

New Jersey Climate Adaptation Alliance Conference

*Climate Change Preparedness in New Jersey: Leading Practices
and Policy Priorities*

May 22, 2013

Rutgers University - New Brunswick, NJ

Principles, Practices and Trends: Climate Adaptation in the Water Resources Sector

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Seattle Public Utilities

Chair, Water Utility Climate Alliance

Seattle
 Public
Utilities

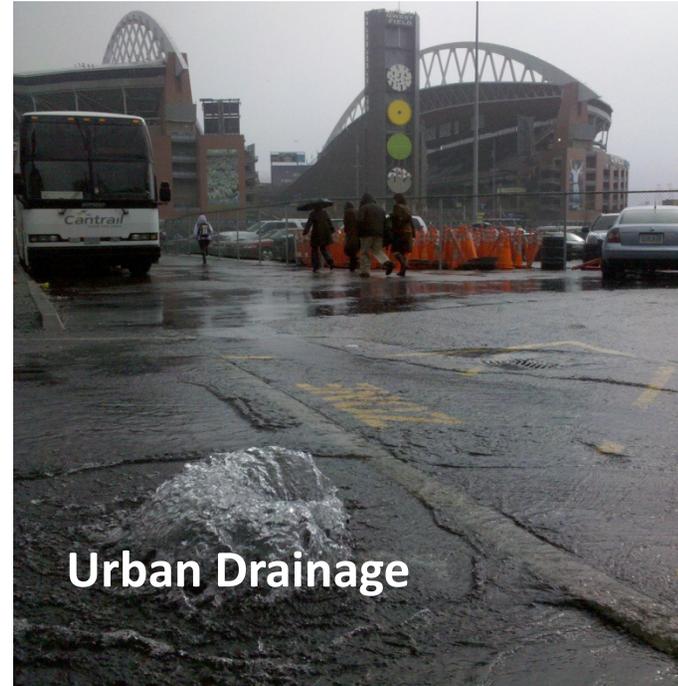
Outline

- Background on Seattle Public Utilities
- Principles, Practices and Trends
- Conclusion

SPU's Climate Program



Water Supply

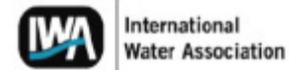


Urban Drainage



Sea Level Rise

Principles, Practices and Trends



<http://www.waterclimateforum.org/principles.html>

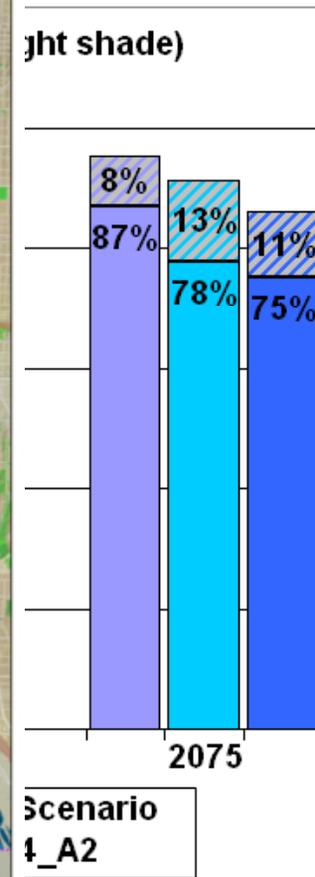
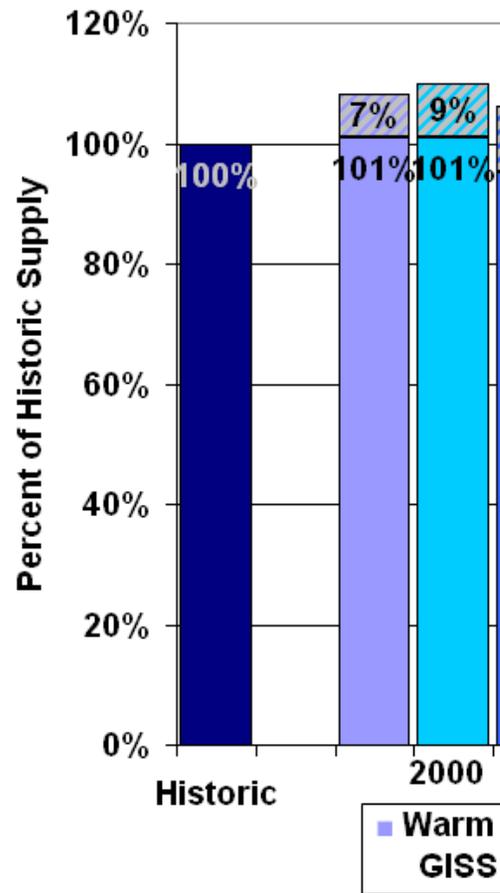
<http://water.epa.gov/infrastructure/watersecurity/climate/upload/epa817f12005.pdf>

Seattle
Public
Utilities

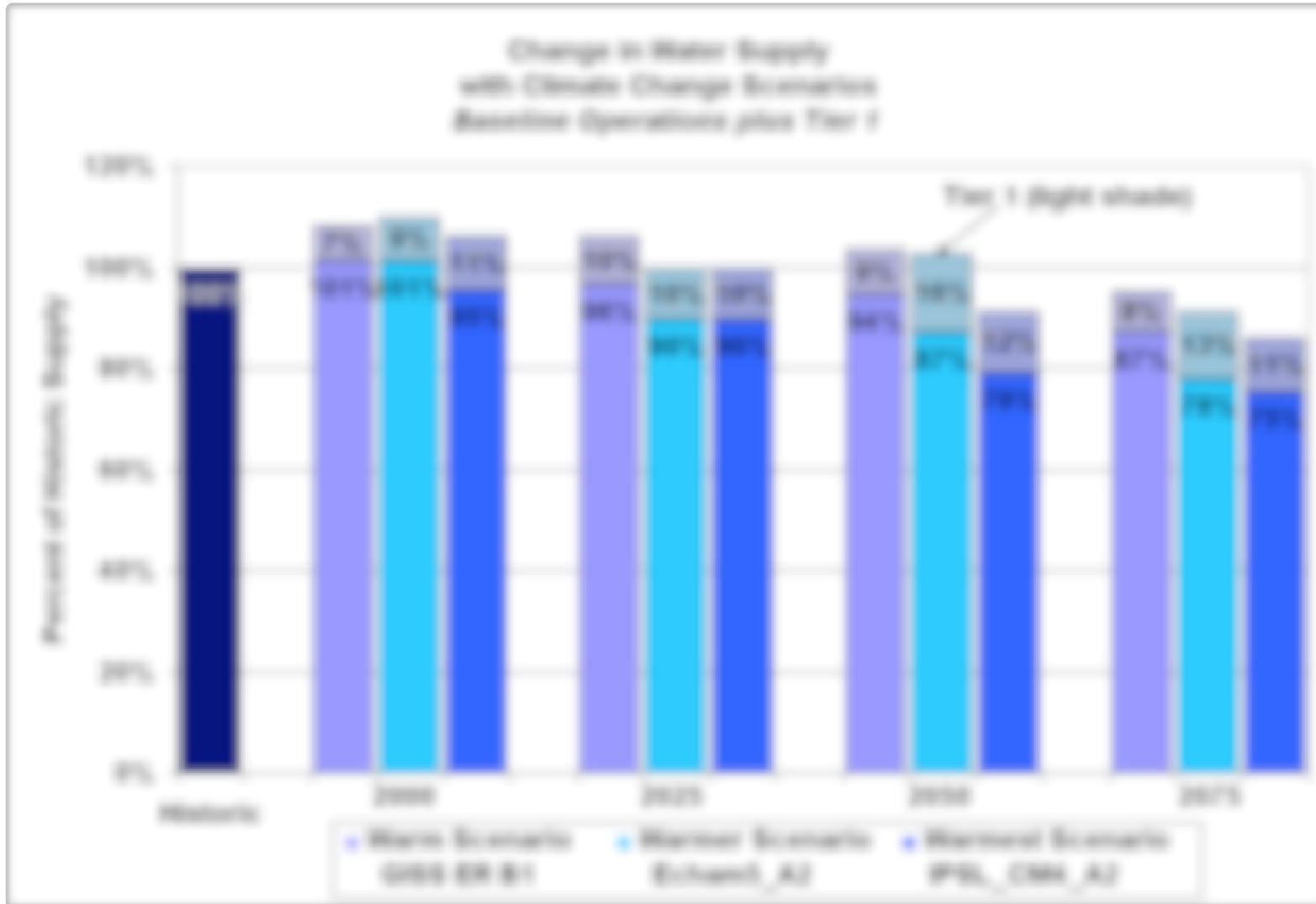
Principles, Practices and Trends

- Enhance knowledge, assess impacts and vulnerabilities
- Establish collaborative partnerships
- Strengthen institutions and people
- Mainstream adaptation into decision-making
- Develop portfolios of approaches

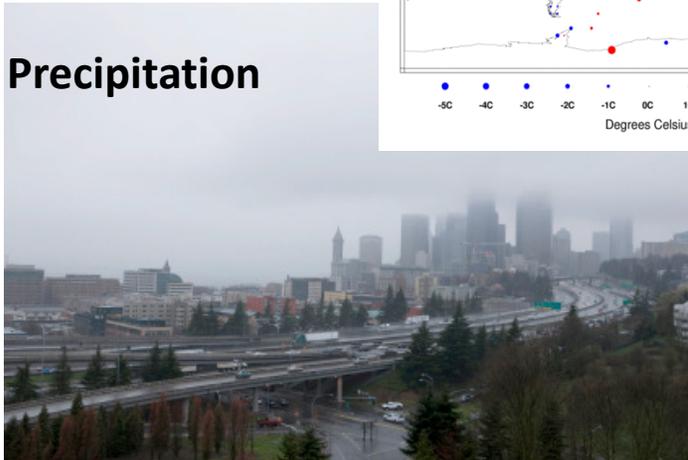
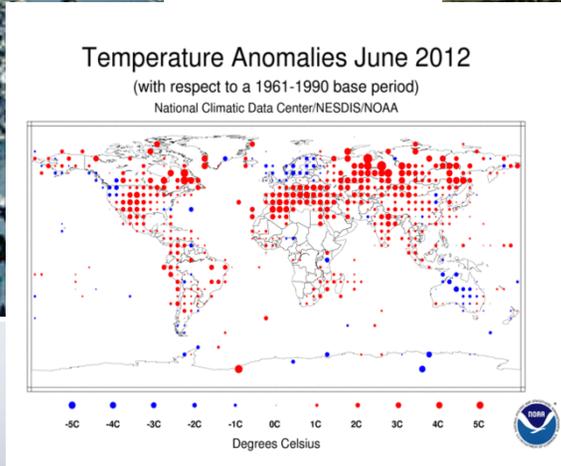
Assess Impacts



Assess Impacts



Assess Impacts



Principles, Practices and Trends

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Establish Collaborative Partnerships



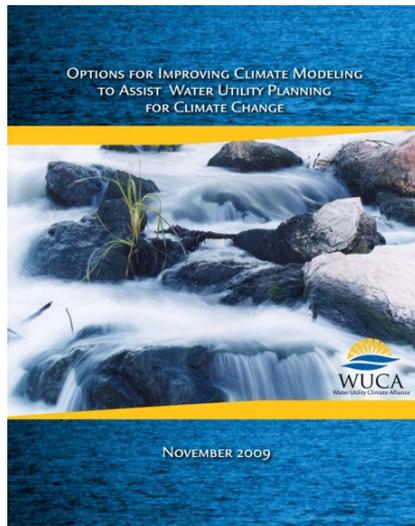
*Mission: The Water Utility Climate Alliances provides leadership in assessing and adapting to the potential effects of climate change through collaborative action. We seek to enhance the **usefulness of climate science** for the adaptation community and improve water management **decision-making in the face of climate uncertainty.***



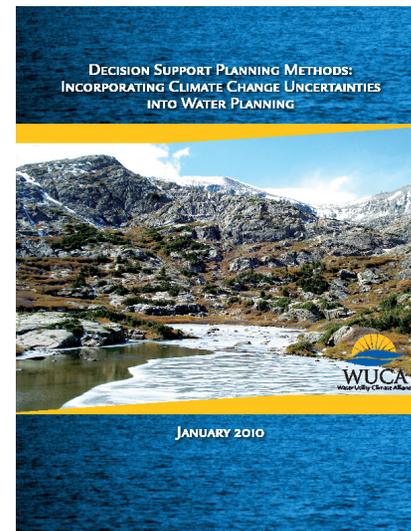
Slide created by David Behar, SFPUC

Establish Collaborative Partnerships

Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change



Decision Support Planning Methods: Incorporating Climate Change Uncertainties into Water Planning



available at www.wucaonline.org

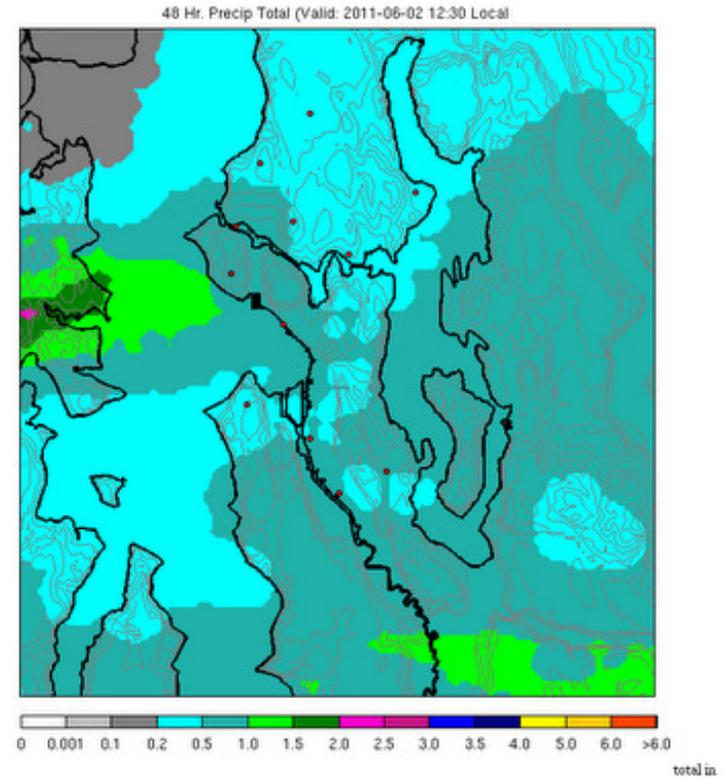
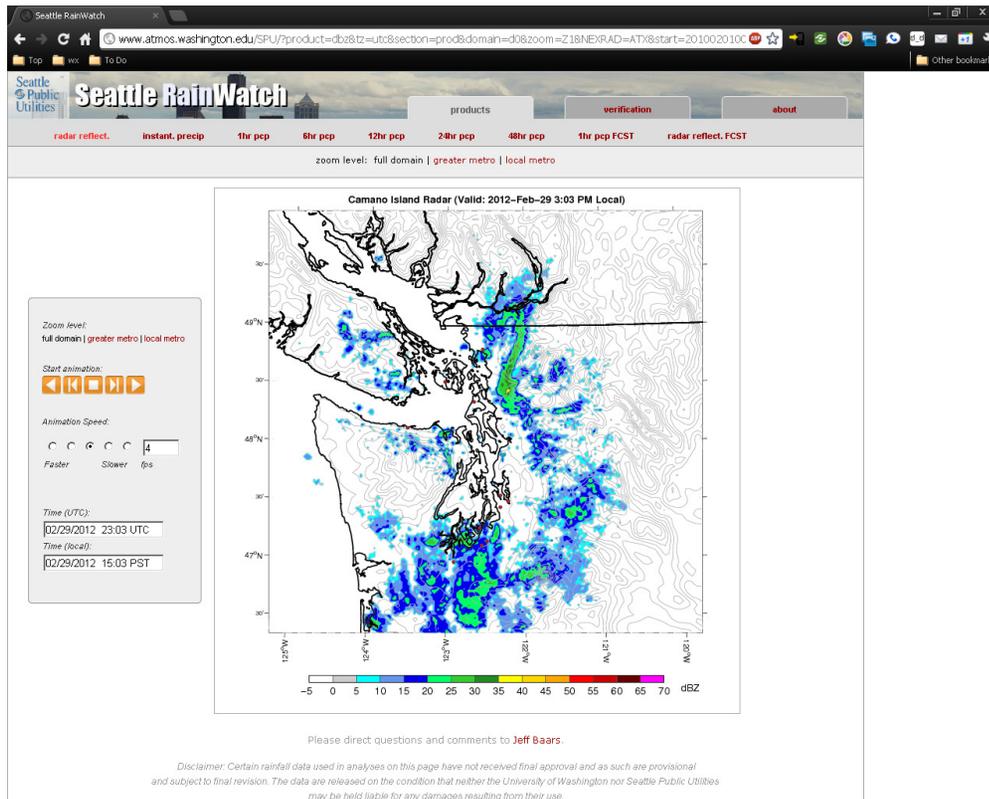
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Strengthen Institutions and People

event	Met desc.	Max precip	duration	USGS landslide threshold	N cso	% 2011 CSO events	CSO volume	% 2011 CSO volume
21 Jan	FROPA	1.60"	6hrs	20%	25	10%	11,178,562	15%
09 Mar	FROPA	0.21"	10min	17%	38	15%	14,051,868	19%
14 Mar	FROPA	0.77"	3hrs	134%	18	7%	18,279,670	25%
15 May	Convection	0.90"	6hrs	37%	10	4%	2,313,703	3%
25 Jul	T-Storm	0.23"	10min	0%	3	1%	446,282	1%
23 Nov	AR	3.47"	48hrs	0%	28	11%	12,066,139	17%
27 Nov	PSCZ	0.24"	30min	72%	4	1%	1,648,017	2%
7 significant events					126	49%	59,984,241	82%
2011 total					261		73,086,686	

Strengthen Institutions and People



<http://www.atmos.washington.edu/SPU/>

Principles, Practices and Trends

- Enhance knowledge, assess impacts and vulnerabilities
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- **Mainstream adaptation into decision-making**
- Develop portfolios of approaches

Mainstream Adaptation

- How to leverage external activities to inform internal decision-making
- “Climate smart mindset incorporates climate change analysis into *strategic* and *operational* decision-making”
- Would also include:
 - operating environment
 - planning
 - project/program design
 - capacity building



Insight Report

Global Risks 2013 Eighth Edition

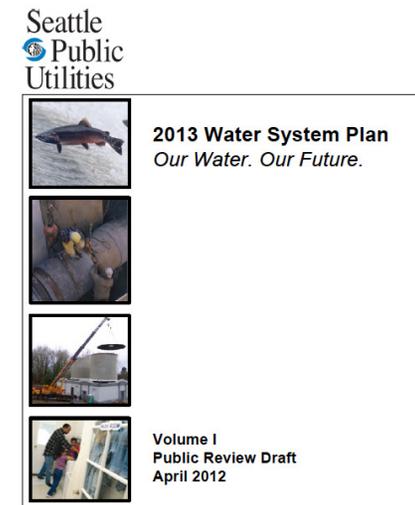
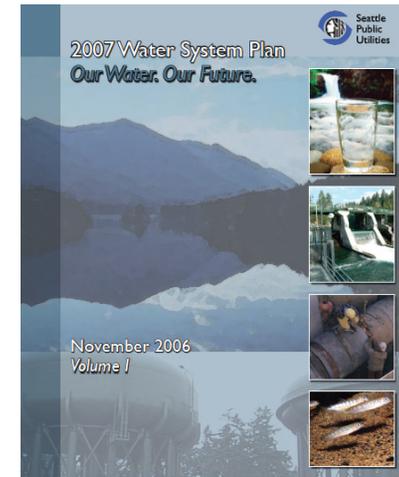
An Initiative of the Risk Response Network

The logo for Seattle Public Utilities, featuring a stylized globe icon to the left of the text "Seattle Public Utilities".

Seattle
Public
Utilities

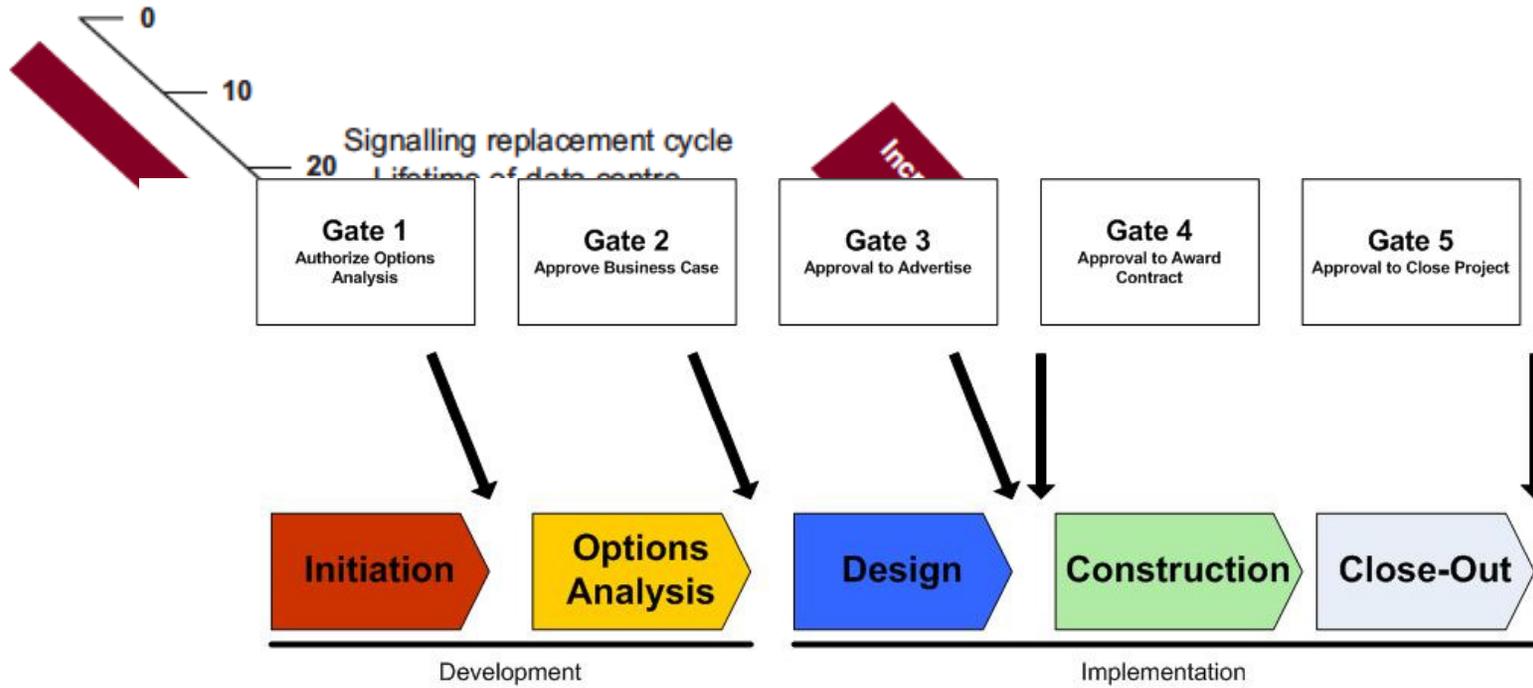
Mainstream Adaptation

- State-mandated water system plan
- Venue for articulating analysis of climate impacts on our supply
- Expectation that climate change is now a feature of the plan



Mainstream Adaptation

Lifetime of infrastructure with illustrative climate change timescales for the UK



LEAD	Specifier	Specifier	Project Mgr	Project Mgr	Project Mgr
APPROVER	Deputy Director, USM, F&A, or CSCO	AMC or LOB AMC	Deputy Director, PDB	Deputy Director, PDB	Deputy Director, FOM

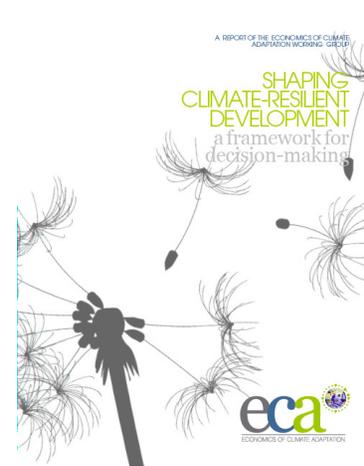
sea level rise possible

Principles, Practices and Trends

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- **Develop portfolios of approaches**

Develop portfolio approaches

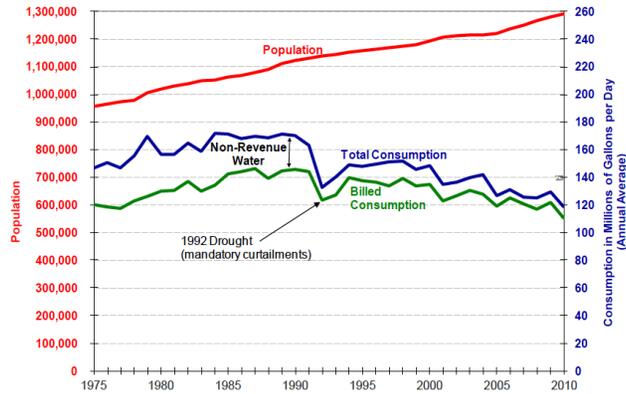
- Capital + operational
- Green + grey
- Centralized + decentralized
- Structural + non-structural
 - land use
 - behavioral
 - technological
- Regulatory



Used cost-benefit analysis “to evaluate a selection of feasible and applicable measures to adapt to the expected risk - spanning infrastructural, technological, behavioral and financial solutions.”

-The Economics of Climate Adaptation Working Group

Develop Portfolio Approaches



Note: Population is adjusted to reflect the proportion of resident service area population actually using SPU water (i.e., excludes those that receive water from other sources).

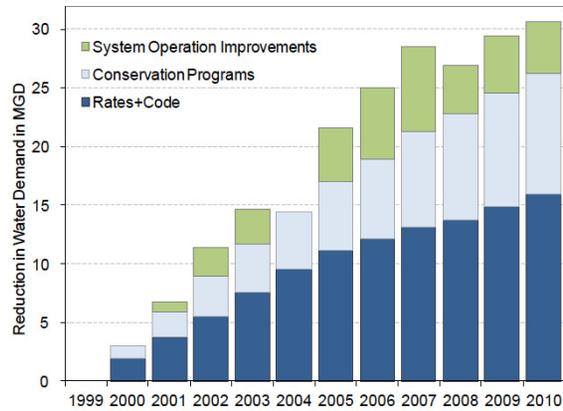
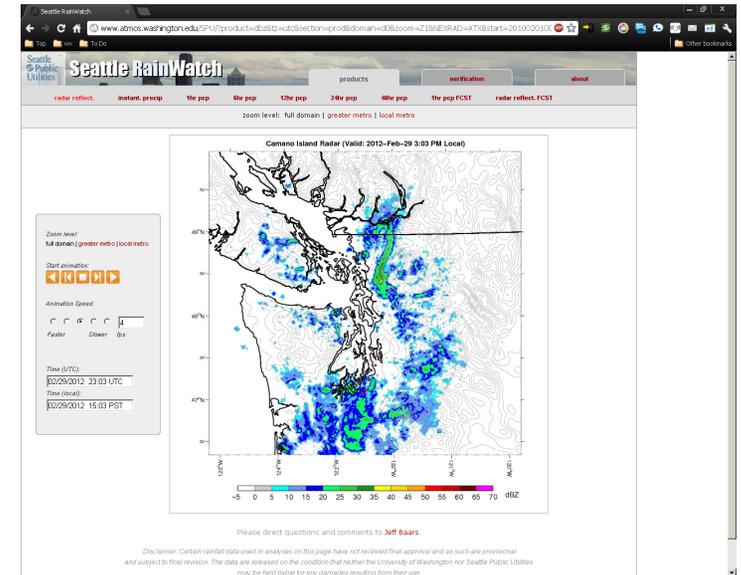


Figure 2-3. Cumulative Water Savings from Conservation, in Average Annual mgd, 1999-2010



Conclusions

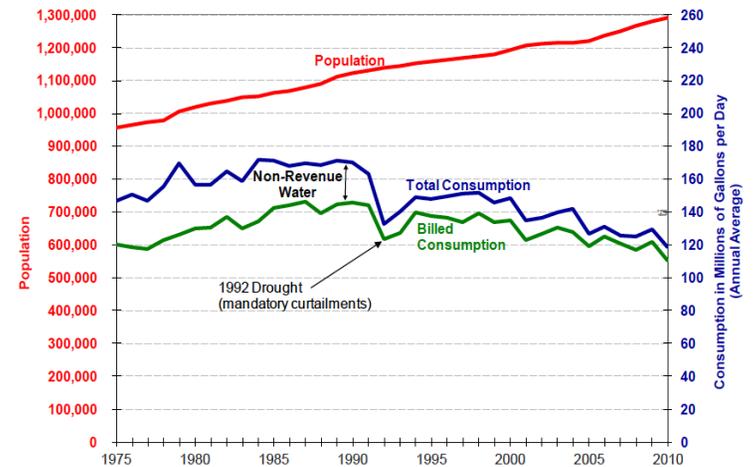
- Water utilities are facing fundamental change
- Risk management, continuity of service, organizational improvement
- Enhance knowledge and assess vulnerabilities
- Build collaborative partnerships
- Mainstream adaptation and develop portfolios

Thank You



Develop Portfolio Approaches: Water Conservation

- Decoupling of population growth and consumption
- 2011 consumption levels at 1957 levels
- Leakage reduction, operational efficiencies
- Sustained investments in technical assistance, incentives, behavioral change



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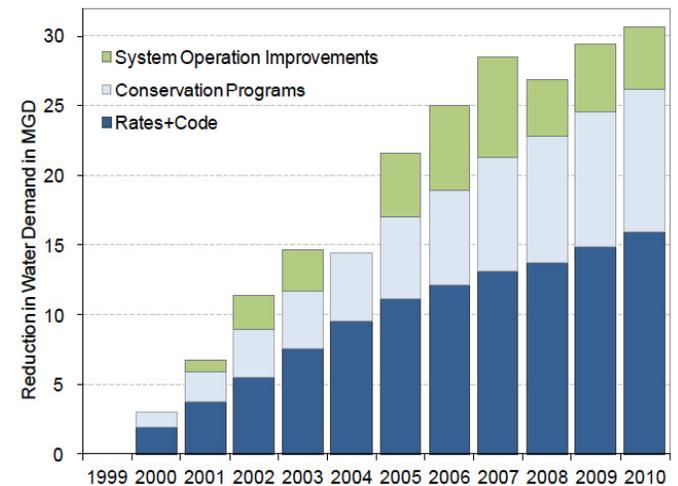


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Mainstream Adaptation

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- Would also include:
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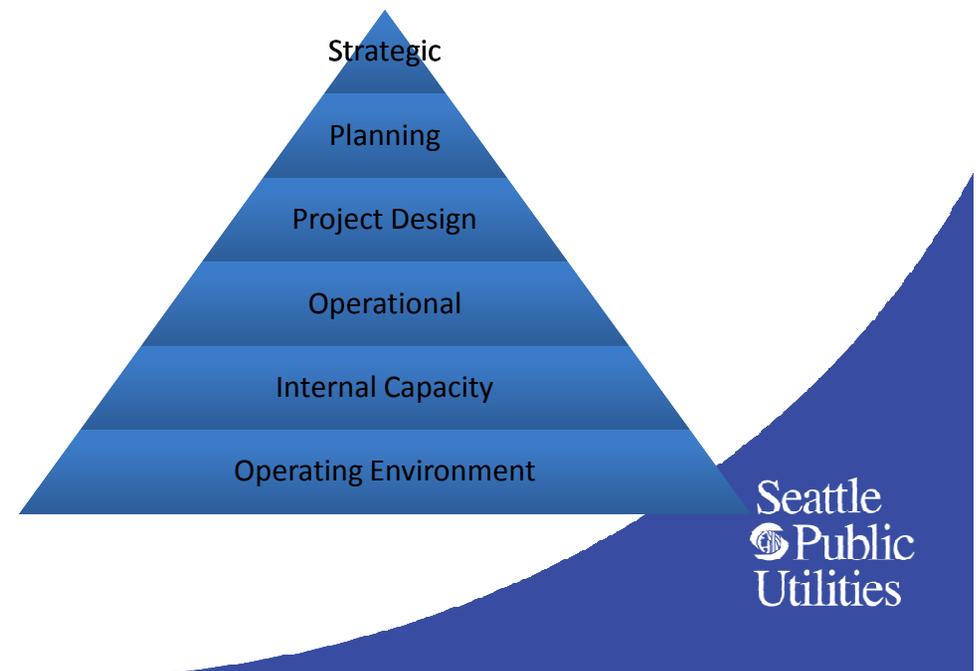


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Insight Report

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Seattle
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Develop Portfolio Approaches: Green + Grey Infrastructure

- Mayor's Executive Order on Green Stormwater Infrastructure
- Calls for six-fold increase in amount of stormwater managed with GSI
- “flexibility and resilience...to prepare for uncertainties of climate change”
- Hybrid approach to extend capacity of existing network

