

# This presentation premiered at WaterSmart Innovations

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# As Demand Continues to Fall; is it Rainwater Harvesting for all?



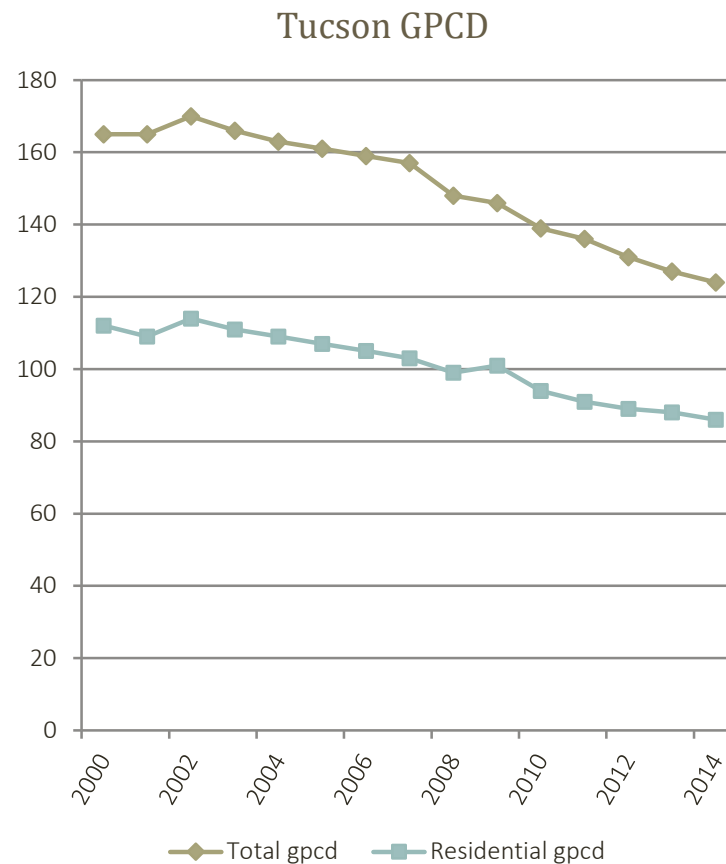
Daniel Ransom  
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WaterReliability

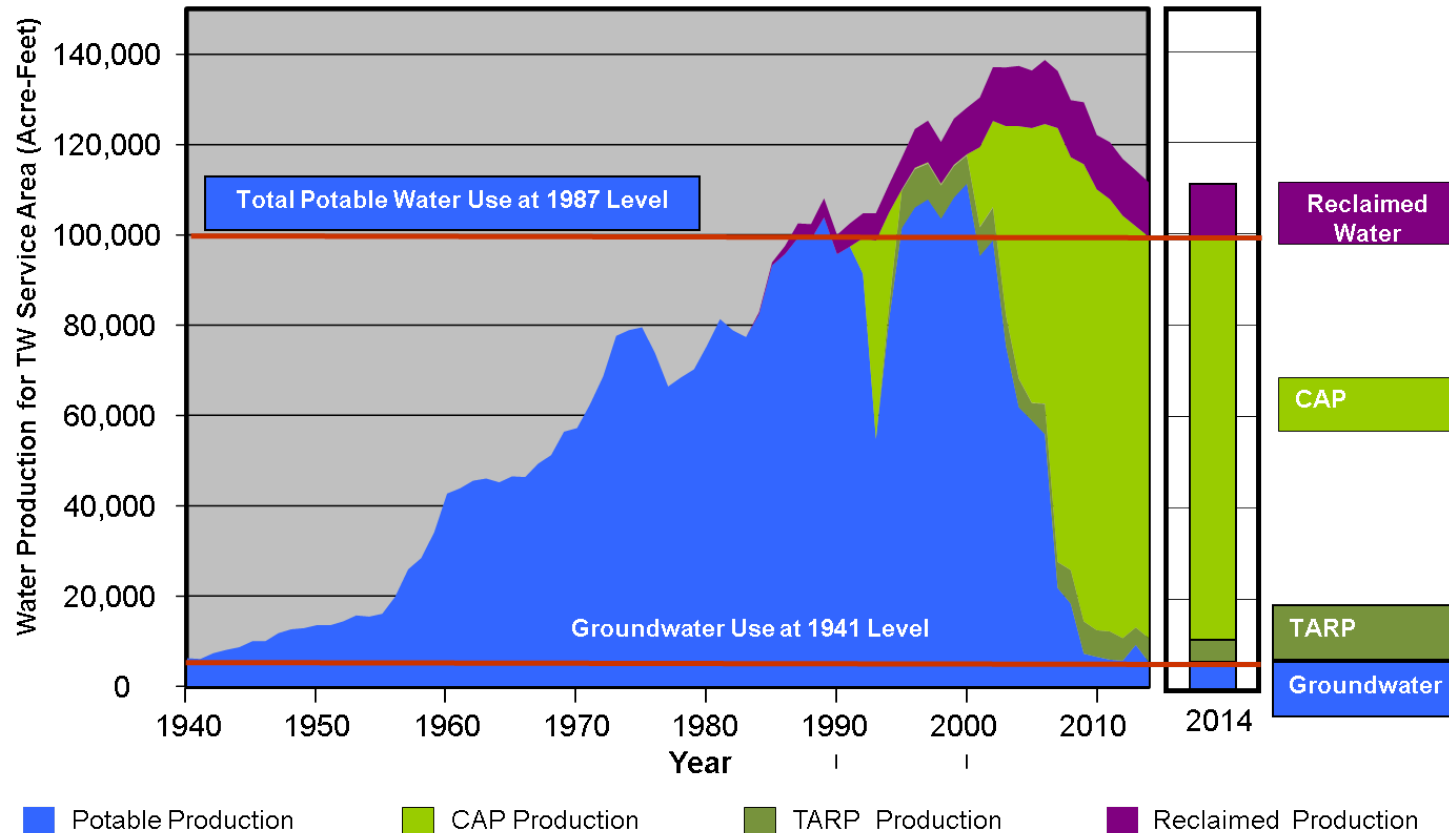


# Gallons per Capita per Day

- 124 gpcd in 2014
- 86 residential gpcd
- Tucsonans now use water at the same level of use as in 1987,
- while population has increased by more than 200,000,
- and service connections have increased by more than 75,000



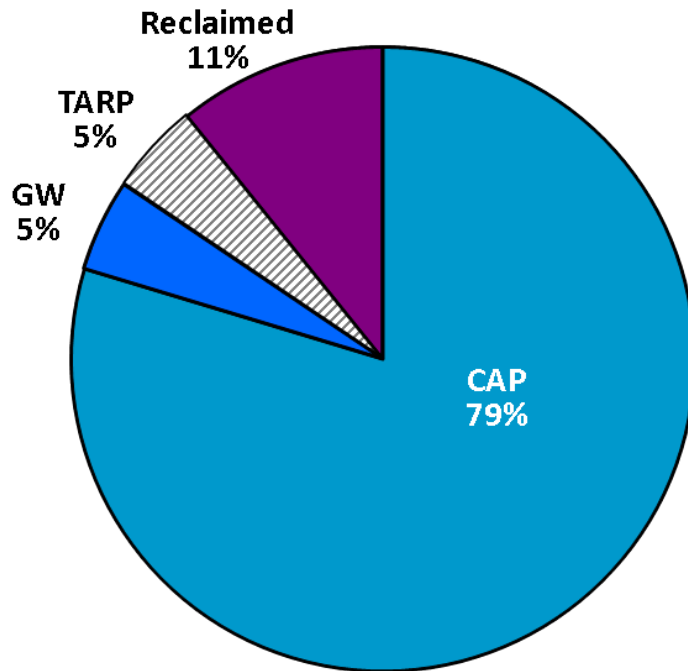
# Water Production (1940-2014)



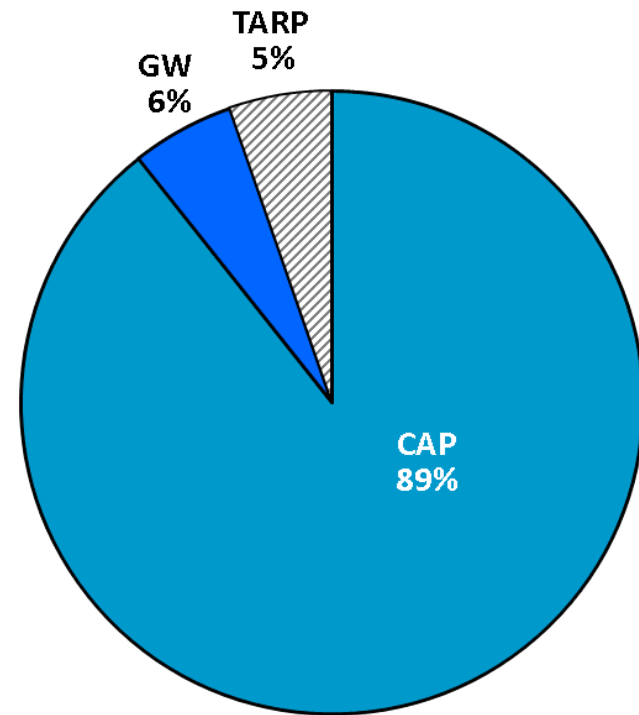


# Water Production (2014)

**Total Water Production**  
**111,459 AF**



**Potable Water Production**  
**99,396 AF**



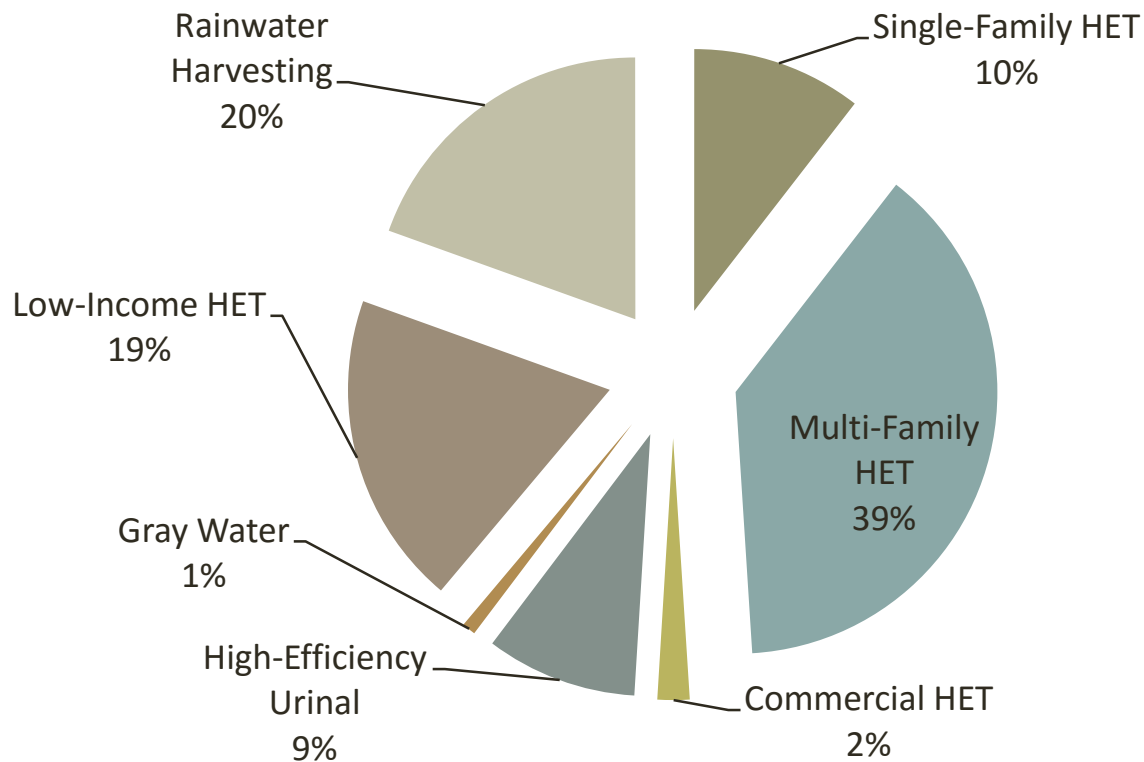
# Conservation Fee

- FY 2014-15
  - Fee \$0.07
  - Revenue \$2,726,208
  - Budget \$3,050,000
  - Expenditure \$2,774,450
- Conservation fee currently set at eight cents per hundred cubic feet (Ccf) for FY 2015-16



# Efficiency Programs

## Expenditures by Program FY 2014-15





# Why Harvest Rainwater?

- Reduce potable water use (demand reduction)
- Reduce dependency on drinking water in landscapes – on average 27% of the water used goes to outdoor irrigation
- Water is a precious resource
- Rainwater is free!
- Water quality – rainwater is best water for soil and plants (no salt, free natural fertilizer, helps balance pH of our alkaline soil)
- Stormwater management – reduce on-site flooding and pollutant discharge and reduce downstream flooding





# Rainwater Harvesting Incentives Rebate Program



- The program was introduced in June 2012. It was expanded July 1, 2015, to include curb cuts/core drilling and small commercial customers

FY 2014-15 Activity		Cumulative:
Approved applications:	269	837
Expenditure:	\$327,145	\$1,031,143
Est. Gallons Saved:	0	0
Workshops:	27	123
Workshop Attendees:	888	3,034



# Rainwater Harvesting Incentives Rebate Program



## Who qualifies?

- Single-family residential and small commercial Tucson Water customers
- Small commercial is a property with a single meter that is 5/8 or 3/4 inches. Properties with more than one meter or meters larger than 3/4 inches do not qualify
- Applicants must attend an approved three-hour workshop to qualify (37% of applicants are attending the workshop after the system has been installed)

## Two levels

- Applicants may apply for both a passive and active rebate not exceeding \$2,000 for the combination





# Incentives Program Rebate

## Level 1 – Simple/Passive:

- Incentive – 50% of the costs of eligible materials and labor up to \$500
- Practices: passive earthworks include directing and retaining water in landscape using site appropriate practices such as basins, berms, terraces, swales, infiltration trenches, and curb cuts





# Incentives Program Rebate

## Level 1 – Simple/Passive:

- Eligible costs for reimbursement include:
  - surface, sub-surface, and conveyance features
  - mulch, rocks/boulders for reinforcement (rock work), and soil amendments
  - equipment rental such as tillers, jackhammers, and trenchers
  - permits and costs for curb cuts and coring
  - labor from licensed contractors

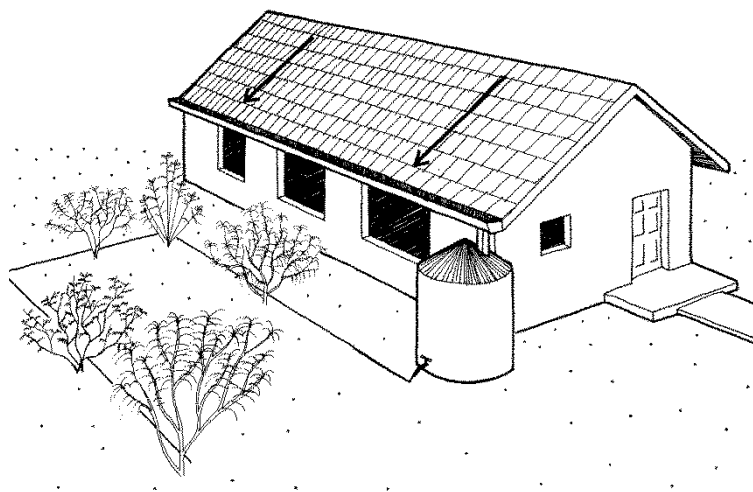




# Incentives Program Rebate

## Level 2 – Complex/Active:

- Incentive – rebate up to \$2,000 based on gallon capacity of cistern
  - \$0.25 per gallon capacity of 50-799 gallon cistern
  - \$1.00 per gallon capacity of 800 gallon and larger cistern
- Practices: rainwater storage tank with gravity-based supply use and overflow directed to landscape passive retention feature

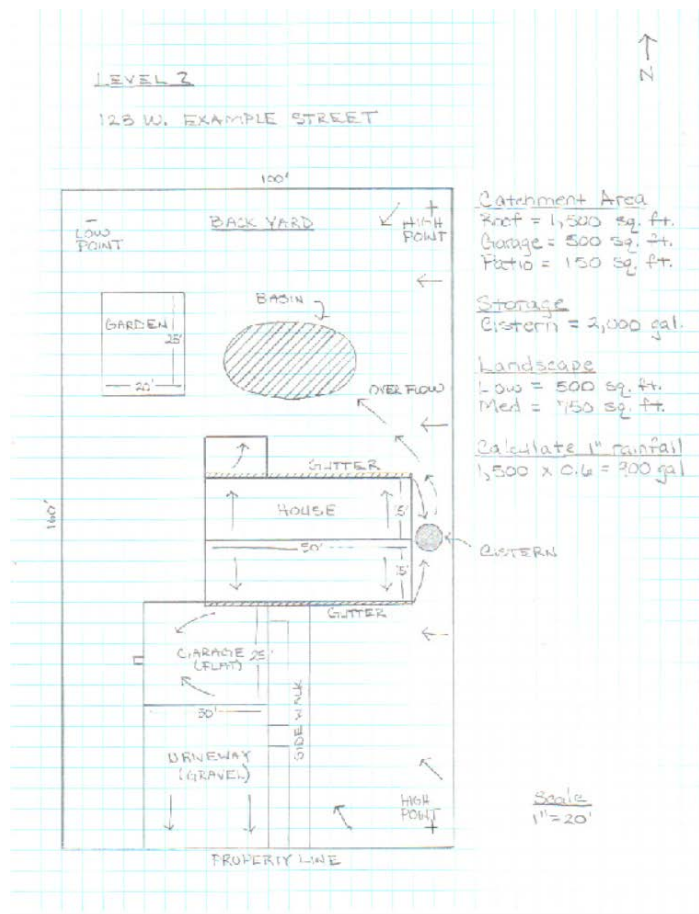


# Project Plan



A project plan must be submitted with application to demonstrate the selection, use, and anticipated outcomes of the practices

- Can be hand drawn
- Does not have to be to scale
- Show catchment area(s)
- Show the conveyance
- Show the storage
- Show dimensions







# Incentives Program Rebate

What the rainwater harvesting incentives program will **NOT** cover:

- imported soil to create passive rain garden practices
- purchase and delivery of gravel or decomposed granite (also known as DG or 1/4 minus)
- purchase or installation of pumps or associated controls, irrigation systems, or backflow prevention devices
- purchase or installation of landscaping materials such as plants, edging, decorative gravel, etc.
- installing, raising, or improving a driveway and removing concrete, asphalt, etc.
- purchase of tools such as shovels, rakes, drill bits, garden hoses, etc.
- labor completed by owner, neighbor, friend, or handyman



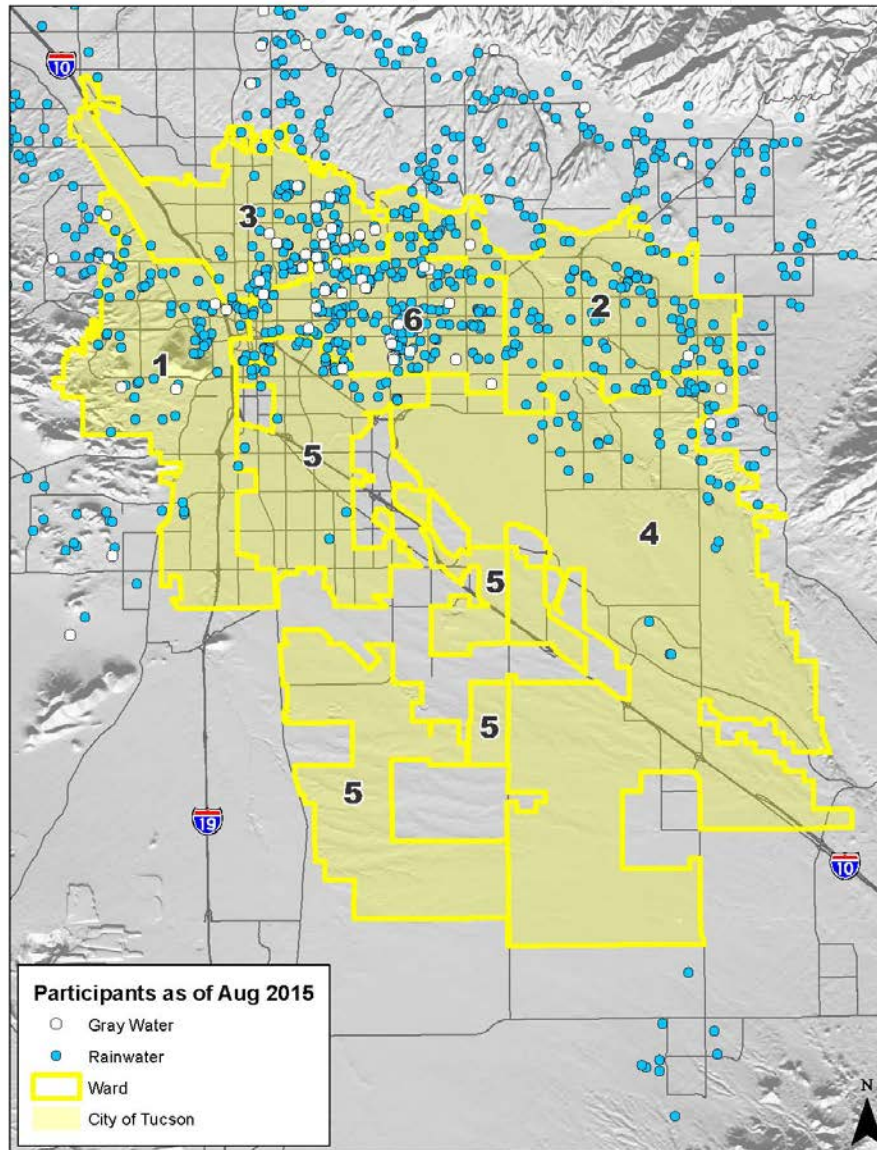


# Evaluation for Effectiveness

- Participation – workshop participants, applications, and spatial distribution
- Cost-Benefit Analysis – costs, benefits, and payback period
- Water Savings



# Rainwater Harvesting and Gray Water Rebate Program Participants



# Active Rainwater Harvesting



- Payback assuming water collected was a new source
  - One 50 gallon rain barrel filled five times collects 250 gallons annually – resulting in a **\$1.24** value based on current water rates
  - One 865 gallon cistern filled five times collects 4,325 gallons annually – resulting in a **\$21.45** value based on current water rates
  - One 2,825 gallon cistern filled five times collects 14,125 gallons annually – resulting in a **\$70.06** value based on current water rates
- 60+ year payback?



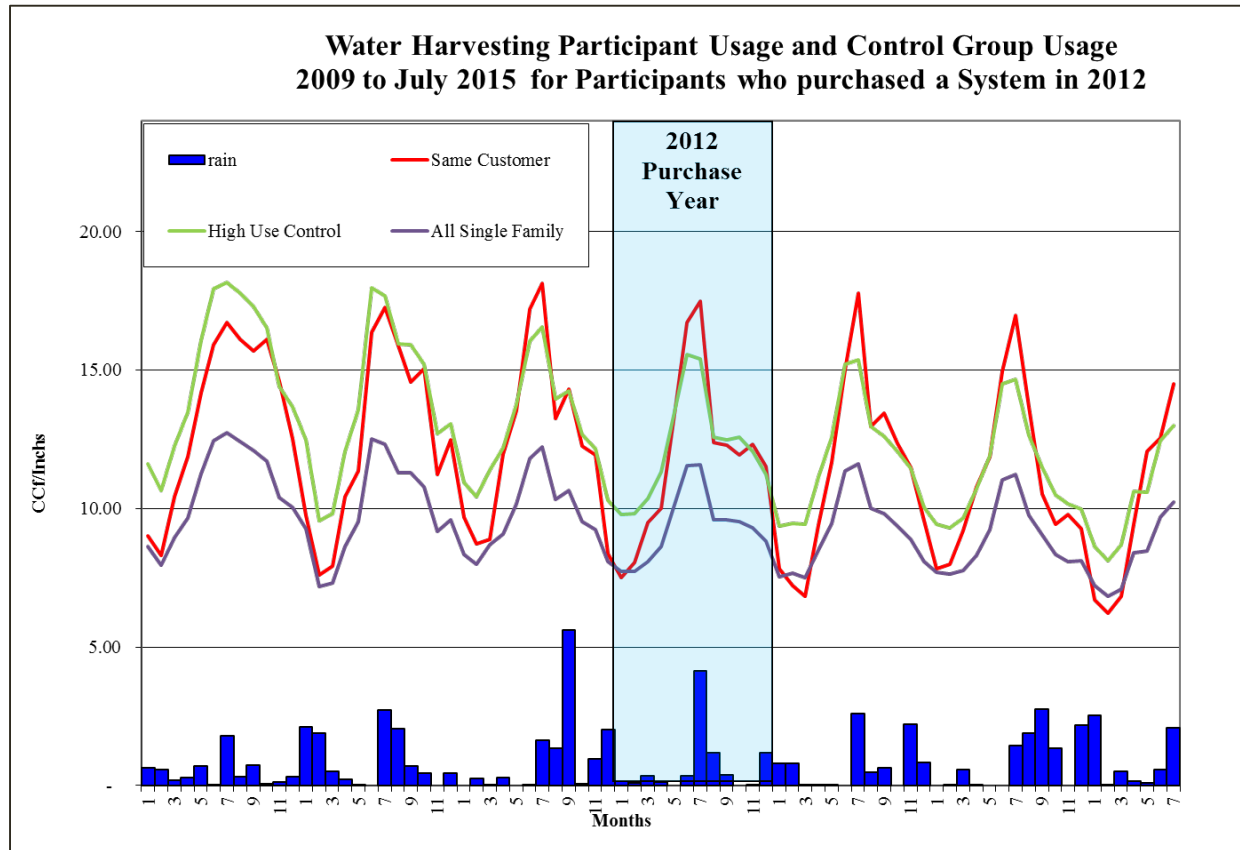
# Rainwater Harvesting Analysis



- As of July 2015, there were 127 program participants who purchased their rainwater harvesting systems in 2012, at locations where the customer has remained the same and the customer has been at the same address from January 2009, through July of 2015
- The average usage of these participants were compared to two groups
  - Relatively high water users, similar to the participants
  - All single-family rate class customers within the same quarter sections as participants



# 2012 Participant Analysis





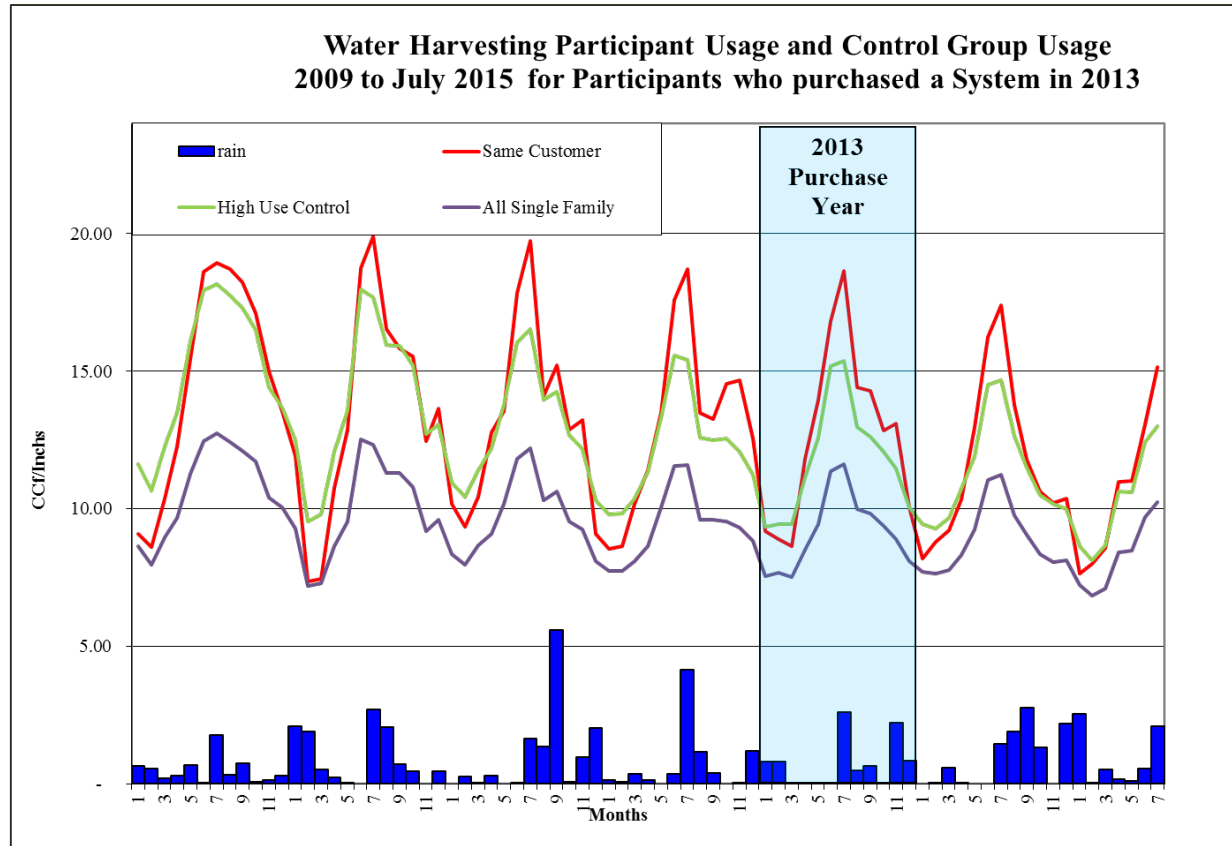


# 2012 Participant Analysis

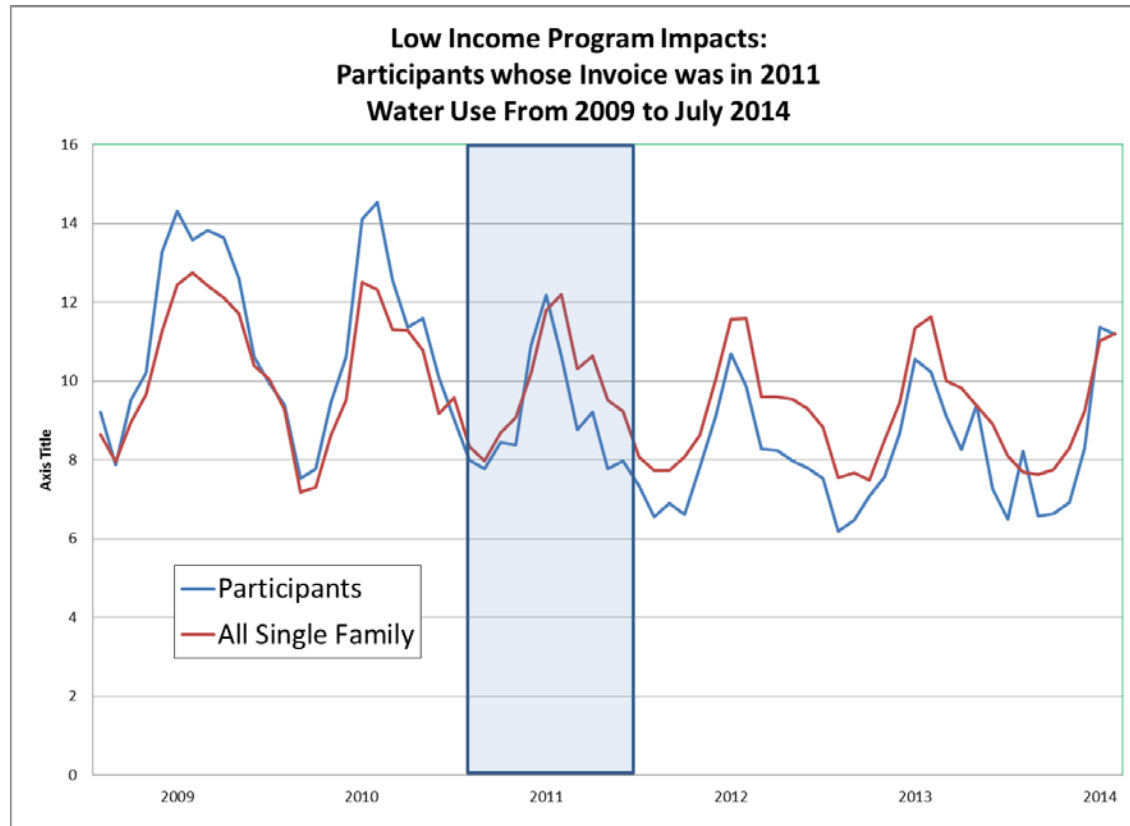
- The findings indicate that the participant's water use is relatively higher than the control groups after 2012, than it was before
- In the case of the high water use group, it is about 1.5 Ccf per month higher
- It is about 0.6 Ccf higher than the single-family class average
- It is not that participant water use has not fallen, it simply has not fallen as fast as it has among other groups



# 2013 Participant Analysis



# Successful HET Program



# Questions?

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[Tucsonaz.gov/water/rebate](http://Tucsonaz.gov/water/rebate)

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