minnow also spawn in the Wetland Complex depositing eggs on the bottom and in the vegetation depending on the species.
19. The LBW provides important habitat for young fish. Large numbers of young-of-the-year largemouth bass have been sampled in the LBW by the Vermont Department of Fish and Wildlife, ANR. The diversity of aquatic vegetation in the Wetland Complex forms a canopy of many layers. This provides ideal cover for young fish. There is also abundant food in the form of the larvae of insects that make up a large part of the diet of young fish.
20. The LBW is an important area for resident fish and predators. High densities of eggs, young fish, minnows, aquatic insects, frogs, crayfish and even ducklings provide food sources for fish. Many species in turn benefit from the fish in the LBW including mergansers, kingfishers, wading birds, and mammals.
21. Redfin pickerel are a fish not as widely distributed in Vermont as some of the more common fish of Lake Bomoseen. They are more abundant in the marshes than other places in the lake. They rely on the cover of aquatic vegetation within the LBW.

E. Performance of Wetland Function 5.4 (wildlife and migratory bird habitat)

22. The LBW contains extensive and ideal habitat available for waterfowl, sensitive species of herons, migratory birds, wetland-dependent mammals, and reptiles. The Board observed that the best and least disturbed wildlife and migratory bird habitat exists on the western and northern portions of the LBW, although the marshes on the eastern shore also constitute significant valuable habitat.
23. The Golet's Wetland Wildlife Assessment Method (the Golet Method) looks at overall wetland productivity for a wide variety of wildlife, assessing habitat and community diversity, wildlife, and migratory bird habitat. Applying this specialized methodology to the LBW, this wetland complex ranks very high. The Golet Method, which establishes certain criteria, such as wetland class richness and vegetative interspersion type, among others, gives the LBW a numerical ranking of 100 out of a possible 105.

Birds and Bird Habitat

24. The LBW abounds with birds and bird habitat. Audubon has documented the presence of over 40 species of wetland- or water-dependent species in the LBW, ranging from the many species of ducks and geese to bald eagles and osprey.
25. The LBW has been designated as an "Important Bird Area (IBA)." The IBA program was initiated by BirdLife International in Europe in the 1980's. BirdLife International is a global coalition of more than 100 country partner organizations. Since the initiation of the IBA program, more than 3,600 sites in 51 European countries have been identified as IBAs, with a total acreage covering 7% of Europe.
26. As the United States Partner Designate of BirdLife International, the National Audubon Society administers the IBA program in the United States. Audubon launched its IBA initiative in 1995, establishing programs state by state. Vermont Audubon operates the IBA program within Vermont, and has identified 16 IBAs in Vermont, of which the LBW is one. A board of experts independent of the local Audubon chapter seeking the designation grants this designation, and it is reserved for sites that support specific criteria established by the IBA program.
27. The LBW's designation as an IBA is based upon the high concentration of Vermont Conservation Priority Species, and the rare, unique, and representative habitat supported by the wetland. In particular, the use of the LBW for breeding by sora and Virginia rails, American and least bittern, and pied-billed grebes renders the Wetland Complex important. The least bittern and the pied-billed grebe are ranked as S1 – Very Rare (having one to five occurrences in the State of Vermont). Designation of the wetland as an IBA puts the LBW on a par with the Dead Creek Wildlife Management Area and the Missisquoi National Wildlife Refuge, and underscores the value of the Wetland Complex and its contribution to Vermont's natural heritage.

Mammals and Mammal Habitat

28. The LBW exhibits many features indicating that it is valuable for mammals. Muskrat, otter, and mink find ample habitat in different areas within the Wetland Complex. Muskrat, an important prey item for many carnivores, are likely abundant in the LBW. Mink and otter are considered area-sensitive carnivores that require large home ranges. Thus, both species are vulnerable to habitat loss and degradation. Because of its size and natural state, the LBW supports the home range required for both mink and otter.
29. The LBW also provides habitat for beavers. Beavers are considered a “keystone species,” one that changes the landscape in significant ways and creates critical habitat for numerous other species. In the LBW, beavers increase the extent of flooded areas, and contribute to the creation and maintenance of the varied natural communities, waterfowl habitat, feeding areas for bear, moose, and fisher, and denning and feeding habitat for otter, mink, and muskrat.
30. In addition, the LBW contains abundant evidence of use by white-tailed deer. The food and shelter found in the LBW are critical for providing sufficient strength nourishment prior to winter.

Amphibians and Reptiles

31. There is extensive habitat available in the LBW for amphibians and reptiles. The following species have been positively identified in the Wetland Complex: American toad, spring peeper, green frog, pickerel frog, wood frog, spotted salamander, northern two-lined salamander, eastern newt, eastern red-backed salamander, northern water snake, common garter snake, snapping turtle, painted turtle, and stinkpot turtle. One of these species, the stinkpot turtle, is categorized by the Non-game and Natural Heritage Program as S2 – Rare, meaning that there are only 6 to 20 occurrences believed to be extant and/or some factors exist making it vulnerable to extirpation in the State
32. The upland immediately adjacent to the LBW likely supports the timber rattlesnake (S1, Endangered), the eastern rat snake (S2, Special Concern), and the eastern ribbon snake (S2, Special Concern).

F. Performance of Wetland Function 5.5 (hydrophytic vegetation)

33. The LBW is home to an intermediate fen, among other natural communities. Intermediate fens are considered S2 – Rare, which means that there are only 6 to 20 occurrences believed to be extant and/or some factors exist making the community type vulnerable to extirpation in the State.

34. The LBW possesses several other natural community types, including Cattail Marsh, Deep Rush Marsh, and Shallow Shrub Swamp. These natural community types contain extensive areas of submerged and floating marshland communities. The underwater and floating-leaf plants form an important component of the lake's "aufwach," which is the area of probable maximum species diversity and productivity. The pondweeds, water lilies, and other plants provide the structure for colonization by algae and fungi and typically provide much of the energy that is available for aquatic organisms.
35. The LBW hosts two wetland communities characterized by sturdier vegetation. One of these is the Red Maple Swamp community type. This wooded swamp, dominated by hardwoods, is located on the western side of the wetland and is approximately four to eight acres in size, reaching approximately halfway to the end of the lake from the bridge crossing it. *Decodon*, sweet gale, spahgnum, cinnamon fern, black ash, and red maple trees are the dominant vegetation within this area of the LBW. The second of these communities is the Hardwood-Cedar Swamp, which is located on the eastern side of the LBW and measures approximately twenty (20) acres in size. This swamp is a mix of northern white cedar, black ash, sweet gale, cattails, black chokeberry, sheep laurel, and some floating-leaf aquatic plants in the wetter areas.
36. The LBW hosts several very rare (S1) or uncommon (S3) plant species. These include the following: horned pondweed (*Zannichellia palustris*), S1; arrowleaf (*Peltandra virginica*), S1; false cyperus (*Carex pseudocyperus*), S3; Fries' pondweed (*Potamegeton freesii*), S3; hidden fruited bladderwort (*Utricularia geniniscapa*), S3; and humped bladderwort (*Utricularia gibba*), S3.
37. Of these species, *Utricularia gibba* and *Utricularia geniniscapa* are both considered disjunct species occurring more commonly to the east. All of these species have been positively identified within the LBW subsequent to 1988.
38. At least one other species, Carey's smartweed (*Polygonum careyi*), SH (of special concern but only known historically), has been documented in the wetland, but it has not been found since the early 1900s.

G. Threatened and Endangered Species Habitat (VWR § 5.6)

39. The LBW provides important habitat for at least two species on the State of Vermont's list of threatened and endangered species: low cyperus (*Cyperus diandrus*), state endangered; and lesser bur-reed (*Sparganium natans*), state threatened. These species were positively identified in the Wetland Complex in 1999 and 1998, respectively. Marc Lapin, the ecologist who performed plant survey work for the State of Vermont in the LBW in 1998, described the population of low cyperus as "a robust population . . . which had many subpopulations

and many individuals overall.” In addition, as noted in Finding 36, the LBW also hosts a large number of very rare and uncommon species.

H. Performance of Wetland Function 5.7 (education and research in natural sciences)

40. Public access to the LBW for educational and research use is excellent. The State of Vermont owns much of the upland to the west of and adjacent to the LBW. In addition, much of the Wetland Complex can be reached by boating over public waters from the south, where the Department of Fish and Wildlife maintains a boat launch for public use.
41. The LBW has a history of use for scientific research and education. Records reveal that the site has been studied for botanical elements for many years. The area has received much attention by botanists and has been studied by five to six groups within the last dozen years.
42. The LBW also has several characteristics that make it unique and valuable for education and research, providing an excellent location to study many aspects of ecology. The variety and complexity of the many natural community types, the diversity of wildlife, and the presence of rare and uncommon plants all combine to render the Wetland Complex valuable for this purpose.
43. The LBW is located near Castleton State College, giving students easy access to the wetland for education and research in the natural sciences.

I. Performance of Wetland Function 5.8 (recreational value and economic benefits)

44. The LBW provides an opportunity and is widely used for recreational activities, including hunting, fishing, canoeing, nature photography, swimming, sailing, wildlife watching, bird watching, and other general recreational activities.
45. The LBW generates revenues from these many recreational activities. Persons who are attracted to the recreational opportunities provided by the LBW camp and use public accommodations in the area and purchase supplies, such as food, drink, and fuel, often from local enterprises.
46. The LBW provides very important habitat for fish and wildlife that can be fished, hunted, and trapped under applicable state law. Lake Bomoseen is used extensively by anglers and the existence of old duck blinds and spent shells indicate that hunting is a major activity as well in the LBW.

J. Performance of Wetland Function 5.9 (open space and aesthetics)

47. The public can easily observe the LBW from land at many locations along much of its length. This is especially true from the eastern side of the LBW, given that Vermont Route 30 closely parallels and in some places crosses portions of the LBW. The LBW is also visible from State lands on the northwestern shore of Lake Bomoseen. By water, the public can view nearly the entire Wetland Complex.
48. Because visitors to the lake have easy public access to the LBW, either from land or the water, they can readily enjoy its natural beauty. The Wetland Complex is large enough that, together with the adjacent lake and surrounding forest, it creates a highly significant public open space which the public can view and explore.
49. The LBW is a distinct and prominent feature in the surrounding landscape. Especially in the northern portion of Lake Bomoseen, the view is dominated by the Wetland Complex. From Vermont Route 30, the LBW is highly visible, with the wooded State lands on the western shore providing an excellent backdrop to the open water, marshes and other wetland communities in the middle and foreground.
50. Wildlife viewing throughout the LBW is another element that contributes to the beauty and overall aesthetic value of the Wetland Complex. The LBW has a great diversity of wildlife and plant species that can be readily observed by the visiting public.

K. Erosion Control through Binding and Stabilizing the Soil (VWR § 5.10)

51. The LBW provides erosion control as an emergent wetland on a lake that has a long fetch and potential erosive wave action. In addition, the wetland has, in places, dense, erect vegetation at least 20 feet wide and a fair interspersion of water and vegetation (especially in the far northern shrubby wetland). The LBW is significant but not exceptional or irreplaceable for this function.

L. Buffer Zone

52. The LBW is currently surrounded by a presumptive buffer zone of 50 feet in width due to the fact that this Wetland Complex is designated a Class Two wetland.
53. Buffer zones to protect the water quality of surface and ground waters (function 5.2) should be large enough to address sediment and nutrient removal. An adequate buffer width depends mainly on local site conditions, especially slope, and on the nature of the land uses and activities within or adjacent to the wetland. There is insufficient data in the record to assess exactly what buffer zone width would assure protection of function 5.2, especially in areas adjacent to the LBW's marshes. Nevertheless, a buffer width of 100 feet has been recommended by a number of researchers and agencies as providing an acceptable level of water quality protection. The Board finds that a 100-foot protective buffer zone should be

- imposed to protect this function, except in the immediate area of Ledgemere Point. See Finding 58, below.
54. The wildlife and migratory waterfowl habitat are rich and varied in the LBW, especially in the western and northerly areas of the Wetland Complex, where there is significantly less shoreland development and large tracts of State-owned land.
55. Many of the individual species that inhabit or use the Wetland Complex are particularly sensitive to human disturbance. These species include mink and otter, migratory waterfowl, herons, and songbirds.
56. To optimize the value of buffer zones for protection of wetland-dependent wildlife, perhaps the most important parameter is width. In general, the larger, or wider, a buffer zone is, the more effective it is for protecting the wildlife habitat function of the protected wetland. This is because a wider upland buffer zone typically reduces human access to the site and creates a greater separation distance between the wetland and surrounding development and other human activities.
57. While a 300 foot buffer is optimal for protecting the wildlife habitat function of significant wetlands, the VWR contemplate a presumptive buffer zone width of 100 feet for Class One wetlands.⁷
58. The ANR recommends and the Board finds that the only upland area adjacent to the LBW which should retain the current 50-foot buffer zone is a small section at the very southeasterly portion of the Wetland Complex, known as Ledgemere Point. Due to the fact that this highly developed area is at the southern periphery of the Wetland Complex, the adverse impacts of the residential uses on significant wildlife feeding, nesting, brooding and staging areas in the western and northern portions of the Wetland Complex will be minimal. Accordingly, a 50-foot buffer zone is warranted for the five (5) lots with frontage on Lake Bomoseen, at the northerly end and on the easterly side of Ledgemere Point Road, as those lots presently exist. See *Petitioners Exhibit 3*.

⁷ The choice of a 100-foot buffer zone width for Class One wetlands was the result of compromise in the initial 1990 rulemaking. The intent was to provide adequate protection of those wetland functions performing at significant levels with the least regulatory burden upon landowners and other affected persons. Under the VWR, this regulatory burden consists of the requirement that those who intend to conduct certain uses and activities within the wetland and/or its buffer zone must obtain a conditional use determination (CUD) from the Secretary of ANR prior to commencement of those uses or activities in order to assure that they will not result in undue adverse impacts to the significant functions of that wetland. Sections 6 and 8, VWR. There are, however, exempt and many specified “allowed” uses and activities that do not require CUD approval. Sections 3.1 and 6, VWR.

59. While other residential and some commercial uses exist along the Vermont Route 30 corridor on the eastern side of the LBW, the Board finds that a 100-foot buffer zone is necessary to protect the functions that make this wetland so significant that it merits Class One protection, particularly given the proximity of those uses to significant migratory bird and wildlife habitat.
60. The LBW provides open space and aesthetic values at a highly significant level. The public can easily observe portions of the LBW from the eastern side of the LBW and surrounding upland at many locations along Vermont Route 30. Also, by water, the public can view the entire Wetland Complex, except for the northern most portions of the Wetland Complex.
61. A 100-foot buffer zone, except in the immediate area of Ledgemere Point (see Finding 58, above), will provide adequate protection for the aesthetic and open space function of the LBW, by requiring ANR approval of future activities that require conditional use review to assure that any adverse impacts to this function are properly avoided or mitigated.

V. CONCLUSIONS OF LAW

The Board may determine, among other things, whether to reclassify any wetland to a higher or lower classification, declare which functions make any wetland significant, and decide whether the size or configuration of a buffer zone associated with a significant wetland should be modified. VWR, Sections 4.4 and 7.1. As a matter of practice, the Board decides the level of significance of a wetland based on an analysis of a wetland's functional significance in the context of each reclassification decision. The Board may also decide buffer zone questions in the context of a reclassification petition. Re: Tinmouth Channel Wetland Complex, Docket No. WET-01-07. Administrative Determination (December 13, 2001); Re: Northshore Wetland, Docket No. WET-00-03, Decision (Sept. 19, 2002).

The Board may initiate a reclassification proceeding upon the receipt of a petition from a state agency or an organization in interest with 15 or more members, among others. Section 7.1, VWR. VNRC is an organization in interest with over 5,000 members in Vermont. Audubon is an organization in interest with over 4,500 members in Vermont. The Petition is also supported by the ANR.

A. Classification of the LBW

The LBW is a significant wetland, and as such, the Board has jurisdiction over it pursuant to 10 V.S.A. 905(7)-(9) and the VWR. The LBW is currently classified as a Class Two wetland under VWR, Section 4.2(b) by virtue of the fact that it appears on the NWI map for this portion of Rutland County. The buffer zone associated with the LBW is currently 50 feet. VWR, Section 4.3. Nevertheless, at the time of the initial adoption of the VWR in 1990, the LBW was identified as one

of two wetlands in Rutland County qualifying as potential candidates for reclassification to Class One status. VWR, Appendix A (eff. Feb. 23, 1990).⁸

The above Findings of Fact are supported by the record before the Board in this matter, including documentation, exhibits, maps, and written and oral comments presented in support of the Petition. Based upon these facts, the Board concludes that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage with regard to Functions 5.2 (Surface and Groundwater Runoff), 5.3 (Fisheries Habitat), 5.4 (Wildlife and Migratory Bird Habitat), 5.5 (Hydrophytic Vegetation Habitat), 5.6 (Threatened and Endangered Species Habitat), 5.7 (Education and Research in the Natural Sciences), 5.8 (Recreational Value and Economic Benefits), and 5.9 (Open Space and Aesthetics).

The Board concludes, based on the record before it in this proceeding, that the LBW is significant for the following function: 5.10 (Erosion Control through Binding and Stabilizing the Soil.)

The Board concludes that the LBW is not significant for Function 5.1 (Water Storage for Flood Water and Storm Runoff).

Under the VWR, if the evidence submitted as part of a petition to reclassify a wetland indicates that the wetland is exceptional or irreplaceable in its contribution to Vermont's natural heritage for even *one* of the ten functions and values set forth in the VWR, the Board *must* classify the wetland as Class One.

The evidence presented that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage for most of the functions listed in the VWR was uncontested. Both VNRC and ANR presented written and oral expert testimony that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage for eight of the ten functions. The expert testimony presented by opponents to the reclassification did not refute that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage for several functions. Rather, the experts pointed out inconsistencies and inaccuracies in some of the testimony and exhibits provided by VNRC. With all experts in agreement that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage, the Board was required by law to reclassify the wetland from Class Two to Class One.

The Board considered the numerous comments by members of the public opposed to the

⁸ The other Rutland County wetland so listed as a potential Class One wetland is Tinmouth Channel wetland in Tinmouth. That wetland was reclassified to Class One status by the Board in 2001. Re: Tinmouth Channel Wetland Complex, Docket No. WET-01-07, Administrative Determination (Dec.13, 2001).

reclassification during its deliberations. Based on these comments, it is evident to the Board that most people agree that the LBW is a valuable resource. However, many commenters also strongly believe that the LBW is being adequately protected by the current Class Two designation. While the Board is sympathetic to these comments, under the VWR, the Board is not authorized to consider whether the current classification is sufficient to protect a wetland that is deemed to be exceptional and irreplaceable in its contribution to Vermont's natural heritage. As noted above, the Board is limited to a review of the significance of the LBW based on the functions and this analysis clearly indicates that the LBW warrants Class One designation.

B. Buffer Zone Determination

The Board concludes that the LBW should be protected by a 100-foot buffer zone, with the exception noted in Finding 58.

As a Class One wetland, the LBW is provided a presumptive 100-foot buffer zone under the VWR.⁹ Accordingly, unless sufficient credible evidence is submitted rebutting this presumption, a buffer consisting of a minimum 100 feet in width is required for the LBW. The Board may establish a narrower or wider buffer zone, taking into consideration locale-specific conditions in relation to the wetland resource and its specific functional attributes. The narrowing of a buffer zone, however, must be supported by evidence that the functions which make a wetland significant will not be compromised. For the Board to consider factors other than the imperative to protect significant wetland functions would require changes to the Board's enabling statute and VWR.

Given the importance of establishing an appropriate buffer zone for the LBW, the Board provided all parties to the petition with an opportunity to comment on whether the buffer zone should be varied from the presumptive width. Both ANR and VNRC presented expert testimony that argued that a 100-foot buffer zone should be established around the entire wetland, with ANR suggesting an exception for Ledgemere Point. Opponents to the reclassification presented little expert testimony to rebut the presumption of the 100-foot buffer zone, instead attacking the Petitioners's delineation of the LBW and the proposed buffer zone. Accordingly, the Board finds that the presumptive buffer zone should apply to the LBW, except for the area around Ledgemere point, where the current 50-foot buffer zone should be retained.

The Board acknowledges that a number of affected landowners and municipal officials actively participated in this proceeding, providing both written comment and oral testimony at the public hearing, and that many of them opposed the proposed wetland reclassification or the expansion of the protective buffer or both. The Board is not insensitive to their concerns that by reclassifying the LBW from Class Two to Class One and by expanding the buffer zone to a width

⁹ The presumptive width of buffer zones for Class One wetlands has been 100 feet ever since the initial adoption of the VWR in 1990.

of 100 feet that more activities on adjacent private and public lands, including highway improvements, will be subject to CUD review by the Secretary of ANR.

VI. ORDER

On the basis of its record in this proceeding, the Board has determined that the Lake Bomoseen Wetland shall be reclassified from a Class Two wetland to a Class One wetland. The Board declares that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage for functions: 5.2 (Surface and Groundwater Runoff), 5.3 (Fisheries Habitat), 5.4 (Wildlife and Migratory Bird Habitat), 5.5 (Hydrophytic Vegetation Habitat), 5.6 (Threatened and Endangered Species Habitat), 5.7 (Education and Research in the Natural Sciences), 5.8 (Recreational Value and Economic Benefits), and 5.9 (Open Space and Aesthetics). Therefore, the LBW merits the highest level of protection available under the Vermont Wetland Rules.

The Board has determined that, in order to protect the functions for which the wetland has been reclassified, the presumptive buffer zone of 100 feet, provided in Section 4.3 of the VWR, is generally warranted and hereby ordered, with one exception. The Board hereby retains a 50-foot buffer zone for the five (5) lots with frontage on Lake Bomoseen, at the northerly end and on the easterly side of Ledgemere Point Road, as those lots presently exist.

Because the buffer zone established by the Board is irregular in this one respect, and was not contemplated by the Petitioners in their filings, the Board hereby directs the Petitioners, with the advice of ANR, to memorialize the configuration and location of the modified buffer zone for the LBW by filing with the Board a topographical map that depicts the footprint of the Wetland Complex as well as the buffer zone contemplated by this order. See Re: Northshore Wetland, Docket No. WET-00-03, Decision at 14 (Sept. 19, 2000). Such map shall be filed with the Board no later than 30 days from the date of this decision. Copies of this map shall also be filed with all persons who received the initial filing of Petition pursuant to Section 7.3(a)(1)-(3), VWR.

The Board further orders the ANR, upon the filing and Board approval of the above-referenced map, to update the applicable Vermont Significant Wetland Inventory map for Hubbardton

(Nov. 20, 2002) and the underlying Geographic Information System (GIS) data layer, pursuant to Section 4.5(a), VWR.

Dated at Montpelier, Vermont, on this 6th day of February, 2003.

Water Resources Board

/s/ David J. Blythe

David J. Blythe, Chair

Concurring:
Lawrence H. Bruce, Jr.
Jane Potvin
John D.E. Roberts¹⁰
Mardee Sánchez

Concurring, in part, and Dissenting, in part, David J. Blythe, Chair.

The Petition in this matter presents the Board with two separate questions and compels two separate and distinct analyses. The first of these is whether under the circumstances of its physical characteristics and qualities the LBW is a Class One wetland (as opposed to the current Class Two designation assigned by the default in the original classifications of wetlands in the 1990 VWR). If the answer to the first question is in the affirmative, then the second question is what buffer zone is necessary to preserve and enhance the protected functions now served by the LBW.

With regard to the first question (whether the LBW is or is not a Class One wetland), I agree and concur with the analysis and conclusion of the majority of the Board. Based on an evaluation of the functions listed in Section 5, VWR, the Board found that the evidence, as a whole, notwithstanding the technical errors noted in the Petition by the LBA's experts at the public hearing and in their written comments, overwhelmingly supported the conclusion that the LBW is exceptional and irreplaceable in its contribution to Vermont's natural heritage. Therefore, the only conclusion that the Board could reach is that the LBW is so significant that it merits the highest level of protection afforded by the State in compliance with the VWR. In this regard, the Board's analysis is a straightforward consideration of the evidence leading to a relatively simple "yes-or-no" answer, with little room for any exercise of discretion on the part of the Board.

With regard to the second question however (what buffer zone is appropriate under the circumstances), I believe that the analysis is more complex and necessarily calls for the exercise of considerable discretion by the Board.

As the majority correctly points out, the VWR establish presumptive buffer zones of fifty feet and one hundred feet for Class Two and Class One wetlands respectively. These presumptions are based on the operating assumption that the values and functions existing in a wetland designated as a Class One wetland require a greater measure of protection from the impacts of human activity than

¹⁰ Board member Roberts participated in the Board's deliberations of October 29, 2002, and January 7, 2003, but did not attend the Board meeting of January 28, 2003. He, however, has reviewed this decision and concurs in the majority opinion.

do those same functions and values performed at a less significant level in a Class Two wetland. Hence, the VWR provide for the wider presumptive buffer zone in a Class One wetland. I believe that this is a fundamentally correct and valid presumption.

Having said so, however, I believe that the Board must use this presumption as only a starting point for considering its applicability to a given situation. In applying the presumption, the Board has substantial discretion. The presumption need not be applied in a rote or routine manner, and the Board has previously used considerable discretion in setting the width of a Class One buffer zone. See Re: Northshore Wetland, Docket No. WET-00-03, Decision (Sept. 19, 2000) and Northshore Wetland map (Nov. 20, 2000) (Board created a 300 foot buffer zone around a Class One wetland except on the easterly side of that wetland where the buffer zone was extended to 25 feet westerly of the City recreational path, at a width of no less than 88 feet from the wetland boundary.)

In applying this presumption, the question of what evidence is required to overcome the presumption necessarily arises. In general, the party seeking to overcome the effect of the presumption has the burden of establishing that under the circumstances, the presumption should not control. As a practical matter in a wetland reclassification proceeding, that burden falls on any participant seeking either a wider or narrower buffer zone than the presumptive buffer zone prescribed by the VWR. Inherent in this question is the issue of how compelling must the evidence be in order to justify a variation from this presumptive buffer zone. In other words, how high does the Board set the bar for a party seeking to vary from the presumption?

In considering the evidence proffered to overcome or vary from the effect of the presumptive assignment of the 100-foot buffer zone, the Board need not rely solely on the type of technical or scientific evidence which it normally reviews in wetland reclassification proceedings (typically evidence from experts regarding hydrology, plant and animal populations and activities, etc.). Rather, the Board should take carefully into account a wide range of evidence, including the Board's own observations, lay testimony and anecdotal evidence about the past, present and anticipated nature of both the wetland itself and the human activities within and adjacent to it.

In the present case, this broader body of evidence leads me to conclude that there are two different "zones" (for lack of a better term) into which the LBW may be divided for the purposes of assessing the appropriate width of the buffer zone. Generally speaking, the boundary along the eastern "half" of the wetland has already been impacted by well-established human presence and activity, and the widening of the buffer zone from 50- to 100-feet would not, in my view, lead to any greater protection of the functions and values than the present 50-foot buffer now affords. On the eastern side of the LBW, beginning at Ledgemere Point and extending to the northerly end of the Wetland Complex at Hortonville Road, there are public roads (including a relatively busy state highway, Vermont Route 30, along much of this side), homes, camps and businesses. There was credible testimony that there is less wildlife activity along and in this area than exists on the other (western) side of the Wetland Complex. Accordingly, I cannot find that expanding the buffer zone in this area to 100 feet, which in some instances would then encompass human activities which now

exist outside of the present 50-foot buffer zone, would serve any useful resource protection or public policy purpose.

In contrast, the boundary along the western “half” of the Wetland Complex is relatively free of established human activity because adjacent lands are largely in State ownership, and the imposition of the wider buffer zone there has an appealing logic; in this regard, I agree with the majority of the Board. Because there is evidence of greater wildlife activity on this side, and because there are not now established human activities there of the sort which exist on the eastern side, the presumption has more validity and should therefore be applied. Thus, in my opinion, the Board should impose a buffer zone of 100-feet in width on the western side of the LBW; however, on the eastern side, starting and including areas of the Wetland Complex adjacent to Ledgemere Point and continuing in a northerly direction to a point, mid-stream, in the unnamed brook draining Austin Pond and discharging just south of that pond into the Wetland Complex, a 50-foot buffer zone should be retained.

I find that applying the presumptive 100-foot buffer zone along the eastern half of the boundary of the Wetland goes beyond that which is reasonably necessary to protect the relevant functions and values. For that reason, I disagree with the majority of the Board in applying the wider buffer zone along the entirety of the eastern side of the LBW, and I respectfully dissent in this regard.

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