

Final Report of the Commission to Study Wake Boats

(HB 137, Chapter 77, Laws of 2019, RSA 270:133)

Membership

<u>Name</u>	<u>Organization/Representing</u>
Rep. Suzanne Smith (Chair)	NH House of Representatives
Pam Price (Clerk)	Wake boat recreational community
Rep. Michael Gunski	NH House of Representatives
Sen. Ruth Ward	NH Senate
Captain Tim Dunleavy	Marine Patrol Unit
Tom O'Brien (Kelly Buchanan)	NH LAKES
Scott Behner	USA Water Ski and Wake Sports NH
David Mankus	NH Campground Owners Association
Shane Carey	Wake boat recreational community
David Niels (Sarah Kirn)	Department of Environmental Services
John Whalley	NH Marine Trades Association
Peter MacCallum	Local lake association
Chris Bischoff	Water Sports Industry Association
Winston Sims	Shorefront property owner - lake less than 1,000 acres
Maggie Ford	Shorefront property owner - lake greater than 1,000 acres

June 30, 2020

Commission Charge¹

The commission shall gather the appropriate data and information on the positive and negative uses of wake boats, specifically regarding:

- The spread of aquatic invasive species
- The relationship to shoreline erosion and impacts to private property
- The economic impact of recreational boating and the popularity of water sport among families in New Hampshire
- The safety of swimmers and other boaters

Executive Summary

The commission met eight times from September 2019 through June 2020 and also took a field trip to MacCallum's Boat House Inc. to learn about wake boats and observe the sports of wakeboarding and wakesurfing.

The commission has received a tremendous amount of information from industry, members of the public, nonprofits, environmentalists, law enforcement, water sports enthusiasts, and shorefront property owners, to name a few.

Experts presented on topics related to the charge of the commission. These experts included Dr. Harry Vogel of the NH Loon Preservation Society, Carol Foss of NH Audubon, Jason Smith of the NH Fish and Game Department, Amy Smagula of the NH Department of Environmental Services, and Kelly Buchanan of the NH Exotic Aquatic Weeds and Species Committee. Commission member, Peter MacCallum, gave a presentation on ballast tanks. Cliff Goudey of Cliff Goudey Associates gave a report on his Wake Sport Wave Energy Study which was commissioned by the Water Sports Industry Association. Peter MacCallum of MacCallum's Boathouse Inc. and John Whalley, representing the Marine Trades Association, presented on the economic impact of recreational boating in NH. The commission also reviewed presentations from the Stephen Raymond family who are avid water sport enthusiasts, and June Fichter, Executive Director of the Lake Sunapee Protective Association.

¹ Taken verbatim from legislation.

Challenges

Balancing competing uses of NH's waters

The State of New Hampshire holds in trust all the public waters, including all natural lakes and ponds of ten acres or more in size, navigable rivers, and tidal waters for the use and benefit of all the people of the state. According to a discussion paper published in 2010 by the NH Lakes Management Advisory Committee, the public trust doctrine is a governing principle to balance the competing uses of water resources between the public and riparian or shorefront property owners.

Public waters are used for a variety of activities: boating (including water sports), fishing, swimming, and other lawful and useful purposes. One of the key provisions of NH's public trust doctrine as it applies to water resources is "reasonable use" of those resources. All the people of NH have the right to use the waters held in trust by the State, but one use does not preclude another. One person's right to peaceful enjoyment of their waterfront does not outweigh the right of another person to engage in water sports. The challenge is when the two rights collide. Loud stereo speakers on motorized boats disrupting a neighborhood or a boater disregarding the safe passage law, thereby causing a disruption, are two examples. We who access NH's waters have a trust or responsibility to see that the waters are left in as good or in better condition than we found them.

The Covid-19 pandemic

The commission was unable to meet in April and May and its final two meetings were conducted remotely due to the Covid-19 pandemic which forced closure of the State House.

Conclusion

According to the 2019 US Bureau of Economic Analysis on Outdoor Recreation report, New Hampshire is in the top 10 ten states in the country where the outdoor recreation economy represents a significant percentage of the state's gross domestic product (GDP). The popularity of recreational boating by the people of New Hampshire and visitors alike has led to increased use of NH's lakes and rivers. Recreational boating includes both crafts that are motorized (fishing/pontoon/wake boats/personal watercraft) and non-motorized (kayaks/canoes/paddleboards/sailboats). The recent increased interest in wakeboarding, wakesurfing, and other water sports employing the use of "wake," tow" or "ballast boats" has given rise to concerns by many users of New Hampshire's waters. As a result, the Legislature created our study commission.

The commission agreed on several educational proposals which will be implemented by the water sports industry, the private business sector, and the NH Department of Safety, State Police--Marine Patrol Unit.

Commission members came to consensus on several issues, including educational efforts and a legislative initiative on wakesurfing safety brought to the commission from the Department of Safety. However, in other areas agreement was not reached. These are explained later in the document.

Meeting Minutes and Submitted Documents

Copies of all meeting minutes, dating back to September 2019, along with submitted documents and presentations can be found on the commission's website:

<http://www.gencourt.state.nh.us/statstudcomm/committees/1434/>

Areas of Study

The commission gathered appropriate data and information on the increased popularity of wake boats in NH and the challenges this presents on some lakes and ponds or areas of lakes and ponds.

The spread of aquatic invasive species

The commission heard presentations about the state's efforts to manage and control aquatic invasive species (AIS) in New Hampshire's lakes and waterways. Left alone, AIS can cause significant economic and environmental impacts. Three agencies within the State, the Department of Environmental Services (aquatic invasive plant species), the Department of Fish and Game (aquatic invasive animal species) and the Department of Agriculture, Markets and Food (herbicide treatments) have responsibility for managing the state's response to AIS. The funding for efforts to protect lakes and waterways comes from boater registrations (\$9.50 per boat registration), state funding, municipal funding, private donations, and, starting in the 2021 boating season, a new program requiring owners of boats registered out-of-state to purchase a decal (HB 625, 2019).

In addition, another law passed in 2019 was HB 325, enabling public boat access facility owners to provide tools for cleaning boats at access sites and requiring boats to use such tools to clean their boats. This effort is known as "clean, drain, and dry" and is aimed at all boaters, motorized and non-motorized, to help prevent the spread of AIS. Because of concerted efforts by all stakeholders, the Department of Environmental Services reported that NH no longer has an explosion of infestations as it did in the late 1990s - 2000s, however, the problem seems to be shifting to plants AND animals.

Transient boating is a factor as infestations observed have occurred near boat ramps. Infestations are directly correlated with transient boat use numbers. It was noted that with regard to aquatic invasive animals, a drop of water can contain hundreds of microscopic organisms and larvae. Drops of water can be contained in any boat that is not properly cleaned whether it be in a bilge, a live well, engine, a ballast tank, trailer, or within a kayak or canoe.

Ballast compartments in wake boats and tow boats, filled with up to 1,000 pounds of water, help create the large waves needed to wakesurf or wakeboard. The ballast compartments are typically drained when not in use and are always drained prior to trailering. It is difficult to clean and drain ballast water compartments because as they are currently designed, they do not drain completely and risk spreading AIS. Incomplete draining can lead to the harboring of viable aquatic invasive plants or animals, some of which are as small as a grain of sand and remain viable for several days. When water is pumped back into these ballast compartments from a different waterbody, and then flushed out again after use, the AIS still viable in the ballast compartments can be released into this new waterbody, thereby potentially causing a new AIS infestation.

According to a survey of purchasers of wake boats conducted by the New Hampshire marine dealers, approximately 4% of wake boats sold travel from lake to lake. The manufacturers of tow boats that can contain ballast tanks have committed to developing technology to help filter and clean these types of boats. (<https://www.wsia.net/wsia-towboat-brands-take-steps-to-curb-aquatic-invasive-species/>)

The NH LAKES Lake Host Program Annual Report² 2019 indicates that 2,245 (~2.3%) of the 96,914 boats inspected through the NH LAKES Lake Host Program were wake boats. Over 73 percent of all boats inspected were arriving from or departing to a waterbody with one or more known aquatic invasive species. This AIS relationship is the percentage of boats surveyed arriving from or departing to waterbodies in New England and New York which contain an aquatic invasive species and is a total of all inspections.

The relationship to shoreline erosion and water quality and impacts to private property.

Shoreline erosion is defined as the removal of sediments of a variety of shapes and sizes. Wave energy is a result of wave height and frequency (periodicity). Thus, shorelines that endure larger and more frequent waves are subjected to higher

² These boat surveys are done on only 100 of the state's 600 public access boat ramps.

energetic forces and consequently more erosive power. Under natural conditions, windward shorelines tend to become adapted to wave action and are composed of larger rocks and boulders, thus are more resistant to erosion. In contrast, areas that are protected from prevailing winds or have a relatively short fetch (distance over which wind travels) are more sensitive and tend to be comprised of smaller sediment particles. Along the same lines, the vegetative composition of windswept shorelines tends to be comprised of large trees with extensive root systems that provide extra erosive protection while areas protected from the wind tend to be dominated by vegetation that is more sensitive to wave action.

Shoreline erosion results in two primary negative impacts; loss of land or property destruction and an increase of sediment mobility. Loss of land and property destruction are common complaints of lakeside property owners and results in costly repairs that require permits from the proper regulatory authorities. When erosion occurs, sediment particles are mobilized in the water column resulting in turbid (cloudy) water. Turbid water interferes with aquatic life respiration and visual acuity. Additionally, suspended sediment particles mobilize nutrients which contribute to algal blooms, including cyanobacteria.

In recent years there has been a growing concern over the capacity of wake boats to contribute to shoreline erosion and water quality impacts beyond that of other watercraft. An objective evaluation of these potential impacts was completed by this commission. The evaluation relied on the review of reports, published literature, and presentations from wildlife and waveform professionals. Based on this evaluation, waves produced by wake boats, when ballast compartments are full, have the potential to be more powerful than other watercraft of the same general size and shape.

A study sponsored by the Water Sport Industry Association (WSIA) provides one of the most comprehensive and direct investigations of wake boat waves (Goudey and Girod, 2015). The study documents a maximum wave height for wakesurfing of approximately 30" and about 20" for wakeboarding. Comparatively, the authors documented a wave height of 14" when the same vessel was "cruising" (i.e. no water sports). Maximum wave energy for wakesurfing was approximately 2,500 joules/meter (J/m) and 850 J/m for wakeboarding as compared to 305 J/m for cruising. Importantly, the study notes the rapid decrease in wave energy for wakesurfing and wakeboarding activities as the waves progress away from the boat track and towards the shore indicating that the farther away from the shore these activities take place, the lower the transfer of wave energy that occurs on the shoreline. In addition, when these activities occur in excess of 300' from shore, the wave energy is about equal (400 J/m) to cruising 150 to 200' from shore. Finally, while the study was comprehensive in its evaluation of wave dynamics, such as wave height and energy, it did not investigate the likelihood of

erosion or turbidity. In fact, it specifically notes, “the significance of total wake energy on shoreline impact will vary depending on the type of shore. Sand beaches, and gravel or rocky shorelines are obviously less sensitive to wave effects compared to unstable banks or sensitive vegetation. Absent boating, the nature of a shoreline is dictated by geology and its exposure to various coastal processes, wind-driven waves being a major factor.”

Similarly, in a study by Glamore (2008), wave height and energy when wakeboarding was compared to those generated when waterskiing. In this study under operating conditions, maximum wave heights generated when wakeboarding were double (10”) compared to waterskiing (5”). However, wave energy was 4.7x greater when wakeboarding as compared to waterskiing (293 J/s vs 62 J/s). The study also points out that the natural “wind-wave environment” is one of the important factors that shapes the waterway and that the natural wind forces a shoreline is subjected to will establish an equilibrium with the shoreline over time. In other words, areas naturally subjected to regular wind activity will be more resistant to erosion as compared to protected shorelines. In this sense, determining where the increased wave energy generated by wake boats will have the greatest potential impact should, in part, be based on how often the shoreline is subject to wind activity.

Another study provided to the commission contained information on the importance of depth and bank slope with respect to wave dynamics and the potential for shoreline erosion. Mercier-Blais and Prairie (2014) evaluated the impacts of waves created by wake boats in Lake Memphremagog and Lake Lovering in Quebec, Canada. They compared wave energy (turbulent kinetic energy, TKE) transferred to steeply and gradually shaped shorelines, finding that waves reaching the banks of shores with steep shoreline contained significantly more energy than those that reached shallow shorelines and thus had more erosive force. In contrast, the energy in waves that travel over shallower water tend to break, thus dissipating their energy towards the lake bottom. However, taken together these two facts are a double-edged sword. Shorelines that are deeper will tend to have the full force of waves transferred directly to the immediate shoreline. If these shores are not adapted to natural wave action, they will be particularly susceptible to erosion and potential property damage. On the other hand, waves traveling over shallow waters will tend to break before reaching the shore, thus suspending any soft bottom sediments. This leads to turbid waters and the mobilization of nutrients. As a general rule, waves tend to break when water depths are less than 1.3 times the wave height. Thus, a wave with a height of 1’ will break when the water becomes less than 15” deep. A general understanding of these wave dynamics could be helpful in determining areas best suited for wake sport activities.

Last, it is important to point out that New Hampshire has approximately 1,000 lakes and ponds. Of these 1,000 waterbodies, approximately 80% are less than 50 acres. In the study by Goudey and Girod (2015), they note that a 1-mile fetch is a common distance for wind to travel over water. They also note that a wake boat would need to pass 100' from a shoreline approximately once every nine minutes to equal the wave energy a shoreline with a 1-mile fetch is subjected to with a 10-mile per hour wind. Given the small size (<50 acres) of most of New Hampshire's lakes and ponds, a minority have open water areas more than 1-mile in length. This is not to say that natural wind-driven wave action is not important in structuring the shorelines, rather it is meant as a point of emphasis that there are many water bodies and shorelines that are protected from the erosive forces of the wind-driven waves. To put this in perspective, in order for a 50-acre lake to have a 1-mile fetch it would only be about 400' wide on average. In other words, only New Hampshire's larger lakes have extended wind fetches with shorelines that are regularly subjected to wind-driven wave action.

In summary, the commission finds that wake boats, when ballast compartments are full, have the potential to generate much larger waves with more energy than watercraft of similar size and shape. The ability for these watercrafts to generate larger and more powerful waves means there is also an increased potential for shoreline erosion and impacts to water quality and wildlife. In particular, these impacts are more likely to occur if operation occurs close to shore, in shallow water, or in areas that are protected from the wind. Part of the responsibility to minimize these risks lies squarely on the boat operator to understand waterbody conditions, which can and should occur through additional education. However, it also is unreasonable to expect boat operators to understand the physics of waves, wind fetch length, or the ability of a shoreline to resist erosion. For these reasons, further consideration should be given to defining the conditions that minimize the risk of lakeshore erosion and impacts to water quality and wildlife that could occur due to the increased wave height and power associated with wake boats.

The economic impact of recreational boating

Outdoor recreation is a major economic driver in New Hampshire. According to the 2019 US Bureau of Economic Analysis on Outdoor Recreation report, New Hampshire is in the top 10 states in the country where the outdoor recreation economy represents a significant percentage of the state's GDP. The commission was presented with information about the economic impact of recreational boating and how families are choosing the versatility of tow boats to bring them opportunities to recreate in water sports as part of their boating experience. Recreational boating contributes approximately \$1.2 billion dollars of economic impact annually to New Hampshire. This encompasses manufacturing, suppliers, sales/service, boating activities, and business

tax revenues. There are close to 6,700 direct and indirect jobs involved, impacting approximately 278 businesses in the state, including many from the tourism/hospitality related industry. Each year in New Hampshire, there is approximately \$209 million spent on retail sales of new boats, engines, and marine accessories. The growth in boating nationally has been led by four segments of the boating industry over the past decade: tow boats (aka “wake boats” - a slang term), saltwater fishing boats, pontoons, and personal watercraft. New Hampshire marine dealers report that “spending time with family” is a major factor in customer boating purchases.

Recreational boats with ballast (which can be defined as any type of weight from steel, concrete, steel shot, or water) have been available for years and have increased in popularity as families seek the ability to participate in different types of water sports, including wake sports. Approximately 24 different manufacturers of recreational power boats use ballast systems. Ballast systems can also be added by a customer using after-market parts. In the commission’s review of “wake boats,” which are tow boats that offer families the ability to participate in wake sports, it has learned that water sports and the boats that provide them are increasingly popular with families. The commission received many emails from supporters of varied water sport activities including wakeboarding, wakesurfing, and waterskiing. A letter from the Lakes Region Tourism Association, which boasts over 450 businesses in the Lakes Region and Central New Hampshire as members, stated that establishing limitations or regulations on wake boats or ballasts would put an added burden on the economy during an increasingly difficult time for their residents, summer camps, second homes owners, and visitors. Recreational boating has been a respite for many families during the COVID-19 pandemic in 2020 as New Hampshire continues its recovery in terms of public health and the economy.

Popularity of water sports

Our lakes have been an attraction for residents and tourists for decades. The water draws those who wish to fish, paddle, cruise, and participate in active water sports. The popularity of activities is constantly changing. The non-motorized vessel of choice went from the canoe to the kayak to the stand-up paddle board, and the motorized vessel has evolved from a runabout, or water ski boat, to a multi-use tow boat.

The commission learned that competitive water sports are also popular with New Hampshire residents. We have numerous water sports clubs (including waterskiing and other wake sports) hosting over 6 competitions each year, each limited to 35 competitors from the ages of 5 through 78. These day-long competitive events on NH water bodies bring in families, friends, and spectators to cheer on amateur and professional athletes. Scores are used to rank and qualify for prestigious national and

international championships. There are summer camps and programs that teach kids water sports. NH boasts an 11-year-old national champion wakesurfer from New London, as well as an adaptive sports champion who competes in trick ski and slalom from Andover. Adaptive programs that serve the disabled community use tow boats for different types of water sport activities. In addition, countless recreational enthusiasts enjoying water sports behind wake boats with ballast systems which is one of the fastest growing tow sports.

The boats have evolved because the consumer demands one vessel that can do it all. The mom and dad who used to water-ski, kneeboard, or air chair, has become the family who also wants to tube, wakeboard, and wakesurf. Wakesurfing is popular now because it is easy to learn and gentle on the body due to the slow tow speed. Time on the water provide families a bond and lifelong memories. On-water activities will continue to evolve as multi-generation families seek new enjoyment and memories. Our waters can accommodate these ever-changing desires and provide enjoyment for all.

Water bodies in the wake of the 2019 global pandemic have created a refocus on safe social distancing activities in the great outdoors of which New Hampshire ponds, lakes, rivers and streams have become a respite for many individuals and families. NH marinas have reported increased activity in May, and we may see increased boating registrations and fishing licenses in 2020. Non-motorized watercraft also seem to be on the rise including canoes, kayaks, small sailboats and stand-up paddleboards. However, these watercraft are not registered, so we may not be able to track their increased usage in the state.

The safety of swimmers and other boaters

Swimmers and other users of New Hampshire's lakes are a footnote in the research on wake boats, overshadowed by the major focus on aquatic invasive species and shoreland erosion.

They are, however, mentioned in the research presented by June Fichter, executive director of the Lake Sunapee Protective Association. She questions how much wake is tolerable for swimmers, as well as those in kayaks or canoes, on paddle boards, or even sitting on shore or on a dock.

Anecdotal evidence suggests that repeated passage by boats with large wakes or driving in circles, contributes to making lake activities unenjoyable and in some instances dangerous. From the Lake Ossipee Protective Association: "the size of the waves threatens canoes and kayaks with capsizing, even when wake boats maintain the required distance apart. The waves smash watercraft against docks, creating the

potential for damage. Small children playing on the shoreline have been knocked over by waves as wake boats pass by.” The Squam Lakes Association similarly reports concern over the “displacement of shared-use recreational activities, like canoeing, kayaking and sailing.” Is one foot too large a wake or is it tolerable? And what about proximity to shore or other users?

New Hampshire law defines “safe passage” in RSA 270-D:2 as follows:

VI. (a) To provide full visibility and control and to prevent their wake from being thrown into or causing excessive rocking to other boats, barges, water skiers, aquaplanes or other boats, rafts or floats, all vessels shall maintain headway speed when within 150 feet from:

- (1) Rafts, floats, swimmers.
- (2) Permitted swimming areas.
- (3) Shore.
- (4) Docks.
- (5) Mooring fields.
- (6) Other vessels.

The commission heard a presentation “Wake Sport Wave Study“ by Goudey which shows over one-foot waves will be left behind 100 feet from the track of a wake boat configured to make “surf” type waves. The waves are higher closer to the wake boat's track, about three feet where the surfer rides the wave about 10-15 feet from the transom of the wake boat.

Wildlife

The commission was provided an opportunity to listen to Jason Smith of the NH Fish and Game Department, Carol Foss, biologist at NH Audubon, and Dr. Harry Vogel, the executive director of the Loon Preservation Committee.

Challenges to loons include storms, wind and waves, climate change, fertilizer, pesticides, lead from fishing gear, natural predators and the wave action of increasing boat traffic. Dr. Vogel explained that loons build nests directly on island shorelines of lakes and ponds. They incubate eggs for approximately 30 days from May through July. During the incubation period, loons rely on relatively stable water levels that are protected from unnatural wave action. Nest inundation by water creates a risk of nest failure, but floating rafts, when utilized, assist loons because they are less susceptible to flooding and washing out. The loon population is growing in New England and is currently stable in New Hampshire, however there are many challenges that continue to be studied and managed. In comparison to other boats of similar size and shape, if

used for wakesurfing closer to shore than the law allows, wake boats have the potential to put loon reproductive success at risk.

Jason Smith reported that bass and panfish nest in 1-3 feet of water and that jostling can cause damage to eggs, siltation of nests can cause suffocation, and excess turbidity and erosion could cause nesting habitat loss due to fill in. He noted nutrients from shore can also be an issue for fish habitat. Carol Foss stated that mammals are not affected by wave action and only rarely do waterfowl, other than loons, nest close enough to shore to be affected by waves.

In the Field

The commission took a field trip to MacCallum's Boathouse, Inc. on Northwood Lake which provided an excellent opportunity to learn how wake boats with ballast bags operate, what the 150-foot safe passage law really means, and to observe and learn about the sports of wakesurfing and wakeboarding.

Next Steps

The water sports industry

The towed water sports segment of the boating industry realizes they have a responsibility to create awareness and educate their constituents regarding any and all concerns involved with sharing the waterways. Below is a list of what the industry is currently working on.

- **Wake Responsibly Campaign:** In an effort to foster a peaceful environment on all waterways, the Water Sports Industry Association (WSIA) implemented the Wake Responsibly Campaign. The campaign promotes courteous behavior by boaters to ensure every moment on the water is safe and enjoyable for all. The three pillars of this educational campaign are: 1) minimize repetitive passes along residential shorelines, 2) play music at reasonable levels, and 3) always tow at least 200 feet from shorelines and docks and steer clear of parked boats and smaller watercraft. (<https://www.wakeresponsibly.com>)
- The Wake Responsibly Campaign is promoted nationally and locally through the state and municipalities (Parks and Recreation, Department of Natural Resources, Marine Patrol, etc.), boating law administrators, marine manufacturers, manufacturer reps, dealers, customers, lake associations, homeowner associations, and local Wake Responsibly Ambassadors. Its message is spread via social media, internet, email campaigns, promotional flyers, counter cards for dealerships, boat ramp signs, and word of mouth.

- WSIA is currently working with Idaho and Minnesota on state specific Wake Responsibly Campaigns and/or messaging. Minnesota used the Wake Responsibly campaign as a template for its “Own Your Wake” campaign (<https://www.dnr.state.mn.us/safety/boatwater/own-your-wake.html>) Idaho customized the Wake Responsibly support materials to speak to the boaters of their state and the Idaho Parks and Recreation Department created the "Mind Your Wake" campaign which it is promoting throughout the state. (<https://parksandrecreation.idaho.gov/activities/boating#js-tab-6>)
- The WSIA will work with NH Marine Patrol to supply Wake Responsibly signs for installation at several of the state's boat ramps. WSIA would welcome the opportunity to have this signage installed at other locations. The WSIA is in constant communication with Captain Dunleavy at New Hampshire Marine Patrol regarding towed water sports.
- Wake Responsibly Compliance Exam: The Compliance Exam was created by the WSIA in conjunction with the dealers. The questions are designed to make the boater aware of common boating and wakesurfing etiquette. Many boat manufacturers plan to integrate this exam into their new customer education programs and boat delivery paperwork.
- Clean, Drain, Dry Initiative: The Clean, Drain, Dry Initiative promotes behavior-changing practices among recreational boaters to help protect natural resources from invasive species. The initiative is promoted nationally to educate all users of the water to make sure they clean, drain, and dry their equipment to prevent the transport and spread of aquatic invasive species. The consistent messaging creates stewardship and relevancy locally using nationally approved best management practices. (<https://www.youtube.com/watch?v=MOgPuCm3HYk>)
 - The National Marine Manufacturers Association (NMMA) includes Clean, Drain, Dry in every “You and Your Boat Trailer” manual. This is distributed to approximately 100,000 boat owners annually.
 - NMMA also includes a check point to the trailer checklist decal, commonly placed on new trailers, to clean, drain and dry.
- The WSIA promotes all messaging through Water Sports Industry communications: (<https://mailchi.mp/wsia/insider-may-2020?e=1460352906>)
- WSIA recently hired AIS subject matter expert Rich Kolb to guide the industry in best practices to help control the spread of invasive species. Kolb will work with manufacturers to develop new design standards for boats that will make it easier

for boaters to Clean, Drain, Dry their vessels. He comes to the table with a Master's in Engineering Management from Northwestern and a long history in the marine industry, which includes time with some of the major players including Volvo Penta and OMC. Kolb was Chair of the American Boat and Yacht Council's (ABYC) Steering and Controls Project Technical Committee and has served as a member of the ABYC Technical Board of Directors. He continues to serve on the council's AIS Committee and has written the proposed Standards for AIS Decontamination Trailers. During his time at Volvo Penta, he recommended the use of external engine flush adapters which then became standard on Volvo Penta engines.

- In an effort to stop the spread of AIS, the WSIA is collaborating with towboat manufacturers to develop best practices and new equipment for all boats. During the WSIA Industry Summit held in late February, Kolb suggested that boat manufacturers add an engine flush hose connection to their boats moving forward to greatly improve the convenience of flushing a boat engine. With increased convenience comes increased implementation, which will in turn reduce the transmission of AIS from one water body to another. This simple installation could help speed up the time involved with flushing an engine, both for the boat owner and the operator of the decontamination station. The goal is to make it easier for all involved to develop regular practices to help reduce the spread of AIS.
- WSIA AIS Subcommittee: This group of engineers and specialists are tasked with defining performance characteristics of a system or method of eliminating any living AIS to be transferred from waterway to waterway in ballast tanks. The members of the subcommittee include representatives from boat manufacturers, WSIA, NMMA, ABYC, and the Colorado Invasive Species Program Manager. Additional consultants include the Aquatic Invasive Species Coordinator from Utah, the Watercraft Inspection Coordinator for the Minnesota Department of Natural Resources, and the Aquatic Nuisance Species Coordinator from the Kansas Department of Wildlife.
- WSIA commissioned marine engineering expert Cliff Goudey of Massachusetts and Dr. Lewis Girod to perform independent testing of wave energy to better understand the impacts of waves from the activity of wake sports. The report "Characterization of Wake-Sport Wakes and their Potential Impact on Shorelines" represents a contribution to the understanding of waves generated during the conduct of wake sports. First, it established a rigorous methodology for the assessment of such phenomena using accurate and carefully positioned sensors and a thorough test regimen of operating conditions. Second, it

generated a very focused data set on the wave heights from a state-of-the-art tow boat operating over a range of conditions including deep and shallow water. The findings revealed that tow boats, by design, can produce the significant wake heights that are needed for wakesurfing. However, these waves quickly lose much of their height and energy, meaning that by maintaining a reasonable distance from shore, any adverse effects on a shoreline can be minimized. The report also compared the energy contained in wind-driven waves with those associated with wake sports, providing a useful perspective on the likely impact of both. The comparison revealed that depending on the prevailing winds and the size on the body of water, wake sports can be a minor factor compared to more persistent naturally occurring waves.

- NMMA participated on the ABYC's "Technical Report 32" which is a guide document for marine manufacturers on designing products that promote ease of inspection and decontamination, allow for better draining and drying, prevent the trapping of water in recesses, etc. This report brought state agency managers and boat manufacturers together for the first time to discuss how inspection and decontamination protocols occur and how those protocols affect boat component parts.
- Manufacturer Education: NMMA has participated in various education seminars for boat, engine, and accessory manufacturers on what AIS is, how it affects their products, and how cleaning/decontamination protocols will affect their products. NMMA has also led seminars on the Technical Report 32 and how manufacturers can incorporate the guidelines into their operations.
- Boater Education Campaigns published on Discover Boating focuses on educating new and existing boat owners on what AIS is and how boaters can be proactive in the Clean, Drain, Dry program.
- NMMA has published an industry-specific position paper, advocated for federal, state and regulatory bills for robust AIS funding, additional Army Corps of Engineers projects, as well as state grant programs.
- NMMA created a national industry focused AIS coalition including state agency, boating and fishing industry members. This coalition advocates not only for federal AIS legislation but also state and regional legislation.

Boater education

The Department of Safety - State Police - Marine Patrol Unit teaches a boater safety course to anyone 15 years of age or older who wishes to operate a motorboat of more than 25 hp in NH. This course includes education on state boating laws.

Each year the Marine Patrol Unit updates the NH Boaters' Guide and both classroom and online course curricula. Updates include a review of NH boating laws, information about aquatic invasive species and general boater safety information.

The New Hampshire Marine Patrol will install Wake Responsibly signs at several of the state's public ramps.

NH LAKES Lake Hosts provide valuable information and courtesy boat inspections to boaters, educating them as to how to prevent the spread of aquatic invasive species through "clean, drain and dry" at about 100 boat ramps throughout the state. NH LAKES also promotes a "Best Tech" approach to clean, drain, and dry through the utilization and demonstration of its CD3 (clean, drain, dry, and dispose) unit.

NH Boating Retailers support efforts to promote increased safety education and environmental awareness to all recreational boaters, no matter the type of watercraft they choose to rent or own. NH Boating Retailers support enforcement of current laws to address conflicts on waterways and have identified the following efforts that will be worked on by a collective group of organizations over the next year with the goal of being in effect for the 2021 summer boating season:

- NH Boating Retailers support continuing education to customers about being properly educated on current boating laws and the best practices for proper use of their watercraft, including proper depth for operations.
- In terms of tow boats, NH Boating Retailers are committed to obtaining 100% compliance with promoting WSIA's Wake Responsibly campaign, including administering the Wake Responsibly Compliance exam to new owners, and developing a delivery "checklist" to be performed each year for existing tow boat customers.
- NH Boating Retailers have offered ongoing assistance to NH Marine Patrol in the effort to increase Wake Responsibly signage on NH launches and educate boaters to better understand the 150 foot safe passage distance requirement through visualizing the requirement at member dealerships. Marine Patrol is currently undertaking a program (C-150) which are buoys that visually signify the 150 foot safe passage law, installed at select NH boat launch sites.
- Efforts will be made to coordinate AIS training sessions with NH DES and NH LAKES for NH Boating Retailers.

- NH Boating Retailers will work with NH Marine Patrol and WSIA to promote boater safety and AIS responsibilities of the “clean, drain and dry” campaign through continued promotion on social media platforms.
- NH Boating Retailers supports and will work on efforts to add language to the NH Safe Boater’s Guide illustrating the proper “ballast care and maintenance” in boats used on NH waters to reduce the risk of AIS.
- NH Boating Retailers supports adding video content to the on-Line Boat-Ed Study Course and NH Boating Education Training program, illustrating proper "ballast care and maintenance" in boats used on NH waters to eliminate potential AIS threat AND demonstrate safe passage requirements during wakesurfing activities.

Recommendations and Discussion of Future Legislation

This commission included members from diverse backgrounds and knowledge in their areas of expertise. Many suggestions for possible changes to statute were discussed. Below are those which the commission agreed on as well as others where there were differing opinions. In those instances, both opinions are included in this report.

Consensus recommendation -- Wakesurfer safety legislation

1. The commission supports legislation which will improve general safety practices for wakeboarders and wakesurfers. This legislation would add to RSA 270-D:1 the definition of “wakesurfing”, meaning a person using a surfboard, wakeboard, or similar device to ride on or in the wake directly behind a vessel that is underway. Such term shall not include a person who is waterskiing.
2. The commission supports requiring wakesurfers to meet the requirements of RSA 270-D:3, I(a), 270-D:3, IV, and 270-D:3, V. These recommendations would result in the following changes:
 - require the presence of an observer in a boat engaged in wakesurfing
 - require the wakesurfer to wear a US Coast Guard approved personal flotation devices (PFDs) when engaged in their sport
 - prohibit wakesurfing during the hours of darkness between sunset and sunrise
3. The commission supports legislation which would add a paragraph to RSA 270-D:3, prohibiting use of a motorboat propelled by an outboard motor, inboard/outboard motor, or water jet while a person is wakesurfing in or on the wake of the motorboat, unless the propulsion system is specifically designed by the manufacturer for that activity.

No consensus - Defining wake boat in statute and regulating specific areas and activities on a case by case basis

The commission was unable to agree as to the merits of the following proposals and so makes no recommendation on the following:

Commission members who support legislation defining and regulating wake boats find the following:

Defining wake boats in statute

In the many emails received by the committee, the terms wake boat/tow boat and ballast boat were used interchangeably, and elsewhere in this report, the term "wake boats" is considered a slang term. It was suggested that defining these boats would be helpful for the public and boaters alike.

Regulating specific areas and activities on a case by case basis

Commission members who support regulations overseeing the activity of ballast or wake boats on New Hampshire's public waters recommend that legislation be introduced that allows the public to engage in a structured hearings process according to RSA 541-A by which boat operation and related activities can be regulated when certain statutory conditions are met.

Many of us have spent considerable time on New Hampshire lakes and we can picture the typical lake on a summer day. Children swimming in the shallows, various types of boats large and small navigating perhaps a narrow channel, trying to keep a safe distance. It seems incompatible with all but the center of our largest lakes that such a large swath of water would be taken by one boat and all the rest would have to cope. Some members believe that expanding the safe passage law to a 200-300 foot distance from land, swimming areas, beaches, anchored boats and docks would separate wake producing boats from narrow channels, small craft, beaches, coves, and exclude their operation configured to make enhanced wakes, at all, in our smaller lakes.

Captain Tim Dunleavy of the Department of Safety explained the petition process to the commission but stated that the Marine Patrol takes no position on these proposals. The New Hampshire Legislature has a history of successfully addressing unique conflicts that occasionally occur between competing interests vying for use of our public waters. In lieu of over-reaching statutory language, the Legislature has acknowledged the need for regulating specific areas and activities on a case-by-case basis. As a result, the Legislature has empowered the Department of Safety to allow the public to engage in a

structured hearings process according to RSA 541-A by which boat operation and related activities can be regulated when certain statutory conditions are met.

If the Legislature wishes to regulate wake boats or the activity of wakesurfing, Captain Dunleavy respectfully suggests that the Legislature define wake/ballast boats and establish statutory criteria by which the Department of Safety would create regulations specific to their operation on certain bodies of water, within certain portions of bodies of water, and/or the operation of wake/ballast boats above headway speed on certain portions of our public waters.

Successful examples of this approach are found in RSA 270:73 through RSA 270:74-a. These statutes currently allow the Department of Safety to prohibit the operation of ski craft on certain bodies of water, within 300 feet of shore, and within 300 feet of shore in certain coves less than 1,000 feet in width. These laws were enacted when conflict arose between shore front property owners and ski craft operators. The resulting regulations along with manufacturing changes has all but eliminated the need for these statutes as conflicts are rarely reported.

Similar restrictions, as determined by the Legislature, for wake/ballast boats would result in a compromise between those who are concerned about the effects of wake boats and the water sports enthusiasts. It would also allow for industry recommendations to become law (no towing within 200 feet of shore) that otherwise would be ignored for lack of consequences. This process would also require the petitioners to meet established criteria before any public hearings are entertained, thus eliminating nuisance attempts at unnecessary regulations.

Members in opposition to regulations defining wake boats and creating a local process to petition for bans and restrictions state in support of their position the following:

The State of New Hampshire holds in trust all the public waters, including all natural lakes and ponds of ten acres or more in size, navigable rivers, and tidal waters for the use and benefit of the people of the state. Public waters can be used for a variety of uses, including boating, fishing, swimming, and “other lawful and useful purposes”. In New Hampshire, one of the key provisions of the public trust doctrine as it applies to water resources is the “reasonable use” of those resources. As the steward of public waters, the State safeguards the right to use and enjoy public waters by avoiding piecemeal on-water regulation. Local control creates piecemeal regulation.

Local petitions would allow homeowners on a lake to petition the State to restrict tow boats and wake sport activities on all or a portion of that lake. This process pits neighbor against neighbor and promotes long term animosity. It would reduce the value

in a boater's investment that lives on such a lake and would reduce access to those who do not own shorefront property.

There is currently a "no wake" process in law, regulating all boat wakes, that can be used if and when there is an appropriate area that needs protection from boat wakes. Large boat wakes can be created by many different types of boats under varying circumstances and conditions. Cabin cruisers, tubing activities, plowing through channels in excess of headway speed, and heavy passenger loads all create large wakes. Boater behavior is the key factor in complaints and concerns with any type of boat, including wake boats.

Efforts to educate boaters towards stronger awareness and enforcement of the 150 foot safe passage law is a more effective way to address conflicts on waterways than singling out a particular vessel for restrictions. Tow boats and water sports are very popular with boating families, therefore restricting these activities will impact a major family investment. The marine industry is also important for the recreational and tourism opportunities for New Hampshire residents and tourists. New restrictions on towboats will harm local marinas, boat dealers, the tourism industry and the economic activity they support in New Hampshire. For New Hampshire to promote restrictions on recreational boating for families sends the wrong message.

Documents referenced in this document and presented to the commission can be found on the commission website.

[\(http://gencourt.state.nh.us/statstudcomm/committees/1434/\)](http://gencourt.state.nh.us/statstudcomm/committees/1434/)

- 1) Ballast/Wake Boats: Specific Concerns About Aquatic Invasive Species & Water Quality - DES Presentation
- 2) Ballast Presentation - Peter MacCallum
- 3) Exotic Aquatics Weeds and Animal Species Committee Presentation
- 4) Raymond Family Presentation on Recreational Boating
- 5) Lake Sunapee Protective Association Presentation - June Fichter
- 6) Economic Impact of Recreational Boating in NH Presentation
- 7) Wake Sport Wave Energy Study - Cliff Goudey Associates
- 8) Loon Preservation Committee Powerpoint - Harry Vogel
- 9) Spreadsheet with Data from Public Input - Peter MacCallum