

# This presentation premiered at WaterSmart Innovations

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CENTER FOR  
ReSource Conservation

# Conservation for Schools

Meeting Goals of Education and Water Savings

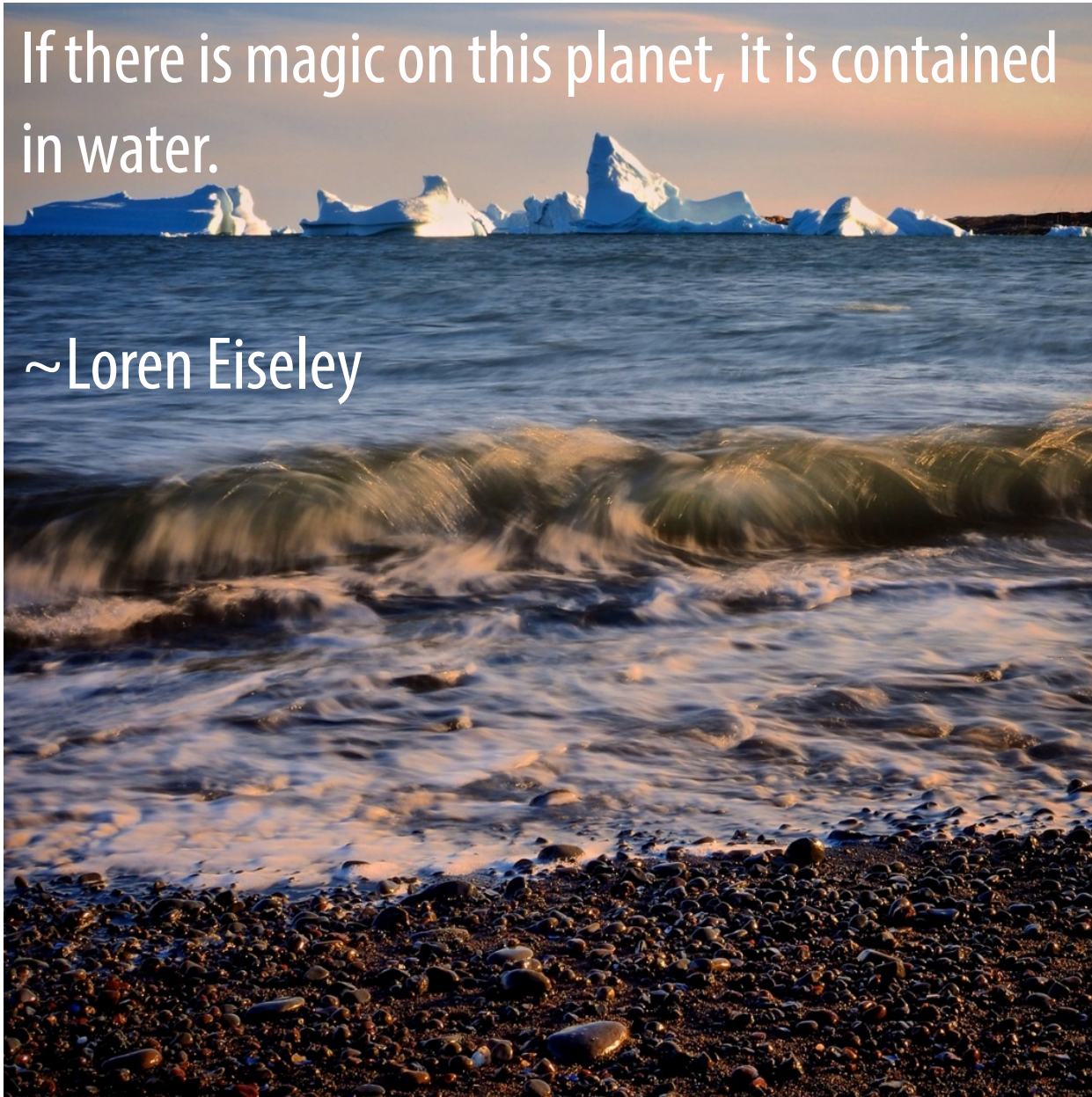
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Presentation by Morgan Shimabuku, Senior Manager of Sustainability Programs

Center for ReSource Conservation

If there is magic on this planet, it is contained  
in water.

~ Loren Eiseley



# Overview

- Center for ReSource Conservation
- Commercial Assessment Program
- Grant support for school district focused effort
- 20 Indoor Assessments
- 10 Outdoor Assessments
- Education throughout
- Ongoing efforts

# What is the Center for ReSource Conservation?

## CRC Mission

To put conservation into action

## CRC History

Founded in 1976 in Boulder, CO by a group of concerned citizens

## Geographic Reach

Colorado, Wyoming, partnership in Oregon

## CRC Program Areas

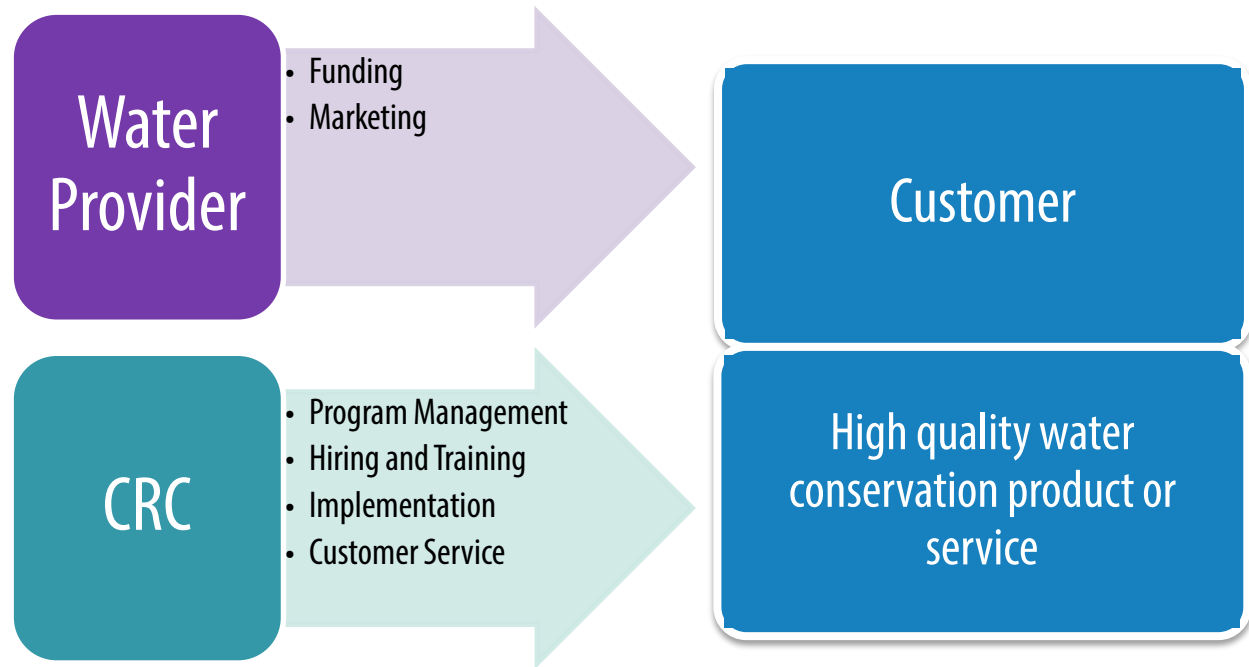
- Water
- Youth Engagement
- Materials/Reuse



# What is the Center for ReSource Conservation?

CRC programs help residents and businesses conserve water and help water providers meet conservation goals.

How it works



# CRC's Water Programs

- Putting **WATER**

action

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## By the Numbers

- 30 Water Provider Partners
- 5,000 Customer Interactions Per Year
- 7 Programs Offered
- 8,800,000 Million Gallons of Water Saved in 2015



Visit [Conservationcenter.org](http://Conservationcenter.org) for More Information!

# Commercial Assessment Program

- Program Description

- Free assessments
- Test all
- Water

## IMPACT

- 65 assessments performed since program start in 2014
- **29.5 million gallons** of identified water savings
- **\$200K** of identified cost savings

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- Target Cust

- Commercial e
- facilities; e.g. restaura
- homes, etc.

mens and restroom  
s, grocery stores, retirement



# Why focus on schools?

- Conservation Impact measurement led to understanding that schools had a lot of conservation potential.
- Also need to broaden water conservation education for students and for different industries.

# Grant Support

- Colorado Water Conservation Board (CWCB)
- \$48,000 which includes \$12.5K of matching funds from the grant to implement water conservation upgrades.
- School District Water Efficiency Project
  - 20 Indoor assessments
  - 10 Outdoor assessments
  - Education through student involvement and curriculum

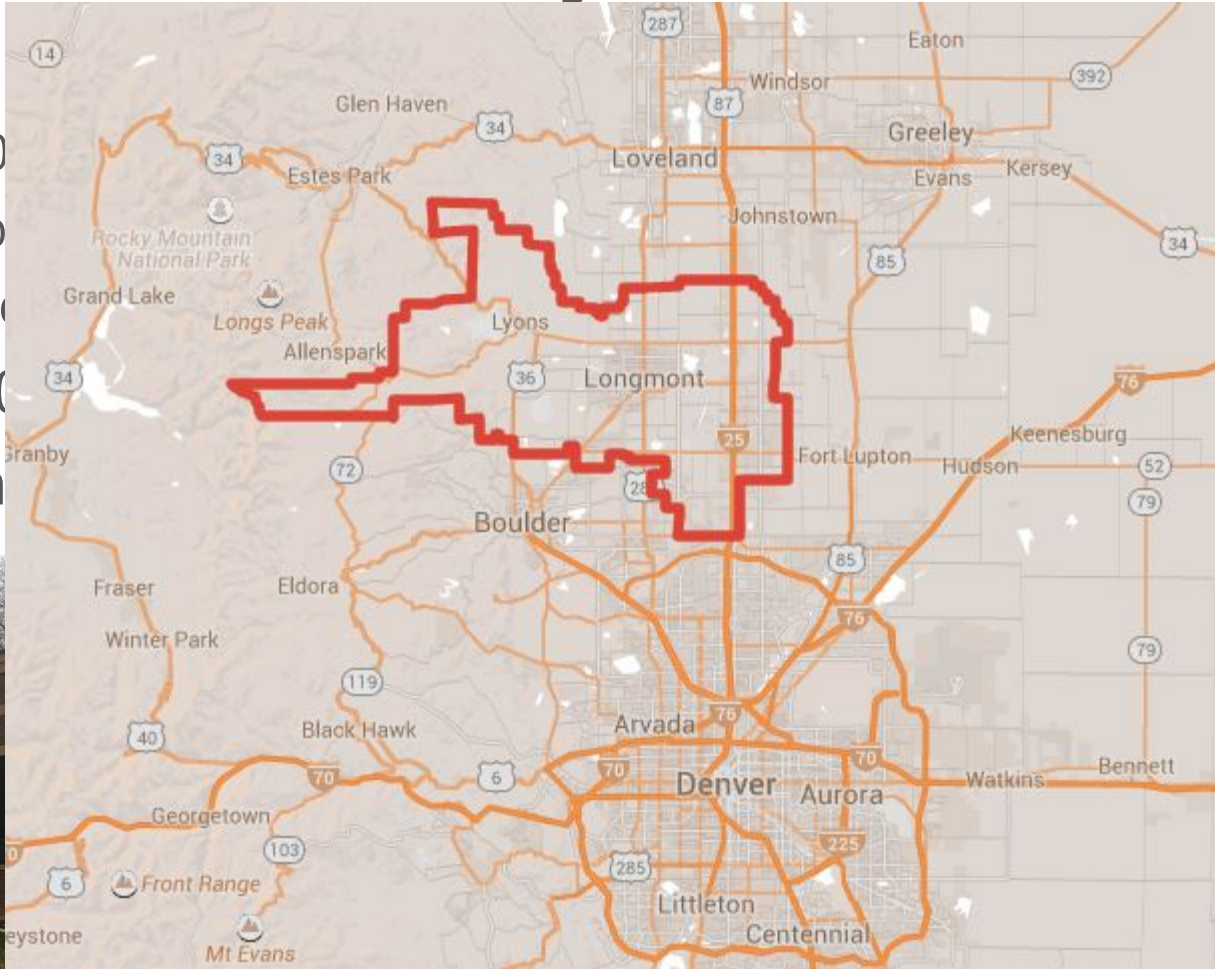
# Goals of project

- Identify and implement demonstrable water savings
- Educate students within the district on water conservation concepts and methods



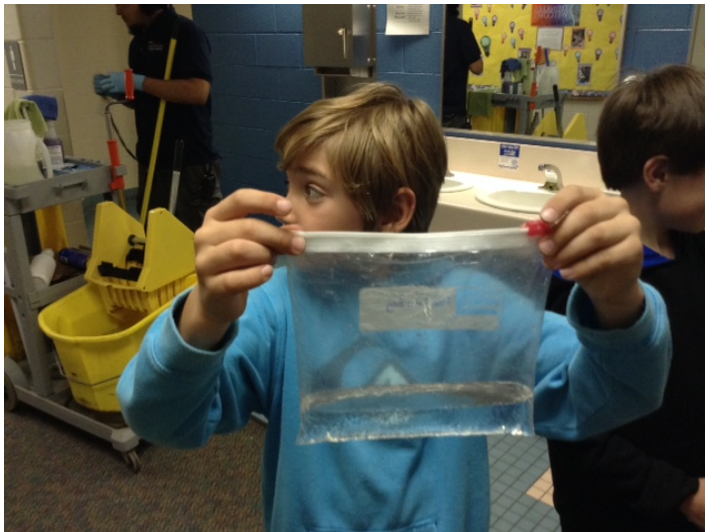
# St. Vrain Valley School District

- Based on 2013 U.S. Census Bureau data
  - 500,000 population
  - 100,000 households
  - 100,000 students
- 32,000 students
- 53 schools



\*Based on 2013 U.S. Census Bureau data

# Indoor Assessments



## 20 School Assessments

- Measured flow rate of all restroom and cafeteria kitchen sinks, some in classroom sinks as well
- Recorded appliance efficiency
- One elementary school provided “assistants”

# Indoor Assessments

## Results

	Water Savings (kgal)	Electricity Savings (kWh)	Natural Gas Savings (therm)	Water Cost Savings	Electric Cost Savings	Natural Gas Cost Savings	Total Cost Savings
Total	9,050	109,432	11,194	\$62,223	\$9,738	\$885	\$72,307
Mean	453	5,472	560	\$3,111	\$487	\$44	\$3,615



# Indoor Assessments

## Results

- Top opportunities for upgrades (based on % already meeting WaterSense Standards):
  - Flushometer Toilets (only 5% met WaterSense)
  - Clothes washer (only 11% were Energy STAR)
  - Dishwasher (only 17% were Energy STAR)
  - Steam Cookers (only 15% were Energy STAR)



# Outdoor Assessments

- Irrigation audits
  - Visual inspection of system
  - Catch-cup tests
  - Pressure measurements
  - Water schedule evaluation
- ET Analysis
  - Historical water usage
  - Landscape size
  - Historical ET
  - Assess efficiency







# Outdoor Assessments

- ET Analysis Results
  - Surprising!

School	Actual Water Usage 2012	Needed Water Usage 2012	Application Ratio	Actual Water Usage 2013	Needed Water Usage 2013	Application Ratio
Centennial ES	4,532	4,392	103%	2,829	3,310	85%
Erie ES	5,991	5,965	100%	4,317	4,170	104%
Niwot ES	3,043	3,167	96%	2,552	2,387	107%
Longmont Estates ES	5,082	4,759	107%	3,247	5,641	58%
MountainView ES	3,671	2,566	143%	2,387	1,934	123%
Coal Ridge MS	9,305	13,639	68%	7,323	10,703	68%
<del>Erie MS</del>	<del>2,908</del>	<del>4,821</del>	<del>60%</del>	<del>3,094</del>	<del>3,370</del>	<del>92%</del>
Trail Ridge MS	7,499	5,425	138%	7,162	4,089	175%
<del>Erie HS</del>	<del>15,887</del>	<del>32,327</del>	<del>49%</del>	<del>10,059</del>	<del>22,598</del>	<del>45%</del>
<b>Average</b>	6,227	8,562	96%	6,227	6,467	95%
<b>Sum</b>	62,269	77,062		62,269	58,201	

\*All water volumes in thousands of gallons (kgal)

# Water Education

- During Indoor Assessments
- Curriculum database
- Plans for involving students in installation of aerators in at least one of the schools



# Ongoing efforts

- Still have to figure out what to buy with matching funds
- Measure impact



# Thank you!

Questions?

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