



To: House Committee on Agriculture and Natural Resources
Representative Brian Clem, Chair
Representative Susan McClain, Vice Chair
Representative Sherrie Springer, Vice Chair

From: Bob Van Dyk, Wild Salmon Center

Date: February 20, 2017

RE: TESTIMONY ON HOUSE BILL 2106

Chair Clem and Members of the Committee:

Thank you very much for the opportunity to provide testimony regarding House Bill 2106.

The Wild Salmon Center is an Oregon-based conservation organization that promotes the conservation and sustainable use of wild salmon ecosystems across the Pacific Rim.

Our interest in HB 2106 centers on the short sections related to suction dredge mining.

Suction dredge mining and related activities in near-stream riparian areas present threats to salmon habitat. I have attached testimony that was prepared by our Director of Science, Matt Sloat, regarding the scientific literature on the effects of suction dredge mining on streams. We thus support the intent of HB 2106 to restrict in-stream mining.

However, we do not think that HB 2106 is the proper vehicle to address in-stream mining. HB 2106 addresses a variety of issues unrelated to in-stream mining, such as the composition of the DOGAMI governing board. At the same time, HB 2106 does too little to address the concerns we have about in-stream mining.

HB 2106 does not address issues related to the method of permitting mining, the hours of mining, effective enforcement of mining rules, or upland activities in the near stream area. The much better vehicle to deal with the issue of suction dredge mining is SB 3, which is written to exclusively deal with the topic, and which addresses the issue with greater depth and subtlety.

We thus encourage you to amend HB 2106 to remove the sections on in-stream mining, and to instead let the amendment and discussion of SB 3 serve as the vehicle for addressing the issue.

INTERNATIONAL HEADQUARTERS

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ATTACHMENT TO WILD SALMON CENTER TESTIMONY ON HB 2106

Testimony of Matthew Sloat on the Effects of Suction Dredge Mining on Salmon Habitat

My name is Matthew Sloat and I am the Director of Science for Wild Salmon Center, an Oregon-based conservation organization that promotes the conservation and sustainable use of wild salmon ecosystems across the Pacific Rim. As the chief scientist at Wild Salmon Center, I engage in applied research to inform the conservation and restoration of salmon, steelhead, and trout populations. My background includes a Ph.D. in Fisheries Science from Oregon State University. For the past 20 years I have studied relationships between native trout, salmon, and their habitats in the Rocky Mountains, the Pacific Northwest, and Alaska.

As a scientist with expertise in salmonids and watershed science, I am very familiar with the scientific literature concerning the effects of suction dredge mining on rivers and streams. This literature provides evidence for a broad array of net-negative effects of suction dredge gold mining, including effects on stream morphology and aquatic habitat, federally-listed fishes and freshwater mussels, and the potential for human health concerns related to legacy mercury mobilization. Here, I will focus my testimony on the following findings that are particularly relevant for Oregon's salmon, steelhead, and trout populations:

1. ***Suction dredge mining disturbs cover habitat for salmon and trout.*** By removing and/or displacing cobbles, boulders, and logs, suction dredge mining impacts important cover habitat for juvenile salmon and trout¹. Cover habitat is essential for juvenile salmon and trout as it enables them to avoid predators and to avoid displacement during winter floods². The amount and quality of cover habitat in streams is known to be a factor limiting the productivity of many of Oregon's salmon and trout populations³.
2. ***Suction dredge mining reduces the reproductive success of Pacific salmon.*** Suction dredge mining destabilizes the streambed gravels that salmon use for spawning⁴. Spawning gravel that has been disturbed by suction dredge mining is known to erode at a higher rate than in undisturbed areas, thereby increasing the mortality of incubating salmon eggs⁴. These effects can occur well after suction dredge mining activity has ceased.
3. ***Suction dredge mining results in direct mortality to incubating eggs and juvenile fish.*** Eggs and juvenile fish suffer high mortality when entrained by suction dredges^{1,5}. This is particularly important for species like cutthroat trout and steelhead that spawn in late winter and whose eggs may incubate into summer¹. It is also important for bull trout, a federally listed species that spawns in very cold streams and whose eggs and larvae remain in the streambed well into summer.
4. ***Suction dredge mining increases sedimentation in downstream habitats.*** Suction dredge mining can result in levels of fine sediments (silts and sands) in downstream habitats that are as high as 10 to 20 times above background conditions^{1,5,6}. Fine sediments impact fish habitat by filling in the crevices between boulders and cobbles that otherwise provide cover for juvenile salmon and trout, and by smothering spawning gravels with sands and silts that prevent adequate oxygen from reaching incubating eggs. Fine sediments can also decrease the abundance of aquatic insects, a major prey source for juvenile fish. Studies have documented a reduction in aquatic insect communities in areas affected by suction dredge mining in comparison to those areas not affected by mining⁷.

In summary, the scientific literature has identified a number of impacts to salmon, trout and their habitats from suction dredge mining. The impacts occur across a variety of life stages, ranging from direct and indirect mortality during egg and larvae incubation, to impacts to the food resources and cover habitats that are essential for juvenile salmon and trout.

Finally, I wish to discuss the potential negative effects of suction dredge mining within the context of salmon and steelhead recovery in the State of Oregon. Wild Salmon Center works to protect Oregon's most intact salmon watersheds before they are degraded and their salmon and steelhead populations are in decline. It is easier and cheaper to conserve a salmon river while it's still healthy than to try to fix that river once it's broken. We invest our energy in individual stronghold rivers that serve as anchors to recover diminished salmon runs throughout the state. Stronghold rivers are identified through a collaborative, science-based process that locates watersheds currently supporting exceptional salmon and steelhead abundance and diversity. The Illinois, North Fork John Day, and Wenaha are examples of stronghold rivers that have been identified in partnership with the State of Oregon⁸. Based on impacts documented in the scientific literature, we believe that suction dredge mining poses a threat to the State's salmon strongholds. We believe that the likely impacts of suction dredge mining on salmon strongholds may make conservation and recovery of the State's salmon resources more difficult and more costly. As you address the challenge of balancing the health of the State's salmon resources with other interests, we ask that you consider the documented negative effects of suction dredge mining during your decision-making.

Thank you for the opportunity to provide testimony on this important issue. I would be happy to follow up with you in person to address any questions you have about my testimony.

On behalf of the Wild Salmon Center, respectfully,

Matthew R. Sloat

Matthew R. Sloat, Director of Science, Wild Salmon Center

End Notes:

1. Harvey, B. C., and T. E. Lisle. 1998. Effects of suction dredging on streams: a review and an evaluation strategy. *Fisheries* 23(8):8-17.
2. Bustard, D.R. and Narver, D.W., 1975. Aspects of the winter ecology of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). *Journal of the Fisheries Board of Canada*, 32(5), pp.667-680.
3. Solazzi, M. F., Nickelson, T. E., Johnson, S. L., & Rodgers, J. D. (2000). Effects of increasing winter rearing habitat on abundance of salmonids in two coastal Oregon streams. *Canadian Journal of Fisheries and Aquatic Sciences*, 57(5), 906-914.
4. Harvey, B. C., and T. E. Lisle. 1999. Scour of Chinook salmon redds on suction dredge tailings. *North American Journal of Fisheries Management* 19:613-617.
5. Horizon Water and Environment. 2009. California Department of Fish and Game Suction Dredge permitting Program: literature review on the impacts of suction dredge mining in California. Report prepared for the Department of Fish and Game, Redding.
6. Somer, W.L. and Hassler, T.J., 1992. Effects of suction-dredge gold mining on benthic invertebrates in a northern California stream. *North American Journal of Fisheries Management*, 12(1), pp.244-252.
7. Harvey, B.C., 1986. Effects of suction gold dredging on fish and invertebrates in two California streams. *North American Journal of Fisheries Management*, 6(3), pp.401-409.
8. Information about the North American Stronghold Partnership can be found here: <https://www.wildsalmoncenter.org/work/science/stronghold-approach/>