This presentation premiered at WaterSmart Innovations

watersmartinnovations.com
30+ Years of Progress

What’s next?

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Koeller and Company

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A look back at...

- Residential indoor water use
- WaterSmart Innovations Conference
 Efficiency vs. Conservation

✓ ef·fi·cien·cy (noun): the ratio of the effective or useful output to the total input in any system; the ratio of the energy delivered by a machine to the energy supplied for its operation.

✓ con·ser·va·tion (noun): the act or process of conserving; the protection, preservation, management, or restoration of wildlife and of natural resources such as forests, soil, and water.
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<tbody>
<tr>
<td>Residential Bathroom Lavatory Faucet</td>
<td>3.5+ gpm</td>
<td>2.5 gpm</td>
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<td>2.2 gpm</td>
<td>1.5 gpm</td>
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<tr>
<td>Showerhead</td>
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<tr>
<td>Toilet - Commercial</td>
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<td>Urinal</td>
<td>1.5 to 3.0+ gpf</td>
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<tr>
<td>Food Service Pre-rinse Spray Valve</td>
<td>5.0+ gpm</td>
<td>No requirement</td>
<td>1.6 gpm (EPAct 2005)</td>
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<td>Residential Clothes Washer</td>
<td>51 gallons/ loaded</td>
<td>No requirement</td>
<td>26 gallons/ load (2012 standard)</td>
<td>No requirement</td>
<td>16 gallons/ load</td>
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<tr>
<td>Residential Dishwasher</td>
<td>14 gallons/ cycle</td>
<td>No requirement</td>
<td>6.5 gallons/ cycle (2012 standard)</td>
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<td>5.0 gallons/ cycle (ASHRAE S191P)</td>
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* gpm: gallons per minute  
* gpf: gallons per flush
Results

• Significant reductions in consumption

• BUT => unintended consequences:
  • Reduced liquids in drains & sewers
  • Increased drainline stoppages
  • Inattention to safety
  • Increases in pathogens
  • Wastewater treatment insufficiencies
WaterSmart Innovations

- 9 years of history!

- 1,122 different presentation sessions
  - ✓ 2008 thru 2012 – 132/year
  - ✓ 2013 thru 2016 – 116/year
Categories of WSI Presentations
9 years: 2008 thru 2016
WSI – category trends
9 years: 2008 thru 2016

**Increased coverage**
- Social marketing
- Utility system leakage
- Research
- Watering restrictions
- Drought response
- AMR / AMI

**Decreased coverage**
- Demand forecasting & water efficiency planning
- Landscape
- Comm’l-Industrial-Institut
- Regulations
- ‘Green’ industry (codes, stds., guidelines)
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So, where do we go next?

• Further incremental reductions in indoor water consumption (fixtures, appliances, & process equipment) beyond what has already been achieved?
  • Recognize drainline transport issues
  • Recognize health & safety issues
  • Will further reductions yield water savings without performance sacrifices?
So, where do we go next?

- Increased emphasis upon on-site water reuse (graywater, process water, cooling water, etc.)?
  - ‘Dry drains’ - starving drainage systems of water
  - Recognize diminishing graywater quantities
  - Economic feasibility of systems operation
  - Recognize health & safety issues - on-site treatment
So, where do we go next?

• Move conservation program focus from residential toward commercial-industrial applications?
  • Fully ‘saturated’ residential sector?
  • Recognize sector potential for water use reductions
  • Recognize new innovative and ground-breaking process technologies
  • Greater pool of resources available
So, where do we go next?

- Other areas deserving increased focus...
  - Provide more customer tools – AMR-AMI, metering & sub-metering, technical assistance, dashboards
  - Water supply system leakage reduction
  - Health & safety – research & implementation of improved practices
  - Standards, codes, & regulations
Your feedback?
Thank you...

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