Department of Natural Resources

Economic & Revenue Forecast

Fiscal Year 2024, Second Quarter
November 2024

Forecast Summary

Lumber and Log Prices. Since the beginning of 2023, lumber prices have remained relatively stable and lower than recent years, staying in between \$370/mbf and \$490/mbf, with an average of \$427/mbf.

The price outlook for lumber is uncertain. Lumber prices are largely driven by demand - primarily from homebuilding. Mortgage rates are currently decreasing, which would normally increase demand for homes and for homebuilding. However, the president-elect of the U.S. has made campaign promises to undertake "mass-deportation" of undocumented immigrants. By one estimate, around 14 percent of the construction workforce is undocumented immigrants, so large scale deportations could seriously limit labor supply for the industry - which would also limit homebuilding, and lumber demand, which would tend to push prices down.

Log prices generally trend with lumber prices, but the relationship is not one-to-one. Since the beginning of 2023, log prices have remained in a relatively narrow range - from around \$610/mbf to \$660/mbf. This is higher than most periods in the last 20 years in nominal terms, though not in real terms.

Following from lumber prices, the outlook for log prices is uncertain. However, log prices are typically bounded on the low end because timberland owners can usually simply wait to harvest until prices get better. To that end, we expect log prices to remain in their current range, though possibly on the low end.

Timber Sales Volume. The timber sales volume forecast is unchanged at 480 mmbf. Currently, DNR has planned to auction about 585 mmbf in FY 25 and has sold 136 mmbf through the November auction.

Historically, a buffer of around 10 percent of planned sales volume has been adequate to account for the typical risks to sales. However, for the last several years there has been increased opposition to DNR timber sales, both through challenges to sale approval and through lawsuits. After reviewing those sales most likely to be opposed or challenged via lawsuit, and including a buffer for other risks to sales, the unchanged forecast of 480 mmbf appears appropriate.

Timber Sales Prices.

The forecast timber sales price for FYs 25 and 26 is unchanged at \$340/mbf. This is lower than the outlying years because the reduced sales volume is from sales that are typically higher value. Fewer high value sales will tend to reduce the average sales price.

Outlying years' prices are unchanged at the long-term average of \$350/mbf. This is based on the assumption that current opposition to DNR sales will resolve in such a way that prices will return to their long term average. This may be optimistic.

Timber Removal Volume and Prices.

Harvests on DNR lands were slower than expected throughout FY 24. This was apparently largely due to readily available private logs, though weather issues apparently contributed as well.

Forecast removal volumes are unchanged. However, harvest volumes are a little slower than expected for FY 25, and may be reduced in the next forecast if slow harvesting continues.

The removal price forecast is changed slightly based on updated inventory values FY 25 through FY 28.

Timber Revenue. The timber revenue forecast is altered slightly for FY 256 through FY 28, due to the change in harvest prices.

Non-Timber Uplands Revenues. In addition to revenue from timber removals on state-managed lands, DNR generates sizable revenues from managing leases on other uplands.

The commercial uplands lease revenue forecast is increased by \$0.2 million in FY 26, and increased by \$0.4 million in outlying years. This is due to the newly signed lease for a Costco in Richland, which is planned to open in late 2025. During development, the lease will generate only minimal revenue, but after opening it will generate around $0.4 million per year. This will likely change in the coming forecasts as there is still a large unleased property that should command a rent of around $1 million. However, this revenue isn't included in the current forecast as the property has remained vacant since January.

Orchard/vineyard revenue to-date has been on par with what we had expected, hoewever, there was $1.3 million in lease revenue for FY 24 that was unpaid. This is a one-time increase to FY 25 revenue. It should be noted that orchard/vineyard revenue is still facing downward pressure, with wine grape demand still very low. The difficult environment is driving some lessees to change their crops, which will lead to a transition period of lower revenue. However, after that, revenue should start to increase again as growers are producing more valuable crops. Until we have better information, we are leaving the outlying years' forecast unchanged.

Aquatic Revenues. The non-water-dependent revenue forecast is increased in FY 25 due to a large one-time back-payment of rent that was not invoiced in FY 24. We have only increased the forecast by part of this amount, so if everything continues on as it is, then this will likely increase further in the next forecast.

Other aquatic lease revenue forecasts are unchanged.

The geoduck revenue for FY 24 is notably higher than the surrounding years because bonus bid revenue that had been expected in FY 23 was shifted into FY 24.

Geoduck revenue for this forecast is increased by $0.4 million based on higher than expected prices in the September auction. However, this forecast was prepared before the presidential election and the December auction. The December auction was much lower than we had expected as a result of both issues with tracts testing positive for arsenic, and the results of the presidential election and promised tariffs from the president-elect. See the Other Notes section for a discussion, but the geoduck forecast will likely be revised down significantly in the next forecast.

As usual, geoduck revenue faces a number of risks that can cause it to vary wildly. In addition to what is discussed above, these include

- paralytic shellfish poison closures
- weather issues - such as sewage contamination from flooding run-off
- China's economic growth

Total Revenues. The forecast revenue for the 2023-25 biennium is increased by $3.8 million to $510 million, while the 2025-27 biennium is increased by $1.1 million to $500 million.

Other notes to the Forecast.

This forecast was prepared before the U.S. elections in November. Both the commissioner and presidential offices will likely have a significant effect on DNR revenues, though at different levels and through different mechanisms. Given that campaign promises do not always turn into policy, the only reasonable point forecast we could make was a steady state. However, some of those campaign promises will likely turn into policy and for some, even the *expectation* of the policy will affect DNR revenue.

At the macroeconomic level, the two major economic policies likely to affect DNR revenue that the president-elect has proposed are a substantial increase in tariffs and a "mass deportation" program.

An increase in tariffs on the scale proposed by the president-elect will elicit reciprocol tariffs from U.S. trading partners. Already, Xi Jinping, the leader of China, has promised large tariffs in response to those proposed. A similar situation has already happened before, in 2018 in the previous presidential administration. This had a massive effect on geoduck revenue for DNR, with revenue falling from $26 million in FY 18 to $11 million in FY 20. The effect of the tariff was obviously confounded by the COVID-19 pandemic, but the effect of the tariffs had already pushed down DNR geoduck auction prices from $11.30 per pound in FY 18 to $5.27 in the first six months of FY 20 - *before the pandemic started.*

If tariffs, and reciprocol tariffs, are introduced, we can expect a substantial drop in geoduck revenue. Additionally, because the risk of sudden tariffs introduces substantial business risk, geoduck buyers will drop their bid prices accordingly. So, DNR is very likely to see meaningfully lower geoduck revenue even if the tariffs are never introduced.

In addition to geoduck, a substantial portion of agricultural products grown on DNR lands is exported to China, particularly wheat. So, there will likely be other areas where tariffs will reduce DNR revenue.

The "mass deportation" policy would introduce a significant shock to the U.S. economy and forecasting its overall effect is very difficult. As noted in the discussion on lumber and log prices, one likely effect is a substantial reduction in labor for the construction industry, which will likely weaken lumber, and therefore log, demand. There are important questions about what kind of deportation program is actually possible, so the ultimate size and effect are uncertain.

At the state level, the new commissioner has also proposed policies that would likely affect DNR revenue. The most prominent of which is setting aside some amount of "legacy" forecasts from harvest. Given the uncertainty around where these forests are, their potential value and merchantability, and the final enacted policy, it is diffcult to tell what effect this will have on DNR revenue.

At first glance, it seems likely that this policy would reduce revenues by some amount, both by restricting the volume of wood sold and by targetting potentially higher value timber. However, there are many questions about what a final enacted policy would look like and what kind of flexibility DNR might have in mitigating any potential revenue changes.

Given the uncertainties around each of these levels of the policy environment, previous forecasts were made based on the most likely scenarios with a reasonable degree of certainty, with a bias toward the status-quo where there is significant uncertainty.

There are, as always, a number of other sources of uncertainty around DNR revenue specifically, and the overall economy more broadly. These include:

- uncertainty about the type and quality of stumpage DNR is able to bring to market more than six months out; and
- political tension with China directly affecting timber, agricultural products and geoduck exports and price.

Finally, climate change has emerged as a meaningful short- and long-term risk as opposed to an amorphous risk in the far future, as previously rare extreme weather events become more common. In 2021, drought in Washington decreased wheat production on DNR lands by about 40 percent. In September and October 2021, extraordinary rainfall in British Columbia destroyed roads and railways, essentially halting timber harvests, lumber production, and timber exports through the Port of Vancouver. In mid-June 2022, there was concurrently: massive flooding in Montana and Wyoming, thunderstorms that took out power-grids in the Great Lakes, and a record setting heat-wave that killed over 2,000 cattle in Kansas[1].

Climate change will increasingly affect Washington's fire seasons — drought and rising temperatures dry out fuels fast, leaving conditions ripe for wildfires to begin earlier in the year, burn longer, and spread more unpredictably than in the past. Although these haven't seriously affected DNR timberland revenue since 2015, they pose a significant risk to both our short-term timber revenue forecast — potentially destroying standing timber under contract — and long-term revenue by destroying younger stands that would be harvested in future decades. Research suggests that the massive fires in Oregon around Labor Day 2020 caused not only immediate damage, but

[1] https://www.washingtonpost.com/climate-environment/2022/06/16/summer-climate-disasters/

will reduce future Oregon harvests by *115 to 365 mmbf per year for the next 40 years.* That, with the more immediate damage from the fires, suggests an overall economic impact of $5.9 billion on Oregon's Forest Sector[2].

[2] 2020 Labor Day Fires: Economic Impacts to Oregon's Forest Sector, Oregon Forest Resources Institute ''https://oregonforests.org/node/840''

Table 1: November 2024 Forecast by Source (millions of dollars)

Timber Sales		FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
Volume (mmbf)		552	546	429	477	397	480	480	500	500	500
	Change					-	-	-	-	-	-
	% Change					0%	0%	0%	0%	0%	0%
Price ($/mbf)		282	393	419	389	346	340	340	350	350	350
	Change					$ -	$ -	$ -	$ -	$ -	$ -
	% Change					0%	0%	0%	0%	0%	0%
Value of Timber Sales		**155.3**	**214.2**	**179.7**	**185.6**	**137.5**	**163.2**	**163.2**	**175.0**	**175.0**	**175.0**
	Change					$ -	$ -	$ -	$ -	$ -	$ -
	% Change					0%	0%	0%	0%	0%	0%
Timber Removals											
Volume (mmbf)		526	521	491	508	471	490	490	500	500	500
	Change					-	0	(0)	0	-	-
	% Change					0%	0%	0%	0%	0%	0%
Price ($/mbf)		347	342	363	386	383	339	341	343	348	350
	Change					-	2.8	0.7	0.2	(0.0)	-
	% Change					0%	1%	0%	0%	0%	0%
Timber Revenue		**182.3**	**178.2**	**178.5**	**196.1**	**180.3**	**166.2**	**166.8**	**171.6**	**173.6**	**175.0**
	Change					-	1.5	0.3	0.2	(0.0)	-
	% Change					0%	1%	0%	0%	0%	0%
Upland Leases											
Irrigated Agriculture		9.0	8.8	8.9	9.3	8.9	9.0	9.0	9.0	9.0	9.0
	Change					-	-	-	-	-	-
	% Change					0%	0%	0%	0%	0%	0%
Orchard/Vineyard		8.8	9.4	8.2	9.4	8.4	9.7	8.4	8.4	8.4	8.4
	Change					-	1.3	-	-	-	-
	% Change					0%	15%	0%	0%	0%	0%
Dryland Ag/Grazing		6.2	6.8	6.0	7.0	6.2	6.1	6.1	6.1	6.1	6.1
	Change					-	-	-	-	-	-
	% Change					0%	0%	0%	0%	0%	0%
Commercial		10.3	11.3	11.2	11.1	9.7	10.6	11.4	11.6	11.6	11.6
	Change					-	-	0.2	0.4	0.4	0.4
	% Change					0%	0%	2%	4%	4%	4%
Other Leases		10.0	13.7	11.9	12.3	12.3	12.0	12.0	12.1	12.3	12.4
	Change					-	0.2	-	-	-	-
	% Change					0%	2%	0%	0%	0%	0%
Total Upland Leases		**44.3**	**50.0**	**46.3**	**49.1**	**45.4**	**47.4**	**46.9**	**47.2**	**47.4**	**47.5**
	Change					-	1.5	0.2	0.4	0.4	0.4
	% Change					0%	3%	0%	1%	1%	1%
Aquatic Lands											
Aquatic Leases		12.7	9.7	14.5	14.5	15.0	15.1	14.5	14.5	14.6	14.6
	Change					-	0.4	-	-	-	-
	% Change					0%	3%	0%	0%	0%	0%
Geoduck		10.6	13.0	19.2	18.3	22.4	19.2	19.1	18.9	18.7	18.6
	Change					-	0.4	-	-	-	-
	% Change					0%	2%	0%	0%	0%	0%
Aquatic Lands Revenue		**23.4**	**22.6**	**33.8**	**32.8**	**37.3**	**34.3**	**33.6**	**33.4**	**33.3**	**33.2**
	Change					-	0.8	-	-	-	-
	% Change					0%	2%	0%	0%	0%	0%
Total All Sources		**249.9**	**250.8**	**258.6**	**278.0**	**263.0**	**247.9**	**247.3**	**252.2**	**254.3**	**255.7**
	Change					-	3.8	0.5	0.6	0.4	0.4
	% Change					0%	2%	0%	0%	0%	0%

Table 2: November 2024 Forecast by Fund (millions of dollars)

Key DNR Operating Funds		FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
041	RMCA - Uplands	33.5	33.5	38.1	44.1	40.9	39.7	39.3	39.7	39.9	40.2
	Change					-	1.4	0.4	0.2	0.1	0.1
	% Change					0%	4%	1%	1%	0%	0%
041	RMCA - Aquatic Lands	9.9	10.2	14.8	14.3	16.5	14.9	14.6	14.5	14.5	14.4
	Change					-	0.3	-	-	-	-
	% Change					0%	2%	0%	0%	0%	0%
014	FDA	28.3	27.2	23.9	19.3	19.4	18.9	19.9	20.8	21.2	21.4
	Change					-	(0.4)	(0.2)	(0.0)	(0.0)	(0.0)
	% Change					0%	-2%	-1%	0%	0%	0%
21Q	Forest Health Revolving	8.5	11.4	14.1	24.4	14.1	9.9	9.5	10.6	10.7	10.7
						-	0.5	(0.2)	(0.0)	0.1	0.1
						0%	5%	-2%	0%	1%	1%
Total DNR Key Operating Funds		**80.3**	**82.4**	**90.9**	**102.2**	**90.9**	**83.5**	**83.3**	**85.6**	**86.4**	**86.7**
	Change					-	1.8	(0.0)	0.2	0.2	0.2
	% Change					0%	2%	0%	0%	0%	0%

Current Funds											
113	Common School Construction	59.5	53.2	57.6	67.3	63.5	65.0	64.5	65.5	66.0	66.4
	Change					-	3.5	0.9	0.5	0.3	0.3
	% Change					0%	6%	1%	1%	0%	0%
999	Forest Board Counties	68.7	69.5	53.6	46.2	42.8	47.7	49.5	51.2	52.0	52.5
	Change					-	(1.3)	(0.4)	(0.1)	(0.0)	(0.0)
	% Change					0%	-3%	-1%	0%	0%	0%
001	General Fund	4.7	4.4	5.5	4.3	4.6	2.9	3.0	3.3	3.4	3.4
	Change					-	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)
	% Change					0%	-2%	-2%	0%	0%	0%
348	University Bond Retirement	0.6	1.6	2.6	2.9	1.9	2.7	2.1	1.9	1.9	1.9
	Change					-	0.0	(0.0)	0.0	0.0	0.0
	% Change					0%	0%	-1%	0%	0%	0%
347	WSU Bond Retirement	1.9	2.6	1.6	2.0	1.8	1.7	1.6	1.7	1.7	1.7
	Change					-	0.1	0.0	0.0	0.0	0.0
	% Change					0%	3%	0%	0%	0%	0%
042	CEP&RI	3.6	2.2	3.7	5.8	5.9	5.0	4.7	4.6	4.6	4.6
	Change					-	0.0	0.1	0.0	(0.0)	(0.0)
	% Change					0%	0%	2%	1%	0%	0%
036	Capitol Building Construction	4.4	7.7	6.0	11.8	12.1	7.5	7.4	7.4	7.4	7.5
	Change					-	(0.3)	(0.1)	(0.0)	(0.0)	(0.0)
	% Change					0%	-4%	-2%	0%	0%	0%
061/3/5/6	Normal (CWU, EWU, WWU, TESC) School	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Change					-	0.0	-	-	-	-
	% Change					0%	3%	0%	0%	0%	0%
Other Funds		1.1	0.6	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
	Change					-	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)
	% Change					0%	-48%	-3%	-1%	0%	0%
Total Current Funds		**144.7**	**141.9**	**130.8**	**140.5**	**132.9**	**132.7**	**133.0**	**135.9**	**137.2**	**138.2**
	Change					-	1.8	0.3	0.4	0.2	0.2
	% Change					0%	1%	0%	0%	0%	0%

(Continued)

Table 3: November 2024 Forecast by Fund (millions of dollars), cont'd

Aquatic Lands Enhancement Account		FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29
02R		13.5	12.4	19.0	18.5	20.9	19.4	19.0	18.9	18.8	18.8
	Change					-	0.5	-	-	-	-
	% Change					0%	2%	0%	0%	0%	0%

Permanent Funds											
601	Agricultural College Permanent	5.4	5.7	3.9	6.8	4.7	4.9	4.1	3.9	3.8	3.9
	Change					-	(0.1)	0.0	0.0	(0.0)	(0.0)
	% Change					0%	-2%	1%	0%	0%	0%
604	Normal School Permanent	2.6	2.8	4.0	2.6	7.3	1.2	2.3	2.5	2.6	2.7
	Change					-	(0.1)	0.0	0.0	(0.0)	(0.0)
	% Change					0%	-10%	1%	0%	0%	0%
605	Common School Permanent	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
	Change					-	-	-	-	-	-
	% Change					0%	0%	0%	0%	0%	0%
606	Scientific Permanent	3.1	4.9	9.3	5.2	3.9	5.4	4.8	4.6	4.6	4.6
	Change					-	0.1	0.1	0.0	(0.0)	(0.0)
	% Change					0%	1%	3%	1%	0%	0%
607	University Permanent	0.1	0.3	0.5	2.1	1.0	0.5	0.5	0.5	0.5	0.5
	Change					-	(0.0)	0.0	0.0	(0.0)	(0.0)
	% Change					0%	-8%	3%	1%	0%	0%
Total Permanent Funds		**11.4**	**14.2**	**17.8**	**16.9**	**17.1**	**12.3**	**12.0**	**11.9**	**11.9**	**12.0**
	Change					-	(0.2)	0.2	0.1	(0.0)	(0.0)
	% Change					0%	-2%	2%	1%	0%	0%

Total All Funds		**249.9**	**250.8**	**258.6**	**278.0**	**261.8**	**247.9**	**247.3**	**252.2**	**254.3**	**255.7**
	Change					-	3.8	0.5	0.6	0.4	0.4
	% Change					0%	2%	0%	0%	0%	0%

Figure 1: Timber Forecast Charts

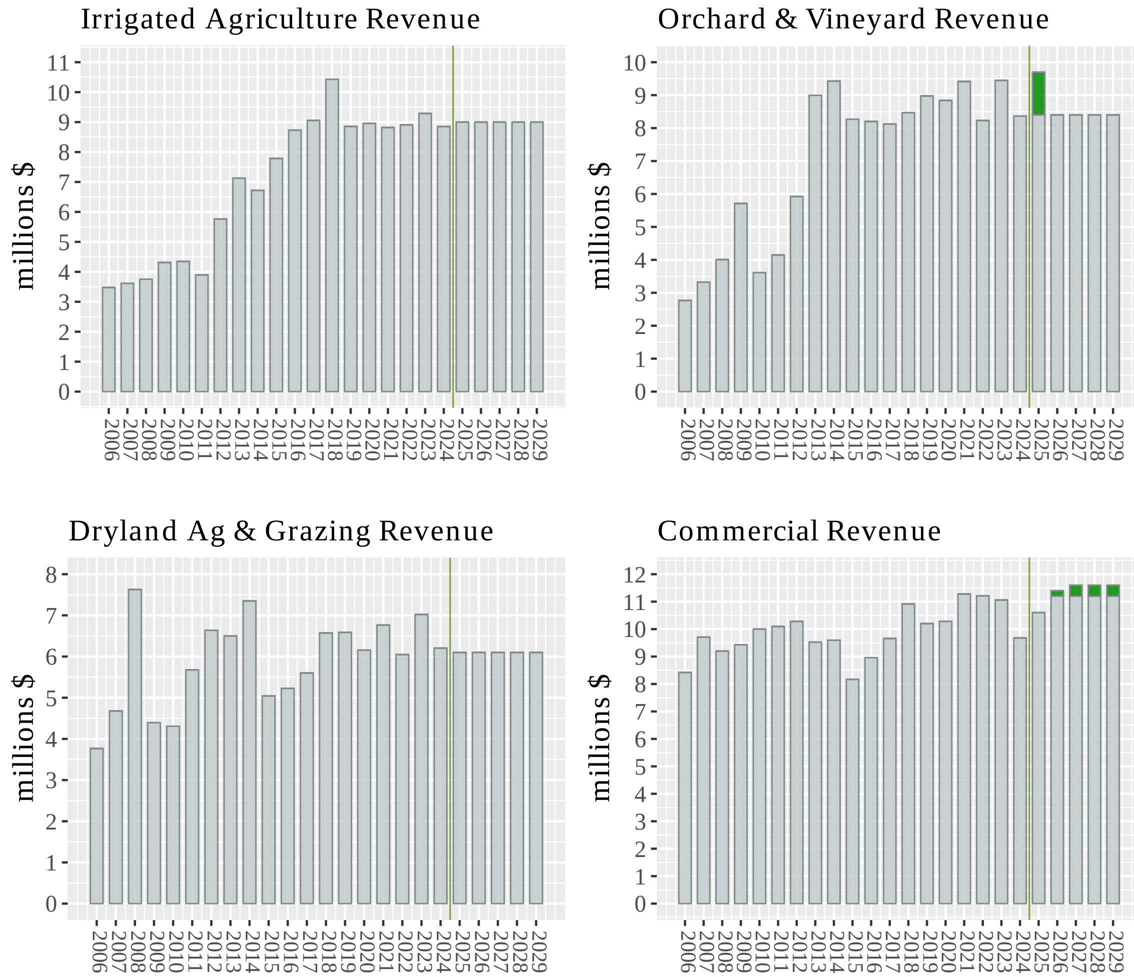


Figure 2: Other Uplands Forecast Charts

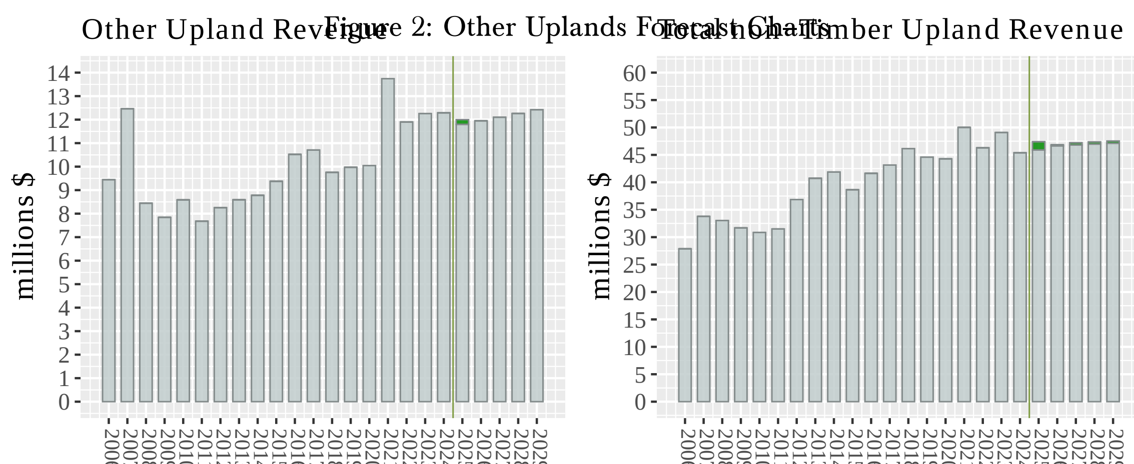
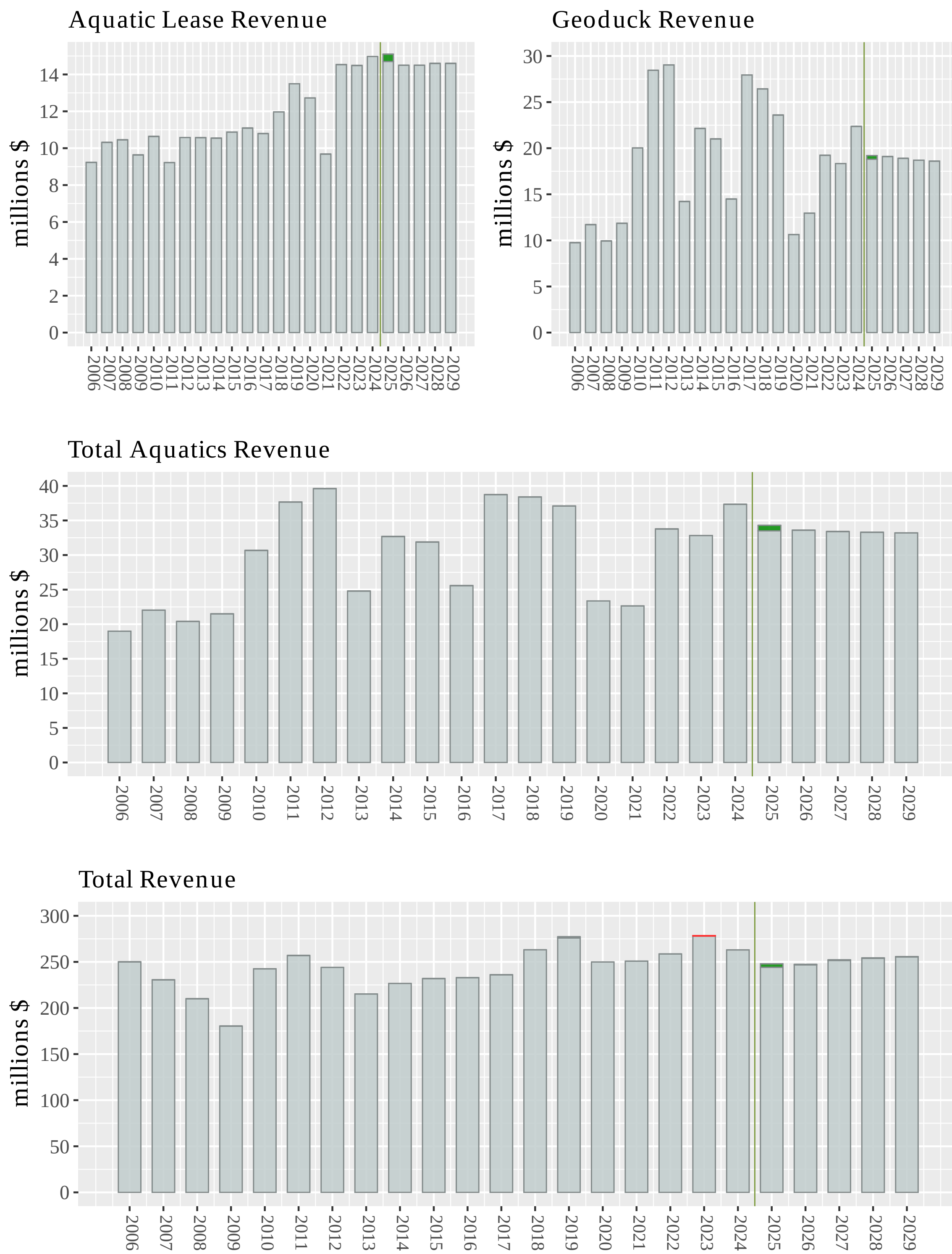


Figure 3: Aquatics and Total Forecast Charts



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Acronyms and Abbreviations

bbf	Billion board feet
BLS	U.S. Bureau of Labor Statistics
CAD	Canadian dollar
CNY	Chinese yuan (renminbi)
CPI	Consumer Price Index
CY	Calendar Year
DNR	Washington State Department of Natural Resources
ECB	European Central Bank
ERFC	Washington State Economic and Revenue Forecast Council
FDA	Forest Development Account
FEA	Forest Economic Advisors
Fed	U.S. Federal Reserve Board
FOMC	Federal Open Market Committee
FY	Fiscal Year
GDP	Gross domestic product
HMI	National Association of Home Builders/Wells Fargo Housing Market Index
IMF	International Monetary Fund
ITC	U.S. International Trade Commission
mbf	Thousand board feet
mmbf	Million board feet
PSP	Paralytic shellfish poisoning
PPI	Producer Price Index
Q1	First quarter of year (similarly, Q2, Q3, and Q4)
QE	Quantitative easing
RCW	Revised Code of Washington
RMCA	Resource Management Cost Account
SA	Seasonally adjusted
SAAR	Seasonally adjusted annual rate
SLA	Softwood Lumber Agreement
TAC	Total allowable catch
USD	U.S. dollar
WDFW	Washington Department of Fish and Wildlife
WWPA	Western Wood Products Association
WTO	World Trade Organization

Preface

This *Economic and Revenue Forecast* projects revenues from Washington state lands managed by the Washington State Department of Natural Resources (DNR). These revenues are distributed to management funds and beneficiary accounts as directed by statute.

DNR revises its Forecast quarterly to provide updated information for trust beneficiaries and state and department budgeting purposes. Each DNR Forecast builds on the previous one, emphasizing ongoing changes. Forecasts re-evaluate world and national macroeconomic conditions, and the demand and supply for forest products and other goods. Finally, each Forecast assesses the impact of these economic conditions on projected revenues from DNR-managed lands.

DNR Forecasts provide information used in the *Washington Economic and Revenue Forecast* issued by the Washington State Economic and Revenue Forecast Council. The release dates for DNR Forecasts are influenced by the state's forecast schedule as prescribed by RCW 82.33.020. The table below shows the anticipated schedule for future *Economic and Revenue Forecasts.*

This Forecast covers fiscal years 2025 through 2029. Fiscal years for Washington State government begin July 1 and end June 30. For example, the current fiscal year, Fiscal Year 2025, runs from July 1, 2024, through June 30, 2025.

The baseline date (the point that designates the transition from "actuals" to predictions) for DNR revenues in this Forecast is October 1, 2024. The forecast numbers beyond that date are predicted from the most up-to-date DNR sales and revenue data available, including DNR's timber sales results through October 2024. Macroeconomic and market outlook data and trends are the most up-to-date available as the Forecast document is being written.

Unless otherwise indicated, values are expressed in nominal terms without adjustment for inflation or seasonality. Therefore, interpreting trends in the Forecast requires attention to inflationary changes in the value of money over time, separate from changes attributable to other economic influences.

Economic Forecast Calendar

Forecast	Baseline Date	Final Data and Publication Date (approximate)
February 2025	January 1, 2025	February 25, 2025
June 2025	May 1, 2025	June 25, 2025
September 2025	August 1, 2025	September 25, 2025
November 2025	October 1, 2025	November 25, 2025

Acknowledgements

The Washington State Department of Natural Resources' (DNR) *Economic and Revenue Forecast* is a collaborative effort. It is the product of information provided by private individuals and organizations, as well as DNR staff. Their contributions greatly enhance the quality of the Forecast.

Thanks go to DNR staff who contributed to the Forecast: Michael Sly, Steven Teitzel, Kari Fagerness, Scott Nelson, Michael Kearney, Sherry Land, Linda Farr, Michelle McLain, Michal Rechner, and Tom Gorman. They provided data and counsel, including information on markets and revenue flows in their areas of responsibility.

In the final analysis, the views expressed are our own and may not necessarily represent the views of the contributors, reviewers, or DNR.

Office of Finance, Budget, and Economics

Kristoffer Larson, Lead Economist

Macroeconomic Conditions

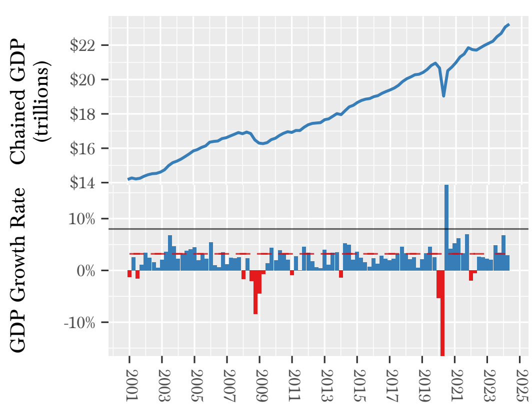
This section briefly reviews macroeconomic conditions in the United States and world economies because they influence DNR revenue — most notably through the bid prices for DNR timber and geoduck auctions and lease revenues from managed lands.

U.S. Economy

Gross Domestic Product

Typically, GDP is a useful indicator of how the U.S. economy is growing overall. When GDP is increasing, then generally there will be an increase in jobs, spending, and overall economic welfare. This often includes growth in housing spending and construction, which influences timber prices and DNR's income from timber. It is a useful indicator of how other, more directly relevant indicators may move in the future.

Figure 4: U.S. Gross Domestic Product



Note that the y-axis of the bottom chart is limited to 15 percent because the Q2 and Q3 2020 GDP growth are such outliers that they distort the chart.

After falling 2.8 percent in 2020 due to the onset of the COVID-19 pandemic, GDP increased in 2021 by 5.9 percent. This was very rapid growth that was largely due to a rebound from the contraction due to the pandemic, as well as the fiscal and monetary policies enacted in response to the pandemic. GDP growth slowed to 2.1 percent in 2022.

GDP growth for the 2023 calendar year was consistently higher than expected. At the beginning of the year, most analyses were expecting increasing interest rate to constrain growth and were relatively pessimistic about the year. Most forecasts were for average growth consistent with the FOMC's December 2022 Central Tendency of 0.4-1.0 percent - including a small recession in the latter half of the year. However, there was no recession and real GDP grew 2.5 percent for the year.

Recession expectations were reduced and pushed into calendar year 2024. However, economic growth has remained solid and at this point it appears that annual GDP growth will by just a bit less than 3.0 percent.

Expectations are that, barring any significant outside events, then the U.S. real GDP will continue to grow at somewhere near 2.5 percent through 2026. However, if there are major economic or trade policy changes, then this may not be the case.

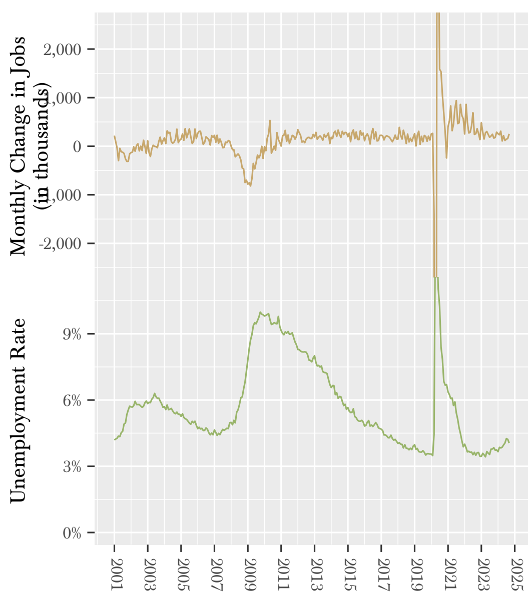
Employment and Wages

The labor market is the primary driving force behind consumption, which typically constitutes about 70 percent of GDP and naturally extends to the demand for housing, the major driver of U.S. timber demand. The U.S. headline unemployment rate measures the number of people looking for work as a percentage of the number of people in the labor force.

After exploding to 14.7 percent near the beginning of the COVID-19 pandemic in mid-2020, the unemployment rate has fallen considerably. Between February 2023 and February 2024, the unemployment rate fluctuated between 3.4 and 3.8 percent - which is historically very low (Figure 6). During this time, the labor force participation rate also recovered, by Feburary of 2023 the rate was 62.5 and it has remained between that and 62.8 since. This is still well below the 63.3 percent peak in January 2020. Overall, it appears that the labor market has largely recovered from the shock of the COVID-19 pandemic.

The unemployment rate bottomed out at around 3.4 percent in April 2023. Since then it has either slowly increased or stalled, and averaged 4.1 percent from June to September.

Figure 5: Unemployment Rate and Monthly Change in Jobs



Note that the y-axes for these charts are limited because of the extreme changes in Q2 2020.

One area of potential concern is that the labor force participation rate appears to be stalled between 62.5 and 62.8. This is still meaningfully below the pre-pandemic rate of 63.3[3]. It seems that people aren't re-entering the labor force as quickly as they left.

Figure 6: Employment and Unemployment

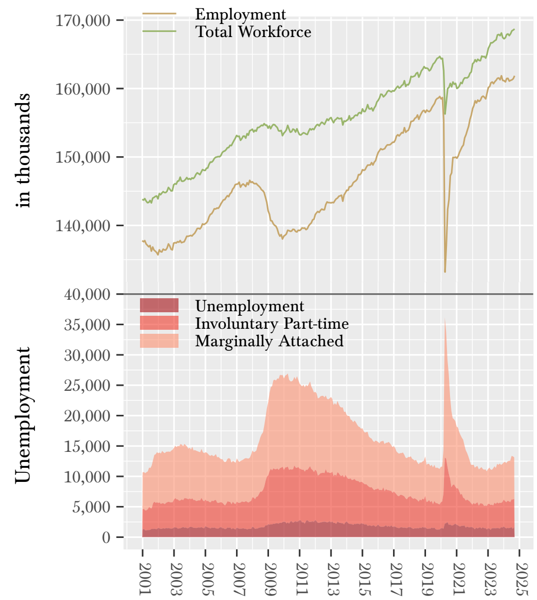
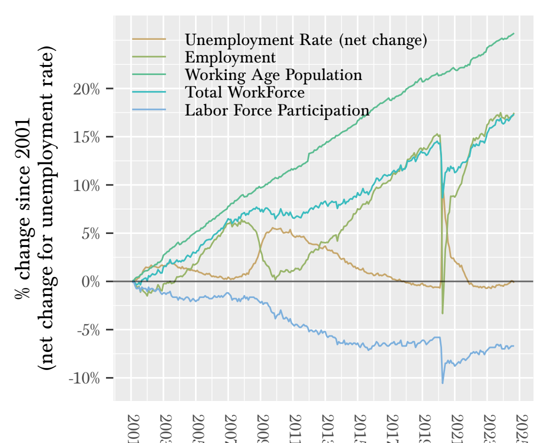


Figure 7: Labor Market Indicators



That being said, wages in the U.S. have been now growing faster than inflation for some time. In January 2024, the Atlanta Fed's Wage Growth Tracker[4], showed 5.0 percent (annualized) growth in wages, while CPI was 3.3 percent (12-month

[3]While the difference here is only 0.6 percentage points, these represent more than 2 million potential workers
[4]`https://www.atlantafed.org/chcs/wage-growth-tracker`

change). More recently, this was 4.3 percent while CPI was 2.6 percent. The increase of wages over inflation will increase purchasing power and may pull some people back into the labor force.

The unemployment rate is likely to either remain stable or increase slowly from its current level. One of the stated purposes of the Fed raising rates is to slow down job growth, and it seems that has happened.

Inflation

Aside from a short period in 2012, core inflation was below the FOMC's two percent target between the recession in 2008 and early 2021. During that period, inflation forecasts were consistently too high, with each year predicted to break the cycle of weak inflation, only to disappoint as the year progressed (Figure 8).

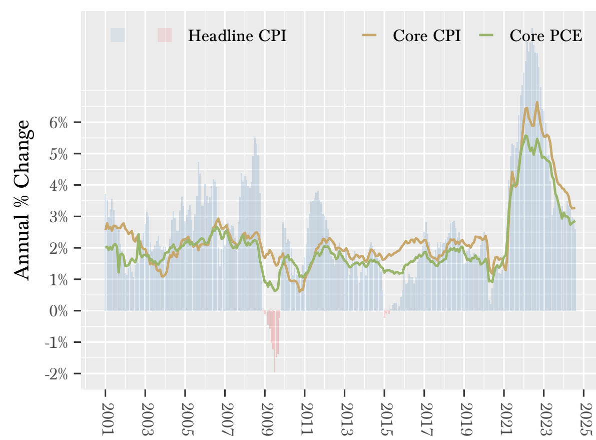
For policy purposes, the FOMC uses the core Personal Consumption Expenditures (PCE) index as the measure of inflation, which removes the more volatile fuel and food prices. In a fairly striking policy change, the FOMC announced in September 2020 that it would "aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent." This was a marked departure from policy in the previous decade, when there were a number of (sometimes-contentious) interest rate increases even though inflation was well below 2 percent.

Since April 2021, core PCE inflation has been higher than the FOMC's target, and remained high on the back of supply chain issues and strong demand, as well as shocks to the market like Russia's invasion of Ukraine and high household savings bouyed by the stimulus packages in response to the COVID-19 pandemic.

In March 2022 the FOMC decided to start raising interest rates to bring inflation down. Since then, core PCE has fallen from 5.5 percent to 2.9 percent (YOY) in May 2024.

Previously, inflation was expected to continue to slow in the coming months, constrained by higher interest rates. However, the U.S. economy has been remarkably resilient and continues to grow fairly well, despite higher interest rates and other issues, such as a decrease in household savings, that generally constrain growth. Core PCE actually hit a low in May 2024 of 2.7 percent, but since then has creeped back up to 2.9 percent.

Figure 8: U.S. Inflation Indices



Interest Rates

Interest rates are a powerful tool used by the Federal Reserve Bank to influence the U.S. economy[5]. An increase in interest rates will generally slow down economic growth — business investment slows down because borrowing money becomes more expensive, so job and wage growth slow down (constraining consumption). Similarly, it becomes more expensive for consumers to borrow, impeding demand, particularly in the housing and auto markets. The opposite of all of this is also true — decreasing or lowering interest rates can help drive economic expansion through expanded investment and consumption.

As mentioned in the previous section, the Fed began increasing interest rates in March 2022 due to continued high inflation. They increased rates by

[5] We refer to interest rates broadly, but the Fed specifically governs the Federal funds rate, which heavily influences interest rates across the economy.

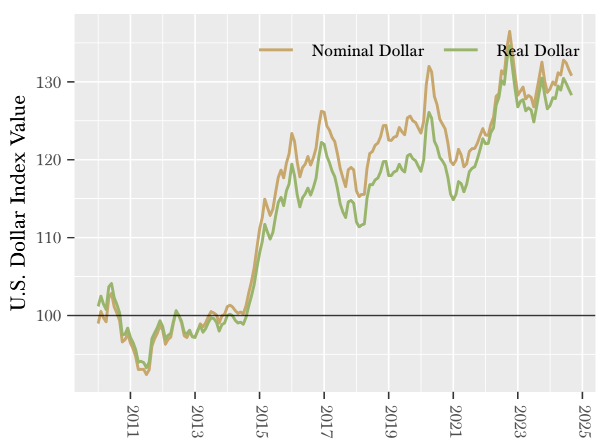
0.25 percent in each month from March through May 2022, and then increased rates more rapidly by 0.75 percent in June, September *and* November 2022.

With inflation slowing and unemployment stable, the FOMC has reduced interest rates from a range of 5.25-5.5 percent to a range of 4.5-4.75 percent. Expectations are mixed on what the FOMC will do at their meeting on December 18, with strong GDP growth, stable employment numbers and slightly increasing inflation metrics.

The U.S. Dollar and Foreign Trade

Between February and April 2020, the U.S. dollar trade-weighted index jumped almost 6 percent, largely due to a "flight to safety" from the uncertainty caused by the pandemic (Figure 9). From April 2020 to mid-2021, the index fell, but then quickly climbed through October 2022 to its highest point since at least 2006 (the earliest date for the data set we use). Between October 2022 and November 2024, the US dollar fell back, but remained extremely high compared to the last decade and a half. After the U.S. presidential election, the index jumped around 2.0 percent.

Figure 9: Trade-Weighted U.S. Dollar Index



A higher dollar means that timber and lumber from the Pacific Northwest become more expensive for international buyers and, conversely, timber and lumber imported into the U.S. becomes less expensive. This will tend to undermine local prices and DNR's timber and agricultural revenues. Wildstock geoduck revenue will also be negatively affected because geoduck is primarily marketed abroad.

Foreign trade and access to export markets is normally important for DNR revenues. Chinese demand for timber and lumber was a major support for lumber prices after 2010, even though DNR timber cannot be exported directly. Additionally, much of the soft white wheat produced in Washington is exported to Asia and the vast majority of the Pacific Northwest geoduck harvest is exported to China.

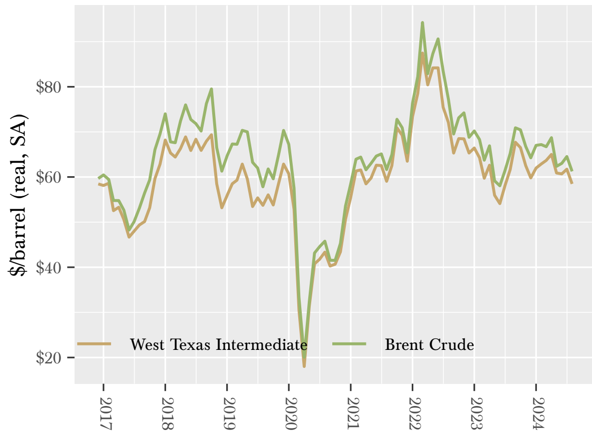
However, right now, the dollar's strength isn't particularly concerning. While domestic demand has fallen from its highs in the last two years, there is still enough domestic demand for timber products to offset the price effect of the higher dollar. Additionally, domestic agricultural product prices also remained high, and geoduck auctions continued to have very strong prices. These all suggest that the dollar's strength is being offset by other pressures.

Petroleum

Crude oil and its derivatives strongly affect production, transportation, and consumption in the world and U.S. domestic economies. Broadly, an increase in oil prices acts like a tax increase for consumers and can discourage consumption. Additionally, all other things being equal, higher petroleum prices will increase diesel fuel prices and will make transportation-sensitive industries — such as Pacific Northwest logging and agriculture — less competitive in international markets.

The Russian invasion of Ukraine in early 2022 initially pushed oil prices much higher, with the nominal Brent Crude spot prices jumping from \$86/barrel in January to \$122/barrel in June — the highest they had been since 2014 (Figure 10). These prices were high enough to create a drag on economic growth. However, they were fairly shortlived. After peaking in June 2022, prices dropped to $80/barrel in December 2022 and stayed between $75 and $85/barrel since, barring a brief jump to $89/barrel in September 2023.

Figure 10: Crude Oil Prices

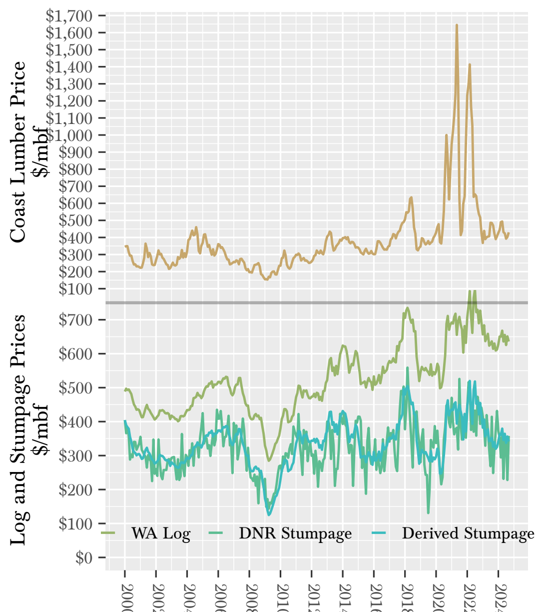


Oil prices are expected to remain in their current range for the foreseeable future, even while groups like OPEC have announced production cuts to try to increase prices — meaning that they won't exert any particular pressure on the economy either way.

Wood Markets

Timber stumpage revenue constitutes about 70 percent of total DNR revenues on average. Therefore, DNR is vitally concerned with understanding stumpage prices, log prices, lumber prices, and the related supply-and-demand dynamics underlying all three. This section focuses on specific market factors that affect timber stumpage prices and overall timber sales revenue generated by DNR.

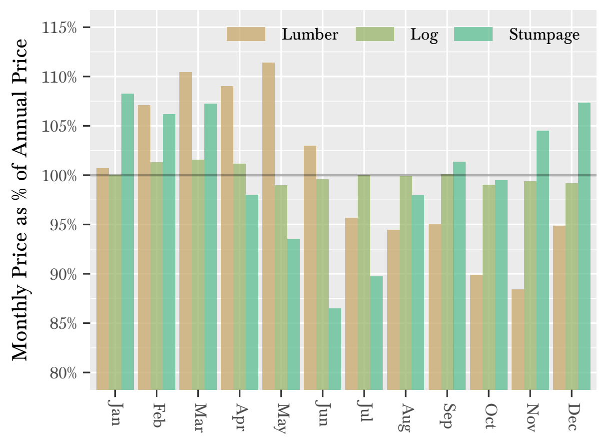
Figure 11: Lumber, Log, and Stumpage Prices in Washington



In general, timber stumpage prices reflect demand for lumber and other wood products, timber supply, and regional lumber mill capacity. There is a consistent, positive relationship between log prices and DNR's stumpage prices, despite notable volatility in stumpage prices (Figure 11). High log prices make access to logs more valuable, increasing purchasers' willingness to pay for stumpage (the right to harvest). Volatility in stumpage prices arise not only from log prices, but also from the volume of lumber and logs held in mills' inventories (either felled and in their yards or standing inventory under contract) and from DNR-specific issues, such as the quality and type of the stumpage mix offered at auction, the region, and the road-building requirements of a particular sale.

The relationship between lumber and log prices is less consistent. Lumber prices are significantly more volatile, and both the direction and size of price movements can differ from log prices. This is due to both demand and supply-side factors. On the demand side, mills will often have an inventory of logs in their yards, as well as an inventory of "standing logs," so they do not always need to bid up log or stumpage prices to take advantage of high lumber prices. From the supply side, landowners often do not need to sell their timber, so when prices fall too far, they can withhold supply and allow their trees to grow and increase in quality.

Figure 12: Lumber, Log, and DNR Stumpage Price Seasonality



There are differences in price seasonality between lumber, logs, and stumpage, as illustrated in Figure 12. These prices are affected by a degree of seasonality that is largely the result of when each of these commodities will be used. For instance, lumber prices tend to be higher starting in February, when housing construction starts to pick up, and decline through fall as demand wanes, while stumpage prices tend to be highest in December-March, when harvesters are lining up harvestable stock for the summer. DNR stumpage price volatility is also affected by the firefighting season and the quality of the stumpage mix, which varies throughout the year but tends to be lower from July through September.

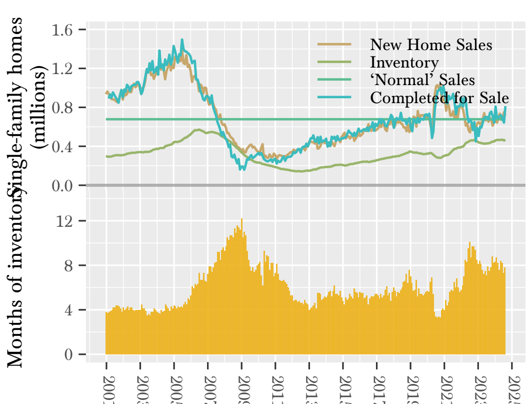
U.S. Housing Market

This section continues with a discussion of the U.S. housing market because it is particularly important to overall timber domestic demand.

New residential construction (housing starts) and residential improvements are major components of the total demand for timber in the U.S. From 2000-2018, these sectors have averaged 69 percent of softwood consumption — 37 percent going to housing starts and 32 percent to improvements — with the remainder going to industrial production and other applications.

The 2007 crash in the housing market and the following recession reduced demand for new housing, which undermined the total demand for lumber. Since the 2009-11 through to the beginning of the COVID-19 pandemic in early 2020, an increase in housing starts drove an increase in lumber demand.

Figure 13: New Single-Family Home Sales



As with almost every other part of the economy, the coronavirus pandemic created a lot of uncertainty in the housing market. After the initial collapse in activity in early 2020, both starts and new home sales increased substantially — largely driven by strong household balance sheets and record-low mortgage rates. However, since the Fed began increasing interest rates, mortgage rates more than doubled from under 3.0 percent to above 7.0 percent. The increased costs of financing have significantly affected both sales and construction of homes.

New Home Sales

Unsurprisingly, new home sales plummeted during the 2008-09 recession, reaching a record low of 306,000 (SAAR)[6] in 2011 before beginning a slow rise to average 680,000 in 2019 (Figure 13).

From January through April 2020, new single-family home sales fell from 708,000 to 570,000 as the initial effects of the pandemic took hold. However, April was the bottom. From then, new home sales quickly grew well beyond their January 2020 highs to a peak of 1,036,000 in August 2020, averaging 960,000 in the latter half of the year. New home sales slowed a little in 2021, averaging 769,000 per month. With the increased mortgage rates since March 2022, new single-family sales fell to a low of 567,000 in September 2022, basically at the level of April 2020. Sales have rebounded since and seem to be bound around the long term average of 678,000 new home sales.

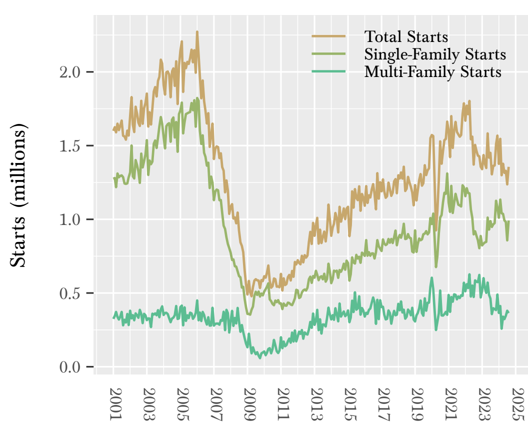
New home completions declined more slowly than sales through 2022, so that the inventory of new homes for sale on the market increased from its low point in 2021. Typically, an increase in inventory could help suppress home prices. However, with the increase in interest rates, there are fewer people who currently own homes who are looking to sell - people typically do not want to trade out a sub-three percent loan for a 6.0+ percent loan. So there is currently a dearth of existing houses on the market, suggesting there will be very little price suppression from an increased inventory of new homes.

[6] Unless otherwise noted, all measures of housing construction or sales are in Seasonally Adjusted Annual Rates - SAAR

There is still strong demand for housing — as long as mortgage rates aren't too high. It is unclear how long that will last. Households still have strong balance sheets and wages are increasing, which will mitigate some of the effect of increased interest rates on housing demand. But all of the excess savings from the pandemic years have been spent, so people won't have as much money readily available for down payments.

Additionally, the housing stock in the U.S. is quite old. New housing was underbuilt from 2008 and there are very low inventories of existing housing on the market while there is still demand, which should help to maintain housing construction.

Figure 14: Housing Starts



Overall, it is likely that new home sales will remain higher than the period between 2008 and 2015, where they were consistently lower than the long-term average, but it would not be surprising to see them stay near the long-term average for some time.

Housing Starts

In April 2009, U.S. housing starts fell to the lowest point since the Census Bureau began tracking these data in 1959. U.S. housing starts picked up in 2011 and continued to rise, largely because of increases in multifamily starts. Single-family starts were more or less flat after the recession through 2012, but rose slowly from then through most of 2019 (Figure 14)[7].

Total residential housing starts hit 1.6 million (SAAR) in February 2020 before collapsing in April to 0.9 million. This was from both single-family starts, which fell from 1.0 million starts to 0.7 million, and multifamily, which fell from 0.5 million to 0.2 million.

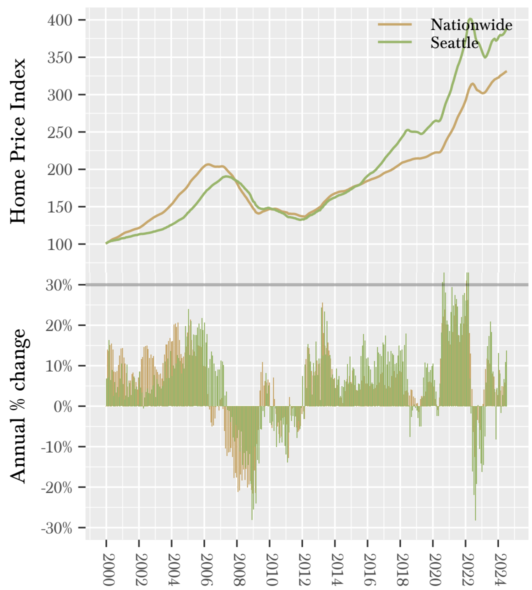
Again, as with sales, April 2020 was the nadir and April 2022 was the post-2008 apex. Total starts climbed back quickly and averaged 1.6 million in 2021 and 2022, and 1.4 million in 2023, while single family starts averaged 1.1 million in 2021, 1.0 million in 2022, and 0.9 million in 2023.

Two things are particularly notable about housing starts since they began falling from April 2022. First, even after a significant drop, starts have remained higher than almost any point between 2007 and mid-2019. Second, the drop from 2022 to mid-2023 was in single-family starts. This likely had a more substantial effect on lumber demand because single-family housing uses more lumber per unit than multifamily. Interestingly, since April 2023, single-family starts have started increasing again, while multi-family have started declining.

As was noted in the Forecast Summary, the construction industry writ-large has an estimated high percentage of undocumented immigrant labor, around 14 percent. The president-elect's promise of "mass deportations" could have a significant effect on the costs associated with homebuilding. Though there remain important questions about what kind of deportation program is actually possible, so the ultimate size and effect of the policy are uncertain.

[7] Single-family starts are discussed specifically because they use more lumber than multifamily construction. So the change in single-family starts has more of an impact on lumber demand and prices than a change in multifamily starts.

Figure 15: Case-Shiller Existing Home Price Index



Housing Prices

U.S. housing experienced six unprecedented years of falling or flat prices following the 2008 recession. House prices started rising again only in 2012 as economic and employment indicators continued to improve. Figure 15 charts the seasonally adjusted S&P/Case-Shiller Home Price Index for the 20-city composite, which estimates national existing home price trends, as well as the Index for Seattle.

Although the pandemic initially stalled national price growth, the Case-Shiller ended 2020 with 10 percent December-December price growth. Locally, for Seattle, price growth was 13 percent. Between December 2020 and May 2022, prices increased even faster, but declined between May 2022 and February 2023 after the Fed began raising interest rates. Since February 2023, prices have been increasing, though not at the rate they were prior.

The high, and still increasing prices, should continue to incentivise housing construction, supporting starts and lumber demand.

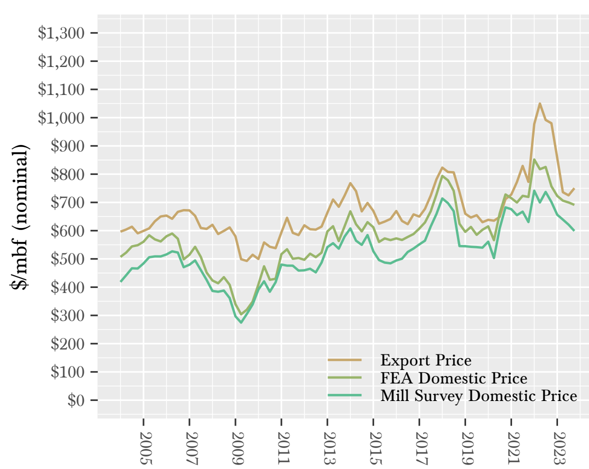
Export Markets

Although federal law prohibits export of logs from public lands west of the 108th meridian, log exports can still have a meaningful impact on DNR stumpage prices. Exports compete with domestic purchases for privately sourced logs and strong export competition pulls more of the supply from the domestic market, pushing up domestic prices. However, changes in export prices do not necessarily influence domestic prices in a one-to-one relationship.

Export prices are almost always higher than domestic prices, a difference that is referred to as the "export premium" (Figure 16). The export premium is primarily due to the characteristics of the export markets, which can include a demand for higher-quality wood, a high value placed on long-term contracts, and high transaction costs.

Note that the export prices shown in Figure 16 are weighted by DNR's typical species mix, not the species mix of actual export volumes.

Figure 16: Log Export Prices



The primary markets for logs and lumber from Washington are China and Japan. Japan pri-

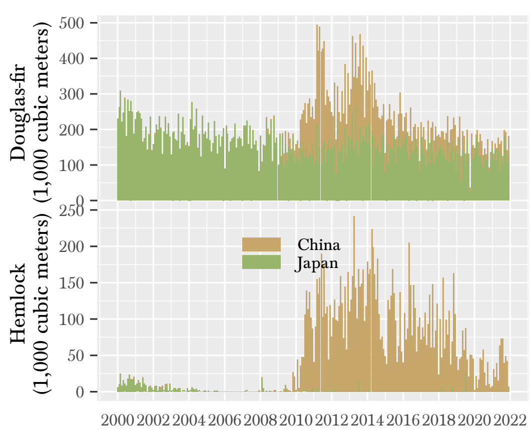
[8]Trade data is from the U.S. International Trade Commission Dataweb at `https://dataweb.usitc.gov/`

marily imports Douglas-fir and has been relatively consistent, averaging 1.8 million m^3 per year since 2009[8]. China primarily imports hemlock, but it has been much more variable in its demand.

After entering the market meaningfully in 2010, demand from China was a major support for log and lumber prices in Washington (Figure 17). That started waning in late 2014 as China's economic health wavered, the U.S. dollar appreciated while the value of the euro and ruble dropped (making U.S. timber comparatively more costly), and a 25 percent Russian tariff on log exports was reduced.

Surprisingly, export volume to Japan actually increased in 2020 and 2021 after having declined every year in the previous six, but this was still 30 percent lower than the peak exports of 2,199 m^3 2014. Exports to China also increased slightly in 2021, but were down 77 percent from their peak in 2013.

Figure 17: Log Export Volume



As a result of the Russian invasion of Ukraine, sanctions were placed on Russia that limit its international trade. Russia supplies around 12 percent of the world's export logs. Although much of this is sold to China, the reduction of timber on the world market appears to have pushed up export prices (Figure 16).

Price Outlook

Lumber Prices

Lumber prices were exceptionally volatile from 2020 through 2023 (Figure 11). In 2021, prices peaked at around $1,600/mbf in May then plummeted to $414/mbf in August (West Coast standard or better 2x4, Douglas-fir/Hemlock). Prices rebounded over the next several months to peak at $1,400/mbf in March 2022. However, after that they plummeted again, dropping from $1,056/mbf in May to $638/mbf in June. Prices continued to decrease until December 2022. Since the beginning of 2023, prices have remained relatively stable and lower than recent years, staying in between $370/mbf and $490/mbf, with an average of $427/mbf. Prices are expected to weaken somewhat through the remainder of 2024, likely staying closer to the bottom of the recent range, before increasing marginally in 2025.

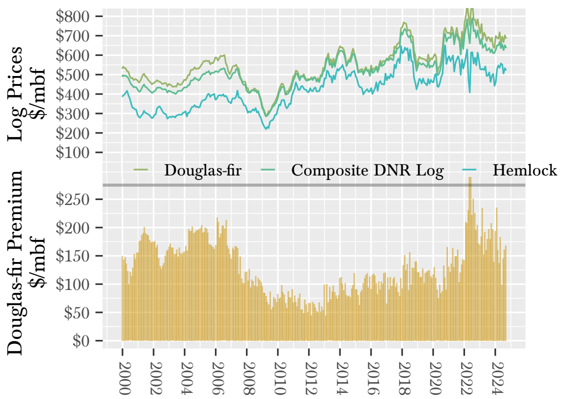
Log Prices

Figure 18 presents prices for Douglas-fir, hemlock, and DNR's composite log. The latter is calculated from prices for logs delivered to regional mills, weighted by the average geographic location, species, and grade composition of timber typically sold by DNR. In other words, it is the price a mill would pay for delivery of the typical log harvested from DNR-managed lands. The dark green line for the DNR composite log price on Figure 18 is the same as the light green line on Figure 11.

Log prices also bottomed in April 2020 and had recovered by August 2020, though they have obviously not reached the same extremes as lumber prices. Timber harvesters and mills often have an inventory of standing timber to draw from, so they don't always need to bid up prices on new logs.

Log prices declined in 2023, falling from an average of $660/mbf in the first quarter, to $615/mbf in the fourth quarter. Prices increased in the first four months of 2024, and then weakened slightly. Log prices are expecte to remain relatively stable through 2025.

Figure 18: DNR Composite Log Prices



Stumpage Prices

Timber stumpage prices are the prices that successful bidders pay for the right to harvest timber from DNR-managed lands (Figure 19). At any time, the difference between the delivered log price and DNR's stumpage price is equivalent to the sum of logging costs, hauling costs, and harvest profit (Figure 11). Subtracting the average of these costs from the log price line gives us a derived DNR stumpage price.

When actual DNR stumpage prices differ significantly from the derived stumpage prices, a correction is likely to occur. Overall, barring a couple of sales, recent stumpage prices have been roughly on par with what we would expect, given log prices.

Although log and lumber prices bottomed out in April 2020, DNR stumpage prices fell through May 2020. Since then, DNR timber auctions had average stumpages of $396/mbf for FY 21, $427/mbf for FY 22, and $390/mbf for FY 23 and $346/mbf for FY 24.

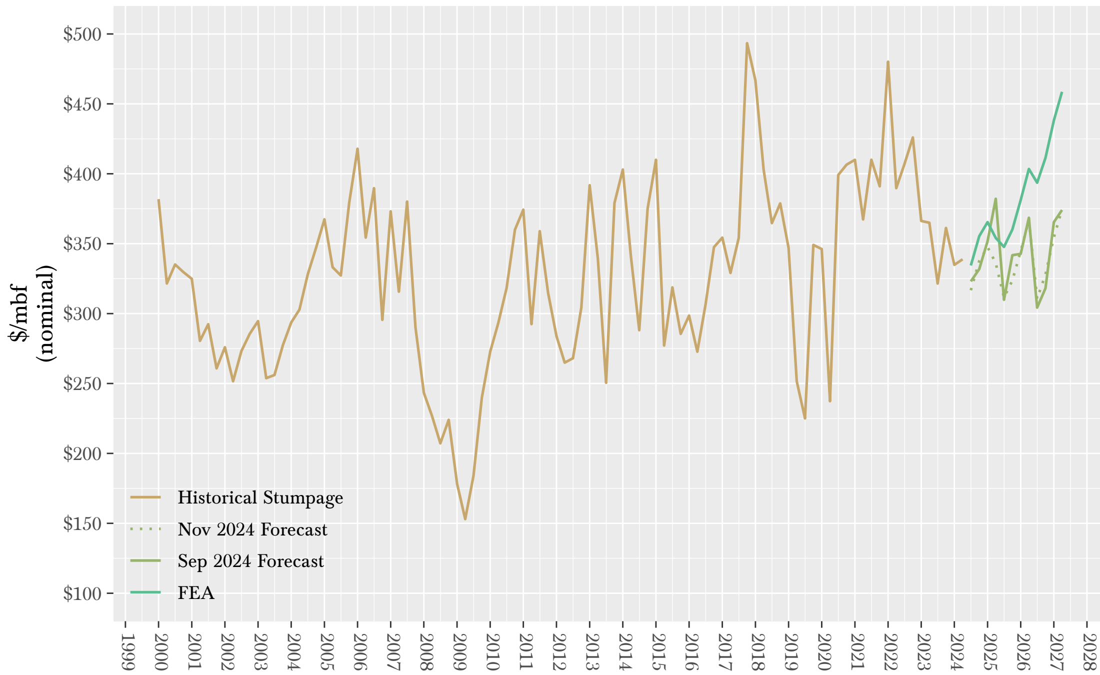
As always, these prices also depend heavily upon the characteristics of the sales, particularly the type and quality of the wood, the type of logging, and the costs associated with road-building and maintenance.

DNR Stumpage Price Outlook

DNR contracts with a forest economics consulting firm that provides log and timber stumpage price forecasts, as well as valuable insights into the housing, lumber, and timber markets. By modeling DNR's historical data on its price forecasts, we arrive at a stumpage price outlook (Figure 19, note that the FEA "forecast" series reflects the species and class characteristics of typical DNR timber; the original series were West Coast averages and are not shown).

It is important to note that these are nominal price expectations.

Figure 19: DNR Timber Stumpage Price



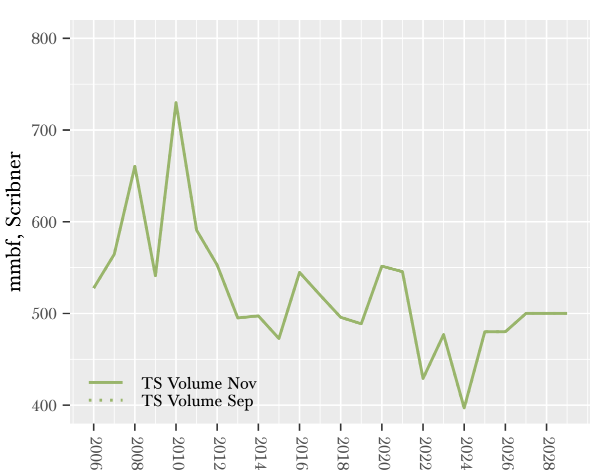
DNR Revenue Forecast

This Revenue Forecast includes revenue generated from timber sales on trust uplands, leases on trust uplands, and leases on aquatic lands. It also forecasts revenues to individual funds, including DNR management funds, beneficiary current funds, and beneficiary permanent funds. Caveats about the uncertainty of forecasting DNR-managed revenues are summarized near the end of this section.

Timber Revenue

DNR sells timber through auctioned contracts that vary in duration. For instance, contracts for DNR timber sales sold in FY 2019 needed to be harvested between three months and three years from the date of sale, with most being about two years in length. The purchaser determines the actual timing of harvest within the terms of the contract, which is likely based on perceptions of market conditions. As a result, timber revenues to beneficiaries and DNR management funds lag behind sales.

Figure 20: Forecast Timber Sales Volume

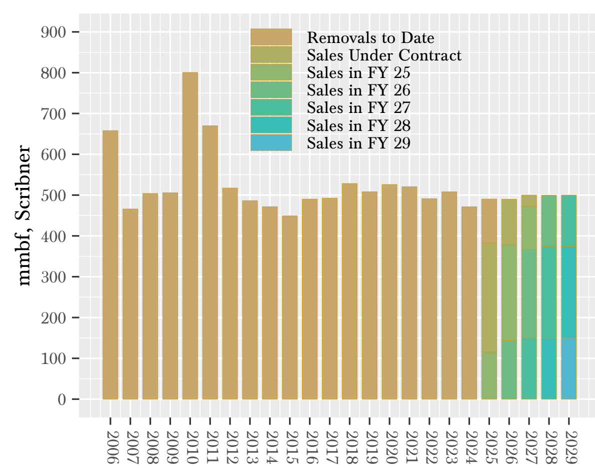


For the purposes of this chapter, timber that is sold but not yet harvested is referred to as "inventory" or "under contract." Timber volume is added to the inventory when it is sold and placed under contract, and it is removed from the inventory when the timber is harvested.

Timber Sales Volume

The sales volume for FY 22 was 430 mmbf, a significant decrease from the 530 mmbf planned at the beginning of the fiscal year. As noted in the previous forecasts, in the middle of the fiscal year, the proposal to limit DNR timber harvests to only stands less than 120 years old stalled many planned sales and required review of many sales that had already been prepared, delaying the preparation of other sales. Additionally, severe winter weather delayed some sales planning in December 2021 and January 2022, while staffing constraints in some regions also affected sales planning.

Figure 21: Forecast Timber Removal Volume

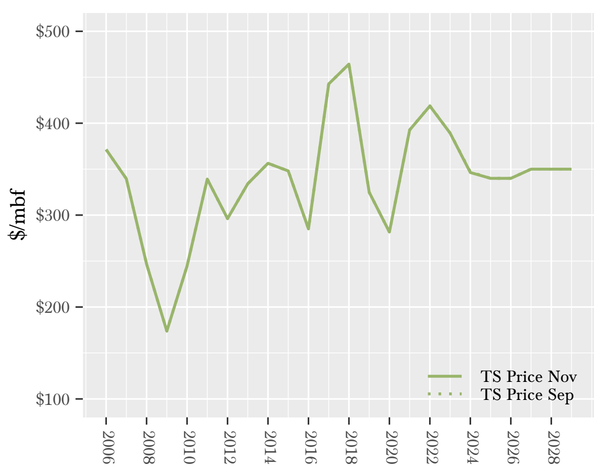


The sales volume forecast for FY 23 was also decreased near the end of the fiscal year, to 465 mmbf – a significant decrease from the previously planned 530 mmbf and the previously forecast 500 mmbf. This was apparently due to some internal policy decisions and an increase in community opposition to some sales.

The planned sales volume for FY 24 was also decreased substantially, though not until the June forecast — from 480 mmbf to 391 mmbf. This was again due to increased pressure from actual or threatened lawsuits, and opposition to some prepared sales. These issues have been particularly problematic for volume delivery because they have occurred on sales that have already been fully prepared - the work that went into them is a sunk cost and is gone, and the program often doesn't have enough time or resources to bring new, alternative sales to auction.

It is not clear yet how this type of risk will change in the future as the program adapts to the new environment. The current practice of spending time, money and effort on preparing timber sales to have a substantial number of them pulled is likely untenneble. We are building in the likelihood that the timber sales will not be able to fully adapt before FY 27, and reduced the sales volume forecast in previous forecasts for FYs 25 and 26 to 480 mmbf.

Figure 22: Forecast Timber Sales Price

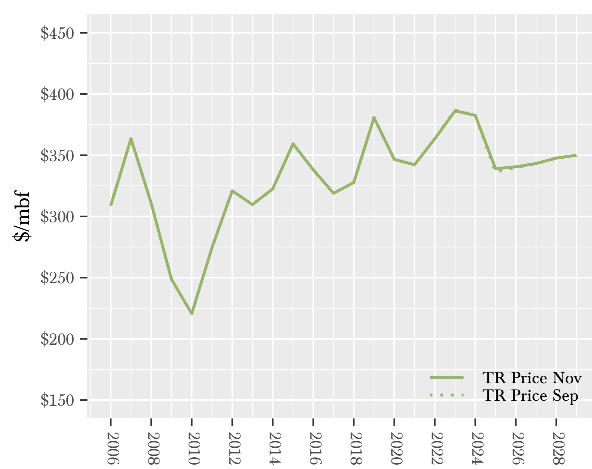


Finally, there are two other changes that are likely to affect timber sales volume: the election of a new Commissioner for Public Lands (CPL) and the Department's Carbon Project. As part of his campaign the CPL-elect appeared to advocate for setting aside some amount of "legacy" forests — the type of forest in timber sales that have been frequently contested recently. The Departments Carbon Project had plans to remove around 10,000 acres of forest land from the planned harvest schedule and instead generate revenue from carbon offsets. It is unclear how much these changes will affect timber sales volume. Because of the significant uncertainty around these, we are not building in any change to timber sales volume due to these issues in this forecast.

Timber Removal Volume

Forecast removal volumes are unchanged. However, harvest volumes are a little slower than expected for FY 25, and may be reduced in the next forecast if slow harvesting continues.

Figure 23: Forecast Timber Removal Price



Timber Sales Prices

The price results of monthly DNR timber sales can be quite volatile (Figure 11). As discussed in the stumpage price outlook, the DNR sales price forecast is informed by West Coast log and stumpage price estimates from a forest economics consulting firm.

The forecast timber sales price for FYs 25 and 26 is unchanged at $340/mbf. This is lower than the outlying years because the reduced sales volume is from sales that are typically higher value. Fewer high value sales will tend to reduce the average sales price.

Outlying years' prices are unchanged at the long-term average of $350/mbf. This is based on the assumption that current opposition to DNR sales will resolve in such a way that prices will return to their long term average. This may be optimistic.

Timber Removal Prices

Timber removal prices are determined by sales prices, volumes, and harvest timing. They can be thought of as a moving average of previous timber sales prices, weighted by the volume of auctioned timber removed in each time period (Figure 23). The removal price forecast is changed slightly based on updated inventory values FY 25 through FY 28.

Figure 24: Forecast Timber Removal Value

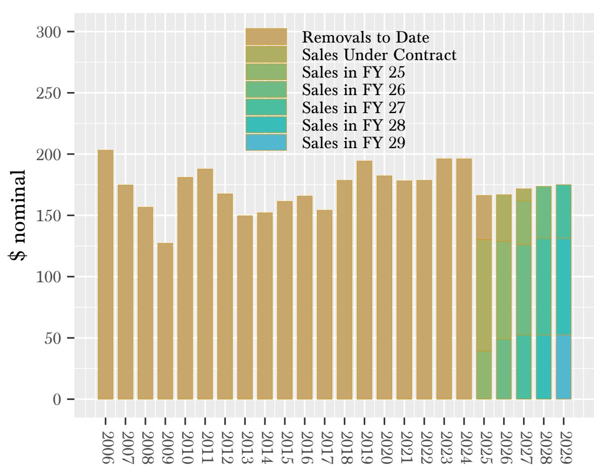
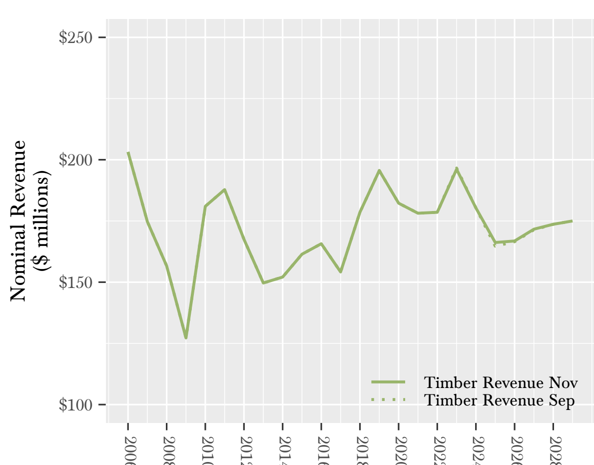


Figure 25: Forecast Timber Removal Revenue



Timber Removal Revenue

Figure 24 shows projected annual timber removal revenues, broken down by the fiscal year in which the timber was sold. Revenue estimates reflect all of the changes described above.

Forecast timber revenues for the 2023-25 biennium are $347 million and forecast revenues for the 2025-27 biennium are $339 million.

Upland Lease Revenues

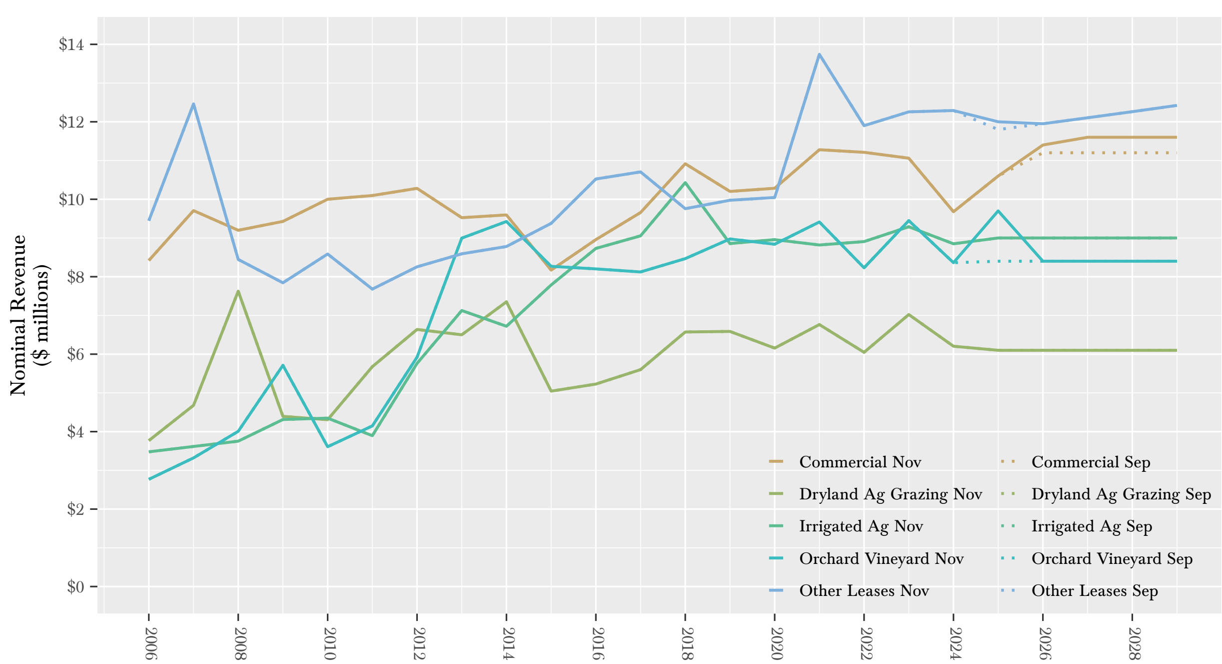
Upland lease revenues are generated primarily from leases and the sale of valuable materials other than timber on state trust lands (Figure 26).

The commercial uplands lease revenue forecast is increased by $0.2 million in FY 26, and increased by $0.4 million in outlying years. This is due to the newly signed lease for a Costco in Richland, which is planned to open in late 2025. During development, the lease will generate only minimal revenue, but after opening it will generate around $0.4 million per year. This will likely change in the coming forecasts as there is still a large unleased property that should command a rent of around $1 million. However, this revenue isn't included in the current forecast becasue the property has remained vacant since January.

Orchard/vineyard revenue to-date has been on par with what we had expected, hoewever, there was $1.3 million in lease revenue for FY 24 that was unpaid. This is a one-time increase to FY 25 revenue. It should be noted that orchard/vineyard revenue is still facing substantial risks that will likely start pulling down revenue in the next few years. In particular wine grape demand has fallen substantially, with at least one major buyer reducing their purchasing contracts — equivalent to around 1/6 of the total wine grape acres in production in the state.

The difficult environment is driving some lessees to change their crops, which will lead to a transition period of lower revenue, likely through at least FY 27. However, after that, revenue should start to increase again as growers are producing more valuable crops. While this is likely on the horizon, the forecast is unchanged until we have better information.

Figure 26: Forecast Upland Lease Revenue



Aquatic Lands Revenues

Aquatic lands revenues are generated from leases on aquatic lands and from sales of geoduck. In the past, on average, leases have accounted for one-third of the revenue and geoduck sales accounted for the remainder. However, prices for geoduck plummeted in the beginning of FY 20, so that it accounted for less than half of the aquatic lands revenue that year. Geoduck prices have since recovered and geoduck revenue is currently forecast to account for between 55 and 60 percent of aquatic revenue, however this will likely change in upcoming forecasts.

The non-water-dependent revenue forecast is increased in FY 25 due to a large one-time back-payment of rent that was not invoiced in FY 24. We have only increased the forecast by part of this amount, so if everything continues on as it is, then this will likely increase further in the next forecast (Figure 27). .

Other aquatic lease revenue forecasts are unchanged.

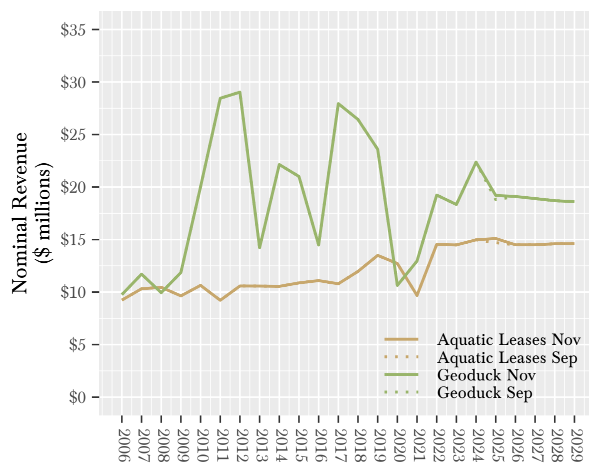
The geoduck forecast revenue for FY 24 is notably higher than the surrounding years because bonus bid revenue that had been expected in FY 23 was shifted into FY 24.

We re-worked the geoduck pricing model in February 2024 to only include data from post-2010. China meaningfully entered the geoduck markets in 2010 and created a step-change in prices. The previous model included those pre-2010 prices and it caused the model to predict a continued upward trend in the future, which does not seem likely. Basing the model on post-2010 period gives the model a better fit and provides a more reasonable forecast.

The increased forecast for all years is based on the new pricing model. Additionally, the FY 24 revenue forecast is increased based on actual prices for the more recent auctions, which were still higher than our previous forecasts.

Geoduck revenue for this forecast is increased by $0.4 million based on higher than expected prices in the September auction. However, this forecast was prepared before the presidential election and the December auction. The December auction was much lower than we had expected as a result of both issues with tracts testing positive for arsenic, and the results of the presidential election and promised tariffs from the president-elect — the auction chat noted buyer concerns about both of these issues specifically. See the Other Notes section for a discussion, but the geoduck forecast will likely be revised down significantly in the next forecast.

Figure 27: Aquatic Lands Revenues



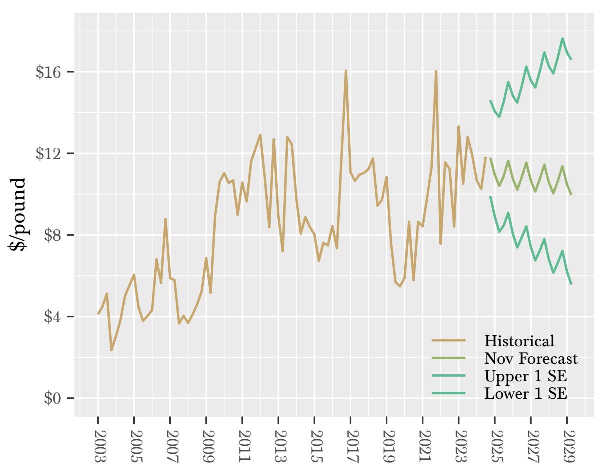
Additionally, there are, as always, potentially significant downside risks to geoduck revenues, even in the near term and in addition to the pandemic, that are important to consider but difficult to forecast:

- China's economy appears to be slowing meaningfully.
- Harvests (and therefore revenues) could be deferred or lost if geoduck beds are closed due to occurrence of paralytic shellfish poison or arsenic.
- Harvests will be slowed or delayed if there is an injury or death of a diver.
- Early in 2021, heavy rains overwhelmed sewage treatment plants in the Puget Sound, spilling untreated sewage into the sound and

closing geoduck tracts for several weeks. Although program staff were able to offer alternative harvest from different tracts, this type of risk will continue as the effects of climate change grow more severe.

- A recent Washington Department of Fish and Wildlife survey of closed South Puget Sound geoduck tracts showed declining recovery rates and evidence of active poaching, suggesting that future commercial harvest levels may be further reduced.

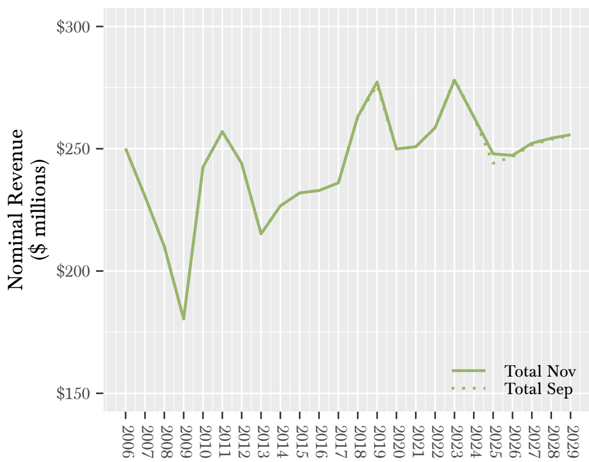
Figure 28: Geoduck Auction Prices



Total Revenues from All Sources

The forecast revenue for the 2023-25 biennium is increased by \$3.8 million to \$510 million, while the 2025-27 biennium is increased by \$1.1 million to \$500 million. (Figure 29).

Figure 29: Total Revenues



Distribution of Revenues

The distribution of timber revenues by trust are based on:

- The volumes and values of timber in the inventory (sales sold but not yet harvested) by trust;
- The volumes of timber in planned sales for FYs 24 and 25 by trust, and relative historical timber prices by DNR region by trust; and
- The volumes of timber by trust for other years based on output of the sustainable harvest model and relative historical timber prices by DNR region by trust.

Because a single timber sale can be worth more than $3 million, dropping, adding, or delaying even one sale can represent a significant shift in revenues to a specific trust fund.

Distributions of upland and aquatic lease revenues by trust are assumed to be proportional to historic distributions unless otherwise specified.

Management Fee Deduction. The underlying statutory management fee deductions to DNR as authorized by the Legislature are 25 percent or less, as determined by the Board of Natural Resources (Board), for both the Resources Management Cost Account (RMCA) and the Forest Development Account (FDA). In biennial budget bills, the Legislature has repeatedly authorized a fee of up to 27 percent for FDA since 2013, and a fee of up to 32 percent for RMCA since 2015. However, the Board has not approved those full amounts, deciding on 31 percent for RMCA and 25 percent for FDA.

The Forecast assumes that the Legislature and Board will continue to approve the RMCA management deduction at 31 percent and that the BNR will continue to approve a 25 percent deduction for FDA.