

RESTORATION ECONOMY MEMORANDUM

Date: April 29, 2021
To: Chehalis Basin Board
From: Nat Kale, OCB and Emelie McKain, WDFW
cc: Andrea McNamara Doyle, OCB Director
Re: Restoration Economy

Summary

OCB and WDFW staff estimate that restoration activities undertaken under the Aquatic Species Restoration Plan support about 16 jobs per \$1 million dollars spent, or about 700 total jobs between July 2015 and April 2021. Each dollar spent by ASRP also likely circulates through the local economy an additional 0.7 to 1.3 times, creating additional economic activity, which amounts to an additional approximately \$31 to \$57 million from ASRP work through April 2021.

Jobs, Spending, and Restoration Activities

The primary purpose of ecological restoration is to improve the environment we inhabit alongside native species, with rejuvenated ecosystems providing long-term ecosystem, cultural, aesthetic, health, and economic benefits. While these are often realized as long-term benefits, an important short term benefit of this work is the stimulation of the local economy that is created by spending on restoration activities. These are immediate economic benefits.

Several Pacific Northwest agencies and entities involved in ecological restoration have attempted to capture the immediate economic benefits of restoration activities by estimating both the number of jobs they create and the additional local spending they stimulate.

Estimates of jobs created and spending stimulated derive from one of three tools: The US Bureau of Economic Analysis RIMS model; the Washington Office of Financial Management Input-Output Model; and private models such as IMPLAN. Broadly speaking, these models all operate by estimating the additional economic impact of many different types of activities, derived from studies and observation. They represent the best professional judgement of economists and econometricians.

What's a "Job"?

"Supported jobs" may last for several years, like an engineer employed to oversee a project from design through construction, or for a fraction of a year, like a seasonal laborer employed to operate equipment. They may also be either part-time or just part of a full-time worker's duties, like a contract administrator or a site appraiser.

These are estimates of jobs and economic impact *while the money is being spent*, and are not estimates of the long-term impact.

Even when using the same underlying model different researchers may arrive at different numbers, because they distribute restoration among various economic activities differently. For example, floodplain restoration does not have its own category in these models, so a researcher may have to assign part of it to construction and part of it to forestry. These differences capture not only the uncertainty in the models, but also the diversity of restoration activities themselves, because plantings are not the same as large woody debris placement, for instance.

Estimated Benefits

Estimates of Immediate Economic Benefit of Restoration Activities

	Jobs per \$1 Million	Economic Return
U of O, 2009	15	1.9
U of O, 2010	16	2.3
Value of Water Campaign	15	-
Puget Sound Partnership PSAR 2021	17	2.3
WA Conservation Commission	14	1.7

While some estimates of restoration activities give wide estimates of job creation, the estimates from Pacific Northwest entities are very consistently within the 14-17 jobs per \$1 million spent, which in turn is within the range of national estimates. Fewer studies attempted to supply the additional economic activity provided by restoration activities, but they too were very consistent, with between 1.7 to 2.3 times the money spent in total economic activity.

ASRP-Specific Estimates

The ASRP has already completed numerous projects, and begun even more, which allowed WDFW staff to estimate total jobs created by project type (large river restoration, culvert replacements, etc.) by contacting ASRP project sponsors.

Project Type	# of Projects	Jobs Supported
Large Rivers	1	37
Medium Rivers	5	175
Small Streams	3	67
Oregon Spotted Frog Marshes	1	28
Fish Passage Culverts	56	672
Protection (Easement/Acquisition)	4	28
Total	70	1000

The total jobs supported thus far come to about 1,000, which gives an estimated 23 jobs per \$1 million spent¹. This number is higher than the scientific literature suggests, probably because the literature more rigorously defines jobs as closer to (but not the same as) one full-time equivalent employee for one year, whereas the internal ASRP estimate used a looser definition of supported employment (see callout box on page 1). ASRP staff recommend use of the scientifically supported value of 16 jobs per \$1 million spent in the absence of an analysis by an economist or econometrician of the impact of ASRP specifically.

References

- Halpern, A. (2020). *2021-23 Budget Request: Capital Funding Need*. Olympia: Washington State Conservation Commission.
- Hartman, F., & Kober, A. (2020). *Rivers as Economic Engines*. Washington, DC: American Rivers.
- Nielsen-Pincus, M., & Moseley, C. (2010). *Economic and Employment Impacts of Forest and Watershed Restoration in Oregon - Working Paper 24*. Eugene: University of Oregon.
- Nielsen-Pincus, M., & Moseley, C. (2009). *A Preliminary Estimate of Economic Impact and Job Creation from the Oregon*. Eugene: Institute for a Sustainable Environment, University of Oregon.
- Puget Sound Partnership. (2021, April 1). *PUGET SOUND ACQUISITION AND RESTORATION (PSAR) FUND*. Retrieved from Puget Sound Partnership: <https://psp.wa.gov/PSAR.php>

¹ Total ASRP expenditures so far are approximately \$44 million. 1,000 jobs / \$44 million = 23 jobs per \$1 million.