

STORMWATER RECHARGED: INNOVATING WITH ELECTRICAL FLOCCULATION

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FAGAN CONSULTING LLC



ASCE ALABAMA SECTION
Montgomery Branch



why



TRANSPORTATION • DAILY COVER

Car Tire Dust Is Killing Salmon Every Time It Rains

MUD INFILTRATES BIG CREEK WATER

SEDIMENT APPARENTLY TIED TO ROAD PROJECT



A muddy plume visible in Big Creek Lake in late October appears to originate from the mouth of Long Branch, a small creek that enters the lake near the U.S. 98 bridge. The plume expands as it flows toward the water treatment plant intakes, which are not visible in the image. Long Branch, along with many other creeks and wetlands downstream of the Alabama Department of Transportation's U.S. 98 project, has suffered a heavy influx of sediment since the road work began.

How Washington's Roads Are Killing Salmon



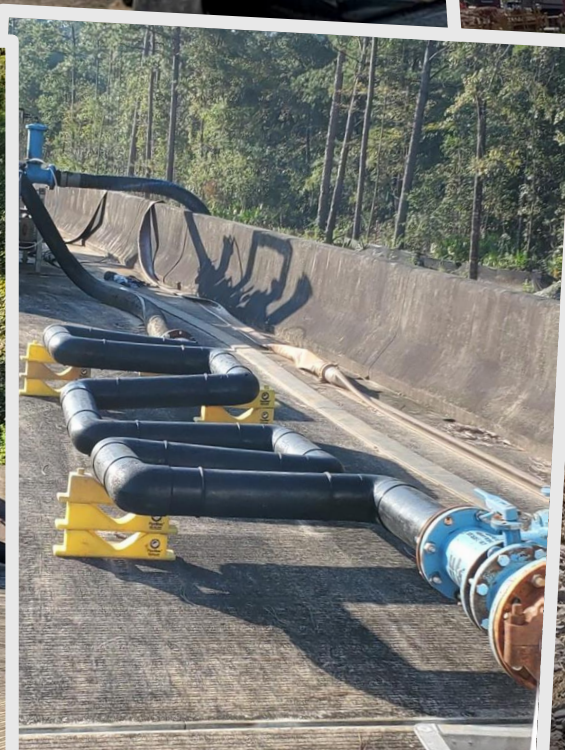
...rs and streams often die before they can spawn. Photo by Roger Tabor,



40 years later... stormwater runoff remains a leading source of impairment for US waters.









2022

REPORT CARD FOR
ALABAMA'S
INFRASTRUCTURE

ALABAMA SECTION
OF THE
AMERICAN SOCIETY
OF CIVIL ENGINEERS

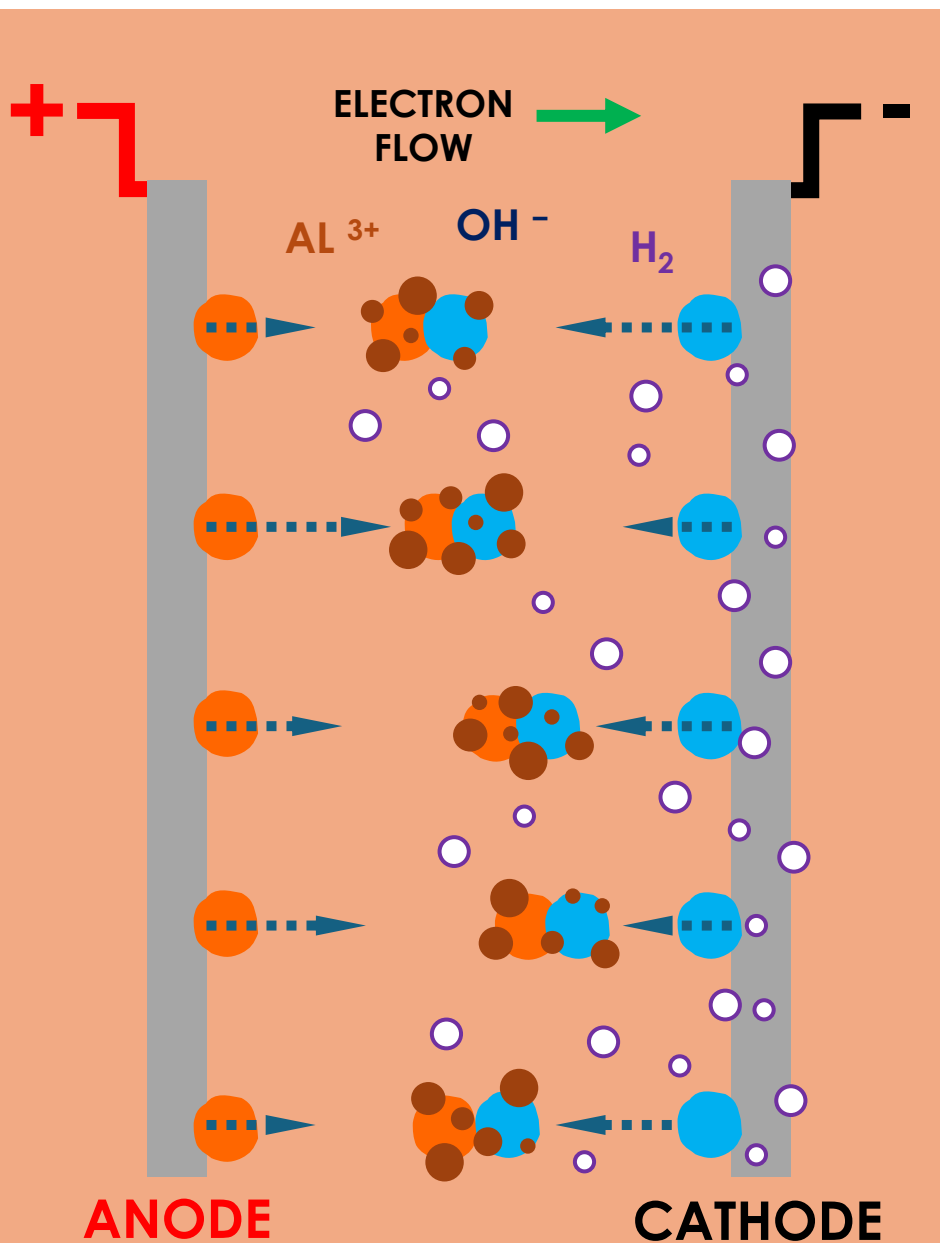


[INFRASTRUCTUREREPORTCARD.ORG/ALABAMA](https://infrastructurereportcard.org/alabama)



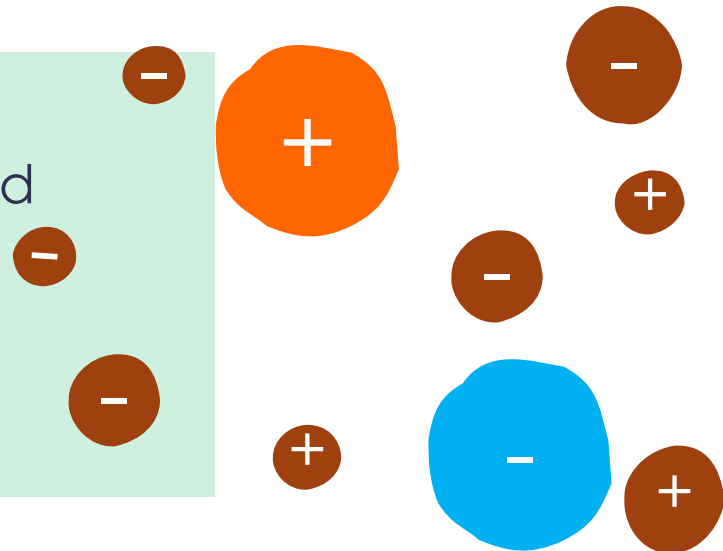
the technology

OUR SOLUTION: ELECTRICAL FLOCCULATION



Advantages:

- Range of pollutants treated
- Chemical-free
- Soil independent
- Low maintenance



DISSOLUTION



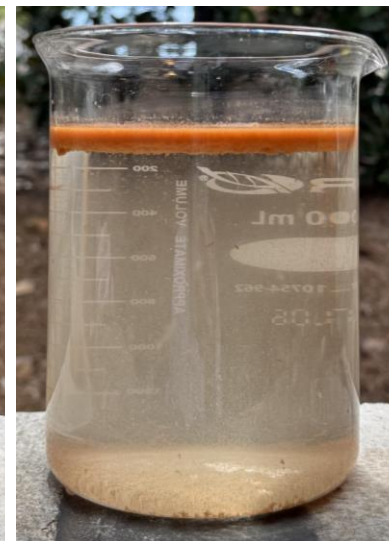
COAGULATION



FLOCCULATION



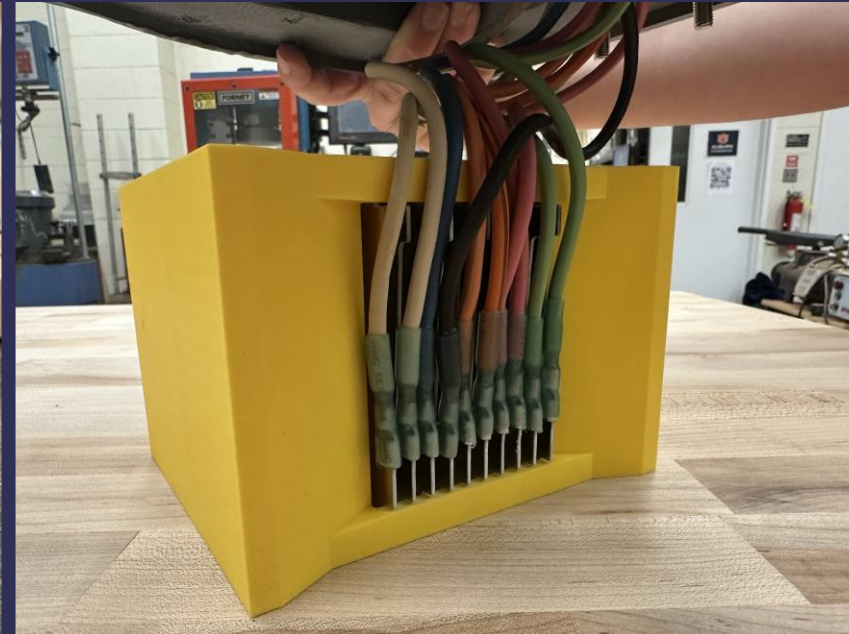
ELECTRO-FLOTATION



PROTOTYPE A



PROTOTYPE B



PROTOTYPE C



EVOLUTION OF PROTOTYPE D

THREADED RODS



SIDE BUS BARS



BUS BARS IN HANDLES



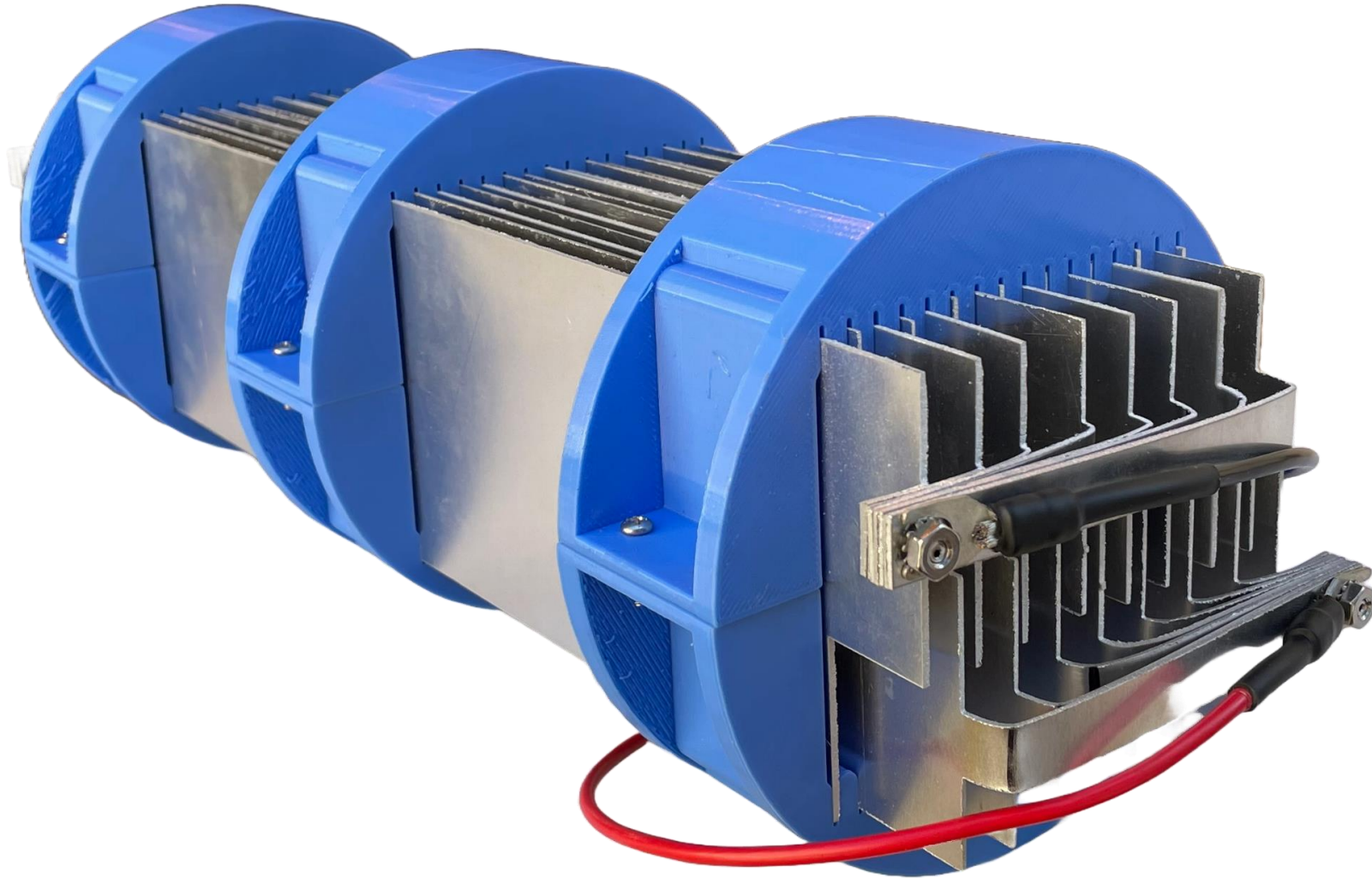
16 ELECTRODES

FIT IN 6-INCH PIPE

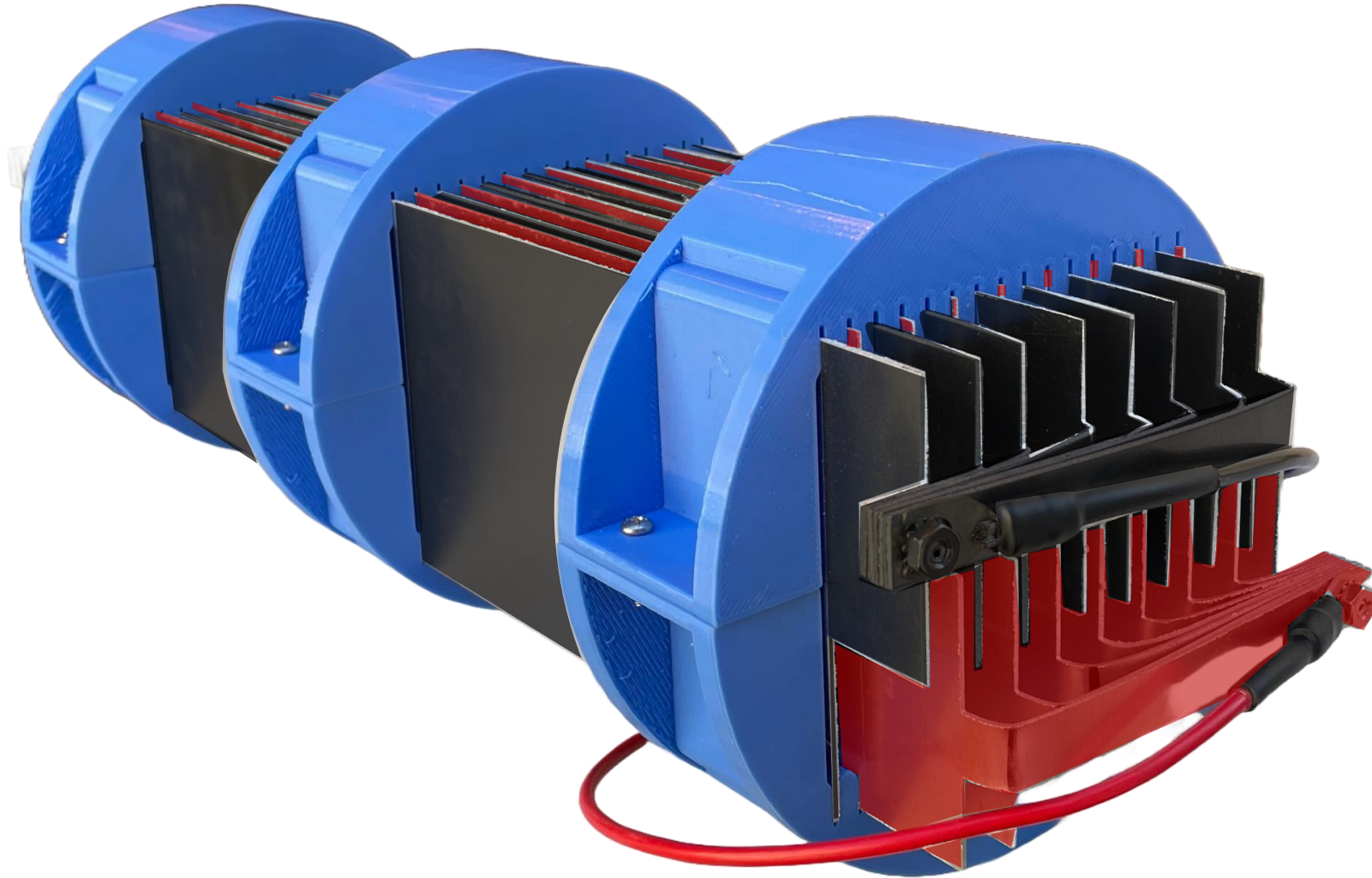
ALUMINUM ELECTRODES

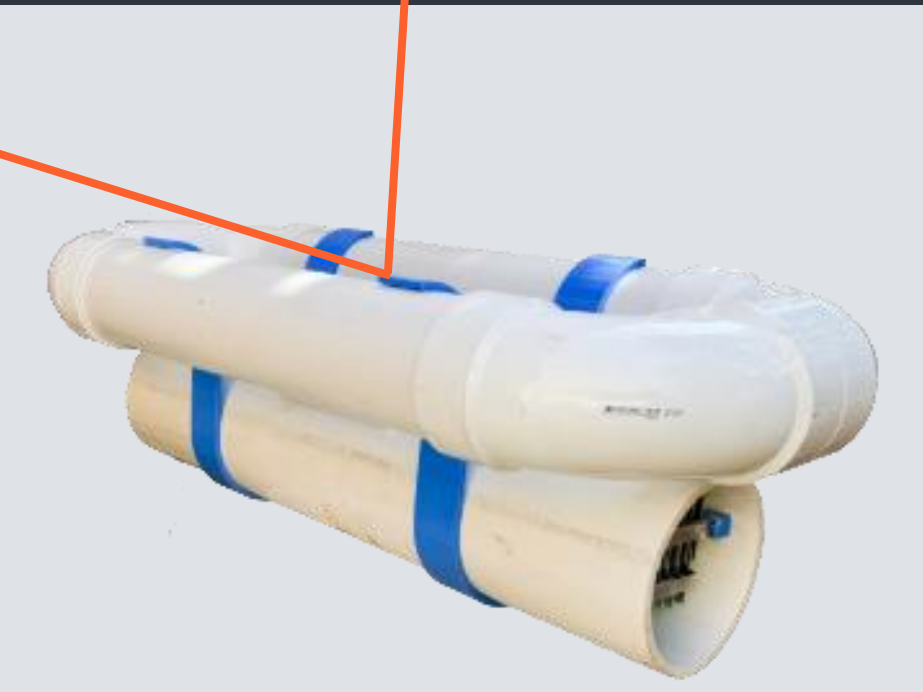
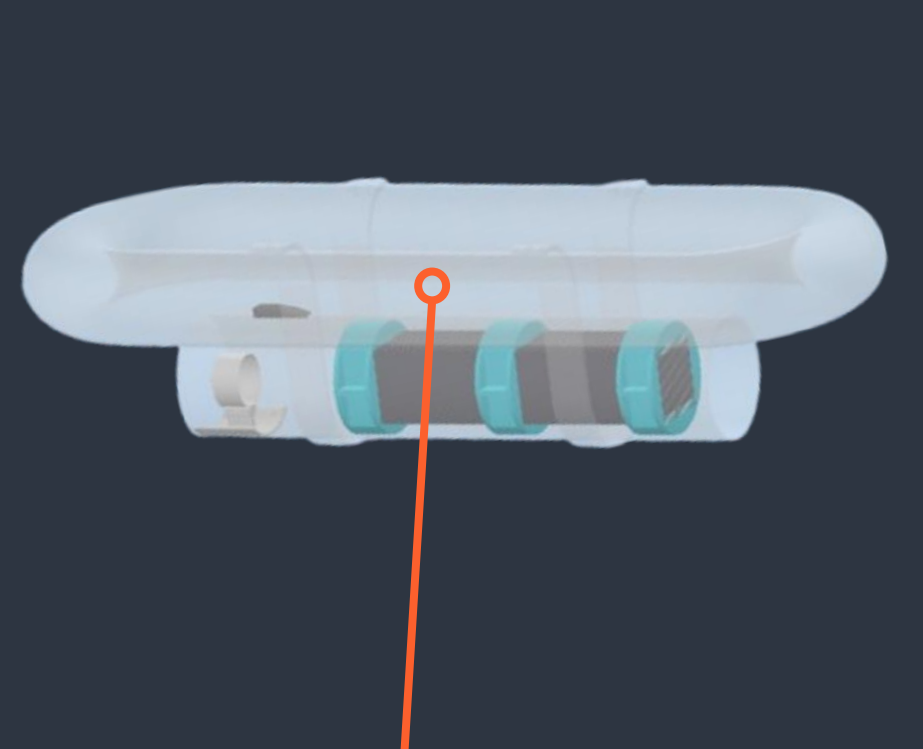
SIMILAR ELECTRODE AREA

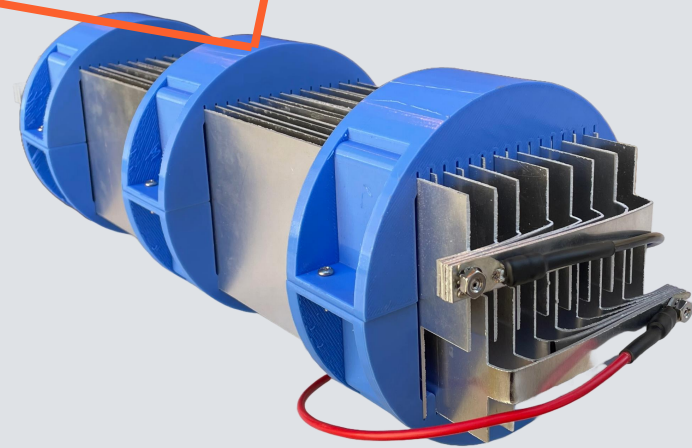
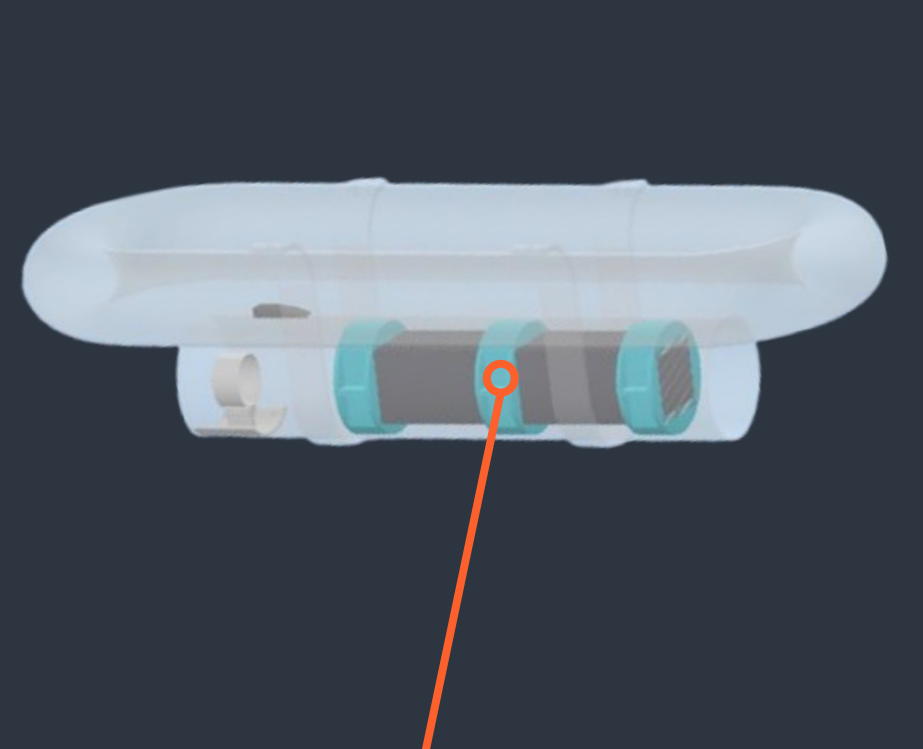
THE ELECTRIC FLOC GENERATOR

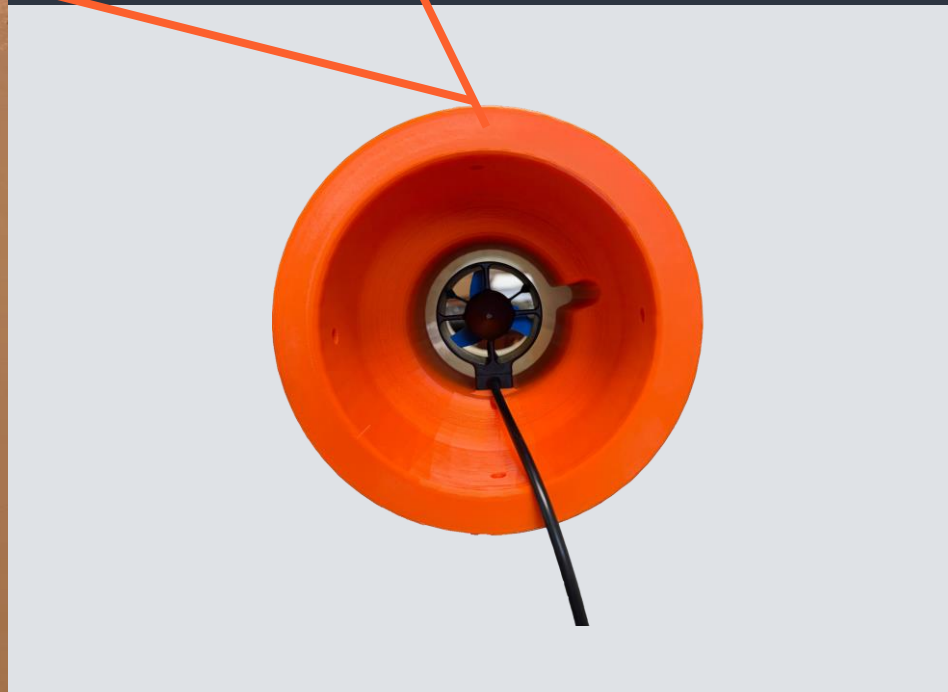
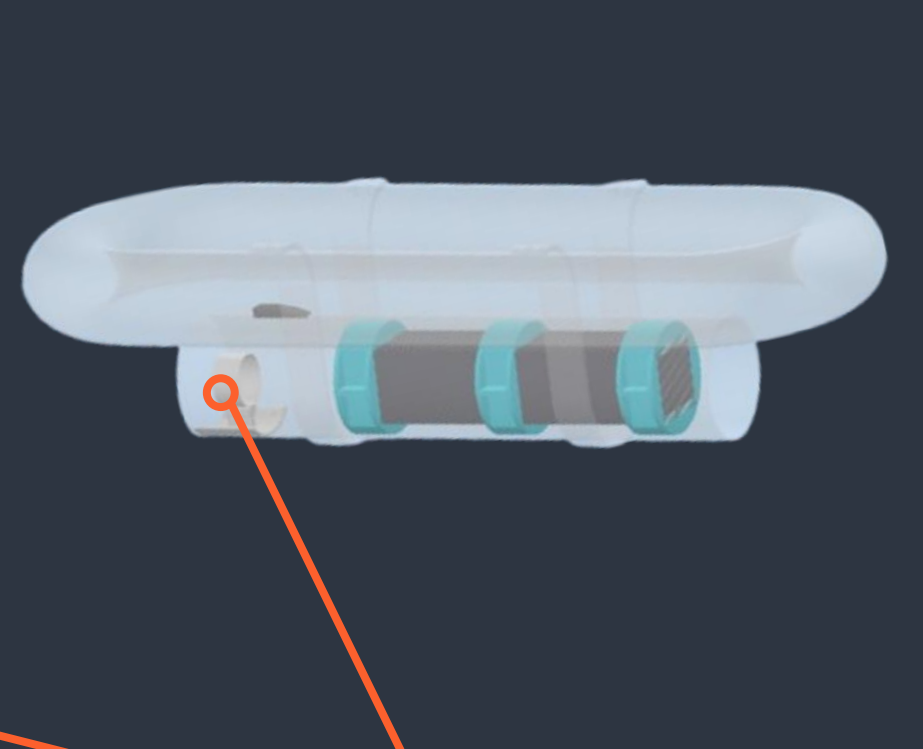


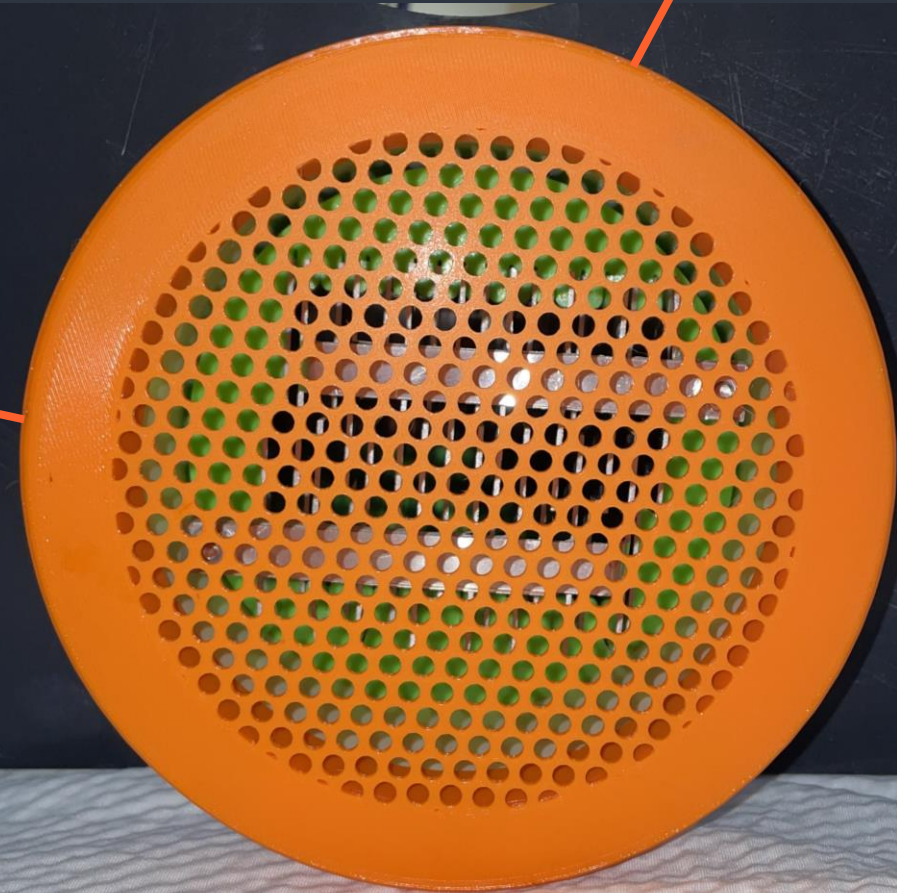
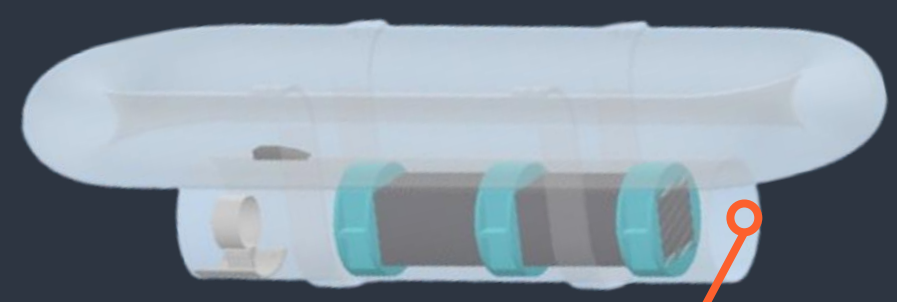
THE ELECTRIC FLOC GENERATOR











effectiveness



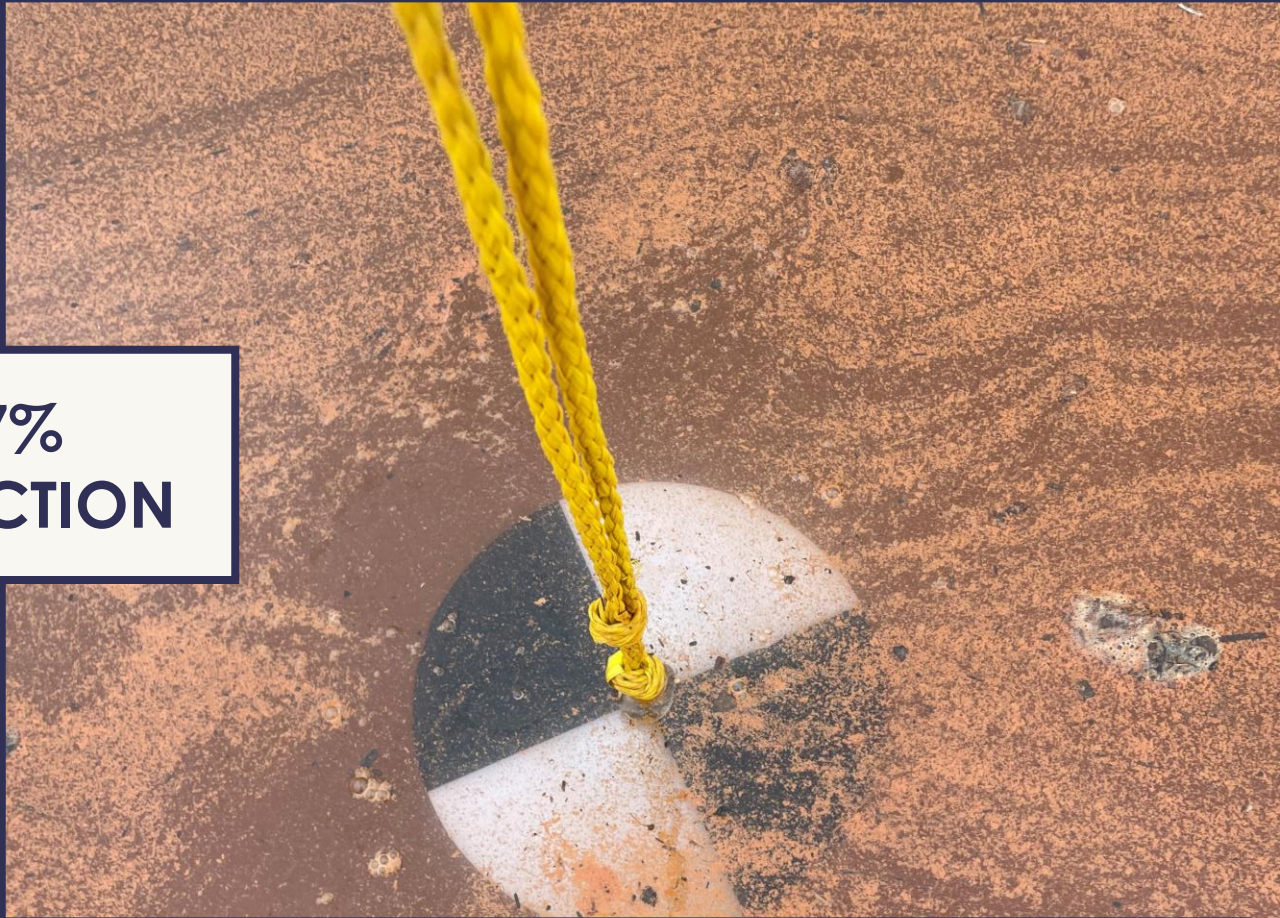
PRE- VS. POST-TREATMENT



PRE- VS. POST-TREATMENT



**97%
REDUCTION**



POLLUTANT REMOVAL

NTU



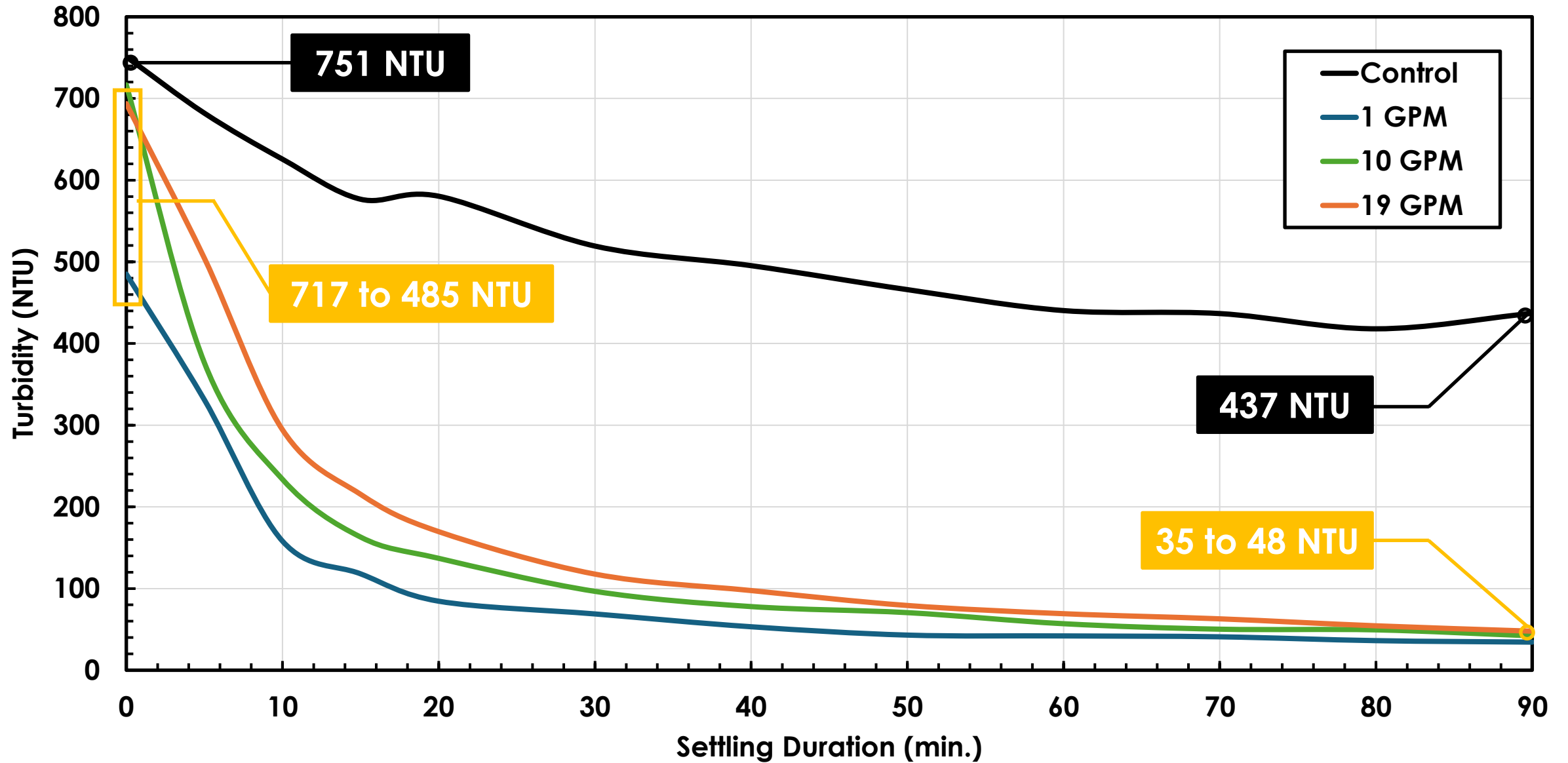
TSS



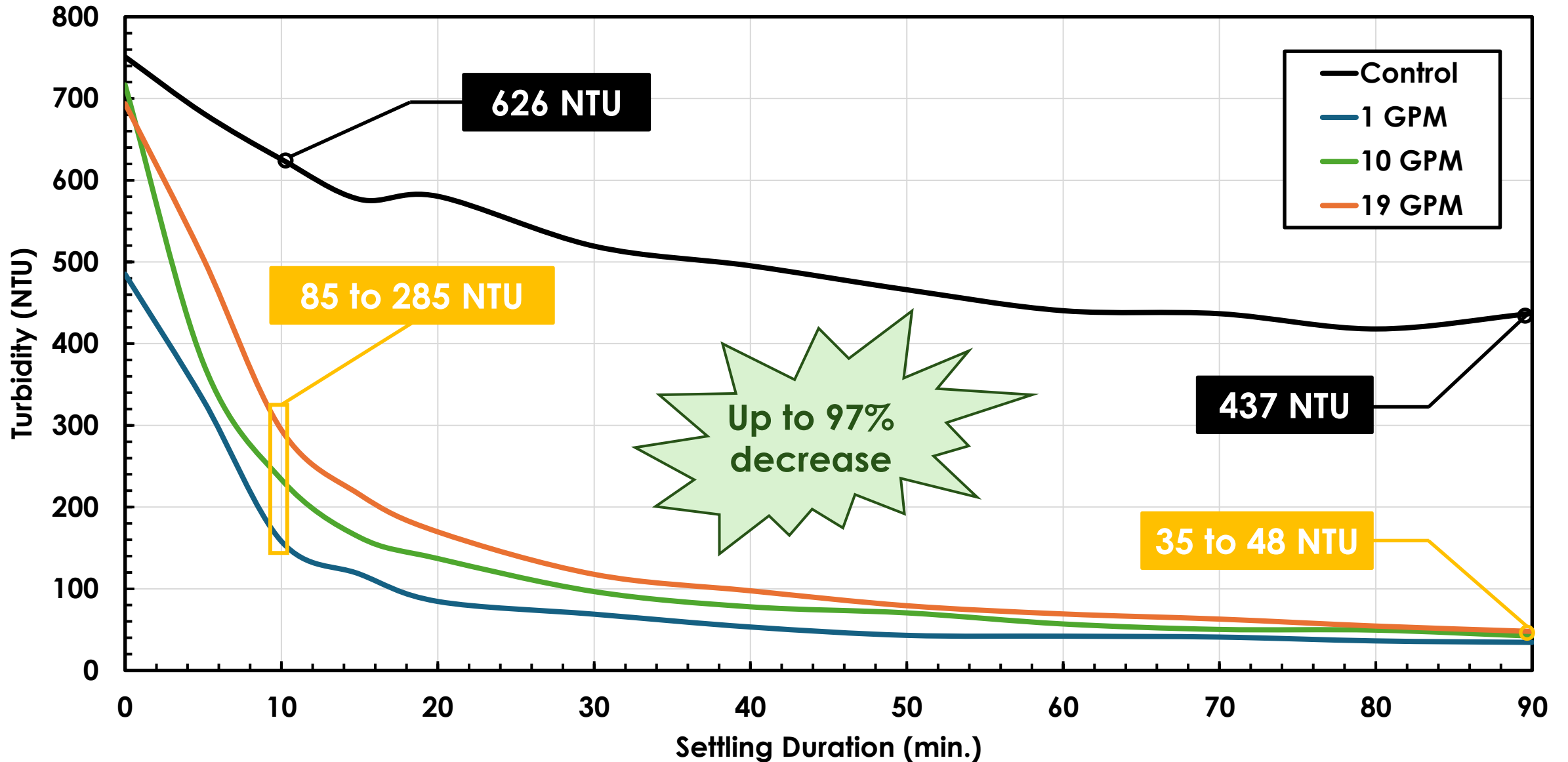
the path



...AND IT WORKS REALLY WELL



...AND IT WORKS REALLY WELL





STORMWATER RESEARCH FACILITY

[in au-stormwater](#) [@StormwaterAU](#) [Auburn Stormwater](#) [stormwater.auburn.edu](#)



ALDOT

Alabama Department of Transportation

NCHRP

NEBRASKA

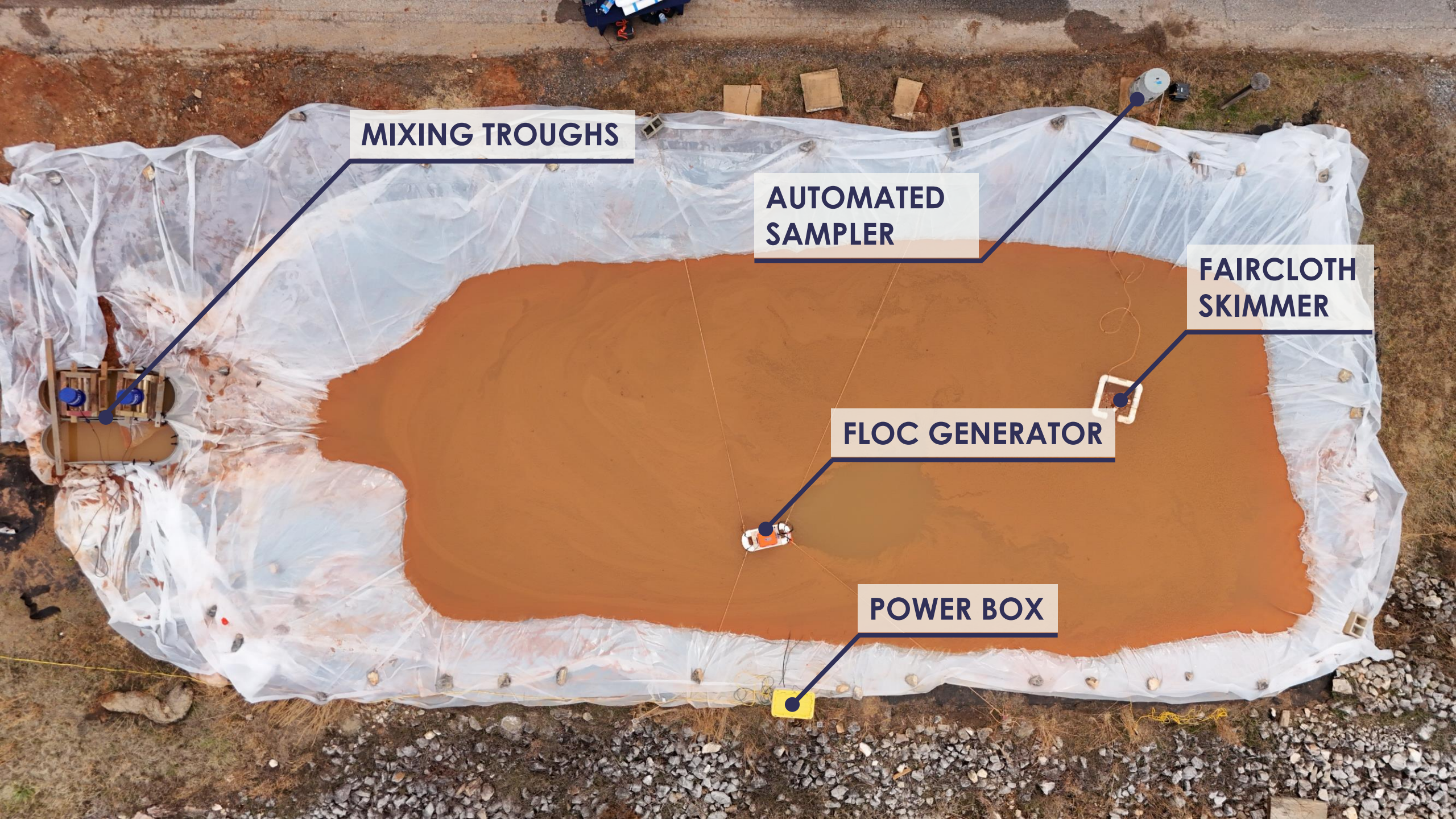
Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION



USGS
science for a changing world





MIXING TROUGHS

AUTOMATED SAMPLER

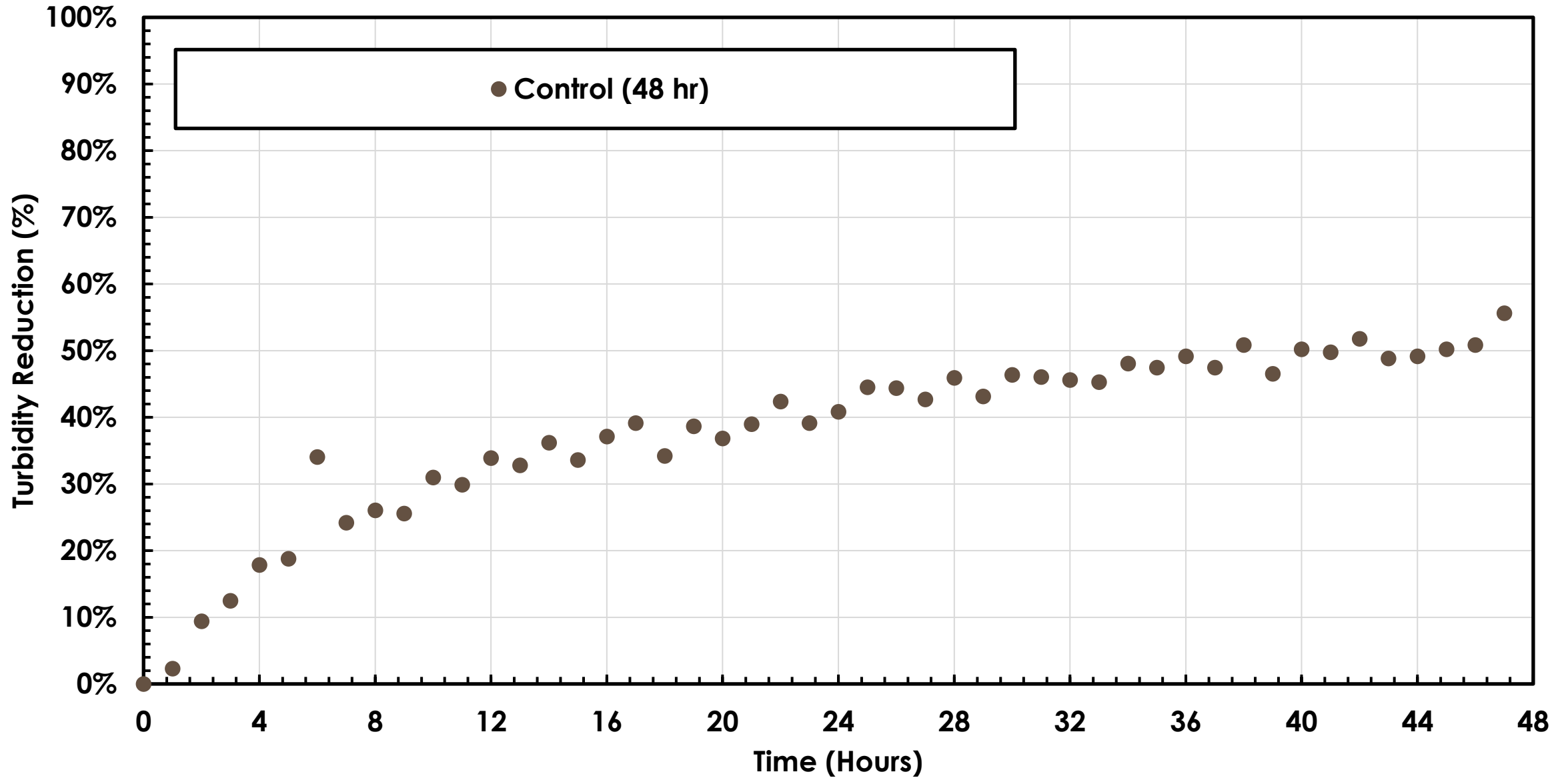
FAIRCLOTH SKIMMER

FLOC GENERATOR

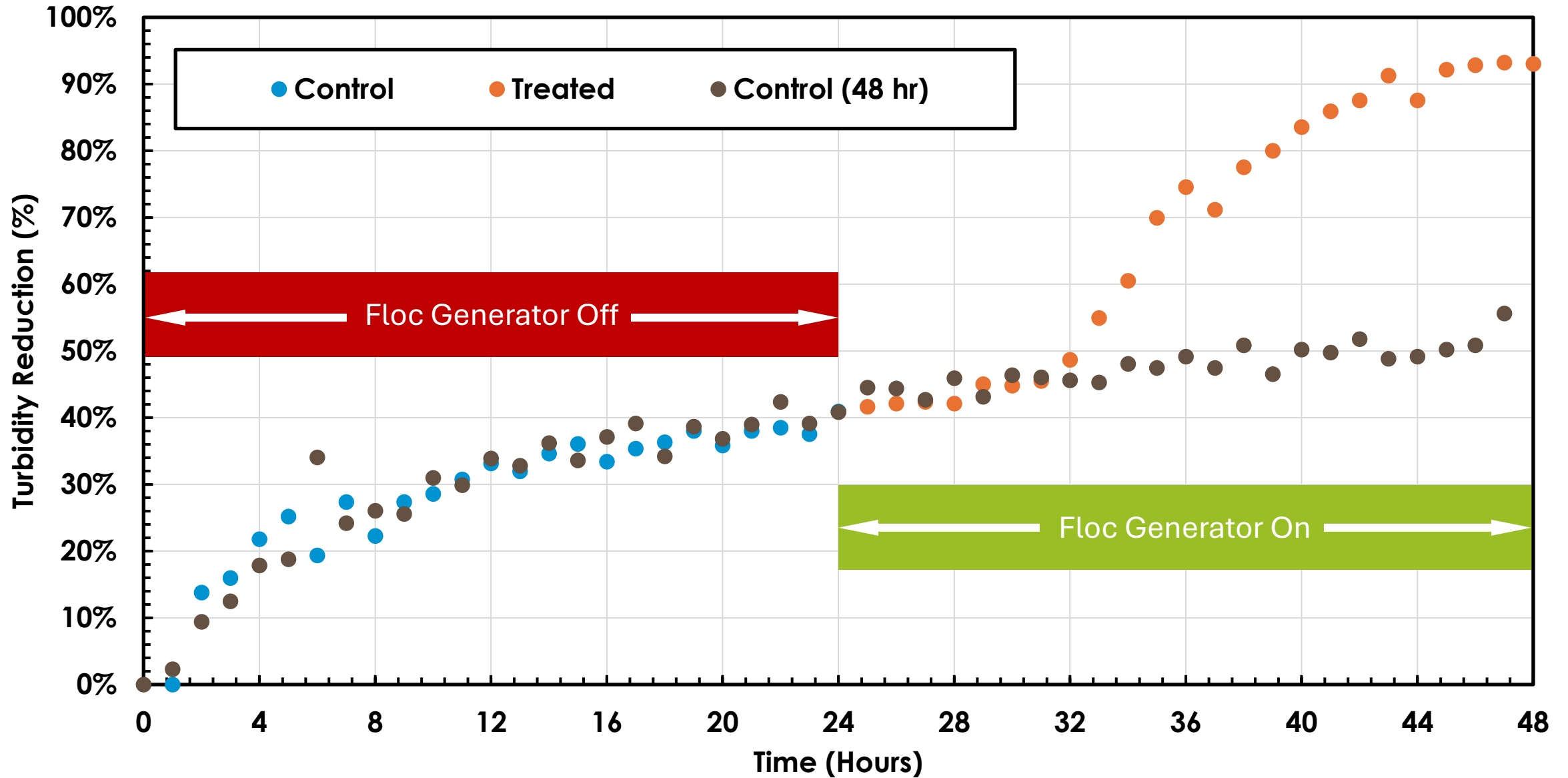
POWER BOX



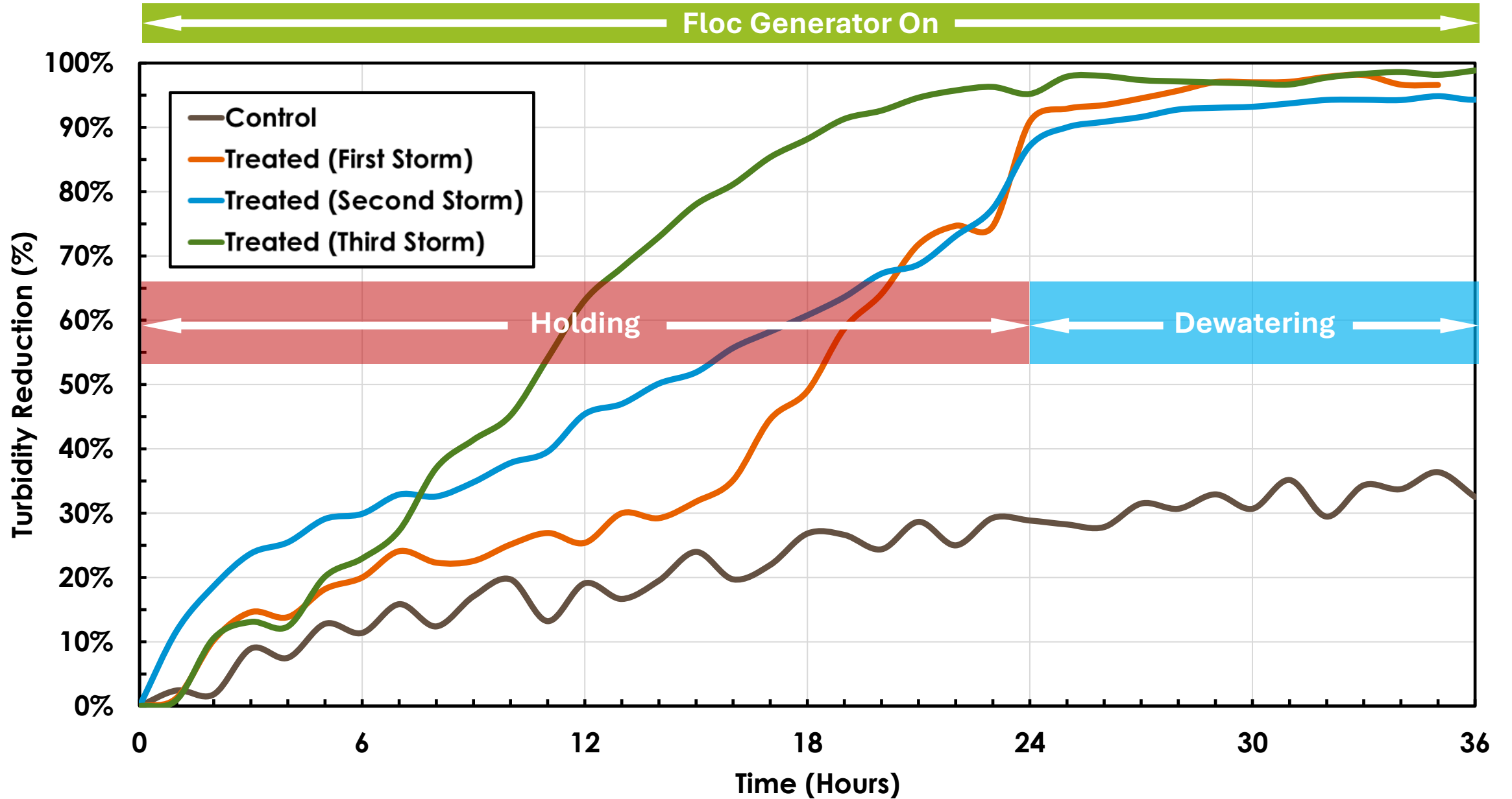
SOLO LARGE-SCALE TESTING



SOLO LARGE-SCALE TESTING



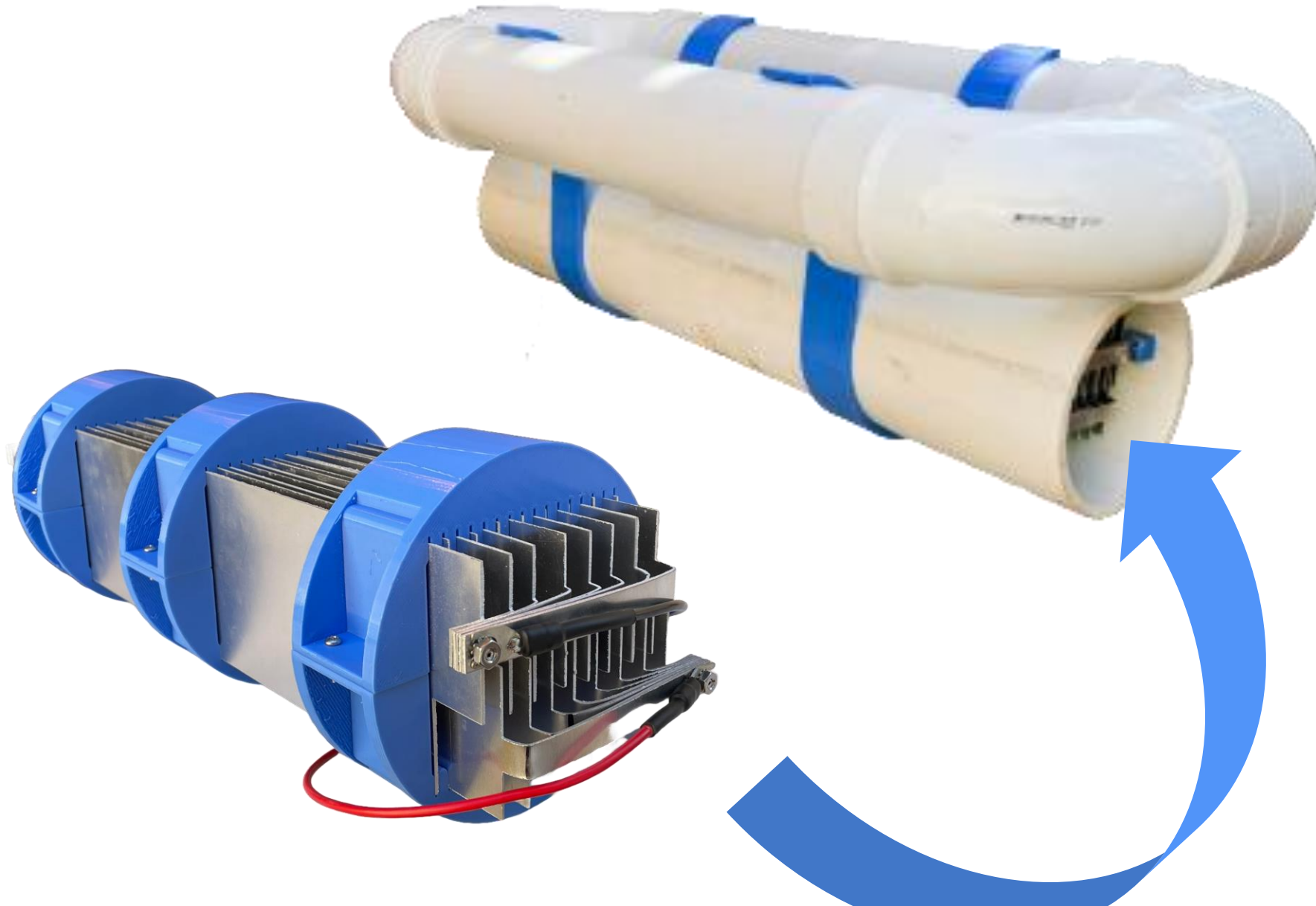
SOLO LARGE-SCALE TESTING



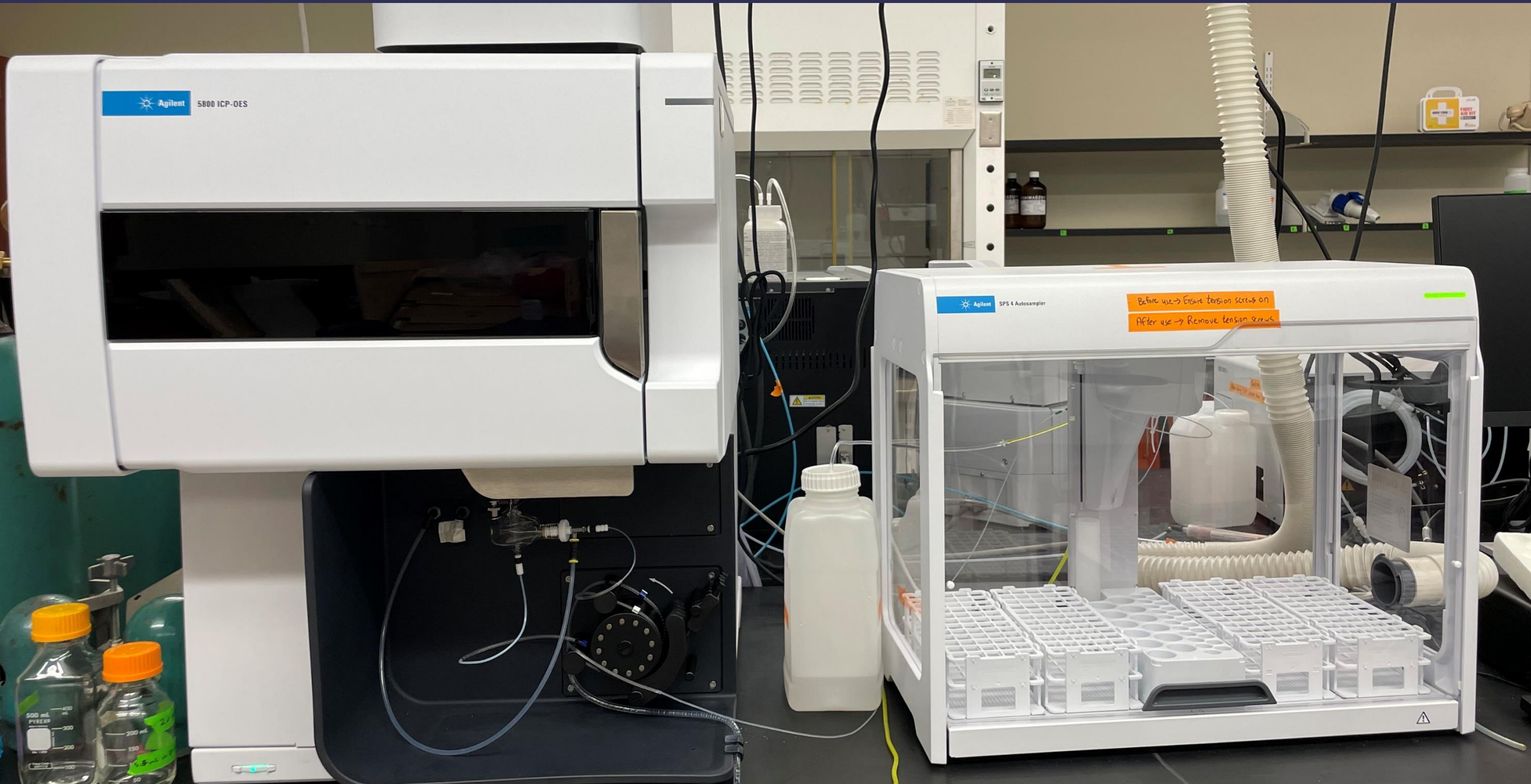
safety



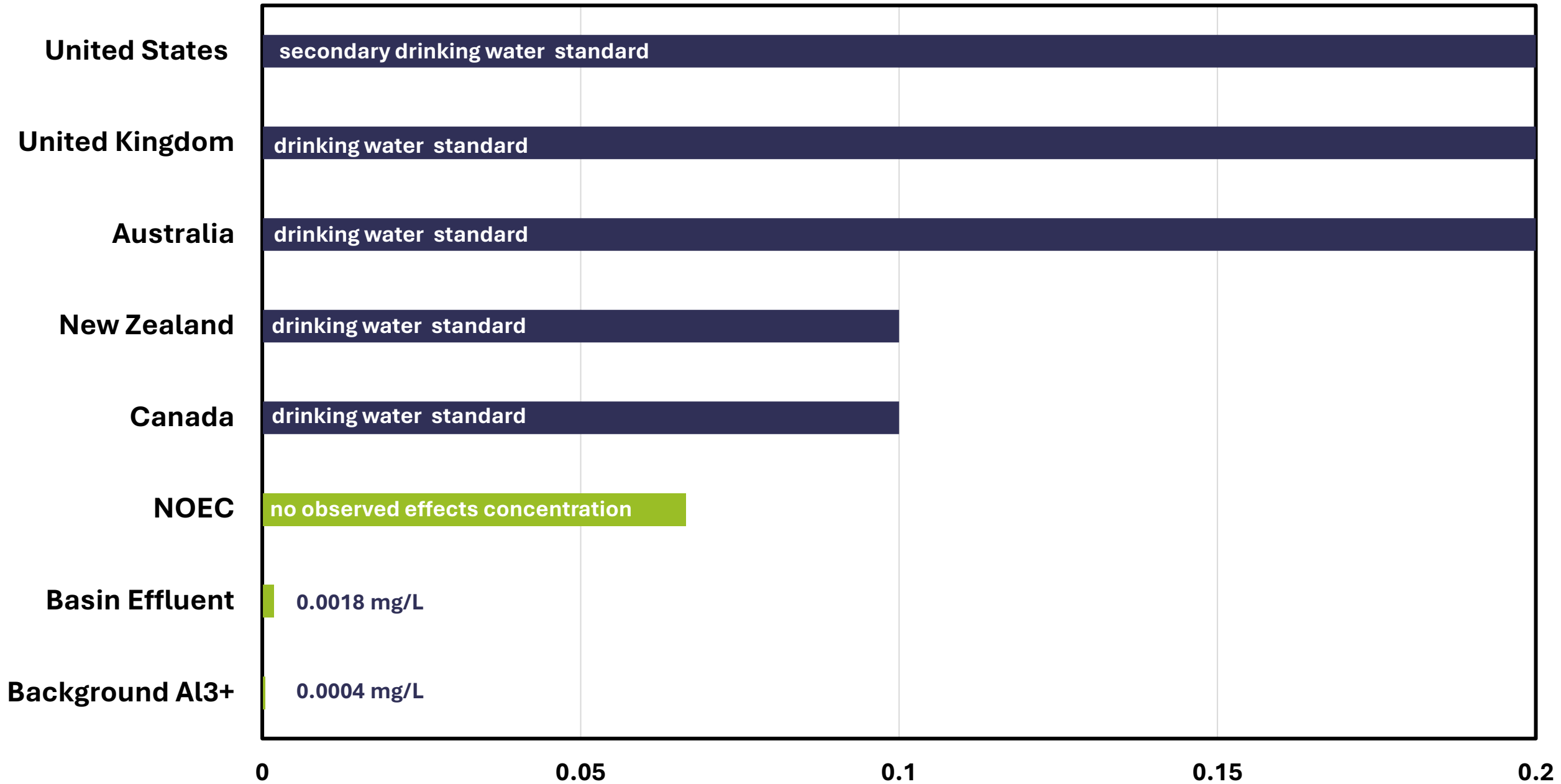
ELECTRICAL SAFETY



MEASURING ALUMINUM CONCENTRATIONS



ALUMINUM CONCENTRATIONS



longevity

ELECTRODE PASSIVATION

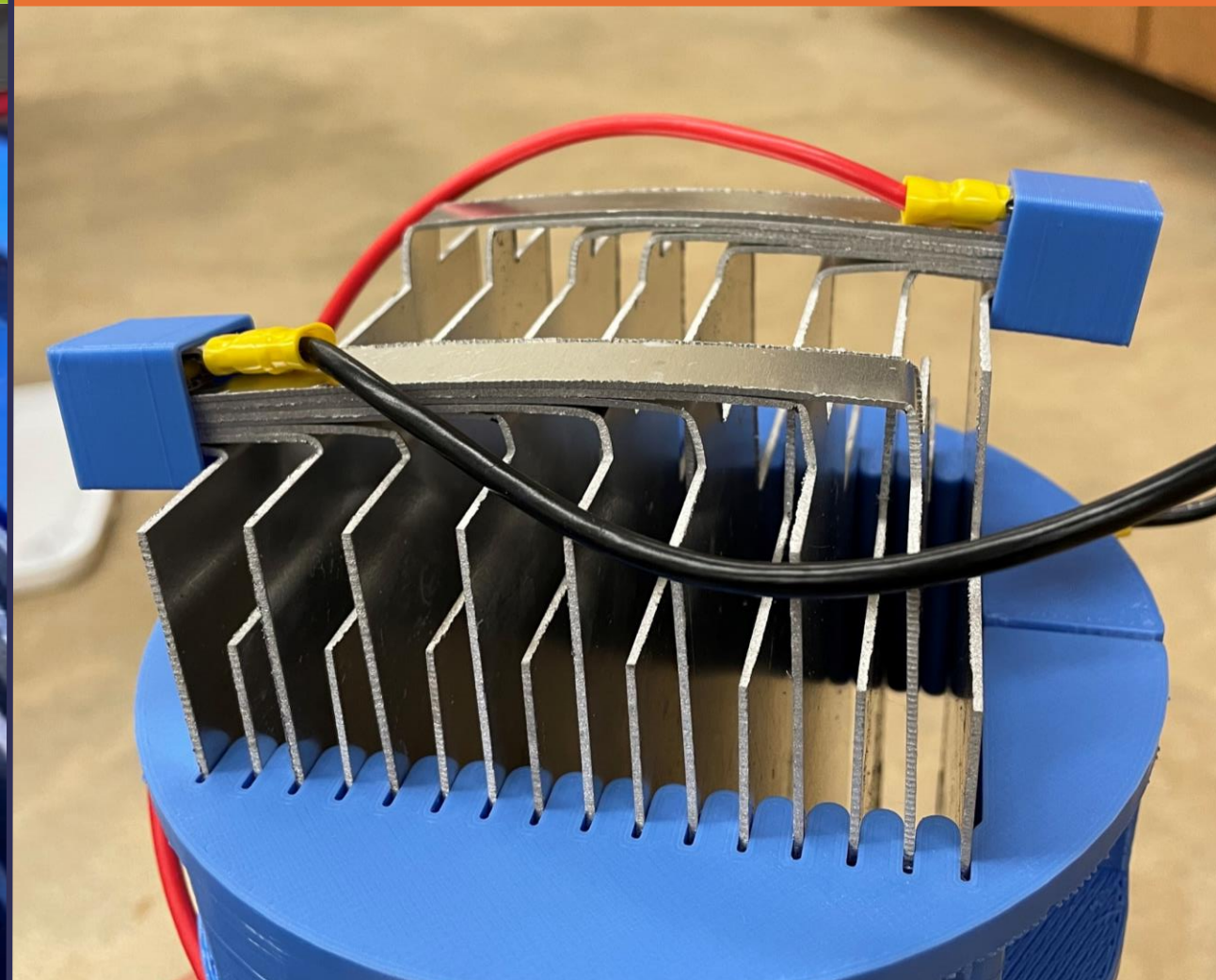


INCREASING LIFE

BUS BAR CONNECTIONS



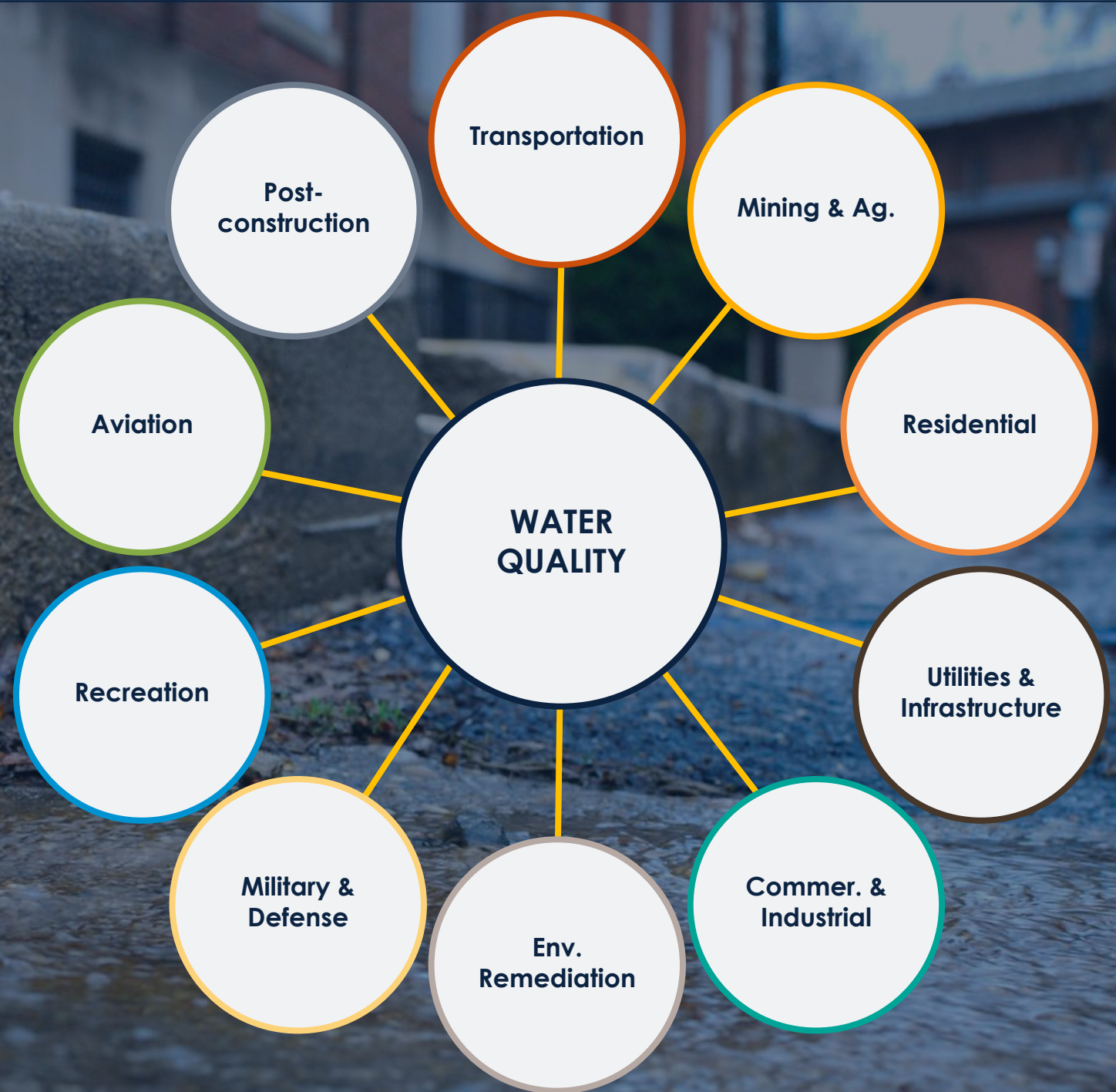
ISOLATED CONNECTIONS



47% INCREASE IN LONGEVITY

applications

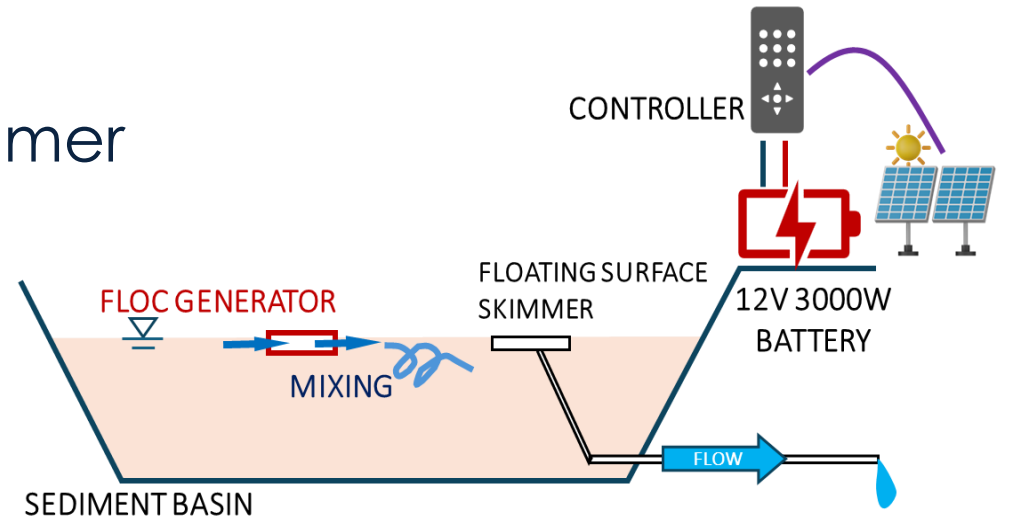
APPLICATION ENVIRONMENTS



POTENTIAL APPLICATIONS

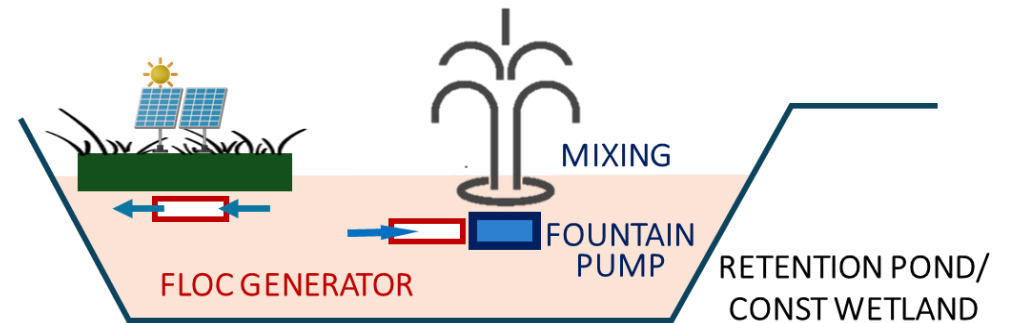
Construction Applications

- Sediment basin with floating surface skimmer
- Sediment basin with self-generated flow
- With dewatering systems



Post-Construction Applications

- Detention pond with riser or surface outlet/floating surface skimmer
- Retention pond fountain-generated flow
- With green infrastructure
- With floating islands
- In gutter downspouts
- With hydrodynamic separators



cost

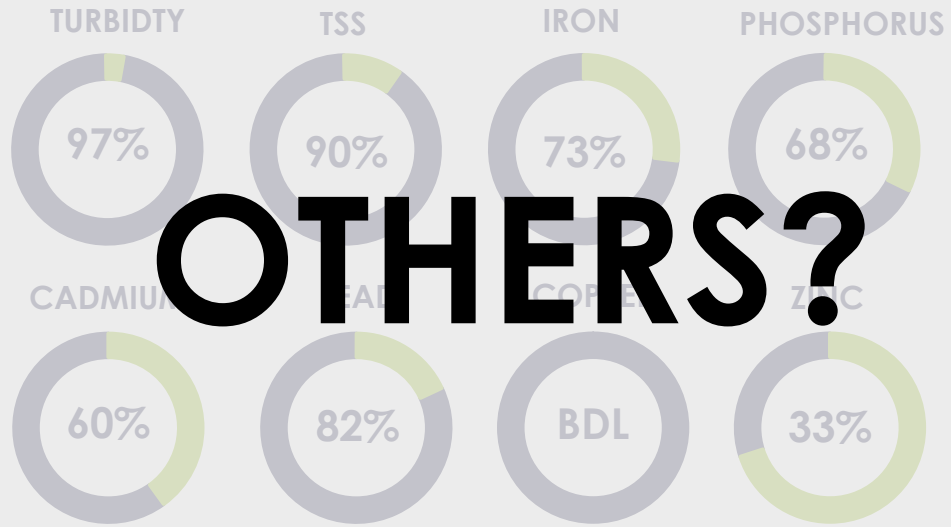
A meme featuring Clark Kent in a dark suit and tie, standing in a dark room with a glowing starburst light effect in the background. The text is overlaid at the bottom in a bold, white, sans-serif font with a yellow outline.

**IF YOU DON'T MIND, HOW MUCH
THAT SET YOU BACK, CLARK?**

primary market



what's next



OTHERS?



FIELD TESTING

ENHANCE LONGEVITY





**OPTIMIZE FOR
DEPLOYMENT**



**DEPLOYMENT
ON DOT SITES**



SECURE FUNDING

COMMERCIALIZATION



**Faircloth
Skimmer®**

your thoughts

CHEMICAL-FREE

HEAVY METAL REMOVAL

VERSATILE

NUTRIENT REMOVAL

LOW MAINTENANCE

SAFE FOR HUMANS

97% TURBIDITY REDUCTION

11 APPLICATION ENV.

DOWN TO 8 NTU

50+ APPLICATIONS

BATCH OR FLOW THROUGH

**COMING SOON TO A BASIN
NEAR YOU!**



PEOPLE LIKE US DO THINGS LIKE THIS





PEOPLE LIKE US DON'T DO THINGS LIKE THIS





INSTALLER Training

AUBURN UNIVERSITY
STORMWATER RESEARCH FACILITY

May 12-13, 2026



This 1.5-day event offers classroom and hands-on training for installing construction site erosion and sediment control practices. **Earn 10 PDHs.**

Learn More >>>
stormwater.auburn.edu





Field Day

AUBURN UNIVERSITY
STORMWATER RESEARCH FACILITY

May 14, 2026

This field day provides hands-on training and demonstrations of erosion and sediment control practices, including installation techniques and flow testing. **Earn 6 PDHs.**

* Sponsorship and Exhibitor Opportunities Available



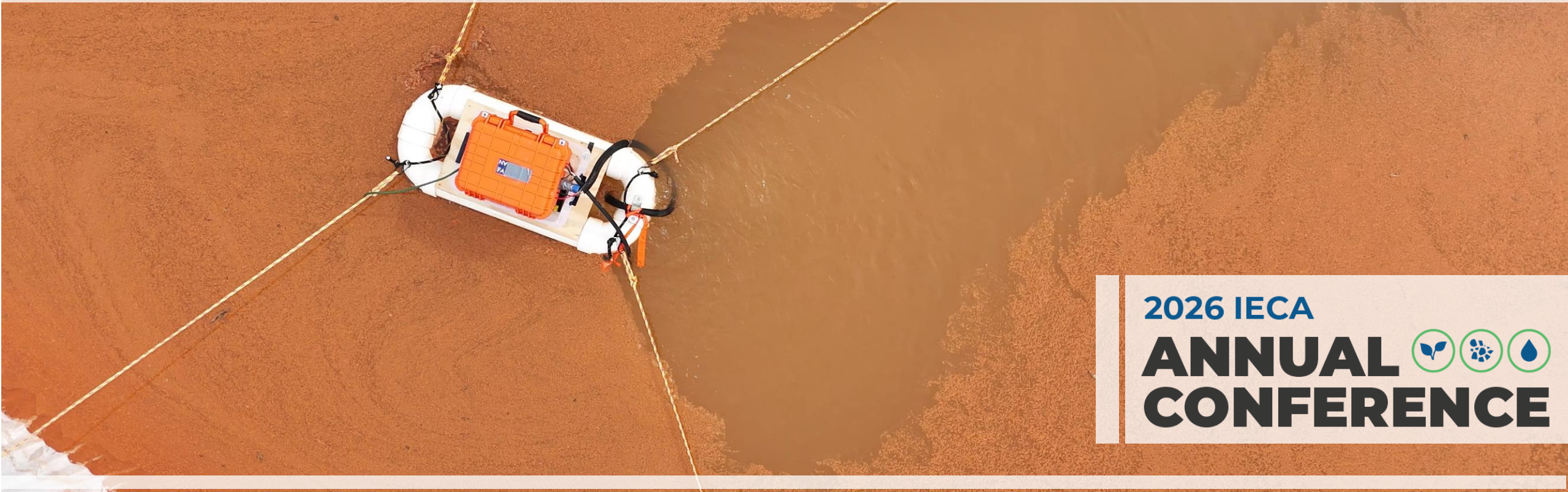
Learn More >>>
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2026 IECA
ANNUAL CONFERENCE

