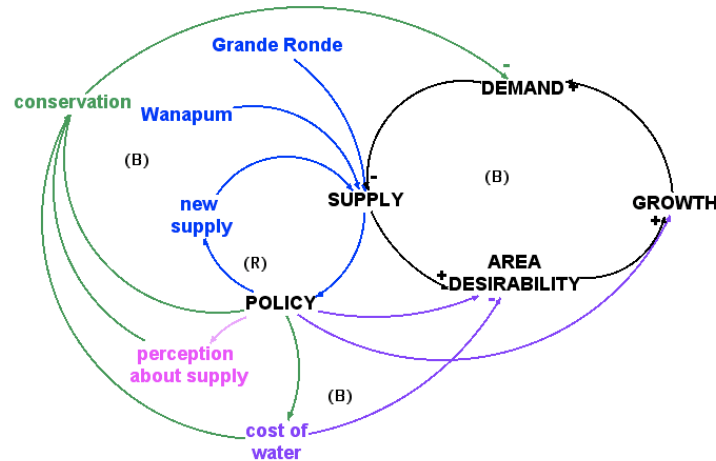


Participatory Water Resource Visioning Tool for the Palouse Basin

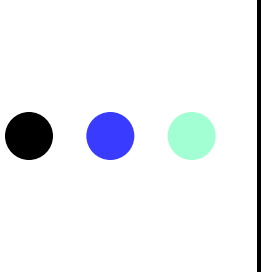


Perceptions, Opinions and the Road to Collaboration

Palouse Basin Aquifer Committee



University of Idaho
A LEGACY OF LEADING



Collaboration between Palouse Basin Aquifer Committee, Citizens Advisory Group and UI Waters of the West

Thank you to our participants:

Ree Brannon, Rob Corcoran, Kevin Gardes, Guy Gregory, David Hall, Suzanne Hamada, Helen Harrington, Kent Keller, Paul Kimmell, Joe Kline, Mike McVay, Cheryl Morgan, Ken Neely, Steve Robischon, Tom Scallorn, Walter Steed, Julie Titone, and Mark Workman.

Thank you to our hydrologic advisors:

Jerry Fairley, Kent Keller, Jim Osiensky and Steve Robischon

UI Waters of the West

Allyson Beall, Fritz Fiedler, Jan Boll, and Barb Cosens



Palouse Basin Aquifer Committee

University of Idaho
A LEGACY OF LEADING

The Palouse Basin Water Resource Visioning Tool

This education tool has been developed through a collaborative modeling process that included the Palouse Basin Aquifer Committee, University of Idaho Waters of the West, local hydrogeological experts and representatives of state agencies. Its purpose is to encourage virtual exploration of our aquifer systems and the impacts of growth, conservation and the potential development of new supply.

[Collaborators](#)

[Palouse Basin Aquifer Committee](#)

[Waters of the West, University of Idaho](#)

[Main menu](#)

[Click here for operating instructions](#)

Version 5.1.2010



Project objectives

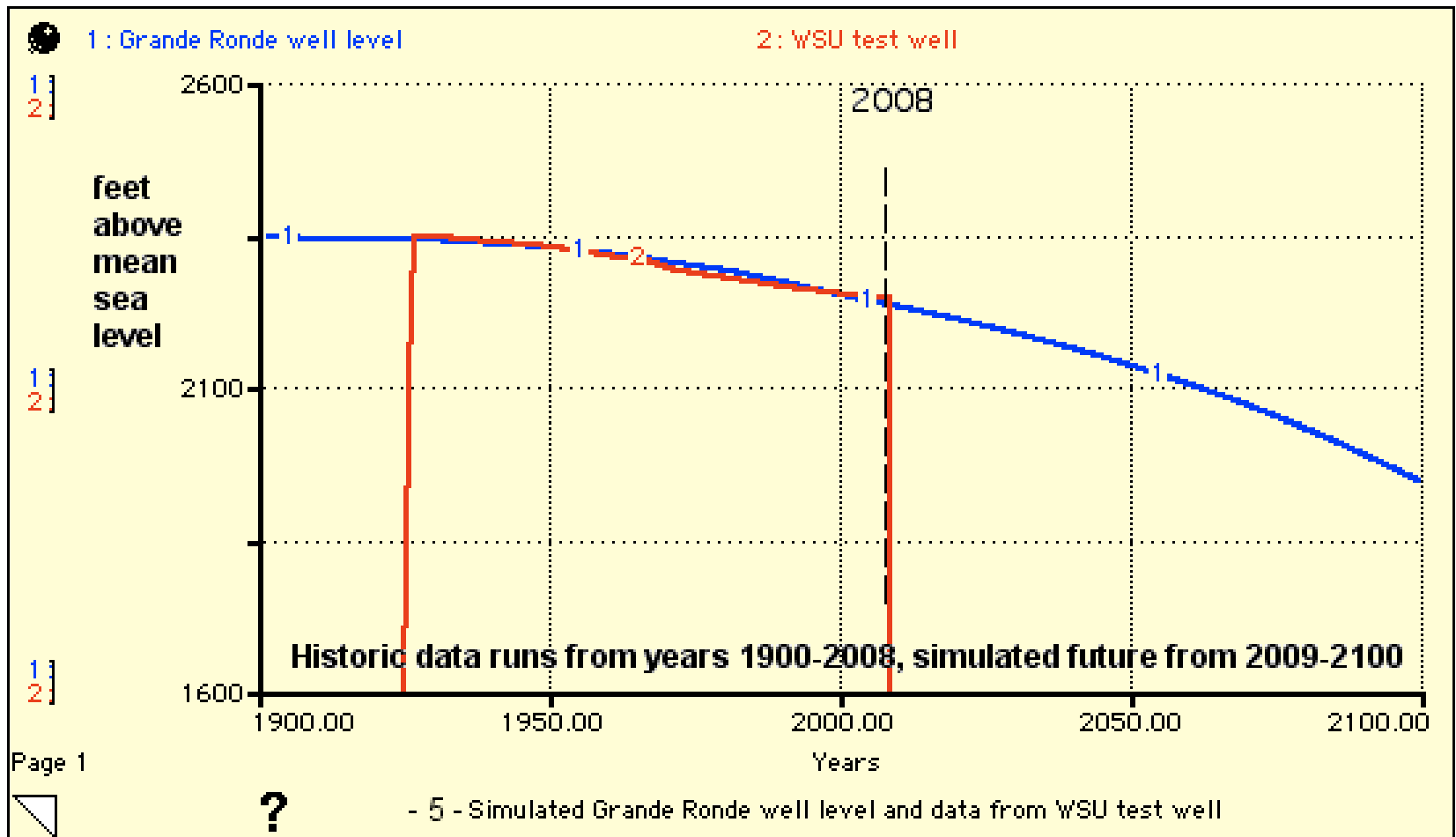
- explore the use of system dynamics for groundwater modeling
- develop an educational tool for water managers, policy makers and the public
- explore the use of collaborative modeling as a tool to aid discussion about water resources



Project objectives

- explore the use of system dynamics for groundwater modeling
- develop an educational tool for water managers, policy makers and the public
- explore the use of collaborative modeling as a tool to aid discussion about water resources

Grande Ronde simulated and historic





Ah ha moments

- o Dual storativity makes sense



Project objectives

- explore the use of system dynamics for groundwater modeling
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1. Enter the volume from your winter water bill in cubic feet. If you are a student in a dorm or do not get a water bill go to #4.

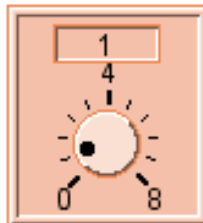
per month use from winter water bill in cubic feet

U

1 gallon = 7.48 cubic feet

total gal per month

2. Enter the number of people in your household.



3. Click the run button to calculate the number of gallons per day that you have been billed per person in your household.

billed use per person

main menu
 Outdoor use
 Run Restore

4. Fill out the chart to the left (click on numbers to change them), click run, and see if you can match your billed use. Click the yellow buttons to learn more about efficiency.

calculated... per person

5. After you have estimated your at home use, add in an estimate of your personal water use outside the home (like your shower at the gym). After you have filled out the blue chart click #6.

U

| | |
|--------------------------------------|-----|
| toilet efficiency | 1.6 |
| number of flushes per person per day | 4 |
| shower efficiency | 2.5 |
| minutes in shower per person per day | 10 |
| tub capacity | 40 |
| baths in tub per week | 0 |
| sink efficiency | 1.7 |
| minutes of sink running per day | 3 |
| washing machine efficiency | 27 |
| loads of wash per week | 2 |
| dish washer efficiency | 10 |
| number of dw loads per week | 1 |
| hand wash dishes sink efficiency | 1.7 |
| minutes for hw dishes per day | 2 |

6. If everyone used water like me

Toilet efficiency

Washing machine efficiency

Bathroom sink efficiency

Dishwasher efficiency

Shower efficiency

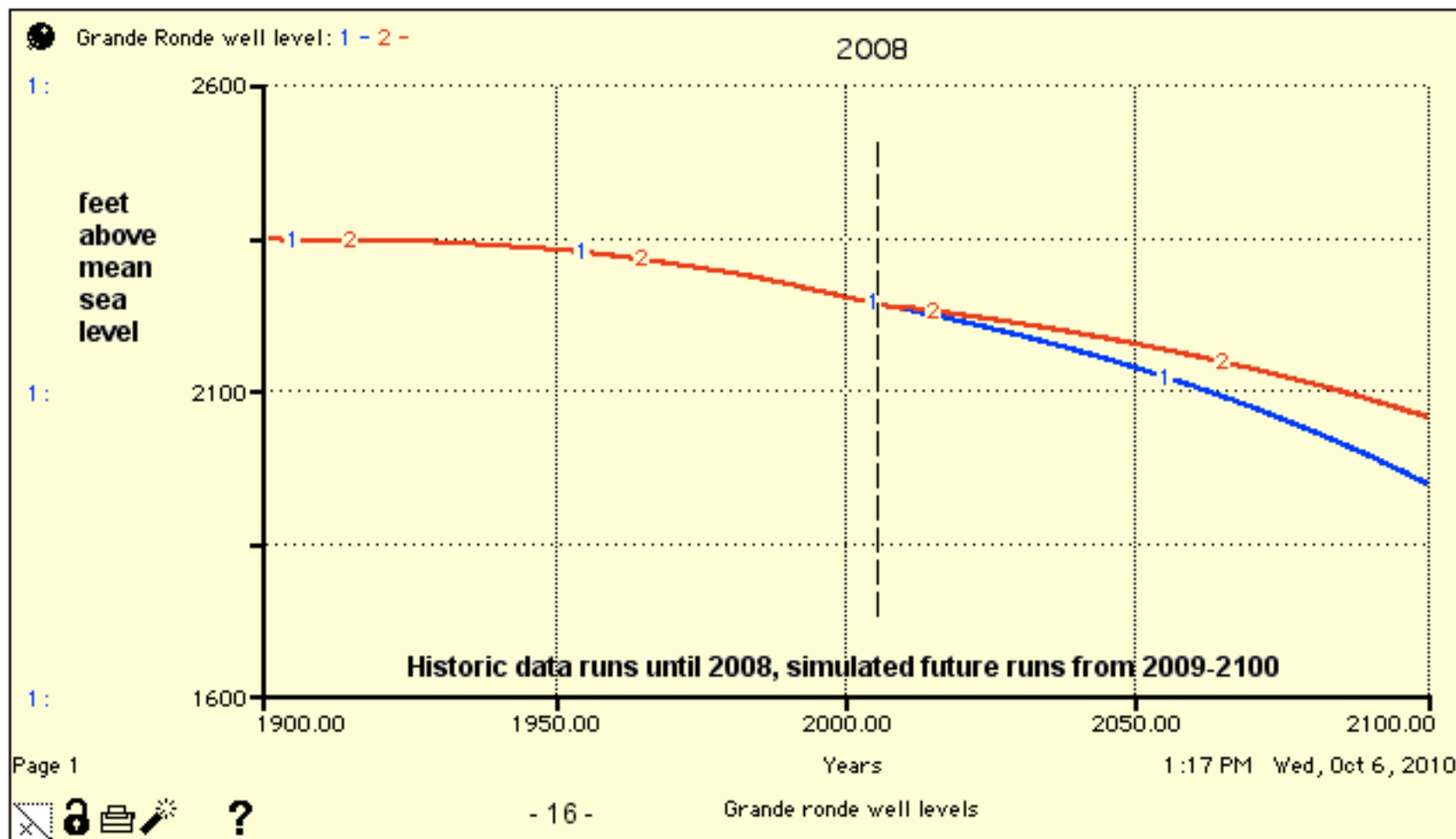
Kitchen sink efficiency

Tub capacity

More information on conservation

If everyone consumed their indoor water like you do this is the result (for a baseline, run first with the switch off).

turn on if everyone used water like me

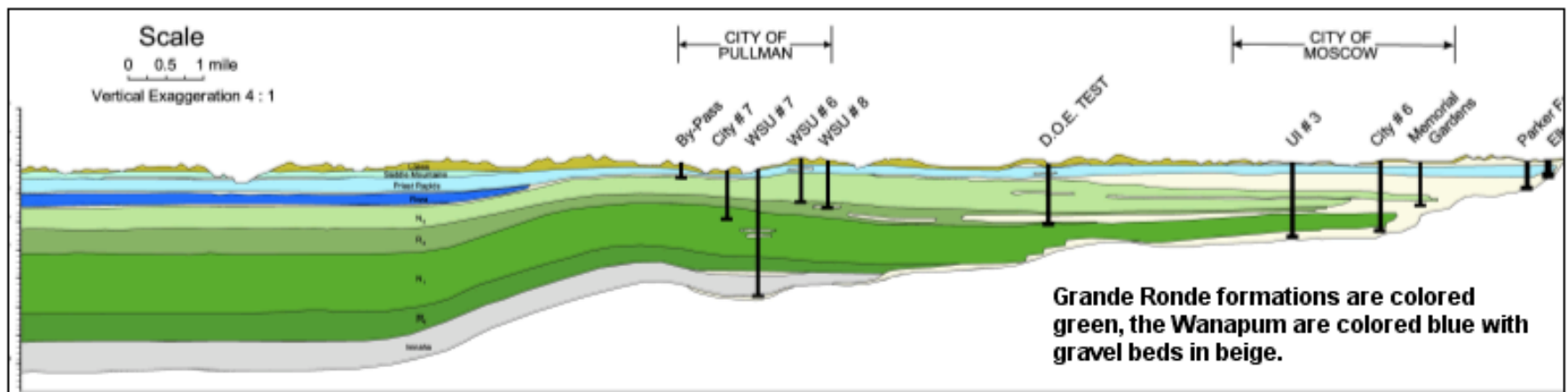


How is water stored on the Palouse?

menu

Ground water on the Palouse is primarily found in two geologic structures: the Grande Ronde formation and the Wanapum formation. These formations are old basalt (lava) flows that formed in the area between 17-14 million years ago. Water is stored in pores and fractures in the basalt. It has also collected in the gravel beds that are found between layers of basalt. These gravel beds are the result of weathering between periods of volcanic activity. During the last ice age (75-15 thousand years ago) there were periods of warming during which the ice melted and water slowly seeped into the cracks in the basalt. Water in the upper areas of the aquifer has been measured at ~10,000 years old; in the lower layers ~20,000 plus years old. (Douglas, A. 2004 @ http://www.webs.uidaho.edu/pbac/Theses/Theses_Index.htm)

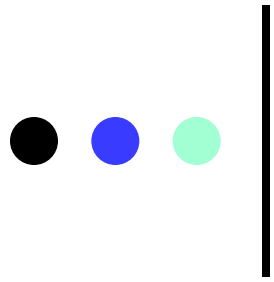
Cross section of Columbia Basin Basalt Flows between Moscow ID-Pullman WA compiled by John Bush and Dean Garwood 2005
<http://www.webs.uidaho.edu/pbac/GeologicMaps/MapIndex.htm>





Project objectives

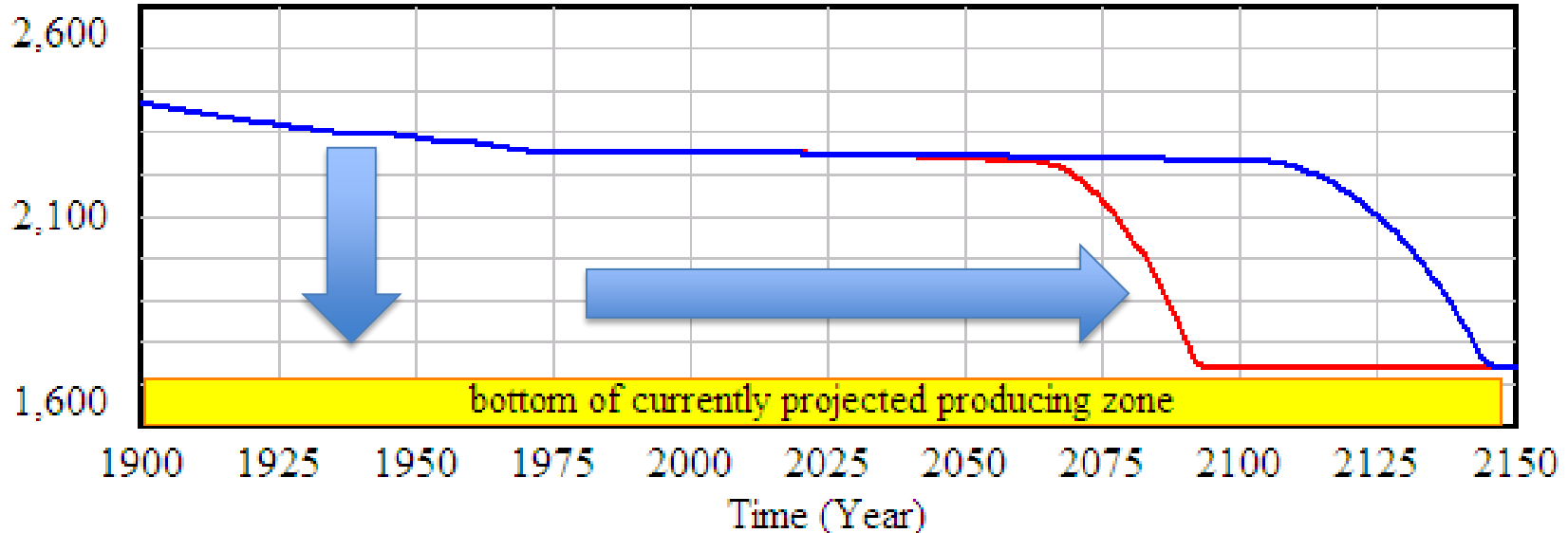
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Perceptions, Opinions and the Road to Collaboration



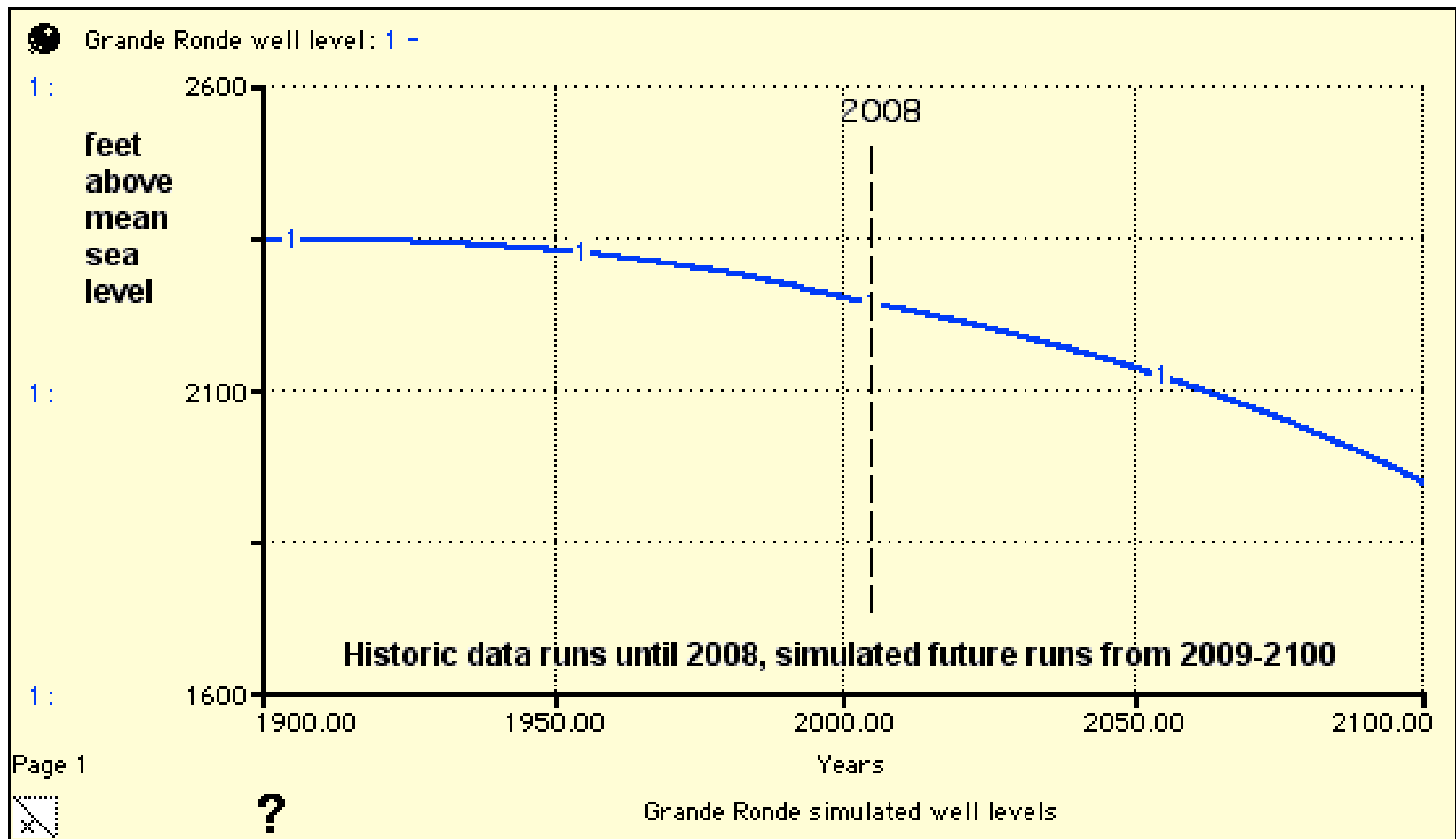
Grande Ronde aquifer elevation



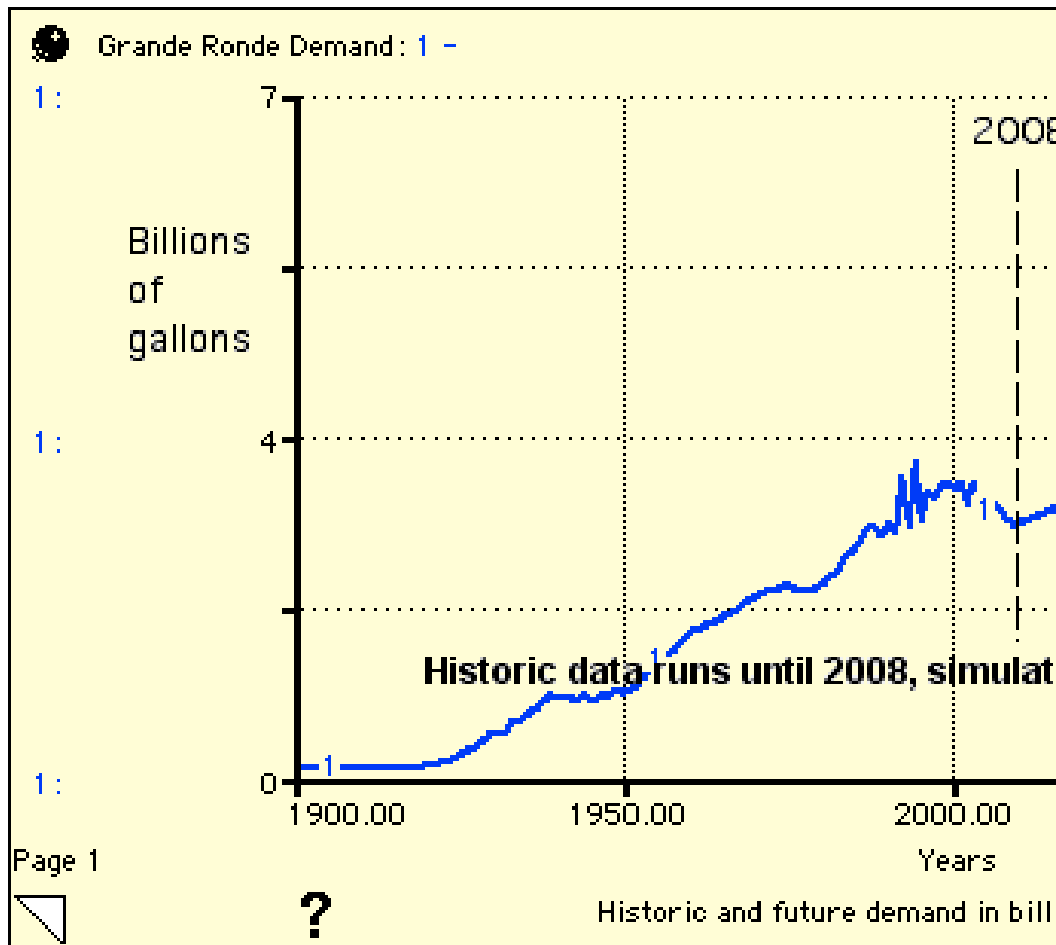
effective gr elevation : palouse baseline —————

effective gr elevation : palouse future —————

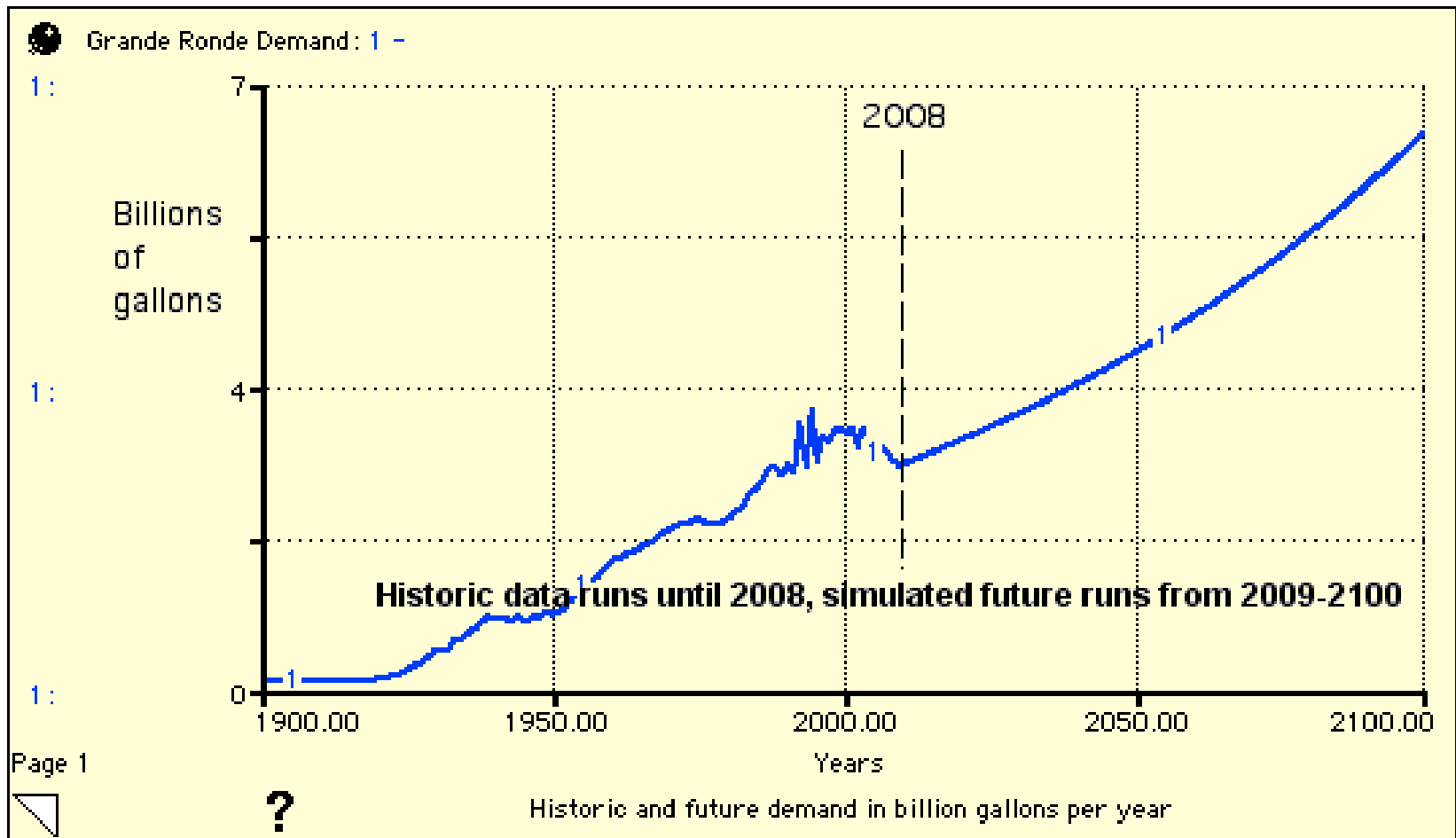
Grande Ronde Supply as described by long term well level



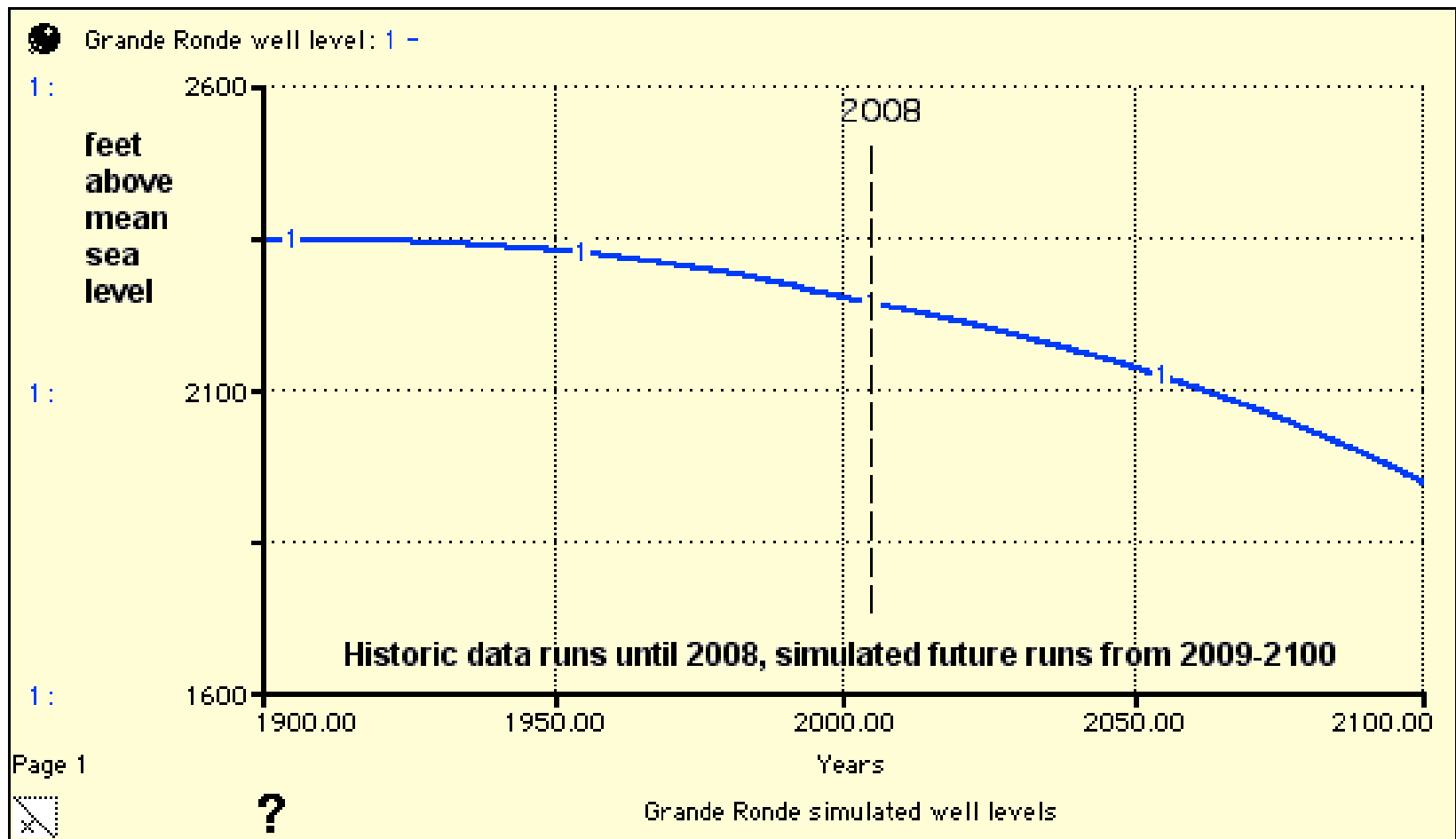
Demand on Grande Ronde



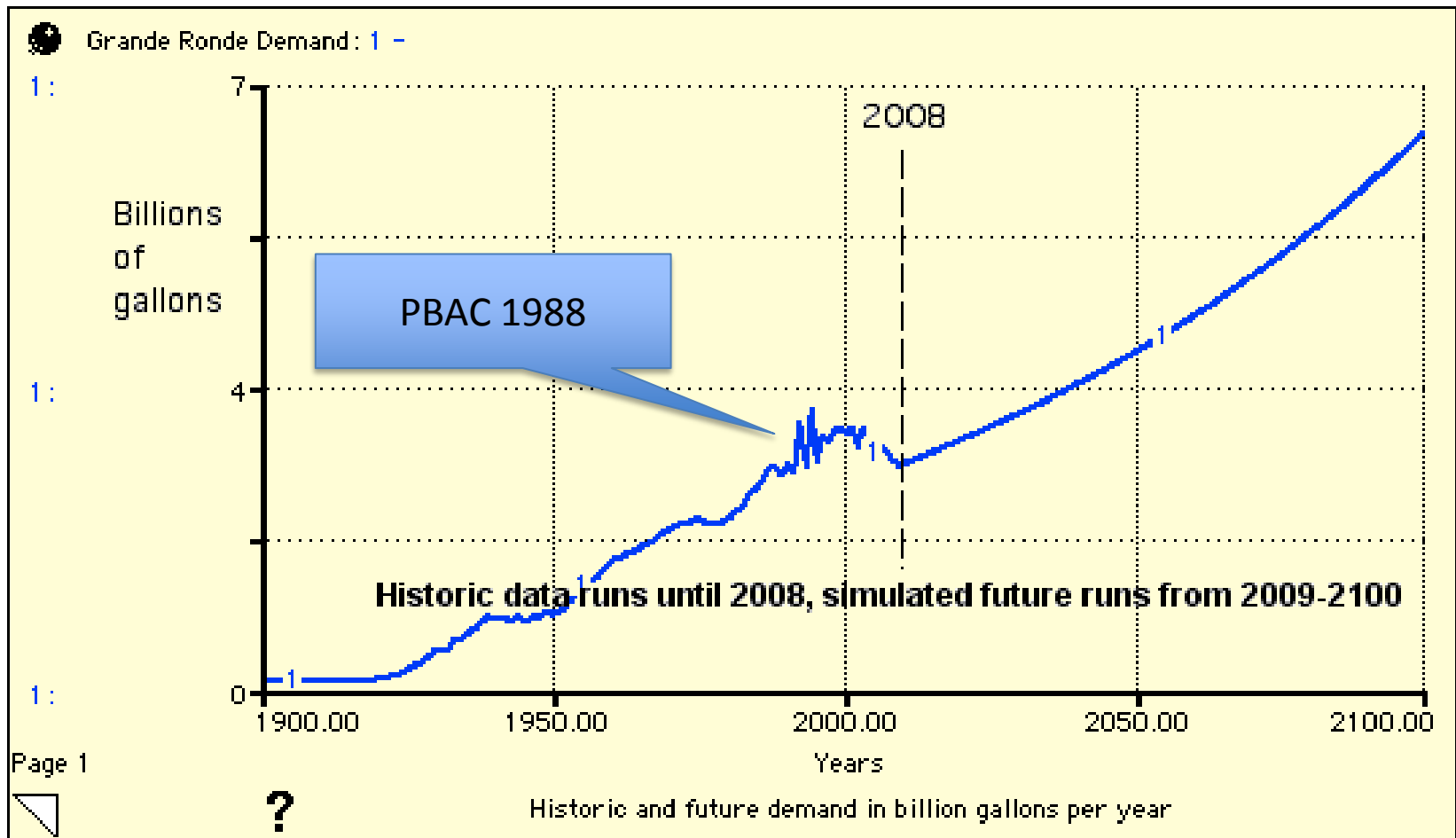
Demand on Grande Ronde



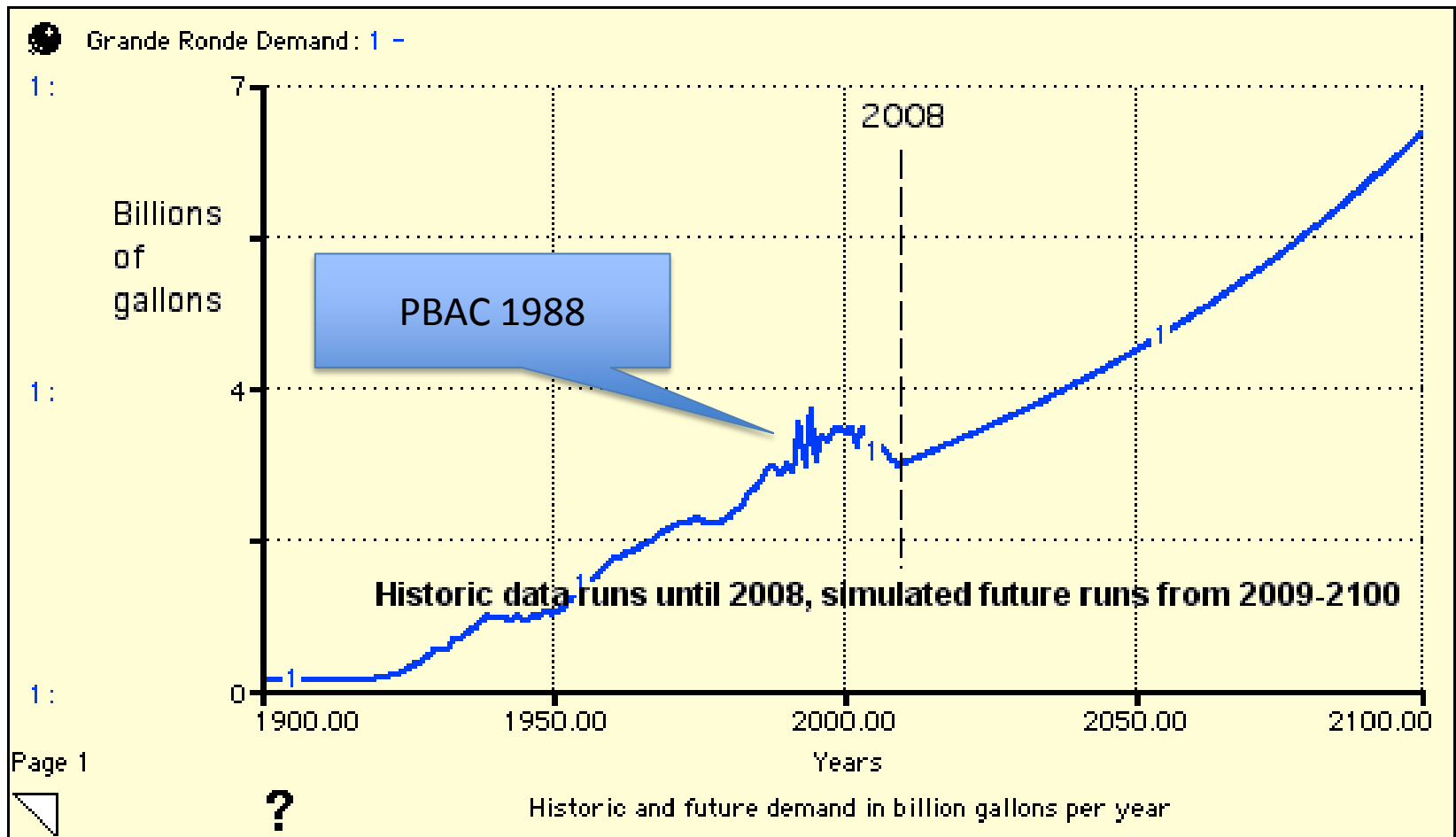
Grande Ronde Supply as described by long term well level

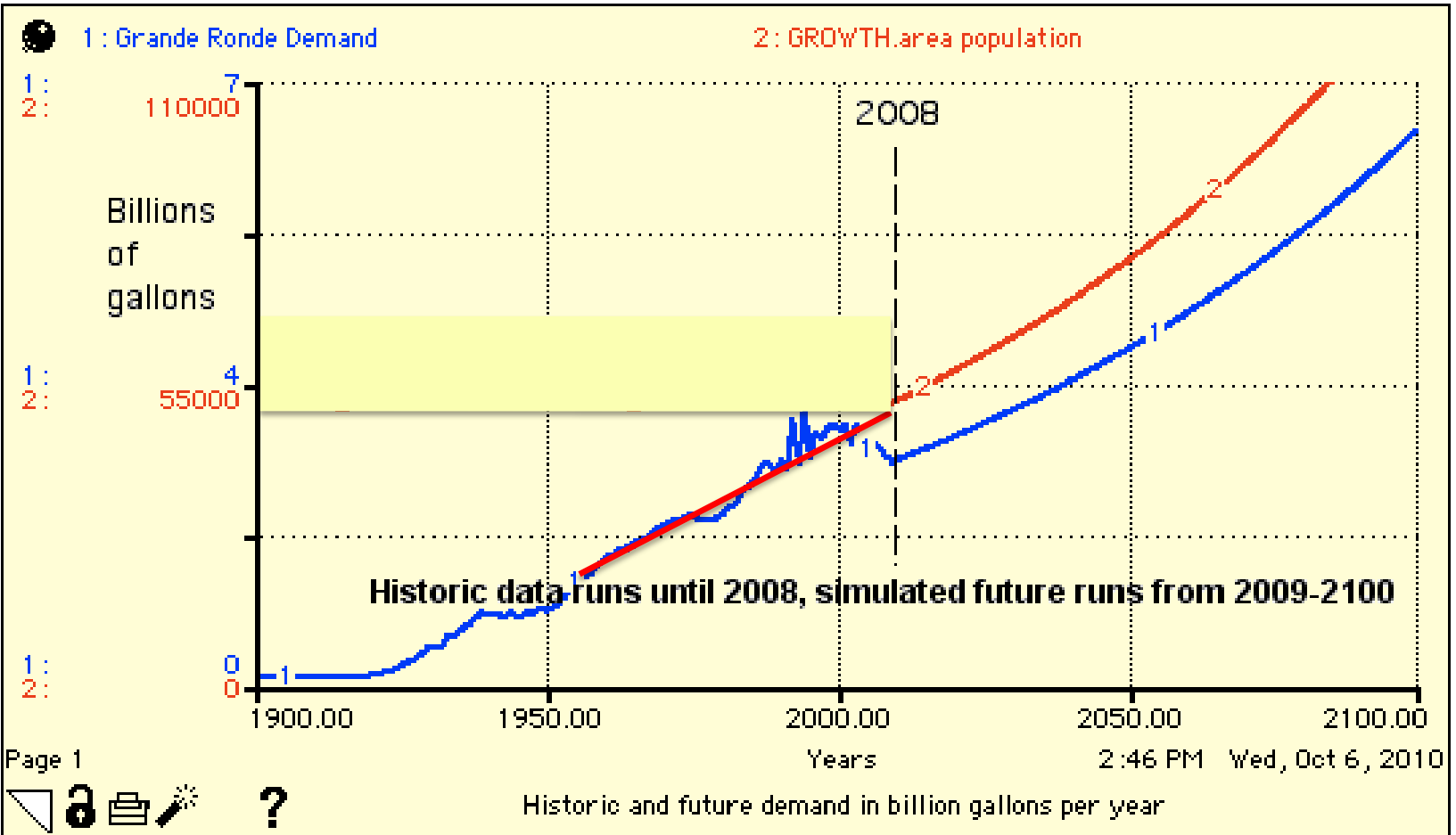


Demand on Grande Ronde

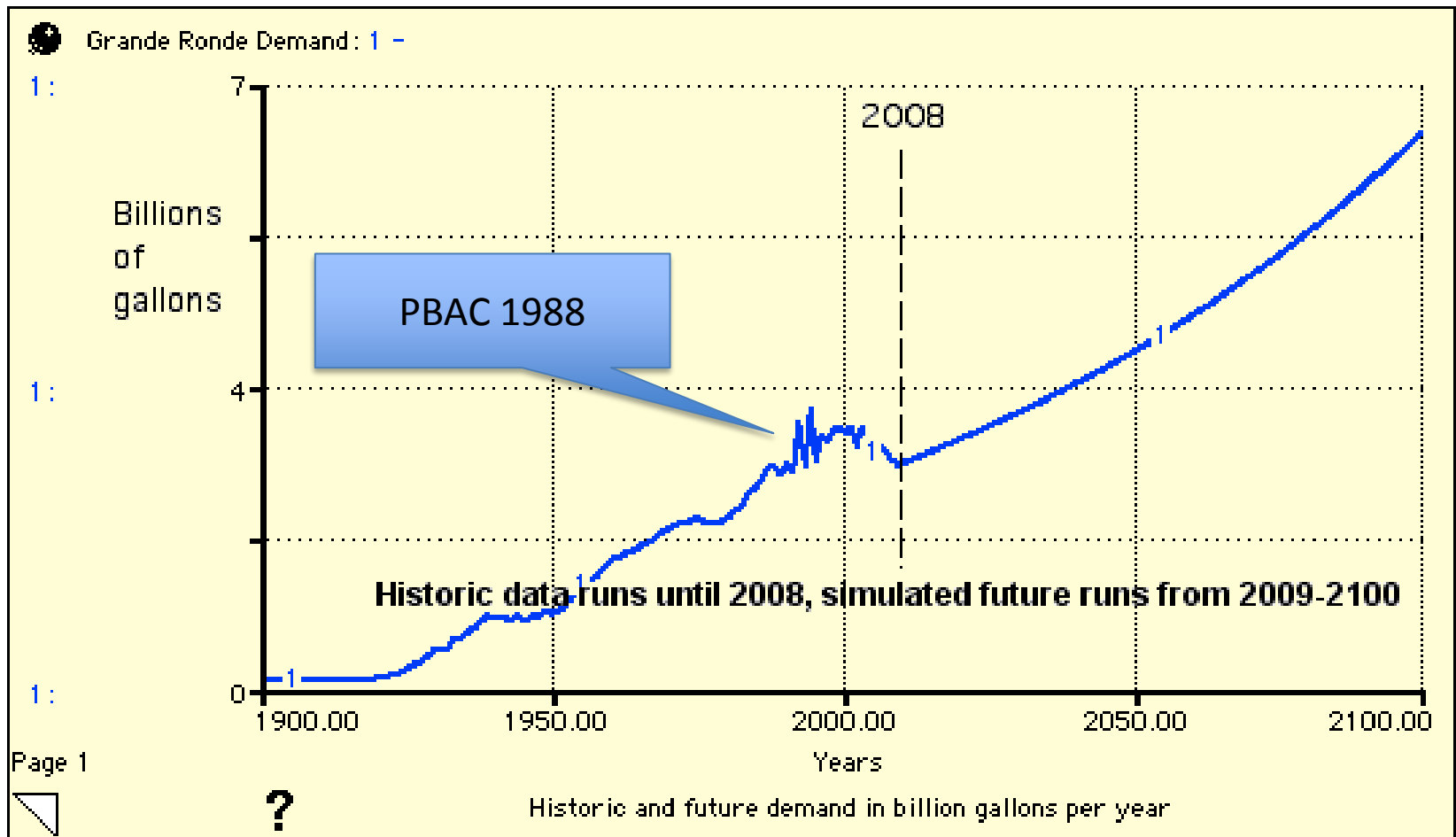


Demand on Grande Ronde





Demand on Grande Ronde



The “G” word and perception

- “Growth is fecundity”

**Growing is
what kids do!**

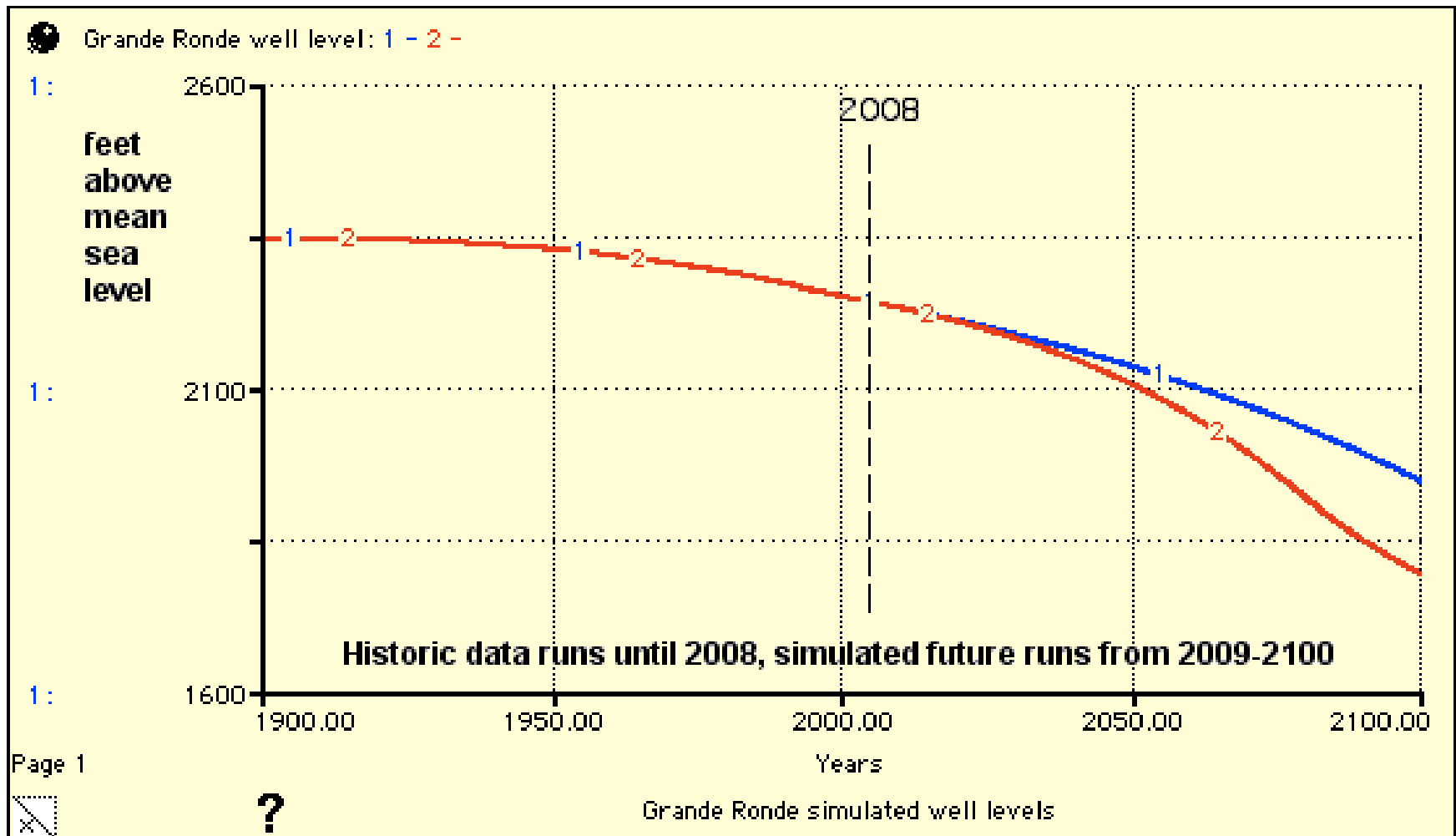


The “G” word and perception

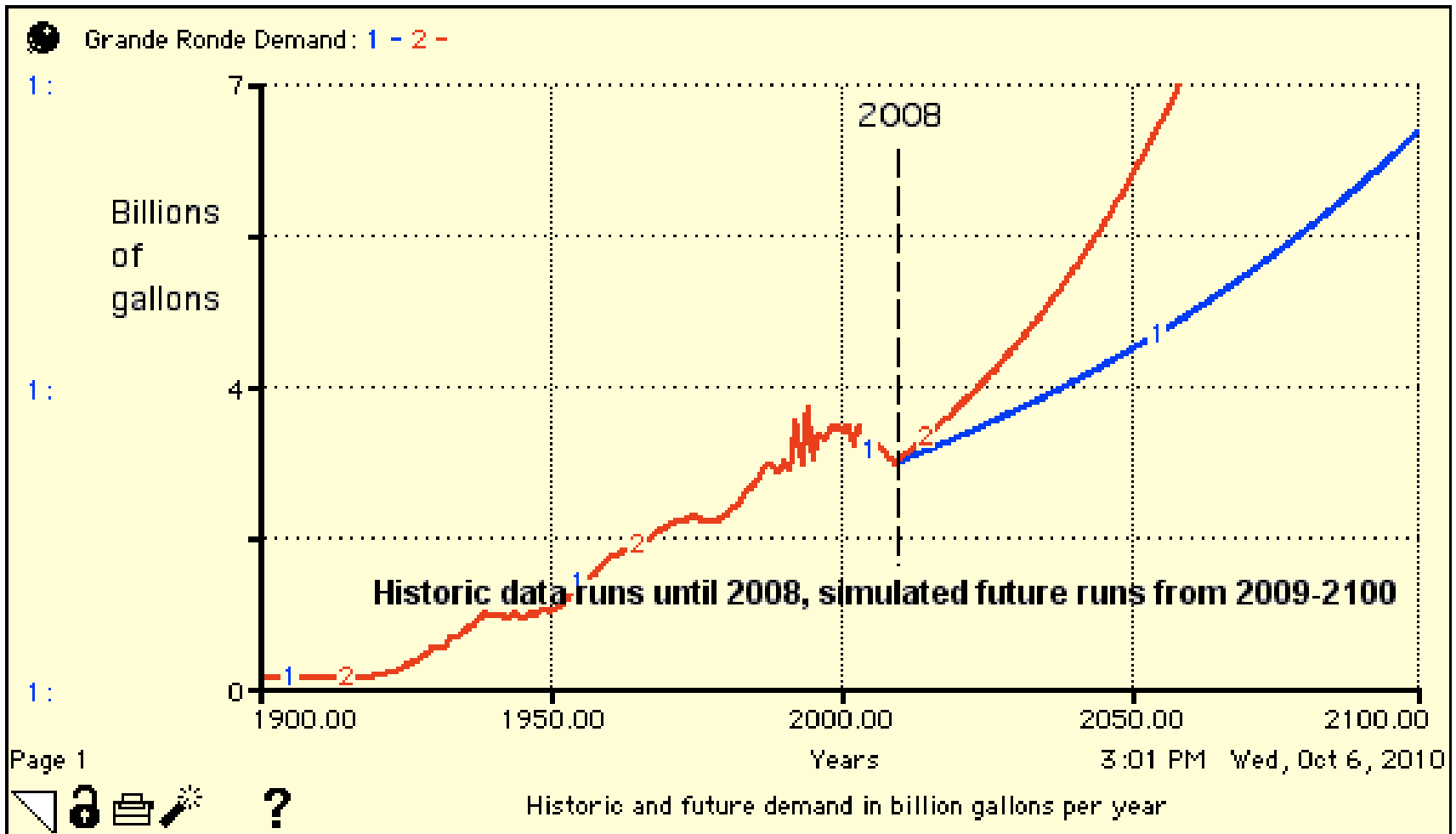
- “Growth is fecundity”
- “Growth is money”
- “Growth is concrete and big box stores”
- In the model growth is more people using water like we do
 - Could be babies
 - Could be students staying
 - Could be my family moving here



2% increase in population (or demand)



2% increase in demand

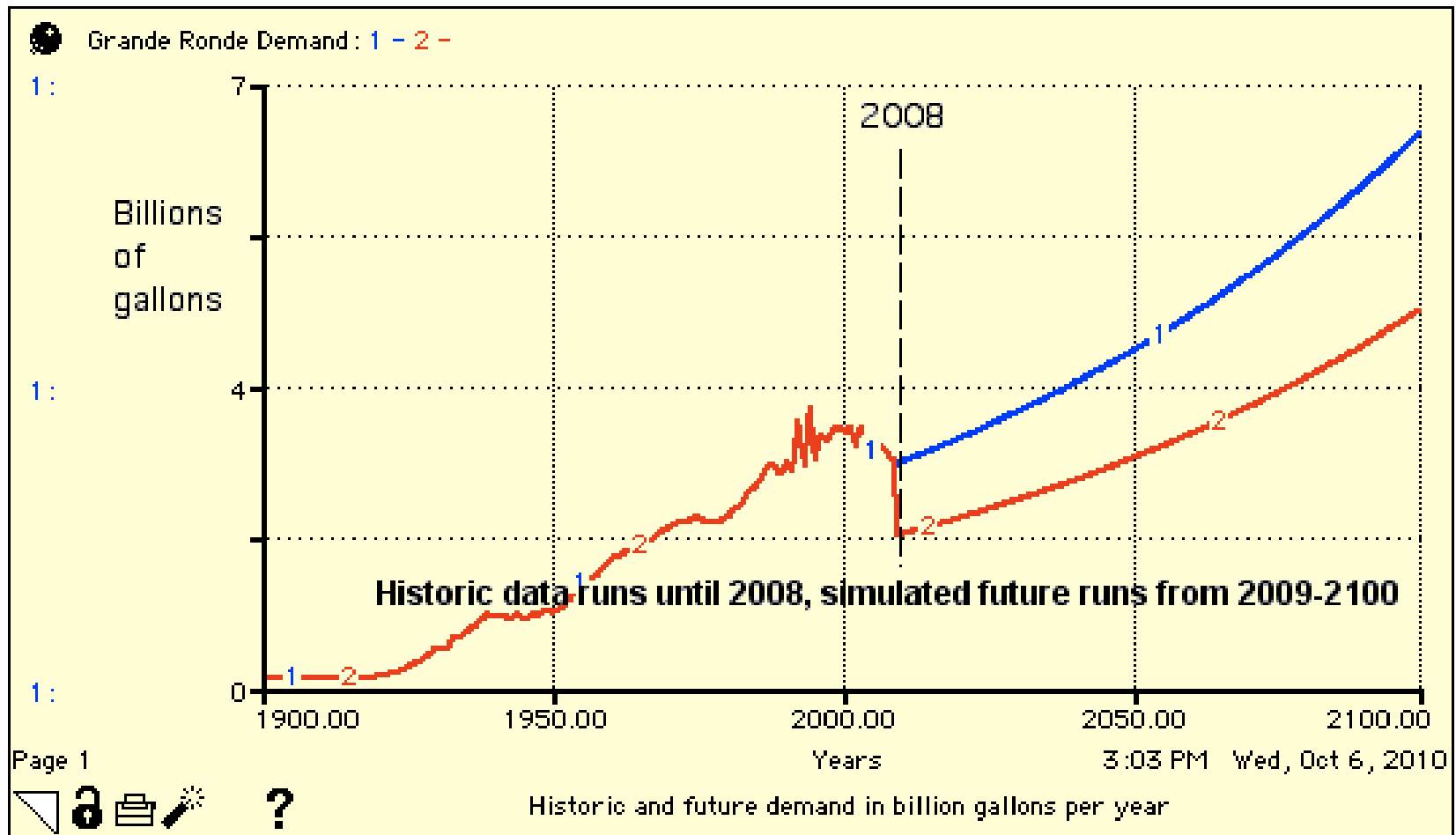


The “C” word

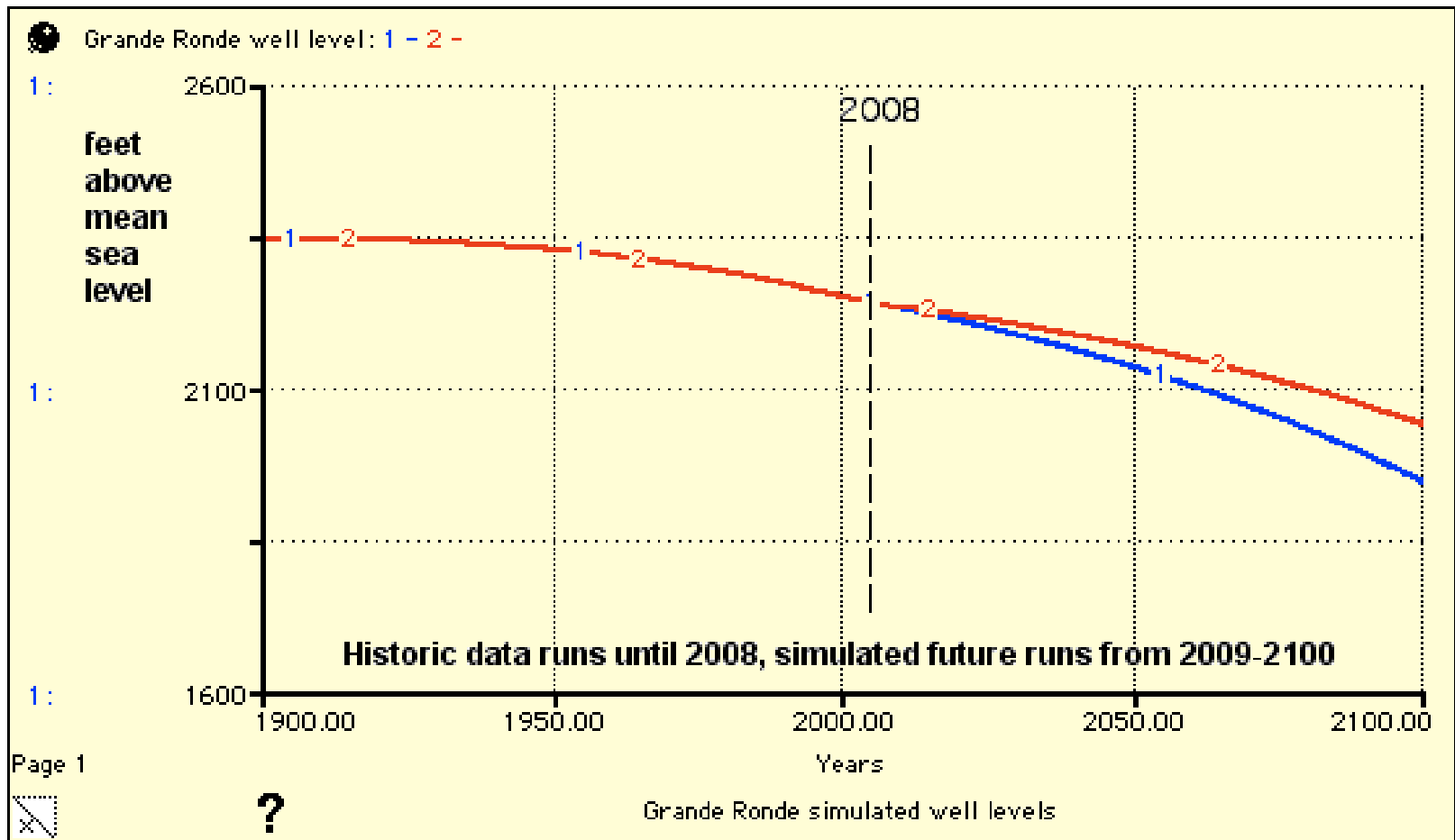
- “Conservation means saving”
- “Conservation means loss of money”
- In the model conservation means you and me using less water
 - Shorter showers
 - Low flow toilets
 - More efficient washers



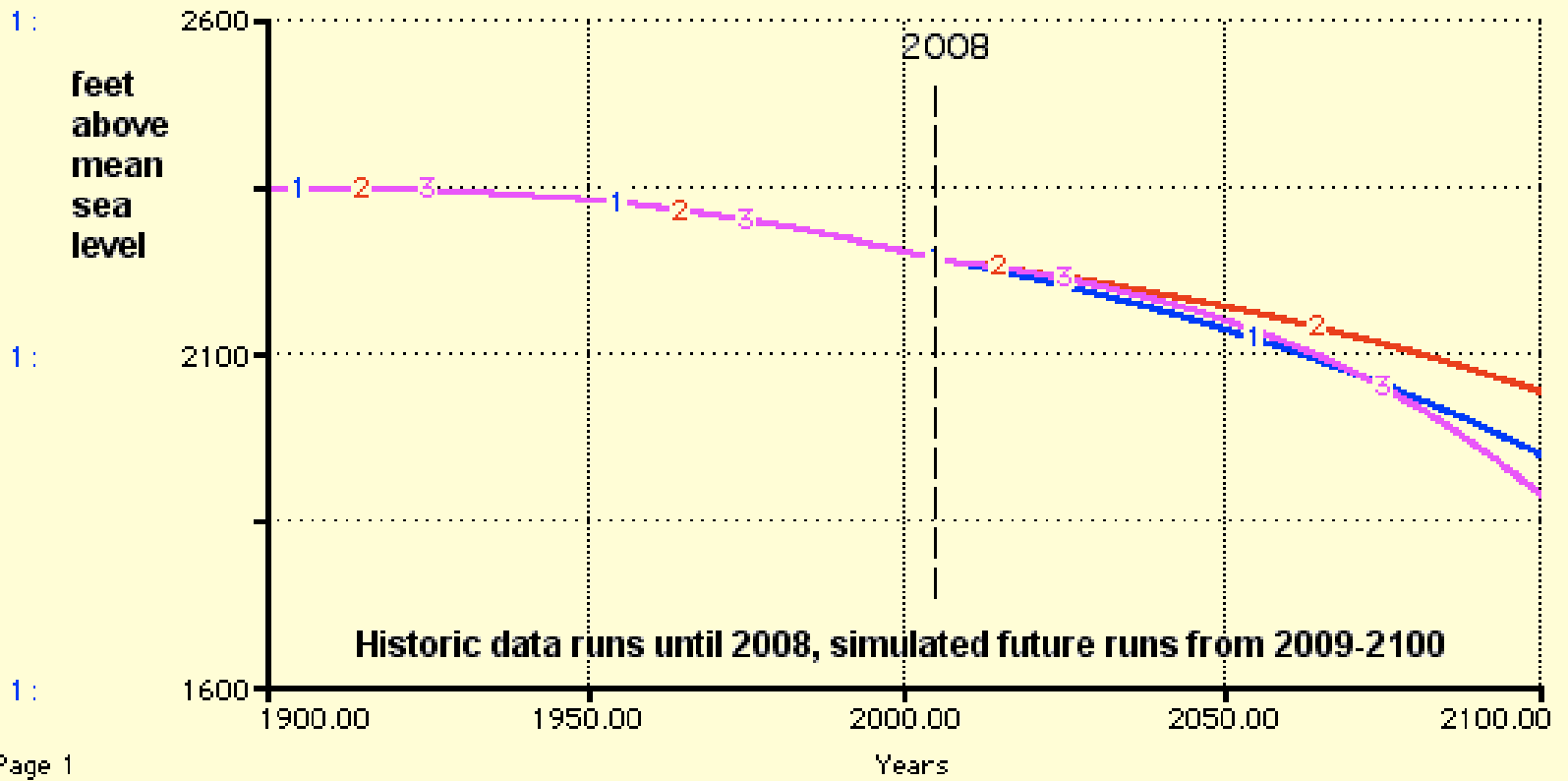
If we were able to reduce indoor use 25% and outdoor use 50%



Is this enough?



Grande Ronde well level: 1 - 2 - 3 -



Historic data runs until 2008, simulated future runs from 2009-2100



?

Grande Ronde simulated well levels



Perceptions, opinions, and collaboration

- A suggestion.....

Keep talking

My world is a perfect world

My world is a perfect world

Innovation





We all want a future
with plentiful and
clean water



Thanks!

I like water!



*Palouse Basin Aquifer
Committee*