TO: House Committee on Environment and Natural Resources
From: John Weigant, 18989 NE Marine Drive, #15, Portland, Oregon 97230
Date: March 8, 2019
Re: HB 2078, Increasing fees boating fees for Oregon State Marine Board (OSMB)

BASIC PREMISE: CLIMATE CHANGE HAS SUCH SERIOUS IMPACT THAT EVERY BILL AND ISSUE BEFORE THE LEGISLATURE SHOULD CONSIDER ITS IMPACT. Boats use fossil fuel, to one degree or another, and should consider climate change in every action. (So should we all.)

Summary of recommended action: Table this bill and send it back to OSMB to resubmit to the next session. Data for this testimony was taken from Craigslist 3/10/19. About 75 were listed. OSMB's data would be far more accurate, but boats-for-sale is better than no data at all.

This bill increases 3 fees…

- A Boater Education Card, from $10 to $20. An OSMB goal is to increase safety and knowledge. That's good. Yet fee increases lower compliance, counter to the goal. The card can be earned by taking a test. Classes exist to take the test. If fees must be increased, increase the class fees. (I consider myself to be "an experienced boater who can take an equivalency exam". I spent 4 years in the Navy, becoming certified as an Officer of the Deck for independent steaming, formation steaming, general quarters, and Special Sea and Anchor Detail. I started sailing about 1964 and have owned sailboats for about 40 years.) This fee increase is not a big deal, hardly worth it, and will suppress boating education.
- Title fees, from $50 to $75. A similar rationale applies. Since the process is quite automated, it shouldn't cost even $50 to issue a title. Again, raising fees reduces compliance.
- Boat registration fees, from $4.50 a foot to $5.95 a foot. Recently OSMB raised fees, from $3 to $4.50 a foot, and non-compliance was twice what was expected. Two questions:
  - Is the fee increase needed? OSMB's major mission—about 75% of its budget—provides grants to public bodies to increase boating opportunities and enforcement. Therefore no fee is great enough, since the demand for free money is nearly infinite.
  - Is the fee fair? Not at all. Its main advantage: it's simple to compute, but too simplistic. It's not proportional to service rendered, which *fees* should do. Nor does it fit *taxing* guidelines well, to reduce undesirable behavior, like CO_2 emissions from boat motors. A better scheme: cut registration fees from $4.50/foot to $3/foot, and add a horsepower component to make up the total income OSMB thinks it needs. Why? Because motor boats add CO_2 to both air and water, driving more climate change, and acidifying the water. CO_2 added is proportional to fuel use, in turn proportional to horsepower.
- How do other states compute boat registration fees? (Data source: DMV.org[1])
  - According to value. Most states with sales tax or personal property tax consider value. Value is also roughly proportional to volume and weight (displacement). Volume is proportional to length cubed, making length the least valid measure of value.
  - According to Length: Most states, including Oregon. Many states consider both length and value.

[1] I can provide a summary of each state.

- Horsepower: Only Maine. Horsepower may best measure of environmental impact, including CO_2 emission, shoreline and floating structure damage caused by wakes, and interference with smaller boats, swamping or capsizing them. Marine fuel taxes are proportional to CO_2 emission, but many smaller boats use street fuel, but no change in fuel taxes are proposed.

- "Hull speed" is an important consideration, generally ignored. Every boat that displaces water has a "hull speed[2]," a measure of its maximum speed. Moving boats create a bow wave that lifts the bow, with a following trough. As speed increases, so does the bow wave and the length of the following trough. When speed reaches the point where the center of the trough is at the stern, the boat is moving up the bow wave's hill. More speed makes the hill steeper. Additional horse power is wasted fighting gravity, with minor speed increase. Hull speed in knots = 1.34 x (waterline length in feet)$^{1/2}$. (Examples: a boat with a 25 foot waterline length has a maximum hull speed of 6.7 knots, and one with 36 feet can go about 8 knots.) Hull speed can be overcome by light boats with enough power-to-weight ratio to lift them out of the water so they plane on the surface. Displacement boats use power and fuel roughly according the square of their speed. (Example: my Guided Missile Destroyer did ocean travel at 16 knots, for economy. Full speed with one boiler was 21 knots; with 2, 27 knots; with 4 boilers, 34 knots. More speed is expensive, both to owners and the planet.)
- Categories of boats
  - <u>All boats</u> require a knowledge of boating rules of the road and safety.
  - <u>Nonmotorized boats:</u> kayaks, canoes, Stand-Up Paddleboards (SUP), rowboats, rafts, dragon boats, rowing shells, wind surfers, kiteboards and the like. These are generally unregistered, consistent with bicycles and skateboards on land. In addition to general boating knowledge, nonmotorized boating is an athletic endeavor that requires varying degrees of fitness and skill. If over 12 feet and fitted with a sail or small motor, they must be registered. Typical Storage: Garage. Typical transport: cartop. Avg HP=0
  - <u>Sailboats.</u> Wind abeam can tip a sailboat over, so most sailboats have heavy ballast and keels to provide righting moment, keeping them upright. Only the smallest and lightest daysailers can plane and exceed hull speed. More length increases hull speed slightly, but powerful motors have little value. Sailboat motors are typically a small fraction (less than 10%) of the powerboat horsepower. And most sailors prefer wind anyhow. Finally, sailing is a technical sport, requiring far more attention and activity that power boating. Sailing upwind requires tacking or wearing, so sailboats navigate over wider stretches of their waterways than power boats. Avg HP=26
  - <u>Fishing boats.</u> Many boats are designed to support fishing. They tend to be made of aluminum with powerful outboard motors. Avg HP =257
  - <u>Large powerboats and cabin cruisers.</u> These are too big to trailer conveniently, so are normally moored on the water, in boathouses, or in marinas. They tend to be self-contained, needing less OSMB support. Users frequently take them to distant destinations, so their fuel use is substantial. Avg HP=343
  - <u>Runabouts, SkiBoats,</u> with power-to-weight ratio high enough to plane. Avg HP=?
  - <u>Personal Watercraft</u> (jet skis and the like) are short but powerful. Most are purely recreational, where "fun" is proportional to power. Craigslist lists 15 "Jetskis" priced $900-$13000, Avg $4488, and many of other brands. Avg HP=? These craft are among

[2] See Wikipedia, "Hull Speed"

the most bothersome, with large wakes, careless driving. Being short, they don't pay their costs to OSMB.
    - Wakesport boats, a new class with enough problems that HB 2352 would add extra registration fees (up to $357), fines, and restrictions, and require additional data, but not HP. Avg HP=?
- Boat Horsepower is not the only impact on climate change. Length and horsepower also correlate with other contributing factors.
    - Parking and Launching. Boats occupy space, either on land or in water. Large cruisers and sailboats tend to park on water. Fishing and fast sport boats tend to be parked on trailers, often at home, requiring larger lot sizes and thereby reducing urban density, and more car travel. Many require heavy tow vehicles, also requiring parking space, and using more fuel than light vehicles, exacerbating carbon load. Nonmotorized boats tend to be stored in garages, and transported cartop, or on very light trailers, by more fuel-efficient vehicles. Length is a decent surrogate to measure parking and tow-vehicle impact, but so is horsepower. Length penalizes sailboats, since they are more likely to be parked on water, needing less OSMB service. OSMB provides large parking lots at its launch sites to accommodate large trailers and two vehicles. Powerboats are more likely to be launched from trailers, since sailboats require much more effort to raise/lower masts for launching and travel. Many also have deep keels, and ride on their trailers much higher, also requiring longer and deeper boat ramps to launch.
    - Travel patterns. Nonmotorized boats, being human powered, don't go very far from their launch points. (Access services by OSMB for them tend to be remote sites. If used more, more fuel is used to reach them. As such, OSMB increases CO_2 emission, which is bad.) Many are dinghies for cabin cruisers and floating homes. (My floating home marina of 77 houses counted 104 visible nonmotorized boats, all stored dry.) Fishing boats tend to stay close to their launch points, and spend much of their time anchored or at very low "kicker" power to fish. Sailboats, being restricted to hull speed, tend to be more self-contained, since it takes a longer to get anywhere, and their intent is to get there without motors. Speedboats tend to stay close to their launch points or marinas. Cabin Cruisers tend to focus on socializing, since driving is similar to driving a land vehicle. As such, they tend to go to distant sites, and thereby use more fuel than average. And they prefer to go faster than hull speed, using more fuel.

SUMMARY: Raising fees allows more services and grants to be funded. OSMB isn't careful to target fee income to users. For example, current Aquatic Invasive Species (AIS) Permits are twice as high for non motorized boaters as for power boats, but the nature of their craft (cartop transport) means the service received is a small fraction of that provided to power boaters using trailer transport. Length-only registration fees penalize sailboats badly, while subsidizing personal watercraft. Adding a horsepower component would reverse that pattern. And data is readily available. The 2/11/19 first reading requested data for the AIS program, but was given budget data, not actual, include income never implemented in ORS. Giving OSMB two years to formulate a better system would not only help the planet, it could add funds more equitably to OSMB, and even serve as a national model for extending the reach of climate change reduction.

Does OSMB need more money? Only if it wants to offer more grants. How are grants audited for cost and benefit? The best action would table HB 2080. The planet needs it.