A Research Paper by

HEADWATERS ECONOMICS

The Economy of the Olympic Peninsula and Potential Impacts of the Draft Congressional Watershed Conservation Proposal

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ABOUT HEADWATERS ECONOMICS

Headwaters Economics is an independent, nonprofit research group whose mission is to improve community development and land management decisions in the West. We have extensive experience working on economies associated with public lands and rural development. Headwaters Economics is based in Bozeman, Montana.

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Introduction

Headwaters Economics produced this study at the request of the Wild Olympics Coalition, which includes the following groups: Olympic Park Associates, Olympic Forest Coalition, Olympic Peninsula Audubon Society, North Olympic Group—Sierra Club, Washington Wilderness Coalition, The Mountaineers, Pew Campaign for America's Wilderness, Sierra Club, American Rivers, and American Whitewater.

This mix of conservation and recreation groups wants to better understand the changing demographics and evolving economy of the Olympic Peninsula in order to grasp the potential impacts of the draft watershed conservation proposal (also commonly referred to as the Wild Olympics proposal) issued by Congressman Norm Dicks and Senator Patty Murray in November 2011. The Coalition also hopes to work with the congressional offices and others in the region to refine the proposal to minimize potential negative impacts and to realize potential benefits.

The draft congressional watershed conservation proposal has three principal components: establishing 132,817 acres of new Wilderness for U.S. Forest Service lands with wilderness characteristics on the Olympic National Forest; adding portions of 19 eligible rivers on the Olympic Peninsula that are surrounded by federal and state land totaling approximately 464 river miles to the Wild and Scenic Rivers Act; and creating a willing seller-willing buyer provision that would allow property owners in three areas—Lake Crescent, Lake Ozette, and Queets Corridor—to sell up to 20,026 acres to the Olympic National Park at their discretion.

This report begins by describing the changing demographics and economics of the four counties on the Olympic Peninsula. It then explores details on timber-related industries as well as travel and tourism-related industries and the broader amenity economy on the Peninsula, all of which have close ties to how public lands are managed. Finally, the report explores the potential impacts—economic and fiscal—of the three main components of the draft congressional proposal.

We hope the information in this report is helpful to parties trying to understand the changing economy of the Olympic Peninsula, use and protect important natural resources, and promote a more prosperous future in the region.

Executive Summary

This report describes the changing demographics and economics of the four counties on the Olympic Peninsula, explores details on timber-related industries as well as travel and tourism industries and the broader amenity economy on the Peninsula, and examines the potential impacts of the draft congressional watershed conservation proposal issued by Congressman Norm Dicks and Senator Patty Murray in November 2011. Report findings are summarized below.

Olympic Peninsula

The economy on the Olympic Peninsula experienced strong growth during the last four decades—at rates faster than the non-metro portion of Washington State and the nation as a whole. The region also has gone through several significant downturns associated with business cycles and in particular with declines in timber-related sectors in the 1980s. After each of these timber-related contractions, the overall Peninsula economy grew again, fueled by the expansion of a range of services sectors.

This fundamental shift indicates that the broader economy of the Peninsula no longer relies on goods producing sectors to grow. In effect, the regional economy has decoupled from historic sectors and is now trading on a new competitive position and set of industries. These include the full range of services sectors—such as health care, tourism, and professional and business services—and the growing importance of non-labor sources of income. This shift also resulted in lower average earnings per job and in higher per capita income for the region.

Not all places on the Peninsula are faring the same economically. Some counties, like Jefferson County, are successfully competing in today's modern economy, while others, like Grays Harbor, have struggled to absorb timber-related losses and to develop new competitive strengths.

Timber-Related Industries

Timber-related industries—growing and harvesting, sawmills and paper mills, and wood products manufacturing—pay higher than average annual wages on the Peninsula. However, timber employment shrank by 2,321 jobs during the last decade and the timber-related share of total private wage and salary employment fell from 14.2 percent to 8.8 percent.

During the same time period, non-timber private wage and salary employment on the Peninsula grew by 5,043 jobs, showing that the region's broader economy has decoupled from timber-related sectors. Wages on the Peninsula also have stabilized, reflecting the relative size of today's timber-related employment and the growth of higher paying services industries such as professional and business services.

The transformation of the timber industry has been caused by the interplay of many variables over time, including supply but also a number of other equally important factors such as demand, distance to market, productivity, capitalization, public policy, and international competition. New and more efficient milling and manufacturing technologies, for example, have led to a decline in both mills and employment.

During the last decade, the long-term pattern of timber employment decline did not respond to federal timber supply changes. Even when Olympic National Forest harvest increased in the early 2000s, industry employment trends continued downward.

Travel and Tourism Industries and the Amenity Economy

Travel and tourism sectors play a substantial role in the regional economy. In 2009 on the Peninsula there were approximately 9,330 private wage and salary jobs related to travel and tourism, or roughly 19 percent of total private wage and salary employment in the region.

The Olympic National Forest had 707,000 total visits in 2010. The Forest Service estimates that each person visiting the Forest on a day trip spent $51 per day while overnight visitors spent $167 on average per day—and that an average visitor spent $92 per day. At Olympic National Park, there were 2,961,302 visitors in 2011, a 4.1 percent increase over 2010. For 2010, the 2.84 million visitors that year spent more than $106 million, supporting nearly 1,400 jobs.

While travel and tourism activities are important in their own right, research increasingly shows that these activities are only one part of a larger amenity economy that is an important driver of economic growth in both the rural West and on the Olympic Peninsula.

More than one third of population growth on the Peninsula in the last decade came from net in-migration. And today the economy is primarily a service-providing economy. The largest services sectors on the Peninsula in 2009 were: trade, transportation and utilities constituted 17 percent, education and health services 11 percent, and leisure and hospitality services 10 percent of total private wage and salary employment.

The powerful attraction of natural amenities—such as dramatic mountains, clean water, free-flowing rivers with vital fisheries, and old growth rainforests—has helped to draw new people to the region and transform the structure of the economy. This shift in competitive strength also has contributed to above average rates of economic growth and rising per capita income.

While the region as a whole is benefiting from travel and tourism business and trading on natural assets as business assets, not all communities are competing as successfully in this newer economy. Grays Harbor County in particular has struggled to redefine its economy as the broader economy has shifted from goods production to service provision.

Potential Impacts of the Draft Congressional Watershed Conservation Proposal

The draft watershed conservation proposal issued by Congressman Norm Dicks and Senator Patty Murray in November 2011 has three main components: Wilderness designation of a portion of the Olympic National Forest, Wild and Scenic River designation along major rivers, and a willing buyer-willing seller provision that would authorize landowners to sell select areas to Olympic National Park along its boundaries.

The Wilderness component could affect approximately 4,292 proposal acres, or 2.2 percent of the total timber base on the Olympic National Forest potentially available for ground base and cable logging. If the underlying economics supported more expensive helicopter logging, this figure could expand to 8,411 acres, or 3.7 percent of the total timber base on the Forest. Because the Olympic National Forest has averaged approximately 1,500 acres of commercial thinning per year (or less than 1% of the available timber base annually) since the adoption of the Northwest Forest Plan, it is unlikely the draft Wilderness proposal would affect the current timber volume coming off the forest.

The Wild and Scenic River component would add portions of 19 rivers that are surrounded by federal and state land totaling approximately 464 river miles on the Olympic Peninsula under the terms of the Wild and Scenic Rivers Act. Because the management of forest resources on

Olympic National Forest lands within the Wild and Scenic River corridor would for all practical purposes remain the same, this designation should have no material impact on timbering. The same holds for Washington Department of Natural Resources lands where the Wild and Scenic Rivers Act has no regulatory authority, and Washington State through its Forest Practices Habitat Conservation Plan already recognizes and has a management plan to protect the outstanding values for candidate rivers that is consistent with its trust fiduciary responsibility.

The willing seller-willing buyer component would allow property owners in three areas—Lake Crescent, Lake Ozette, and Queets Corridor—to sell as much as 20,026 acres to Olympic National Park at their discretion. Because of the contingencies of whether landowners would sell their land and whether there would be funds to acquire lands, it is impossible to determine with any certainty whether land sales would take place, on what scale they would occur, over what time frame they might take place, and if they would hamper or bolster the economy on the Peninsula.

One or more of the draft proposal components could have a fiscal impact on local county governments. Total federal land and timber–related revenue from all sources for Peninsula counties in FY 2010 was $8 million, or 5.4 percent of total county government revenue. The potential fiscal impact of proposed Wilderness would be very small (less than $10,000 annually), while the Wild and Scenic River provision would be revenue neutral. The National Park additions component is more difficult to calculate but would likely have a small negative impact on net revenue.

Much more important than the draft watershed conservation proposal for Peninsula county governments is the future authorization and funding levels for Secure Rural Schools and Payment in Lieu of Taxes programs. The good news is that even if Congress does not reauthorize SRS, PILT would rise in response to lower Forest Service payments, increasing to $3 million (a tripling of the current PILT payment of $1 million) and offsetting the difference between SRS and the 25% payment directed to county governments. However, as with SRS, PILT faces its own contingencies. If Congress does not fully fund PILT after FY 2012, federal land revenues would decrease significantly.

Conclusion

A productive approach to economic development would focus less on the potential loss of a small number of future timber jobs and more on how the draft watershed conservation proposal could build on natural amenities—through benefits such as increased recreation, quality of life, or water quality—that attract people and business to the region and further strengthen services sectors that already are growing and represent a current competitive strength. It also would pay close attention to community qualities, transportation connectivity, and workforce skills that are more likely to attract and retain higher-paying services sectors.

Methods

Data: This report draws on published statistics from a variety of sources. The principal demographic and economic data sources include: U.S. Department of Commerce, U.S. Census Bureau, U.S. Department of Labor, and others. All data sources are documented in the References section at the end of this report. For more details on regional data, see the Economic Profile System developed by Headwaters Economics in conjunction with the U.S. Forest Service and Bureau of Land Management and available at: http://headwaterseconomics.org/tools/eps-hdt.

Because nonemployer businesses (often referred to as proprietors or the self employed) are a significant component of the labor force on the Olympic Peninsula, we use data sources that include nonemployer businesses wherever possible. Also, since non-labor income (such as retirement and investment income) is the single largest and fastest growing source of personal income on the Peninsula, we use data sources that show labor earnings and non-labor income together to offer a more accurate portrayal of total personal income.

All dollar figures in this report are adjusted for inflation; that is, shown in real dollars.

Geography: For the purposes of the report, we examine the four principal counties with public lands on the Olympic Peninsula: Clallam, Grays Harbor, Jefferson, and Mason counties. We refer to these counties together as the Olympic Peninsula, or simply as the Peninsula.

Approach: We use trend analysis to describe the nature and significance of the decades-long economic shift on the Olympic Peninsula. We do this for established measures of growth (such as population, employment, and personal income), indictors of well-being (such as earnings per job and per capita income), and at the industry level using the Standard Industrial Classification (SIC), from 1970 to 2000, and North American Industry Classification System (NAICS), from 2001 to 2009 (latest year available).

In some instances we aggregate the four-county economy to understand Peninsula-wide issues and trends, while at others we analyze data cross-sectionally, comparing counties using a range of measures. This is important, as each county's economy is different in size, access to markets, and relationship to public lands.

Wherever possible we place data in context. For example, we show the number of jobs and the number of new jobs in a particular industry in the context of all jobs and all new jobs in the broader economy to offer a sense of proportion. Similarly, we compare key indicators for the Olympic Peninsula with the non-metropolitan portion of Washington State and the nation as a whole as benchmarks.

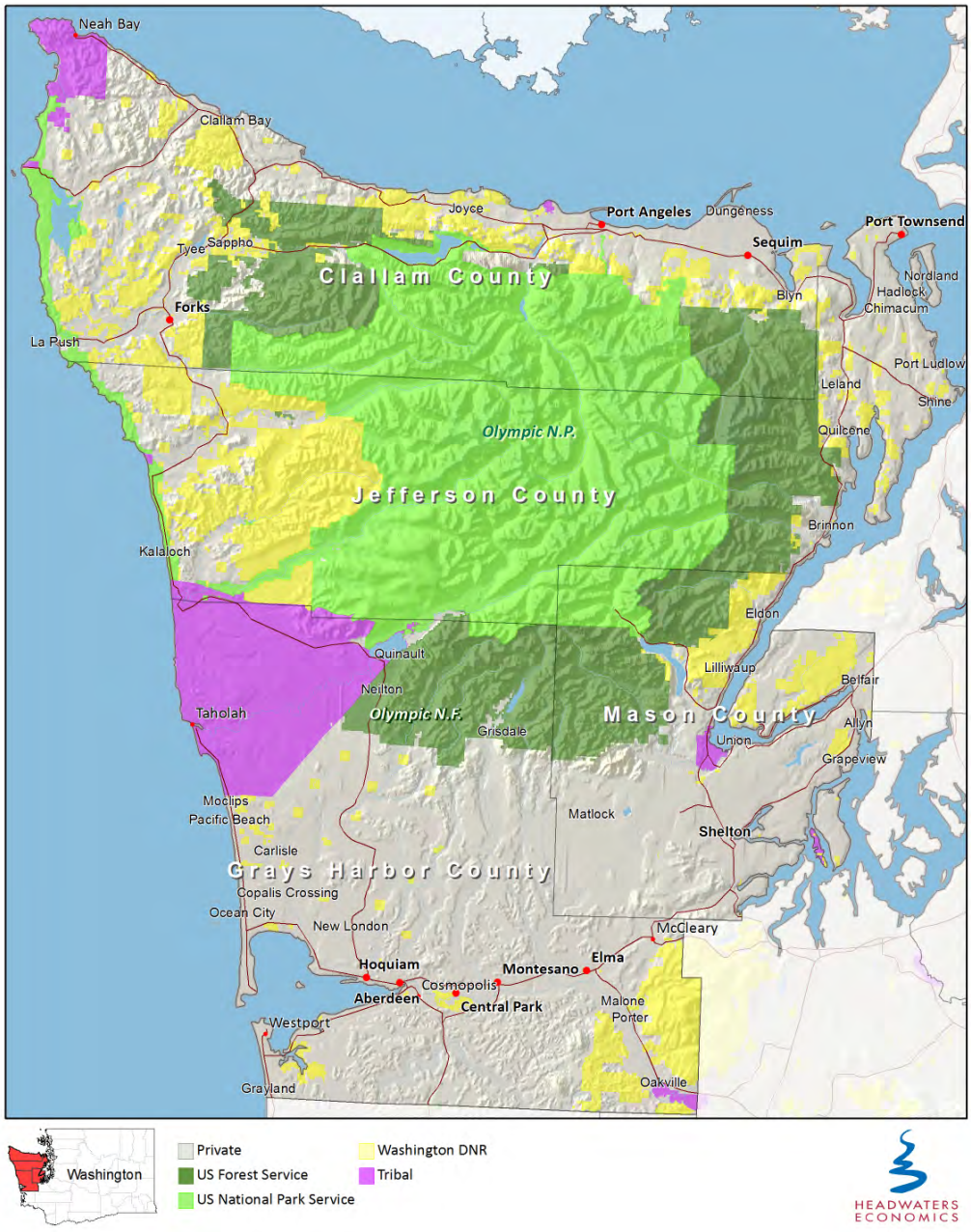
While we describe all major sectors of the regional economy, we make a special effort to understand timber-related industries and travel and tourism industries because they are both closely tied to public lands and can be difficult to measure accurately.

Finally, we review the fiscal dimensions of proposed changes in land management and ownership because it is important for local governments to understand revenue streams from public lands and how these might change based on the draft congressional proposal.

Olympic Peninsula

Land

The Olympic Peninsula in Washington State lies at the westernmost edge of the continental United States. It is surrounded by water on three sides: Puget Sound to the east, Strait of Juan de Fuca to the north, and the Pacific Ocean to the west.

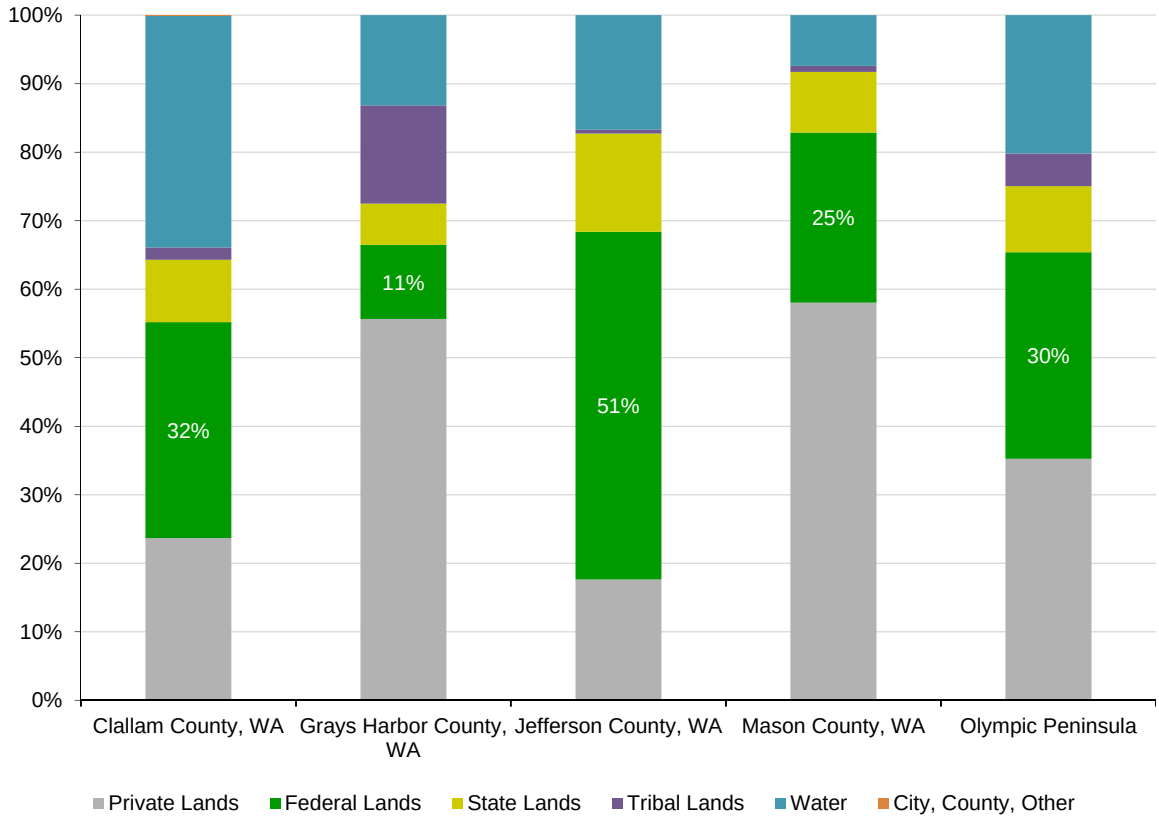


The Olympic mountain range lies at the center of the Peninsula. Temperate rain forests blanket the west side, drier forests cover the east side, alpine areas are found at higher elevation, and rugged shoreline characterizes much of the coastal areas.

The Olympic National Park (922,651 acres) covers the center of the Peninsula and much of the western coast. Olympic National Forest (628,915 acres) and Washington Department of Natural Resources (478,325 acres) lands largely surround this central park unit. Private (1,833, 315 acres) and tribal (248,350 acres) property border these lands.[1]

The mix of land ownership varies significantly in each of the four counties—Clallam, Grays Harbor, Jefferson, and Mason—examined in the report. The chart below shows land ownership by county and for the Olympic Peninsula as a percent of land area.

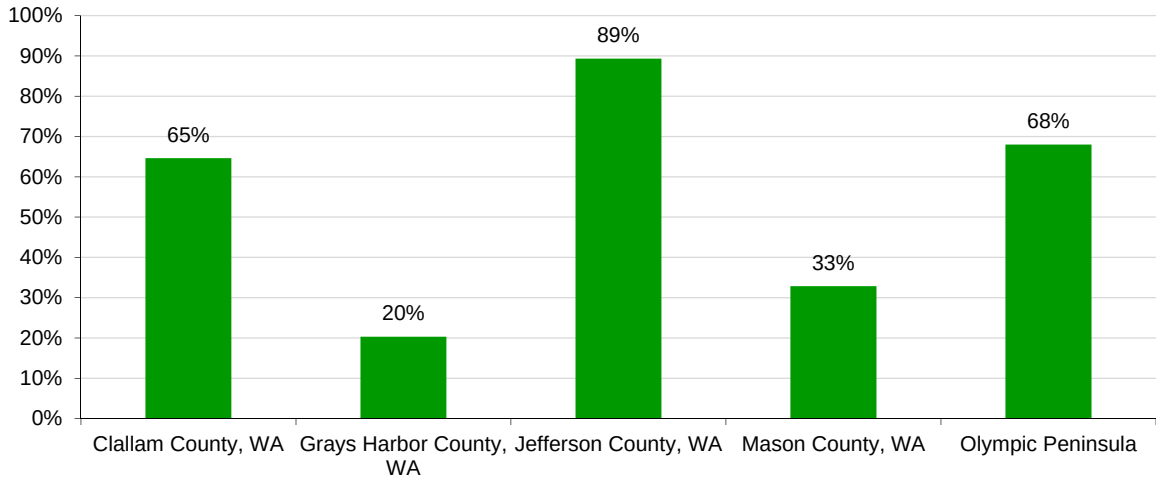
Land Ownership, Percent of Land Area, Olympic Peninsula



Jefferson County has the largest share of public lands (federal and state lands comprise 65% of total area) and the smallest share of private lands (18% of total area). Grays Harbor and Mason counties have the largest share of private lands (56% and 58% of total area, respectively). Grays Harbor has the largest share of tribal lands (14% of total area).

There is a wide variation in the current share of federal lands that are protected (i.e., designated as National Parks and Wilderness, etc.) within counties on the Peninsula: Jefferson County has 89 percent, Clallam 65 percent, Mason 33 percent, and Grays Harbor 20 percent.[2]

Federal Public Land Area, Percent in Protected Status, Olympic Peninsula



There is debate about the economic role of public lands and whether or how protected public lands contribute to the economic well being of nearby communities. We explore this question later in the report.

For now, we note that Jefferson County with the largest share of federal land ownership and protected federal lands has the fastest long-term (1970-2009) rate of population (+179%), employment (+280%), and real personal income (+488%) growth, while Grays Harbor County with the smallest share of federal lands and protected federal lands has the slowest long-term rate of growth across these same performance indicators (+21%, +33%, and +74%, respectively).[3]

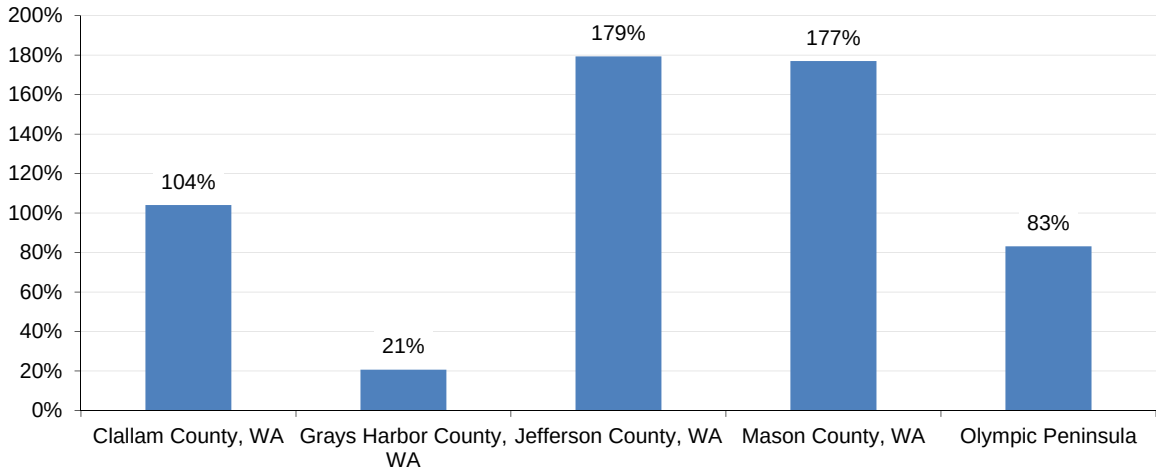
People

The Olympic Peninsula is for the most part sparsely populated. None of the four counties on the Peninsula are metropolitan; that is, none have an urban area within their borders with 50,000 or more people.

Larger communities lie on the periphery of the Peninsula, especially to the north, east, and south. Communities more readily connected to larger markets, in Puget Sound and along the I-5 corridor, lie on the east and south of the Peninsula, while more isolated communities are found on the north and west.

The population on the Olympic Peninsula has grown over time. From 1970 to 2009, Peninsula population grew by 83 percent, outpacing the non-metropolitan (non-metro) portion of Washington State and the nation as a whole, and adding nearly 105,000 people. From 2000 to 2009, Peninsula population grew by 11 percent, again outpacing the non-metro portion of Washington State and the national as a whole, and adding almost 24,000 people. Nearly two-thirds of recent growth (62%) came from natural change (births minus deaths), while more than one-third (38%) resulted from net in-migration to the region.[4]

Population, Percent Change, Olympic Peninsula, 1970 to 2009



Long-term population growth, from 1970 to 2009, varies between Peninsula counties. Jefferson (+179%) and Mason (+177%) counties grew fastest, Clallam was in the middle (+104%), and Grays Harbor grew much more slowly (+21%). For later years, different rates of growth remain. From 2000 to 2009, Mason County grew fastest (+17%), followed by Jefferson County (+12%), Clallam County (+11%), and Grays Harbor (+7%).

The population on the Olympic Peninsula is predominantly white (89%), and approximately 3.8 percent of the population is American Indian. The Hispanic population (which can be of any race according to the U.S. Census Bureau) is about 5.7 percent of total population.

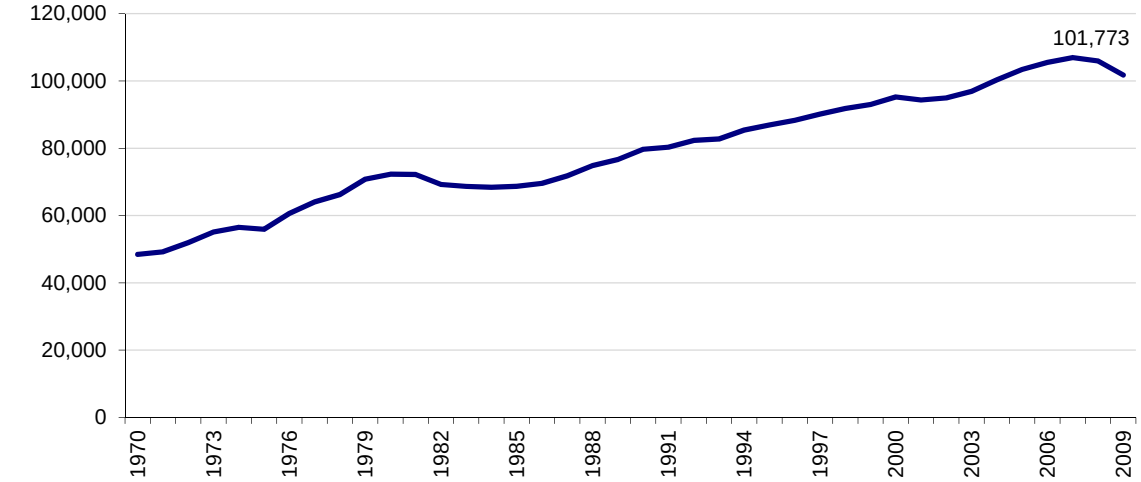
The median age of the population is growing for all counties on the Peninsula. It is highest in Jefferson County (52.0 years) and lowest in Grays Harbor (40.4 years). The Baby Boomers (aged 45-64) comprise the largest age cohort and represent 31 percent of the Peninsula's total population.[5]

Economy

The economy on the Olympic Peninsula has experienced strong overall growth over the last four decades, outpacing the growth of the non-metro portion of Washington State and U.S. economy in both the rate of employment and real personal income growth.

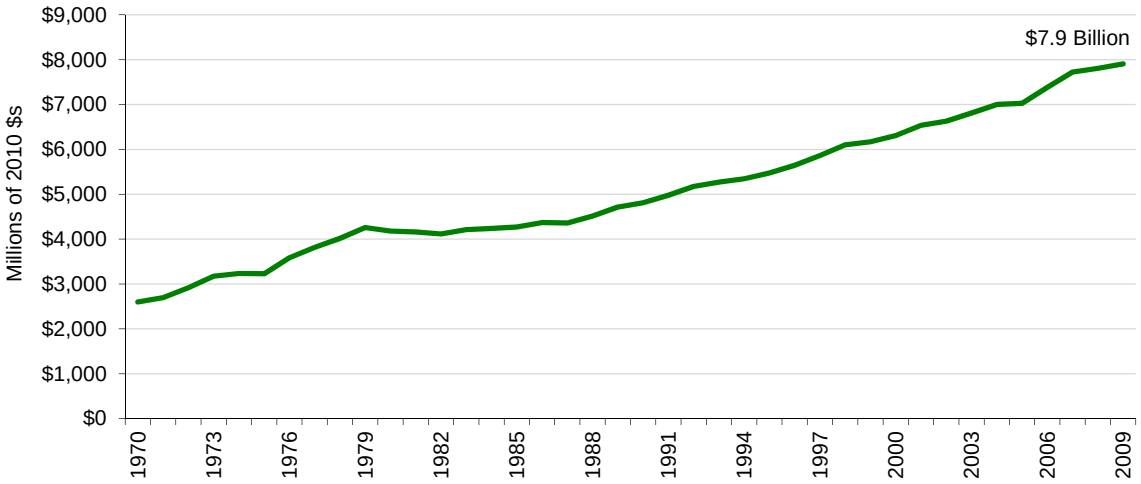
From 1970 to 2009, Peninsula employment grew from 48,463 to 101,773 jobs, a 110 percent increase—faster than the non-metro portion of Washington State (93% growth) and the nation as a whole (90% growth).[6]

Employment Trends, Olympic Peninsula



From 1970 to 2009, Peninsula personal income grew from $2.6 billion to $7.9 billion, in real terms, a 204 percent increase—faster than the non-metro portion of Washington State (178% growth) and the nation as a whole (164% growth).[7]

Personal Income Trends, Olympic Peninsula

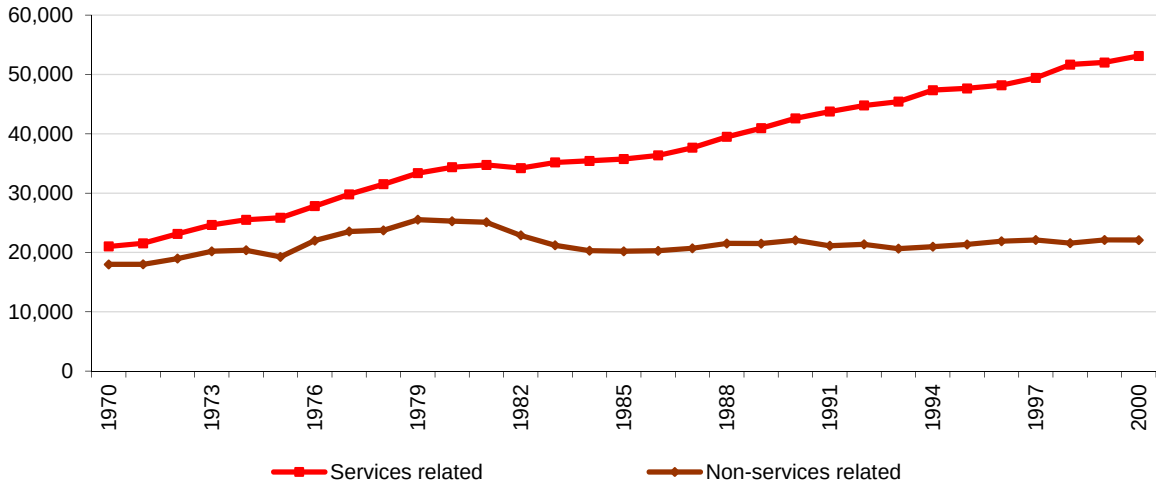


Within this longer growth timeline, the Peninsula's economy has experienced substantial volatility and has had difficulty during recessions. This is likely due to the small scale of the economy and its relative lack of sector diversity. In addition, employment in historically mainstay industries—timber-related sectors in particular—has suffered dramatic declines due in large measure to changes in market conditions, globalization, mechanization, and public policy.

Here are some examples of job losses in recent recessions. In the early 1980s during the recession (July 1981 to November 1982) regional jobs fell by 10.1 percent; in the early 1990s during the recession (July 1990 to March 1991) jobs declined by 8.3 percent; and in the most recent recession (December 2007 to June 2009) jobs fell by 4.6 percent. Employment losses in timber, manufacturing, and construction sectors accounted for the lion's share of these job losses.[8]

Despite these difficulties, the region's overall economy continues to grow and, as noted above, outpaces the rate of growth in the non-metro portion of Washington State and the nation as a whole. To understand what is driving economic growth in the region, the graph below shows employment from 1970 to 2000 using the Standard Industrial Classification System (SIC) to describe trends in services related and non-services related industries.[9] Services sectors include a mix of services ranging from doctors and lawyers to hotel maids and retail clerks, and non-services sectors include goods producing activities such as forestry, manufacturing (including wood products), and construction.

Trends in Private Employment, Services and Non-Services, Olympic Peninsula



This three-decade historical view of the economy shows that non-services sectors have added new jobs (+23% jobs) at a slower rate than services sectors (+123% jobs). It also shows that the early 1980s were a turning point for the Peninsula's economy. From 1980 to 2000, non-services lost jobs in net terms (-3,181 jobs), while services added jobs in net terms (+18,746 jobs). In other words, beginning in the 1980s the continued growth of the region's economy no longer relied on goods producing sectors.[10]

More recently, using the newer North American Industry Classification System (NAICS) to describe industry-level employment changes from 2001 to 2009, these same patterns continue. Job growth on the Olympic Peninsula during this time period (+8%) continues to outpace the rate of job growth in the non-metro portion of Washington State (+7%) and the nation as a whole (+5%). Of the 5,615 new private sector jobs created on the Peninsula over this time period, 437 (8% of new jobs) were in non-services sectors and 5,178 (92% of new jobs) were in services sectors.[11]

Private Employment by Industry, Olympic Peninsula, 2001 and 2009

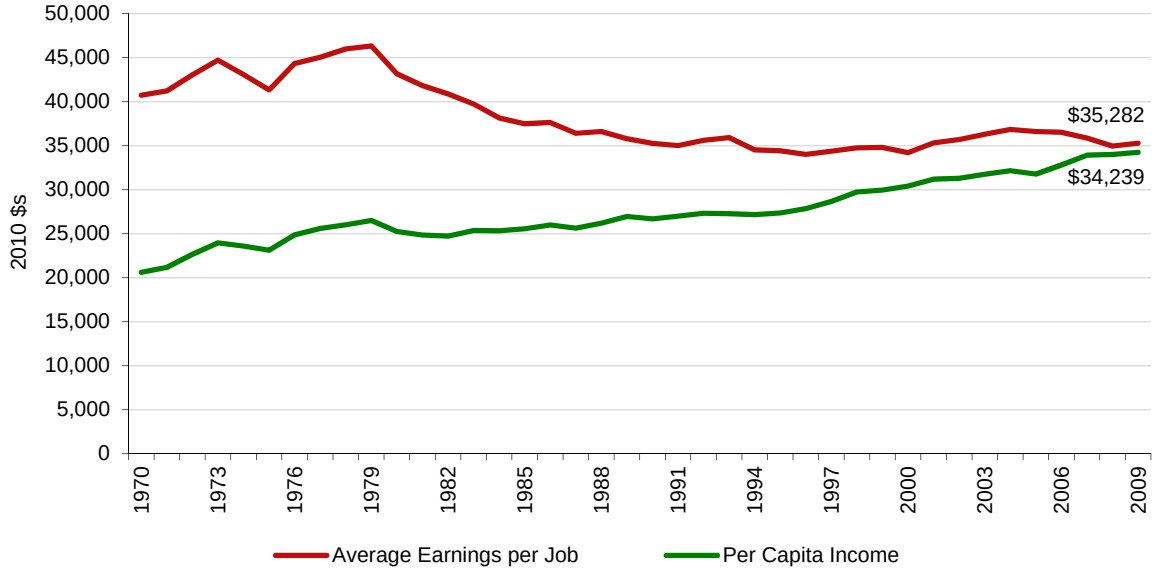
	2001	2009	Change 2001-2009
Total Private Employment	74,294	79,453	5,159
Non-services related	*18,863*	*19,300*	437
Farm	1,718	2,236	518
Forestry, fishing, & related activities	*2,709*	*2,503*	-206
Mining	*249*	*365*	116
Construction	6,145	6,343	198
Manufacturing (incl. wood products)	8,041	7,853	-188
Services related	*54,573*	*59,751*	5,178
Utilities	*155*	*167*	12
Wholesale trade	*1,947*	2,141	194
Retail trade	11,974	11,530	-444
Transportation and warehousing	2,230	*2,017*	-213
Information	1,105	1,050	-55
Finance and insurance	2,843	3,457	614
Real estate and rental and leasing	4,024	5,074	1,050
Professional and technical services	4,057	*4,824*	767
Management of companies and enterprises	*222*	*250*	28
Administrative and waste services	*2,658*	*3,053*	395
Educational services	755	1,065	310
Health care and social assistance	7,301	8,799	1,498
Arts, entertainment, and recreation	1,790	2,270	480
Accommodation and food services	7,135	7,260	125
Other services, except public administration	6,377	6,793	416

In 2009, Peninsula non-services sectors accounted for 19,300 jobs (25% of total private employment) and services sectors for 59,751 jobs (75% of total private employment). The largest non-services sectors were manufacturing (7,853 jobs) and construction (6,343 jobs). The largest services sectors were: retail trade (11,530 jobs), health care (8,799 jobs), and accommodation and food services (7,260 jobs). In the same year, there were also 22,320 government jobs.

Specific industries that lost jobs in net terms from 2001 to 2009 were retail trade (-444 jobs), transportation and warehousing (-213 jobs), forestry, fishing and related activities (-206 jobs), and manufacturing, including wood products manufacturing (-188 jobs). Retail trade was likely affected by competition from big box retail outside of the region and the general downturn in the most recent recession. The other sectors are all closely related to the timber industry, which continues to face long-term market challenges as well as the recent bust in the housing bubble and corresponding decline in the demand and price for wood products.[12]

The decades-long shift in the region's economy—from an emphasis on goods production to service provision—has reduced earnings per job, as higher paying natural resources and manufacturing jobs have been replaced on average by lower paying services jobs.[13] It has also been accompanied by rising per capita income as the population on the Peninsula ages and in-migration along with expanding sources of non-labor income (e.g., retirement and investment income) brings in new wealth. The graph on the next page shows trends in real average earnings per job and real per capita income from 1970 to 2009.

Trends in Average Earnings per Job and Per Capita Income, Olympic Peninsula

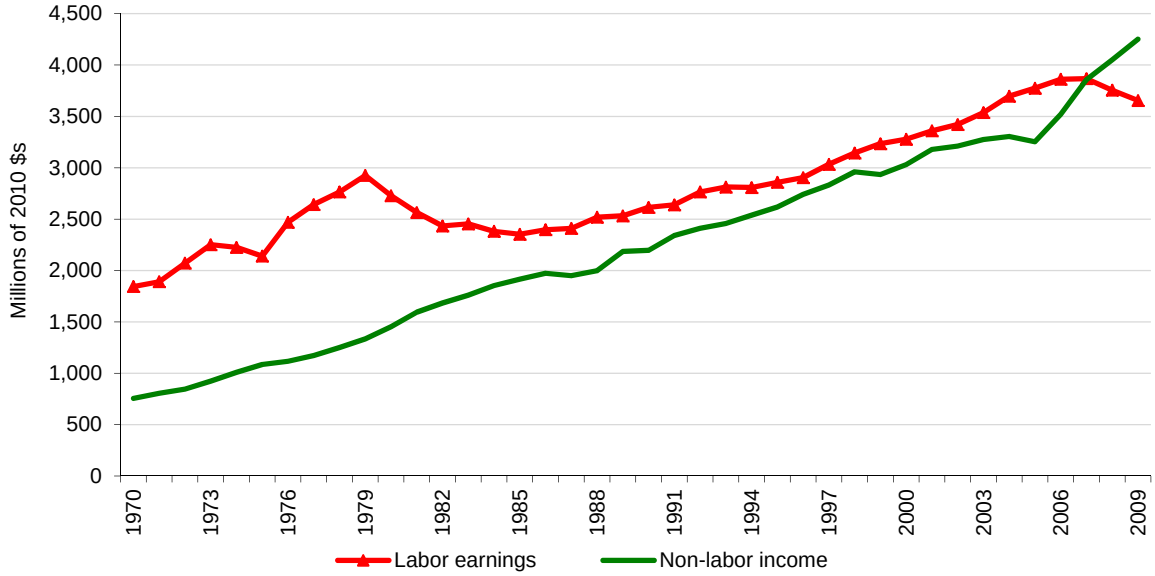


Real average earnings per job fell from a high of $46,366 in 1979 to $34,239 in 2009. Average earnings have stabilized since 1990, after the more dramatic contractions in the timber-related industries were absorbed, and remain slightly lower than average earnings for the non-metro portion Washington State ($38,562 in 2009). Per capita income, on the other hand, has risen steadily since 1970, growing in real terms from $20,616 in 1970 to $34,239 in 2009. It is higher on the Peninsula than for the non-metro portion of Washington State ($34,023 in 2009).[14]

Unlike earnings per job, per capita income includes labor earnings as well as non-labor income. Non-labor income is a mix of government transfer payments to individuals and investment income. Both sources of non-labor income are closely related to an aging population and may indicate the migration of people to the region with retirement and investment income.

Non-labor income is the fastest growing and largest source on personal income on the Olympic Peninsula. While labor earnings grew, in real terms, from $1.8 billion in 1970 to $3.7 billion in 2009, a 98 percent increase, non-labor income grew, in real terms, from $755 million in 1970 to $4.3 billion in 2009, a 463 percent increase. Non-labor income's share to total personal income on the Peninsula grew from 29 percent in 1970 to 54 percent in 2009.[15]

Trends in Labor Earnings and Non-Labor Income, Olympic Peninsula



In addition to accounting for the rapid growth of real per capita income, the rise of non-labor income explains why personal income has grown so much faster than employment in the region. Non-labor income also has had a stabilizing (or counter cyclical) effect on the economy. The decline in labor earnings in the early 1980s recession, for example, was significantly offset by rising non-labor income over the same period. The same trend is evident in the recession of the later 2000s—gains in non-labor income offset losses in labor earnings.

Grays Harbor County

It is worth considering Grays Harbor by itself because this county's economy has underperformed significantly relative to the other three county-level economies historically and today.

Grays Harbor County has seen the slowest long-term (1970 to 2009) rate of population (+21%), employment (+33%), and real personal income (+74%) growth on the Peninsula. It remains the most timber-dependent (12.8% of total private wage and salary jobs in 2009), has been less successful at developing a services economy (56% of total employment in 2009), suffers the highest poverty rate (16.1% from 2006 to 2010), and has the highest unemployment rate (13.3% in 2010).[16]

This experience cannot be attributed to the presence of public lands (federal lands are 11% of total area) or protected federal lands (20% of federal lands are protected) in the county, as Grays Harbor County has the lowest share of each on the Peninsula.[17] Nor can it be ascribed to a lack of connectivity to markets. The main population centers in the county benefit from the Port of Grays Harbor, state highways connecting the main population centers to I-5, and competitive Class I railways.

Grays Harbor County simply has not recovered from timber industry contractions or found new competitive strengths—see the timber chapter of this report for more details. It experienced the largest declines in timber-related employment on the Peninsula: manufacturing jobs in the county fell from a high of 8,463 in 1977 to 3,455 in 2009, a 59 percent decline. During this same time period, the broader economy added 2,382 net new jobs, but this job growth has not been sufficient to create a new platform for prosperity.[18]

This experience is not unique. There is a substantial body of literature showing that local economies with a greater reliance on the extraction and processing of timber tend to perform poorly as measured by indicators such as employment volatility, poverty, unemployment, and crime.[19] Recent research by Headwaters Economics on the impacts of the most recent recession across the West also found that timber-dependent economies were among the hardest hit in this recession.[20]

Grays Harbor County faces the challenge—more pronounced than that found elsewhere on the Peninsula—of findings ways to profit from structural changes in timber and related manufacturing industries, and at the same time to position communities and businesses to benefit from growing sectors in the regional, state, and national economy.

Summary

The economy on the Olympic Peninsula experienced strong growth during the last four decades—at rates faster than the non-metro portion of Washington State and the nation as a whole. The region also has gone through several significant downturns associated with business cycles and in particular with declines in timber-related sectors in the 1980s. After each of these timber-related contractions, the overall Peninsula economy grew again, fueled by the expansion of a range of services sectors.

This fundamental shift indicates that the broader economy of the Peninsula no longer relies on goods producing sectors to grow. In effect, the regional economy has decoupled from historic sectors and is now trading on a new competitive position and set of industries. These include the full range of services sectors—such as health care, tourism, and professional and business services—and the growing importance of non-labor sources of income. This shift also resulted in lower average earnings per job and in higher per capita income for the region.

Not all places on the Peninsula are faring the same economically. Some counties, like Jefferson County, are successfully competing in today's modern economy, while others, like Grays Harbor, have struggled to absorb timber-related losses and to develop new competitive strengths.

Timber-Related Industries

This chapter examines timber and related manufacturing industries on the Peninsula because they have the potential to be affected by the draft congressional watershed conservation proposal.

We first describe employment data and trends for timber-related sectors, and revisit the question of whether the larger economy relies on timber related activity to expand. We then explore drivers that are changing the competitive position of the region's timber industry.

Trends in Timber-Related Sectors

Timber-related industries can be usefully grouped into three broad categories, which describe different stages and levels of value-added production: growing and harvesting, sawmills and paper mills, and wood products manufacturing.[21]

Growing and Harvesting: These are jobs associated with growing and harvesting of trees on a long production cycle. It includes people employed in forest nurseries, as well as those involved in the cutting of trees and transportation of timber.

Sawmills and Paper Mills: These are jobs associated with converting logs into lumber, boards, poles, shingles, and similar milled products. It includes those involved in the conversion of logs and chips into pulp and paper as well as the creation of veneer and plywood.

Wood Products Manufacturing: These are jobs associated with manufacturing. It includes the production of corrugated boxes, gum and wood chemical products, cabinets, furniture, and other wood manufactured products.

The two tables on the next page show timber-related jobs using these three categories for private wage and salary employment and nonemployer businesses (i.e., the self employed).

In 2009, there were approximately 4,422 private wage and salary jobs in all timber-related sectors on the Peninsula. These include growing and harvesting (1,289 jobs), sawmills and paper mills (2,428 jobs), and wood products manufacturing (705 jobs). In the same year, all timber-related sector wage and salary jobs represented 8.8 percent of total private wage and salary employment on the Peninsula.[22] The industry's actual share of total employment is lower because these data do not include government employment (22,320 jobs) in the share of total calculation.[23]

Timber Private Wage and Salary Employment, Olympic Peninsula, 2009[24]

	Clallam County	Grays Harbor County	Jefferson County	Mason County	Olympic Peninsula
Total Private Wage & Salary Employment	17,371	16,278	6,753	9,832	50,234
Timber	*916*	*2,089*	*436*	*981*	*4,422*
Growing & Harvesting	*349*	774	*17*	*149*	*1,289*
Forestry & Logging	333	747	*10*	132	*1,222*
Support Activities for Forestry	*16*	27	*7*	*17*	*67*
Sawmills & Paper Mills	*554*	*742*	*416*	*716*	*2,428*
Sawmills & Wood Preservation	358	392	*4*	*348*	*1,102*
Pulp, Paper, & Paperboard Mills	*180*	*250*	*412*	0	*842*
Veneer, Plywood, & Engineered Wood	*16*	*100*	0	*368*	*484*
Wood Products Manufacturing	*13*	*573*	*3*	116	*705*
Other Wood Product Mfg.	*10*	*566*	*3*	116	*695*
Converted Paper Product Mfg.	0	*7*	0	0	*7*
Gum & Wood Chemical Mfg.	0	0	0	0	0
Wood Cabinet Mfg.	*3*	0	0	0	*3*
Wood Office Furniture Mfg.	0	0	0	0	0
Non-Timber	*16,455*	*14,189*	*6,317*	*8,851*	*45,812*

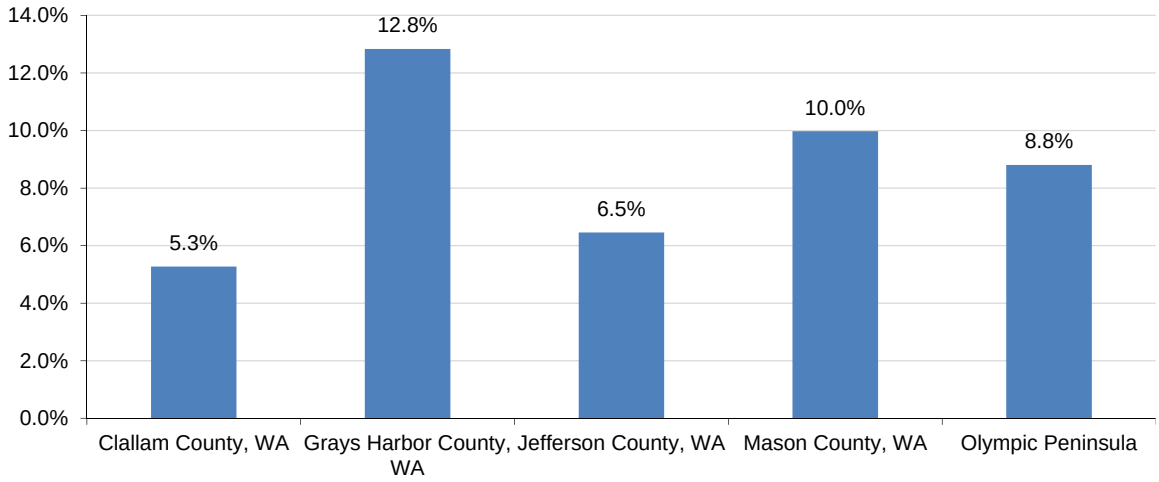
In 2009, there were 295 nonemployer businesses (i.e., the self employed) in timber-related sectors on the Peninsula. The large majority of these individuals were working in forestry and logging. In the same year, all timber-related nonemployer businesses were 0.3 percent of nonemployer businesses on the Peninsula.[25]

Timber Nonemployer Businesses (the self-employed), Olympic Peninsula, 2009

	Clallam County	Grays Harbor County	Jefferson County	Mason County	Olympic Peninsula
Total Nonemployer Businesses	4,344	3,222	2,946	2,811	13,323
Timber	99	107	40	49	295
Forestry & Logging	75	82	27	36	220
Wood Products Manufacturing	24	25	13	13	75
Paper Manufacturing	0	na	0	na	na
Non-Timber	4,245	3,115	2,906	2,762	13,028

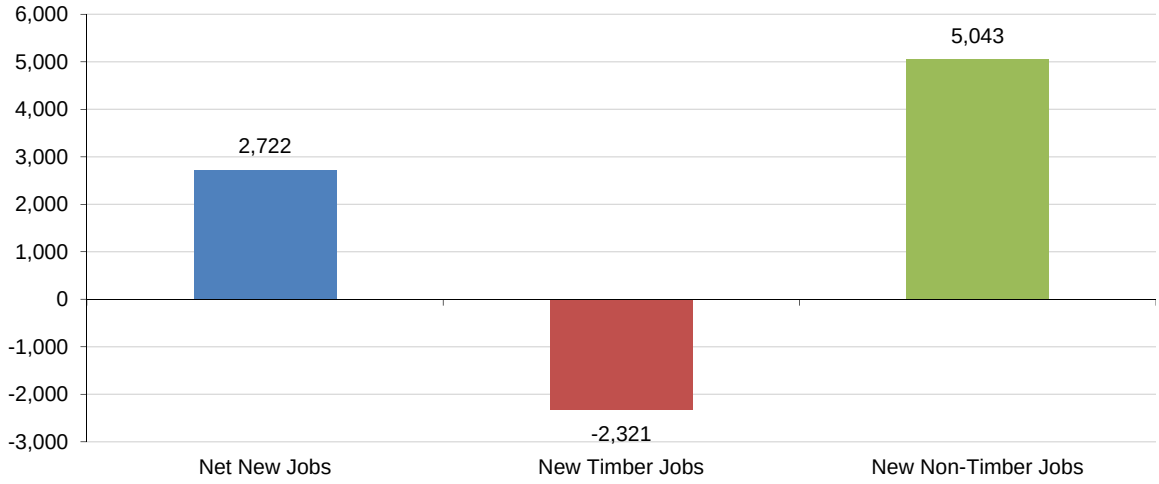
Looking again at the wage and salary component of timber-related sectors, differences in the share of employment between counties are evident. In 2009, timber-related sectors ranged from a high of 12.8 percent in Grays Harbor to a low of 5.3 percent in Clallam County. The industry's actual share of total employment is lower because these data do not include government employment (22,320 jobs) in the share of total calculation.[26]

Timber Private Wage and Salary Employment, Percent of Total, Olympic Peninsula, 2009



Over roughly the last decade, from 1998 to 2009, timber-related wage and salary jobs have declined by 2,321 jobs, and as a share of total private wage and salary employment have fallen from 14.2 percent to 8.8 percent. At the same time, the larger economy has grown, adding 5,043 private wage and salary jobs.[27]

New Jobs in Timber and Non-Timber, Olympic Peninsula, 1998 to 2009[28]



These timber-specific data show again that the ability of the broader economy to grow has decoupled from the fate of timber-related sectors. Other sectors are now driving economic growth on the Peninsula.

Timber-related sectors pay significantly higher than average annual wages—$44,443 compared to $33,443 for all wage and salary jobs on the Peninsula in 2009.[29] The loss of these higher paying jobs can lower average wages, as happened in the 1980s. In the last decade, however, average wages remained flat, in real terms, despite continued job losses in timber sectors. This stabilization of average wages reflects the small size of timber-related sectors in the larger economy and the growth of higher paying services industries, such as professional and business services, on the Peninsula.[30]

Drivers of Timber Industry Change

The transformation of the timber industry and decline in related employment across the Northwest has been written about extensively.[31] There are a number of powerful drivers of change that have altered the timber industry over time. The interplay of these elements—not a single, isolated variable—explains the evolution of the industry.

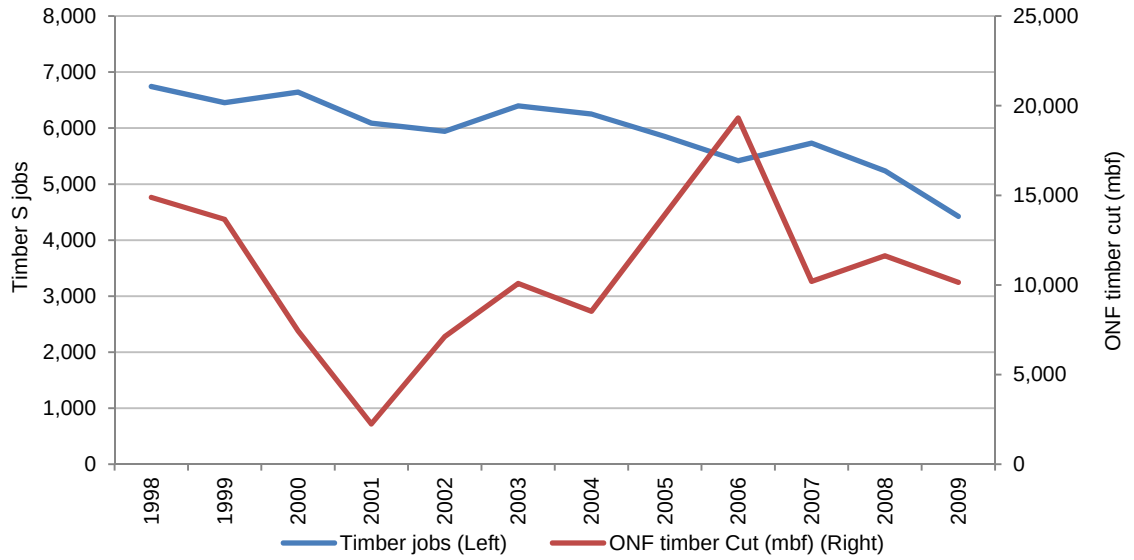
A list of important industry factors includes:

- Demand for lumber and construction materials
- Supply of timber
- Lumber prices
- International trade conditions and agreements
- Reorganization of timber companies as Real Estate Investment Trusts (REITs)
- Interest rates
- Mechanization of mills, or lack thereof
- Local and international competition
- Debt load of local mills
- Labor, taxes, and other input expenses
- Distance to markets – rail and trucking costs and log haul distances
- Size of a mill and economies of scale
- Whether a mill is tooled to produce the type of product in demand
- Public policies

There is one period in recent Olympic Peninsula history when the timber supply from the Olympic National Forest (ONF) contracted enormously and timber-related job losses were significant. The late 1980s and early 1990s were characterized by legal battles over forest policy that resulted in the spotted owl injunction in 1988 and the adoption of the Northwest Forest Plan (NWFP) in 1994. The resulting declines in ONF timber harvests were massive. They fell from 264 mmbf in 1988 to 8 mmbf in 1994, a 97 percent decline.[32] There were significant job losses, in part because other timber suppliers did not or were not able to make up for the huge loss in timber supply. Manufacturing jobs, which include wood products manufacturing jobs, on the Peninsula fell from 13,476 in 1988 to 10,542 in 1994, a 22 percent decline.[33]

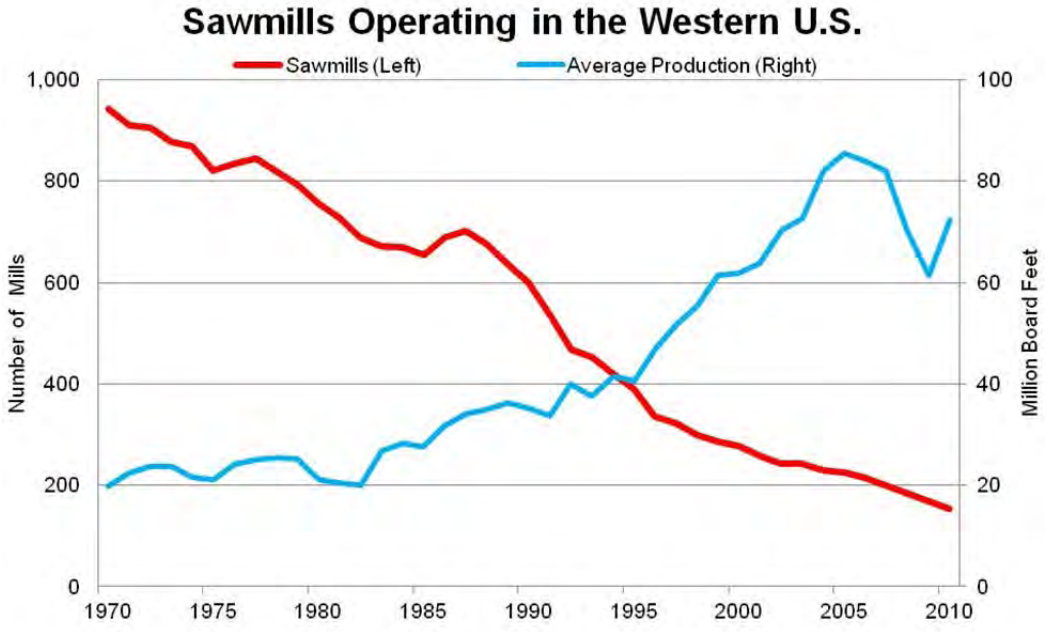
The original Probable Sale Quantity under NWFP, which is still in effect, for the ONF is 10 mmbf annually.[34] During the period 1998 to 2009, for which we have consistent timber industry employment data, ONF harvest levels ranged from a low of 2 mmbf in 2001 to a high of 19 mmbf in 2006—the cut volume exceeded the 10 mmbf maximum allowed by NWFP in some years because of additional commercial thinning operations in Late Successional Reserves.[35] At this more modest harvest scale, there does not appear to be a close relationship between ONF timber supply and timber-related employment on the Peninsula. As the graph on the next page shows, the longer-term decline in wage and salary timber-related jobs, which fell from 6,455 jobs in 1998 to 4,422 jobs in 2009, is not responsive to federal timber supply changes. Even when the harvest increased in the early 2000s, the overall employment trend continued downward.[36]

Olympic Peninsula Timber Jobs and Olympic National Forest Timber Cut



One driving force that has had a well-documented impact on timber-related employment is the mechanization of the wood products industry. Larger and more efficient mills have replaced smaller and less efficient mills. Specialized mills also have evolved to cater to particular markets with narrowly focused products. Smaller, less efficient mills and some larger ones no longer competitive or candidates for reinvestment on the Peninsula found they could not compete with newer mills located elsewhere in the Pacific Northwest—even for fiber coming from the Olympic Peninsula.[37]

Looking at the western U.S., the volume of timber processed by mills has steadily increased (the most recent recession is an exception) while the number of mills has steadily declined.[38]



These efficiencies extend to worker productivity and overall employment numbers. With new and more efficient milling and manufacturing technologies, fewer employees are required to process an equivalent amount for fiber. This is evident, for example, looking at productivity and jobs trends in Oregon wood product manufacturing. [39]

Less efficient mills are necessarily less cost competitive and have a harder time bidding for higher priced fiber. The demand for raw logs from Asia (China in particular) has elevated prices to the point where many Olympic Peninsula mills cannot compete for regional fiber. These higher prices represent a broader market challenge, not an isolated supply issue. As one Peninsula timber industry firm noted recently, "The present high log prices are not sustainable and it is only a matter of time before [mill] closure begins thus affecting the entire Olympic Peninsula forest industry." [40]

Though some mills are struggling with supply, the timber industry challenge on the Peninsula is not strictly speaking a supply issue. It is a more general competitiveness problem. Even if supply and demand factors consistently converged on prices that would make regional mills competitive, it is difficult to see how timber-related employment could regain its earlier footing or become a major source of new employment.

Summary

Timber-related industries—growing and harvesting, sawmills and paper mills, and wood products manufacturing—pay higher than average annual wages on the Peninsula. However, timber employment shrank by 2,321 jobs during the last decade and the timber-related share of total private wage and salary employment fell from 14.2 percent to 8.8 percent.

During the same time period, non-timber private wage and salary employment on the Peninsula grew by 5,043 jobs, showing that the region's broader economy has decoupled from timber-related sectors. Wages on the Peninsula also have stabilized, reflecting the relative size of today's timber-related employment and the growth of higher paying services industries such as professional and business services.

The transformation of the timber industry has been caused by the interplay of many variables over time, including supply but also a number of other equally important factors such as demand, distance to market, productivity, capitalization, public policy, and international competition. New and more efficient milling and manufacturing technologies, for example, have led to a decline in both mills and employment.

During the last decade, the long-term pattern of timber employment decline did not respond to federal timber supply changes. Even when Olympic National Forest harvest increased in the early 2000s, industry employment trends continued downward.

Travel and Tourism Industries and the Amenity Economy

This chapter examines travel and tourism industries and the amenity economy because they have the potential to be affected by the draft congressional watershed conservation proposal.

We first describe data and trends in travel and tourism employment; then review findings on the significance of the outdoor recreation economy in general and for the Peninsula; and follow with a summary of research showing that travel and tourism activities are part of a larger amenity economy as well as an important driver of economic growth in the rural West and on the Peninsula.

Trends in Travel and Tourism Sectors

There is no single industrial classification for travel and tourism businesses. Several sectors, however, at least in part provide goods and services to visitors to a local economy. We reviewed the published literature to discern how other research identifies industries that are part of travel and tourism. [41] These industries, which follow generally accepted standards, include:

Components of Retail Trade: Gasoline Stations, Clothing and Accessory Stores, Miscellaneous Store Retailers (includes Gift, Novelty, and Souvenir).

Components of Passenger Transportation: Air Transportation, Scenic and Sightseeing Transportation.

Components of Arts, Entertainment, and Recreation: Performing Arts and Spectator Sports; Museums, Parks, and Historical Sites (includes National Parks, Conservation Areas); Amusement, Gambling, and Recreation (includes Golf Courses, Alpine and Cross Country Skiing Facilities).

Components of Accommodation and Food: Accommodation (includes ski resorts, hotels, casino hotels, campgrounds, guest ranches), Food Services and Drinking Places.

These sectors provide goods and services to visitors as well as to the local population. It is not known, without additional research such as surveys, what exact proportion of the jobs in these sectors is attributable to expenditures by visitors—including business and pleasure travelers—compared to expenditures by local residents.

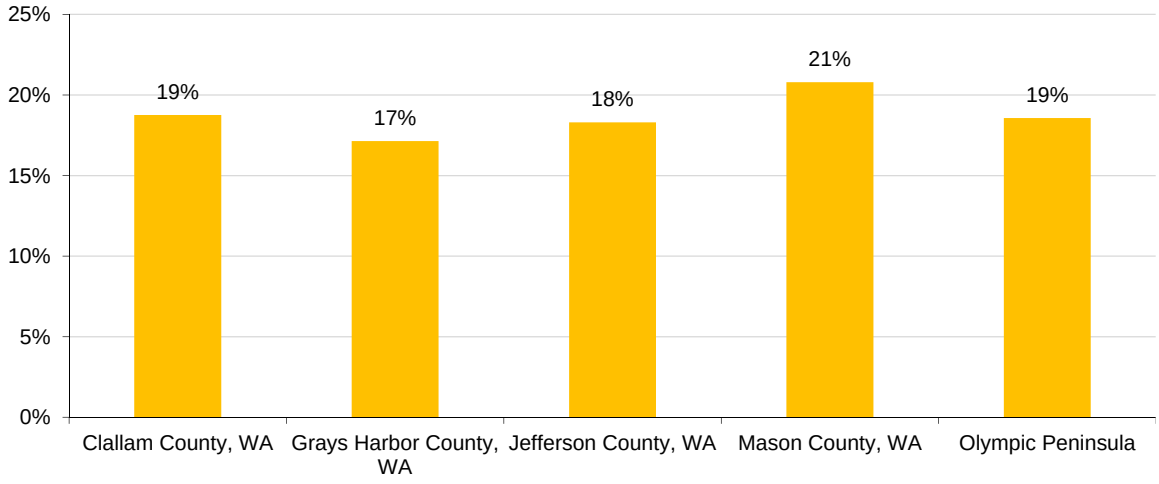
In 2009 on the Peninsula, there were approximately 9,330 private wage and salary jobs in all travel and tourism sectors, including retail trade (1,554 jobs), passenger transportation (28 jobs), arts, entertainment and recreation (1,135 jobs), and accommodation and food services (6,613 jobs). Together, all of the travel and tourism sectors represent 19 percent of total private wage and salary employment in the region.[42]

Travel and Tourism Private Wage and Salary Employment, Olympic Peninsula, 2009[43]

	Clallam County	Grays Harbor County	Jefferson County	Mason County	Olympic Peninsula
Total Private Wage & Salary Employment	17,371	16,278	6,753	9,832	50,234
Travel & Tourism Related	*3,258*	*2,791*	*1,236*	*2,045*	*9,330*
Retail Trade	613	531	*199*	*211*	*1,554*
Gasoline Stations	184	264	*47*	143	*638*
Clothing & Accessory Stores	165	143	53	*9*	*370*
Misc. Store Retailers	264	124	*99*	59	*546*
Passenger Transportation	*2*	3	*2*	*21*	*28*
Air Transportation	*1*	0	*1*	*19*	*21*
Scenic & Sightseeing Transport	*1*	3	*1*	*2*	*7*
Arts, Entertainment, & Recreation	566	*196*	*136*	*237*	*1,135*
Performing Arts & Spectator Sports	17	*3*	*20*	*1*	*41*
Museums, Parks, & Historic Sites	16	*40*	*16*	*7*	*79*
Amusement, Gambling, & Rec.	533	153	*100*	229	*1,015*
Accommodation & Food	2,077	2,061	899	*1,576*	*6,613*
Accommodation	391	556	196	*813*	*1,956*
Food Services & Drinking Places	1,686	1,505	703	763	4,657
Non-Travel & Tourism	14,113	13,487	5,517	7,787	40,904

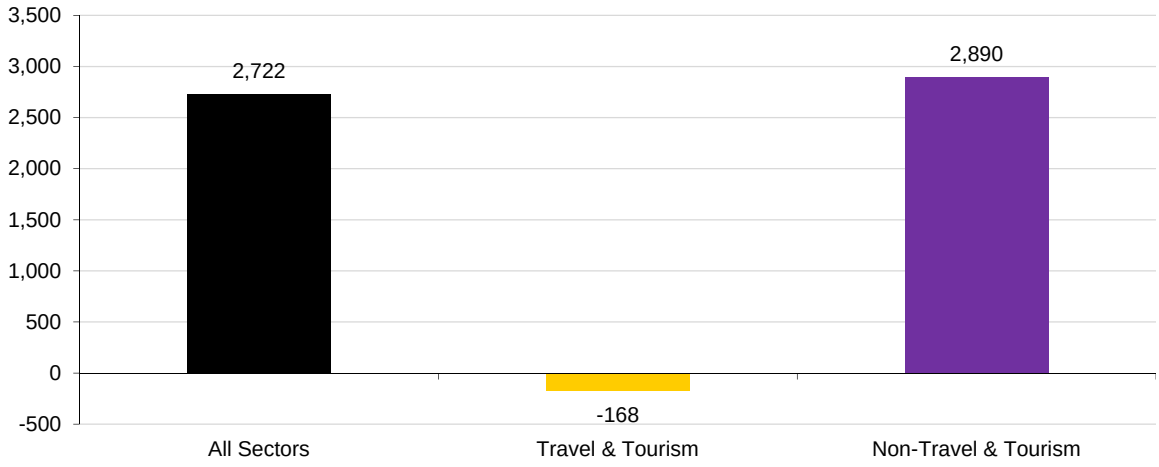
The share of total private wage and salary employment for travel and tourism sectors in each of the four counties ranges from a high of 21 percent in Mason County to a low of 17 percent in Grays Harbor County. Travel and tourism's actual share of total employment is lower because these data do not include government employment (22,320 jobs) in the share of total calculation. We also were unable to identify nonemployer business (i.e., the self employed) data for travel and tourism sectors.[44]

Travel and Tourism Private Wage and Salary Employment, Percent of Total, Olympic Peninsula, 2009



Over roughly the last decade, from 1998 to 2009, regional travel and tourism wage and salary employment declined by 168 jobs. The regional share of total private wage and salary employment also fell from 20 percent to 19 percent. Simultaneously, as the chart on the next page shows, the larger economy grew, adding 2,890 private wage and salary jobs.[45]

New Jobs in Travel and Tourism and Non-Travel and Tourism, Olympic Peninsula, 1998 to 2009



Though the loss of travel and tourism jobs in the last decade has been small, the fact that the larger economy grew at the same time shows that sectors other than travel and tourism are driving economic growth on the Peninsula.

Travel and tourism sectors pay significantly lower than average wages—$14,881 compared to $33,443 for all private wage and salary jobs on the Peninsula.[46] In part these wages are lower because job for job they simply pay less, but many jobs in these sectors are also part-time and seasonal.

Across the region, labor participation rates on the Peninsula show that only 45 percent of workers worked 50 to 52 weeks per year, and only 52 percent of workers worked 35 or more hours per week.[47] Real average wages per job have remained flat in the region over the last decade and have been largely unaffected by travel and tourism sectors.[48]

Outdoor Recreation Economy

This section reviews research findings on the significance of the outdoor recreation economy, both for counties across the country and for the Peninsula.

General

Nationwide, tourism and recreation sectors play a substantial role in the economy, especially in rural communities. A recent study by the Economic Research Service of the U.S. Department of Agriculture found that "recreation and tourism development contributes to rural well-being, increasing local employment, wage levels, and income, reducing poverty, and improving education and health." Job earnings in rural recreation counties, for example, are $2,000 more per worker than for those in other rural counties.[49] In addition, research published in the *American Journal of Agricultural Economics* has shown that, nationwide, protected natural amenities—such as pristine scenery and wildlife—help sustain property values and attract new investment.[50]

Across Washington State, outdoor recreation contributes more than $11.7 billion annually to the economy, supporting more than 115,000 jobs. This economic activity generates $650 million in annual sales tax revenue and produces $8.5 billion in annual retail sales and services—accounting for 3.5 percent of the state's gross state product. [51]

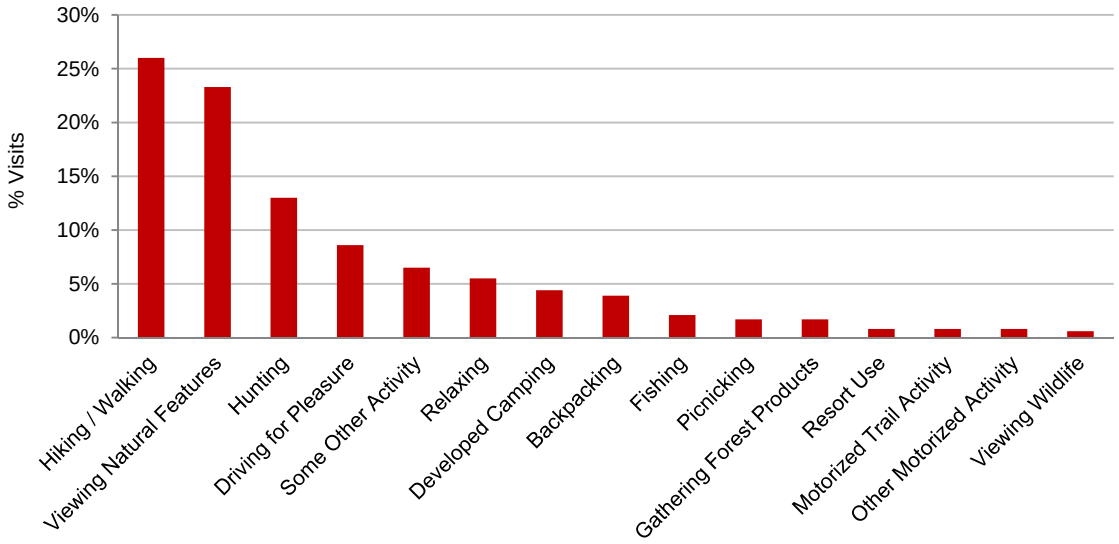
When measuring travel impacts in Washington, total direct spending in 2010 was $15.2 billion, an increase of 7.4 percent over 2009 spending. From a tax perspective, travel spending created almost $1 billion in local and state sales tax revenue in 2010, roughly five percent of the state's total sales tax collections. Also, visitors from outside Washington generated $240 of tax revenue for each Washington household, while resident travel within the state created $145 of tax revenue per household.[52]

Regional

On the Olympic National Forest (ONF), U.S. Forest Service data for recreation and visitation on the Peninsula show that for federal fiscal year 2010 (FY 2010), the ONF had 707,000 total visits broken down into 119,000 day use visits to developed areas; 82,000 overnight visits to developed areas; 459,000 visits to undeveloped areas; and 47,000 visits to Wilderness areas.[53]

Visitors to the ONF engaged in a wide variety of activities. When asking visitors about their main activity and the time they spent doing that activity in the Forest, the agency found that hiking and walking (26 percent of main activity for 3.8 hours) was most often mentioned, followed by viewing natural features (23.3 percent for 5.1 hours), hunting (13 percent for 3.5 hours), driving for pleasure (8.6 percent for 1.8 hours), and relaxing (5.5 percent for 11.3 hours).[54]

Percent of Visits by Main Activity, Olympic National Forest, FY 2010



Each trip generates local spending and economic activity. For 2005, the Forest Service estimates that each person visiting the ONF on a day trip spent $51 per day, while overnight visitors spent $167 on average per day. Balancing for all types of trips, the report conducted for the Forest Service found that an average visitor to the ONF spent $92.[55]

At Olympic National Park (ONP), there were 2,961,302 visitors in 2011, a 4.1 percent increase over 2010 visits. In 2010, the total was 2,844,563. A statistical model created by academics at Michigan State University analyzes the economic impact of visitors and spending to the local economy. While the analysis for 2011 figures in not yet available, the 2010 research shows that the 2.8 million visitors that year spent more than $106 million, supporting nearly 1,400 jobs.[56]

County

The Washington State Department of Commerce also tracks the economic impacts of travel in the four Peninsula counties. The agency's analysis measures total travel spending, travel-related jobs created, percentage of travel jobs compared to the county's overall workforce, and local tax revenues.

Using these metrics, for 2009 travel spending in Clallam County totaled $179.4 million, employing 2,980 (or 8.2 percent of the workforce), and generating $3.6 million in local tax receipts. For Grays Harbor County, travel spending was $253.7 million, creating 4,900 jobs (15.6 percent of the workforce), and $5.1 million in local tax receipts. For Jefferson County, travel spending was $103.3 million, creating 1,630 jobs (11.6 percent of the workforce), and $2.2 million in local taxes. Finally, for Mason County, travel spending was $88.7 million, creating 1,250 jobs (6.1 percent of the workforce), and $1.5 million in local tax receipts.[57]

Fish

Drilling down to look at one specific aspect of recreation, studies concerning the economic impact of the Elwha and Glines Canyon Dams (the Elwha dam removal project) provide specific details of localized economic impacts that can be measured against the context of the region's larger economy.

A 2005 National Park Service study found that removing the dams would incur considerable costs, but also would provide long-term benefits of $36.7 million for commercial fishing, $10.3 million for sport fishing, and $317.6 million for recreation and tourism. [58] It is important to note that the majority of the economic impacts from this dam removal project will mostly likely remain close to the two dams, both located in Clallam County, but the estimates provide a useful measurement of economic impacts to the region.

For the ONF, another study found that fishing expenditures were just more than $80 million in 2005, compared to $7.8 million for hunting and $2.4 million for wildlife viewing.[59]

Broader Economic Role of Natural Amenities

While travel and tourism activities are important in their own right, research increasingly shows that these activities are only one part of a larger amenity economy that is an important driver of economic growth in both the rural West and on the Olympic Peninsula.

First, let's look at how the West's economy has been changing. From 1990 to 2008, the population in the West grew by 35 percent. By comparison, during the same time the population of the U.S. grew by 22 percent, and that of the second fastest growing region, the Southeast, grew by 29 percent. Some western states experienced very fast growth. From 1990 to 2008, the population of Nevada grew by 114 percent; Arizona grew by 76 percent; Colorado, Utah and Idaho all saw their populations grow by more than 50 percent. Washington State grew by 34 percent. [60]

Much of the growth was due to in-migration. According to the 2000 Census, the West had the fastest migration rates during the 1990s (20 percent, compared to 13 percent for the nation).[61] The U.S. Census Bureau estimates that this growth will continue. Compared to 2000, by 2030 the West's population is projected to grow 46 percent, the fastest of any region in the nation, and faster than the 29 percent growth projected for the nation.[62]

The economy of the West has also grown faster than the nation. From 1990 to 2008, employment and real total personal income in the West grew by 40 percent and 68 percent, respectively. By comparison, employment and real total personal income in the U.S. grew by 31 percent and 54 percent, respectively.[63]

A number of reasons have been offered for the West's rapid growth. One reason is the restructuring of the global economy, wherein some professions, such software developers, financial consultants, engineers, architects and other so-called "knowledge-based" service occupations have been able to "de-couple" from the city and the factory floor, thereby becoming "footloose," able to live almost anywhere.[64] These transformations of conventional constraints on business location opened up parts of the country that were historically excluded from national and international business networks, including much of the rural West.

A broad economic shift is clearly evident in regional economic statistics. Of the nearly 12 million new jobs created in the West from 1990 to 2008, 90 percent were in service-related jobs, with the fastest growth in health services (31% of new jobs), professional and technical services (27% of new jobs) and amusement and recreation services (26% of new jobs). Importantly, some the fastest growth in jobs was in high-wage jobs such as professional and business services (with average annual wages of $58,000) and medium-wage jobs such as health services (with average annual wages of $45,000).[65]

In contrast, the perceived traditional staples of the economy of the rural West grew slowly and played a smaller and smaller role in the overall economy. Cumulatively, farming, ranching, forestry, lumber and wood products manufacturing, hard rock mining, and fossil fuel development contributed less than three percent of total new jobs from 1990 to 2008.[66] In 2008, these sectors combined constituted roughly seven percent of all jobs in the non-metro West, and three percent in the West as a whole.[67]

Retirees have also played a role in economic development in the West, as in-migrants that import non-labor income and spur demand for housing and services. Areas of the West with amenities desirable among retirees, such as affordable housing and fair climates, were among the fastest growing parts of the country during the 1990s.[68]

Other researchers point out that public lands in the West, along with wild rivers, lakes, mountains and plentiful recreational opportunities, serve as attractants to both business owners and retirees.[69] As a recent review of the amenity migration literature from around the world observed, "the American West is perhaps the most often-cited example of a region experiencing high rates of population growth related to amenity migration."[70]

The powerful attraction of amenities has helped to transform the economy of many parts of the rural West from dependence on resource extractive industries to growth from in-migration, tourism, and modern economy sectors such as software development. This transformation has been aided by the advancement of telecommunications technology, efficient delivery services (e.g., FedEx, UPS), and the growth of regional transportation networks.[71] While in the past the vast distances of the West were an impediment to business trying to get products to markets, in today's economy these wide-open spaces are for some communities an asset that attracts people and business.[72]

However, environmental amenities are not the only element needed for economic success and an emerging literature has established a more complex picture of the links between natural amenities and other drivers of growth.[73] For example, recent studies have shown that it is easier to capitalize on environmental amenities if the local economy also has access to larger markets, especially via air travel.[74] Some research has found that forty percent of world trade moves by air, and two-thirds of U.S. air cargo is transported via 24- to 48- hour door-to-door express shipments.[75] Air travel is especially important for technology workers, who travel by air between 60 and 400 percent more frequently than those in the general workforce.[76]

The structural shift in the economy towards a primarily service-based economy underscores the importance of education. If almost all new jobs are in services, the key to economic success, and what will differentiate one county from another, is the ability to capture relatively higher-wage component of services industries. According to analysis by the Bureau of Labor Statistics, jobs that are projected to be in highest demand and are growing the fastest also require a college degree. These include the fields of health care and education, and occupations in management, engineering, and business and financial services.[77]

Education rates also make a difference in earnings and unemployment rates. In 2008, the national average weekly earnings for a person with an undergraduate degree were $978, compared to $626 per week for a high school graduate. While in 2008 the unemployment rate among college graduates was 2.8 percent, and for high school graduates it was 5.7 percent.[78]

It is important to emphasize that the shift of the West to a primarily service-based economy is not limited to the big cities. In the non-metro counties of the West, more than 1.5 million jobs were created from 1990 to 2008, with 70 percent of them in service-related jobs (and more than half of this service industry growth from health care and professional and technical services). The bulk of the remainder of the job growth was in government. In many small communities in the West, government is a source of relatively high-wage jobs. [79]

Olympic Peninsula

The Olympic Peninsula has followed many of these national and regional trends.[80] Counties on the Peninsula are characterized by significant public lands and benefit from compelling natural features that include dramatic mountains, clean water, free-flowing rivers with vital fisheries, old growth rainforests, and a signature national park.

In recent decades population, employment, and real personal income on the Olympic Peninsula have grown faster than these same measures for the non-metro portion of Washington State and the national as a whole, though Grays Harbor County is an exception to this broader trend. Fueling this growth is a mix of services sectors and non-labor sources of income. The relatively close proximity of larger communities to Puget Sound and the I-5 corridor has made access to larger markets easier than for many rural areas.

The region’s economy no longer relies solely on goods-producing industries to expand—that is, economic growth has decoupled from historic natural resource sectors. Over the last decade, the expansion of services sectors on the Peninsula more than made up for declines in non-services sectors. While average wages initially declined in this wholesale transition, they have stabilized and per capita income has been rising for decades.

The Peninsula economy is now primarily a service-providing economy. It includes a mix of low and high skill occupations. The largest services sectors on the Peninsula in 2010 were: trade, transportation and utilities constituted 17 percent, education and health services 11 percent, and leisure and hospitality services 10 percent of total private wage and salary employment.[81]

The Peninsula has an attractive enough mix of assets that more than a third of population growth in the last decade came from net in-migration. The population is aging, as it is across the country, and Baby Boomers are the predominant demographic. As they age, Boomers are tapping into wealth accumulated over a lifetime and bringing new income to the Peninsula, which in turn is driving a growing portion of the area's economic activity.

These trends suggest that the Peninsula is already benefiting from the presence of natural assets as business assets. In this light, protecting natural assets generates value well beyond their tourism and recreation output. They are also a likely reason people and businesses are moving to and investing in the Peninsula, and the region's economy is expanding at an above average rate.

Summary

Travel and tourism sectors play a substantial role in the regional economy. In 2009 on the Peninsula there were approximately 9,330 private wage and salary jobs related to travel and tourism, or roughly 19 percent of total private wage and salary employment in the region.

The Olympic National Forest had 707,000 total visits in 2010. The Forest Service estimates that each person visiting the Forest on a day trip spent $51 per day while overnight visitors spent $167 on average per day—and that an average visitor spent $92 per day. At Olympic National Park, there were 2,961,302 visitors in 2011, a 4.1 percent increase over 2010. For 2010, the 2.84 million visitors that year spent more than $106 million, supporting nearly 1,400 jobs.

While travel and tourism activities are important in their own right, research increasingly shows that these activities are only one part of a larger amenity economy that is an important driver of economic growth in both the rural West and on the Olympic Peninsula.

More than one third of population growth on the Peninsula in the last decade came from net in-migration. And today the economy is primarily a service-providing economy. The largest services sectors on the Peninsula in 2009 were: trade, transportation and utilities constituted 17 percent, education and health services 11 percent, and leisure and hospitality services 10 percent of total private wage and salary employment.

The powerful attraction of natural amenities—such as dramatic mountains, clean water, free-flowing rivers with vital fisheries, and old growth rainforests—has helped to draw new people to the region and transform the structure of the economy. This shift in competitive strength also has contributed to above average rates of economic growth and rising per capita income.

While the region as a whole is benefiting from travel and tourism business and trading on natural assets as business assets, not all communities are competing as successfully in this newer economy. Grays Harbor County in particular has struggled to redefine its economy as the broader economy has shifted from goods production to service provision.

Potential Impact of the Draft Congressional Watershed Conservation Proposal

The draft watershed conservation proposal issued by Congressman Dicks and Senator Murray in November 2011 has three main components: Wilderness designation of a portion of the Olympic National Forest (ONF), Wild and Scenic River designation along major rivers, and a willing buyer-willing seller provision that would authorize landowners to sell select areas to Olympic National Park (ONP) along its boundaries. We examine each component below.

Wilderness

The draft plan proposes 132,817 acres of new Wilderness for U.S. Forest Service lands with wilderness characteristics on the ONF. Wilderness prohibits mechanized activity within its boundaries, including timber harvests.[82]

From a timber supply perspective, approximately 12,300 acres, or 9.3 percent of the acreage proposed for Wilderness in the draft proposal, falls within the current timber base on the ONF. This figure includes both Adaptive Management Areas and Late Successional Reserves less than 80 years old.

However, current Forest Service timber sale guidelines and silvicultural principles would further reduce the actual timber base acreage potentially available for logging in the proposed Wilderness acreage. These include non-productive forest types, buffers around streams, and access limitations based on the existing ONF road network. With these considerations taken into account, there are approximately 4,292 proposal acres, or 2.2 percent of the total timber base on the ONF potentially available for ground base and cable logging. If the underlying economics supported more expensive helicopter logging, this figure could expand to 8,411 acres, or 3.7 percent of the total timber base on the ONF.[83]

Because the ONF has averaged approximately 1,500 acres of commercial thinning per year (or less than 1% of the available timber base annually) since the adoption of the Northwest Forest Plan, it is unlikely the draft Wilderness proposal would affect the current timber volume coming off the forest.[84] It also is difficult to know with any certainty whether unlogged ONF lands would ever be logged under current or future Forest Service guidelines.

It is equally difficult to know the exact nature of the opportunity cost of Wilderness designation to Peninsula timber businesses because, as noted above, timber supply by itself is a poor predictor of economic impact. Broader market considerations are likely more determinative of the viability and potential benefits, including employment, of timber harvests. Even if this timber supply were cut and sold, it is not clear that area mills would be able to bid successfully on these sales. Local sawyers and truckers might benefit, but given the regionally integrated nature of timber purchasing, it is conceivable if not likely that the resulting fiber would be trucked off the Peninsula to be processed by more efficient or specialized mills elsewhere.

Assuming for the moment that these acres would actually be logged, that supply is the only determinant of resulting employment, and that there is no outside competition for these resources, one could apply a straightforward impact analysis to determine the potential for forgone jobs. The Port of Port Angeles report does this for a larger acreage total and estimates the draft congressional proposal would foreclose five potential new timber-related jobs. If we use their model, and the acreages calculated above (i.e., 4,292 acres for ground and cable logging, and

8,411 acres for ground and cable plus helicopter logging), the resulting potential employment benefits would be 1.1 jobs and 2.2 jobs, respectively.[85]

To put these potentially forgone jobs in perspective, it may be helpful to consider that the economy on the Peninsula has created net new jobs over the last decade, on average, at the rate of 876 jobs per year. At this rate, it would take just less than half a day to replace ground and cable logging scenario employment and a little less than a day to replace ground and cable plus helicopter logging scenario employment in other growing sectors of the regional economy. [86]

A more productive approach to economic development would focus less on the potential loss of a small number of future timber jobs and more on expanding services sectors, and on higher wage components of services such as health care and professional services, that are already growing and represent a current competitive strength. It also pay close attention to community and landscape qualities, transportation connectivity, and workforce skills that are more likely to attract and retain higher-paying services sectors.

Wild and Scenic Rivers

The draft congressional plan proposes adding portions of 19 rivers that are surrounded by federal and state land totaling approximately 464 river miles on the Olympic Peninsula under the terms of the Wild and Scenic Rivers (WSR) Act.[87]

The WSR Act is designed to protect outstanding values on selected rivers, or segments of rivers, along with their free-flowing condition, and provide for public use consistent with retaining these values.

From a timber perspective, attention has focused on the quarter mile (1,320 foot) corridor along each side of a river (technically 320 acres per river mile) that is created along with WSR designation and whether forestry activities would be allowed to persist there.

On Forest Service lands, the current ONF Forest Plan recognizes the rivers and outstanding values identified as eligible WSR river segments in the draft watershed conservation proposal.[88] WSR would codify these administrative standards into law.[89] The management of forest resources on ONF lands within the WSR corridor would for all practical purposes remain the same. This includes selective thinning and timber harvest consistent with protecting the values identified by the WSR Act. Interagency guidance on timber management specifically states, “Agricultural and forestry practices should be similar in nature and intensity to those present in the area at the time of designation.”[90] As a result, WSR designation should have no material impact on timbering activity.

On Washington Department of Natural Resources (DNR) lands, the WSR Act has no regulatory authority. Federal agencies are encouraged to cooperate with the state in developing a comprehensive river management plan. They cannot mandate actions. Washington State, through its Forest Practices Habitat Conservation Plan, already recognizes and has a management plan to protect the outstanding values for WSR candidate rivers proposed by Wild Olympics that is consistent with its trust fiduciary responsibility.[91] The management of forest resources on DNR lands within the WSR corridor would for all practical purposes remain the same. This includes forest thinning and timber harvest consistent with protecting the values identified by the WSR Act. As a result, WSR designation should have no material impact on timbering activity.[92]

Contrary to this understanding, the Port of Port Angeles study assumes that the entire area encompassed between current riparian buffers and the WSR quarter-mile corridor on each side of non-Wilderness proposed river segments would be precluded from all logging activities. Even with this exaggerated interpretation of impacted lands, the report estimates on the basis of supply side consideration alone that the WSR proposal would foreclose 12 potential new timber-related jobs. [93] At the current rate of job creation over the last decade on the Peninsula, it would take five days to replace WSR scenario employment in other growing sectors of the regional economy.[94]

Detailed economic studies of wild and scenic rivers have quantified economic benefits associated with WSR designation.[95] These benefits include sustained or improved fisheries and expanded recreation business; and protection of water quality, scenery, and other aesthetic values that may attract people and business to the region. WSR designation may also advance agency and congressional efforts to allocate scare resources for restoration work that would have short-term employment benefits and result in the long-term improvement in river health and recreation access and use that in turn would make the region more attractive for people and business.

Additions to Olympic National Park

The draft congressional plan proposes a willing seller-willing buyer provision that would allow property owners in three areas—Lake Crescent, Lake Ozette, and Queets Corridor—to sell as much as 20,026 acres to ONP at their discretion. The majority of this proposed acreage is private timberland (13,202 acres), with lesser amounts held by Washington DNR (3,779 acres) and the U.S. Forest Service (2,092 acres), and the remainder held by a mix of smaller owners.

The Park is prohibited currently from acquiring additional lands along its borders. In order to expand it requires specific enabling legislation. Such legislation does not compel current landowners to sell. Instead, it gives them the option to sell and to negotiate the price for the sale. Moreover, even if landowners wished to sell to ONP, it is not clear that the U.S. Department of Interior would have funds to complete a purchase of some or all of identified lands. One likely source of purchase funds is the Land and Water Conservation Fund, which requires an annual funding decision by Congress and is highly competitive.

The discretion of the landowner and challenge of securing funding for acquisitions point to the contingent nature of this provision. It is not clear that landowners would sell and, if they were interested, whether there would be enough funding to complete a deal or deals for exactly how many acres over what period of time.

This all makes it difficult to assess the potential impact on the timber industry. In addition, a supply side estimate of impacts alone is not likely to predict employment effects accurately. It is beyond the scope of impact analysis to derive demand for particular end use markets or other market variables, which are likely to be more significant determinants of employment impacts.

Despite these analytical challenges, the Port of Port Angeles report calculates future impacts based on supply considerations alone. They assume that lands used for timber in the past or currently will always have timber as their highest and best use and that therefore the sale of any of these lands to ONP, which would preclude future logging, would negatively impact potential future jobs in timber-related industries.

However, it is equally possible that landowners would choose to exercise the right to sell their property because the highest and best use of these lands had shifted to conservation, recreation, or development purposes. Indeed, private forest landowners have sold productive timberlands for

other uses in recent years. A 2007 study by Washington DNR estimates the Peninsula lost 56,000 acres of commercial forestland to residential and other commercial development between 1988 and 2004.[96]

It is also possible that the sellers of land in question might use proceeds from a sale to acquire new timberlands or make other investments that strengthen their balance sheet or competitive position. And it is likely that other more significant issues—such as mechanization, reinvestment, the cost of transportation, and trade agreements—will have much more significant impacts on the timber industry's future on the Peninsula.

These contingencies make it impossible to determine with any certainty whether land sales would take place, on what scale they would occur, over what time frame they might take place, and if they would hamper or bolster the economy on the Peninsula.

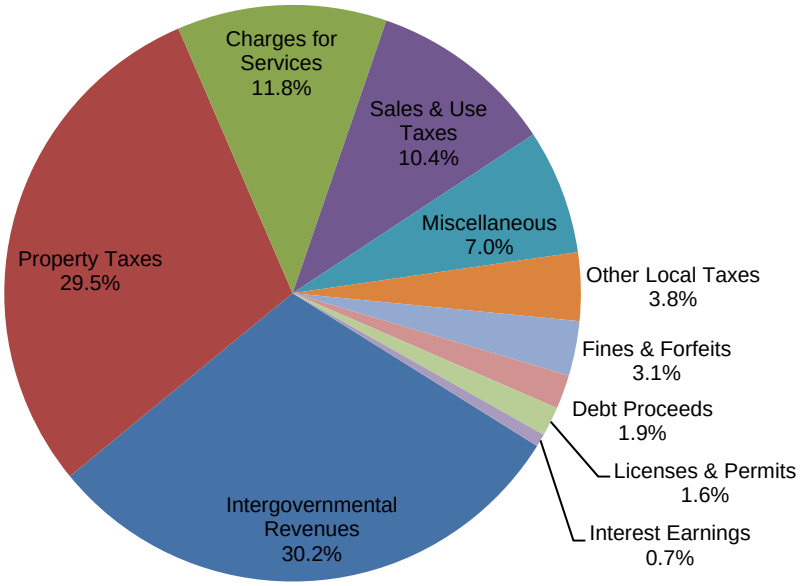
Potential Fiscal Impacts

This section describes the relative importance of different revenue sources to Peninsula counties, and the likely impacts to these revenue sources from the draft congressional proposal.

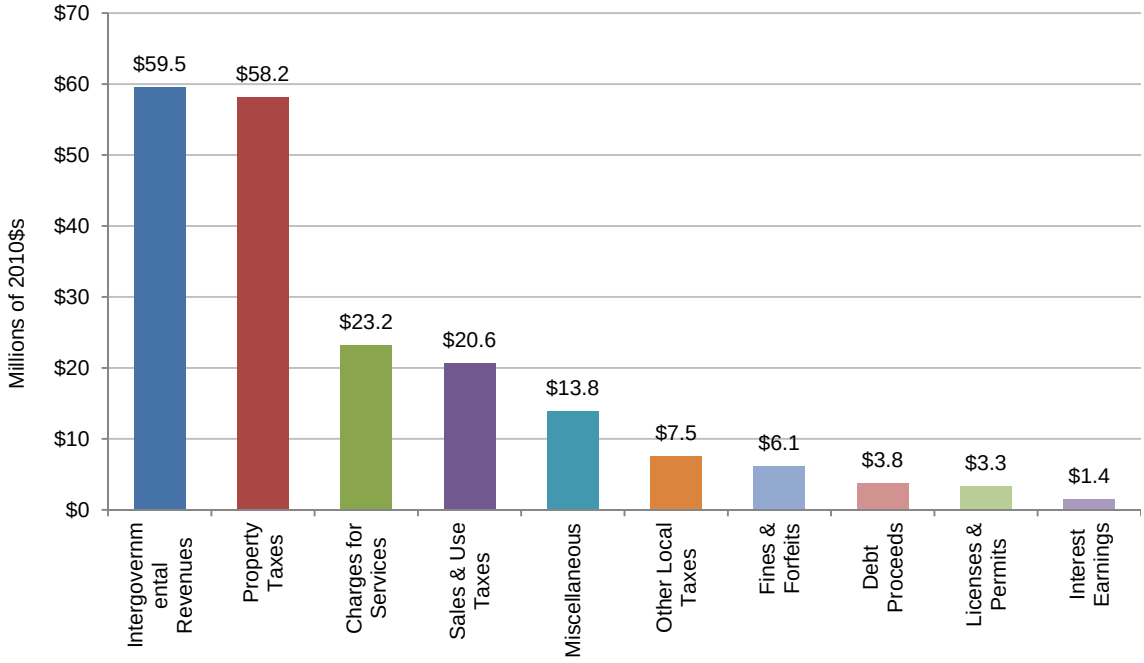
All Sources or Revenue to Peninsula County Governments

The share and amount of local government revenue by source for Olympic Peninsula counties in FY 2010 are shown in the charts below. [97]

Sources of County Government Revenue in Clallam, Grays Harbor, Jefferson, and Mason Counties, FY 2010



Sources of County Government Revenue in Clallam, Grays Harbor, Jefferson, and Mason Counties, FY 2010



The combined revenue/budgets of the four counties were $197 million in FY 2010. Mason County had the largest budget ($60 million), followed by Clallam ($54 million), Grays Harbor ($51 million), and Jefferson ($32 million).

- Intergovernmental revenue—payments and grants from the state and federal government, including Payments in Lieu of Taxes (PILT) and Forest Service payments—was the single largest source of revenue for the four counties at $60 million, providing 30.2 percent of total revenue.

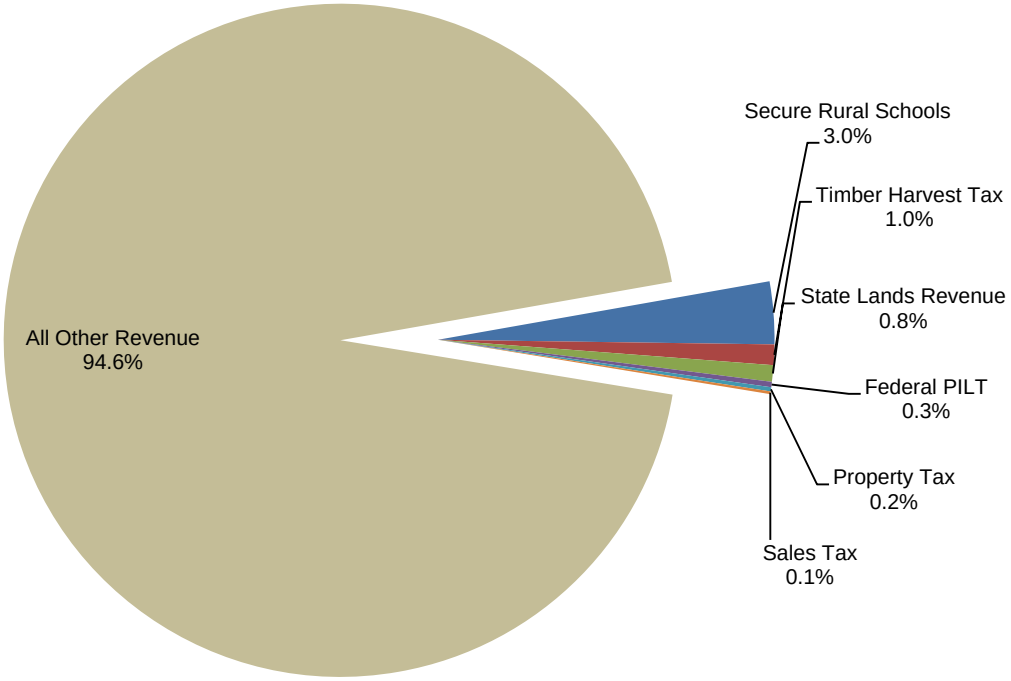
- Property taxes were the second largest source of revenue at $58 million, providing 29.5 percent of total revenue.

Federal Land and Timber-Related Revenue to Peninsula County Governments

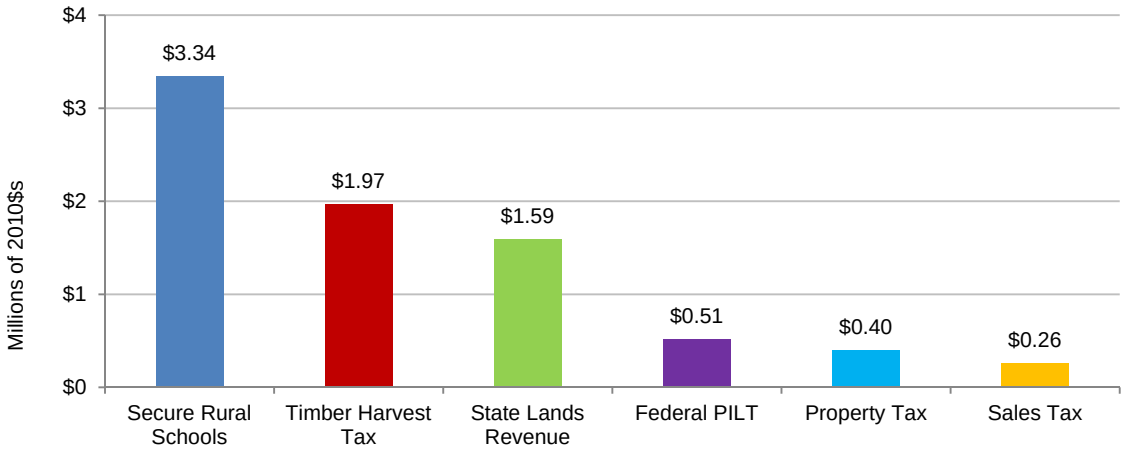
The four counties benefit from the presence of federal land and timber production in a number of ways: direct local property and sales tax collections, state timber excise tax distributions, and state and federal land revenues shared with local governments.

The share and total of local government revenue from federal land and timber-related revenue for Olympic Peninsula counties in FY 2010 are shown in the charts on the next page. [98]

Timber-Related Revenue, Share of Total County Government Revenue in Clallam, Grays Harbor, Jefferson, and Mason County Governments, FY 2010



Sources of Timber-Related Revenue to Clallam, Grays Harbor, Jefferson, and Mason Counties, FY 2010



Total federal land and timber–related revenue from all sources for Peninsula counties was $8 million, or 5.4 percent of total county government revenue in FY 2010.

- Federal land revenues (PILT payments based on total federal acreage and Secure Rural Schools [SRS]) totaled $3.85 million, the largest source of revenue from timberlands in the four counties.

- Timber-related tax revenues of $2.6 million made up the second largest source of timber-related revenues. Timber harvest tax distributions from the state ($1.97 million) are the largest source, followed by local property taxes ($0.4 million) and sales taxes ($0.26 million) on timberlands and activities.

- State land revenues (shared timber receipts, lease revenue, and payments in lieu of taxes) totaled $1.59 million.

The Potential Fiscal Impact of the Draft Congressional Proposal

By potentially changing the way federal lands are managed and converting private and/or other public lands into new National Park acreage, the draft congressional proposal could affect federal payment amounts and distribution as well as timber-related revenues.

The draft proposal would likely have a small, positive effect on federal land payments from the Forest Service and PILT. At the same time, direct tax revenue from timber harvests would decline if private timberland was removed from the tax rolls and the timber harvest tax base was reduced.

The table below outlines potential outcomes for each draft proposal component. For National Park additions, we look only at private timberlands (13,202 acres), which are the bulk of the proposed additions.

Potential Impact on Federal Land Payments and Timber-Related Tax Revenue

	New Wilderness on ONF	Wild and Scenic River	Private Land Addition to ONP
FS Revenue Sharing and PILT	No change	No change	Additional PILT payment of $0.68 per acre
Property Tax	No change	No change	No change first 5 years; subsequent loss of $4.26 per acre
Timber Harvest Tax	Loss of $1.15 per acre of productive timberlands placed in Wilderness	No change	Loss of $1.15 per acre of productive timberlands added to Olympic National Park

For Wilderness designation, the size of the potential change in tax revenue depends on the number of acres of productive timberland that otherwise would have been be logged but will not be logged because of new Wilderness restrictions. Using the acreages we calculated earlier—for ground and cable logging, 4,292 acres of timberland; and for ground and cable plus helicopter logging 8,411 acres of timberland—Peninsula counties would see their state harvest tax reduced by $4,936 and $9,673, respectively.

Wild and Scenic River designations are revenue neutral.

For National Park additions, there are several considerations. Private timberland converted to federal public land will pay an additional $0.68 per acre in PILT. Private timberland added to ONP will not change property tax status for five years, but will subsequently pay $4.26 less per acre. Private timberland added to ONP will pay $1.15 less in harvest taxes per acre. So, for example, the average per acre revenue loss for private timberlands would be -$1.15 in timber harvest tax and, after five years, -$3.58 ($4.26 minus $0.68) in property taxes—a total of -$4.73 per acre.

If 13,202 acres of private land were sold to Olympic National Park, the total direct fiscal loss to the four Peninsula counties would be $15,182 in timber harvest tax declines over the first 5 years, and after that $62,445 annually (timber harvest tax losses plus net property tax reductions).

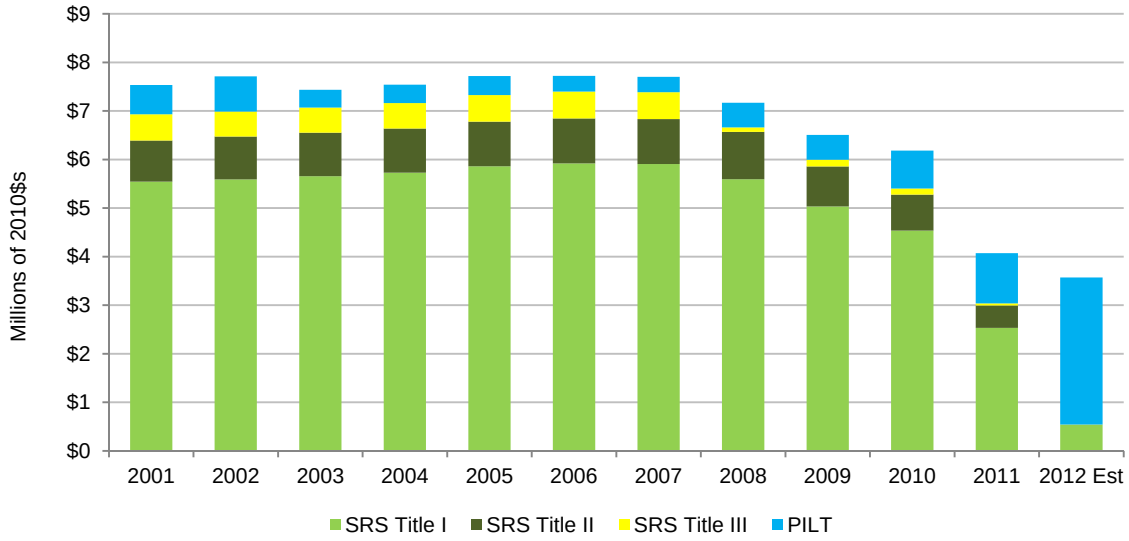
National Policy and Federal Land Payments

Future national policies will have a far greater impact on local government finances than any revenue changes due to the draft congressional watershed conservation proposal. In order to understand why, it is important to understand a few details about the Secure Rural Schools and Community Self-Determination Act (SRS) and Payments in Lieu of Taxes programs (PILT).

Secure Rural Schools expired in October 2011, and counties received their last SRS payments in January 2012. Unless SRS is reauthorized, next year each county will receive a revenue sharing payment from the Forest Service equal to 25 percent of total commercial receipts generated on the ONF. We estimate the 25 percent revenue sharing payment from the Forest Service to Olympic Peninsula counties would be about $543,000 for FY 2012. This represents a $2 million decline from their FY 2011 SRS payment of $2,534,655.[99]

However, it is crucial to note that because of PILT, which is designed to help mitigate revenue volatility, the four county governments would see *no change* in their federal payments. PILT would rise in response to lower Forest Service payments, increasing to $3 million (a tripling of the current PILT payment of $1 million) and offsetting the difference between SRS and the 25% payment directed to the county governments. As with SRS, PILT too faces its own contingencies. If Congress does not fully fund PILT after FY 2012, the federal land revenues would decrease significantly.[100]

Federal Land Payments to Clallam, Grays Harbor, Jefferson and Mason Counties, Including FY 2012 Estimated Payment



School districts in the four counties are not eligible for PILT payments, but will also not be affected materially by Forest Service payment levels. Forest Service payments allocated for schools are deposited into the state's education fund and distributed to all schools across the state based on the state's equalization formula.

Summary

The draft watershed conservation proposal issued by Congressman Norm Dicks and Senator Patty Murray in November 2011 has three main components: Wilderness designation of a portion of the Olympic National Forest, Wild and Scenic River designation along major rivers, and a willing buyer-willing seller provision that would authorize landowners to sell select areas to Olympic National Park along its boundaries.

The Wilderness component could affect approximately 4,292 proposal acres, or 2.2 percent of the total timber base on the Olympic National Forest potentially available for ground base and cable logging. If the underlying economics supported more expensive helicopter logging, this figure could expand to 8,411 acres, or 3.7 percent of the total timber base on the Forest. Because the Olympic National Forest has averaged approximately 1,500 acres of commercial thinning per year (or less than 1% of the available timber base annually) since the adoption of the Northwest Forest Plan, it is unlikely the draft Wilderness proposal would affect the current timber volume coming off the forest.

The Wild and Scenic River component would add portions of 19 rivers that are surrounded by federal and state land totaling approximately 464 river miles on the Olympic Peninsula under the terms of the Wild and Scenic Rivers Act. Because the management of forest resources on Olympic National Forest lands within the Wild and Scenic River corridor would for all practical purposes remain the same, this designation should have no material impact on timbering. The same holds for Washington Department of Natural Resources lands where the Wild and Scenic Rivers Act has no regulatory authority, and Washington State through its Forest Practices Habitat Conservation Plan already recognizes and has a management plan to protect the outstanding values for candidate rivers that is consistent with its trust fiduciary responsibility.

The willing seller-willing buyer component would allow property owners in three areas—Lake Crescent, Lake Ozette, and Queets Corridor—to sell as much as 20,026 acres to Olympic National Park at their discretion. Because of the contingencies of whether landowners would sell their land and whether there would be funds to acquire lands, it is impossible to determine with any certainty whether land sales would take place, on what scale they would occur, over what time frame they might take place, and if they would hamper or bolster the economy on the Peninsula.

One or more of the draft proposal components could have a fiscal impact on local county governments. Total federal land and timber–related revenue from all sources for Peninsula counties in FY 2010 was $8 million, or 5.4 percent of total county government revenue. The potential fiscal impact of proposed Wilderness would be very small (less than $10,000 annually), while the Wild and Scenic River provision would be revenue neutral. The National Park additions component is more difficult to calculate but would likely have a small negative impact on net revenue.

Much more important than the draft watershed conservation proposal for Peninsula county governments is the future authorization and funding levels for Secure Rural Schools and Payment in Lieu of Taxes programs. The goods news is that even if Congress does not reauthorize SRS, PILT would rise in response to lower Forest Service payments, increasing to $3 million (a tripling of the current PILT payment of $1 million) and offsetting the difference between SRS and the 25% payment directed to county governments. However, as with SRS, PILT faces its own contingencies. If Congress does not fully fund PILT after FY 2012, federal land revenues would decrease significantly.

References

[1] Conservation Biology Institute, 2006.
[2] Ibid. Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207. Protected lands include one or more of the following: National Parks and Preserves (NPS), Wilderness (NPS, FWS, FS, BLM), National Conservation Areas (BLM), National Monuments (NPS, FS, BLM), National Recreation Areas (NPS, FS, BLM), National Wild and Scenic Rivers (NPS, FS, BLM), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS). For more information, see the Economic Profile System land use report: http://headwaterseconomics.org/tools/eps-hdt.
[3] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30. For more information, see: http://headwaterseconomics.org/tools/eps-hdt.
[4] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30; U.S. Department of Commerce. 2010. Census Bureau, Population Division, Washington, D.C.
[5] U.S. Department of Commerce. 2011. Census Bureau, American Community Survey Office, Washington, D.C.
[6] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30.
[7] Ibid.
[8] U.S. Department of Labor. 2011. Bureau of Labor Statistics, Local Area Unemployment Statistics, Washington, D.C. National Bureau of Economic Research. 2009. U.S. Business Cycle Expansions and Contractions, Cambridge, MA. For more details, see: http://headwaterseconomics.org/tools/eps-hdt.
[9] We use the date range 1970 to 2000 because the U.S. Department of Commerce replaced the Standard Industrial Classification (SIC) system in 2001 with the North American Industry Classification System (NAICS). NAICS is not backward compatible with SIC. We show data after 2001 using NACIS.
[10] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA25.
[11] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA25N. Estimates are shown in the table in gray italics. Documentation explaining methods developed by Headwaters Economics for estimating data disclosure gaps is available at: www.headwaterseconomics.org/eps-hdt.
[12] Gude, P., et al. In Press. “The Recession and the New Economy of the West: The Familiar Boom and Bust Cycle?” Journal of Growth and Change. Available at: http://headwaterseconomics.org/land/reports/western-counties-recession.
[13] More generally, there are a number of reasons why average earnings per job may decline, and are in fact doing so across the rural West. These include: (1) more part-time and/or seasonal workers entering the workforce; (2) a rise in low-wage industries, such as tourism-related sectors; (3) a decline of high-wage industries, such as manufacturing; (4) more lower-paid workers entering the workforce; (5) the presence of a university with increasing an enrollment of relatively low-wage students; (6) an influx of workers with low education levels that are paid less; (7) the in-migration of semi-retired workers who work part-time and/or seasonally; and (8) an influx of people who move to an area for quality of life rather than profit-maximizing reasons.
[14] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30.
[15] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Tables CA05 & CA05N.
[16] Ibid. U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30. U.S. Department of Commerce. 2011. Census Bureau, County Business Patterns, Washington, D.C. U.S. Department of Commerce. 2011. Census Bureau, American Community Survey Office, Washington, D.C. U.S. Department of Labor. 2011. Bureau of Labor Statistics, Local Area Unemployment Statistics, Washington, D.C.
[17] Conservation Biology Institute, 2006.
[18] U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA25 and CA25N.
[19] See, for example, Stedman, R et al. 2007. “Measuring Community Forest-Sector Dependence: Does Method Matter?” Society & Natural Resources: An International Journal, 20:7, 629-646.

[20] Gude, P., et al. In Press. “The Recession and the New Economy of the West: The Familiar Boom and Bust Cycle?” Journal of Growth and Change. Available at: http://headwaterseconomics.org/land/reports/western-counties-recession.
[21] The terms "growing and harvesting," "sawmills and paper mills," and "woods products manufacturing" are not official North American Classification system (NAICS) terms. They are used in this report to differentiate major components of the timber and wood products industry, and to distinguish between different levels of value-added production.
[22] U.S. Department of Commerce. 2011. Census Bureau, County Business Patterns, Washington, D.C.
[23] Ibid.
[24] This table reports only private wage and salary jobs; it excludes employment in government, agriculture, railroads, and the self-employed and as a result under-counts the size of industry sectors. The small scale of the timber economy on the Peninsula results in significant non-disclosure of industry-level data by government agencies. Using disclosure estimation techniques reviewed and approved by the U.S. Forest Service, we were able to estimate timber-related sector employment details at the county and regional level. In this table numbers in gray italics are estimates. Documentation explaining methods developed by Headwaters Economics for estimating data disclosure gaps is available at: www.headwaterseconomics.org/eps-hdt.
[25] U.S. Department of Commerce. 2011. Census Bureau, Nonemployer Statistics, Washington, D.C.
[26] U.S. Department of Commerce. 2011. Census Bureau, County Business Patterns, Washington, D.C.
[27] Ibid.
[28] The chart begins in 1998 because that was the first year County Business Patterns began organizing industry data according to the North American Industry Classification System (NAICS).
[29] U.S. Department of Labor. 2011. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Washington, D.C.
[30] Ibid. U.S. Department of Commerce. 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30.
[31] See, for example, Haynes, R. 2008. Emergent Lessons From a Century of Experience With Pacific Northwest Timber Markets. USDA-Forest Service, General Technical Report PNW-GTR–747.
[32] U.S. Forest Service Cut and Sold Reports for All Convertible Products by Region, State, and National Forest, 1980 to 2010. U.S. Department of Agriculture, Forest Service, Washington D.C. http://www.fs.fed.us/forestmanagement/reports/sold-harvest/cut-sold.shtml. For more information, see: http://headwaterseconomics.org/interactive/national-forests-timber-cut-sold.
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regional level. In this table numbers in gray italics are estimates. Documentation explaining methods developed by Headwaters Economics for estimating data disclosure gaps is available at: www.headwaterseconomics.org/eps-hdt.

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