

# Yahara WINS

Dorn Creek - EutroSORB® Phosphorus Filtration  
Grant Project

Scott Shuler  
National Manager



# Agenda

EutroPHIX & SePRO

The Problem & Impacts

Dorn Creek

EutroSORB® Phosphorus Filtration Project

Results

- Dorn Creek
- Colorado Projects

Next Steps

# A **TECHNICAL RESOURCE** team within SePRO focused on accelerating water quality restoration



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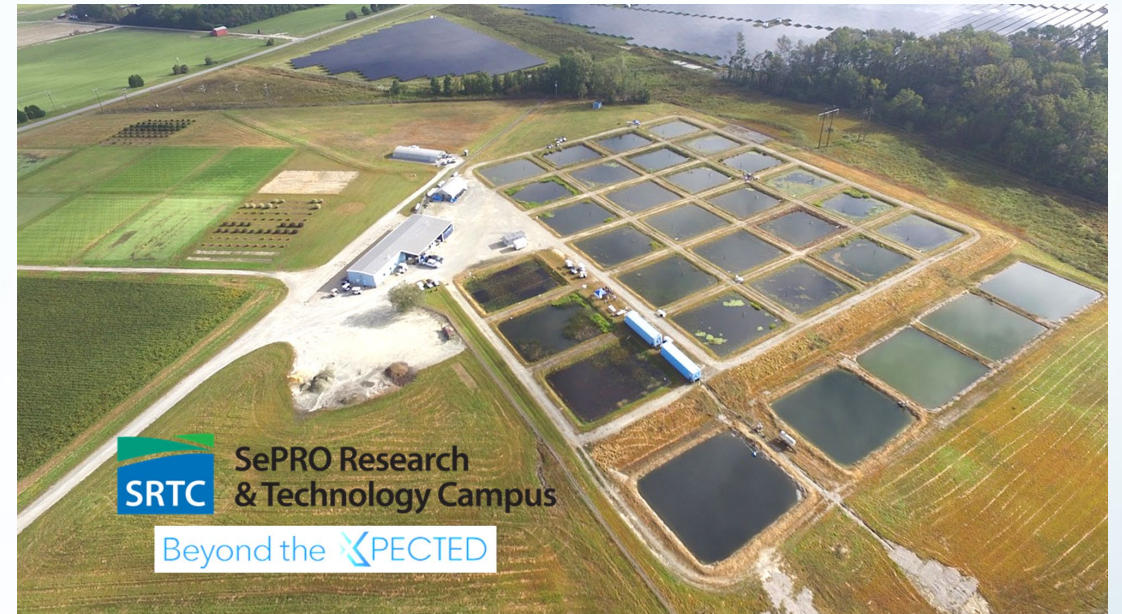
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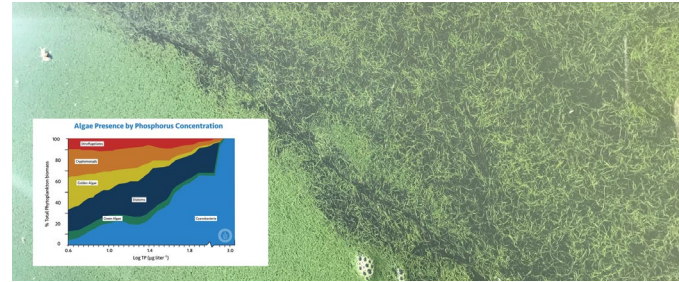
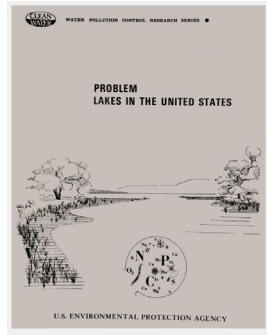


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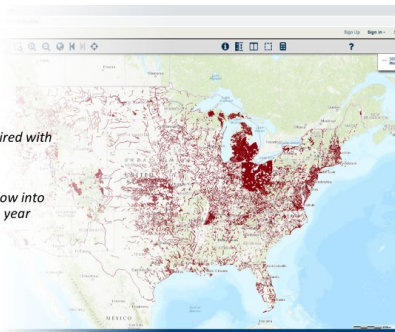




- 48,000 US Lakes Impaired for Phosphorus
- Dorn Creek & Lake Mendota Impaired >50 Years
- Poor Water Quality
  - HABs
  - Toxins
  - Reduced beneficial used
  - Ecological degradation
  - Reduced property values

• Over 48,000 lakes impaired with phosphorus in the US

• >300,000,000 pounds flow into the Gulf of Mexico each year



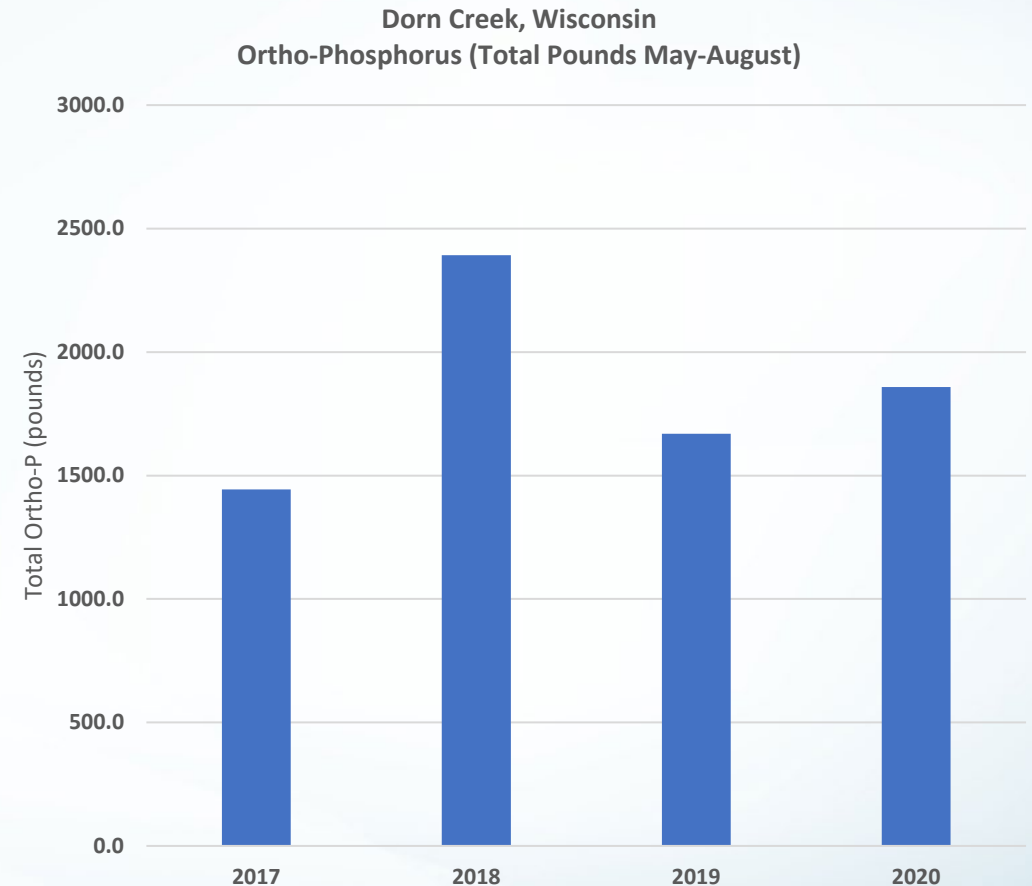






# Dorn Creek

- History of nutrient and sediment loading
- 10,000+ pounds/year to Lake Mendota
  - 2013-2019 USGS data
- Additional mitigation activities needed to supplement watershed management and BMPs
- Phosphorus load highly correlated to rainfall

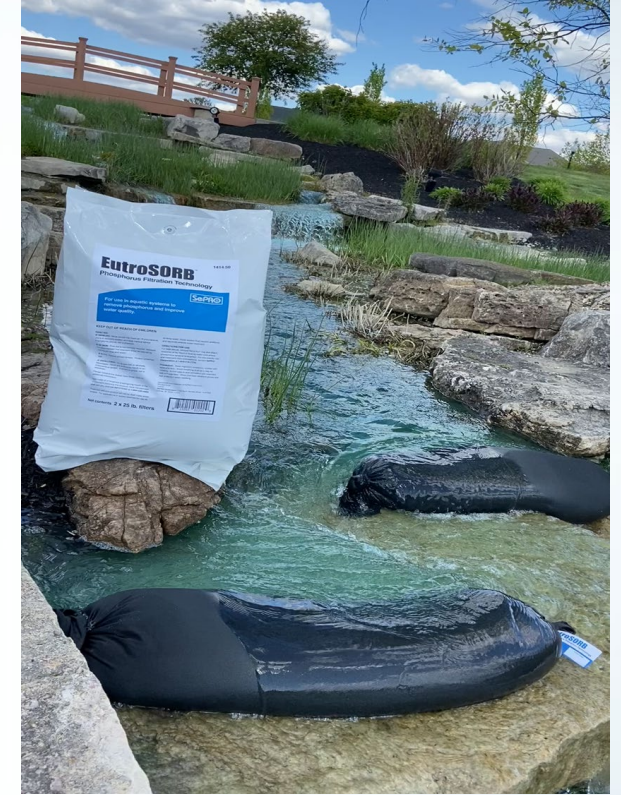
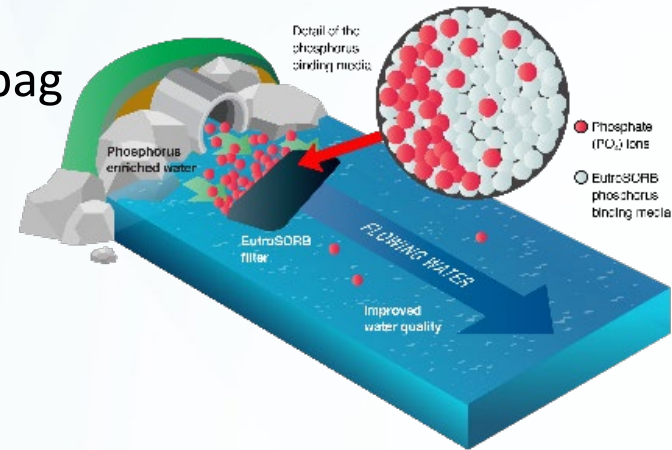


# EutroSORB® F

Phosphorus Filtration Technology

## Proprietary blend of phosphate binding media

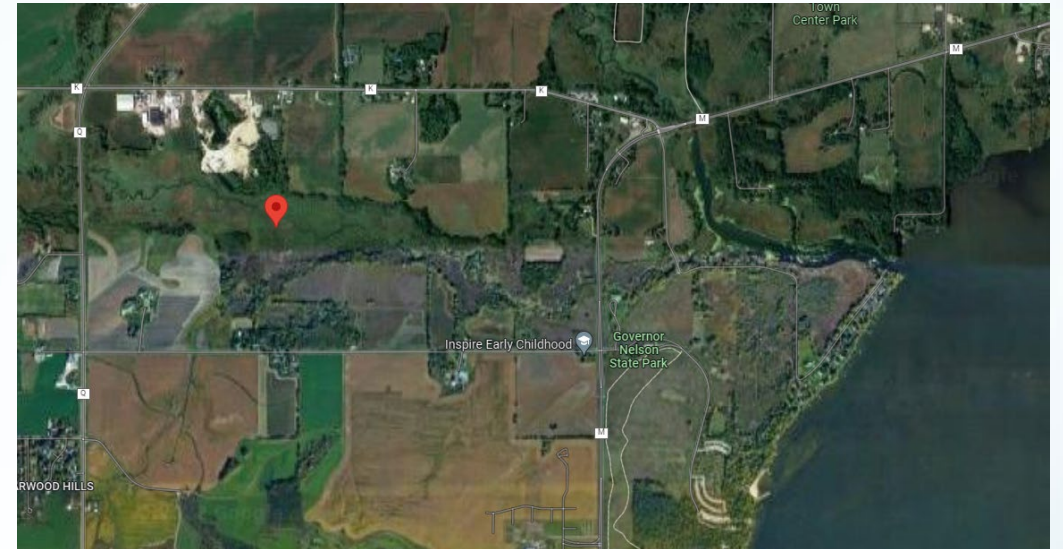
- Passive management (in-stream)
- Reactive filter media contained in mesh bag
- High specificity to phosphorus
- Safe for fish and invertebrates
- Recycle options





# Dorn Creek

- Dorn Creek at Co. Rd. Q
- Place EutroSORB Filters downstream
- Monitor water quality above and below filter placement







# Dorn Creek – Filter Installation

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# Dorn Creek – phosphorus sample results

**Table 1:** Total phosphorus and Ortho phosphate values from upstream and downstream sampling locations. DS -2 = downstream sampling location 2, DS-1 = downstream sampling location 1, UPS-1 = upstream sampling location 1, and UPS-2 = upstream sampling location 2.

| Averages within sampling location |                |                |
|-----------------------------------|----------------|----------------|
| Sample ID                         | Ortho P (mg/L) | Total P (mg/L) |
| DS-2                              | 0.05           | 0.068          |
| DS-1                              | 0.051          | 0.057          |
| UPS-1                             | 0.053          | 0.067          |
| UPS-2                             | 0.051          | 0.063          |





# Dorn Creek – Filter Removal

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## Dorn Creek – Filter Comparison



# Project Results

- Filters rapidly clogged with sediment
- Poor binding / contact
- 1-2 lbs. of phosphorus bound
- Target: 40 lbs.
- Cost @ Target
  - \$250/ lb. P mitigated
  - Material cost

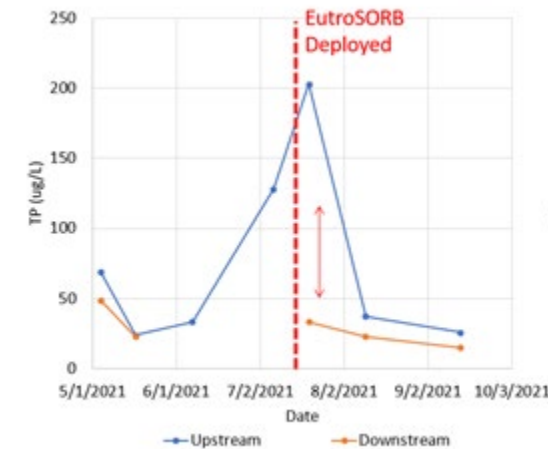


# Bear Creek, CO Project

- Wilmot Creek
- Bear Creek Watershed Association
- 53% Removal (SRP)
- 76% Removal (TP)
- ~13 pounds of removal
- Target: 20 pounds
  - 65% of target
  - Filters are still in system
  - Low P levels (SRP <<25 ppb; **50-100 in Dorn Creek**)



Figure 4: EutroSORB demonstration project results from Wilmont Creek, Bear Creek, CO.

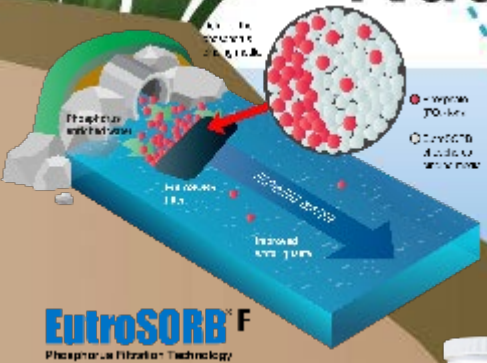




# Phosphorus Pollution Inputs

## Precipitation

## Nutrient Runoff



EutroSORB SI  
(Sediment Inactivation)

## Sediment Reflux

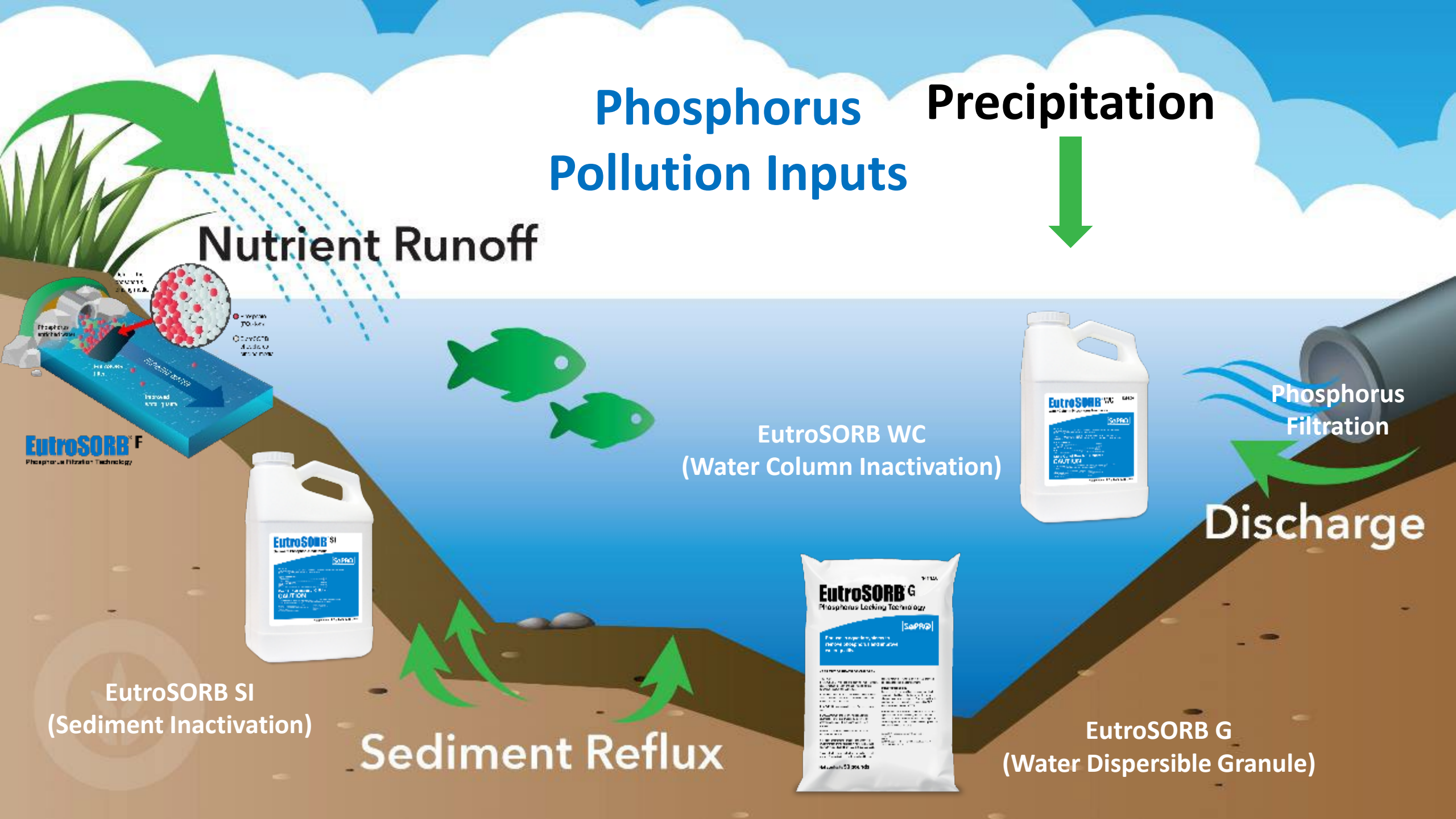
EutroSORB WC  
(Water Column Inactivation)



EutroSORB G  
(Water Dispersible Granule)

## Phosphorus Filtration

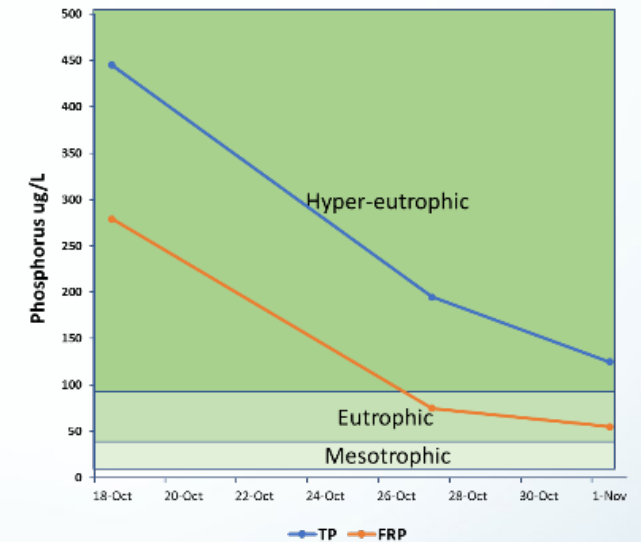
## Discharge



# EutroSORB<sup>®</sup> WC

Water Column Phosphorus Inactivator

- A proprietary solution of phosphate binding minerals
- Liquid formulation
- High specificity to phosphorus
- Safe for fish and invertebrates
- Cost at scale - \$175 / pound of phosphorus
- Next steps:
  - Yahara Grant April 2022
  - EutroSORB WC Injections & Monitoring – Summer 2022





# Discussion

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- Thank You
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