



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

---

**Peter Goldmark** - Commissioner of Public Lands

# Western Washington Sustainable Harvest Calculation

For forested State Trust Lands  
A Report to the  
Board of Natural Resources

Kyle Blum and Angus Brodie  
March 2014



# Sustainable Harvest Topics

- Last Month
  - Reviewed RCW's, Policy
  - 2004 and 2007 calculations
- This Month
  - Modeling assumptions
  - Review of past decade



Sustainable Harvest Calculation

# Modeling Assumptions



# Modeling assumptions

- To conduct the calculation, we need to answer three broad questions?
  1. What are the management objectives?
  2. What are the current conditions of the forest resource?
  3. How will the forest grow under different silvicultural strategies?

# Sustainable Harvest Calculation

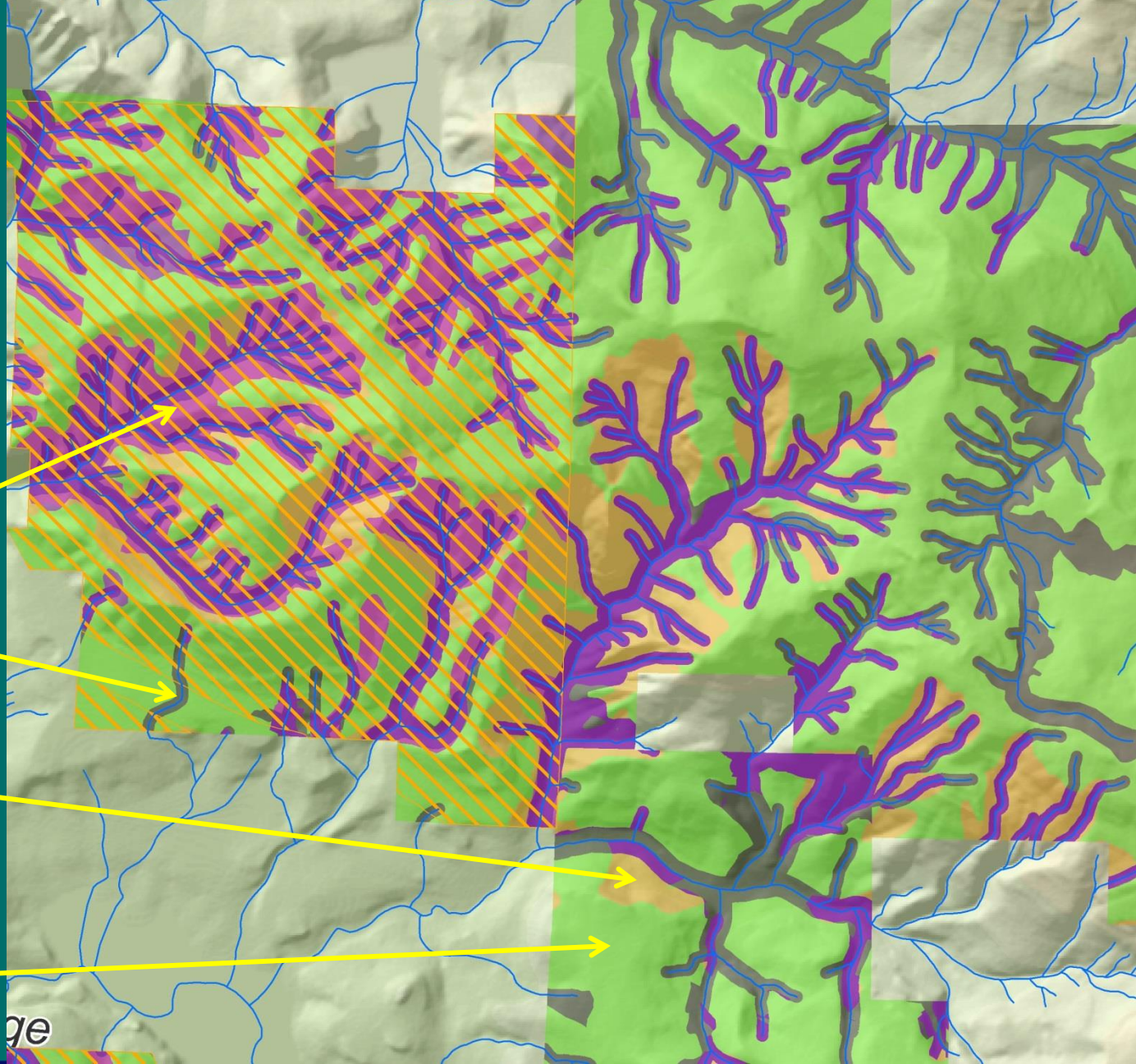
# Management Objectives

## Sources:

- RCWs
- Policy for Sustainable Forests
- 1997 Habitat Conservation Plan



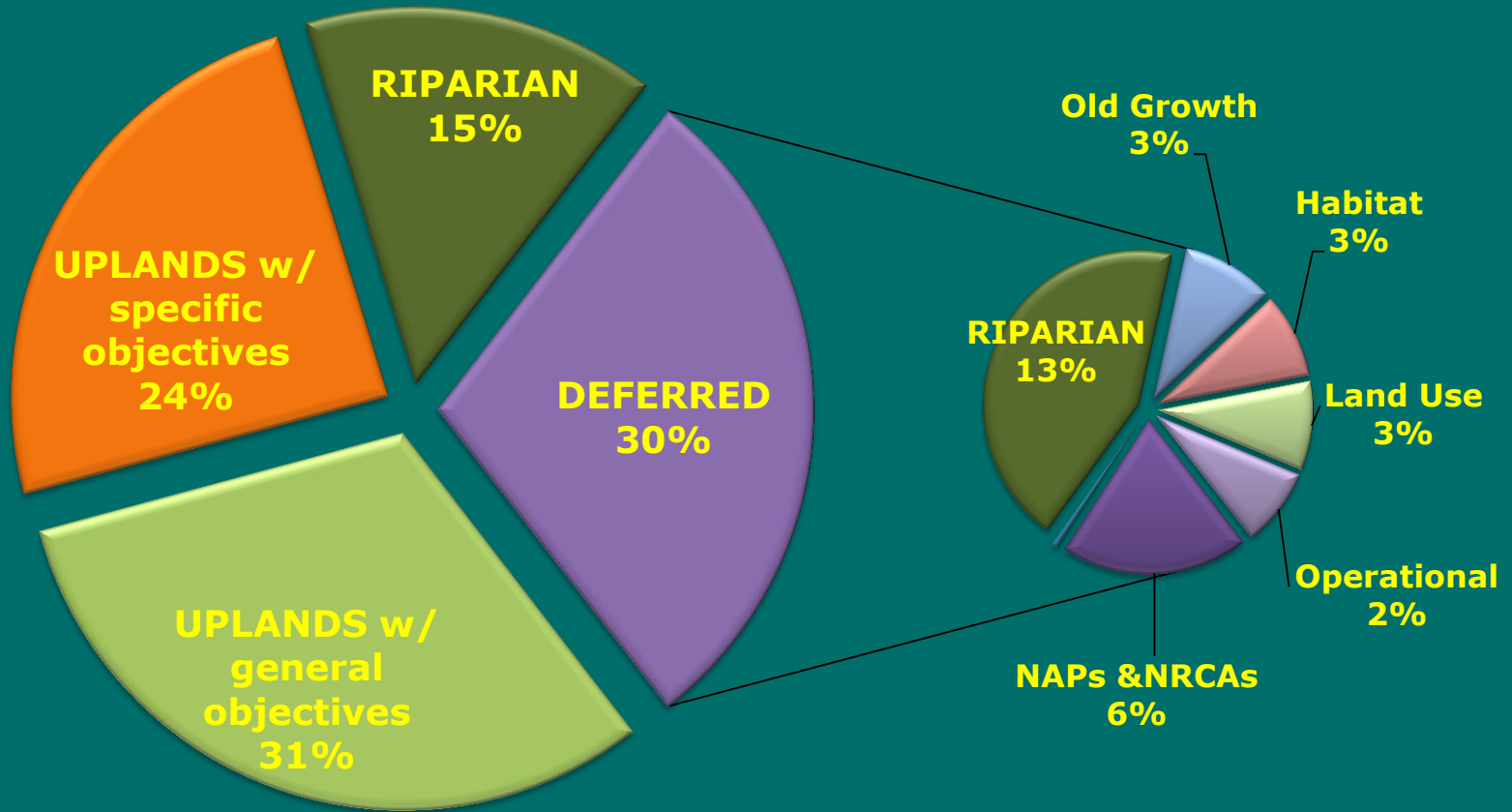
# Land Classes



- Deferrals
- Riparian
- Uplands with specific objectives
- Uplands with general objectives

# Sustainable Harvest Calculation

## Land Classes

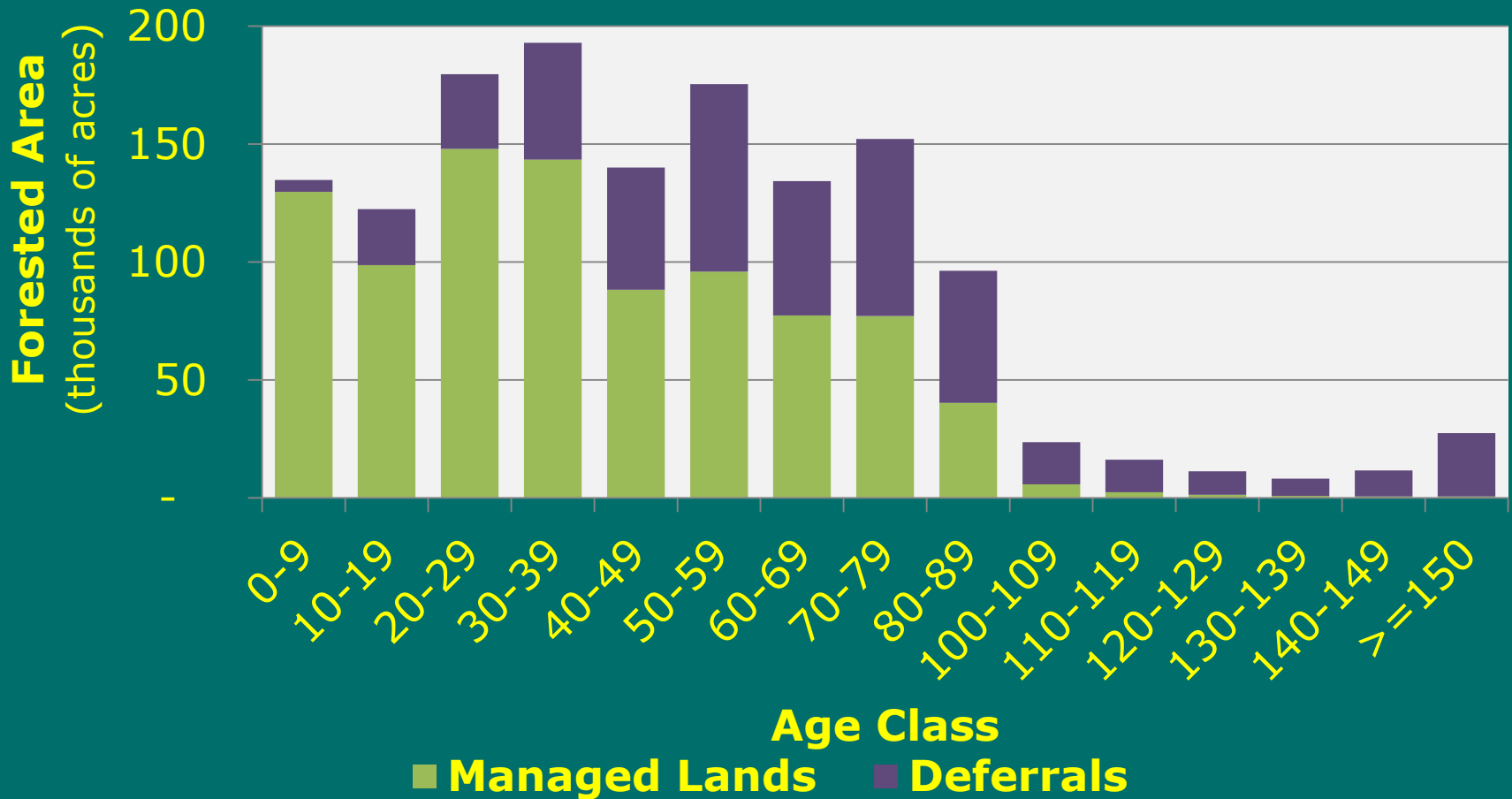


Total forested area of DNR-managed lands in western Washington = 1.46 million acres  
Includes Natural Area Preserves (NAPs) and Natural Resource Conservation Areas (NRCAs)



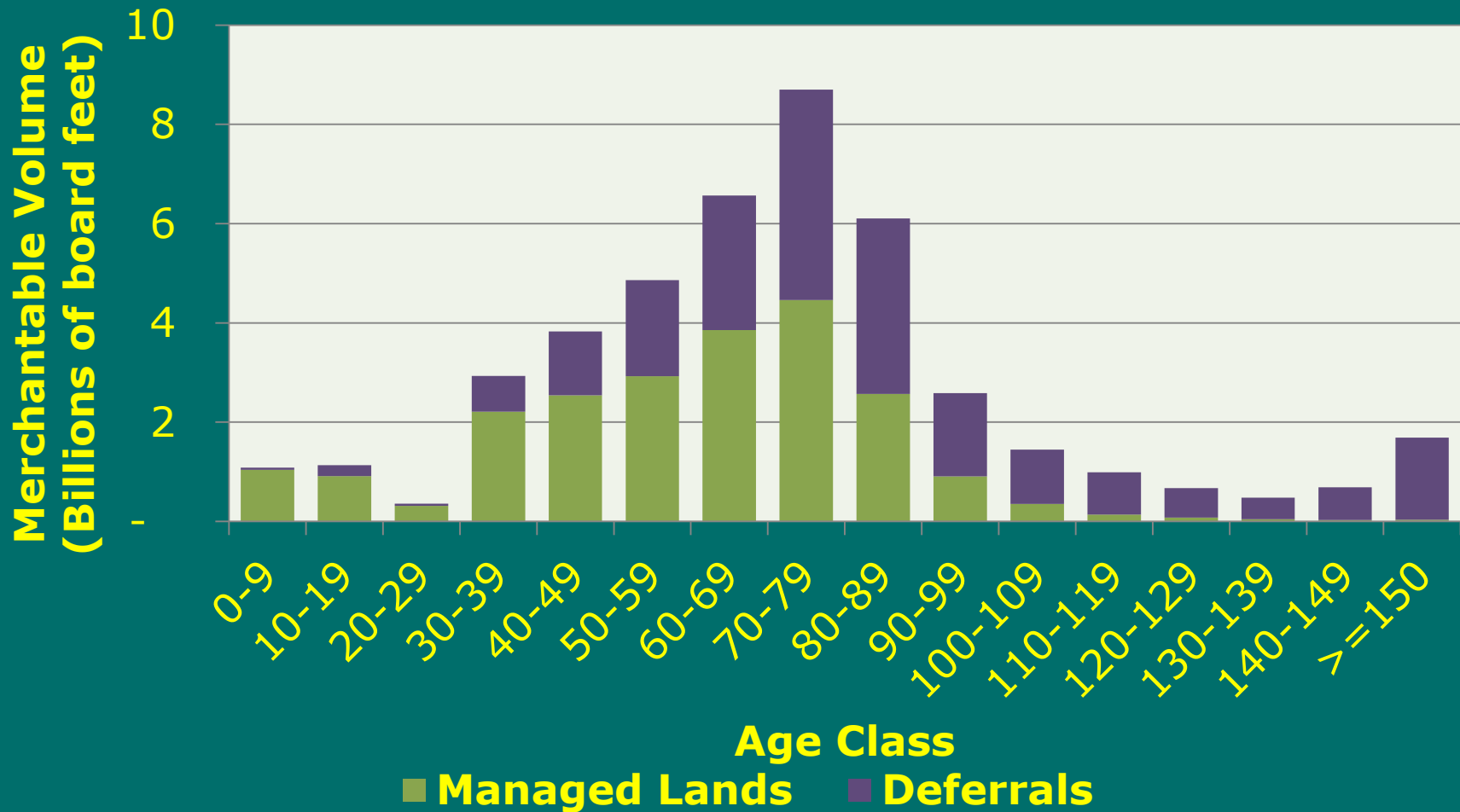
## Sustainable Harvest Calculation

# Current Forest Resources



## Sustainable Harvest Calculation

# Current Forest Resources



## Sustainable Harvest Calculation

# How will the forest grow?

- Today's harvest is based on an assumed future crops of trees
- Therefore, we assume that a variable retention harvest is followed by:
  - Site preparation
  - Replanting of trees
  - Managed the trees until they are free-to-grow
  - Practice density management to optimize tree growth



# Sustainable Harvest Calculation

## Silviculture Costs

Silvicultural Activity	Modeling Assumption \$ per acre	Expenditure \$ millions/year
Site Preparation and Planting	\$175	\$ 1.2
Vegetation Management	\$160	\$ 5.6
Pre-Commercial Thinning	\$160	\$ 1.5
Average Silvicultural Costs in 11-13 biennium		<b>\$ 8.3</b>



# Sustainable Harvest Calculation

## Management Fees

Timber Sales, Silviculture and Management Costs	Modeling Assumptions \$ per acre per year
Timber Sales preparation and compliance	\$ per acre of harvest
• Regeneration harvest	\$550
• Thinning harvest	\$550
• Riparian harvest	\$750-\$1000
Silviculture Costs	\$495
	\$ per acre of forest
Forest inventory and planning	\$3
Scientific support, research and monitoring	\$4
Indirect Costs	\$3

Approximate an annual cost of \$23 per forested acre per year

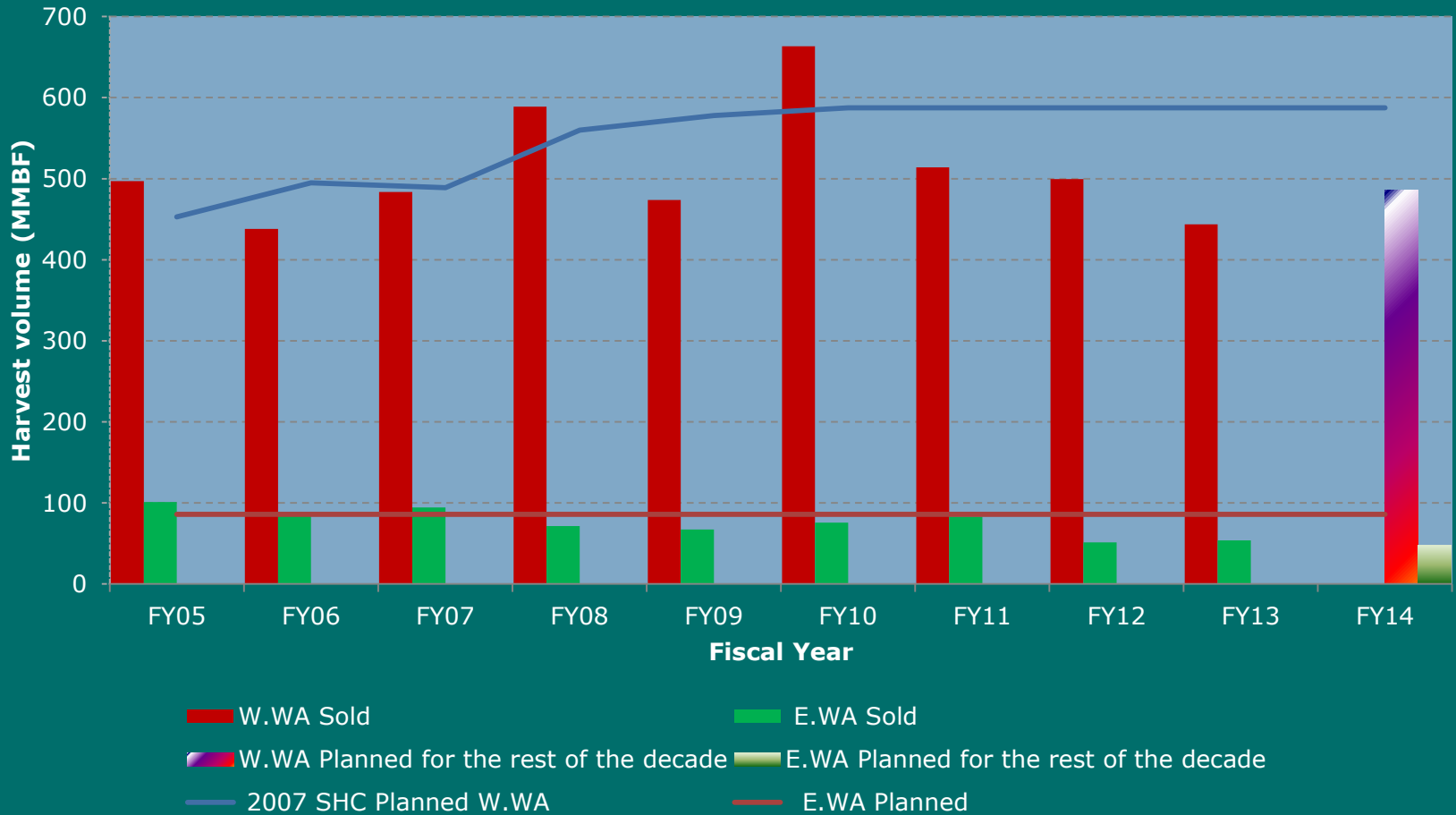


Sustainable Harvest Calculation  
**Review of the Past 10 years**



# Timber Volume Sold

FY05-FY13 Sold Sales + Projected Sustainable Harvest Targets to End of Planning Decade



# Western Washington Sustainable Harvest Units

FY05-FY13 Sold Sales and Percent of Projected Sustainable Harvest

Target class	Percent of Sustainable Harvest Level Achieved	Sustainable Harvest Units
Exceeded target	>100%	Clark, Cowlitz, Lewis, Mason, Pierce and Snohomish
Near or On-target	80-100%	Capitol Forest, Jefferson, Kitsap, Pacific, Skagit, Thurston and Whatcom
In-arrears	< 80%	Clallam, Federally Granted lands & SFB Purchase, King, OESF, Skamania and Wahkiakum





# Key Policy Assumptions and their implementation

- Riparian Management Zones
- Northern Spotted Owl habitat conservation strategy
- Interim Marbled murrelet habitat conservation strategy
- Management Fees

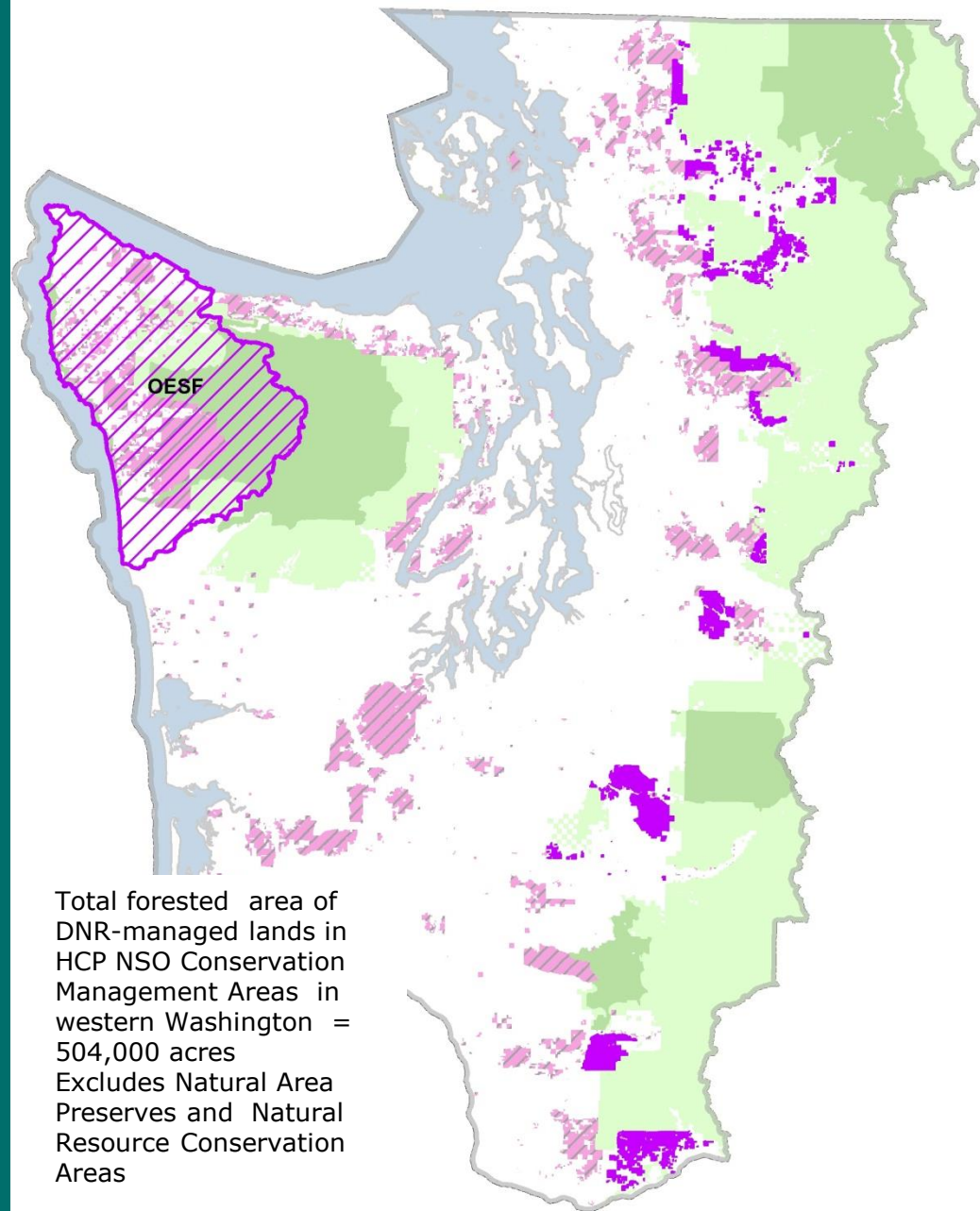


# Key Policy Assumptions and their implementation

- Riparian
  - Total Area, not excluding deferrals, is
    - ~ 470,00 acres
    - ~ 32 percent of total land base
  - Projected harvest
    - 394 MMBF or 7 percent of total volume during the decade
    - After 9 years
      - 85 timber sales have had associated harvest activities in Riparian Management Areas
      - 39 MMBF or 10% of projected



# Habitat Conservation Plan Northern Spotted Owl Management Areas



# Harvest from Habitat Conservation Plan Northern Spotted Owl Management Areas

<b>NSO Conservation Mgmt. Areas</b>	<b>9-year of Sold Sales (MMBF)</b>
<b>Nesting Roosting and Foraging</b>	104 (47%)
<b>Dispersal</b>	217 (264%)
<b>OESF</b>	304 (53%)
<b>Outside of NSO Cons. Management Areas</b>	3,908 (85%)
<b>Total</b>	<b>4,533 (82%)</b>



# Key Policy Assumptions and their implementation

- Marbled murrelet
  - 2004/2007 Sustainable Harvest Calculation assumed:
    - Assumed long-term strategy would be developed based on occupied sites
    - Harvest deferrals of occupied sites w/o buffers ~ 40,000 acres
  - Interim Strategy
    - Harvest deferrals of occupied sites ~ 60,000 acres
      - With site by site management of buffers around occupied sites
    - Harvest deferrals of Reclassified habitat ~ 30,000 acres
    - Harvest deferrals of Potential and Suitable habitat in North Puget Planning unit



# Reported Harvest across Land Classes

	Harvest Volume (MMBF) by Treatment		
Land Classes	Regeneration	Thinnings	Total
<b>GEMS (35%)</b>	3,221 (115%)	108 (193%)	3,328 (98%)
<b>UPLANDS (33%)</b>	956 (65%)	210 (161%)	1,166 (68%)
<b>RIPARIAN (32%)</b>		39 (19%)	39 (10%)
<b>Total</b>	<b>4,177 (95%)</b>	<b>357 (71%)</b>	<b>4,533 (82%)</b>

Values equal harvest volume sold after 9 years  
 Percentage represent the sold harvest volume as a portion of the projected volume  
 from the 2007 sustainable harvest calculation

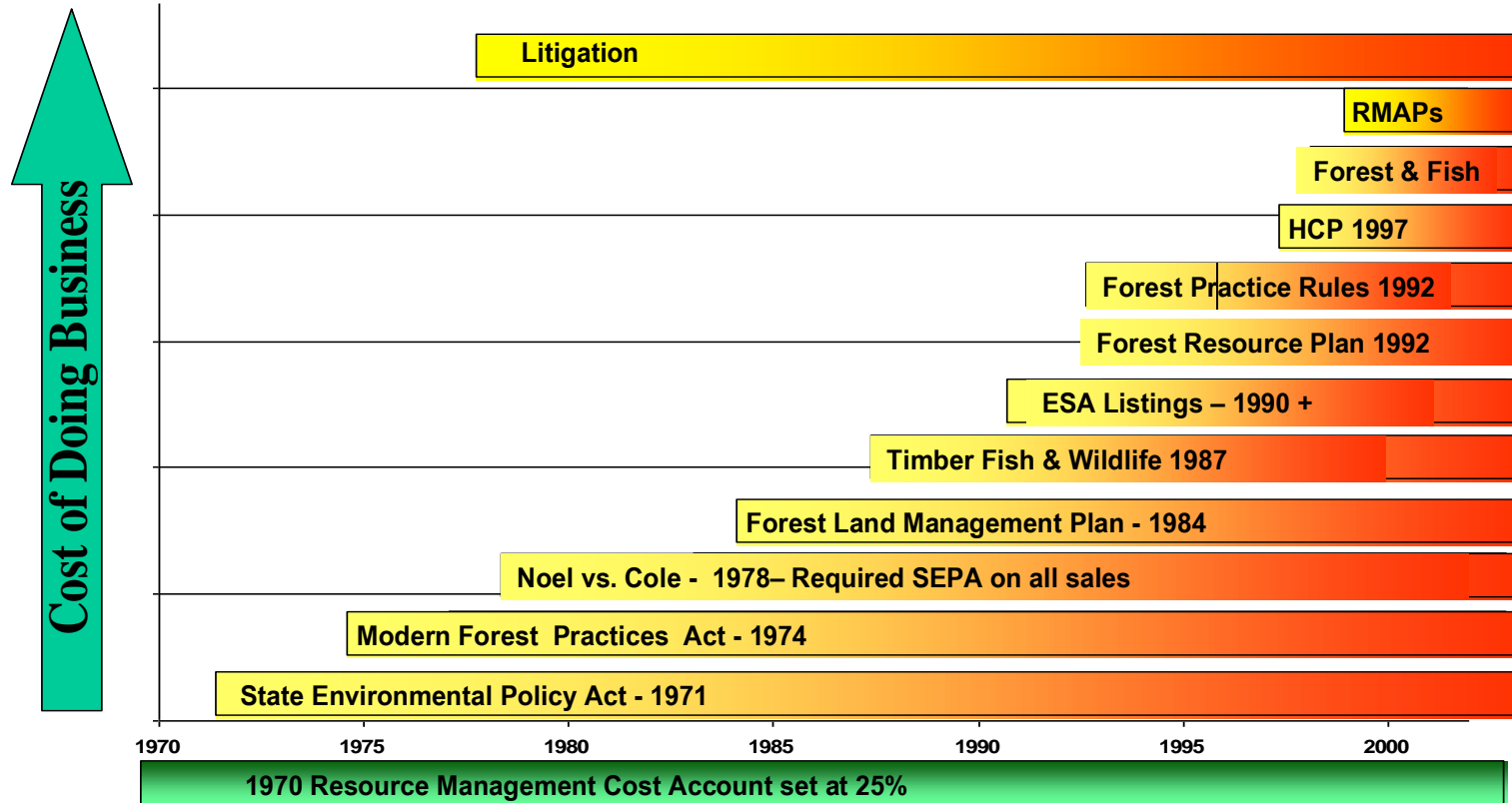
# Summary of Additional Board Requested Runs Financial Analysis - (First Decade) Presented at February 17<sup>th</sup> 2004 Special Meeting

Run Label	5A	6A	6B	Potential Pref Alt.	A run attempting to constrain mgmt costs
<b>Westside Harvest</b>					
<b>Revenue (\$ millions)</b>					
Regeneration	170.1	153.8	216.0	169.0	140.4
Uplands Variable Density Thinning	5.1	3.6	0.9	6.3	0.3
Traditional Thinning	8.0	4.5	1.5	0.8	
Riparian	14.6	4.8	3.2	22.6	3.7
<b>Total</b>	<b>197.8</b>	<b>166.8</b>	<b>221.6</b>	<b>198.7</b>	<b>144.4</b>
<b>Gross Revenue</b>					
Westside Total	\$197.8	\$166.8	\$221.6	\$198.7	\$144.4
Eastside Total	\$19.5	\$19.5	\$19.5	\$19.5	\$19.5
Non-Timber Total	\$19.3	\$19.3	\$19.3	\$19.3	\$19.3
<b>Total Gross Revenue</b>	<b>\$236.6</b>	<b>\$205.7</b>	<b>\$260.5</b>	<b>\$237.6</b>	<b>\$183.3</b>
<b>Total Costs</b>	<b>\$87.4</b>	<b>\$71.1</b>	<b>\$74.1</b>	<b>\$74.4</b>	<b>\$59.9</b>
<b>Net Revenue Total</b>	<b>\$132.2</b>	<b>\$132.0</b>	<b>\$181.3</b>	<b>\$157.7</b>	<b>\$123.4</b>
Total Costs as % of Gross Revenue	37%	35%	28%	31%	33%
WWA Net Present Value (over life of HCP, \$ millions)	\$3,062	\$2,789	\$2,948	\$3,622	\$3,233



# Changes in the Department's business environment since 1970

## Department of Natural Resources: Changes That Impact The Cost of Doing Business



DRAFT: Subject to changes and amendments over time 08/26/02



Accumulating regulatory rules (e.g. Forest Practices and SEPA) and policy objectives have increased the costs of doing business beyond the "typical" operating costs of silviculture

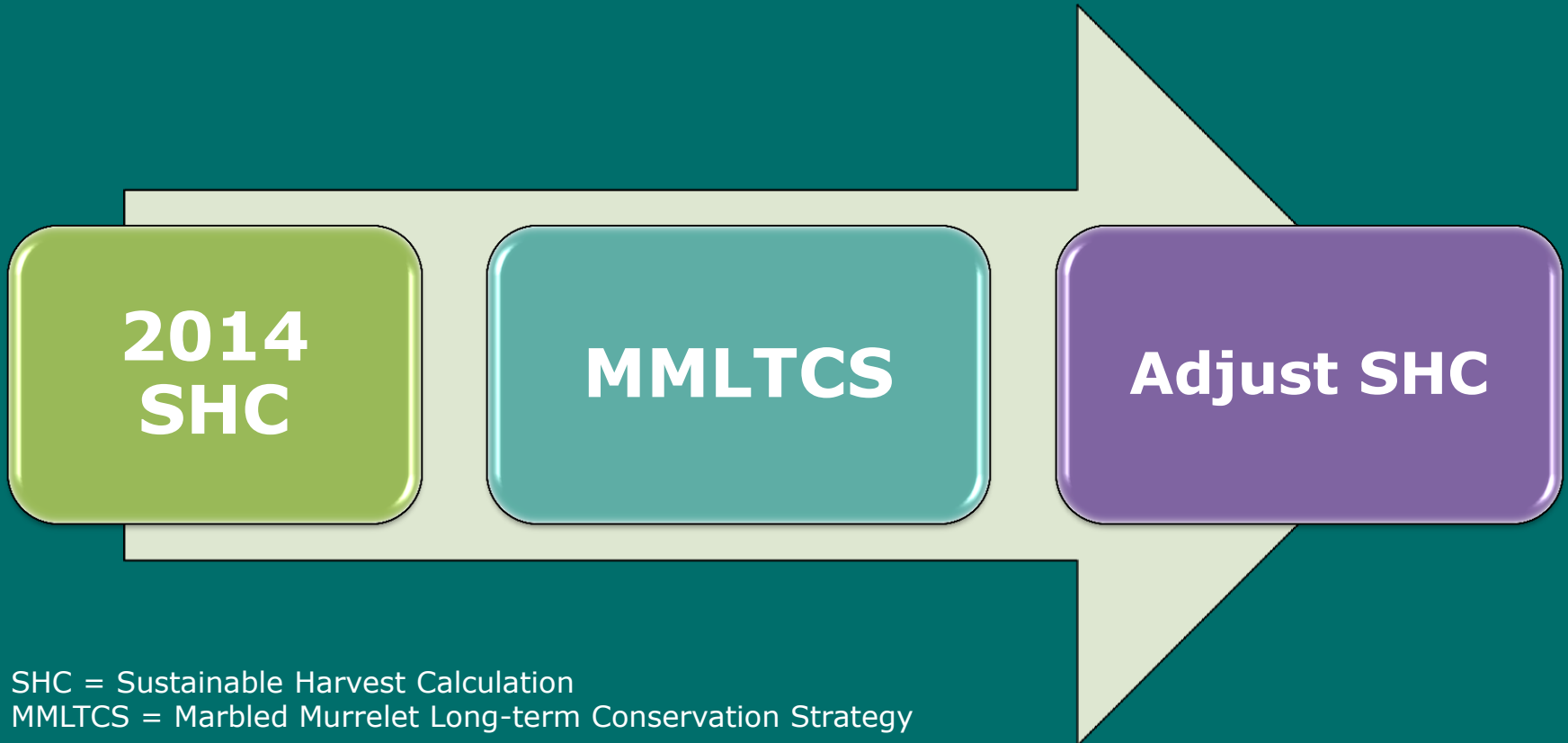


# Sustainable Harvest Calculation Timeline



# Timeline – the longer term

## Major State Lands Planning Projects



SHC = Sustainable Harvest Calculation

MMLTCS = Marbled Murrelet Long-term Conservation Strategy

# Timeline – Short Term

## Sustainable Harvest Calculation

### February

- Background presentation

### March/April

- In depth look at modeling assumptions
- Performance to date

### May

- Harvest Volumes
- Environmental Analysis
- Arrearage

### June

- Sustainable Harvest Recommendation Resolution



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

---

**Peter Goldmark** - Commissioner of Public Lands