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Snapshots: Landscape Rules and Needed Research

April 1, 2009
California Energy Commission Hearing

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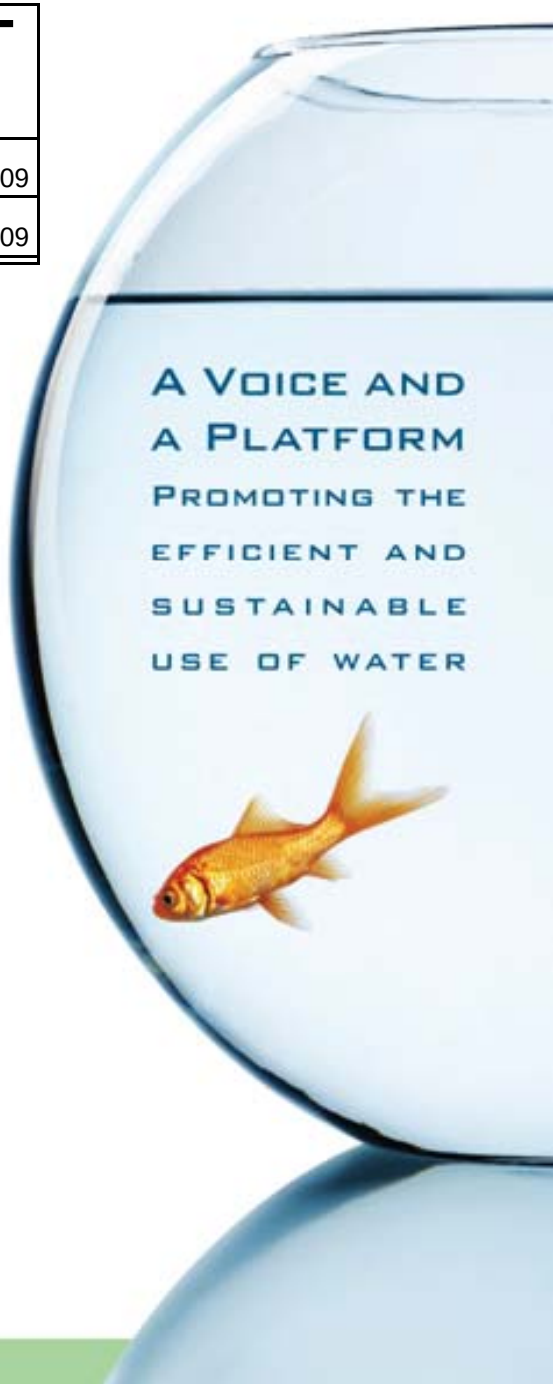

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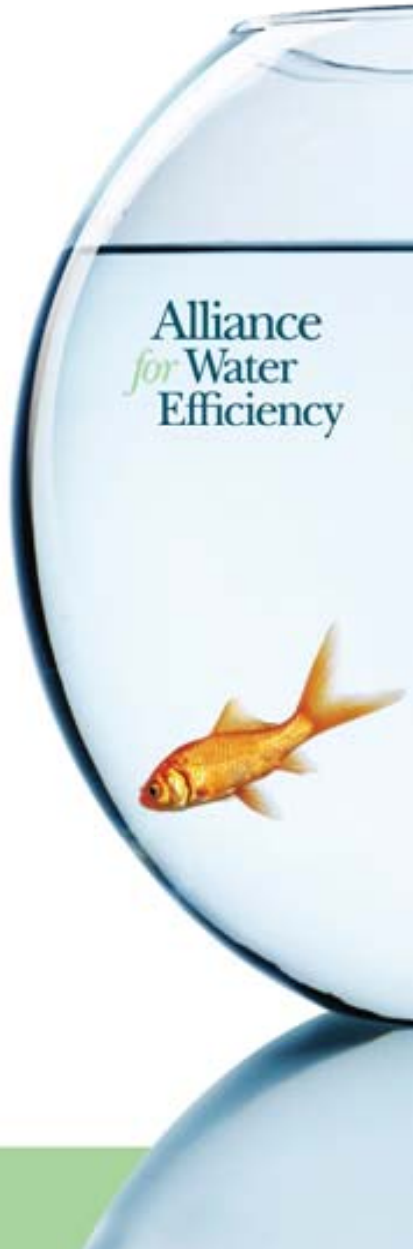
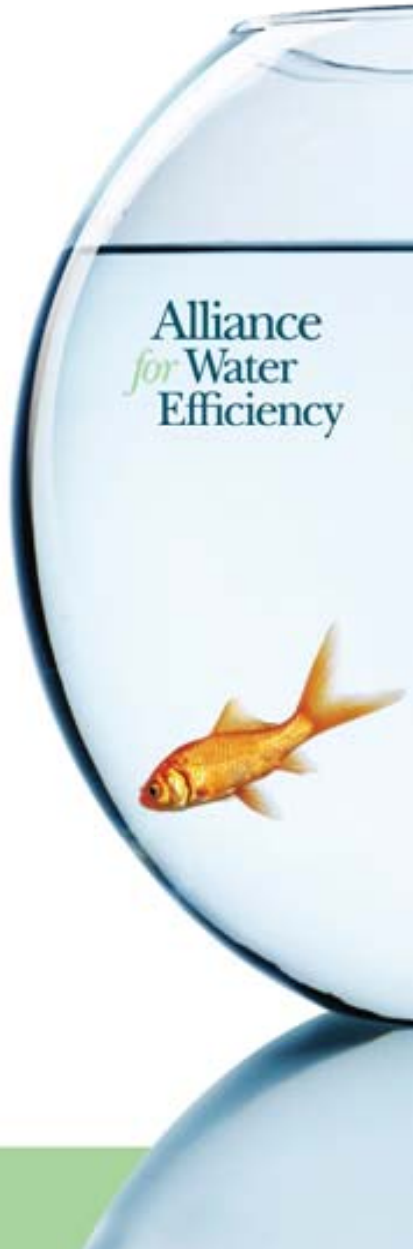
Not Just in California

- Turf grass is the largest irrigated crop in the US, irrigating three times the area of any other crop
- Therefore it is a focus
- In many areas of the country outdoor irrigation of landscapes is the largest single category of average and peak water use in the urban environment
- New development often exceeds peak summer water use over their older home counterparts (70% increase in peak use in one city has been recorded)



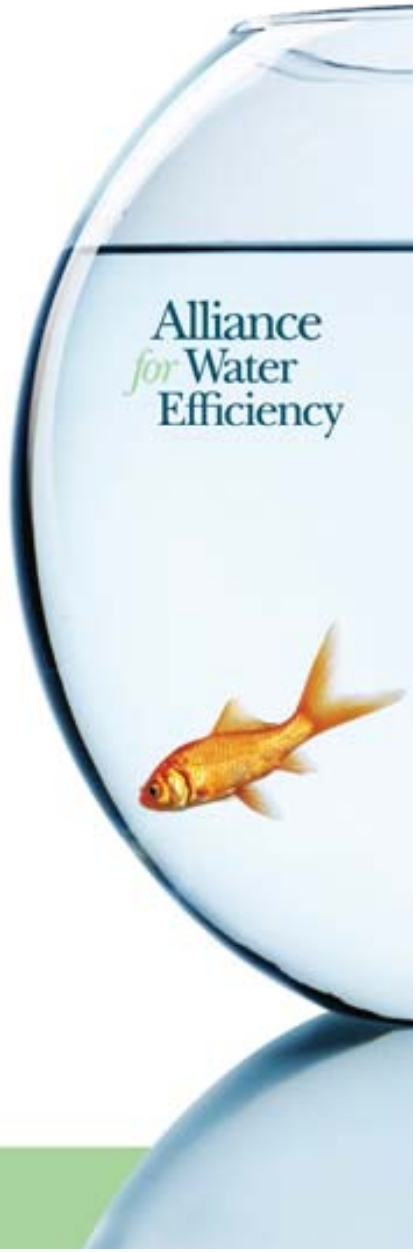
Irrigation Challenges

- Once installed, usually ignored by owner
- Irrigation technology is often not well matched to the site conditions
- Irrigation systems often not maintained or checked for leaks
- Controllers usually not programmed correctly or revised to suit changed conditions
- “Black box” mentality
- Plant material often not locally appropriate
- Consumer response is to over-irrigate for “green”



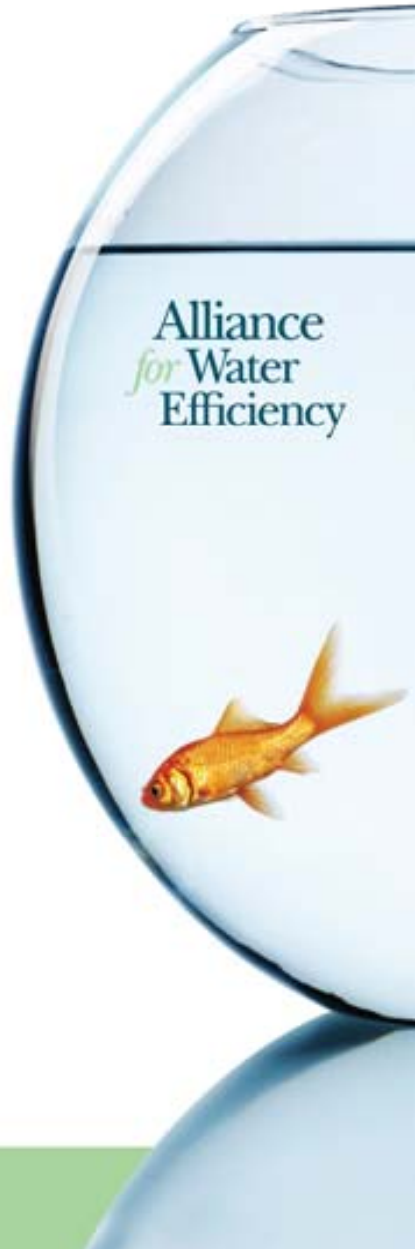
What Landscape Rules?

1. Few product-based laws, regulations or ordinances dealing with irrigation controllers, equipment or system components
2. Most common product-based ordinance: require rain or moisture sensors, in either new or ALL systems
3. Other typical ordinances:
   - *Time of Day watering restrictions*
   - *Day of Week watering restrictions*
   - *Overspray and runoff prohibitions*
   - *Turf limitations, particularly for new development proposals*



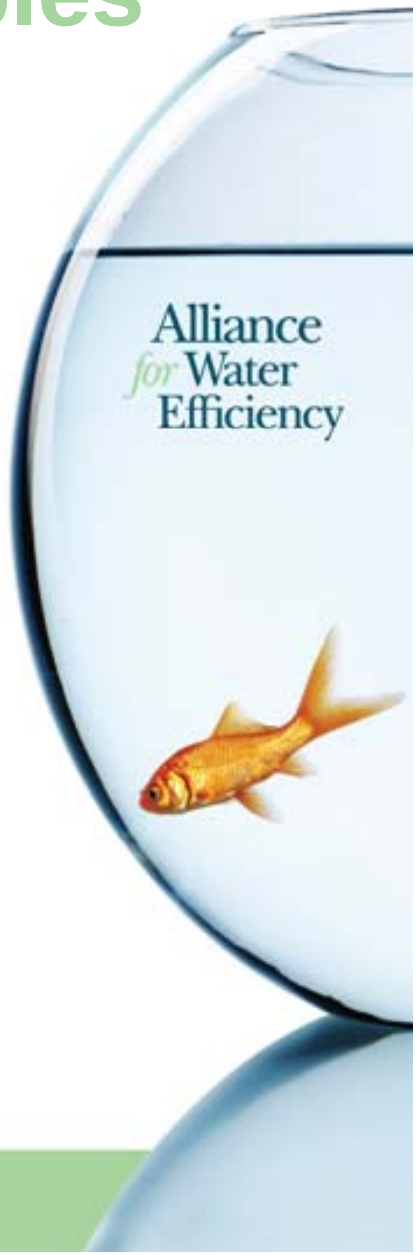
We Are Regulating People..... .....not Product

1. Regulating the Irrigation Contractor
   - Texas Irrigator Rules requiring training and licensing
   - Hilton Head certification of contractors
2. Regulating the Irrigation Customer
   - Watering restrictions
   - Fines and penalties
   - Home owner associations
   - Dedicated irrigation meters



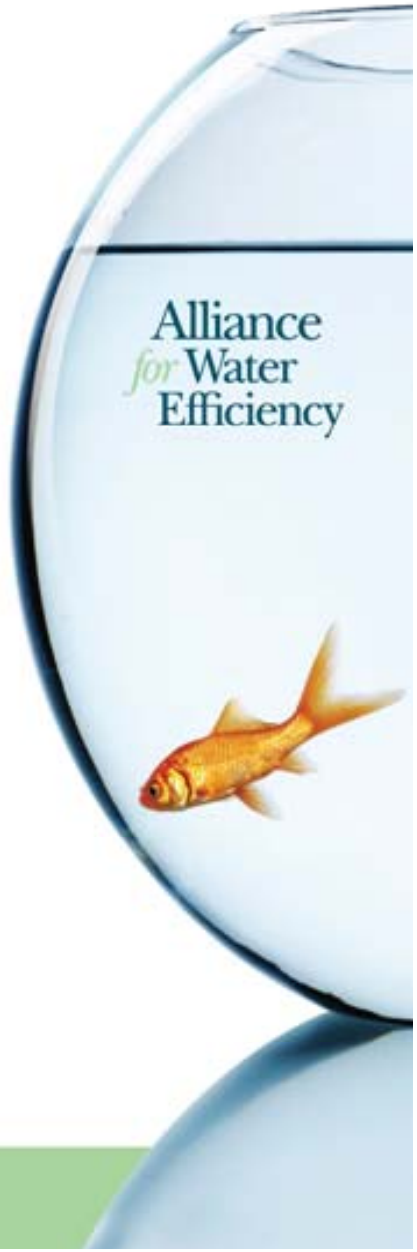
Rain Sensor Ordinance Examples

- State of Florida (for irrigation systems installed after May 1, 1991)
- Longboat Key, Florida (for ALL irrigation systems)
- States of Georgia, Minnesota, New Jersey, Connecticut
- Dallas, Texas
- Cary, North Carolina
- Derby, Kansas
- Great Neck North, New York
- Denton, Texas



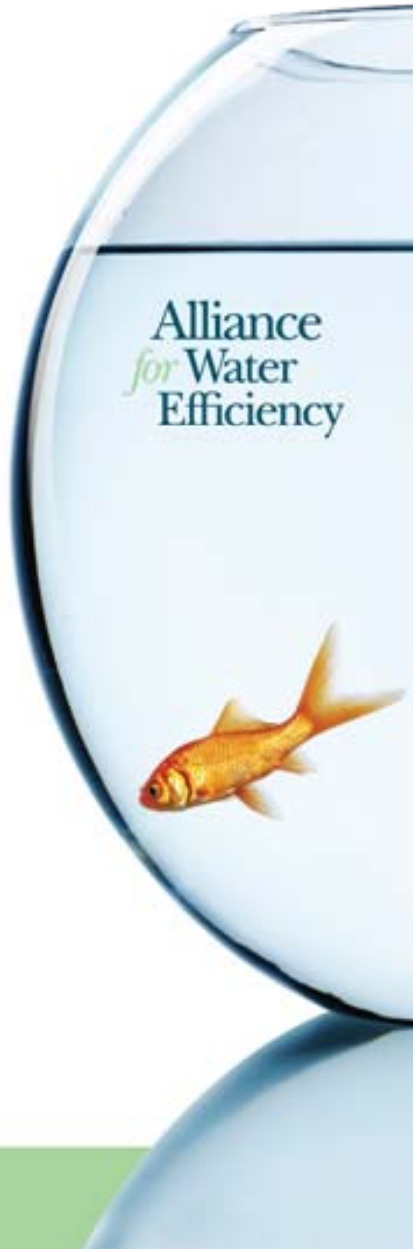
Ordinance Sampler

- **Las Vegas, NV:** Sets turf limits for single family, multi-family, non-residential, and golf courses
- **Volusia County, FL**: Requires pressure-reducing sprinkler heads and irrigation zones
- **Hilton Head, SC**: Requires rain sensors, and installation of irrigation systems by a certified contractor
- **San Antonio, TX:** Requires lawns of summer dormancy, rain sensors, and irrigation inspections



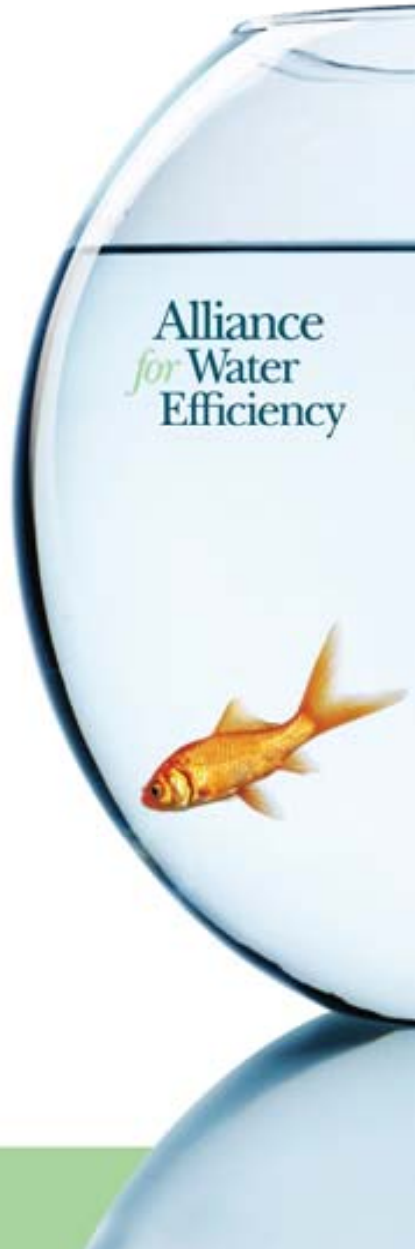
Ordinance Example: Tampa

- Sprinkler spacing must be <55% of the sprinkler's coverage diameter
- Sprays & rotors can not be on the same control valve circuit and must have matching application rates within zones
- Irrigation systems must avoid overspray or runoff
- Narrow areas (<4') can only be irrigated with micro-irrigation



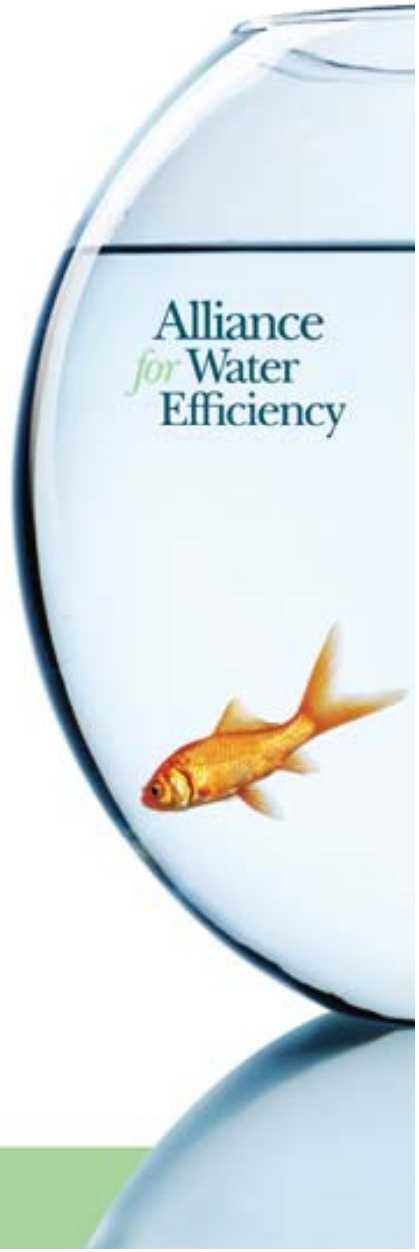
More Tampa

- Turf areas must be zoned separately
- Automatic irrigation controller with battery backup
- Rain Sensor required
- New Development must split 50/50 between turf and landscape of low volume irrigation (< 30 gal/hour)



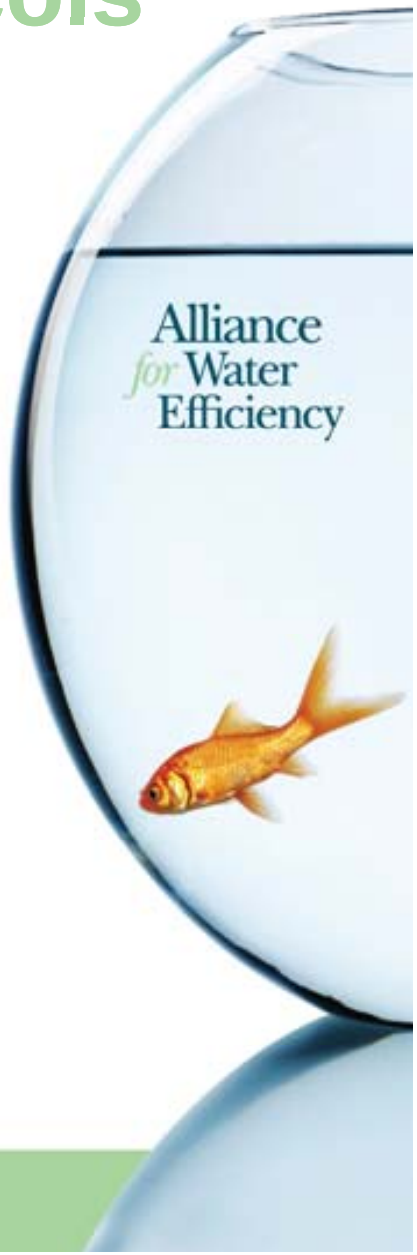
Moving To Product Standards

- Irrigation Association Smart Water Application Technology (SWAT) Program for protocols on weather-based controllers
- Research: Center for Irrigation Technology (irrigation controllers, irrigation nozzles, drip systems)
- Research: University of Florida (soil moisture sensors, irrigation controllers)
- More product research needed
- Research ideas filed in Congress yesterday
- A few product-oriented suggestions



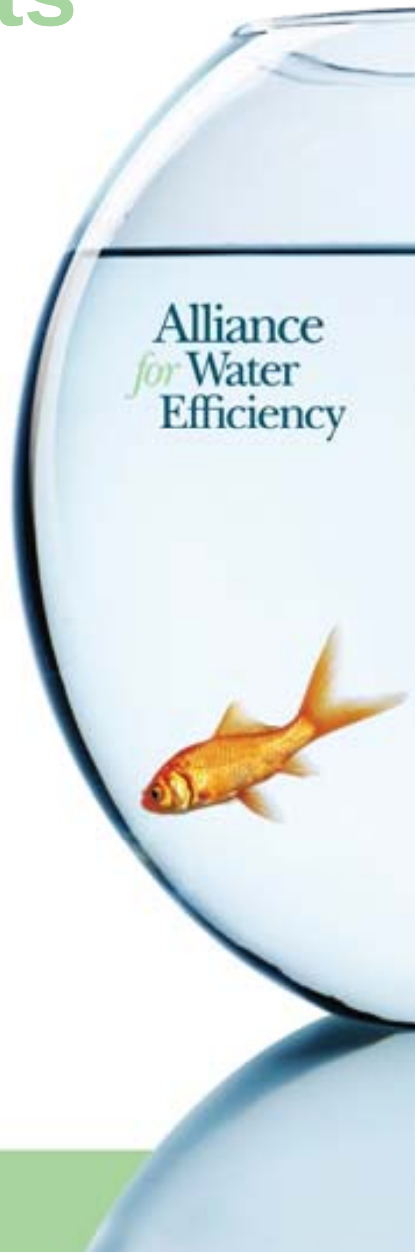
Need Irrigation Product Protocols

- Develop irrigation product protocols for installation as well as management standards
- Estimated budget: $1,000,000



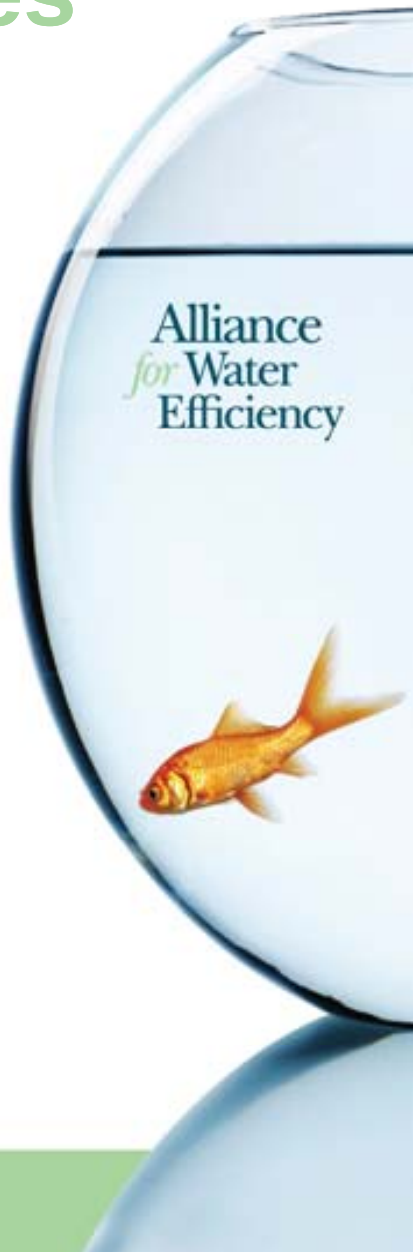
Need National Crop Coefficients

- Develop field measurements of the water needs of all types of turf grass and popular ornamental plants under a variety of climatic and soil conditions
- Crop coefficients can be plugged into controller programming along with ET
- Estimated field research budget: $5,000,000



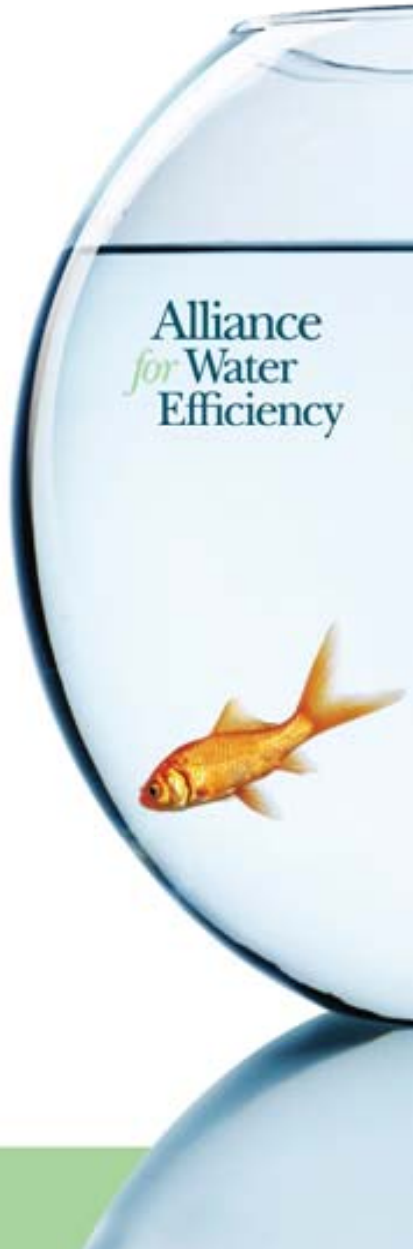
More Efficient Application Rates

- Research design of irrigation systems with more efficient application rates
- High efficiency examples are needed as “model” designs to be adopted by utilities, contractors, and homeowners.
- Estimated budget: $1,000,000



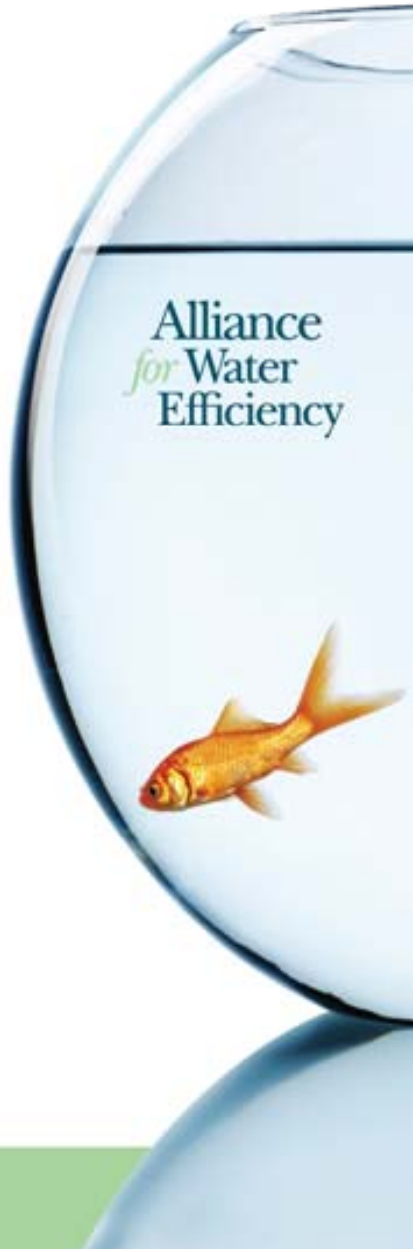
Independent Testing Facilities

- Need more testing facilities nationwide for independent evaluation of conventional and alternative irrigation systems
- Third party irrigation testing and certification facilities needed for WaterSense product testing
- Estimated budget: $2,000,000



So What's Next?

- Everyone watching to see what CEC will do with its irrigation product standards
- Ripple effect expected from CEC standards across the country
- Congressional funding for water efficiency research likely (HR 631 already passed the House)
- Sharing of information with Australia
- Development of WaterSense labeling for irrigation products underway



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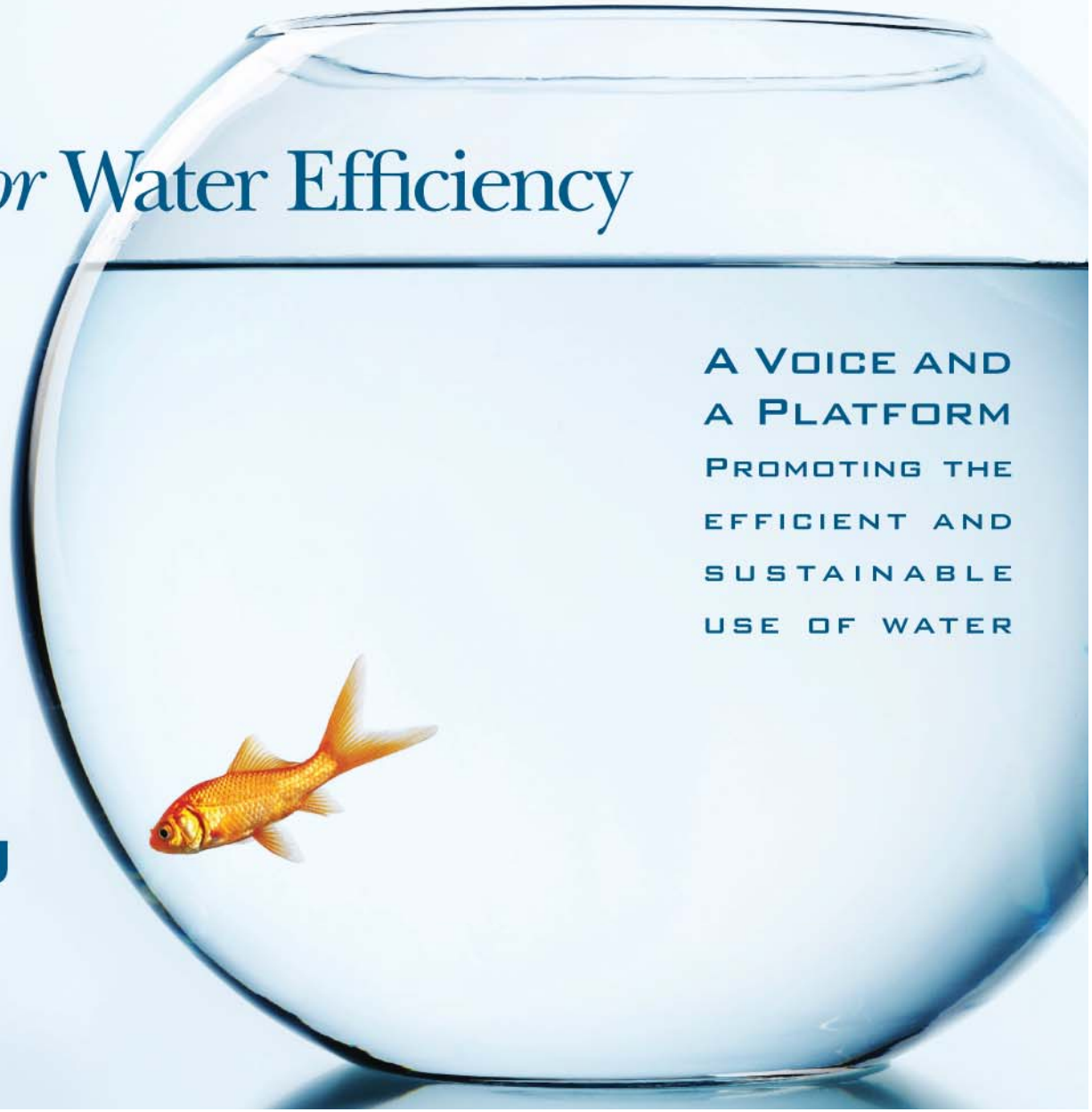

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