October 25, 2019

Ryan Ericson
PDS Supervisor – Natural Resources
5280 Northwest Drive
Bellingham, WA 98226
Email: rericson@co.whatcom.wa.us

Dear Mr. Ericson,

I attended the Whatcom County Council (WCC) Planning and Development meeting held on Tuesday October 22, 2019. You presented to the WCC information regarding wave studies, in particular, the WSIA - Clifford Goudey 2015 Study. You also provided your opinion as to what the dock and shoreline setback distance should be for wake boats, stating a range of 300 to 600 feet.

I have concerns with your public testimony and I am writing to bring those concerns to your attention. If you have questions regarding the information in this letter, please feel free to contact me directly, at 360-927-4750 or via email at deveaurich@gmail.com. I am happy to discuss my position with you and would welcome the opportunity to answer any questions that you have, after reading my letter. Based on my research, I ask that you make an immediate written clarification/correction to the Whatcom County Council, as they will be making critical decisions based on your testimony. The Councilmembers, in fact, postponed a decision on AB2019-479/480 for two weeks, to allow them time to review the documents supporting your testimony. Time is of the essence with regard to this matter.

I have reviewed the source materials, including your reference study, that you provided to Mr. Graham Robins, in response to an email inquiry from him, on October 23, 2019. The reference study noted, was produced, in response to his inquiry requesting the materials used to support your claims made to the WCC, on October 22, 2019.

The reference materials you provided are the following:

"I was incorrect the boat was a Malibu 23LSV. Same article the Axis 22 has a 4.2 FT wave height and the Nautique G23 is listed with a 3.5 wave height."

http://www.boardersmag.com/articles/is-malibu-the-best-wakesurf-boat - where I saw the article.

https://vimeo.com/channels/wavecomparison - Where the author received the data.

https://www.guinnpartners.com/boat-testing/ - Testing methods.

Your reference study, was a manufacturer sponsored, Malibu and Axis, wake surf Wave Quality Comparison. The promotional assessment, only looked directly at the wake surf riding area to assess wave characteristics, including wave length in the riding area, wave height in the riding area, pocket size in the riding area and face quality of the wave in the riding area. These parameters were then used to determine an "outcome" score, with a final ranking of the best wake surf wave. The WSIA – Clifford Goudey Wave Study did NOT assess wave height at the wake surf riding area, in fact, the study did NOT assess any wave characteristics at the wake surf riding area. The WSIA – Clifford Goudey Wave Study was designed to assess, in a scientific manner, wake sport wakes to determine their potential impact on shoreline. The respective studies were designed differently, looked at different parameters, did not capture the same or even similar data points and the two studies had different end points. It is impossible then to take data from one study and seek to make extrapolations to the findings of the other study.

The specific points I want to bring to your attention are the following:

Point #1

The maximum wave height detection point for the WSIA – Clifford Goudey Wave Study and the maximum wave height detection point for your reference study, is NOT the same measurement point. This will lead to drastically different measurements. Your reference study, in regard to maximum wave height, does NOT provide a like to like comparison to the WSIA – Clifford Goudey Wave Study. Your reference study is measuring the maximum wave height directly where the surf pocket is for the rider. This is the point where the initial wave face is generated by the wake boat. The WSIA – Clifford Goudey Wave Study does NOT measure the maximum wave height at this location. It is impossible to compare, a maximum wave height of 26 inches in the WSIA – Clifford Goudey Wave Study with the 48-inch wave and/or 51-inch wave that you referenced, at the WCC meeting. It is not accurate, to work with the understanding that there is any correlation between each study's reported maximum wave height, as each study, in fact, measures the maximum wave height at entirely different locations. Yet, you conclude that a like to like correlation exists and that one would need to "double the attenuation" for the boats referenced in your study, to account for the larger maximum wave heights. This would be accomplished by expanding the recommended set back distance in the WSIA - Clifford Goudey Wave Study, to your stated range of 300 to 600 feet.

Point #2

The wave height detection equipment and techniques are vastly different between the WSIA – Clifford Goudey Wave Study and your reference study. Specifically, your reference study used drones to estimate the maximum wave height directly behind the boat, in the pocket, where the surfer would ride. The WSIA – Clifford Goudey Wave Study used detection equipment, located in the water, to measure the waves, with the closest probe located 10 feet landward, from the boat. As noted in Point #1 above, the measuring location for maximum wave height is entirely different between the two studies and the measuring techniques are drastically different. This will lead to significantly different measurements. Therefore, your reference study, in regard to maximum wave height, does NOT provide a like to like comparison for maximum wave height. It is impossible to compare, a maximum wave height of 26 inches in the WSIA – Clifford Goudey Wave Study with the 48-inch wave and/or 51-inch wave that you referenced at the WCC meeting. It is not accurate, to work with the understanding that there is any

correlation between each study's maximum wave height, as they, in fact, measure different points and use vastly different measurement techniques/instrumentation. Yet, you conclude that a like to like correlation exists and that one would need to "double the attenuation" for the boats referenced in your study, to account for the larger maximum wave heights. This would be accomplished by expanding the recommended set back distance in the WSIA - Clifford Goudey Wave Study, to your stated range of 300 to 600 feet.

Point #3

In your reference study, they call out a Nautique G23 boat as generating a maximum wave height of 3.5 feet or 42 inches. A Nautique G23 boat was used as the reference boat in the WSIA – Clifford Goudey Wave Study, this is same manufacturer and same model boat (Nautique G23), same 5,900 dry weight used in your reference study. Both boats used the stock factory installed Nautique Surf System (NSS), which is Nautique's proprietary wave shape device. The WSIA – Clifford Goudey Wave Study added additional ballast of 1,400 pounds above the stock ballast on the Nautique G23, whereas your reference study used only stock ballast on the Nautique G23. The stock ballasted boat, which is your reference study boat, was lighter than the WSIA – Clifford Goudey Wave study boat. Your reference study reports that the Nautique G23 produced a maximum wave height of 3.5 feet or 42 inches and the WSIA – Clifford Goudey Wave Study reports a maximum wave height of only 26 inches. The reasons for this are obvious, the two studies measure maximum wave height at different locations and the two studies use significantly different technique and instrumentation to determine the maximum wave height. There is a 16-inch difference in reported maximum wave height between the two studies, with your study reporting a higher number, for the same boat. Your reference study is reporting a maximum wave height that is 61% higher than the WSIA – Clifford Goudey Wave Study using a Nautique G23 that is lighter by 1,400 pounds. It is not accurate, to work with the understanding that there is any valid correlation between each study's maximum wave height. Yet, you conclude that a like to like correlation exists and that one would need to "double the attenuation" for the boats referenced in your study, to account for the larger maximum wave heights. This would be accomplished by expanding the recommended set back distance in the WSIA - Clifford Goudey Wave Study, to your stated range of 300 to 600 feet.

Point #4

The maximum wave height, in your reference study, for a Nautique G23 is reported as 3.5 feet (42 inches). The highest maximum wave height from other boats listed, in your reference study, is 4.3 feet (51.6 inches). The delta of two data points is 9.6 inches. The largest wave noted for all models tested, in your reference study, is 22.9% larger than the maximum wave height for the Nautique G23, also listed in your reference study. The WSIA – Clifford Goudey Wave Study used a Nautique G23, with 1,400 pounds more ballast weight compared to your reference study. The additional weight would make the wave higher in WSIA – Clifford Goudey Wave Study and that would close the gap of 22.9% to some smaller number. The exact decrease cannot be calculated, but it clearly would close the gap some due to the additional 1,400 pounds of ballast. The actual gap in maximum wave height between the Nautique G23 used in the WSIA – Clifford Goudey Wave Study and the highest wave for all boats in your reference study is something less than 22.9%. The maximum wave heights, reported in your reference study, do NOT represent a doubling of maximum wave height reported in the WSIA – Clifford Goudey Wave Study, yet you represent a need to "double the attenuation", to the WCC.

Issue #5

The WSIA – Clifford Goudey Wave Study does state, that for wake surfing, in deep water only, that it would take 300 feet for the wave height to drop by half of its original 26-inch height. However, at Lake Samish, we are trying to determine a shoreline setback distance, which means that the wave would traverse over shallow water, for a significant distance, by definition. The 300 feet setback noted in the WSIA – Clifford Goudey Wave Study, only applies, if the wave were to traverse only in deep water for the relevant distance that you are seeking to assess. This is not the case for Lake Samish. Absent a similarly designed study, conducted directly on Lake Samish, the exact wave attenuation from the deep water/shallow water cannot be determined for Lake Samish. That said, a wake surf wave, at Lake Samish, for the area of consideration, would clearly have to travel over some blend of deep water and shallow water and therefore it is not accurate to quote only deep water wave heights.

In summary, your testimony stated a correlation of maximum wave height between the WSIA – Clifford Goudy Wave Study and your reference study. There is NO correlation of maximum wave height between the two studies. At the most basic level, the two studies measure maximum wave heights at two materially different locations. Your reference study, was a manufacturer sponsored, Malibu and Axis, wake surf Wave Quality Comparison. The promotional assessment, only looked directly at the wake surf riding area to assess wave characteristics, including wave length in the riding area, wave height in the riding area, pocket size in the riding area and face quality of the wave in the riding area. These parameters were then used to determine an "outcome" score, with a final ranking of the best wake surf wave. The WSIA – Clifford Goudey Wave Study did NOT assess wave height at the wake surf riding area, in fact, the study did NOT assess any wave characteristics at the wake surf riding area. The WSIA – Clifford Goudey Wave Study was designed to assess, in a scientific manner, wake sport wakes to determine their potential impact on shoreline. The respective studies were designed differently, looked at different parameters, did not capture the same or even similar data points and the two studies had different end points. It is impossible then to take data from one study and seek to make extrapolations to the findings of the other study. Your reference study, in no way supports your testimony that you would need to "double the attenuation" to account for the increased maximum wave heights that you cited. By way of this letter, I am requesting that you immediately provide written clarification/correction to the Whatcom County Council, with a copy of your clarification sent to me. The Whatcom County Council will be making critical decisions based on your testimony, it is imperative that decisions not be reached in a capricious manner. Time is of the essence with regard to this matter.

Sincerely,

Rich DeVeau
deveaurich@gmail.com

Sent via email to rericson@co.whatcom.wa.us on October 25, 2019

Copy of letter hand delivered on October 25, 2019 to:
Planning and Development Department
5280 Northwest Drive
Bellingham, WA 98226