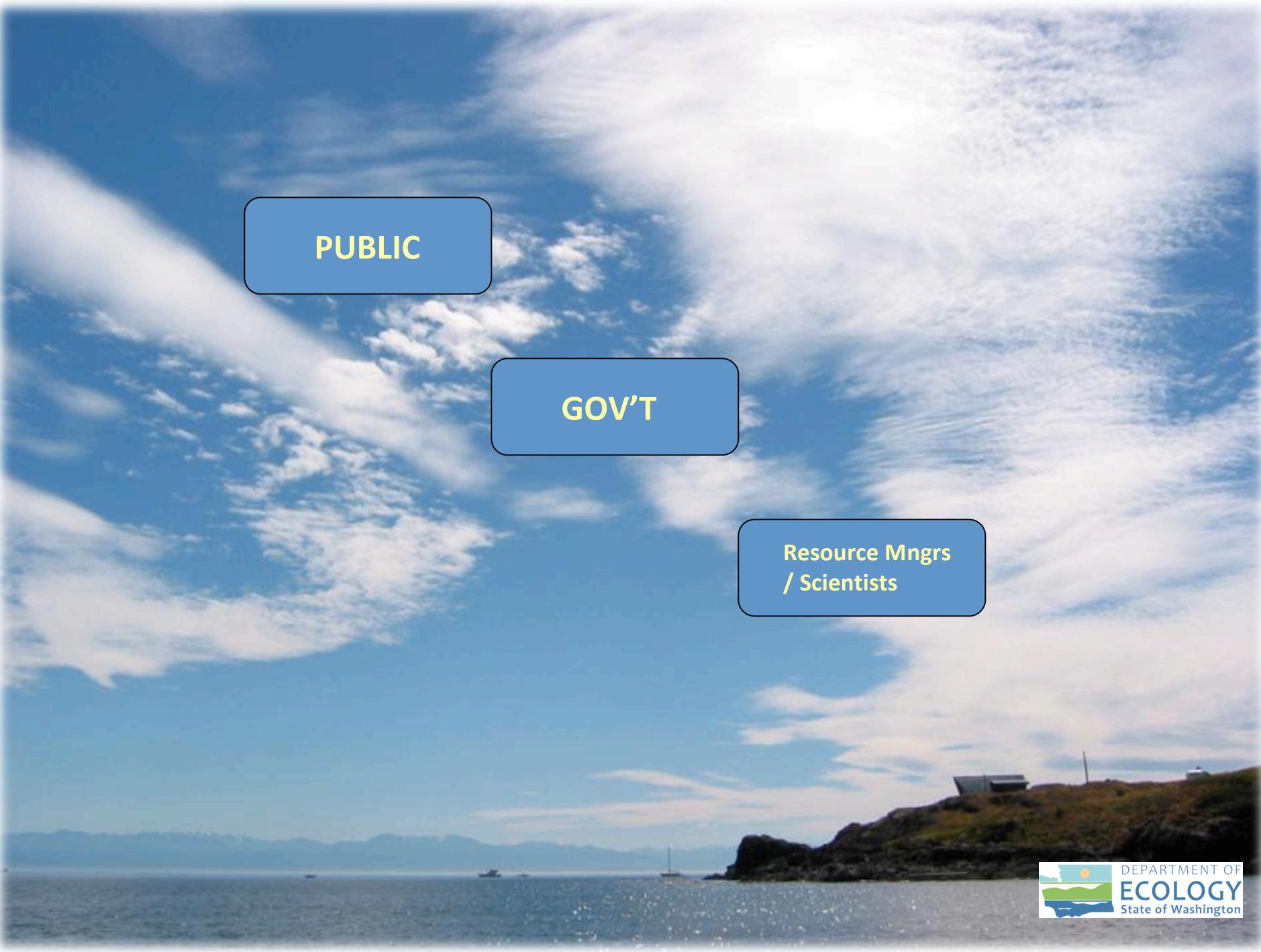


Bridging the Climate Change Data & Policy Gaps: State and Regional Efforts

**W. Spencer Reeder
WA Dept. of Ecology
January, 2009**

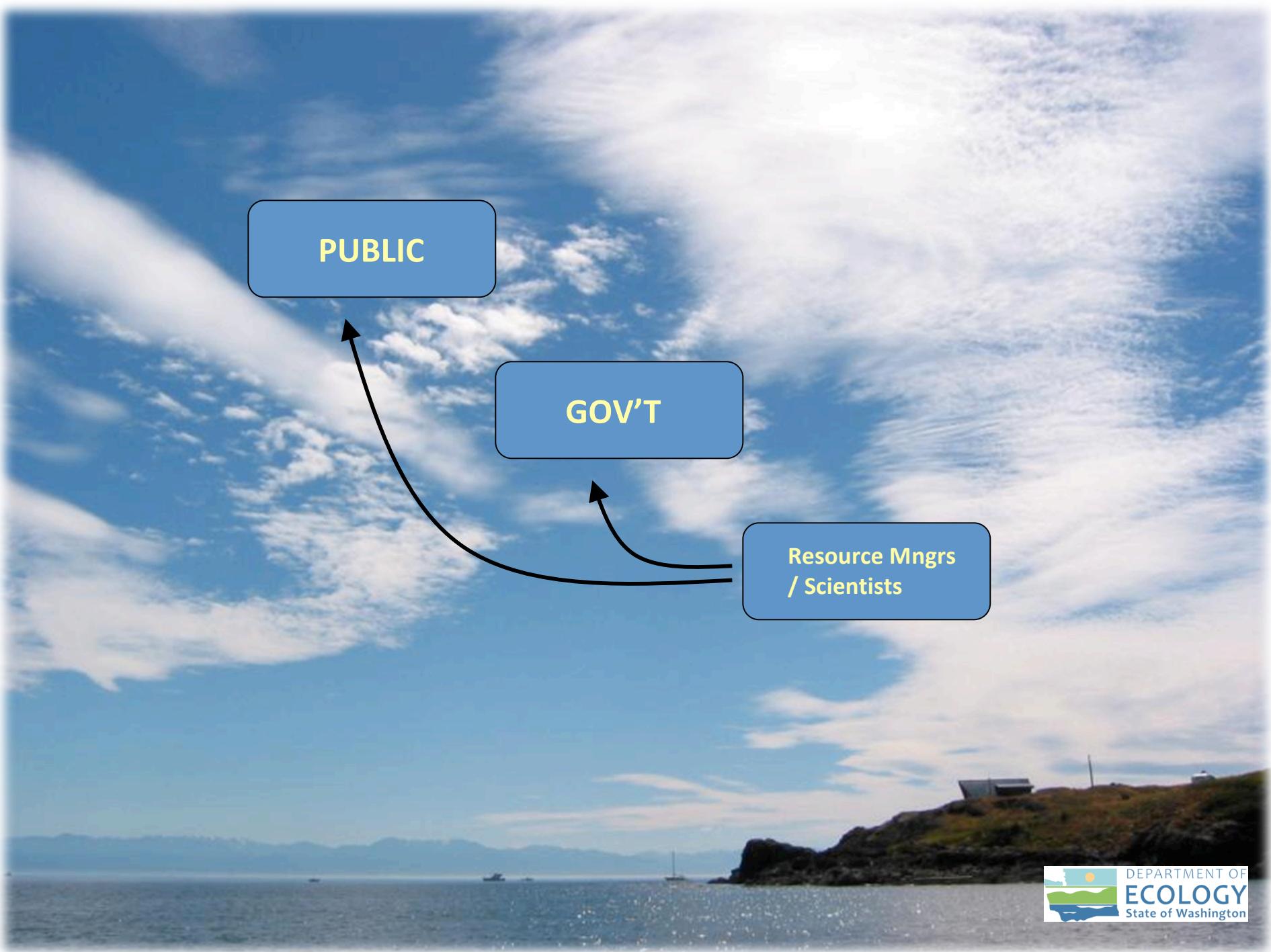


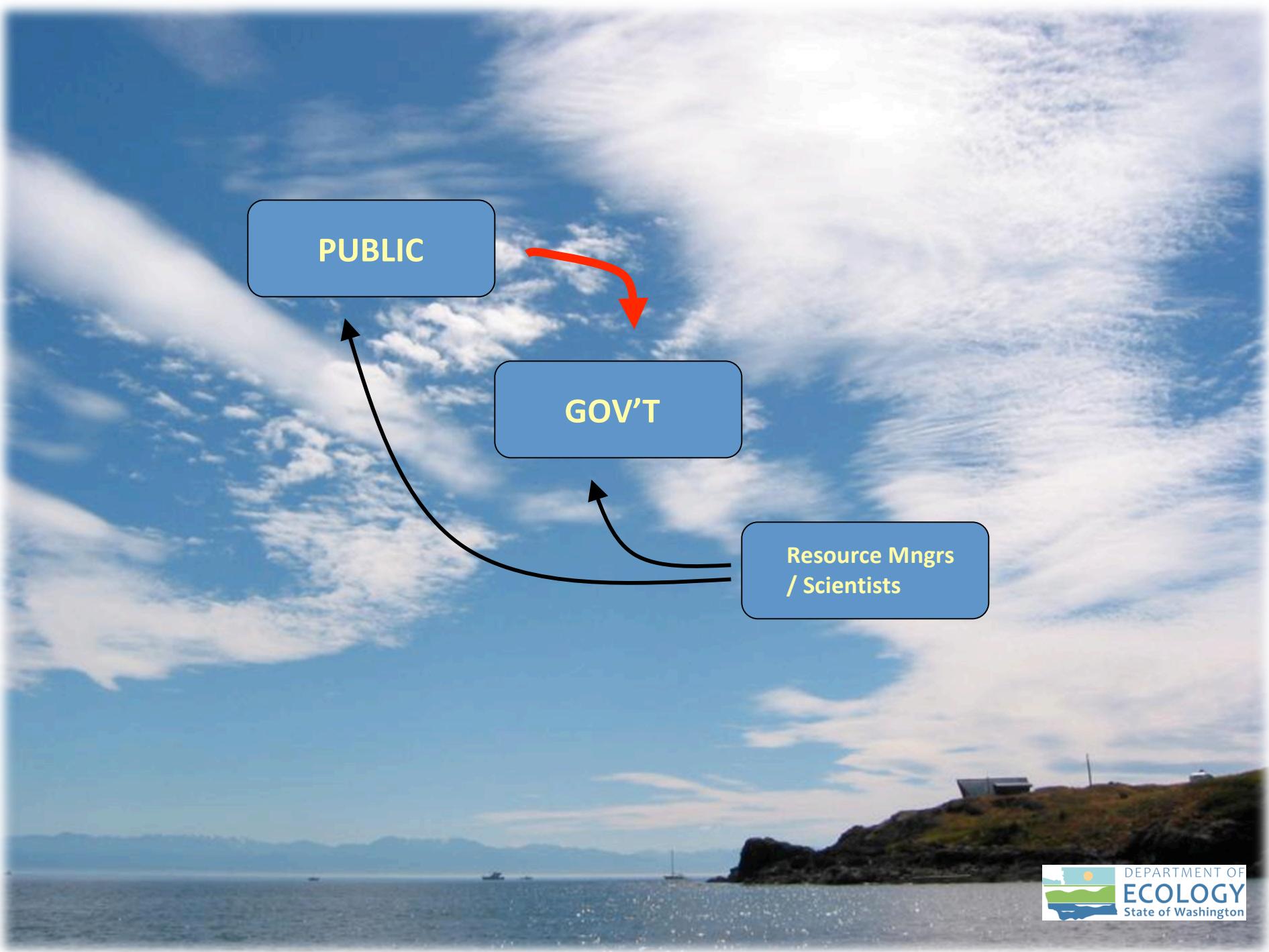


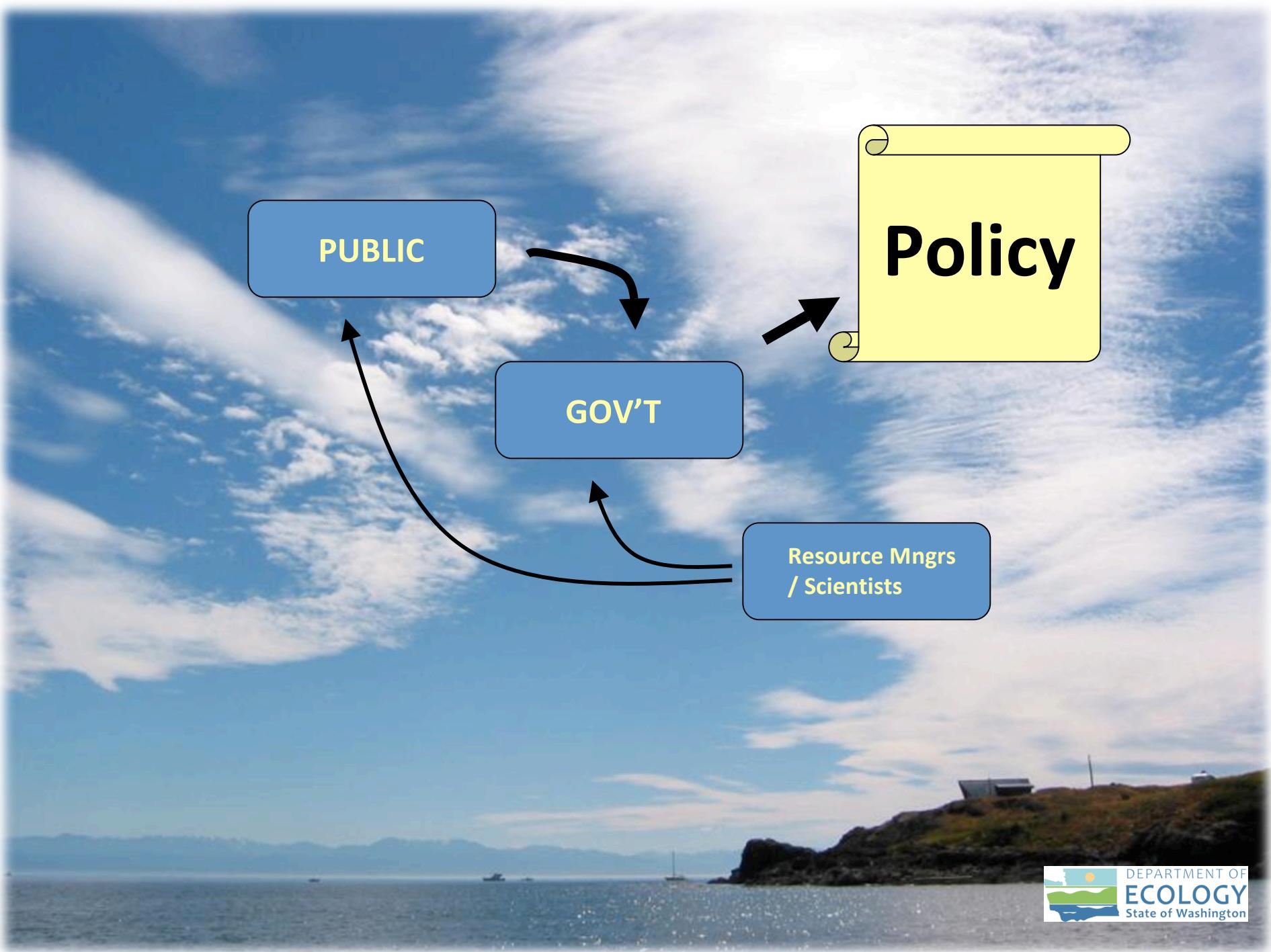
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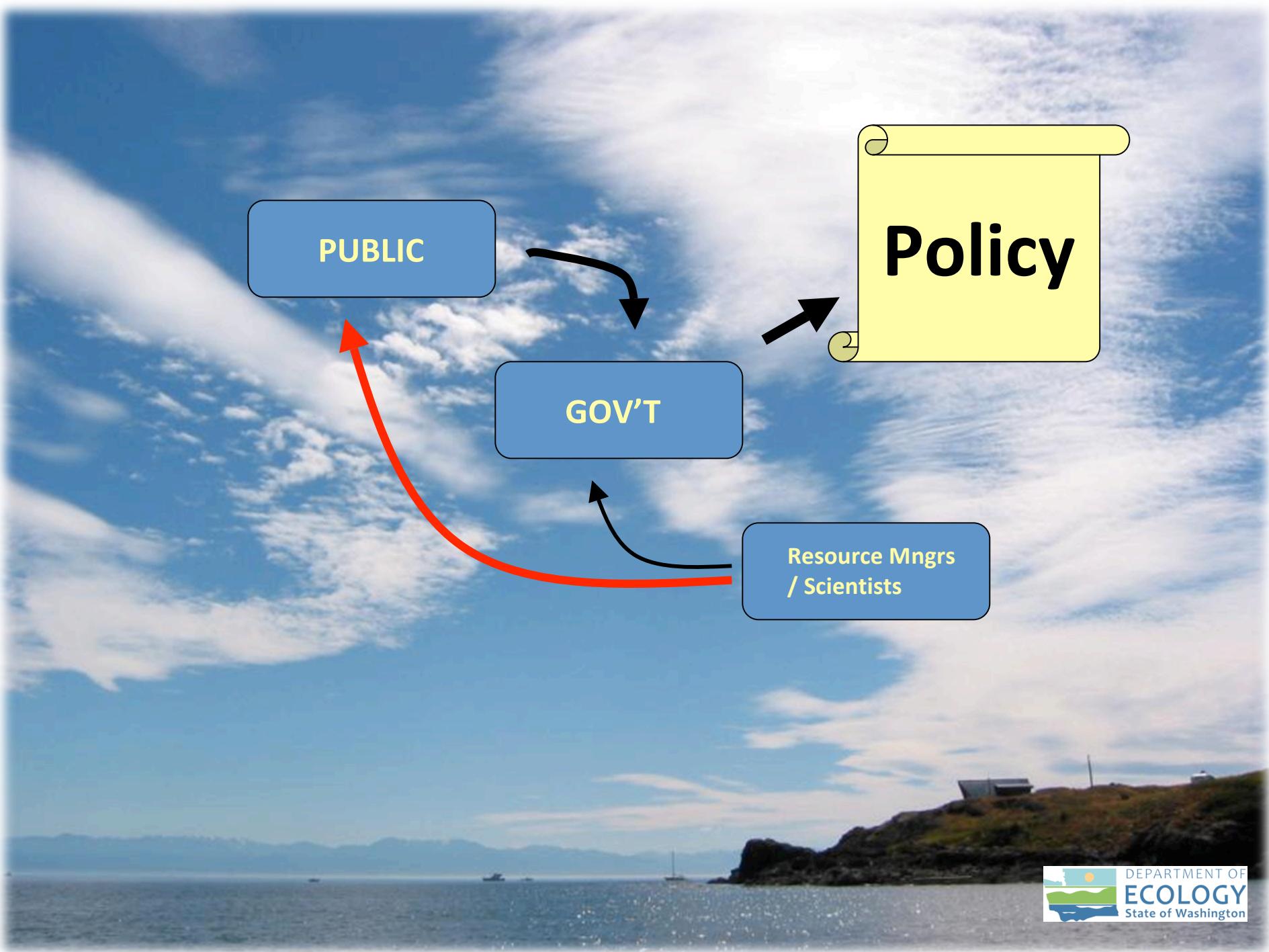
GOV'T

**Resource Mngrs
/ Scientists**









Gaps

Data / Research

- Regional Climate Models / Projections
- Flood Plain Maps (FEMA)
- Land Elevations / Topography / Bathymetry
- Monitoring / Vulnerability Assessments



DEPARTMENT OF
ECOLOGY
State of Washington

G a p s

Data / Research

- Regional Climate Models / Projections
- Flood Plain Maps (FEMA)
- Land Elevations / Topography / Bathymetry
- Monitoring / Vulnerability Assessments

Policy

- Inconsistencies & Conflicts between:
 - Planning/Permitting Mechanisms
 - Land Use Regulations
 - Enforcement Strategies



DEPARTMENT OF
ECOLOGY
State of Washington

Sea Level Rise in the Coastal Waters of Washington State

A report by
the University of Washington Climate Impacts Group
and the Washington Department of Ecology

Prepared by Philip Mote, Alexander Petersen, Spencer Reeder, Hugh Shipman, and
Lara Whitley Binder

January 2008



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An Examination of the Factors Affecting Relative and Absolute Sea Level in Coastal British Columbia

R. E. Thomson, B. D. Bornhold and S. Mazzotti

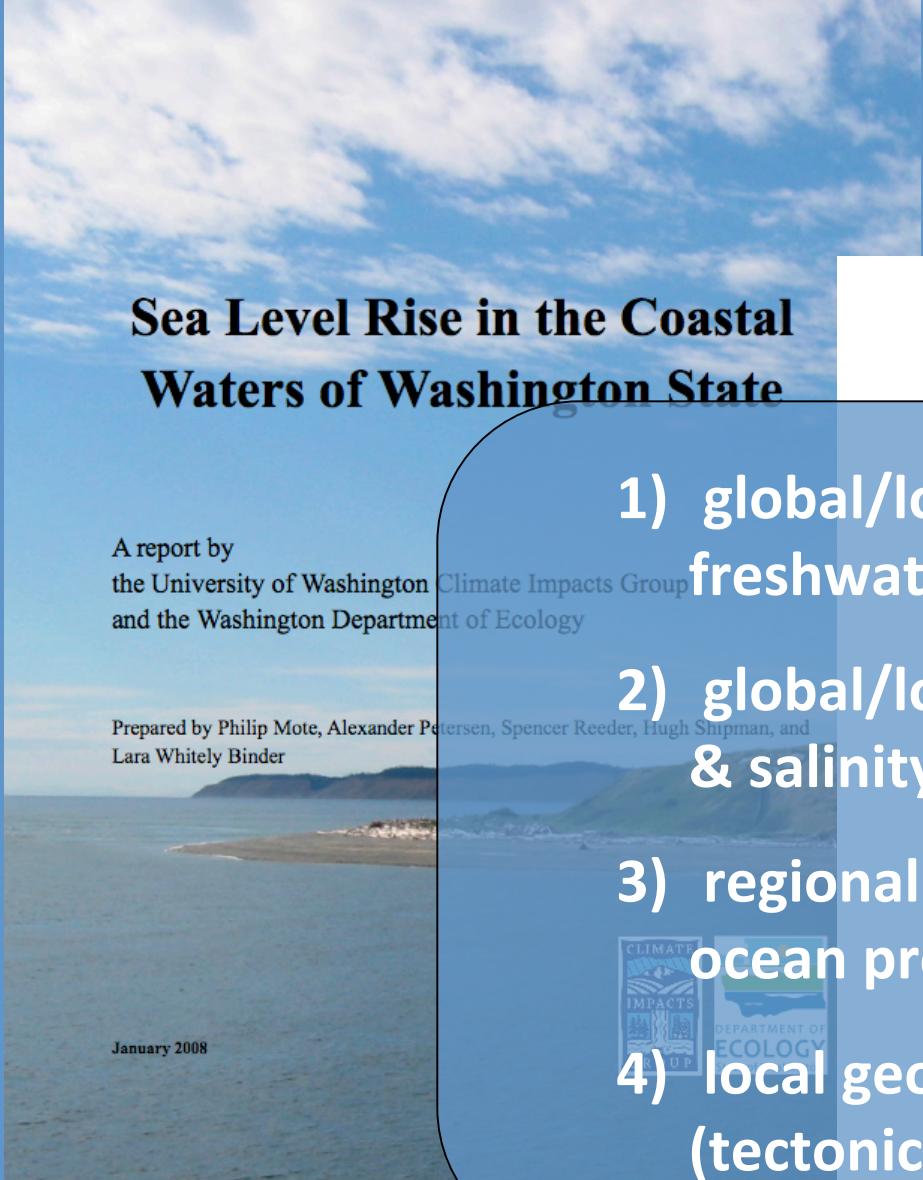
Fisheries and Oceans Canada
Institute of Ocean Sciences
9860 West Saanich Road
Sidney, British Columbia
V8L 4B2

2008

Canadian Technical Report of Hydrography and Ocean Sciences 260



Canada



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**An Examination of the Factors Affecting Relative and
Absolute Sea Level in Coastal British Columbia**

**1) global/local ice &
freshwater inputs**

R. E. Thomson, B. D. Bornhold and S. Mazzotti

**2) global/local temperature
& salinity**

Published and released by
Institute of Ocean Sciences
9860 West Saanich Road
Sidney, British Columbia
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**3) regional atmospheric &
ocean processes**

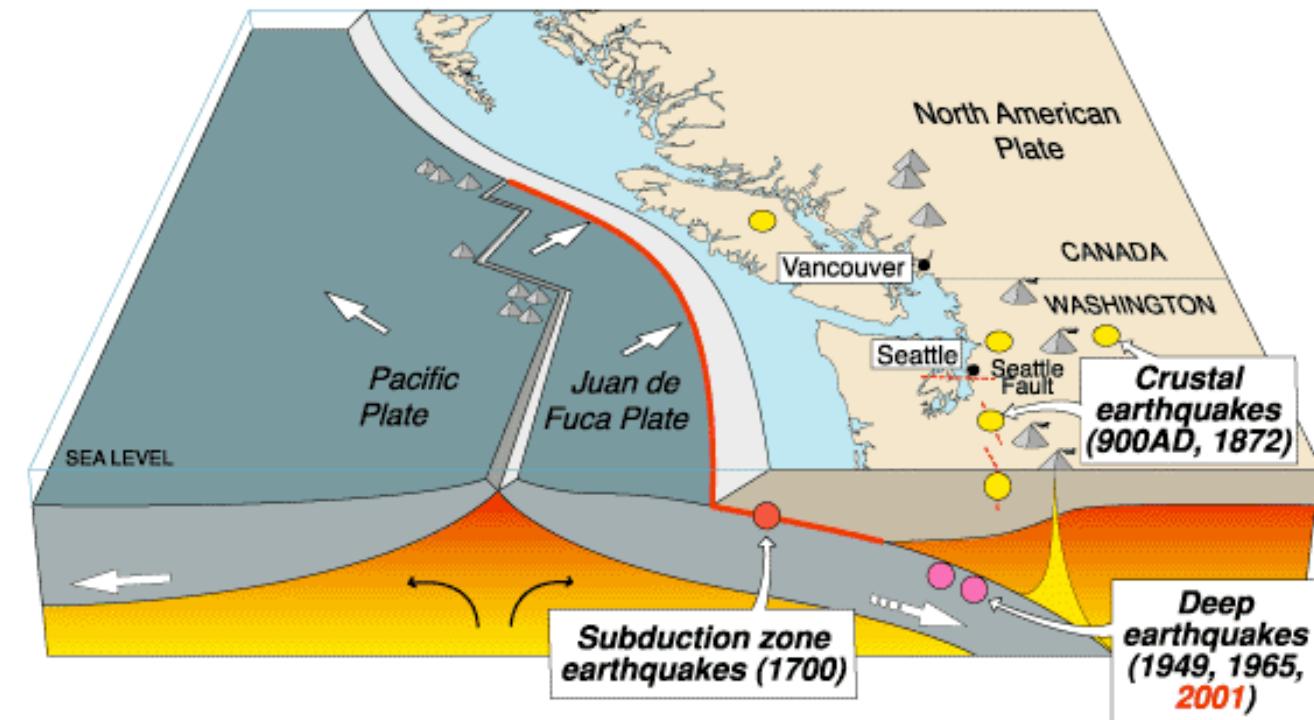


Canadian Technical Report of
Fisheries and Ocean Sciences 260

**4) local geodynamics
(tectonic & isostatic)**



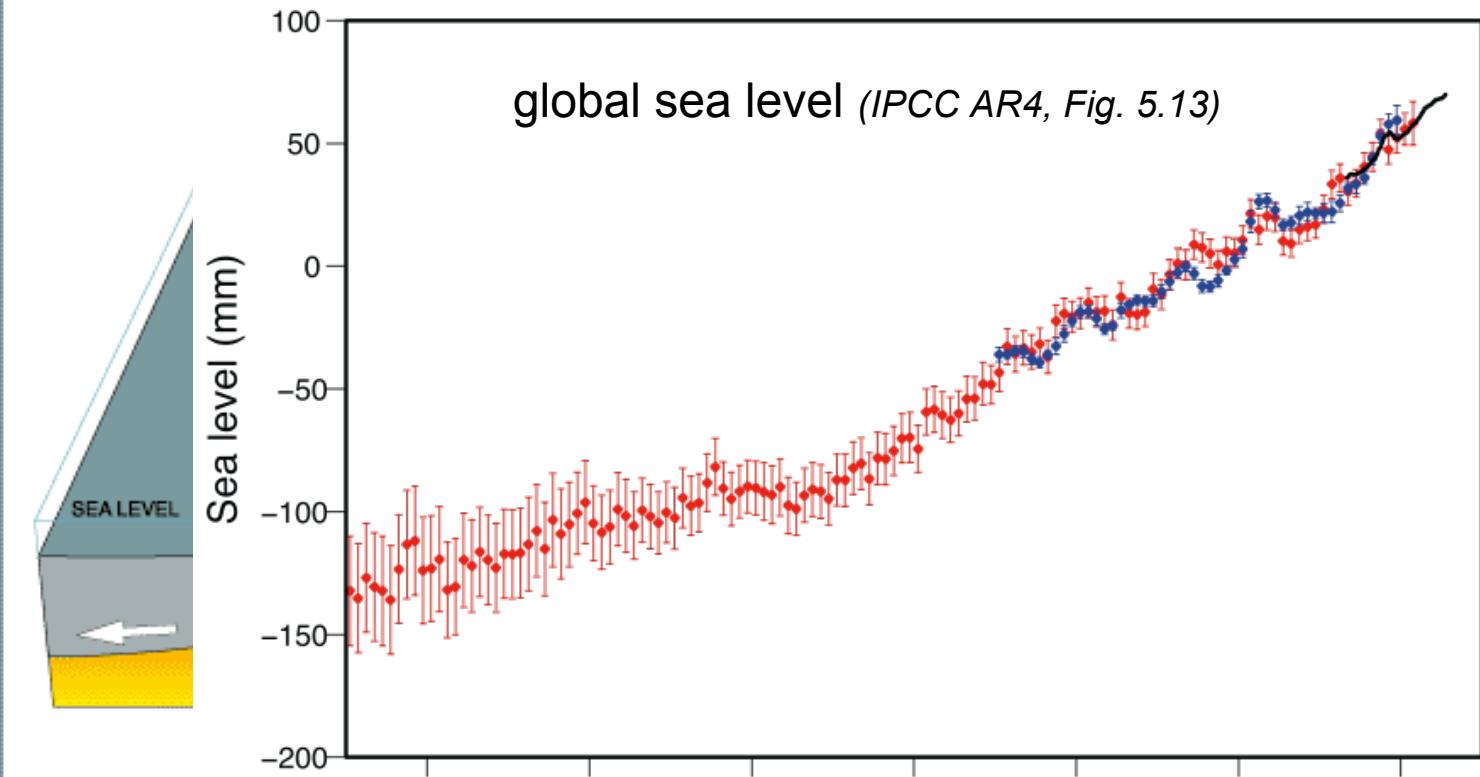
Cascadia earthquake sources



Source	Affected area	Max. Size	Recurrence
● Subduction Zone	W.WA, OR, CA	M 9	500-600 yr
● Deep Juan de Fuca plate	W.WA, OR,	M 7+	30-50 yr
● Crustal faults	WA, OR, CA	M 7+	Hundreds of yr?



Cascadia earthquake sources

**Source****Subduction Zone**

MARGINED AREA

MAG. SCALE

RECORDED

Deep Juan de Fuca plate

W.WA, OR,

M 9

500-600 yr

Crustal faults

WA, OR, CA

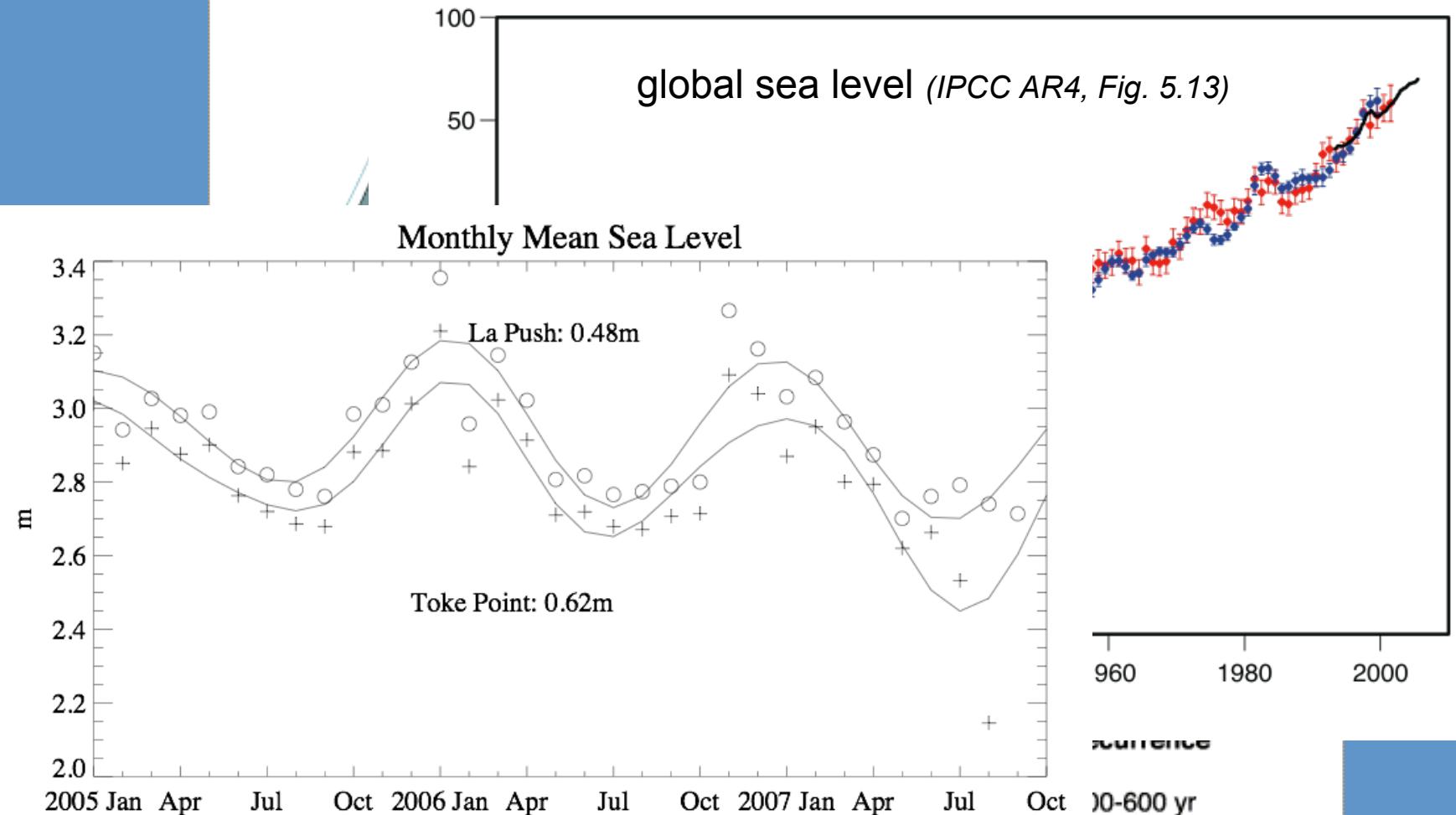
M 7+

30-50 yr

Hundreds of yr?



Cascadia earthquake sources



● Deep Juan de Fuca plate

W.WA, OR,

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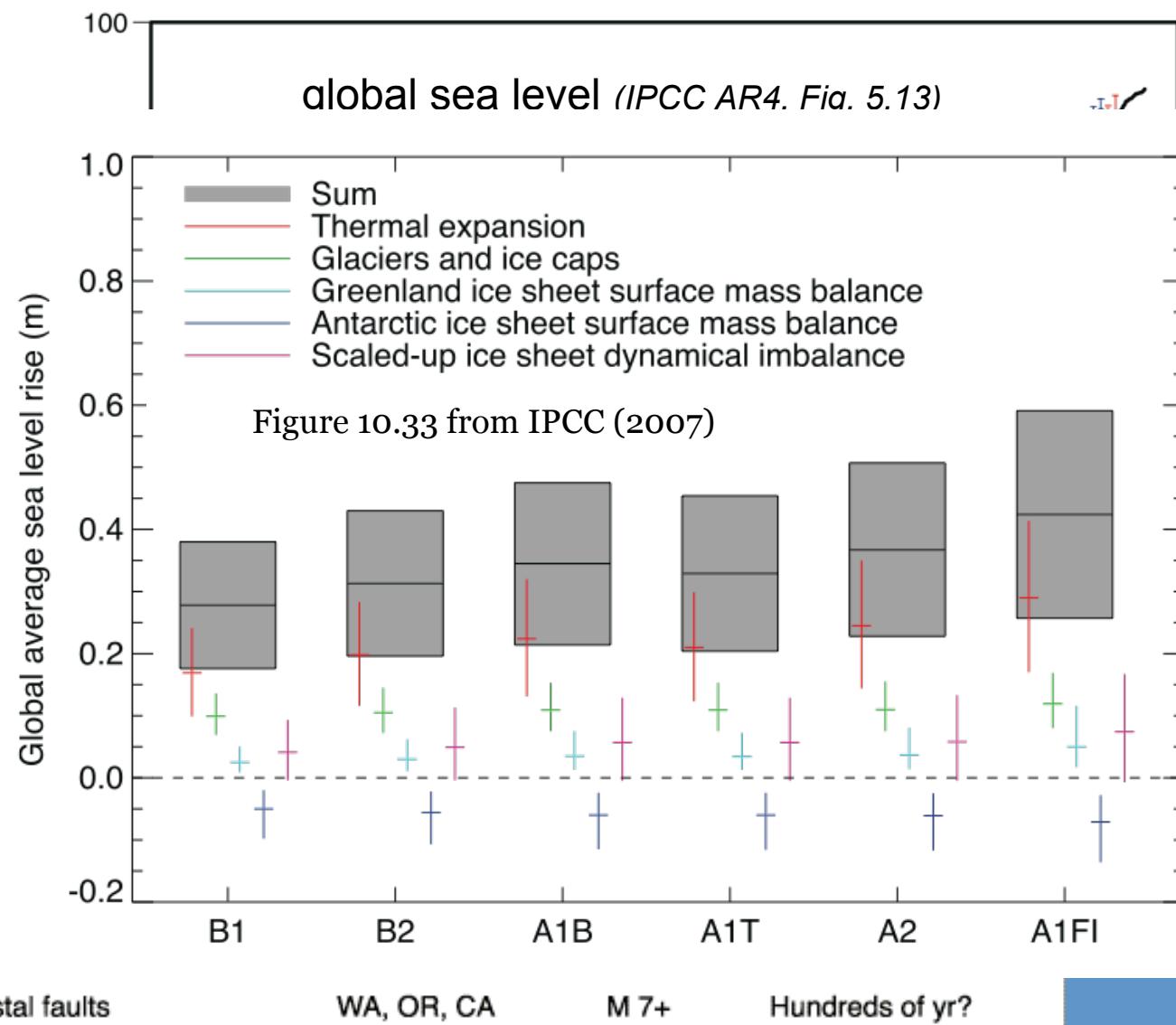
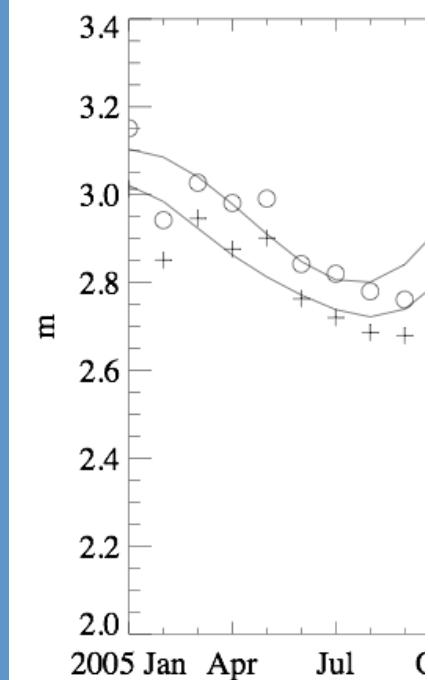
WA, OR, CA

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Cascadia earthquake sources



Sea Level Waters

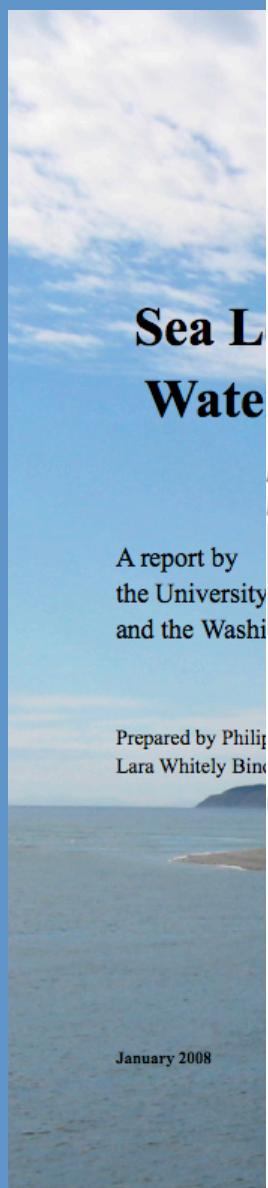
A report by
the University of Wa-
shington and the Washington

Prepared by Philip Mote,
Lara Whitley Binder

January 2008

SLR Estimate	Components	2050			2100		
		NW Olympic Peninsula	Central & Southern Coast	Puget Sound	NW Olympic Peninsula	Central & Southern Coast	Puget Sound
Very Low	Global SLR	9 cm			18 cm		
	Atm. Dynamics	-1 cm			- 2 cm		
	VLM	-20 cm	- 5cm	0 cm	- 40 cm	-10 cm	0 cm
	Total	-12 cm (-5")	3 cm (1")	8 cm (3")	-24 cm (-9")	6 cm (2")	16 cm (6")
Medium	Global SLR	15 cm			34 cm		
	Atm. Dynamics	0 cm			0 cm		
	VLM	- 15 cm	- 2.5 cm	0 cm	-30 cm	- 5 cm	0 cm
	Total	0 cm (0")	12.5 cm (5")	15 cm (6")	4 cm (2")	29 cm (11")	34 cm (13")
Very High	Global SLR	38 cm			93 cm		
	Atm. Dynamics	7 cm			15 cm		
	VLM	-10 cm	0 cm	10 cm	- 20 cm	0 cm	20 cm
	Total	35 cm (14")	45 cm (18")	55 cm (22")	88 cm (35")	108 cm (43")	128 cm (50")





Sea L Wate

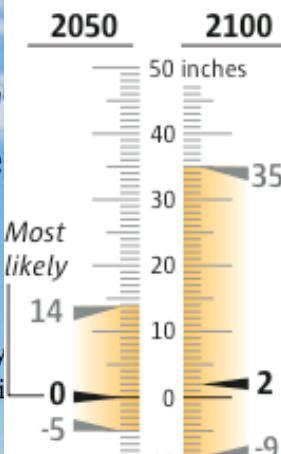
A report by
the University
and the Washi

Prepared by Philip
Lara Whitley Bind

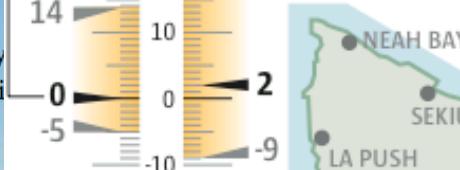
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High water warning

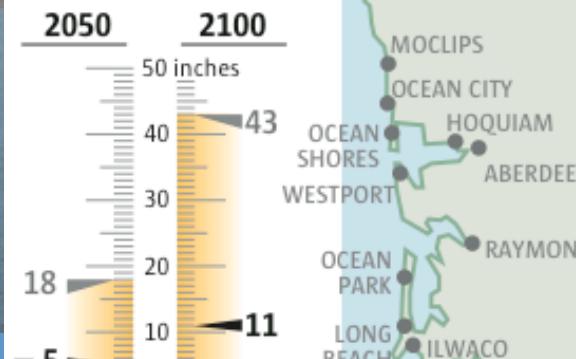
A new analysis predicts sea-level rise due to global warming will vary across Washington state.



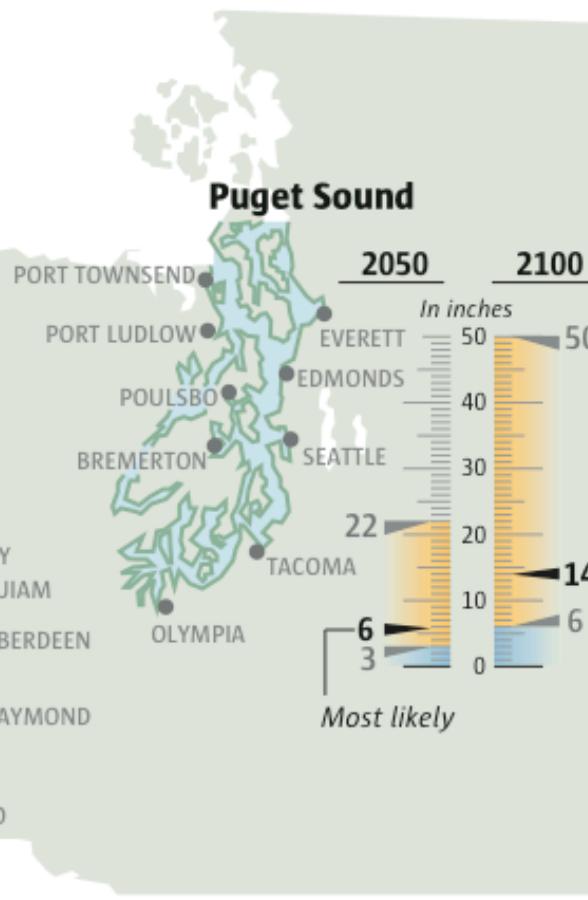
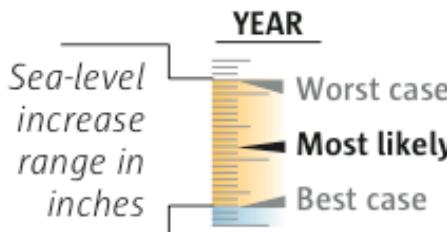
Northwest Olympic Peninsula



Central and Southern Coast



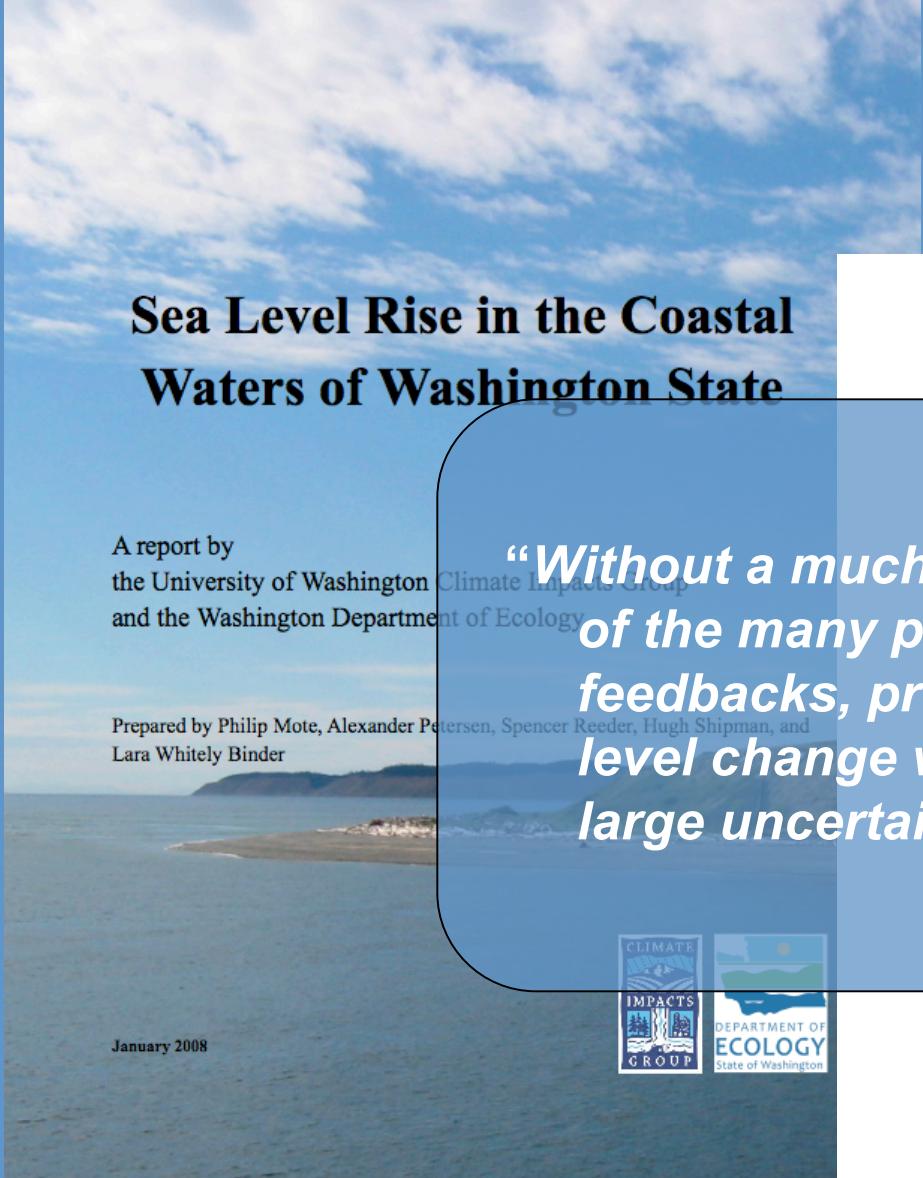
Most likely



Sources: University of Washington, Washington Department of Ecology

MARK NOWLIN / THE SEATTLE TIMES

2100	
Central & Southern Coast	Puget Sound
18 cm	
- 2 cm	
-10 cm	0 cm
5 cm (2")	16 cm (6")
34 cm	
0 cm	
- 5 cm	0 cm
9 cm (11")	34 cm (13")
93 cm	
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108 cm (43")	128 cm (50")



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"Without a much improved comprehension of the many processes and their feedbacks, predictions of future sea level change will be characterized by large uncertainty."

2008



Canadian Technical Report of
Hydrography and Ocean Sciences 260

Model Climate Change Action Plan

Planning to preserve biodiversity

- 1 Conduct a vulnerability assessment
- 2 Conduct connectivity assessment
- 3 Assess current level of protection
- 4 Coordinate conservation-planning regionally
- 5 Set priorities locally & regionally
- 6 Select monitoring targets and initiate

From: Lawler J. J. and M. Mathias. 2007. Climate Change and the Future of Biodiversity in Washington



Regional Efforts Underway

BC-WA MOU on sea level rise

West Coast Governor's Agreement on Ocean Health

National Academy of Sciences West Coast SLR Study

Pacific Coast Collaborative

Western Climate Initiative

