



# Water Champions Project Presentation

FY 2016 EPA Pollution Prevention Grant Program  
EPA-HQ-OPPT-2016-002

The Water/ Energy Nexus  
Saving Water and Energy through the Water  
Champions Program  
“Cape May Water Champions Program”

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# What is Water Champions?

The history and beginnings of this project...

## Water Champions is an education-based program started by EPA and Rutgers University in a 2009 – 2013 Pilot Program

The Water Champions program is designed to educate students about the status of their current potable water supply, the impacts of overuse, reveal opportunities in which they can increase efficiency/conservation practices, and finally, influence their school and community to do the same. It is the goal of the Water Champions program to create replicable curricular infrastructure to support the education of these issues and to provide a platform for authentic student research, assessment, discussion, and outreach.

# Why Take Education as an Approach?

A Service-Learning Project

**Raise public awareness** →  
help the public to easily  
understand water supply  
in a more fun, rewarding  
and engaging manner

**Empower the Communities**  
→ engage communities in  
the Conservation Program  
and encourage their active  
participation

# 7 Core goals of Water Champions Program



Enables the students to teach the community about responsible water management



Enables students to promote businesses to participate in water conservation



Gathers data and calculates measurable results



Shares project outcomes to other groups, EPA, and expands recruitment to other groups



Establishes effective local leadership



Fosters longevity and sustainability



Creates effective communication/coordination between EPA and the local Water Champions leadership

# Student Lead Change

- The students evaluate their home water use as well as perform a water audit of the school
- Based on the results of that audit they present their findings and recommendations to the school board or school management
- Additionally, students work with businesses in their community to perform audits and recommend retrofits to the participating business
- NJDEP and ALS work with the schools and business to implement the students recommend retrofits

# Water Champions Grant The 2016 – 2023 Project Period

A joint venture between Environmental Protection Agency, New Jersey Department of Environmental Protection and American Littoral Society.

# Background:

## Cape May and Lower Delaware Bayshore Water Champions

- Using that original program as a model, NJDEP partnered with American Littoral Society and EPA to implement Water Champions in the Cape May region
- This second iteration of the program began in October of 2016
- During the October 2018 – March 2019 Period, supplemental funding and the first No Cost Time Extension to expand the program into the Lower Delaware Bayshore region



# Water Champions in Schools: Learning into Action

- NJDEP worked with ALS to develop a modular curriculum supplement for use in schools
- ALS and NJDEP work with local school districts and partners to bring Water Champions into the classroom
- The students learn about water conservation and complete 3 water usage audits:
  - Home water use audit
  - School water use audit
  - Local business water use audit
- The audits are used to identify wasteful fixtures that can be replaced with high efficiency WaterSense or equivalent models to save water, money, and energy
  - The grant provided funding for retrofits
- The overall goal is to reduce water and energy usage by engaging the local community to work together to find solutions

# Water Champions in Schools: Measurable Results

- Water use data collection
  - Water audit device estimates
  - Water bill data
- Measurable result calculations
  - Water savings (gallons)
  - Cost savings (\$)\*
  - Greenhouse gas reductions (MTCO<sub>2</sub>e)\*

\*Cost and greenhouse gas reductions were calculated using the EPA Pollution Prevention Calculators  
<https://www.epa.gov/p2/pollution-prevention-tools-and-calculators>

# Water Champions in Schools

	<u>Region</u>	<u>School</u>	<u>Program Years</u>	<u>Status</u>
Base Funding	Cape May	Ocean City High School	2017, 2018	Program Complete
		Wildwood High School	2018, 2019	Program Complete
		Lower Cape May Regional High School	2018, 2019	Program Complete
Supplemental Funding	Delaware Bayshore	Indian Avenue School	Spring 2021	Program Complete
		Anthony Rossi Elementary School	Spring 2021	Program Complete



# Ocean City High School

Decision Makers Engaged: 7

Students Engaged: 85

School Audits: 2

Retrofit Installation Year: 2018

Number of Devices Installed: 18

Total Water Saved: 3,408,679.92 gallons

Total Cost Savings: \$17,618.22

Total GHG Emission Reductions: 8.934 MTCO<sub>2</sub>e

Businesses Engaged: Flanders Hotel & 4<sup>th</sup> Street Cafe

# Water Champions Businesses: Ocean City High School

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## Flanders Hotel

- **Devices Installed: 4 toilets**
- **Total Water Saved: 143,000 gallons**
- **Total Cost Savings: \$739.10**
- **Total GHG Emission Reduction: 0.375 MTCO<sub>2</sub>e**

## 4<sup>th</sup> Street Cafe

- **Devices Installed: 1 toilet**
- **Total Water Saved: 11,700 gallons**
- **Total Cost Savings: \$60.48**
- **Total GHG Emission Reduction: 0.03 MTCO<sub>2</sub>e**



# Wildwood High School

Decision Makers Engaged: 10

Students Engaged: 27

School Audits: 2

Retrofit Installation Year: 2018

Number of Devices Installed: 8

Total Water Saved: 48,820 gallons

Total Cost Saving: \$242

Total GHG Emission Reduction: 0.125 MTCO<sub>2</sub>e





# Water Champions Businesses: Wildwood High School

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## Key West Café

- **Devices Installed: 6**
  - 3 toilets and 3 sinks
- **Total Water Saved: 245,610 gallons**
- **Total Cost Savings: \$1,269.45**
- **Total GHG Emission Reduction: 0.645 MTCO<sub>2</sub>e**

## Additional Business Audits

- **Garibaldi's – Wildwood, NJ**





# Lower Cape May Regional High School

Decision Makers Engaged: 5

Students Engaged: 25

School Audits: 1

Retrofit Installation Year: 2019

Number of Devices Installed: 118

Total Water Saved: 5,201,333.35 gallons

Total Cost Savings: \$26,883.80

Total GHG Emission Reduction: 13.635 MTCO<sub>2</sub>e





# Water Champions Businesses: Lower Cape May Regional HS

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## Aloha Smoothie Co.

- Devices Installed: -
- Total Water Saved (Gallons): -
- Total Cost Savings (\$): -
- Total GHG Emission Reductions (MTCO<sub>2</sub>e): -

## Little Danny's Ice Cream

- Devices Installed: 1 toilet
- Total Water Saved: 5,000 gallons
- Total Cost Savings: \$25.85
- Total GHG Emission Reductions: 0.015 MTCO<sub>2</sub>e

# Water Champions Expands: Delaware Bayshore

- EPA provided supplemental funding to replicate the Water Champions program in the Delaware Bayshore region of the state
- The program is focused on Salem and Cumberland Counties
- Adapted to address local issues including the importance of the Kirkwood Cohansey Aquifer and the related issues facing the Maurice River, Salem River and Cohansey River Watersheds.

# Water Champions in School: Delaware Bayshore Region

- Two Schools Participated in the Program:
  - Indian Avenue School – Spring of 2021
  - Anthony Rossi School- Spring of 2021
- This portion of the project including the school programming was heavily impact by COVID-19 public health emergency
- In school lessons had to be postponed and NJDEP/ALS worked to transition the program to support virtual learning
- Business audits and business audit lessons had to be revised



# Anthony Rossi School

Decision Makers Engaged: 3

Students Engaged: 5

School Audits: 1

Number of Devices Installed: 26

Total Water Saved: 22,114.47 gallons

Total Cost Savings: \$114.30

Total GHG Emission Reductions: 0.058 MTCO<sub>2</sub>e



# Water Champions Businesses: Anthony Rossi School

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## Larry's II in Vineland

- Devices Installed: 14
  - 6 Toilets, 3 urinals, and 5 sinks
- Total Water Saved: 20,521.12 gallons
- Total Cost Savings: \$106.06
- Total GHG Emission Reductions: 0.054 MTCO<sub>2</sub>e

## Other Business Engagement

- Maplewood- Vineland, NJ



# Indian Avenue School

Decision Makers Engaged: 3

Students Engaged: 60

School Audits: 1

Device Installation Year: 2023

Number of Devices Installed: 42 aerators

Total Water Saved: 313,500 gallons

Total Cost Savings: \$1,620.37

Total GHG Emission Reductions: 0.822 MTCO<sub>2</sub>e



# Water Champions Businesses: Indian Avenue School

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## Laurel Street Café

- Devices Installed: 4
  - 2 Toilets and 2 Faucets
- Total Water Savings: 14,625 gallons
- Total Cost Savings: \$75.60
- Total GHG Emission Reductions: 0.039 MTCO<sub>2e</sub>



# Additional Businesses

- **Wawa** – Cape May, NJ (Lower Cape May Regional)
- **Escape Cape May** – Cape May, NJ (Lower Cape May Regional)
- **Aloha Smoothie Company** – Cape May, NJ (Lower Cape May Regional)
- **Watson Regency Suites** – Ocean City, NJ (Ocean City High School)
- **Jon & Patty's** – Ocean City, NJ (Ocean City High School)
- **Garibaldi's** – Wildwood, NJ (Wildwood High School)
- **Maplewood** – Vineland, NJ (Anthony Rossi School)



# Water Champions Business: Summary of Outputs

	School	Decision Makers Engaged	Students Engaged	School Audits	Water Saving Measures Taken
Cape May	Ocean City High School	7	85	1	18
	Wildwood High School	10	27	2	36
	Lower Cape May Regional High School	5	25	1	118
DE Bayshore	Indian Avenue School	3	60	1	42
	Anthony Rossi Elementary School	3	5	1	26
Total		28	202	6	240

# Water Champions Schools: Summary of Measurable Results

	School	# Of devices installed	Water Saved (gallons)	Cost Saving (\$)	Estimated Reduction in Metric Tons of Carbon Dioxide Equivalent (MTCO2e)
Cape May	Ocean City HS	18	3,408,679.92	\$17,618.22	8.934
	Wildwood HS	8	48,820	\$242	0.125
	Lower Cape May HS	118	5,201,333.35	\$26,883.80	13.635
DE Bayshore	Indian Avenue School	42	313,500	\$1,620.37	0.822
	Anthony Rossi Elementary School	26	22,114.47	\$114.30	0.058
Total		229	8,994,447.74	\$46,478.69	23.574

# Water Champions Businesses: Summary of Measurable Results

	School/Group	Business Name	# Devices Installed	Water Saved (gallons)	Cost Saving (\$)	Reduction in Metric Tons of Carbon Dioxide Equivalent (MTCO2e)
Cape May	Ocean City High School	Flanders Hotel	4	143,000	\$739.10	0.375
		4 <sup>th</sup> Street Café	1	11,700	\$60.48	0.03
	Wildwood High School	Key West Café	6	245,610	\$1,269.45	0.645
	Lower Cape May Regional High School	Aloha Smoothie Co.	0	-	-	-
		Little Danny's Ice Cream	1	5,000	\$25.85	0.015
DE Bayshore	Bridge the Gap	Laurel Street Café	4	14,625	\$75.60	0.039
	Anthony Rossi School	Larry's II in Vineland	14	20,521.12	\$106.06	0.054
TOTAL			30	440,456.12	\$2,276.54	1.158

Project Period Reductions	# of Devices Installed	Water Saved (Gallons)	Cost Savings (\$)	Estimated Reduction in Metric Tons of Carbon Dioxide Equivalent (MTCO2e)
Total Schools	229	8,994,447.74	\$46,478.69	23.574
Total Businesses	30	440,456.12	\$2,276.54	1.158
Totals	259	9,434,903.86	\$48,755.23	24.732

**Total Estimate Measurable Results for Project Period**

# Water Champions: Other Project Deliverables



Business Recognition Ceremony – revised to partner recognition to include schools

Water Champions Curriculum Supplement

Case Studies

Enhanced Deliverables

- Webpage
- Story Map Web Application

# Water Champions: Partner Recognition

- In consultation with EPA this deliverable was revised first to a virtual event which was planned for September 2022
- Due to low response rate NJDEP worked with EPA project managers to further revise this deliverable but still result in recognition of partners
- NJDEP a series of activities to recognize and celebrate all of those who have participated, and completed, in the Water Champions program.
  - Social Media video was posted to the main NJDEP Facebook page to thank all at the end of the project period
  - Partner Recognition Packages- letters, certificates, window clings and plaques

# Partner Recognition

Social Media Posts,  
Plaques and  
Window Clings



This plaque is presented to

**LOCATION NAME**

In recognition of the completion  
of the

**New Jersey Water  
Champions Program**

Thank you for the steps you have  
taken to positively impact  
your community through  
water conservation practices

We are a New Jersey



Water Conservation Champion!

# Water Champions Curriculum Supplement

- Includes 4 Core Concepts
- 15 individual lessons
- Can be completed fully or in parts

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# Case Studies



## WATER CHAMPIONS CASE STUDY



### Ocean City High School

Ocean City High School participated in the Water Champions Program between 2017 and 2018. The engaged students conducted audits at both the high school and local intermediate school, as well as four local businesses. Retrofits were conducted at the intermediate school and two of the businesses, and 23 devices were replaced across the three locations. These resulted in approximately 250,000 gallons of water reduced, \$1300 saved, and a greenhouse gas reduction of 0.65 MTCO<sub>2</sub>e in total annually for the three locations.

#### Background

Ocean City High School in Ocean City, NJ was the first school in the Cape May region to be recruited under the 2016 Water Champions grant. Two cohorts of Water Champions participated over the course of two years, led by the school's AP Environmental Science teacher, Michael Pomatto. The students received 10 sessions of water conservation education presented by the American Littoral Society (ALS) in which they learned about Cape May's saltwater intrusion issues and were trained to conduct water audits. The students were tasked with researching technological and behavioral water usage habits in their homes, school, and local businesses before conducting audits of each of these locations. Their goal was to identify fixtures that could be replaced with more energy and water efficient models in order to conserve water across their community.

#### Water Audits

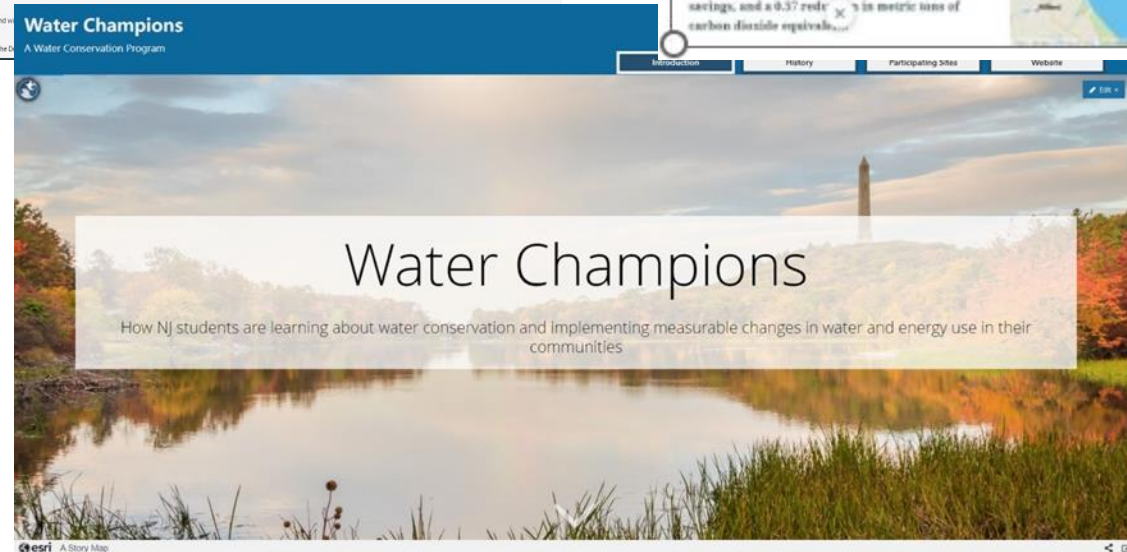
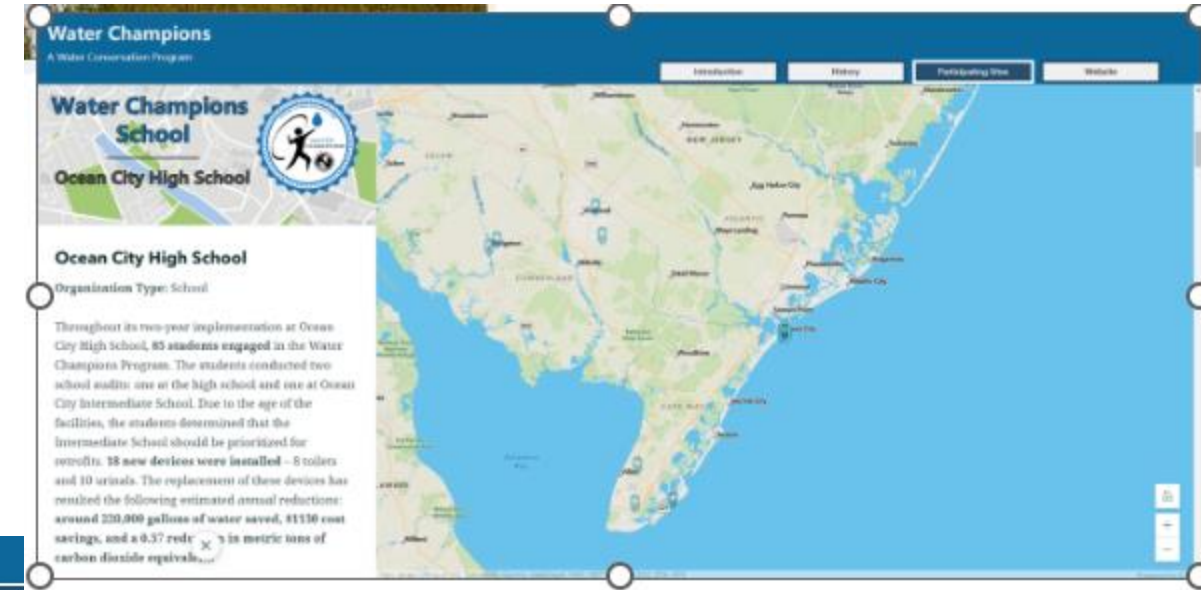
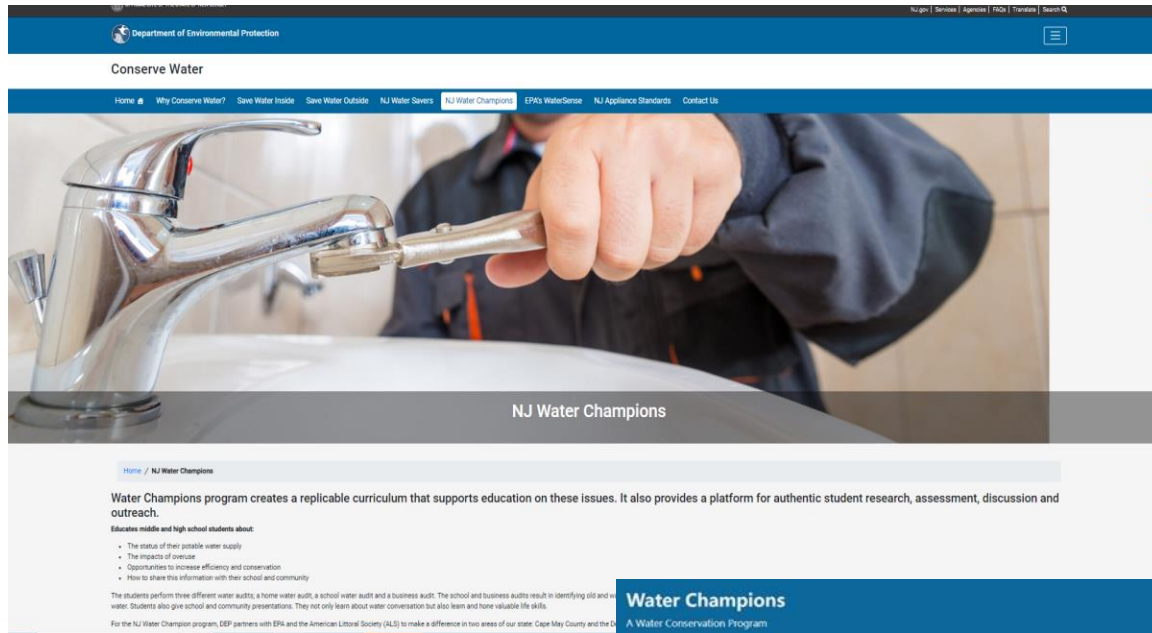
The first cohort conducted a water audit of the high school, and the second cohort audited Ocean City Intermediate School, the nearby middle school. Based on the findings of the audits, the students determined that the greatest savings would come from upgrading the two most-used restrooms at the intermediate school due to their older and less water-efficient fixtures. As such, Ocean City Intermediate school was chosen to receive grant money to install high efficiency devices in the identified restrooms.

#### Case Study Highlights

- **Location:** Ocean City, NJ
- **Participating Sites:** 3
- **Devices Replaced:** 23
- **Water Savings:** An estimated 250,000 gallons per year across the three locations
- **Cost Savings:** An estimated \$1,300 per year across the three locations
- **Greenhouse Gas Reduction:** An estimated 0.65 per year across the three locations



# Enhanced Deliverables



# Project Challenges

## Staffing

- NJDEP Furloughs
- NJDEP and ALS staff turnover
- Contracting coordination and modifications

## COVID-19 Pandemic

- School Closures-Virtual Pivot
- Business closings and staff issues
- NJDEP business practices (virtual meetings, invoice payment and processing)

## Seasonality

- School Programing
- Cape May seasonal shore community

## Data Collection

- Water Audits conducted by students
- Water Bills

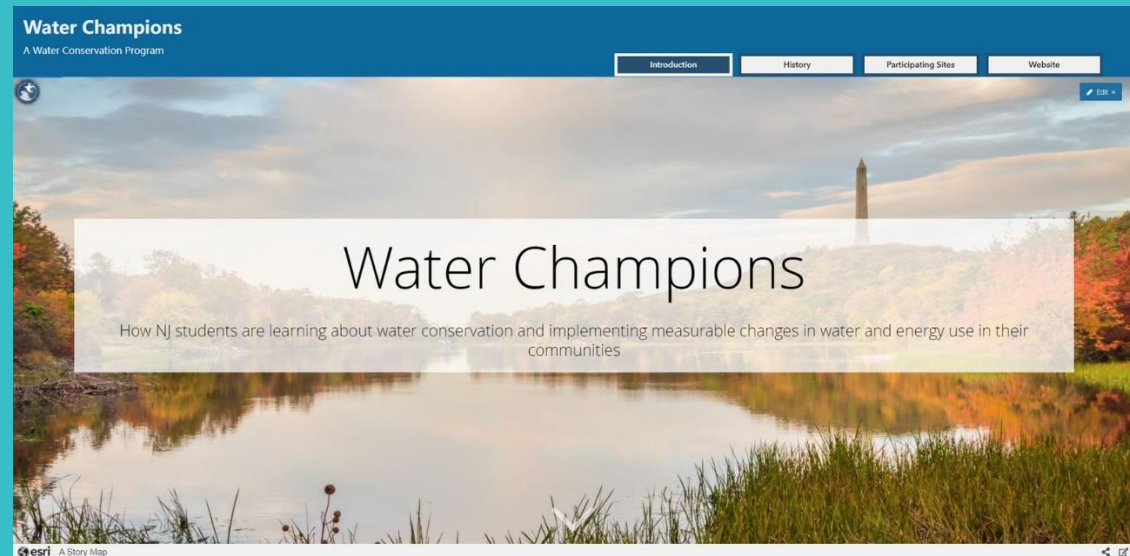
# Lessons Learned...

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# The Future of Water Champions...

- Living Documents
  - Story Map
  - Curriculum Supplement
- Watershed Ambassadors
- Coordination with NJ Sustainable Business



# Thank you!

Water Champions is a collaborative program that has depended on the partnership of ALS, EPA, and the participating schools and businesses for its past, current, and continued success

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# Questions?

The floor is now open for questions and comments.