





Surface Water Quality

- Water quality affects value of recreational experience.
 - Montana (TCM), \$64 to protect quality, Flathead
 Minnesota (HPV), \$206 extra foot clarity per house
 - Maine (HPV), \$6300 \$8900 bad to good per house
 - Wisconsin (HPV), \$5000 extra foot clarity per house
 - Iowa (CV), \$12 boat to swim, \$73 swim to drink
 - New Hampshire (HPV), 1-6% loss for meter clarity
- Protecting lake water quality has value.









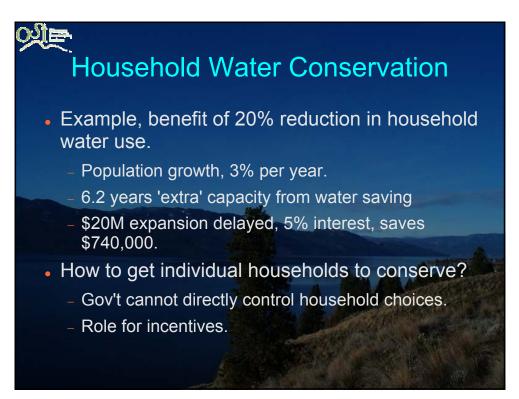
- Identify options
- Project impacts of options
- Calculate costs and benefits for each option
- Choose project with greatest surplus of benefit over cost.
- Measurement may be hard, but if done right, picks 'best' choice.
 - Doing it right includes measurement of effects not observed in market.





Installing Piped Sewers

- Another example, replacing septic systems near lake with sewer and/or only allowing construction with sewer.
 - Foot extra water clarity, \$1000 per house
 - (guess) 10000 affected houses (near or on lake),
 \$10 M benefit
 - Lower bound, also some benefit to resident and non-resident tourists.
- Compare to cost of sewerage program.
 - Conventional property tax **DOES NOT** capture.
 - Implicit subsidy, poor to rich.



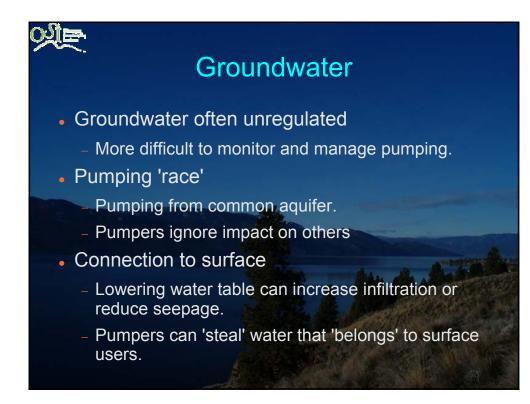












Water Pricing

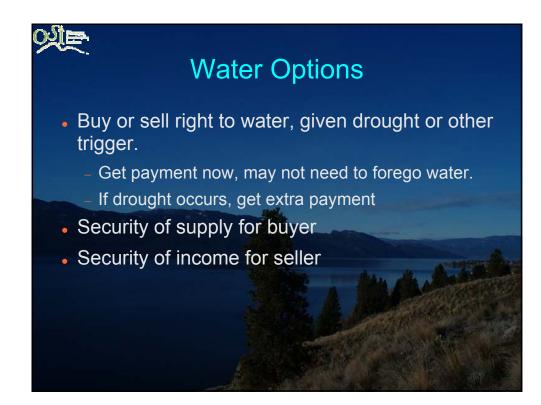
- Information campaigns short term only.
 - People 'forget' and revert to old habits.
- Pricing results in permanent changes.
 - Education for need of conservation
 - Education to help people adapt.
- Justice issues
 - Water essential, can poor afford?
 - Increasing block rate, basic needs block cheap.

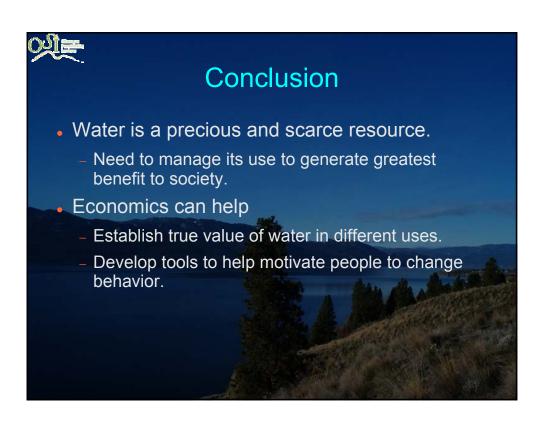




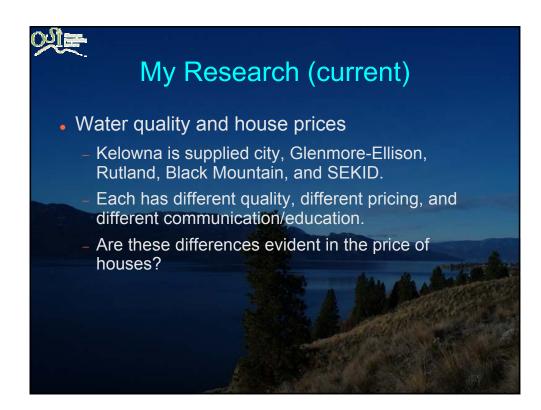


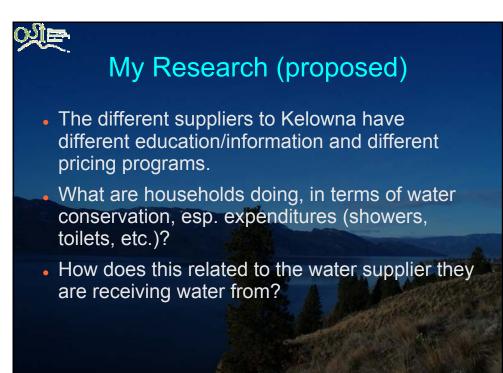












My Research (proposed)

- Water option markets managed by purveyors.
- Where metered, purveyors know use of each customer.
- Purveyors can manage transfers.
- Water trading, or more simply, buy and sell seniority within system.
 - Nobody looses allotment/entitlement
 - Buying and selling security of supply, not water.
 - More palatable?