



Conservation Law Foundation

August 16, 2001

William A. Bartlett,
Executive Officer
Vermont Water Resources Board
National Life Records Center
Drawer 20
Montpelier, VT 05620-3201

Re: Caspian Lake (Greensboro Association) No. UPW-01-01

Dear Water Resources Board Members:

The Conservation Law Foundation (CLF) offers the following comments in support of the Greensboro Association's petition to prohibit use of personal watercraft on Caspian Lake.

CLF is a non-profit member supported environmental organization that works to solve the problems that threaten the people, communities and natural resources of New England. Established in 1966, CLF is the oldest regional environmental organization in the country. CLF has had an office in Montpelier, Vermont since 1988.

CLF supports the prohibition on personal watercraft (PWC) on Caspian Lake because their negative impacts on water quality, air quality and noise will harm wildlife and conflict with long standing predominant uses of the Lake. Because of these conflicts, and the ineffectiveness of less restrictive measures, the Board is obligated to grant the petition and prohibit PWC on Lake Caspian.

Water Quality Impacts

PWC are powered by carbureted two-stroke engines. These engines discharge about 1/4 to 1/3 of the uncombusted fuel directly into the water. Laurie Martin, *Caught in the Wake: The Environmental and Human Health Impacts of Personal Watercraft* (1999)¹ (hereinafter *Caught in the Wake*) at 6 citing Federal Register, Air Pollution Control; Gasoline Spark Ignition Marine Engines; 40 CFR Parts 89,90,91, October 4, 1996; *Report on Possible Water Pollution from the Use of Two-Stroke Carbureted Marine Engines*,

¹ The *Caught in the Wake* study was published by the Izaak Walton League of America -- a 50,000member non-profit concerned with conservation and outdoor recreation issues. Formed in 1922, the League conducted the nation's first comprehensive survey of water pollution in 1927 at the behest of President Coolidge and currently organizes the thirty-year old Save Our Streams initiative. <http://www.iwla.org/siteindx.htm>.

15 East State Street, Suite 4, Montpelier, Vermont 05602-3010 • 802-223-5992 • Fax: 802-223-0060

MAINE: 120 Tillson Avenue, Suite 202, Rockland, Maine 04841-3416 • 207-594-8107 • Fax: 207-596-7706 • www.clf.org

MASSACHUSETTS: 62 Summer Street, Boston, Massachusetts 02110-1016 • Phone: 617-350-0990 • Fax: 617-350-4030

NEW HAMPSHIRE: 27 North Main Street, Concord, New Hampshire 03301-4930 • 603-225-3060 • Fax: 603-225-3059

RHODE ISLAND: 69 Washington Street, Providence, Rhode Island 02903-1726 • 401-323-7608 • Fax: 401-351-0118

VERMONT: 15 East State Street, Suite 4, Montpelier, Vermont 05602-3010 • 802-223-5992 • Fax: 802-223-0060

Conservation Law Foundation

Vermont Agency of Natural Resources at 2 (1999) (hereinafter “*ANR Report*”); “Studies Supporting 25-30% Raw Fuel Discharge Factor for Two-Stroke Marine Engines” at http://www.earthisland.org/bw/25_percent.shtml; Thomas P. Ballestero, *Impact of Motor Boat and Personal Watercraft on the Environment: Bibliography* at 10, Environmental Research Group, University of New Hampshire (1990). The University of California, Davis' Tahoe Research Group estimated that as much as 50% of the fuel mixture passes through a two-stroke engine unused and into the marine environment, depending on the manner of use. “Studies Supporting 25-30% Raw Fuel Discharge Factor for Two-Stroke Marine Engines” *supra*. In other words, marine two-stroke engines annually contribute fifteen times more oil into U.S. waters than the Exxon Valdez spilled into Prince William Sound in 1989. *Caught in the Wake* at 6 citing Andre Mele, POLLUTING FOR PLEASURE (1993). Fuel is not spilled or leaked, but is discharged as part of normal engine use as a result of fuel intake and exhaust having to occur in one stroke. Ballestero, *supra* at 10; *Caught in the Wake* at 6. The fuel mixture generally contains a number of hazardous compounds, including methyl tertiary-butyl (MTBE), poly-aromatic hydrocarbons (PAH's), xylenes, ethyl benzene, toluene and benzene. *ANR Report* at 2. Many of these are hazardous to humans and wildlife. *Caught in the Wake* at 6-7. “Fish, in particular, accumulate some of these toxic compounds, which in turn work their way into the food chain and the human body.” Thomas Conuel, “The Trouble With Jet Skis,” *Sanctuary* (July/August 1996) at 9.

The manner in which personal watercraft are operated contributes to environmental degradation by PWC beyond that which is normally attributed to conventional motorboats. “Because there is no external propeller, they [PWCs] can operate in extremely shallow water -- coves and shorelines, the most environmentally sensitive areas of a pond or lake.” Conuel, *supra*, at 9. Jet-skis have the ability to exceed forty miles per hour in one foot of water, effectively spooking birds and wildlife that inhabit reaches of shoreline otherwise inaccessible by land or boat. The eggs of fish resting in shallow waters are churned up and destroyed by passing PWC. *Id.* at 10.

A direct relation between jet-ski use near shorelines and the frustrated community efforts to control turbidity has also been noted. Ballestero, *supra* at 4. Turbidity, in this context, is caused by the disturbance of sediments, and results in “reduced light penetration” which eventually causes a “increased nutrient concentration and increased micro-organisms.” *Id.* One study cited by Ballestero attributes an increase in measured phosphorus in shallow lakes to sediment disturbance caused by boating activity. *Id.* quoting Yousef, McLellon and Zebuth, “Changes in Phosphorus Concentrations Due to Mixing by Motorboats in Shallow Lakes,” *Water Research* 14 (1980).

Air Pollution

PWCs are a significant source of air pollution. “The EPA has determined that gasoline marine engines are one of the largest contributors of hydrocarbon emissions, which are known to have adverse health impacts.” James Splett, *Personal Watercraft Use: A Nationwide Problem Requiring Local Regulation*, 14 J. ENVTL. L. & LITIG., 185, 190 (1999); see also, *ANR Report* at 2 (gasoline marine engines one of the largest non-road contributors of hydrocarbon emissions); Conuel, *supra* at 9 (powerboats emit up to 400,000 tons of hydrocarbons), *Caught in the Wake* at 8 (two-stroke engine use in the United States contributes as much ambient air pollution to the atmosphere as all of the nation's cars). As PWCs are the fastest growing segment of the boating industry accounting for 1/3 of all boat sales, the pollution attributable to PWC use is significant. Splett, *supra*, at 188. An hour's operation of a personal watercraft is attributed to having more smog-forming emissions than a modern car emits in an entire year. *Top Ten Jet Ski Myths* at <http://www.earthisland.org/bw/topten.shtml>. While new federal regulations are expected to reduce hydrocarbon emissions from marine two-stroke engines by 2020, the new regulations are

Conservation Law Foundation

limited to the sale of new personal watercraft, and current users are under no obligation to modify or otherwise enhance their vessels to comply with more stringent air quality standards. “Emission Standards for New Gasoline Marine Engines” at <http://www.epa.gov/otaq/marin-fs.htm>.

Noise Impacts

PWCs are noisy. Nearly all the people commenting at the public hearing complained of the disruption caused by the noise of PWC. They are particularly noisy when they leave the water. PWC users are known for “wake jumping” which thrusts the craft entirely out of the water and exposes the jet propulsions system. Under normal operation they produce about 85 to 102 decibels of sound. When they leave the water this is increased by 15 dBs, which is the audible equivalent of an additional 32 PWCs at the same distance. Charles Komonoff & Howard Shaw, “Drowning in Noise: Noise Cost of Jet-Skis in America. Executive Summary” Noise Pollution Clearinghouse (April 2000) at 3 <http://www.nonoise.org/library/drowning/execsum.htm>. The ebb and flow of engine noise also tends to be more irritating than the constant drone of a passing conventional motorboat. Bluewater Network, *Jet-skis Position Paper* (1998) at 1. <http://www.earthisland.org/bw/jetskipos.shtml>. (hereinafter *Bluewater Position Paper*).

The noise impacts affect both people and animals. One study conducted by the Woods Hole Oceanographic Institute noted that personal watercraft lack the low level frequency audible from a distance, and consequently do not alert animals of approaching danger until the PWCs are “almost on top of them.” *Bluewater Position Paper* at 1 citing “Testimony and Exhibits Submitted to Board of county Commissioners Regarding Restrictions on Use of Jet Skis in San Juan County,” *Superior Court of Washington for Whatcom County*, Jan. 31, 1996. A study by Joanna Burger of Rutgers University, found that “fast and noisy PWC traffic sent almost 200 birds flapping into the air, more than six times that of ordinary motorboats. *Id*; See Joanna Burger, *Effects of motorboats and personal watercraft on flight behavior over a colony of Common Terns*, *Condor* 100:528-534 (1998).

Effect on Wildlife

PWC pose a greater threat to wildlife than other boats. This presents a particular problem for loons which are present on Lake Caspian. Efforts to reestablish nesting on the Lake’s shores for loons will be undermined by continued PWC use on the Lake.

Testimony from the Loon preservation Committee of the Audubon Society of New Hampshire notes that PWCs “can cause a traumatic noise and visual disturbance near a nest, prompting incubating birds to abandon their nests and exposing eggs to chilling, overheating or predation.” Testimony in support of New Hampshire’s Senate Bill 146, offered by Harry Vogel of the Loon Preservation Committee of the Audubon Society of NH – “Impact of Boats and Personal Watercraft on Loons and other Waterbirds in New Hampshire.” Furthermore, PWCs can pose significant harm because of their ability to “closely approach nests and shorelines at high speed. *Id*. The Testimony also cites several research papers documenting “washouts of loon nests and other waterbird nests from personal watercraft wakes, and the destruction of nests and eggs overrun by PWCs.” *Id. citing* Maine Audubon Society Testimony on L.D. 1730: An Act to Implement the Recommendations of the Great Pond Task Force (1997); Burger, *supra*; Chin, M.

Conservation Law Foundation

Issues and Problems Associated with Personal Watercraft in Barnegat Bay, Report submitted to Rutgers Cooperative Extension of Ocean County (1998).

Vermont Institute of Natural Science ornithologist Eric Hansen confirms that the manner of jet-ski use exacerbates their impact. While loons may acclimate to passing motorboats that remain largely in established boating “routes,” jet-ski operators are prone to repeated passes of the same area, and have the capabilities to perform these maneuvers near to the shore. As such, wake-jumping jet-skis within yards of shoreline loon nesting areas are sure to be more disruptive than a distant passing motorboats and water-skiers. Disturbed loons are likely to shift away from dormant nesting behavior or feeding activities to “flight,” exposing eggs to variable temperatures and predation or chicks to predators such as other loons, raccoons, or boats. According to Hansen, the restoration of a viable loon population in Vermont will require the deliberate and diligent efforts of lakeside communities – especially the larger, more frequently used lakes such as Caspian that do not currently have nesting loons. Regulating boating practices and eliminating the threat posed by jet-skis is a step in the right direction. In the last six years, the number of loon nests in Vermont increased from eight to thirty-eight; 90% of which are located at protected and monitored artificial sites. If Lake Caspian is to support nesting loons, it will require every effort to keep motorized craft from the scarce shoreline habitat on the lake. Sporadic personal watercraft use will only hinder such efforts, *especially* if jet-ski use is infrequent because the birds do not develop a tolerance to their presence.

Legal Requirements

Prohibitions on PWC use are allowed. A number of cases both nationally and in Vermont have allowed prohibitions on PWC because of their environmental impacts and conflicts with other water and recreational uses. *Personal Watercraft Industry Ass'n v. Dep't of Commerce*, 48 F.3d 540 (D.C. Cir. 1995) (prohibition in Monterey Bay National Marine Sanctuary); *Weden v. San Juan County*, 958 P.2d 273 (Wash. 1998)(prohibition in San Juan County, Washington); *In re: Petition seeking the prohibition of the use of personal watercraft on Lake Morey, Town of Fairlee*, Vermont Water Resources Board (1999)(prohibition on Lake Morey).

A prohibition on PWC on Lake Caspian satisfies the requirements of 10 V.S.A. § 1424 and the Vermont Use of Public Water Rules and should be granted. Pursuant to the Vermont Use of Public Water Rules, the Board must consider the “predominant use of the waters prior to regulation,” as well as the “scenic beauty and recreational uses of the area.” Vermont Use of Public Waters Rule (VUPW) § 2.2. Furthermore, the Rule requires that “use conflicts shall be managed in a manner that provides for all normal uses to the greatest extent possible consistent with the provisions of Section 2.2.” VUPW at § 2.6. “Normal use” is defined in the Rule as “any lawful use of any specific body of public water that has occurred on a regular, frequent and consistent basis prior to January 1, 1993.” VUPW at § 5.2. Regarding Lake Caspian, all the evidence presented to the Board demonstrates that use of PWC is not a “normal use” on the Lake. There is virtually no evidence that PWC use occurred at all before 1993 on Lake Caspian. In contrast, much evidence was presented about numerous other uses, continuing for many years, as far back as 1870, including swimming, sailing, canoeing, fishing, and peaceful enjoyment of the Lake and surroundings. It is clear from the testimony that these are the “predominant uses” of the

Conservation Law Foundation

Lake, and the “normal uses” that are to be protected. The testimony presented also shows very clearly that these uses are in conflict with the use of PWC on the lake. Nearly everyone testifying at the hearing noted disruption of their peaceful uses of the Lake by use of PWC. As the Board must manage use conflicts “in a manner that *provides for all normal uses to the greatest extent possible*” it must take action that will effectively allow normal uses to continue undisturbed by PWC. VUPW at § 2.6 (emphasis added); *see also* 10 V.S.A. § 1424(c) (“To the extent possible, the board shall provide for all normal uses”).

A prohibition on PWC is the only effective means to manage the conflict between PWC use and normal uses on Lake Caspian. In determining the appropriate manner of regulation, VUPW Rule 2.7 states: “When regulation is determined to be necessary, use conflicts shall be managed using the least restrictive approach practicable that adequately addresses the conflicts.” *Id.* Here, prohibition is the least restrictive approach practicable to adequately address the conflict. Currently there are regulations on the manner of use of PWC. Those have been shown to be ineffective because of limited enforcement and patrolling of the Lake. Managing the manner of use is also ineffective because the PWC that use the lake do so in the manner in which the PWCs are marketed and intended to be used. In general, PWCs are marketed as “thrill” craft intended to go fast and make quick turns and provide the exhilaration of being airborne. The Kawasaki website notes that its 2001 JET SKI ® Ultra 150 is “the fastest production watercraft ever made...[t]he ultimate ride packed with power and punch.” <http://www.kawasaki.com/watercraft>. The April 2000 edition of *Watercraft World* magazine notes that the Ultra 150’s “strength was pure, unadulterated speed.” *Id.*

The Board should recognize the simple reality that PWCs are noisy, fast and disruptive of the “normal uses” of Lake Caspian. They are designed and marketed to go fast, spin around and make a lot of noise. The evidence here shows that is exactly how they have been operated on Lake Caspian. Managing their manner of use simply will not work. It would be like allowing children to smoke cigarettes so long as they don’t inhale. It is not a practicable approach and it does not adequately address the problem. Prohibition of PWC on Lake Caspian is the only practicable approach that adequately addresses the conflicts and the Board should prohibit PWC on Lake Caspian.

The Board should grant the petition of the Greensboro Association and prohibit PWC on Lake Caspian.

Sincerely,

Sandra Levine
Staff Attorney