

# The Science of Compliance

Empowering Boaters with “The Tools”



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Gulf & South Atlantic Regional  
Panel on Aquatic Invasive Species



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- The importance of compliance
- Barriers to AIS prevention action
- Pilot sites and example locations
- 3rd party research
- Future research



# Overview



Invasive  
Species  
Cost to  
U.S./ year



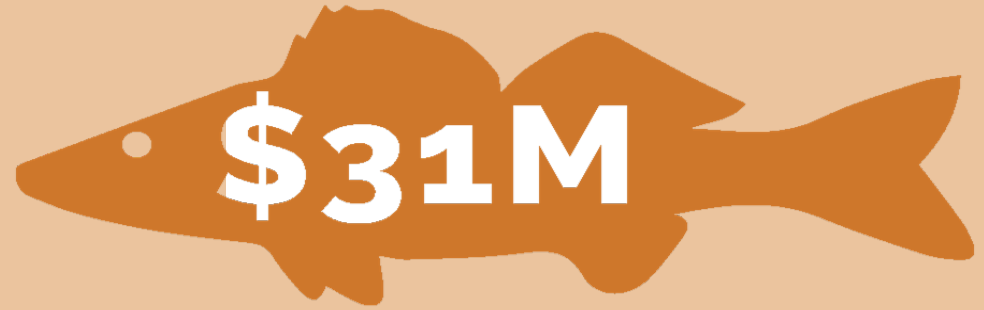
Over 36,000  
Public Boat  
Launches



Existing  
solutions are  
costly &  
cannot scale



# Problem



- 2 Species in 2010
- 60% plankton Loss
- 2016 fishery closed

- 1 County
- 1 Fishing season lost
- 1 Lake



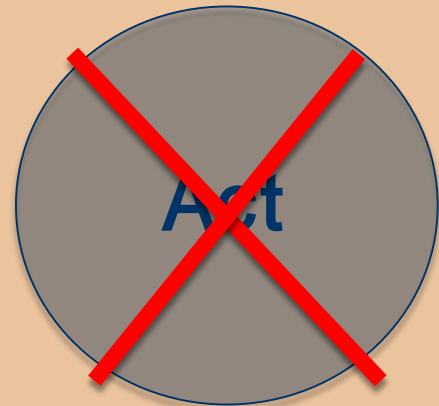
**Collapse: Mille Lacs**



Clean, Drain,  
Dry, & Dispose



Plan  
to  
Act



CBSM to BMP's

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# Example: my first car... not a Ferrari

- Marketing
- High brand value
- All the cool kids are doing it
- Barriers



Outreach has Limits

# Example: CFL Light Bulbs

- Rampant messaging
- Low recycle rates
- Centralized drop off
- All the cool kids are not doing it
- Barriers to action



Failure: Recycle CFL

# AIS survey says...“Give ‘em the TOOLS”

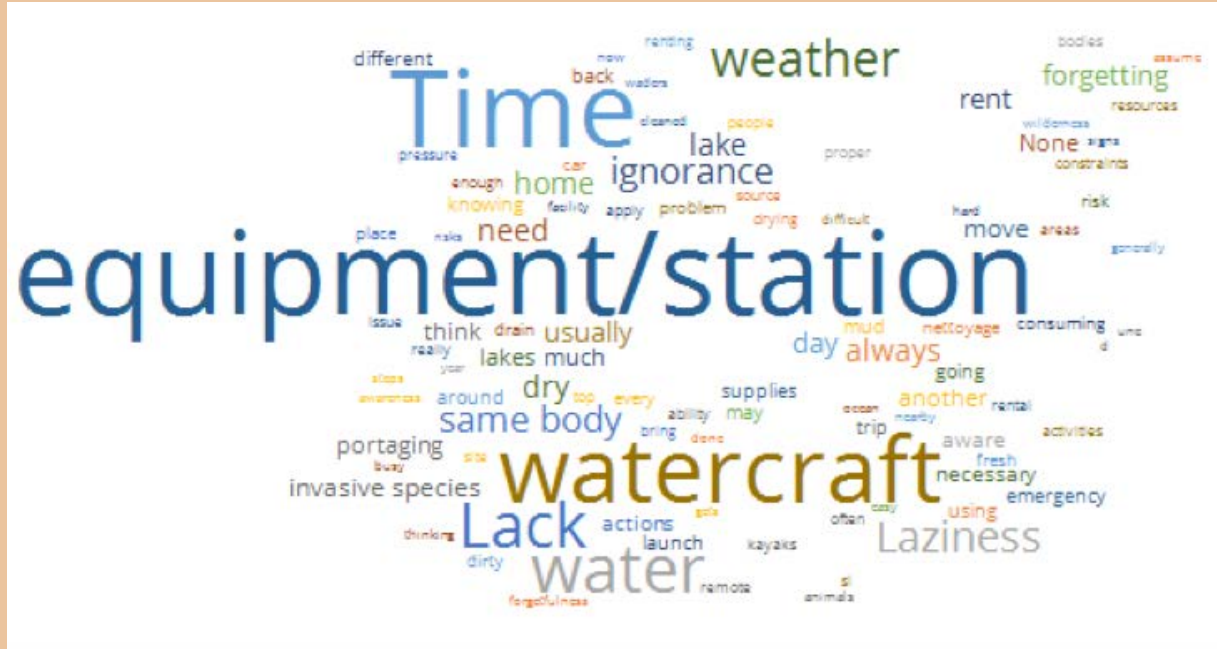


Image Courtesy of Canadian Council on Invasive Species



# Empowering Action



# Goals of 2017 Pilot

- Empower “day boaters”
- 5 locations
- Diversity of boater types
- Small - large launches
- Clean-in vs. clean out
- Urban - rural landscape
- Oligotrophic - eutrophic



## Pilot Sites

# Non-Profit Partners



# Pilot Sponsors



# Public Support



Minnesota Pollution Control Agency

Minnesota DNR

Texas Park & Wildlife

Sea Grant Minnesota

# Pilot Partnerships



Design 1.0

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IoT connected

Tethered tools

Compressed  
air



Marine LED lights

Solar Powered

Wet/ dry vac



# Pilot Design

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# CD3 STATION REMOTE PORTAL

Views ▾ Grids ▾ Actions ▾

### Stations

▼	Status ▼	Name	Location	Air Button ▼	Last Repo ▼	Vacuum B ▼	Light Butt ▼	Off Button ▼	Tool 1 Use ▼	Tool 2 Use ▼	Tool 3 Use ▼	Compress ▼	Tank Leve ▼	AC Voltage
▲	● Normal	Station #1	Bryant Lake	74 times	7/17/2017 2:49 PM	62 times	20 times	65 times	208 times	150 times	436 times	47 times	11%	3 volts

Map Navigate Details Provision View All



	Reading	Value	Date	History
●	Tank Level	11%	7/17/2017 2:49 PM	
●	AC Voltage	3 volts	7/17/2017 2:49 PM	
●	Air Button Uses	74 times	7/17/2017 2:49 PM	
●	Vacuum Button Uses	62 times	7/17/2017 2:49 PM	
●	Light Button Uses	20 times	7/17/2017 2:49 PM	
●	Off Button Uses	65 times	7/17/2017 2:49 PM	
●	Tool 1 Use Count	208 times	7/17/2017 2:49 PM	
●	Tool 2 Use Count	150 times	7/17/2017 2:49 PM	
●	Tool 3 Use Count	436 times	7/17/2017 2:49 PM	
●	Compressor Uses	47 times	7/17/2017 2:49 PM	



# MyCD3Station.com

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CLEAN-DRAIN-DRY-DISPOSE

**CD<sup>3</sup>**

**WATERCRAFT  
CLEANING INSTRUCTIONS**

BY BOATERS  FOR BOATERS™

Please select your boat type:



Clean off trailer

10 / 20



Suck out all water in boat

8 / 20



Check for zebra mussels

15 / 20



Education



# Bryant Lake



# Pike Lake

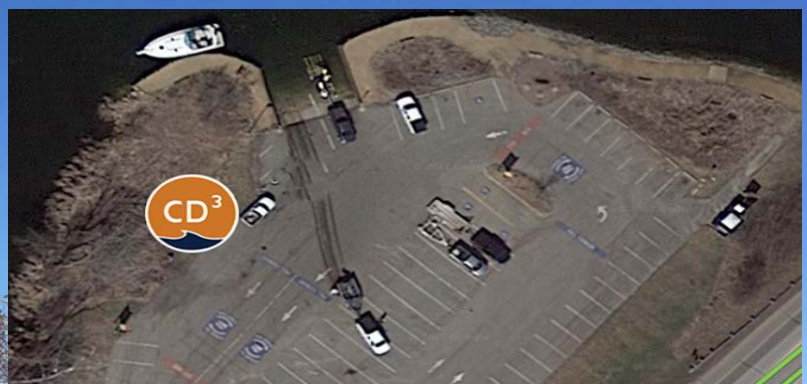




# Minnetonka - 1

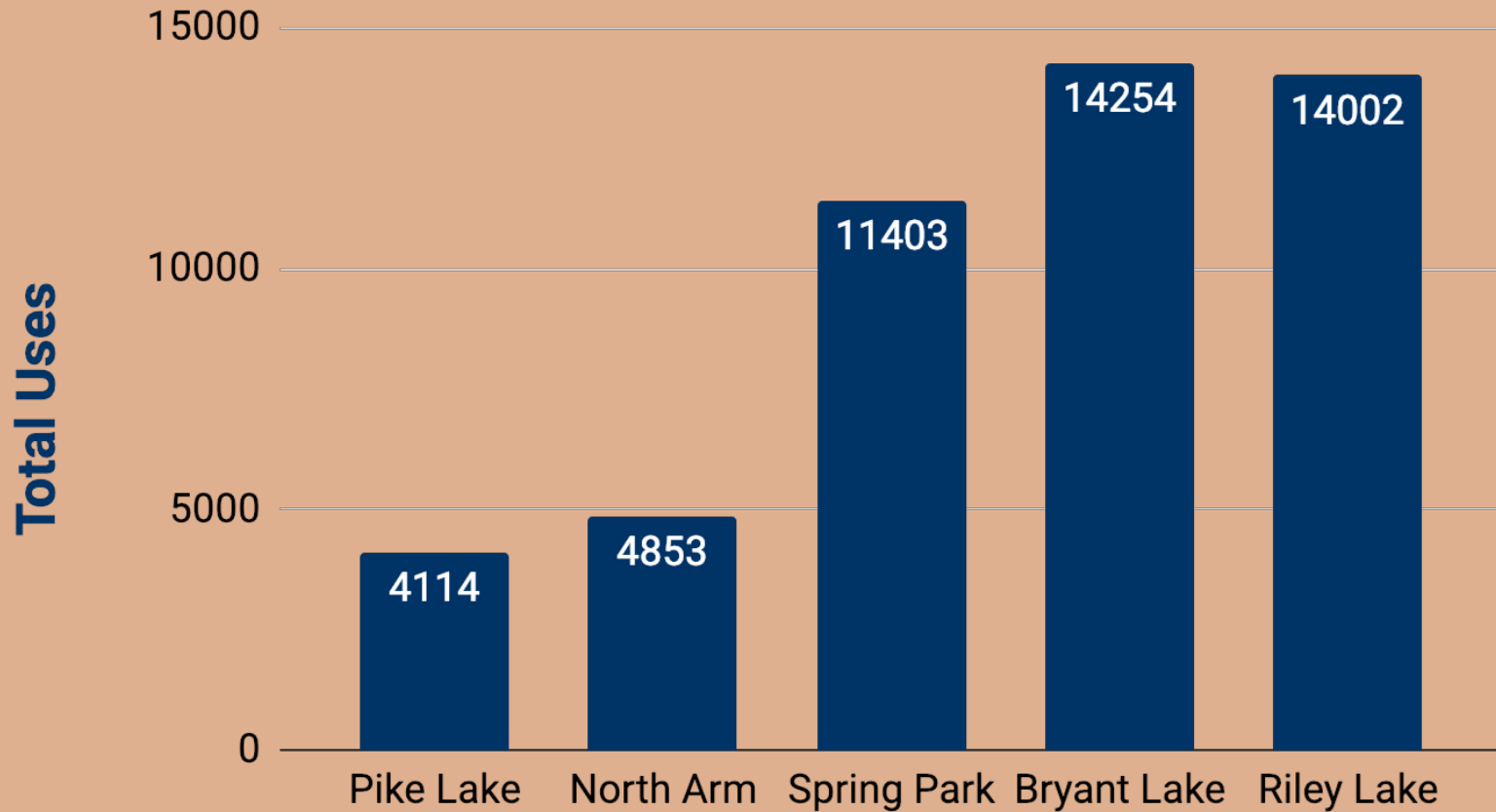


# Lake Riley

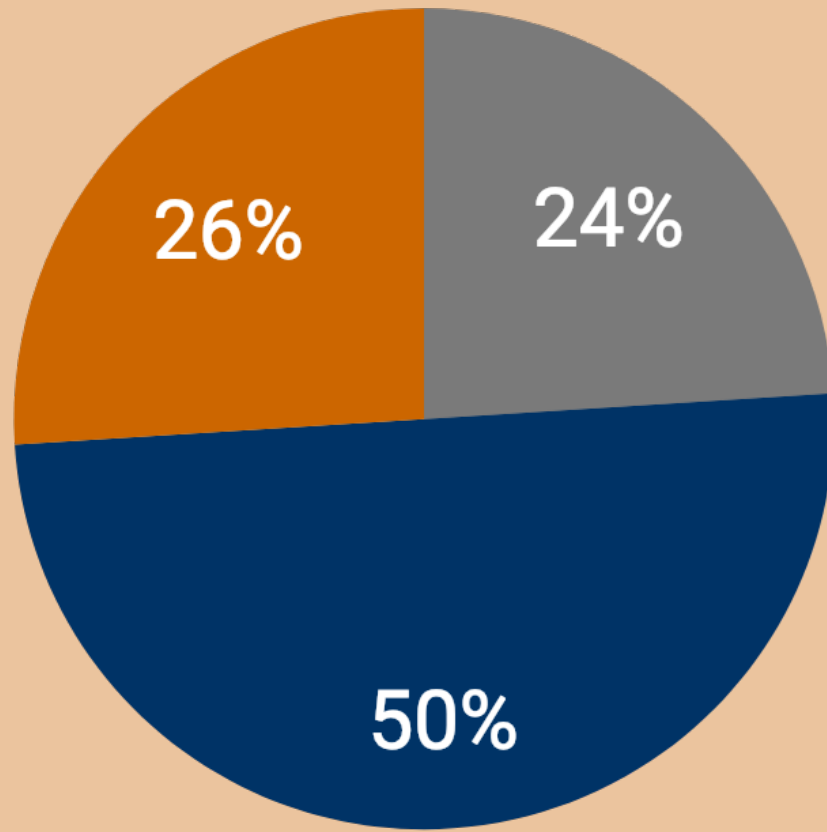


# Minnetonka - 2

# Total Uses for 2017-2018 Pilot



**28,487+ Uses**



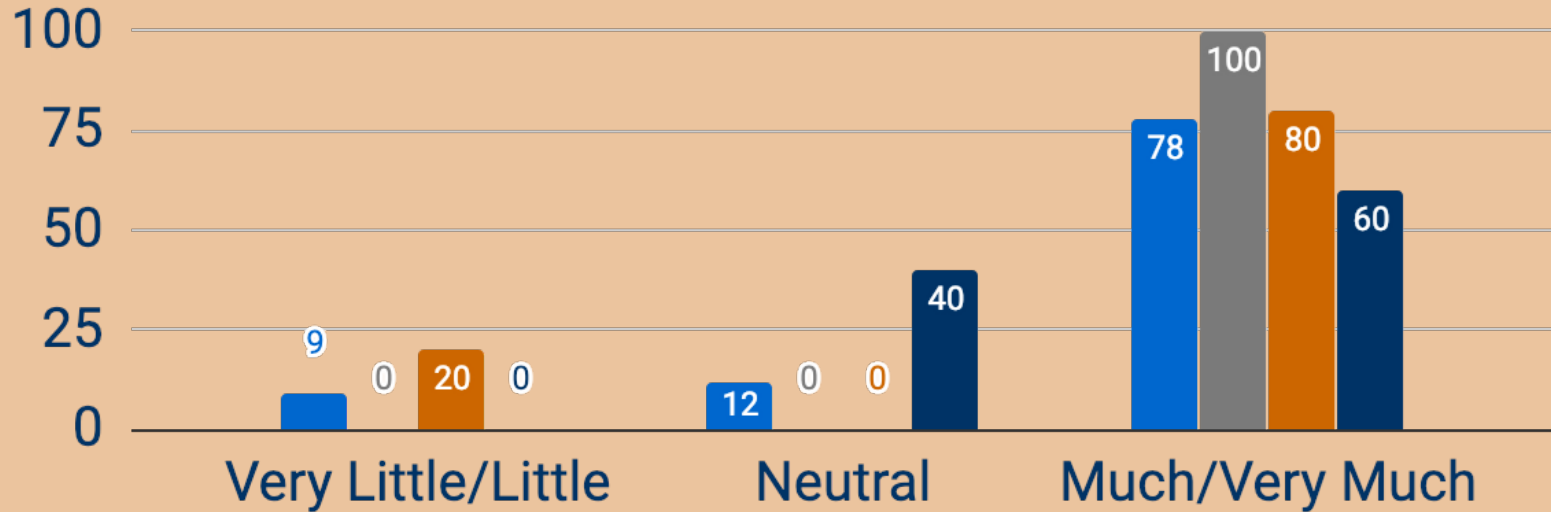
● < 3 Minutes ● 3-5 Minutes ● 5-10 Minutes

\*Source: Three Rivers Park District 2019 Survey



# Length of Time Used

# Percentage of Respondents



## Tasks



\*Source: Three Rivers Park District 2019 Survey



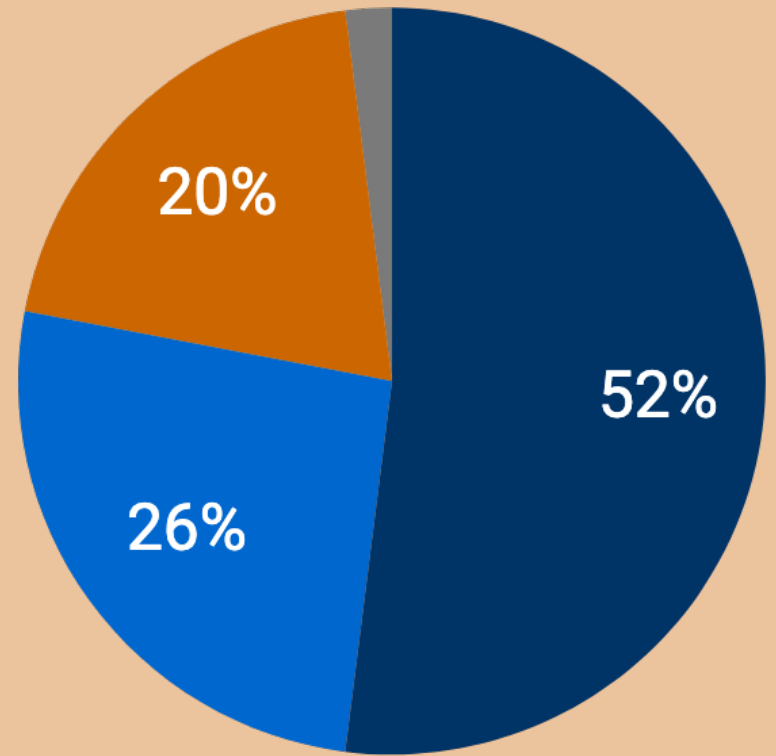
# Helpfulness of CD3 in

What if anything was difficult?

- “Nothing” (plurality)
- “The vacuum sucked up my plug.”

What if anything was easy?

- “I find the entire station easy to use”
- “Everything”



● Very Easy ● Easy  
● Neutral ● Difficult

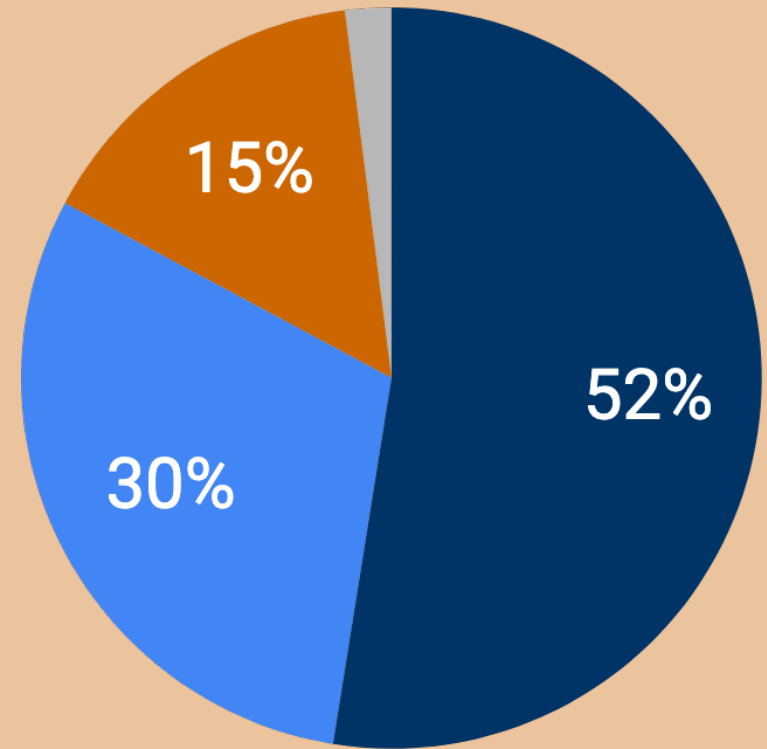
\*Source: Three Rivers Park District 2019 Survey



Ease of Use of CD3

## Likely to use:

- “Like to keep boat clean”
- “Easier than using your hands”
- “No reason not to”
- “Don’t want to spread AIS”



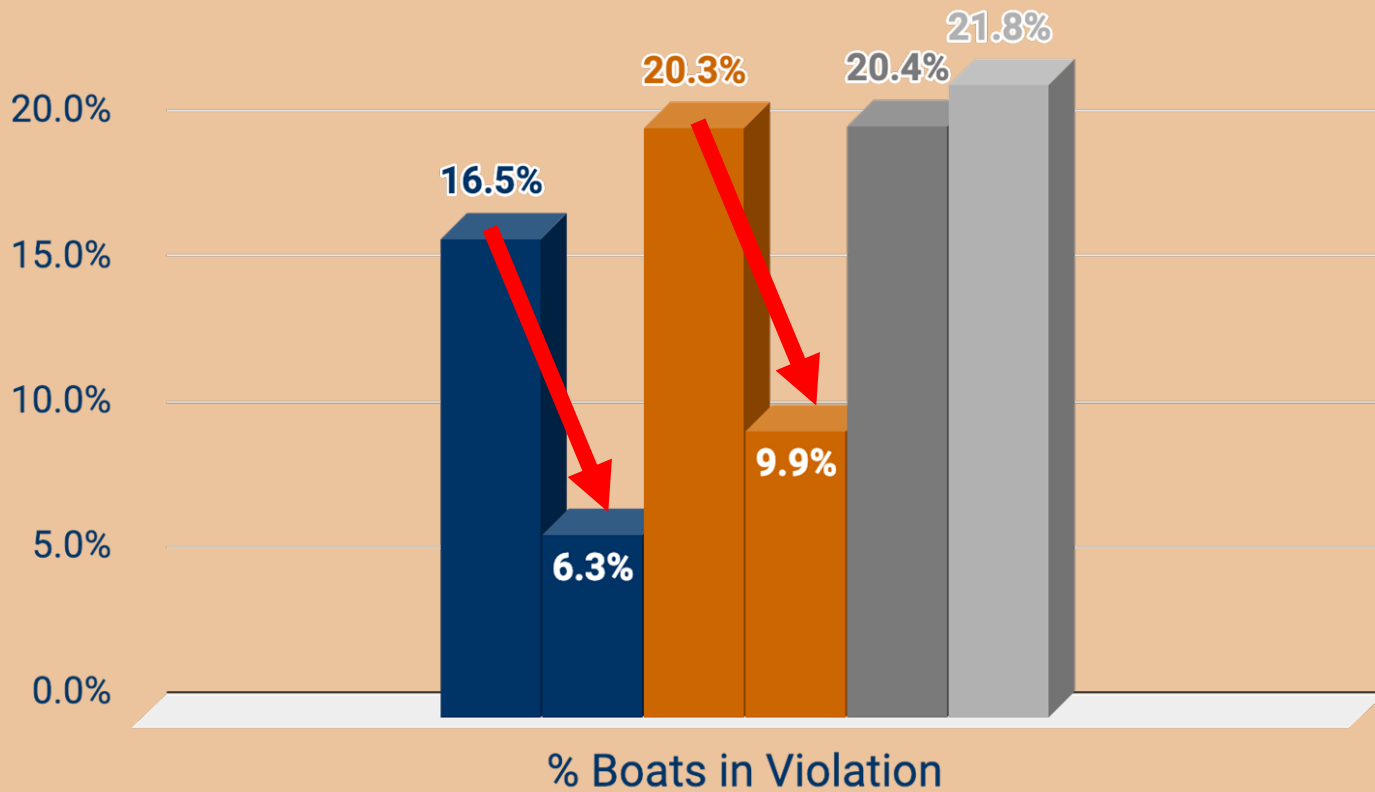
- Very Likely
- Likely
- Unsure
- Very Unlikely

\*Source: Three Rivers Park District 2019 Survey



# Future Use?





■ Spring Park (2017)  
 ■ Spring Park (2018)  
 ■ Long Lake (Traditional)  
 ■ Long Lake (CD3 Station)  
 ■ Weaver Lake (Traditional)  
 ■ Surfside (Traditional)

\*Source: Three Rivers Park District 2019 Survey



# Violation Rates

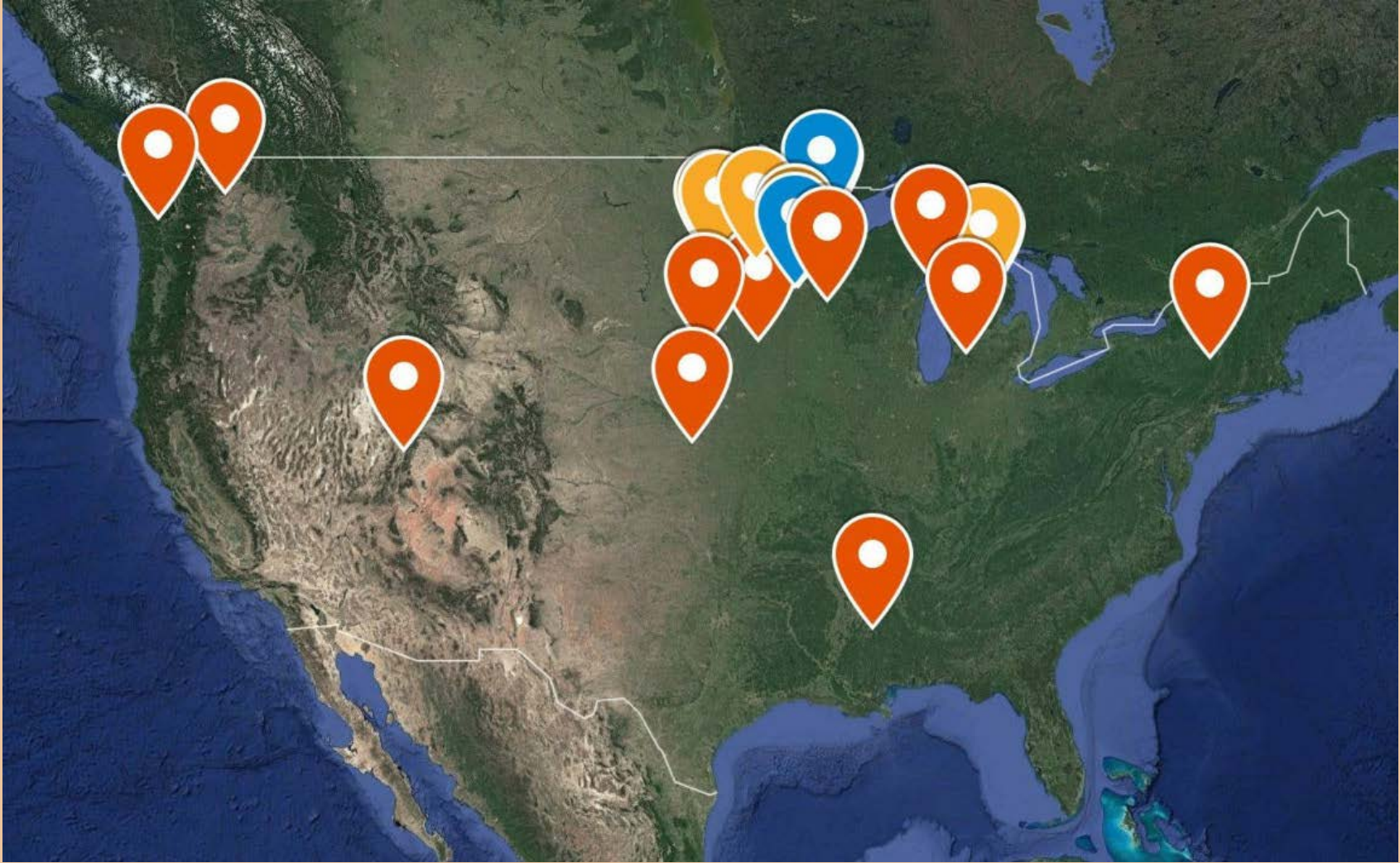
- Decrease in violation rates by 70+%
- Automatic metrics and maintenance alerts
- High tool use
- Low O&M
- No vandalism
- High public approval



# 2019 Key Points

- 3rd party efficacy research
- Custom programs
  - Digital kiosk, geofencing, check-in/ out
- Installations Across North America:
  - South Dakota, Michigan Nebraska, Wisconsin, Iowa, Kansas, Washington, New York, Mississippi, Utah, Mississippi





# 2019 Locations



# Station



# Trailer



# Model Options



# Outpost



# Wayside



# Model Options

# Empowering the public to take ACTION



## Summary



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**Questions?**

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