

Carbon As An Alternative Compensation Package for Forestland Owners with Riparian Areas¹

New practices for forested riparian acres reduce timber harvests and create carbon sinks. While these carbon sinks have social value because of global interests in reducing greenhouse gases in the atmosphere, they are not recognized monetarily. Because regulations on forest practices have produced a greater burden on private landowners to provide for ecological services from their timberlands, it makes sense to examine alternative sources of compensation that benefit private landowners and achieve social values, thereby maintaining forestland uses. The provision of forest goods and services by private ownerships can be promoted with contracts that compensate private land managers for public services and have equivalent or greater private ownership values. Carbon markets may provide this compensation as they develop over time.

The study analyzes the size and value of carbon sinks and describes contractual agreements that can generate compensation for private landowners producing carbon sequestration. The value of carbon is derived by using timber values associated with forestlands in western Washington. The study utilizes a sample of forested acres with riparian areas in western Washington derived from the Small Business Economic Impact Statement for new forest practices rules.² This sample allows us to calculate the amount of carbon associated with each acre in a parcel with forestland, the value of timber on that acre and the dollar value of carbon per acre. The carbon value reflects the estimated current timber volume on the acre. Riparian and non-riparian areas are identified in the study. The growth in timber represents the additional carbon that is sequestered from the atmosphere and stored in riparian forests.

The result of the carbon assessment indicates that, on average, there are currently around 70 tons of carbon per acre standing in western Washington forestlands (Figure 1). There is slightly more carbon standing in riparian management zones than non-riparian forest (not shown in figure). The average value of the carbon, based on timber values, is \$7.80 per ton for the parcel and \$8.72 per ton within the riparian management area.

As timber stands grow, additional carbon is removed from the atmosphere and sequestered. The average value of carbon sequestration is \$2.00 per ton. The average value is calculated as the difference between the value of a fully stocked acre and current stocking divided by a 50 year time period (Table 1). When the sample is expanded to consider all of western Washington's riparian forests, a program that compensates landowners for sequestering carbon in these forests is worth \$230 million. The projected carbon sequestered over this next fifty-year period is 110 million tons.

¹ Perez-Garcia, John, Jane Edelson and Heather Rodgers. 2002. Economic Incentives for Carbon Storage in Western Washington's Forested Riparian Management Areas. Seattle, Wa.

² Perez-Garcia, John, Jane Edelson and Kevin Zobrist. 2001. Small Business Economic Impact Statement for New Proposed Forest Practices Rules Implementing the Forests and Fish Report. Department of Natural Resources, Olympia, Wa

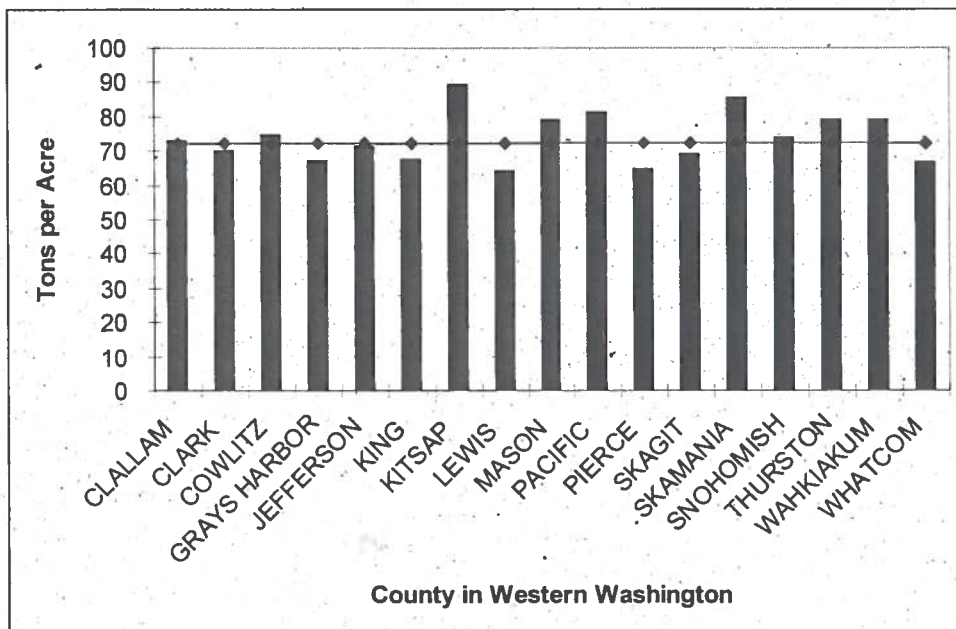


Figure 1. Average estimated carbon currently stored on forested acres.

Table 1. Average carbon values for current and fully stock acres and their annual value.

County	Average \$ / ton of C under current stocking	Average \$ / ton of C under fully mature timber	Difference between current and full stocking	Annual value using 50 years to get to full stocking
CLALLAM	\$ 15.90	\$ 109.72	\$ 93.82	\$ 1.88
CLARK	\$ 11.51	\$ 114.33	\$ 102.82	\$ 2.06
COWLITZ	\$ 15.07	\$ 131.52	\$ 116.45	\$ 2.33
GRAYS HARBOR	\$ 21.22	\$ 151.61	\$ 130.39	\$ 2.61
JEFFERSON	\$ 13.07	\$ 64.82	\$ 51.75	\$ 1.03
KING	\$ 12.06	\$ 132.39	\$ 120.33	\$ 2.41
KITSAP	\$ 9.46	\$ 38.66	\$ 29.20	\$ 0.58
LEWIS	\$ 15.79	\$ 135.42	\$ 119.63	\$ 2.39
MASON	\$ 16.63	\$ 87.56	\$ 70.93	\$ 1.42
PACIFIC	\$ 24.84	\$ 139.43	\$ 114.59	\$ 2.29
PIERCE	\$ 9.31	\$ 130.76	\$ 121.45	\$ 2.43
SKAGIT	\$ 11.82	\$ 112.87	\$ 101.05	\$ 2.02
SKAMANIA	\$ 27.00	\$ 137.21	\$ 110.21	\$ 2.20
SNOHOMISH	\$ 16.49	\$ 138.86	\$ 122.37	\$ 2.45
THURSTON	\$ 26.36	\$ 132.97	\$ 106.61	\$ 2.13
WAHIAKUM	\$ 24.76	\$ 135.56	\$ 110.80	\$ 2.22
WHATCOM	\$ 11.73	\$ 119.06	\$ 107.33	\$ 2.15
Average	\$ 16.65	\$ 118.40	\$ 101.75	\$ 2.03