

ECONOMIC BENEFITS OF BEAVER-CREATED AND MAINTAINED HABITAT AND RESULTING ECOSYSTEM SERVICES

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EXECUTIVE SUMMARY¹

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Beaver, through their dam-building activity, help retain water on the landscape in beaver ponds and on floodplains, leading to reduced flood risk for landowners immediately downstream, improved water quality and stream flows, and an expansion of fish and wildlife habitat. Public utilities which manage reservoirs benefit as improved floodplain connectivity and channel complexity evens out peak highs and lows in streamflows. Oregonians from across the state benefit as opportunities for outdoor recreation such as wildlife viewing, fishing, and hunting expand. Ranchers and farmers benefit as water stored in beaver-created wetlands and behind beaver ponds provides valuable water during droughts. Cities and towns benefit with improved water quality and more dependable flows. And in addition to all these benefits, there is also the creation of carbon capture and store areas as wetlands and wet meadows increase in size and abundance, a response strategy to climate change that has yet to be assigned a monetary value.

There are also the large economic benefits related to salmon as it moves through its life cycle. Beaver-created and maintained habitat provide key juvenile coho salmon winter rearing habitat, decrease stream temperatures, increase channel complexity and habitat connectivity, and expand riparian habitat all along migration corridors. These improvements along migration corridors not only enhance the potential for salmon to survive and expand within a changing climate but provide the same services to migratory birds. Increases in beaver-created habitat would therefore aid ODFW and to the state in their efforts to achieve conservation goals for affected species at little to no cost. In addition, there is the chance to prevent the extinction of salmon due to lack of habitat, something that abundant beavers and their habitat can help remedy. An extinction event would be a devastating cultural and ecological loss. Assigning a price tag to such an event should only be considered a point when considering salmon's economic, social and cultural importance and value.

These beaver-generated economic and ecological benefits are currently only future potential benefits because they require landscapes where there are abundant beaver who are creating and maintaining abundant beaver habitat. These conditions that do not currently exist in Oregon because continued beaver trapping and hunting on federally managed public lands

under ODFW furbearer regulations has left abundant suitable beaver habitat unoccupied and thus abundant ecological and economic benefits unrealized.

Beaver trapping and hunting prevents Oregonians from receiving these benefits for two major reasons related to 1) family dynamics and 2) dam maintenance needs. First, the beaver furbearer season under ODFW furbearer regulations occurs in the winter when the fur quality is best and thus overlaps the beaver breeding and pregnancy season. Because kits can stay with their parents up to two years, an entire colony can be trapped/hunted out in a single season which eliminates dispersal potential. Even if some beaver remain, there is a lag between birth, adulthood, dispersal and finding a mate which limits creation and maintenance of habitat and its benefits and future dispersal. Those that remain are vulnerable to trapping and hunting pressures the following year in addition to all the other mortality causes. Second, removal of beaver leaves dams unmaintained. As a result, when the dams fail, they are not repaired. The ponds drain, water tables drop, water quality declines, wetlands and wet meadows begin converting to drier species and fish and wildlife habitat decreases. The ecological and economic benefits begin to unravel. Therefore, maintaining family units is key for expanding populations, successful dam building and maintenance, dispersal, and habitat creation and maintenance.

The full Economic Analysis’ document presents the ways that beaver-created and maintained habitat, though their influences on aquatic and terrestrial ecosystems, can generate large market and non-market benefits from the water and habitat-based changes. These potential future benefits are in the 100s of millions of dollars and would occur at little to no cost to Oregonians.

Table 1 summarizes those beaver created and maintained benefits and compares these future beaver-driven benefits with the existing economic benefits gained by less than 170 trappers and hunters who recreationally kill beavers under ODFW’s furbearer regulations. The full economic analysis provides information on how those numbers were arrived at and supporting documentation.

Table 1. Comparison of economic value of continued beaver trapping/hunting on federally-managed public lands and the waters that flow through these lands versus closing these lands and allowing beaver-driven restoration to begin and be maintained.

Item	Year	Action	Dollars	People and/or fish and wildlife served
Continued Beaver trapping/hunting on federally-managed public lands and the waters that flow through these lands				
Total Beaver/Castor sales	2015-2019	Money earned by beaver trappers and hunters on FMPLs during these 5 years	< \$44,808 because not all pelts and castor sold came from FMPLs and the waters that flow through these lands	< 170 people total in the state

Item	Year	Action	Dollars	People and/or fish and wildlife served
Closure of beaver trapping/hunting on federally-managed public lands and the waters that flow through these lands				
Restored Salmon Runs	future	estimate of household willingness to pay (WTP) for increased salmon populations in the future	Tribal Ceremonial and Subsistence: Value is incalculable. WTP: \$100 to \$120 per household per year which results in an estimated value of \$195 million in 2016 increasing to \$241 million in 2035.	Countless salmon and communities who depend on or benefit from healthy salmon populations culturally and/or economically plus countless other species and individuals that benefit from improved fish and wildlife habitat
Improved Stream Temperatures on a Minimum of 23,413 Miles of 1st - 4th Order Streams (beaver dam building sized streams)	future	estimated cost of human driven restoration	\$ 1.7 to 9.6 billion dollars	4.2 million people, unknown number of species and individuals
EPA and NOAA Restoration Dollars	2015-2019	Dollars that have been lost due to failure to require water quality improvements. Voluntary compliance still only required.	\$5.8 million	4.2 million people, unknown number of species and individuals
Oregon Watershed Enhancement Board (OWEB) Restoration Expenditures	2014-2019	Spent	\$35.6 million	4.2 million people, unknown number of species and individuals
Recreational Spending on Wildlife Viewing, Fishing, Hunting, and Shellfishing	2008	Spent	\$2.8 billion	2.8 million people
Aquatic Habitat Ecosystem Value for two Beaver Restoration Assessment Tool (BRAT) Area Examples	future	estimated cost of human driven restoration	\$8.8 million	County residents in these areas plus unknown number of species and individuals
Aquatic Habitat Ecosystem Value for ODFW Aquatic Habitat Inventory Area Example of 17 one-mile reaches	future	estimated cost of human driven restoration	\$348,800	Salmon and communities who depend on or benefit from healthy salmon populations (4.2 million people) plus countless other species and individuals

Item	Year	Action	Dollars	People and/or fish and wildlife served
Delayed Flow Upstream of Reservoir Due to Water Storage via Beaver Ponds for NFBR Example	future	estimated value of water to downstream uses	\$5,499 to \$32,990 per year	Fisheries, downstream irrigators

¹ This executive summary is part of a larger Economic Analysis on the benefits of beaver done for *“Petition to Initiate Rulemaking to Amend OAR 635-050-0070 to Permanently Close Commercial and Recreational Beaver Trapping and Hunting on Federally-Managed Public Lands and the Waters that Flows Through These Lands”* which was brought before the Oregon Fish and Wildlife Commission on September 24, 2020. On November 13, 2020, the Commission denied the Petitioners request to initiate rule making despite the magnitude of the economic and ecological benefits that beaver would bring to the landscape and communities as a result of the habitat they create and maintain, the 2020 drought and wildfire season, and the climate crisis.

The larger Economic Analysis document was also used in the Oregon 2021 state legislative effort related to HB 2843 that would have closed federally-managed public lands to beaver trapping and hunting. HB 2843, brought forth by Representative Pam Marsh, was denied a hearing and a work session in the House Committee on Agriculture and Natural Resources by Representative Brad Witt of District 31 who chaired the committee. As a result, the bill died in Committee. Rep. Witt denied the bill a hearing and work session despite the 2020 drought and wildfire season, declining salmon populations and the climate crisis. This failure of leadership means that Oregonians and fish and wildlife continue to be denied the ability to use all available strategies to minimize impacts of climate change and thus increase chances of survival.

In the summer of 2021 Oregon and much of the West experienced severe drought and large wildfires. Unless changes are made now, on November 15, 2021 – March 15 2022 the trapping and hunting season on beaver will be open as allowed by ODFW’s Furbearer Regulations and approved by the Oregon Fish and Wildlife Commission on June 12, 2020. Less than 170 people statewide trap and hunt beaver under the ODFW furbearer regulations. ODFW estimates that there are about 4-6 people/county that trap and hunt beaver under their regulations.

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