

### Carbon and Forest Management Work Group



April 29 | 1 pm – 5 pm

Meeting #6.5

### Welcome to Work Group Members

- This is a public meeting and is being recorded.
- Please use the chat for questions during the presentations. We will have designated times to address questions throughout the meeting.
- Please keep cameras on.
- Please keep microphones off unless speaking.
- Materials, including the meeting recording, will be available on the work group website after the meeting.





### Welcome to Members of the Public

- The public will not be able to comment within this meeting but can share questions via email.
- Please direct all questions to Duane Emmons, <u>duane.emmons@dnr.wa.gov</u>
- Refer to the work group website for meeting information and materials.

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Carbon and Forest Management Work Group	acres of forested state counties, universities	e trust lands across t , and other trust ben rust lands for a suite	he state. On these land eficiaries, primarily th of ecological goals, su	ds, DNR generates rever rough timber harvest. E sch as clean water and h	nue for DNR Jabitat			11e
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orest Health Advisory Committee	carbon sequestration collaborate on appro	I (absorption) and staches related to the	orage in DNR-manage following:	d forests. The work grou	up will	a	pply to serve	on a boar

www.dnr.wa.gov/about/boards-and-commissions/carbon-and-forest-management-work-group





## Agenda

- 1. Welcome & Updates
- 2. New Voting Process
- 3. Friendly Amendments to Alternative 8
- 4. Scenarios Pending from April 10 Meeting
- 5. New Scenarios
- 6. Break
- 7. New Scenarios
- 8. Next Steps





## **Meeting Objectives**

- Review new voting process.
- Review and discuss scenarios to be voted on during May 8 work group meeting.







### **Recap of Last Meeting**

- Presentation on climate model methodology.
- Voting on proposed scenarios; none passed.







### **Resetting the Process**





# Voting Process



### **Voting Process for May 8**

- The facilitator will review all of the scenarios with the work group.
- Work group members will receive a link to a Google form (or similar online form) that lists **all** of the scenarios. Members will vote "thumbs up, sideways, or down" for each scenario using this form.





#### Carbon and Forest Management Work Group

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### How to Vote

- If you would like a scenario modeled, vote thumbs up or say "Yes."
- If you generally like a scenario but have some reservations, vote thumbs sideways or say "Ok – would like to suggest a friendly amendment."
- If you do not want a scenario modeled, vote thumbs down or say "No."





### **Voting Process, Continued**

- **Supermajority of 75%** must vote thumbs up or sideways for a scenario to advance to modeling. If all members are present, must have 9 thumbs up or sideways votes.
- Scenarios that pass will be placed on the accepted list.
- If the work group does not pass enough scenarios to fill available slots, the facilitator will ask members voting thumbs down to explain their concerns and/or offer "friendly amendments" to improve support.





## Voting Process, Continued

- A second vote will be held.
- If the work group passes more scenarios than slots available, those with the fewest "thumbs up" votes will be dropped.
- If the work group does not pass enough scenarios to fill available slots, a third vote could be taken *if time allows*. If not, the contractors will proceed with the scenarios that have passed, even if some slots are empty.
- No additional voting will occur after May 8.





## Discussion of Management Scenarios



### **Site Class**

- 79 percent of state trust lands in GEM areas are Site Class 2 or 3:
  - Site Class 1: 5%
  - Site Class 2: 41%
  - Site Class 3: 38%
  - Site Class 4: 12%
  - $\circ~$  Site Class 5 and 6: 4%
- In the scenarios, DNR did not specify rotation lengths for Site Class 5 or 6 because there are few acres on the landscape and the growing conditions are poor. These "low" sites tend to have glacial till, glacial drift over bedrock, or gravel alluvium, and are rarely productive enough to actively manage for timber harvest.





### Difference Between Scenario 6 and 7

Voted down in the April 10 meeting but built into new scenarios to meet the intent of the proviso to "conserve and manage" carbon-dense, older, structurally complex forest. Both defer 100% of the following in GEM areas:

#### Scenario 6

Older, carbon-dense, structurally complex forest as DNR defines them in the *Policy for Sustainable Forests*\*

#### Scenario 7

Forest deferred under Scenario 6 and less complex forest as selected by the work group

\*Only definition of structurally complex forest recognized by DNR





### **Structurally Complex Forest**

For scenario development, using the definition of structurally complex stand in the 2006 *Policy for Sustainable Forests (PSF)*\*:

A forest in the 'botanically diverse' 'niche diversification' or 'fully functional' stage of stand development. Forests in these phases have varying sizes of trees, understory vegetation and lichen, downed wood and snags, etc.

\*Only definition of structurally complex forest recognized by DNR





### **Stand Characteristics**

### Botanically diverse → Niche diversification → Fully functional

- Snags, large pieces of down woody material, and gaps in upper tree canopy form as original trees die out.
- Understory develops and diversifies in species and tree diameter.
- Shade-tolerant trees eventually reach upper tree canopy.

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### **More on Deferrals**

- Deferred from stand replacement harvest indefinitely.
- May be thinned for forest health or other ecological objectives if needed.
- Forests not already deferred for other objectives.
- Excludes the 2,000 acres being deferred under Section 1 (b) of this budget proviso.







### Scenarios at a Glance

	Components									
Scenario	Scenario 2 (lengthen rotations)	Scenario 2 Amended (lengthen rotations)	Scenario 3 (shorten harvest rotations)	Scenario 4 Revised (increase thinning)	Scenario 4 Amended (increase thinning)	Scenario 6 (deferrals)	Scenario 7 (deferrals)	Scenario 9 (increased silviculture)		
Scenario with "friendly amen	dments"									
Scenario 8 (2a+4a)		$\checkmark$			$\checkmark$					
Scenarios pending from April	10 meeting									
Scenario 10 (2+4r+7)	$\checkmark$			$\checkmark$			$\checkmark$			
Scenario 11 (4a+9)					✓			$\checkmark$		
New scenarios developed sine	ce the April 1	0 meeting to	address conce	erns of work	group memb	ers				
Scenario 12 (2a+4a+6+9)		$\checkmark$			$\checkmark$	$\checkmark$		$\checkmark$		
Scenario 13 (2a+4a+7+9)		✓			$\checkmark$		$\checkmark$	$\checkmark$		
Scenario 14 (3+6+9)			$\checkmark$			$\checkmark$		$\checkmark$		
Scenario 15 (2a+4a+9)		✓			✓			$\checkmark$		
Scenario 16 NEW (3+4a+9)			$\checkmark$		$\checkmark$			$\checkmark$		



### Scenario with Friendly Amendment













### Scenario 8 (2a+4a)

### Lengthen harvest rotation (Scenario 2a)

Site Class 1 and 2 rotation based on minimum timber volume

Site class 3 and 4 rotations based on AGE



Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory





### Scenario 8 (2a+4a)

Significantly increase thinning (Scenario 4a)

- Riparian thinning 10% increase in acres from current management
- One thinning entry in uplands

GEM Areas	Stand reaches board feet/act	s minimum 18,000-20,000 re	Site Class 1 and 2: 50,000-55,000 board feet/acre Site Class 3: 80 years; Site Class 4 90 years (Scenario 2a)						
Stand regeneration	► PCT (75% of stands)	Commercial thinning ~30% of stand removed	Stand replacement harvest/~90% net removal from each timber sale unit						
<b>Riparian Areas</b> Commercial thinn	ing (~30% of stand	removed) after stand							
reaches 18,000-20 *An increase of 10% i can only be thinned o	0,000 board feet/acr in acres of riparian thi once per the Riparian I	e* nning will be modeled as thin Forest Restoration Strategy.	nned as compared to current operations. Riparian forests						
Upland Areas									
Commercial thinn reaches 18,000-20	ning (~30% of stand ),000 board feet/acr	removed) after stand e**							
**Only one thinning e	entry will be modeled	in upland areas to better aligr	n with HCP requirements.						





### Scenario Pending from April 10 Meeting







### Scenario 10







## Scenario 10 (2+4r+7)

Sample Douglas-fir yield curve, western Washington

Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory

Lengthen 80 Minimum timber volume for harvest rotation stand replacement harvest 50,000-55,000 board feet/acre Timber Volume (MBF/acre) 20 40 60 (Scenario 2) Site class 1 (most productive) Site class 2 Site class 3 Site class 4 (Least productive) 0 10 20 30 40 50 60 70 110 80 90 100 130 150 0 120 140 Age

Average rotation length





### Scenario 10 (2+4r+7)

Significantly increase thinning (Scenario 4r)

- More than one thinning entry per harvest rotation in GEM areas.
- In spotted owl management units, thin stands that are not in habitat condition.





### Scenario 10 (2+4r+7)

In GEM areas, defer 100% of the following forest types (Scenario 7):

- Older, "carbon-dense," structurally complex forest as DNR defines them within its *Policy for Sustainable Forests*\*
- Less complex forest stands as selected by the work group

\*Only definition of structurally complex forest recognized by DNR





### Scenario 11







## Scenario 11 (4a+9)

#### Increased Emphasis on Silviculture (Scenario 9)

- Roughly 80 percent of the seedlings DNR plants will be grown from improved seed stock (current percentage roughly 60 percent)
- Vary planting density by species:
  - Coastal low elevation sites: 400 TPA western hemlock
  - Mixed species stands: 275 Douglas-fir and 50 western hemlock
  - High elevation sites: 440 TPA noble fir
  - All sites will also experience infill from natural regeneration







### Scenario 11 (4a+9)

- Increase site preparation from 75 to 90 percent of planted acres.
- Increase release treatments from 75 to 100 percent of planted acres.
- Conduct PCT on 75 percent of forest stands.







### Scenario 11 (4a+9)

Significantly increase thinning (Scenario 4a)

Increased emphasis on silviculture (Scenario 9)



Commercial thinning (~30% of stand removed) after stand reaches 18,000-20,000 board feet/acre\*\*

\*\*Only one thinning entry will be modeled in upland areas to better align with HCP requirements.





### **New Scenarios**







### Scenario 12







### Scenario 12 (2a+4a+6+9)

#### Sample Douglas-fir yield curve, western Washington

Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory

Lengthen 80 Minimum timber volume for stand replacement harvest 50,000-55,000 board feet/acre/Site Class 1 and 2 harvest rotation Site Class 3 (80-year rotation) Timber Volume (MBF/acre) 20 40 60 ~42,000 board feet/acre (Scenario 2a) Site Class 4 (90-year rotation) ~39,000 board feet/acre Site class 1 (most productive) Site class 2 Site class 3 Site class 4 (Least productive) 0 20 30 40 50 60 70 100 10 90 120 130 140 150 0 80 110 Age Average rotation length roughly 78-90 years



### Scenario 12 (2a+4a+6+9)

Significantly increase thinning (Scenario 4a)

Increased emphasis on silviculture (Scenario 9)



\*An increase of 10% in acres of riparian thinning will be modeled as thinned as compared to current operations. Riparian forests can only be thinned once per the Riparian Forest Restoration Strategy.

#### **Upland Areas**

Commercial thinning (~30% of stand removed) after stand reaches 18,000-20,000 board feet/acre\*\*

\*\*Only one thinning entry will be modeled in upland areas to better align with HCP requirements.



### Scenario 12 (2a+4a+6+9)

In GEM areas, defer 100% of the following forest types (Scenario 6):

• Older, "carbon-dense," structurally complex forest as DNR defines them within its *Policy for Sustainable Forests*\*

\*Only definition of structurally complex forest recognized by DNR





### Scenario 13







### Scenario 13 (2a+4a+7+9)

Scenario 13 is the same as Scenario 12 except for deferrals (Scenario 7): In GEM areas, defer 100% of the following:

- Older, "carbon-dense," structurally complex forest as DNR defines them within its *Policy for Sustainable Forests*\*
- Less complex forests as selected by the work group

\*Only definition of structurally complex forest recognized by DNR





### Scenario 14







### Scenario 14 (3+6+9)

Sample Douglas-fir yield curve, western Washington

Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory



Average rotation length



### Scenario 14 (3+6+9)

### In GEM areas, defer 100% of the following forest types:

• Older, "carbon-dense," structurally complex forest as DNR defines them within its *Policy for Sustainable Forests*\*

#### Increased emphasis on silviculture



\*Only definition of structurally complex forest recognized by DNR





### Scenario 15







## Scenario 15 (2a+4a+9)

#### Sample Douglas-fir yield curve, western Washington

Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory

Lengthen 80 Minimum timber volume for stand replacement harvest 50,000-55,000 board feet/acre/Site Class 1 and 2 harvest rotation Site Class 3 (80-year rotation) Timber Volume (MBF/acre) 20 40 60 ~42,000 board feet/acre (Scenario 2a) Site Class 4 (90-year rotation) ~39,000 board feet/acre Site class 1 (most productive) Site class 2 Site class 3 Site class 4 (Least productive) 0 20 30 40 50 60 70 100 10 90 120 130 140 150 0 80 110 Age Average rotation length roughly 78-90 years



### Scenario 15 (2a+4a+9)

Significantly increase thinning (Scenario 4a)

Increased emphasis on silviculture (Scenario 9)



Commercial thinning (~30% of stand removed) after stand reaches 18,000-20,000 board feet/acre\*\*

\*\*Only one thinning entry will be modeled in upland areas to better align with HCP requirements.



### Scenario 16 (NEW)







## Scenario 16 (3+4a+9)

Sample Douglas-fir yield curve, western Washington

Yield curve generated from RSFRIS inventory plots and stratified using information from DNR's inventory



Average rotation length



## Scenario 16 (3+4a+9)

Significantly increase thinning (Scenario 4a)

Increased emphasis on silviculture (Scenario 9)



\*An increase of 10% in acres of riparian thinning will be modeled as thinned as compared to current operations. Riparian forests can only be thinned once per the Riparian Forest Restoration Strategy.

#### **Upland Areas**

Commercial thinning (~30% of stand removed) after stand reaches 18,000-20,000 board feet/acre\*\*

\*\*Only one thinning entry will be modeled in upland areas to better align with HCP requirements.





### Scenarios at a Glance (REVIEW)

	Components											
Scenario	Scenario 2 (lengthen rotations)	Scenario 2 Amended (lengthen rotations)	Scenario 3 (shorten harvest rotations)	Scenario 4 Revised (increase thinning)	Scenario 4 Amended (increase thinning)	Scenario 6 (deferrals)	Scenario 7 (deferrals)	Scenario 9 (increased silviculture)				
Scenario with "friendly amen	dments"											
Scenario 8 (2a+4a)		$\checkmark$			✓							
Scenarios pending from April 10 meeting												
Scenario 10 (2+4r+7)	$\checkmark$			$\checkmark$			$\checkmark$					
Scenario 11 (4a+9)					$\checkmark$			$\checkmark$				
New scenarios developed sine	ce the April <b>2</b>	LO meeting to	address conc	erns of work	group membe	ers						
Scenario 12 (2a+4a+6+9)		$\checkmark$			$\checkmark$	$\checkmark$		$\checkmark$				
Scenario 13 (2a+4a+7+9)		$\checkmark$			$\checkmark$		$\checkmark$	$\checkmark$				
Scenario 14 (3+6+9)			$\checkmark$			$\checkmark$		$\checkmark$				
Scenario 15 (2a+4a+9)		$\checkmark$			$\checkmark$			$\checkmark$				
Scenario 16 NEW (3+4a+9)			$\checkmark$		$\checkmark$			$\checkmark$				



# Next Steps



### **Next Steps**

Meeting on May 8, 2024, 9am-3pm to vote on scenarios





