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House Committee on Environment and Natural Resources
Oregon State Legislature
900 Court St. NE,
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Committee Members,

I would like to provide the following information to supplement my testimony in support of SB 1589 for the House Committee on Environment and Natural Resources on February 21, 2022.

In some of the testimonies about the potential effects of wake boats in the Willamette River, there has been some confusion about the presence of juvenile spring Chinook salmon in nearshore habitats during spring and summer.

Available scientific data from the Willamette River clearly demonstrate that:

- 1. Shallow margins of the Willamette River are the primary habitats for juvenile Chinook salmon and steelhead.**
- 2. The greatest proportion juvenile Chinook move past Willamette Falls in June.**
- 3. ESA-listed juvenile spring Chinook salmon and steelhead are present in the edge habitats habitat during periods when large-wake-producing boats are using the Willamette River.**
- 4. Large wakes produced by wake boats have significant potential to negatively affect juvenile salmon, steelhead, and associated aquatic communities of the Willamette River.**

Data from a variety of sources (Oregon Department of Fish & Wildlife, USGS, OSU research) clearly document the presence of juvenile salmon in edge habitats along the Willamette River during the period of recreational wake boat activity. The following graph illustrates the monthly movement of juvenile past Willamette Falls (Figure 1). The majority of juvenile Chinook salmon migrate through the Willamette River below Newberg in June. The data clearly demonstrate that juvenile spring Chinook salmon are present in the lower Willamette every month of the year, including the period from late spring through summer.

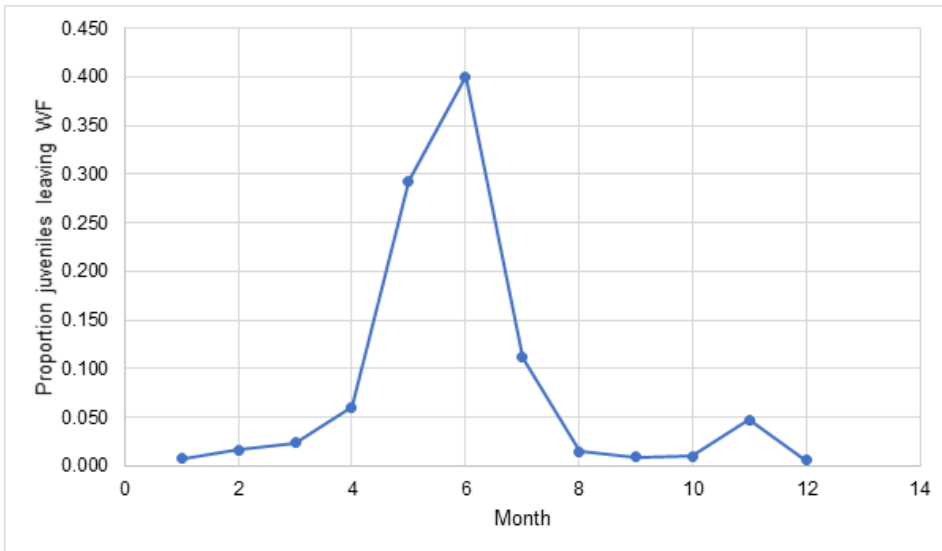


Figure 1. Monthly proportion of annual migration of juvenile Chinook salmon past Willamette Falls based on PIT-tagged juveniles detected at Willamette Falls from 1999 to 2018 (data provided by Dr. James Peterson, USGS Oregon Cooperative Fish and Wildlife Research Unit). Data points represent proportion of juvenile Chinook that passed Willamette Falls in each month of the year.

ODFW research has documented juvenile salmon in the lower Willamette River every month of the year (Friesen et al. 2004, 2007). A recent ODFW study tagged 11,600 juvenile Chinook salmon in the mainstem Willamette, lower Santiam, North Santiam, South Santiam, and McKenzie Rivers from 2002 to 2015 (Whitman et al. 2017). They found the average migration date at Willamette Falls (WF) for fish tagged in different reaches was:

Tagging Location	Average Date at WF	Range of Tagged Fish Passage at WF
Mid-Willamette	June 3	May 11-June 27
Upper Willamette	June 11	May 20-June 30
Santiam River	June 17	May 29-June 28
North Santiam	July 3	June 18-July 15
South Santiam	June 23	June 11-29
McKenzie River	June 17	June 2-July 3

These empirical data demonstrate that ESA-listed juvenile spring Chinook salmon are present from Newberg to the mouth of the Willamette River during the season of wake boating activity. This species is subject to protection under the Endangered Species Act.

Shallow margins of the Willamette River provide the primary habitat for juvenile salmonids in the Willamette River. Studies by ODFW, USGS, and OSU research have documented habitat use of juvenile Chinook salmon in the Willamette River. USGS and ODFW researchers (Toby Kock and Jim Peterson, USGS, personal communication) recently developed habitat suitability criteria for juvenile Chinook salmon and steelhead. They concluded that juvenile Chinook salmon are found primarily in

- depths of less than 3 feet**
- slopes less than 0.5%**
- velocities less than 1.5 feet/sec**

Steelhead juveniles are found in depths slightly more shallow than those observed for juvenile Chinook.

Existing scientific evidence clearly demonstrates that ESA-listed juvenile salmonids are present in the reach below Newberg during periods when large-wake-producing boats are using the Willamette River. Studies also demonstrate that shallow margin habitats the Willamette River are critical habitats for juvenile Chinook salmon and steelhead.

I will be happy to provide these data to the Oregon Legislature if more detail is needed. References for the information presented above is provided below.

Respectfully,

A handwritten signature in black ink that reads "Stan Gregory". The signature is written in a cursive, flowing style.

Dr. Stan Gregory
Emeritus Professor
Department of Fisheries, Wildlife, and Conservation Sciences
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References:

Friesen, T. A., J. S. Vile, and A. L. Pribyl. 2004. Migratory behavior, timing, rearing, and habitat use of juvenile salmonids in the lower Willamette River. Pages 63-137 in T. A. Friesen, editor. *Biology, behavior, and resources of resident and anadromous fish in the lower Willamette River*. Final Report to the City of Portland. ODFW, Clackamas.

Friesen, T. A., J. S. Vile, and A. L. Pribyl. 2007. Outmigration of juvenile Chinook salmon in the lower Willamette River, Oregon. *Northwest Science* 81:173-190.

Peterson, J. T., J. E. Pease, L. Whitman, J. White, L. Stratton-Garvin, S. Rounds, and R. Wallick. 2022. Integrated tools for identifying optimal flow regimes and evaluating alternative minimum flows for recovering at-risk salmonids in a highly managed system. *River Research and Applications*, 38: 293– 308.

Whitman, L. D., R. K. Schroeder, and T. A. Friesen. 2017. Evaluating migration timing and habitat for juvenile Chinook salmon and winter steelhead in the mainstem Willamette River and major spawning tributaries. Final Report to the U.S. Army Corps of Engineers. Oregon Department of Fish and Wildlife, Willamette Research, Monitoring, and Evaluation, Corvallis Research Laboratory.