

COMMISSION TO EXAMINE THE EFFECTS OF WAKE BOATS IN THE STATE OF NEW HAMPSHIRE, (HB 137, Chapter 77:1, Laws of 2019) Room 305, LOB

Monday, December 9, 2019 10 AM in LOB 305

**Minutes**

- I. Call to order:
  - a. Chair, Representative Smith
  - b. 10 AM
  
- II. Introductions:
  - a. Members: Captain Dunleavy, Chris Bischoff, Peter MacCallum, Scott Behner, Pam Price, Senator Ward, Representative Smith, Representative Gunski, Winston Sims, Shane Carey, David Mankus, Sarah Kirn, Maggie Ford, John Walley, Kelly Buchanan
  - b. Many guests introduced themselves.
  
- III. Presentations from:
  - a. Kelly Buchanan, on behalf of the Exotic Aquatic Weeds and Species Committee
    - i. Please see the PDF titled “EAWSC Presentation”.
    - ii. Senator Ward asked how invasive species came to our continent.
      1. Kelly answered ballast tanks.
      2. Peter clarified invasive species came via commercial ballast.
    - iii. John asked if ballast tanks were actually more prone to or able to transport aquatic invasive species (AIS). He explained many other boats transport AIS without ballast.
      1. Kelly responded that ballast tanks are nearly impossible to clean and drain (the best available method to prevent AIS). Other boats have compartments and components that are easily accessible and easily cleaned and drained. Kelly explained ballast tanks/bag pose a unique risk to spreading AIS. John disagreed.

- iv. Representative Gunski and John asked, how many wake boats are transient?
  - 1. Kelly answered about 10%. This data comes from the Lake Host program boater survey. There were a few Lake Host groups that declined to ask the ballast question, so NH LAKES is hoping to ascertain better data next summer.
- v. Dave explained the cost of invasive species and the lack of progress managing an infestation holds back local groups and municipalities.
- b. Amy Smagula, Exotic Species Program Coordinator, NHDES
  - i. Please see Amy's presentation (PDF included). The following notes are in addition to what was given on Amy's slides.
  - ii. The spread of invasive species is primarily from transient boating, but the spread can also be attributed to water acidity, temperature, and boat cleanliness.
  - iii. Asian clam is a hermaphrodite – you only need one to establish a growing population.
  - iv. Spiny and Fishhook waterfleas are microscopic and use resting eggs that can stay viable for weeks or years – until conditions are ideal. These organisms can use genetic cloning, so only one can create an infestation.
  - v. Pathogens, even smaller than organisms, pose unique challenges.
- c. Water Quality Concerns outside of invasive species:
  - i. Boat propellers have impacts vertically and laterally in the water column. This applies to all power boats. The impacts vary.
  - ii. The magnitude of the waves from wake boats is concerning due to energy and size. The wave train moves out to crash on shore if it occurs in a narrow or small waterbody.
  - iii. Maximum wave energy is much higher on wake boats than ski boats. The energy of waves is the main concern. Small percentage of lakes have hard (rock) shorelines. Most have organic or sandy shorelines in NH. Higher waves and repetitive wave trains will stir the lake bottom as the energy breaks on shore. The action of multiple wakes on shore increases erosion. Sedimentation may occur from turbidity in the shallows. This will reduce clarity of lakes. NH lakes are ranked in top 5 in US for clarity. Each grain of sediment has multiple surfaces and surface area which allows nutrients

to stick to them. Increased nutrient suspension can fuel algal blooms and cyanobacteria. Sustained impact occurs when lighter clays and sediments float in water column because they don't sink immediately (can take up to 24 hours to sink). Suspended sediment isn't digestible and could affect organisms (microscopic and larger). This can all cause lake eutrophication or aging/declining water quality.

- iv. Rep. Gunski asked, how is horsepower directly related to the wake boat boats erode?
  - 1. Amy responded this is a related impact down through the water column because many wake related boats use higher horsepower engines. Wave size and energy is more the key of this discussion.
- v. Pam asked, how has the infestation trend gone? What growth of invasive species is NH experiencing?
  - 1. Amy stated NH no longer has an explosion of infestations. At the beginning of Amy's career, in the late 1990s and early 2000s, the rate of spread was very high (5-10 new infestations a year).
  - 2. As the program came to power with partnerships, a decline of infestations was observed from 2010-2016/7 with 1 new infestation a year. In 2019, NH had 3 new infestations. Reduced rate of spread, but now the problem is shifting to plants AND animals.
- vi. Scott asked, what caused the increase in 1980s/90s?
  - 1. Amy stated the increase in transient boating was a large factor. Infestations always she has observed have always occurred at boat ramps in NH. Infestations are directly correlated with transient boater numbers.
- vii. Peter stated Amy was doing good work. He asked, what specific data exists on how long it takes wave energy to dissipate?
  - 1. Amy stated about 3 boat lengths (20-25ft of directional line) to start subsiding, but continue at some degree beyond that. Wave energy dissipates based on energy.

- viii. Peter asked, is 150ft enough space for safe passage? Amy stated she's not sure. She knows many people who disregard regulations. Some small water bodies do not have enough room (line down the middle) to avoid impacts to shore. The broads on Lake Winnepesaukee are different. Many variables affect the answer to that question and are difficult to pinpoint.
  - 1. Tim stated cross wakes build through the day. Multiple directions and boats create built energy and impacts to shore.
- ix. Chris stated the correlation of wake boat popularity and AIS doesn't seem to align.
  - 1. Amy stated it is possible the increased spread of invasive animals within the last decade correlates with the popularity of wake boats. The difference between live wells/bait buckets and ballast tanks/bags is the ability to access them to clean.
- x. Senator Ward asked, what is the max wave before erosion?
  - 1. Amy stated small waves cause erosion over time (6 to 12 inch).
- xi. Senator Ward asked, does a regular storm causes damages?
  - 1. Amy stated yes, as does wind and weather. The increased human element of high energy wave could cause more impact.
- xii. John asked, the correlation between is the impact between a heavy boat and ballast boat the same?
  - 1. Amy, they are comparable. The hull shape of wake boats changes wave action. The wave energy from wake boats is higher in magnitude per studies (referenced in Amy's presentation).
- xiii. John asked, does water in bilge create a risk?
  - 1. Amy, the law we have addresses bilges and the requirement to drain. The chances are higher with higher volumes of water, and bilge doesn't have that much water.
- xiv. Shane asked, does the study referenced in Amy's presentation address aftermarket bags only?
  - 1. Amy stated yes, but both have the potential to transport. 2 to 20 micrometers are required for filters to effectively prevent

organisms from entering. Campbell study could not access hard tanks because of the design of boats.

- xv. Winston asked, how much water can boats retain in engine and jet systems?
  - 1. Amy stated she was not sure. The boats Amy use have cooling water in a small volume (100 mls). High temp water will kill organisms.
- xvi. Rep. Gunski asked, are filters available? Peter stated yes, but not to specs for Amy. Filters would not do anything for virus and bacteria.
- xvii. Rep. Smith asked, what about vacuuming water out?
  - 1. Maybe? No one has tried this.
- xviii. Captain Dunleavy asked, did these studies look at the changes of motor system?
  - 1. Amy will double check.
- xix. Pam asked, has water quality declined?
  - 1. Amy stated yes, over her 21 year career at NHDES. Almost 30% decrease on Winnepesaukee. Highly used waterbodies are especially changed. The watershed drainage area can also impact water quality.
- xx. Scott asked, have water temperatures changed?
  - 1. Amy stated the Northeast is warming more quickly than anticipated. Ice in and out dates are changing and indicate higher water temps in general. Studying in more detail now, but indications point to warming.
- xxi. Dave, a former physics teacher, stated we must consider wave energy. The increase in throttle using the plates to create waves is problematic. Energy in creates energy out.

#### IV. Approval of minutes from 11/4/19

- a. Include other impacts to loons from storms, wind and waves, global warming, fertilizer and pesticides, lead from fishing gear, natural predators.

- b. Senator Ward made a motion to approval. Maggie seconded. The minutes were unanimously approved.

V. Adjourn:

- a. Our next meeting is on Monday, January 6 at 10 AM.
- b. Pam made a motion to adjourn. Senator Ward seconded. The meeting unanimously adjourned at noon.