



**JOE'S CREEK STREAM RESTORATION UTILIZING PHOSPHORUS
MITIGATION AND REALTIME VARIABLE RATE INJECTION AND
MONITORING SYSTEMS**

Pinellas County Funding Opportunity: 25-0875-RFP

Proposal Submission Deadline: September 30, 2025 3:00 PM



Prepared for:

Pinellas County
Pinellas County Courthouse Annex
Bldg., Sixth Floor
Clearwater, FL 33756

Prepared by:

Pamela Dugan, PhD	E: pamelad@eutrophix.com	W: 317.495.5657
Scott Shuler	E: scotts@eutrophix.com	W: 317.703.9510
Greg Knoethe	E: greg.knoethe@eutrophix.com	W: 863.845.0632
Mike Pearce	E: mike.pearce@eutrophix.com	W: 317.552.8272

EutroPHIX – A Division of SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, Indiana 46302

Executive Summary

"Urban stream syndrome" describes the consistently observed ecological degradation of streams draining urban land. One of the troubling symptoms of the urban stream syndrome is elevated nutrient concentrations. Joe's Creek is a 9.8-mile-long creek located in downtown St. Petersburg and primarily used for stormwater conveyance capacity and flood risk reduction. Joe's Creek discharges into Cross Bayou flowing to Boca Ciega Bay/John's Pass and ultimately the Gulf of America. The Joe's Creek Phosphorus Mitigation Demonstration involves coupling innovative technology, application, and monitoring approaches to remove phosphorus in the water of Joe's Creek as well as inactivating legacy phosphorus in the sediment of 4 small lakes located along Joe's Creek. Decades of stormwater runoff has resulted in significant legacy sediment phosphorus concentrations and elevated free reactive phosphorus in Joe's Creek. An innovative integrated phosphorus (P) monitoring and mitigation strategy is proposed to begin addressing the excess nutrient loading to Joe's Creek. Four novel technologies will be implemented during the 12-month demonstration:

1. Treatment Approach 1: Phosphorus inactivation in 25 acres of nutrient-impacted sediments within 4 small lakes located along Joe's Creek. A lanthanum-based sediment inactivator (EutroSORB® SI) will be applied which is highly specific to binding phosphorus in sediment and improves sediment stability, thereby reducing resuspension. The phosphorus will be permanently bound and not releasable under typical environmental conditions. Approximately 1,100 pounds of phosphorus will be mitigated in the 4 lakes during the sediment inactivation portion of this demonstration.
2. Treatment Approach 2: Water column phosphorus sequestration in Joe's Creek. A lanthanum-based phosphorus binding solution (EutroSORB® WC) that rapidly binds and strips soluble reactive phosphorus (SRP) from the water column will be utilized. The bound SRP forms a stable and inert insoluble compound. Reduction of phosphate levels moving downstream into Cross Bayou will result in enhanced water quality, reduced potential of HAB formation, and provide conditions more favorable to beneficial phytoplankton and the native ecosystem. Approximately 1,200 pounds of phosphorus in the water column of Joe's Creek will be mitigated during this portion of the demonstration at a design flow rate of 10 CFS and a target P concentration of 50 ppb.
3. To implement Treatment Approach 2, an Automated Injection System for Variable Rate Dosing will be utilized. A SePRO Automated Treatment Technology (SATT) system designed to provide accurate, variable-rate application of liquid chemical amendments to aquatic environments will be deployed on Joe's Creek. SATT dosing rates can be varied as a function of flow and phosphorus concentrations.
4. To continuously monitor the water quality improvements, three in situ automated nutrient monitoring systems will collect water quality parameters with real-time data available on the web. The Green EYES NuLAB monitoring systems utilize wet chemical discrete analysis methods for high accuracy nutrient monitoring with automating sampling and real-time data collection that is accessible remotely.

Project performance will be determined by comparing upstream pre-treatment phosphorus concentrations (i.e., baseline data) to phosphorus levels obtained downstream of the treatment system using nutrient grab samples and the NuLAB continuous in situ field monitoring systems. The combined estimated phosphorus load in the sediment and flowing water of Joe's Creek to be mitigated during the 12-month demonstration is ~2,100 lbs. (includes Joe's Creek water column and top 4-cm of sediment in the four small lakes) for a total project cost of \$901,840.

- 1. Qualifications.** *A statement describing the Proposer's qualifications and experience in providing the same or similar services as outlined in the RFP Scope of Work. This description should include the names of the person(s) who will provide the services, including any subcontractors, their qualifications, and the years of experience in performing this type of work/services.*

Company: EutroPHIX, a Division of SePRO Corporation, 11550 North Meridian Street, Suite 600, Carmel IN, 46032. Size: 153 employees

EutroPHIX, a U.S.-based division of SePRO Corporation, is a water quality restoration company focused on monitoring and mitigation of nutrient pollution. SePRO develops and manufactures a broad portfolio of innovative technologies to improve water quality. Central to that product innovation is the 410-acre SePRO Research & Technology Campus (SRTC) in Whitakers, NC. SePRO also partners with a select group of companies located throughout the United States who apply our technologies to water resources of all sizes to provide communities with safe, clean, and enjoyable water. The EutroSORB® Platform consists of four novel phosphorus removal technologies designed to efficiently bind free reactive phosphorus to slow, stop, or reverse eutrophication and restore water quality. The EutroSORB line of environmentally friendly technologies allows for accelerated restoration for flowing water, lakes, reservoirs, rivers, creeks, and stormwater conveyances. To efficiently deliver liquid phosphorus binding materials to flowing water we created the SePRO Treatment Technology (SATT) systems for precise dosing that can be adjusted remotely based on target analyte concentrations and flow. In addition to our EutroSORB technologies for in-lake phosphorous mitigation, phosphorus binding approaches for flowing water, and SATT systems for precise and accurate dosing, we also have a unique and novel monitoring approach with our GreenEYES NuLAB continuous nutrient monitoring systems. The NuLAB adopts established wet chemical methods to a field chemical analyzer. In essence, the NuLAB is a rugged “chemistry robot” capable of various in situ wet chemical analysis. Water quality issues threaten our water resources, human and animal health, recreational safety, wildlife habitat, and economy. The EutroPHIX team of experts has more than 100 years of combined experience restoring and improving water quality using a proven process to accelerate water quality restoration and has restored more than 500 water bodies across the 50 states. At EutroPHIX, our three-step Adaptive Management process is guided by continuous communication and input with key stakeholders. Following implementation, we recommend a process of continued monitoring, stakeholder input, and adaptive management based upon outlined objectives and data to successfully achieve project goals. EutroPHIX has several projects in Florida where the EutroSORB phosphorus binding technologies, the SATT automated dosing system and NuLAB continuous monitoring systems have been deployed. A summary of three Florida projects that illustrate similar services as outlined in the RFP is provided below.

Phosphorus Mitigation at Lake Deeson, Polk County, Florida

Lake Deeson is a 55-acre lake suffering from high levels of nitrogen, phosphorus, and algae. These pollutants harm water quality and make the lake unhealthy. Phosphorus is the main nutrient causing these problems. To fix this, Polk County created a restoration plan approved by the Florida DEP and EPA. The main goal is to remove 2,500 pounds of phosphorus from lake sediments. This project is funded by the Florida DEP and permitted by the Southwest Florida Water Management District.

Restoration Goals:

- Demonstrate a safe and effective method for mitigating phosphorus in impaired waters
- Improve water quality in Lake Deeson and remove the lake from impairment status
- Increase the value Lake Deeson provides to the local community

Results to date show:

- The lowest phosphorus levels ever measured in the lake
- Increased water clarity
- Improved water quality

Figures 3-5 below provide Lake Deeson water quality results obtained from the Polk County Water Atlas.

Total Phosphorus

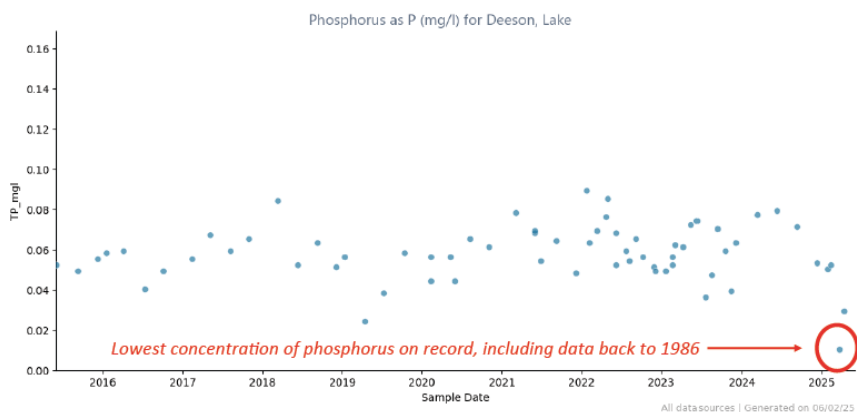


Figure 3. Lake Deeson Total Phosphorus Polk County Water Atlas.

Secchi Depth (Clarity)

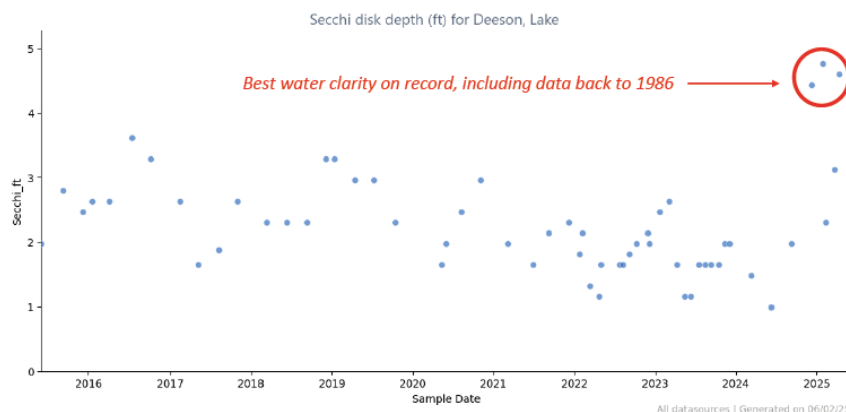


Figure 4. Lake Deeson Secchi Depth Polk County Water Atlas.

Chlorophyll A, Corrected For Pheophytin

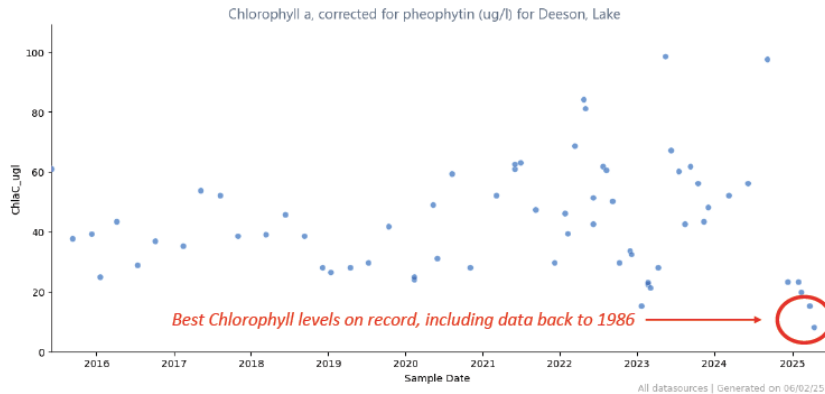


Figure 5. Lake Deeson Chlorophyll-a Polk County Water Atlas.

Lake Deeson Summary:

- Project implemented between September 2024 and March 2025
- Following the completion of the project, phosphorus levels have been reduced and the lowest concentration ever recorded was measured in March of 2025
- This project has lowered phosphorus levels, increased water clarity, and will allow the Lake Deeson ecosystem to thrive.

Phosphorus Mitigation in Bear Branch, Polk County, Florida

Bear Branch is an urban stormwater conveyance located in the Bone Valley of Central Florida with maximum phosphorus concentrations of 35 mg/L resulting in over 40,000 pounds of phosphorus discharging annually into the Peace River and ultimately Charlotte Harbor (Figure 6).



Figure 6. Map of Bear Branch in relation to the Peace River and Charlotte Harbor.

A full-scale phosphorus mitigation and monitoring demonstration was conducted on Bear Branch in Bartow, Florida involving automated inline injection of a liquid phosphorus binder, and a combined approach of grab samples and automated in situ monitoring samples to evaluate system performance. Three integrated and scaleable technologies were deployed including:

- EutroSORB® WC is a high-performance liquid phosphorus binder that can be implemented in high and low flow regimes. Features:
 - Easy to use non-flocculant formulation that can be applied inline directly to flowing water for improved water quality
 - 1.25 gallons of EutroSORB WC will permanently bind one pound of phosphorus
 - Does not impact water chemistry
 - Safe for fish and invertebrates
- SePRO Automated Treatment Technology (SATT) systems provide accurate automated material application rates that can be adjusted based on flow and target removal efficiencies. Features:
 - Remote access reduces number of onsite visits
 - Scalable continuous and event-triggered treatment of dynamic waterbodies
 - Monitors and alerts in real-time
 - Secure solar or satellite-controlled systems
- GreenEyes NuLAB™ autonomous nutrient monitoring systems. Features:
 - Accurate, high-frequency nutrient data you can trust

- Sensitive and specific wet-chemistry analysis of Nitrate + Nitrite, Soluble Reactive Phosphorus, Ammonia + Ammonium, Silicate, Total Nitrogen and Total Phosphorus
- Calibration via preserved on-board standard
- Field-proven real-time data with remote login

Bear Branch also exhibits "flashy" flow which results in rapid increases and decreases in water levels and phosphorus concentrations after rain events, therefore; phosphorus monitoring and mitigation with the automated inline dosing system was evaluated during periods of low and high flow conditions (Figure 7).



Figure 7. Bear Branch EutroSORB WC SATT Injection System.

Grab samples and NuLAB automated soluble reactive phosphorus (SRP) were collected upstream and downstream of the SATT injection system. The Bear Branch sampling locations, the EutroSORB WC SATT injection system, and the NuLAB units located upstream and downstream of the injection location (Figures 8 and 9).

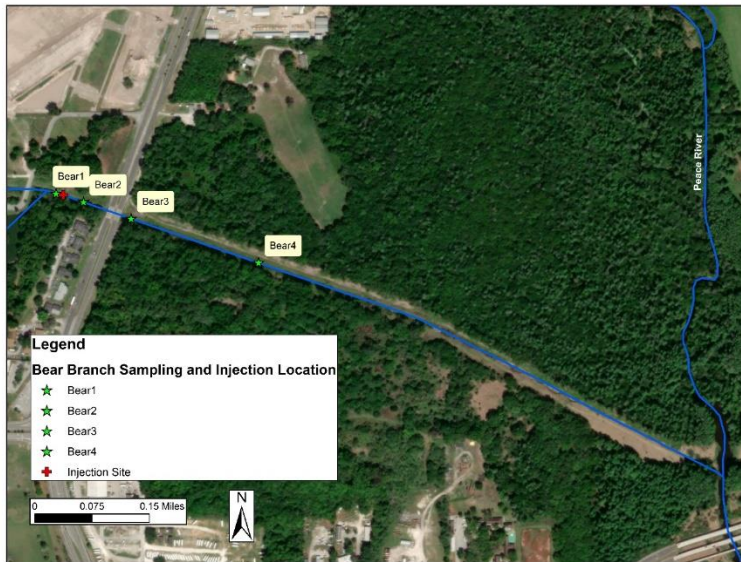


Figure 8. Bear Branch Sampling, Monitoring and Injection Locations.



Figure 9. Bear Branch Sampling, Monitoring and Injection Locations.

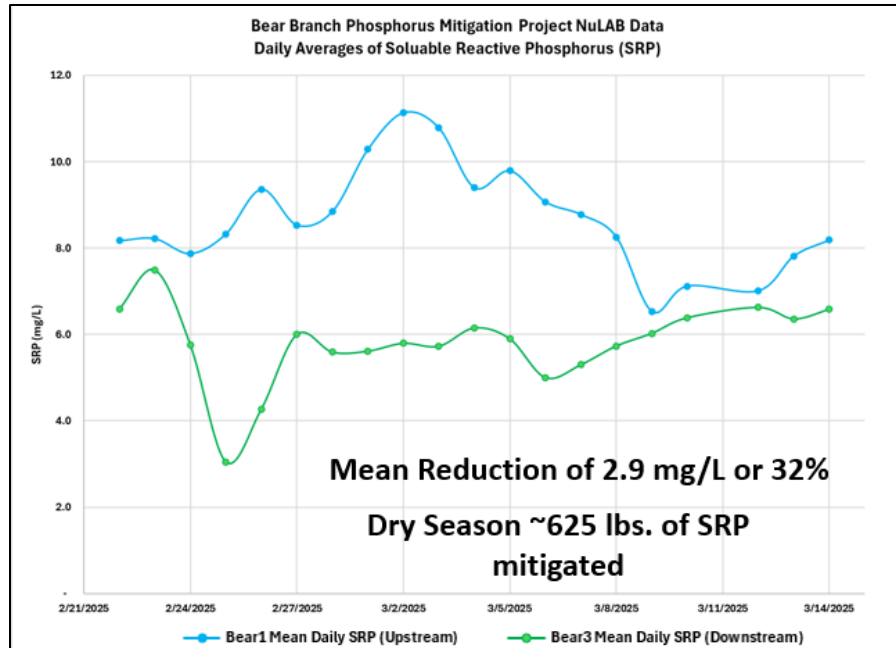


Figure 10. Bear Branch SRP GreenEYES NuLAB Data (Dry Season).

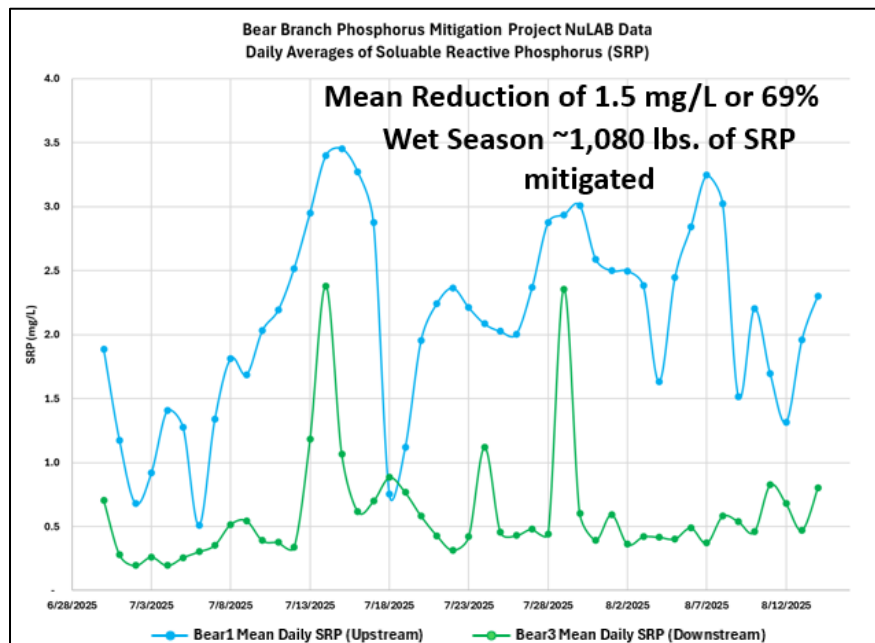


Figure 11. Bear Branch SRP GreenEYES NuLAB Data (Wet Season).

Bear Branch Summary

After ~212 days of operation an estimated 1,705 pounds of phosphorus was mitigated at Bear Branch. This strategy of automated inline phosphorus monitoring and mitigation can be scaled to many other moving water systems throughout Florida and the United States.

Ocklawaha Prairie Restoration Area Phosphorus Mitigation Demonstration

The Ocklawaha Prairie Restoration Area (OPRA) is a former muck farm located on the original Ocklawaha River floodplain that the US Army Corps of Engineers surrounded with a levee forming a 4,000-acre wetland. The high P sediment conditions have resulted in high concentrations of P in the waters which, under certain conditions, discharge to the Ocklawaha River. This issue has made it difficult to permanently reconnect the OPRA with the Ocklawaha River. This project evaluated 2 different technologies, EutroSORB G and EutroSORB WC to mitigate P in the sediment and the water column, respectively. To evaluate the effectiveness of the project, sediment P fractions and water quality grab samples were collected over a 1-year period.

To assist with the reconnection of the OPRA to the floodplain, the St Johns River Water Management District (SJRWMD) needs to reduce phosphorus levels and improve water quality. EutroPHIX and the SJRWMD conducted a full-scale field demonstration to bind excess phosphorus on 161 acres of the OPRA in August of 2024. Technologies included in this demonstration are EutroSORB G and EutroSORB WC and were implemented in three treatment areas (Figure 12).

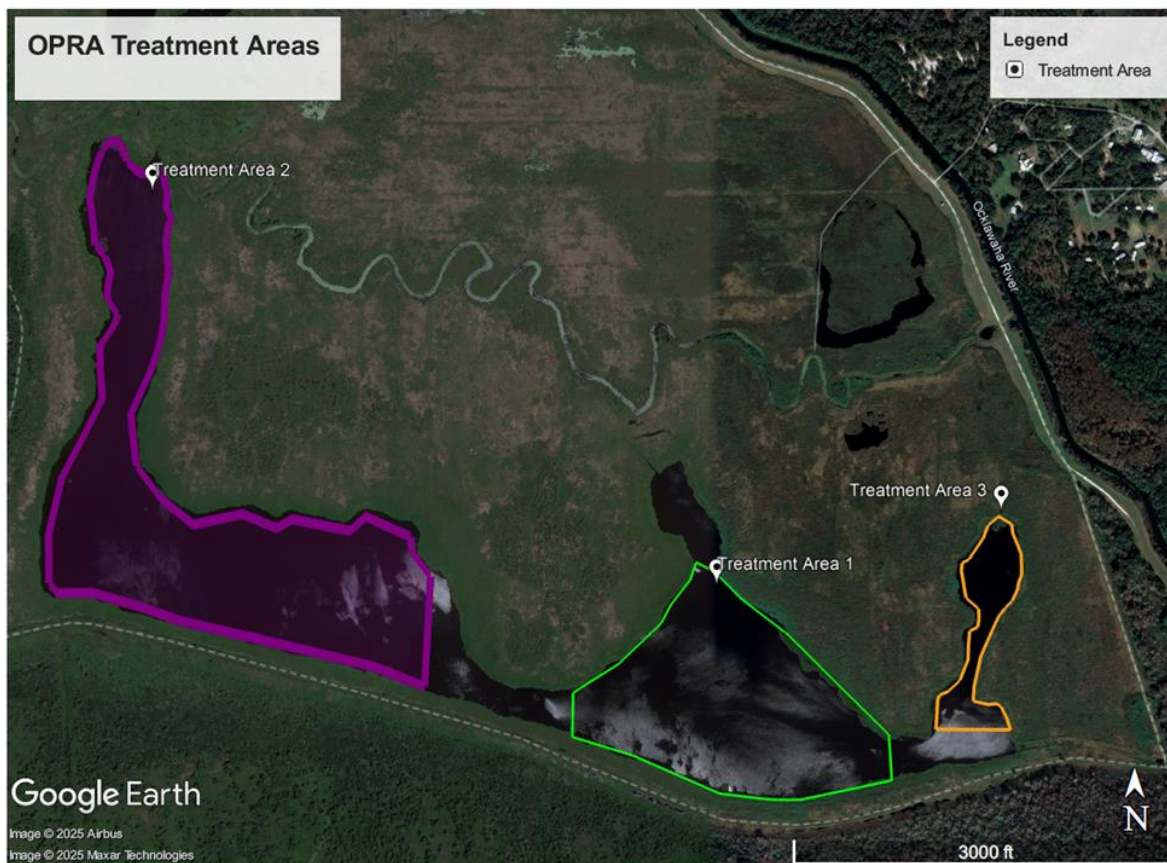


Figure 12. OPRA Treatment Areas.

Treatment Area 1 received a sediment treatment with EutroSORB G, Treatment Area 2 received a water column treatment with EutroSORB WC, and Treatment Area 3 received both sediment (EutroSORB G) and water column (EutroSORB WC) treatment. The treatment areas were

evaluated with an extensive sediment (Treatment Areas 1 and 3) and water quality grab sampling program which included pre-treatment to 12-months post treatment.

OPRA Summary

Sediment data for Treatment Area 1 showed a 47% and 94% increase for mean total P and bioavailable P over the course of the study, respectively. However, Treatment Area 3 displayed a less dramatic increase of 17% and 1% for mean total P and bioavailable P throughout the study. Through the application of La-binding materials the expectation was to lower sediment bioavailable P by converting bioavailable P to apatite and residual P (mineralized non-bioavailable P). It is hypothesized that the unexpected results in Treatment Area 1 may have been a result of Hurricane Milton which resulted in increased water levels and vertical and horizontal movement of tussocks within the OPRA. This event resulted in rooted tussocks breaking free from the wetland bed and suspension/deposition of associated sediments. Water quality grab sample data showed a similar pattern with a significant decrease in total phosphorus (TP) and orthophosphate (OP) up to the 3-week sampling event, however following Hurricane Milton (October 2024), the 3-month sampling event showed an increase. Overall, Treatment Area 3 (sediment and water column treatment) had the best P reduction performance for sediment and water quality grab samples. Sediment data showed a 413% mean increase in apatite and residual P (non-reactive, mineralized P) and a 1% increase in mean bioavailable P. Water quality data found a 68% and 92% mean reduction in TP and OP, respectively over the 1-year study period (Figures 13-15).

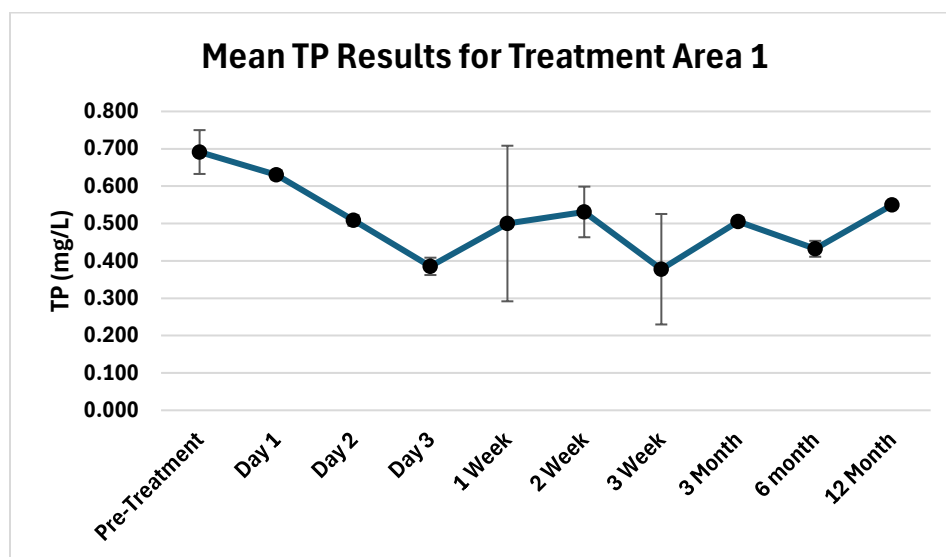


Figure 13. Mean TP data with error bars over the 1-year study period for Treatment Area 1.

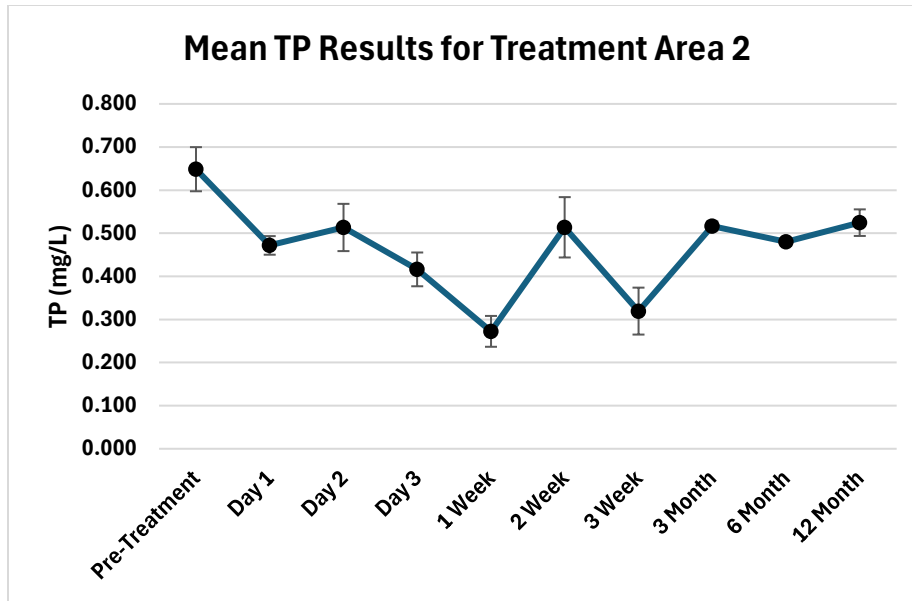


Figure 14. Mean TP data with error bars over the 1-year study period for Treatment Area 2.

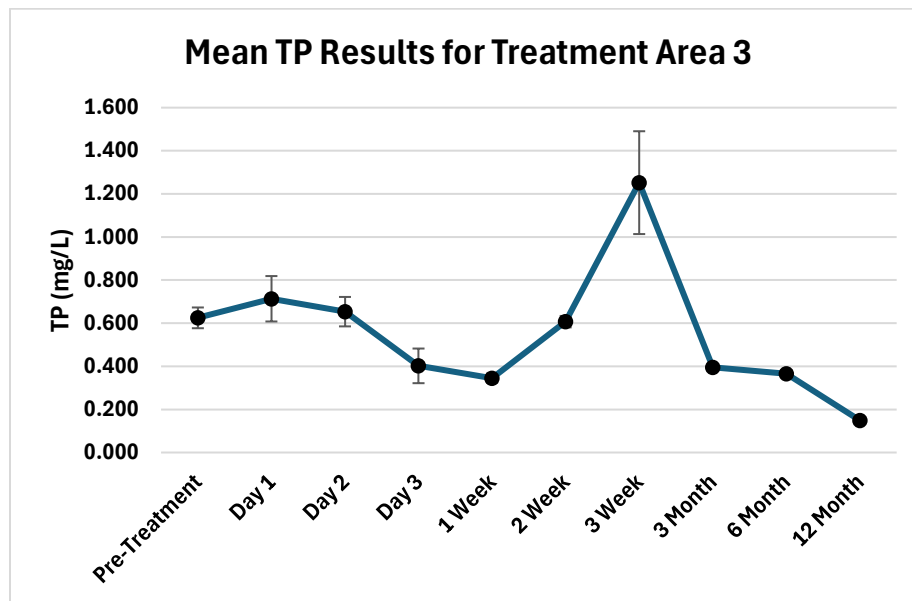


Figure 15. Mean TP data with error bars over the 1-year study period for Treatment Area 3.

Future recommendations for the OPRA include the removal of nuisance vegetation by mechanical or herbicide means to provide open water for treatments, updated sediment data for the entire treatment area, and an application targeting the total bioavailable P in the sediment and water column with La-based technologies.

The following section provides the names and experience of the persons who will be providing the services, including any subcontractors, their qualifications, and the years of experience in performing this type of work/services.

Applied Aquatic Management will be the subcontractor that will assist with the material application process. For over forty years, Applied Aquatic Management, Inc., (headquarters in Bartow, FL) has provided innovative and effective water resource management services across the state of Florida. All Applied Aquatic Applicators are licensed through Florida Department of Agriculture and Consumer Services with certification in the Aquatics, Right-of-Way and/or Natural Areas categories. The EutroPHIX team members are provided in Figure 16.



Figure 16. EutroPHIX Team Members

The EutroPHIX and Applied Aquatic Management team qualifications related to the solicitation scope of services are provided below (Table 1).

Table 1. EutroPHIX and Applied Aquatic, Inc. Project Personnel Qualifications

Project Staff	Company and Project Role	Responsibilities	Expertise
Scott Shuler	EutroPHIX Project Support and Director of Operations	Project Design, Operations and Monitoring Management	Scott Shuler is the Director of Operations and Technology at EutroPHIX and has over 30 years of lake management experience with extensive experience designing, implementing, and monitoring phosphorus mitigation treatments on water bodies of all size and scales. Scott has a BS in Aquatic Biology & Fisheries with dedicated expertise in the limnological sciences and nutrient mitigation.

Pamela Dugan, PhD	EutroPHIX Co-Project Investigator & Field Oversight	Project Lead & Data Management	Pamela Dugan is the Florida Technical Specialist at EutroPHIX and has over 25 years of experience in water treatment. She is a licensed Florida Pesticide applicator and has a PhD in Environmental Engineering with expertise in project implementation and nutrient mitigation.
Greg Knothe, MS	EutroPHIX Co-Project Investigator & Field Oversight	Project Lead & Data Management	Greg Knothe is the Florida Project Lead and Limnologist with over 15 years of experience in water resources management primarily in governmental roles. In his current role he designs, evaluates, and leads complex water quality restoration projects.
Jason Scott	EutroPHIX Laboratory QA Officer & Data Manager	Management of Sediment Sampling Analytes	Jason Scott has over 20 years of experience and serves as the Laboratory Manager at the SePRO Research & Technology Campus where he oversees Water Quality and Sediment Fractionation Analyses and Quality Assurance and Quality Control
JT Gravelie	EutroPHIX GIS Administrator and Technical Development Specialist	SATT system Set-up and Data Analysis	JT Gravelie has over 25 years of GIS mapping and data interpretation as well as building and operating complex material dosing equipment. JT will be responsible for SATT system setup and operation.
Mike Pearce, MBA	EutroPHIX Director of Communications & Community Outreach	Lead Communication and Outreach Strategies and Activities	Mike Pearce has over 25 years of experience and is the EutroPHIX Business Director responsible for business development, marketing communications, community outreach, and executing advocacy programs. Mike has an MBA with extensive experience in water resource restoration.
West Bishop, PhD	EutroPHIX Data and Laboratory Oversight	Oversight of Monitoring Activities	West Bishop has over 25 years of experience and serves as the Algae Scientist and Water Quality Research Manager where he manages the research and development of existing and future algal management and water quality improvement solutions at SePRO. West is a Certified Lake Manager and has a PhD in Crop and Soil Sciences.
Mark Heilman, PhD	EutroPHIX	Oversight of Monitoring Activities	Mark Heilman is the Vice President Environmental Restoration & Advocacy where he is responsible for the design and coordination of field and laboratory

	Data and Laboratory Oversight		research and analytical support. Mark has over 30 years of experience and has a PhD in Aquatic Ecology.
Telly Smith	Applied Aquatic Management Project Manager	Material application and sampling and equipment set up	Telly Smith is a certified aquatic pesticide applicator and has over 25 years of experience with invasive weed treatment and phosphorus mitigation for improved water quality. Telly and his team of technicians will be responsible for material application and assistance with equipment set-up and monitoring.
Jerry Renney	Applied Aquatic Management Certified Aquatic Pesticide Applicator	Material application and equipment set up assistance	Jerry Renney has over 30 years of experience and manages a team of technicians that service a large number of commercial and private accounts involving maintenance and eradication of exotic vegetation and will be responsible for material application assistance.
Archie Campbell	Applied Aquatic Management Project Supervisor	Material application and equipment set up assistance	Archie Campbell has over 30 years of field experience focused on invasive weed treatment and lake management and will be responsible for material application assistance.

2. Background and Approach. *A separate written narrative describing the methods and/or manner in which the Proposer proposes to satisfy the requirements of the Scope of Work.*

Joe's Creek is a 9.8-mile long nutrient-impaired urban stream in downtown Pinellas Park, FL. Along the path of Joe's Creek are four small lakes totaling approximately 25 acres. The creek is primarily used for stormwater conveyance and flood risk reduction. The tidal portion of Joe's Creek (WBID 1668E) is impaired for dissolved oxygen (DO) and chlorophyll-a, while the freshwater portion is impaired for DO. Joe's Creek has also exhibited increasing trends in total nitrogen (TN), total phosphorus (TP), total suspended solids, and turbidity. The Joe's Creek Watershed area is 9,256-acres and includes the cities of Pinellas Park and St. Petersburg, Town of Kenneth City, and parts of unincorporated Pinellas County. The graph and table below illustrate the elevated total phosphorus concentrations that have been observed at Joe's Creek over a 7-year period (Figure 17 and Table 2).

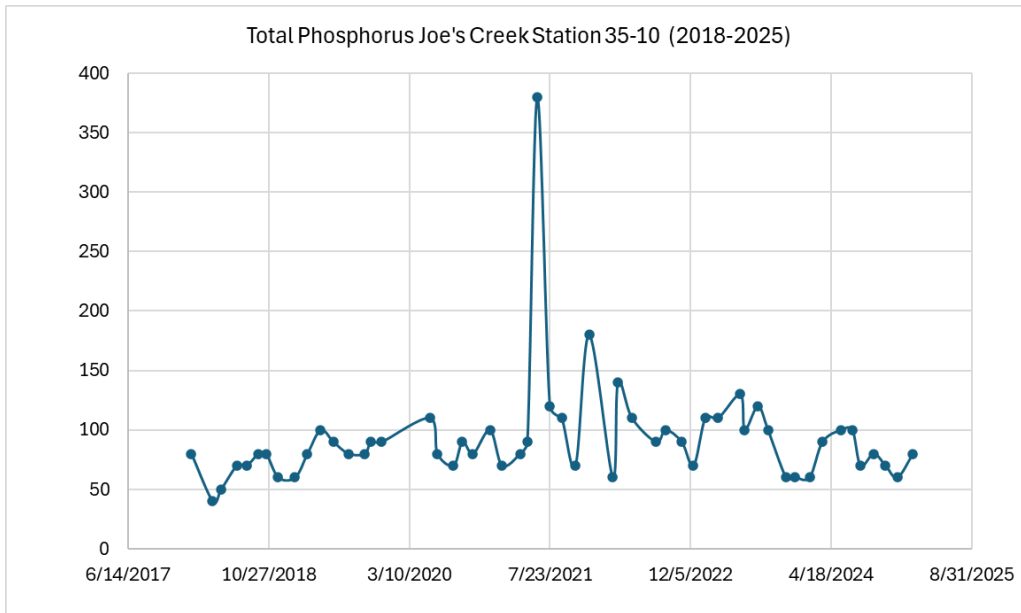


Figure 17. Joe's Creek 7-Year Total Phosphorus Concentrations

Table 2. Joe's Creek 7-Year Total Phosphorus Summary

Joe's Creek Station 35-10 Total Phosphorus Summary (2018-2025)	
TP	ppb
min	40
mean	92
max	380

Phosphorus pollution drives the primary productivity of most surface waters in Florida. The mitigation of this pollution results in the rapid improvement of water quality shifting ecosystem function to a less favorable environment for the formation of Harmful Algal Blooms (HABs). These favorable ecosystem shifts to more diverse native species, coupled with nutrient reductions are long-lasting (years to decades) environmental transformations that provide far reaching enhanced water quality and outdoor recreational benefits to surrounding communities.

The Joe's Creek phosphorus mitigation project is focused on improving water quality so the local communities of Pinellas County can participate and enjoy outdoor recreational opportunities centered around safe and clean water. The project will utilize novel treatment technologies for phosphorus inactivation (EutroSORB SI sediment inactivator and EutroSORB WC water column phosphorus inactivator) along with innovative monitoring approaches (GreenEYES NuLAB in situ continuous monitoring systems). The lanthanum-based formulations have been shown to provide superior long-term phosphorus binding in shallow water bodies such as the four small lakes on Joe's Creek that are subject to wind action, which disturb bottom sediments where they may come in contact with high pH water. Under these conditions, aluminum-based materials may allow for the release of phosphorus. Lanthanum-based binding technologies will not release phosphorus under pH conditions found in natural surface water bodies and can also help stabilize the sediment.

This phosphorus mitigation project proposes an inline automated-injection technology system for precise, continuous application of a lanthanum-based phosphorus sequestration agent into Joe's Creek, as well as the application of lanthanum-based treatments to sequester sediment-bound P in four surrounding lakes. Implementation of this project is proposed to occur on land owned by Pinellas County. The purpose of this demonstration project is to inactivate legacy phosphorus in four small lakes found along Joe's Creek and reduce water column phosphorus concentrations in Joe's Creek which discharges into Cross Bayou and eventually the Gulf of America. The benefits of this demonstration include reduced phosphorus levels with improved water quality and ecosystem function moving downstream to Cross Bayou, as well as treatment of legacy phosphorus in the sediment.

This project would be implemented over a one-year period and long-term maintenance, and nutrient-mitigation strategies could be developed based upon the results. The management of legacy phosphorus will provide rapid water quality improvement in Joe's Creek and allow for the expansion of aquatic vegetation and reduction of nutrient loads into Cross Bayou and the Gulf of America, helping to promote and enhance a more diverse ecosystem and local economy. The combined estimated phosphorus load in the sediment and flowing water of Joe's Creek to be mitigated during the 12-month demonstration is ~2,100 lbs. (includes Joe's Creek water column and top 4-cm of sediment in the four small lakes). The proposed demonstration budget is \$901,840.

The project cost-effectiveness will be measured by determining the cost/lb-P mitigated in Joe's Creek compared to costs associated with best management practices approaches. The information obtained during the Joe's Creek Phosphorus Mitigation Project can be used to develop a complete nutrient mitigation plan for nutrient-impaired lakes in Pinellas County, as well as urban streams and rivers with high phosphorus loads such as Joe's Creek, Boca Ciega Bay and ultimately the Gulf of America. This effort would promote the goals of reducing nonpoint source pollution and restoring impaired urban water bodies across the state of Florida.

3. STATEMENT OF WORK

OBJECTIVES: The purpose of this demonstration is to:

- Demonstrate that the application of EutroSORB WC can effectively remove phosphorus from the water column, bind it in an insoluble form, and reduce phosphorus concentrations in Joe's Creek
- Demonstrate the ability of the SATT system to accurately and precisely dose the liquid phosphorus binder EutroSORB WC into Joe's Creek and adjust dosing rates under variable phosphorus and flow regimes
- Demonstrate that the application of EutroSORB SI can safely and effectively sequester phosphorus within the sediments of the 4 lakes along Joe's Creek and inhibit its subsequent release to the adjacent water column
- Demonstrate the accuracy and precision of GreenEYES NuLAB continuous nutrient monitoring systems for quantifying phosphorus mitigation project performance
- Demonstrate the safety, efficiency and cost-effectiveness of using lanthanum-based amendments to reduce phosphorus loads in water and sediments

To design the Joe's Creek Nutrient Mitigation Plan, historical sediment data, recent water quality data, and flow from an active United States Geological Society (USGS) gaging station were

used to develop a phosphorus management plan for 4 small lakes along the creek using two lanthanum-based chemistries. The phosphorus mitigation approach for Joe's Creek involves automated inline injection of EutroSORB WC a liquid lanthanum-based solution for stripping phosphorus from the water column and in-lake sediment inactivation on four small lakes connected to Joe's Creek using EutroSORB SI, a novel phosphorus binding formulation for sediment inactivation. Once these technologies are applied, lanthanum ions react preferentially with phosphate compounds and rapidly form a highly stable insoluble mineral. The resulting phosphate mineral complex becomes integrated as a nonhazardous, inert component into the natural sediments of the waterbody and will not be released and is no longer bioavailable. Due to the specificity of EutroSORB materials to phosphate it will continually bind new incoming phosphorus from internal and external sources. During application, EutroSORB SI sediment inactivator will be applied over the surface of the lake (example of implementation of sediment inactivation illustrated in Figure 18).



Figure 18. Implementation of EutroSORB G Sediment Inactivation Technology at Lake Deeson in Polk County, Florida

The proposed 12-month project will be implemented in 2026 pending award notification, contract execution, and approved Quality Assurance Project Plan (QAPP) and permit if necessary. Project implementation involves installation of 3 Green EYES NuLAB systems and SATT injection systems as well as the application of 2,750 gallons of EutroSORB SI (liquid) or 10,000 lbs. of EutroSORB SI (dry) to mitigate an estimated 1,100 lbs. of phosphorus in the top 4-cm of sediment and the automated injection of 1,925 gallons of EutroSORB WC to mitigate an estimated 1,000 pounds of P in the water column of Joe's Creek at a design flow rate of 10 CFS and target P concentration of 50 ppb (Figure 19).

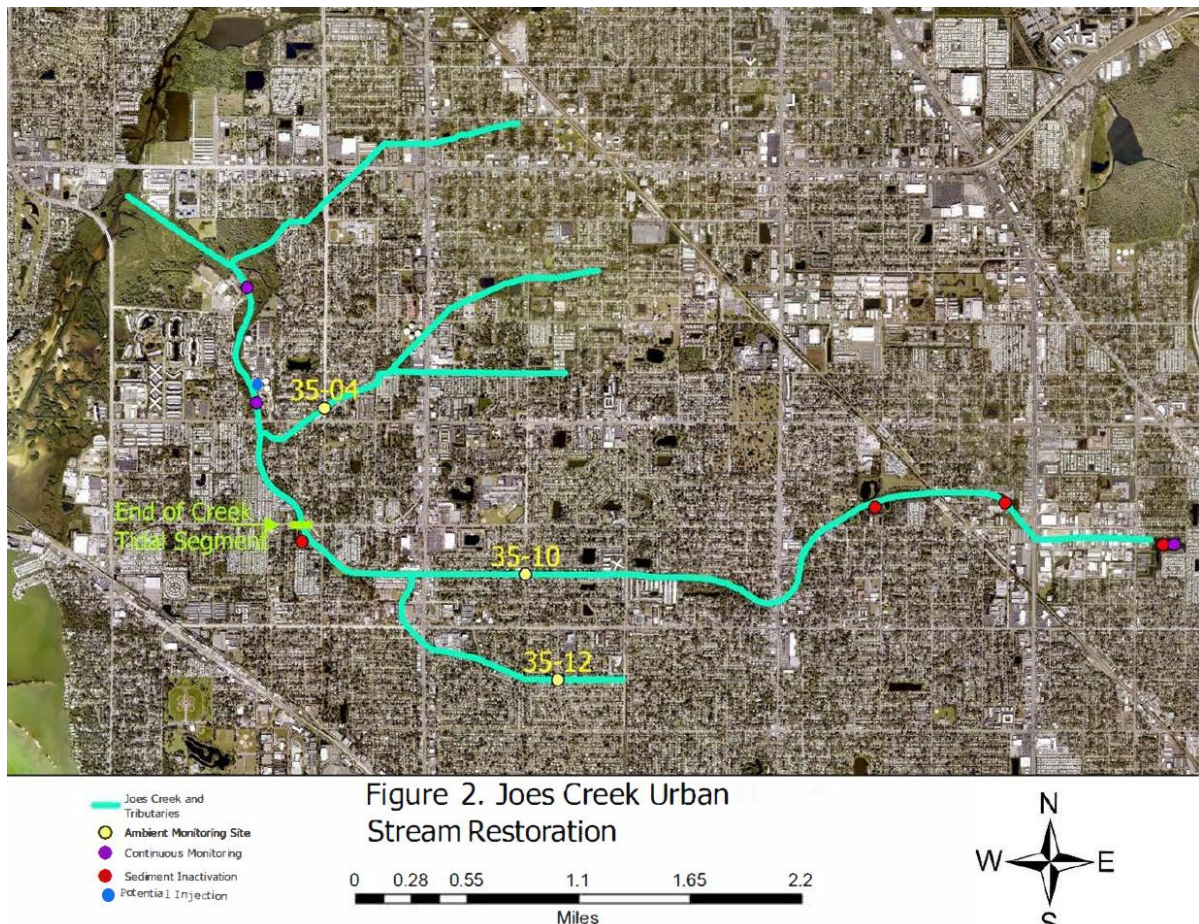


Figure 19. Map of Joe's Creek Monitoring, Material Injection and Sediment Inactivation Locations

The solar-powered or line-powered SATT system is designed to provide accurate, variable-rate application of liquid chemical amendments to aquatic environments will be utilized in this demonstration. SATT dosing rates can be varied as a function of flow and phosphorus concentrations. To adjust SATT material dosing an upstream USGS gaging station as well as a flow gaging system will be used for real-time adjustment. The SATT system will operate on the bank of Joe's Creek in a fenced area. The EutroSORB WC will be dosed into the flowing water of the creek with a hose that will be temporarily secured on the bed of the creek. Since the early 2000s, SePRO Corporation has designed and deployed SATTs to conduct management of aquatic invasive plants and problematic algae, as well as nutrient mitigation. Such systems have been designed for very low flows up to 1000s of CFS and are scalable to higher flow rates depending on project needs. The goal of the SATT system is to provide accurate variable-rate treatments with confidence, built in safety mechanisms, complete system control, and real-time system monitoring.

Monitoring will be essential to track and quantify improvements made in Joe's Creek water quality. Water quality grab samples as well as continuous data collection with NuLAB automated monitoring systems will be implemented to collect pre-treatment, during and post-treatment samples over the 12-month demonstration period. Before and during the demonstration, acute and chronic Whole Effluent Toxicity (WET) jar testing prior to the application of EutroSORB WC and EutroSORB SI. The Contractor will also conduct acute and chronic whole Effluent Toxicity

(WET) pre- and post-treatment of EutroSORB WC and EutroSORB SI. The following water quality parameters will be collected/analyzed: total phosphorus (TP), SRP, total nitrogen (TN), nitrite, nitrate, dissolved oxygen (DO), pH, conductivity, and temperature. In addition to the water quality monitoring program pre- and post-treatment sediment samples will be collected from the 4 lakes and analyzed for % solids in addition to the following phosphorus fractions as mg P/kg: labile P, reductant-soluble P, metal-oxide P, organic P, and apatite/residual. The Joe's Creek water quality and sediment monitoring program is detailed in Table 3.

Table 3. Joe's Creek Monitoring Program

Task	Location	Frequency	Analytes
Water Quality Grab Samples	4 lakes and Joe's Creek	Pre-treatment then monthly sampling for 12-months	TP, SRP, TN, Nitrate/Nitrite
NuLAB Continuous Nutrient Monitoring	3 locations along Joe's Creek	Continuous monitoring every 2-4 hours	TP, SRP, TN, Nitrate/Nitrite
Sediment Sampling	4 lakes	Pre-treatment and 12-months post-treatment	% solids and the following phosphorus fractions as mg P/kg: labile P, reductant-soluble P, metal-oxide P, organic P, and apatite/residual
Water Quality Sonde	4 lakes	Pre-treatment then monthly sampling for 12-months	DO, pH, conductivity and temperature

To validate nutrient inactivation performance, the pre-treatment sediment samples will be compared to post-treatment sediment samples to quantify the amount of bioavailable phosphorus that transforms into non-bioavailable mineralized forms of phosphorus. To quantify demonstration performance the pre-treatment water quality and sediment samples will be compared to post-treatment samples and provide the total pounds of phosphorus mitigated in the sediment and water column during the 12-month demonstration.

The Joe's Creek phosphorus mitigation demonstration will address the issue of excessive urban phosphorus pollution and the formation of HABS as well as improve Florida's ability to prevent, mitigate and clean-up nutrient impaired waters using automated inline phosphorus treatment and monitoring approaches coupled with a nutrient-impacted sediment management plan to:

- Reduce water and sediment phosphorus levels, resulting in better water quality that will lower primary productivity and lower the risk of HAB production
- Demonstrate a scalable monitoring and treatment approach that can be broadly applied to urban water bodies for nutrient mitigation
- Assist regulatory agencies with meeting Total Maximum Daily Load standards and implementing Alternative Restoration Plans
- Reduce negative environmental and economic impacts to the community caused by poor water quality

- Improve urban community recreational opportunities centered around clean, safe, and enjoyable water in Joe's Creek

If awarded the following detailed Scope of Work and associated tasks will be completed for the Joe's Creek Stream Restoration Utilizing Phosphorus Mitigation and Realtime variable Rate Injection and Monitoring Systems Demonstration.

Task #1: Quality Assurance Project Plan (QAPP)

Task Description: The Contractor will prepare, submit, and receive approval on a Quality Assurance Project Plan (QAPP) prior to commencement of any sampling, laboratory experiments and analyses and data analyses associated with the project. The QAPP must specify the sampling procedures, locations, instruments, frequency, and parameters to be sampled.

Deliverable #1a: Draft QAPP:

The Draft QAPP in Word format to Pinellas County (County). Upon request, the Contractor will provide a paper copy of the Draft QAPP to the County.

Performance Standard: The County and Florida Department of Environmental Protection (FDEP) will ensure review of the draft QAPP for compliance with this Agreement and the quality assurance requirements, to ensure sufficient monitoring is planned to measure project effectiveness and provide comments to the Contractor as needed prior to Final QAPP submittal.

Deliverable #1b: Final QAPP

Final County-approved QAPP submitted electronically in PDF format to the County. Upon request, the Contractor will provide a paper copy of the Final QAPP to the County.

Performance Standard: The County and FDEP will review the Final QAPP to ensure that draft comments have been incorporated and the Final QAPP is in compliance with this Agreement and the quality assurance requirements. Upon review and written approval from the County and FDEP of the Final QAPP, the Contractor may proceed to Task 2.

Task #2: Design, Permitting and Project Management

Task Description: The Contractor will oversee the project design and necessary permitting. The Contractor will also perform project management, to include field services, site meetings with sub-contractor(s), and overall project coordination, implementation, and supervision. As part of the project design the Contractor will conduct acute and chronic jar WET testing using water from the waterbody before treating with EutroSORB SI and EutroSORB WC. The Contractor will conduct the WET testing with a combination of the two lanthanum-based chemicals.

Deliverable #2a: The Contractor will submit an electronic copy of 1) the final design, including professional certification as applicable, and 2) a list of all required permits identifying issue dates and issuing authorities submitted to the County. Upon request, the Contractor will provide copies of obtained permits or permit-related correspondence or documentation and/or a paper copy of the final design.

Performance Standard: The County and FDEP will review the deliverables to verify that they meet the specifications in the Grant Work Plan and this task description. Upon review and written acceptance by the County's Grant Manager of each deliverable under this task the Contractor may proceed with payment request submittal.

Deliverable #2b: The Contractor will submit an electronic copy of the WET testing results to the County for approval. Upon request, the Contractor will provide a paper copy of the results.

Performance Standard: The County and FDEP will review the WET testing results. Upon review and written acceptance by the County and FDEP of all deliverables under this task, the Contractor may proceed to Task 3.

Task #3: Treatment Application & Monitoring

Task Description: The Contractor will conduct treatment application and monitoring, and water quality and sediment sampling in accordance with the County-approved QAPP for this project (see Task 1).

Deliverable #3: The Contractor will submit a summary of completed monitoring activities (dates completed, sampling conducted and any not conducted and why, monitoring results along with interpretation of those results (as expected or not as expected)) submitted electronically, along with the draft or final (when submitting final request) laboratory report and sampling logs (must also have field and weather data) to the County. Upon request, the Contractor will provide a paper copy or copies to the County. These deliverables may be submitted no more frequently than monthly.

Performance Standard: The County and FDEP will review the monitoring results for completion and compliance with QAPP requirements. Upon review and written acceptance by the County and FDEP each deliverable under this task, the Contractor may proceed with payment request submittal.

Task #4: Final Report and Presentation

Task Description: The Contractor will submit a Final Report and Presentation summarizing the results of the project, including all tasks agreed upon. The Final Report must include at a minimum:

A 1–2-page executive summary which will include a brief introduction, the purpose of the study, the Contractor's findings, recommendations, the limitations of the Contractor's report, any implementation guidelines or procedures, and a conclusion (not included in Final Presentation).

Project location and background, project description and timeline, grant award amount and anticipated benefits.

Financial summary of actual costs versus the budget, along with any changes required to the budget. Include any match or locally pledged contributions provided, along with other related project work performed outside of this Agreement to identify the overall project cost.

Discussion of project schedule versus actual completion, including changes required to the schedule, unexpected site conditions and adjustments, significant unexpected delays and corrections, and/or other significant deviations from the original project plan.

Summary of activities completed as well as those not completed and why, as well as a brief summary of any additional phases yet to be completed.

Date-stamped photographic documentation of work performed (before, during and after), appropriate figures (site location, site plan[s]. etc.), appropriate tables summarizing data/information relevant to the project's FDEP Grant Work Plan tasks, and appropriate attachments relevant to the project.

Summary of research activities completed and any not completed and why, experimental results, and an interpretation of data based on planned versus realized results.

Discussion of whether the anticipated benefits have been/will be realized.

The Contractor has the option to provide the County and FDEP with a virtual presentation (Microsoft Teams) or an in-person presentation of their Final Report. Please note that travel expenses for the in-person presentation are not reimbursable or allowable. The presentation will be no more than 60 minutes and will have sufficient time for questions and answers.

Deliverable #4a: Draft Final Report

The Contractor will submit an electronic copy of the draft Final Report in Word format to the County's Grant Manager for review prior to submission of the Final Report. Upon request, the Contractor will provide a paper copy of the draft Final Report.

Performance Standard: The County and FDEP will review the submitted draft Final Report to verify that it meets the specifications in the project's FDEP Grant Work Plan and this task description and provide any comments to the Contractor for incorporation into the Final Report.

Deliverable #4b: Final Report

The Contractor will submit an electronic copy of the Final Report, with all suggested changes incorporated, in PDF format, to the County for review and approval by the County and FDEP. Upon request, the Contractor will provide a paper copy of the Final Report.

Performance Standard: The County and FDEP will review the Final Report to verify that it meets the specifications in the project's FDEP Grant Work Plan and this task description. Upon review and written approval by the County and FDEP of the Final Report, the Contractor may proceed with the Final Report Presentation.

Deliverable #4c: Project Presentation

The Contractor will submit an electronic copy of the Project Presentation prior to presentation day. Upon request, the Contractor will provide a paper copy of the Project Presentation.

Performance Standard: Upon completion of the presentation of the project and written approval by the County and FDEP of the Project Presentation, the Contractor may proceed with payment request submittal for this task.

The Proposed Schedule for the Joe's Creek Demonstration is provided in Table 4 below.

Table 4. Project Tasks and Timeline Schedule

1	Quality Assurance Project Plan	Upon Execution	180 days after Execution	
1a	Draft QAPP			90 Days before the Task End Date
1b	Final QAPP			30 Days before the Task End Date
2	Design, Permitting, and Project Management	Upon Execution	09/01/2026	Upon Completion of Task
3	Treatment Application and Monitoring	Upon Execution	09/01/2027	Upon Completion of Task
4	Final Report and Presentation	Upon Execution	1/31/2028	
4a	Draft Final Report			10/31/2027
4b	Final Report			11/30/2027
4c	Final Presentation			12/31/2027

The data obtained from this demonstration will help guide Florida's Adaptive Management and Alternative Restoration Strategies, address the goals of the Florida DEP Innovative Grant and Blue-Green Algae Task Force using novel, scalable, technically efficient approaches to mitigate excess phosphorus loading in impaired HAB-prone water bodies by creating safer, cleaner, more enjoyable water resources in Florida communities.

4. Compensation. *The proposed compensation to be paid by the County for the services identified*

The estimated funding amounts and proposed project timeline are provided in Table 5 below.

Table 5. Joe's Creek Phosphorus Mitigation Project Cost Summary

Task #	Item	Cost	Estimated Timeline	Notes
Task 1	Quality Assurance Project Plan (QAPP)	\$ 5,000	March 2026-June 2026	Preparation, submission, and approval of the project QAPP prior to commencement of sampling and data analyses associated with the project. The QAPP will specify the sampling procedures, locations, instruments, frequency, and parameters to be sampled.
Task 2	Design, Permitting and Project Management	\$ 200,000	September 2026-September 2027	Permitting, site preparation, equipment installation, material handling, sampling, monitoring, reporting. As part of the project design acute and chronic WET testing using site water will be conducted with EutroSORB SI and EutroSORB WC will be completed.
Task 3	Treatment Application & Monitoring	\$ 671,840	September 2026-September 2027	Assumes ~25 acre application of EutroSORB SI (~2,700 gallons) and a 12-month automated injection of EutroSORB WC (~2,000 gallons) at a design flow rate of 10 CFS and target P concentration of 50 ppb. Sediment P Fractionation Analyses Water Quality Analyses (Grab & NuLAB Continuous Sampling Systems)
Task 4	Final Report and Presentation	\$ 25,000	October 2027-December 2027	Submission of a Final Report and Presentation that include an introduction, purpose of the study, findings, recommendations, implementation procedures, and a conclusion summarizing the results of the project
Grand Total		\$ 901,840		

The proposed compensation to be paid by the County will be based on the % completion of each task/deliverable identified in Table 4 with the assumption that 100% of each task will be completed.


COMMON CARRIER ATTESTATION

In accordance with section 908.111, Florida Statutes, the undersigned, on behalf of SePRO Corporation (EutroPHIX Div.) (the "Contractor"), attests and agrees they are in conformity with Florida Statute § 92.525 and is not willfully providing and will not willfully provide any service during the contract term in furtherance of transporting a person into this state knowing that the person is an unauthorized alien, except to facilitate the detention, removal, or departure of the person from this state or the United States.

For purposes of this Attestation, the Contractor is a "Common carrier" if it is a person, firm, or corporation that undertakes for hire, as a regular business, to transport persons or commodities from place to place, offering his or her services to all such as may choose to employ the common carrier and pay his or her charges.

The undersigned must be an authorized representative of the Contractor who can execute this Attestation on the Contractor's behalf.

Under penalties of perjury, I Scott Shuler, declare that I have read the foregoing Common Carrier Attestation and that the facts stated in it are true.

Signature: 

Print Name: Scott W. Shuler

Date: 9/25/2025

Federal Work Authorization User Identification No.: 1816308

Name of Pinellas County Contract and Contract No.: 25-0875-RFP

COMMON CARRIER TERMINATION

The County reserves the right to terminate the associated agreement, for cause, if the Contractor is found in violation of its attestation above.

Foreign County of Concern Affidavit

I hereby certify that SePRO Corporation (EutroPHIX Div.) (the "Contractor") is not an entity owned by the government of a Foreign Country of Concern; the government of a Foreign Country of Concern does not have a Controlling Interest in the entity; nor is the entity organized under the laws of or has its principal place of business in a Foreign Country of Concern, and is otherwise in full compliance with Section §287.138, Florida Statutes.

This Affidavit must be completed by an authorized representative of the Contractor submitting a bid, proposal, reply to, or entering into, renewing, or extending, a contract with the County, which would grant the entity access to an individual's Personal Identifying Information.

For purposes of this Affidavit:

“Foreign Country of Concern” means the People’s Republic of China, the Russian Federation, the Islamic Republic of Iran, the Democratic People’s Republic of Korea, the Republic of Cuba, the Venezuelan regime of Nicolás Maduro, or the Syrian Arab Republic, including any agency of or any other entity of significant control of such foreign country of concern.

“Controlling Interest” means possession of the power to direct or cause the direction of the management or policies of a company, whether through ownership of securities, by contract, or otherwise. A person or entity that directly or indirectly has the right to vote 25 percent or more of the voting interests of the company or is entitled to 25 percent or more of its profits is presumed to possess a controlling interest.

Under penalties of perjury, I declare that I have read the foregoing affidavit and that the facts stated in it are true.

Signature:

Print Name:

Date:

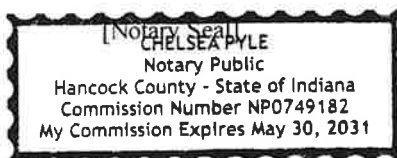
Federal Work Authorization User Identification No.:

Name of Pinellas County Contract and Contract No.: 25-0875-RFP

STATE OF FLORIDA COUNTY OF NA - Indiana Notary

The foregoing instrument was acknowledged before me by means of 1) physical presence ☒ or 2) online notarization ☐, this 9/25/2025 (date) by Scott Shuler of SePRO Corporation, a Indiana corporation, on behalf of the corporation.

He/she is personally known to me or has produced _____ a drivers license _____ as identification.



Notary Public:

Name typed, printed, or stamped:

My Commission Expires:

HUMAN TRAFFICKING AFFIDAVIT

In accordance with section 787.06 (13), Florida Statutes, the undersigned, on behalf of SePRO Corporation (EutroPHIX Div.) (the "Contractor"), hereby attests that the Contractor does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.

The undersigned must be an authorized representative of the Contractor who can execute this affidavit on the Contractor's behalf.

Under penalties of perjury, I Scott Shuler, declare that I have read the foregoing affidavit and that the facts stated in it are true.

Signature: 

Print Name: Scott W. Shuler

Date: 9/25/2025

Federal Work Authorization User Identification No.: 1816308

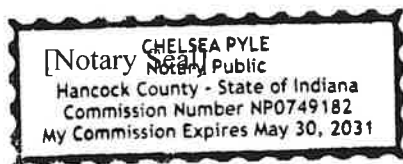
Name of Pinellas County Contract and Contract No.: 25-0875-RFP

STATE OF FLORIDA COUNTY OF NA - Indiana Notary

The foregoing instrument was acknowledged before me by means of 1) physical presence ☒ or 2) online notarization ☐ this 9/25/2025 (date) by

Scott Shuler of SePRO, a INDIANA corporation, on behalf of the corporation.

He/she is personally known to me or has produced a drivers license as identification.



Notary Public: 

Name typed, printed, or stamped: Chelsea Pyle

My Commission Expires: May, 30, 2031

2025 FOREIGN PROFIT CORPORATION AMENDED ANNUAL REPORT

DOCUMENT# F94000005231

Entity Name: SEPRO CORPORATION

Current Principal Place of Business:

11550 NORTH MERIDIAN STREET
SUITE 600
CARMEL, IN 46032

Current Mailing Address:

11550 NORTH MERIDIAN STREET
SUITE 600
CARMEL, IN 46032 US

FEI Number: 35-1902554

Certificate of Status Desired: No

Name and Address of Current Registered Agent:

REGISTERED AGENT SOLUTIONS, INC.
1200 SOUTH PINE ISLAND ROAD
PLANTATION, FL 33324 US

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE:

Electronic Signature of Registered Agent

Date

Officer/Director Detail :

Title PRESIDENT, CEO, SECRETARY
Name KOSCHNICK, TYLER
Address 11550 NORTH MERIDIAN STREET
 SUITE 600
City-State-Zip: CARMEL IN 46032

Title CFO, TREASURER, SENIOR VICE
 PRESIDENT
Name WEBER, ERIC
Address 11550 NORTH MERIDIAN STREET
 SUITE 600
City-State-Zip: CARMEL IN 46032

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 607, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: TYLER KOSCHNICK

PRESIDENT

09/26/2025

Electronic Signature of Signing Officer/Director Detail

Date

Scott W. Shuler***Director, Technology & Operations EutroPHIX – A Division of SePRO Corporation***

Education: B.S. in Aquatic Biology & Fisheries from Ball State University, 1993
Graduate Research Assistant, Ball State University, 1993-1995

Certifications: Washington Commercial Pesticide Applicator License 68807, Indiana Commercial Pesticide Applicator License F32572, Certified Rescue SCUBA Diver

Affiliations: Aquatic Plant Management Society (APMS), 2000-present; Western APMS, Director 2004-2006, President 2006-2008, Secretary-Treasurer 2009; Midwest APMS, Secretary-Treasurer 1996-2002, President-Elect 2003; American Fisheries Society (AFS), 1991-present; Indiana Chapter AFS, 1990-present, President 1999-2001; North American Lakes Management Society (NALMS), 2005-present; California Lake Management Society (CALMS), Board of Directors 2005-2007; Indiana Lakes Management Society (ILMS), Board of Directors 2002-2004; Indiana Aquatic Nuisance Species Council 2002-2003

Summary: Scott Shuler began his water resource management career in the early 1990s. Over the last three decades this has led to work in water quality restoration, invasive species management, and fisheries management across a diverse array of aquatic systems. As National Manager of EutroPHIX, Scott leads a team to confront our water resources' greatest challenges: harmful algal blooms and phosphorus pollution. Our mission is to accelerate water resource restoration.

Professional Work Experience:

SePRO Corporation: January 2004-Present

Director, Technology & Operations, EutroPHIX: October 2023 - Present

National Manager, EutroPHIX Division: November 2020 – Present

Western Regional Sales Manager: September 2016 – November 2020

Portfolio Leader: July 2015 - September 2016

Specialty Market Development Manager: March 2011 – July 2015

Aquatic Technical Specialist: January 2004 – March 2011

Aquatic Control, Inc.: May 1995 – January 2004

Vice President of Lake Management Services: January 2000 – January 2004

Manager, Lake Management Services: January 1999 – January 2000

Aquatic Biologist: May 1995 – January 1999

Recent Publications:

Caudill J, Jones AR, Anderson, L, Madsen JD, Gilbert P, Shuler S, Heilman MA (2019) Aquatic plant community restoration following the longterm management of invasive *Egeria densa* with fluridone treatments. *Management of Biological Invasions* 10(3): 473–485, <https://doi.org/10.3391/mbi.2019.10.3.05>

Willis, B., Heilman, M., Bishop, W. and Shuler, S. (2018) Evaluation of Multiple Herbicides for Control of Sponge Plant (*Limnolobos laevigatum*). *Journal of Geoscience and Environment Protection*, 6, 56-64. doi: [10.4236/gep.2018.66004](https://doi.org/10.4236/gep.2018.66004).

Select Project Experience:

1. City of Indianapolis, Algal Control Program to Prevent Taste & Odor, Eagle Creek, Geist and Morse Reservoirs, 2000-2003
2. California Department of Boating & Waterways (CBW), *Egeria densa* Control Program, 2004-2022.
3. Lake Pend Oreille Eurasian Milfoil Control Project, 2004-2010
4. Army Corps of Engineers (ACOE), Aquatic Plant Control Research Program, Eurasian Milfoil Control Study, Pend Oreille River, 2007
5. Alaska Elodea Eradication Program, 2011-2021
6. Hayden Lake Idaho, Curlyleaf Pondweed Control Program 2018-2020
7. Morrison Lake Michigan, Phosphorus Mitigation Project, 2019-2022
8. City of Austin, Texas, Ladybird Lake Phosphorus Mitigation Project, 2019-2022
9. Kitsap Lake Washington, Phosphorus Mitigation Project, 2019-2022

PAMELA J. DUGAN

EutroPHIX Technical Specialist: Water Quality Eastern Region
pamelad@eutrophix.com | (317) 495-5657 | [linkedin.com/in/pamela-dugan](https://www.linkedin.com/in/pamela-dugan)

EDUCATION

PhD Environmental Engineering | Colorado School of Mines
Bachelor of Geological Science, Indiana University

CORE COMPETENCIES

- Business Development and Customer Acquisition | New Product and Market Launches
- Strong Technical Service Background | Environmental Treatment Technology Development
- Build Stakeholder Consensus / M&A Pipeline Development | Excellent Verbal, Written, and Problem-Solving Skills

PROFESSIONAL EXPERIENCE

TECHNICAL SPECIALIST

EUTROPHIX – A DIVISION OF SEPRO, Spring Hill, FL | OCTOBER 2021 – PRESENT

Sales & Market Growth – Responsible for lead generation and new product sales, customer engagement, building stakeholder consensus, and the design and implementation of strategies for accelerated water resource restoration, phosphorus mitigation, and harmful algal bloom reduction.

COMMERCIAL DEVELOPMENT MANAGER

CARUS CORPORATION, PERU, IL | May 2008 – JUNE 2021

Market Expansion - Launched new water treatment product line based on rare earth technology for high performance removal of phosphorus. Developed strategic marketing materials, conducted product field trials, refined value proposition and launched product in adjacent food and beverage market.

Business Development - Demonstrated ability to develop new business and increased revenue of remediation market product lines by 60% from 2013 to 2015.

Sales Growth – Led new product launches, customer-focused technical sales support, and global market outreach with global gross margin increase from \$2.5M - \$4.5M from 2013 to 2015.

Revenue Growth - Developed new technology for odor control to gain back market share in wastewater industry (\$1M Revenue 2017-2018).

SELECT PRESENTATIONS AND PUBLICATIONS

Pamela J. Dugan, 33rd Annual Indiana Lakes Management Conference. April 7-8, 2022. “In-Lake Phosphorus Mitigation for the Restoration of Impaired Lakes and Streams”, Plymouth, Indiana.

Pamela J. Dugan, Illinois Lake Management and American Fisheries Joint Conference. March 17-18, 2022. “Phosphorus Mitigation for the Restoration of Impaired Lakes and Streams”, Champaign, Illinois.

Evans, P.J., Dugan, P.J., Nguyen, D., Lamar, M., Crimi, M.L. (2019). Slow-release permanganate versus unactivated persulfate for long-term in situ chemical oxidation of 1,4 dioxane and chlorinated solvents. Chemosphere, Volume 221, p. 802-811. <https://doi.org/10.1016/j.chemosphere.2019.01.075>

Evans, P.J., Dugan, P.J., Crimi, M.L., Ruiz, N. (2018). Sustained in situ chemical oxidation (ISCO) of 1,4 dioxane and chlorinated VOCs using slow-release chemical oxidant cylinders. [ESTCP Project ER-201324 Final Report](#), pages 576.

Dugan, P.J., Siegrist, R.L., Crimi, M.L. (2010). Coupling surfactants/cosolvent with oxidants for enhanced DNAPL removal: A review. Remediation Journal, Summer 2010, p. 27-49. <https://doi.org/10.1002/rem.20249>

Dugan, P.J., McCray, J.E., Thyne, G.D. (2003). Influence of a solubility-enhancing agent (cyclodextrin) on NAPL-water partition coefficients, with implications for partitioning tracer tests. Water Resources Research, Vol. 39, Issue 5, <https://doi.org/10.1029/2002WR001672>

Drummond, C.N, and Dugan, P.J., (1999). Self-organizing models of shallow-water carbonate accumulation. Journal of Sedimentary Research, Volume 69, Issue 4, p. 939-946. <https://doi.org/10.2110/jsr.69.939>

Greg Knothe
3453 Longview Lane Lakeland, FL 33812
Greg.Knothe@EutroPHIX.com
863-845-0632

EDUCATION

University of Houston Clear Lake

Houston, TX

2010–2012

- M.S., Environmental Science

Viterbo University

La Crosse, WI

2003–2007

- B.S., Natural Science with Biology Concentration
- Minor, Environmental Studies

EMPLOYMENT

SePRO – EutroPHIX

Lakeland, FL

May 2025–Present

Project Lead and Limnologist - FL

- Led water quality restoration projects on lakes and streams
- Led and conduct limnological assessments of freshwater ecosystems
- Design and implement field-based water quality monitoring programs

Polk County Parks and Natural Resources

Bartow, FL

November 2020–May 2025

Water Resources Project Manager/NPDES Coordinator

- Served as team leader for complex multi-partner water quality and ecological improvement projects providing technical assistance and oversight to ensure projects are implemented correctly
- Project manager of feasibility studies, grants, programs, and projects
- Led water levels and flow monitoring program

Florida Fish and Wildlife Conservation Commission

Lakeland, FL

August 2015–August 2020

Biological Scientist III

- Served as project manager and field lead of aquatic habitat assessment, fish monitoring, and habitat restoration projects

South Carolina Department of Natural Resources

Bluffton, SC

March 2013–August 2015

Fisheries Biologist I

- Fish culture, research and stock enhancement
- Collected, managed, analyzed and summarized data
- Monitored water quality in aquaculture systems and fish production ponds

Environmental Institute of Houston

Houston, TX

August 2010–August 2012

Research Assistant

- Led biological monitoring and water quality sampling projects
- Collected, analyzed and reported water quality, biological, and physical habitat data

Joseph W. Jones Ecological Research Center

Newton, GA

June 2008–July 2010

Aquatic Biology Research Technician

- Conducted biological sampling and identification in streams, rivers, and wetlands
- Conducted monthly water quality sampling, and analysis

J.T. Gravelie

GIS Administrator | Technical Development Specialist | Alaska Technical Specialist

Experience

ReMetrix / SePRO 2008 - Present

Hired out of University of Vermont as GeoStatistical Specialist - series of added responsibilities and associated promotions over intervening five years, to current Analyst and Project Management titles and responsibilities.

Extensive training and implementation skills utilizing:

ESRI Arc Products	Arc Server	Python
3D Analyst, GeoStatistical & Spatial Analyst Extensions	iOS Developer kit	IDLE (custom tools supporting ArcServer publications)
ESRI Business Partner	SCADA Programing	ERDAS 2010
MAC and PC Proficiency	OS & iOS App Launches	Visual Studio
Microsoft Suite	Google Earth	Git Hub
SQL Server Management Studio	BioSonics (Hydro-Accoustic reader)	GPS Garmin Basecamp & MapSource (supporting mobile GPS customization)

Extensive use of ESRI GIS tool set, creating complex detailed maps of aquatic vegetation in lakes and water supply reservoirs, accumulating, analyzing and summarizing large data sets into conjunct, useful and understandable presentations. Implements treatment plans with customers and tracks effectiveness. Efficiency, cost performance and results have improved as a result of my leadership.

Leads multiple field project teams, planning and syncing assorted team members, planning associated work tasks and logistics, designing, overseeing and tracking treatment plans, accumulating and summarizing complex data sets, coordinating and briefing government, regulatory and private sector customer organizations.

Built innovative capabilities by developing custom GIS tools and applications, including web-based, mobile, and local deployments.

Experienced business traveler, accustomed to field work in challenging conditions.

AgGateway 2014 Innovative Technology Award: One of three developers that created SeMAPS, a online mapping tool used for water restoration and preservation management.

Special Recognition Award: “For Outstanding Work Ethic and Personal Commitment to Field Operations” - ReMetrix, March, 2011

GIS Research Assistant: University of Vermont: January 2005 - June 2008

Created GIS maps and analyses for City Planners, Green Spaces and run-off management.

Progressive Architecture and Engineering - Intern 2007

Supported Sustainable Design Architect team and Water Quality Studio - Surveyed 73 Michigan Lakes, identified aquatic invasive species and created GIS maps.

Glen Lake Association - Intern 2006

Collected and performed Secchi disk readings, plankton identification , harmful algae testing and mapped thermocline and oxygen supply in Lake Michigan and the Glen Lakes

On the Narrows Marina - Summers 2001 - 2006

Dock Crew and on - site

manager responsibilities

Research Experience

University of Vermont: Collected, organized, interpreted and prepared written reports in Ecology, Geology, Chemistry and Biology

University of Vermont: Designed, built and demonstrated water purification eco-machine

Designed, researched, modeled and presented vision for Burlington Vermont future - presented to City Council and city planning commission members.

Education

University of Vermont, Rubenstein School - B.S. Environmental Science/GIS (2008)

FAA UAS Certified pilot

Captain's License

Multiple Post Graduate ESRI Conferences and educational seminars

OTJ Modules

Advanced Open Water/Rescue Diver/NITROX certifications

MARK A. HEILMAN

Email: markh@sepro.com; Mobile: 1 (317) 775-3309

EDUCATION

Ph.D., Aquatic Ecology, 1998

University of Notre Dame, Notre Dame, IN

NASA Fellow for Global Change Research

B.S., Biology, 1992

University of Notre Dame, Notre Dame, IN

EXPERIENCE

Director of Aquatic Technology - SePRO Corporation, Carmel, IN Jan'04 – present

- Design and coordination of field and laboratory research and analytical support to discover, develop and optimize chemical and other integrated methods for water resource management including control of invasive exotic aquatic species with a focus on aquatic plants.
- Past primary management of NC research facility (SePRO Research and Technology Campus) and current management oversight of several research and technical development staff.
- Led the research, development and registration efforts for Galleon® Aquatic Herbicide (a.i. penoxsulam - 2007) and ProcellaCOR® Aquatic Herbicide (a.i., florypyrauxifen-benzyl - 2018).
- Also supported successful completion of registration of Oasis® Aquatic Herbicide (a.i., topramezone – 2013) and approval of Special Local Need (SLN) label for TIGR® Herbicide (a.i., sethoxydim – 2016) for invasive aquatic grass control and SLN/Section 3 labels for Natrix® molluscide
- Co-inventor on two formulation patents – US9137987B2 Moderated release aquatic herbicide formulations; US10039280B1 Herbicidal fluridone compositions.
- Support of Florida's public lake management of invasive aquatic plants (first by Florida Department of Environmental Protection and then the Florida Fish and Wildlife Conservation Commission) in this role and previously since 2000.
- Other large-scale aquatic resource management experience includes support of hydrilla eradication efforts on Cayuga Lake NY, Croton River and New Croton Reservoir NY (NYC drinking water supply reservoir), Deep Creek Lake MD, Lake Waccamaw NC, Lake Manitou IN, Tar River Reservoir NC (drinking water supply for City of Rocky Mount), and Eno River NC. Led the lake-wide treatment of Eurasian watermilfoil on 20,000-acre Houghton Lake, MI. Additional public agency / private management support has been provided in all regions nationally for other invasive weeds such as floating hearts, giant salvinia, egeria, and water chestnut.
- International collaboration in several countries including New Zealand's National Institute of Water and Atmospheric Research (lagarosiphon focus) and the Ontario Ministry of Natural Resources (water soldier)
- Past experience in the research of biological control agents such as the fungal pathogen *Mycoleptodiscus terrestris* and the selective molluscide Zequanox (*Pseudomonas fluorescens*)
- Past President of the Northeast Aquatic Plant Management Society and Past President of the national Aquatic Plant Management Society (APMS).

Aquatic Research Scientist – SePRO Corporation, Carmel, IN

Jun'02 – Dec'04

- Design and implementation of research studies of potential new aquatic herbicides and biopesticides.

Project Manager – ReMetrix LLC, Carmel IN

May '00 – May '01

- Project management of GIS analysis and GPS mapping related to aquatic ecosystems

REPRESENTATIVE PUBLICATIONS

Pokrzywinski KL, Bishop WM, Grasso CR, Fernando BM, Sperry BP, Berthold DE, Laughinghouse HD, Van Goethem EM, Volk K, **Heilman MA**, and Getsinger KD. 2022. Evaluation of a Peroxide-Based Algaecide for Cyanobacteria Control: A Mesocosm Trial in Lake Okeechobee, FL, USA. *Water*, 14(2), p.169. <https://doi.org/10.3390/w14020169>

Gettys LA, Thayer KL, **Heilman MA**, Van Goethem EM. 2022. Effect of florypyrauxifen-benzyl concentration-exposure time on hygrophylla and rotala. *J. Aquat. Plant Manage* (in press – Jan 2022 issue)

Howell A, D Hofstra, RJ Richardson, **Heilman MA**. 2022. Evaluation of florypyrauxifen-benzyl to control three problematic submersed macrophytes in New Zealand. *J. Aquat. Plant Manage*, 59, 66-71

Ortiz MF, Nissen SJ, Thum R, **Heilman MA**, Dayan FE. 2020 Current Status and Future Prospects of Herbicide for Aquatic Weed

Management. Outlooks on Pest Management 31(6):270-5.

Buczek SB, Archambault JM, Cope WG, **Heilman MA**. 2020. Evaluation of Juvenile Freshwater Mussel Sensitivity to Multiple Forms of Florpyrauxifen-Benzyl. Bulletin of Environmental Contamination and Toxicology 105(4):588-594.

Beets J, **Heilman MA**, Netherland MD. 2019. Large-scale mesocosm evaluation of florpyrauxifen-benzyl (ProcellaCOR), a novel arylpicolinate herbicide, on Eurasian and hybrid watermilfoil and seven native submersed plants. J. Aquat. Plant Manage, 57, 49-55.

Caudill J, Jones AR, Anderson L, Madsen JD, Gilbert P, Shuler S and **Heilman MA**. 2019. Aquatic plant community restoration following the long-term management of invasive *Egeria densa* with fluridone treatments. Management of Biological Invasions, 10(3), p.473-485.

Willis BE, **Heilman MA**, Bishop WM, Shuler SW. 2018. Evaluation of multiple herbicides for control of sponge plant (*Limnobia laevigata*). Journal of Geoscience and Environment Protection, 6(06), 56.

Archambault JM, Bergeron CM, Cope WG, Richardson RJ, **Heilman MA**, Corey III JE, Netherland MD, and Heise RJ. 2015. Sensitivity of freshwater molluscs to hydrilla-targeting herbicides: providing context for invasive aquatic weed control in diverse ecosystems. Journal of Freshwater Ecology, 30(3), 335-348.

Vassios JD, Nissen SJ, Koschnick TJ, and **Heilman MA**. 2014.. Triclopyr absorption and translocation by Eurasian watermilfoil (*Myriophyllum spicatum*) following liquid and granular applications. Weed Science, 62(1), 22-28.

LaRue EA, Zuellig MP, Netherland, MD, **Heilman MA**, and Thum RA. 2013. Hybrid watermilfoil lineages are more invasive and less sensitive to a commonly used herbicide than their exotic parent (Eurasian watermilfoil). Evolutionary Applications, 6: 462–471. doi: 10.1111/eva.12027

Thum RA, **Heilman MA**, Hausler PJ, Huberty LE, Tynning P, Wcisel DJ, Zuellig MP, Berger ST, Glomski LM, and Netherland MD. 2012. Field and laboratory documentation of reduced fluridone sensitivity of a hybrid watermilfoil biotype (*Myriophyllum spicatum* × *Myriophyllum sibiricum*). J. Aquat. Plant Manage. 50: 141-146

Mudge CR, **Heilman MA**, Theel HJ, Getsinger KD. 2012. Efficacy of subsurface and foliar penoxsulam and fluridone applications on giant salvinia. J. Aquat. Plant Manage. 50:116-124.

Smith CS, Getsinger KD, Poovey AG, James WF, Netherland MD, Stewart RM, **Heilman MA**, McNaught S, Groves A, Tynning P, and Hausler PJ. 2012. Selective Control of Eurasian Watermilfoil in Houghton Lake, Michigan: 2002-2006. ERDC/EL TR-12-15, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Jackson MA, Dunlap CA, Shearer JF, **Heilman MA**, and Palmquist DE. 2011. The impact of temperature on the production and fitness of microscleotia of the fungal bioherbicide *Mycoleptodiscus terrestris*. Biocontrol Science and Technology. 21(5):547-562.

Heilman MA and Carlton RG. 2001. Ebullitive release of lacunar gases from floral spikes of *Potamogeton angustifolius* and *Potamogeton amplifolius*: effects on plant aeration and sediment CH₄ flux. Aquatic Botany 71:19-33.

Heilman MA and Carlton RG. 2001. Methane oxidation associated with submersed vascular macrophytes and its impact on plant diffusive methane flux. Biogeochemistry 52(2): 207-224.

West M. Bishop, Ph.D., CLP
SePRO Research and Technology Campus
Whitakers, NC 27891
westb@sepro.com
252-801-1623

Current Employment

Algae Scientist and Water Quality Research Manager, SePRO Corporation
May 21, 2014 - present

Algae and Aquatic Research Scientist, SePRO Corporation
Dates employed: January 1, 2011 - May 21, 2014

Duties include: Research and development on existing and future algal management and water quality improvement solutions. Developing support services such as SeSCRIPT and supporting laboratory operations. Analyzing samples for algal identification and water quality parameters and communicating results to customers as well as provide interpretation and management options. Providing technical support of existing products for water resource management and conducting seminars and workshops communicating application of research and solutions. I've supported a network of SePRO steward of water companies with numerous trainings across the country and internationally. Technical focus on characterizing risks associated with harmful algal infestations and recommending socially acceptable, ecologically sound and efficacious management strategies. As a member of the aquatics leadership and research management teams I also focus research to have the greatest impact at solving critical real-world problems.

Education

North Carolina State University

Dissertation: A Risk-based Decision Information System for Selecting an Algal Management Program

Department: Crop and Soil Sciences

GPA 4.0

Degree: Doctor of Philosophy

Dates Attended: Jan 2013-Dec 2016

Clemson University, Clemson, SC

Thesis: Responses of Problematic Algae to Algaecide Exposures

Department: Forestry and Natural Resources

GPA 4.0

Degree: Master of Science

Dates Attended: May 2007-May 2010

Western Michigan University, Kalamazoo, Michigan

Major: Biology

Minor: Chemistry

GPA: 3.87 magna cum laude

Degree: Bachelor of Science

Dates Attended: August 2003-December 2006

Related Experience

May 2007-December 2010: Graduate Research Assistant: Clemson University with Dr. John Rodgers

Duties included: Identifying effective and efficient site-specific mitigation strategies for nuisance algae based upon measurements of responses to chemical, physical and biological stimuli in laboratory toxicity tests. Impacts to fish, amphibians, and invertebrates were also evaluated in terms of both algae and implemented management strategies. Management of

colleagues, University laboratory and research projects as well as balancing laboratory expense accounts and budgets. Other responsibilities include: writing animal care and use protocols, maintaining toxicity culture animals, standard operating procedures, and toxicity testing reports. Also, communicating (verbally and written) scientific research. Laboratory is AAALAC certified following GLP protocols and under supervision of an IACUC.

January-May 2007: Research Associate 1: MPI Research Mattawan, MI

Duties included: Evaluating toxicological responses of animals to exposures pharmaceutical, personal care product and pesticides. Communicating responses through reporting was completed. Facility was AAALAC certified following GLP protocols and under supervision of an IACUC and QAQC department.

June-August 2006: Research assistant in the Wildlife Ecology Department at the University of Wisconsin-Madison

Duties included: Measuring responses of frogs (*Xenopus tropicalis*) to environmental exposures as well as evaluating larval density and water quality effects on rearing. Response measurements included fertilization, hatchability, larvae staging, organ mass, and size. Other activities included breeding, husbandry, and dissection. Analyzing data and presenting results both verbally and written was completed. Worked under the direction of Drs. William Karasov and Jackson Gross.

Professional Presentations

Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference. The impact of source water quality on the algaecide treatment efficacy and release of intracellular organic matter from cyanobacteria. St Louis, MO June 27-30, 2022. Poster Presentation # B10 (Co-Author)

International Conference on Toxic Cyanobacteria (ICTC 12). The impacts of different types of commercial algaecide products on cyanobacteria control and intracellular organic matter releases. Toledo, OH May 22-27, 2022. Poster Presentation # 98 (Co-Author)

Joint Aquatic Sciences Meeting Grand Rapids, MI May 16-20, 2022. Four oral presentations:

1. Successes in Protecting Imperiled Freshwater Mollusks While Managing Invasive Plants and Algae (Co-Author)
2. Reversing Eutrophication by Preserving Oxygen and Preventing Muck Accumulation Using Phosphorus Mitigation Technology (Co-Author)
3. Rapid response to harmful algal blooms with strategic algaecide use: Efficacy and risk assessment (Primary author)
4. Accelerating Water Quality Restoration with In-lake Management to Help Meet the Goals of the Clean Water Act (Co-Author)

Midwest Aquatic Plant Management Society. Advancement of novel technologies for phosphorus mitigation and water quality restoration in aquatic systems. Indianapolis, IN. February 28-March 3, 2022.

Society of Lake Management Professionals. Savannah, GA. Cyanobacteria: A paradigm shift in water management. January 24-27, 2022. (Invited Speaker)

Society of Lake Management Professionals. Savannah, GA. Multiple small table group discussion topics. January 24-27, 2022. (Invited table group leader)

North Carolina State University. Aquatic Plant Management Workshop. Raleigh, NC and virtual. Algae control and management. Feb. 8-10, 2022. (Invited Speaker)

Northeast Aquatic Plant Management Society. Student/Early career panel discussion. Invited lead panelist. Virtual conference. January 11-13, 2022

Northeast Aquatic Plant Management Society. Investigation of novel technologies for nutrient interception in aquatic systems. Virtual conference. January 11-13, 2022

Florida Aquatic Plant Management Society. St. Petersburg, FL. Non-copper algal control strategies. October 12-14, 2021 (Invited Speaker)

Florida Aquatic Plant Management Society. St. Petersburg, FL. Chelation and emulsification technology applied to copper algaecides and herbicides. October 12-14, 2021 (Invited Co-author)

South Carolina Aquatic Plant Management Society. North Myrtle Beach, SC. The Rise of Cyanobacteria. October 6-8, 2021. (Invited Keynote Speaker)

South Carolina Aquatic Plant Management Society. North Myrtle Beach, SC. Algal Identification Workshop. October 6-8, 2021. (Invited co-host)

Joint AWWA/ APMS/ NALMS/ USACE-ERDC webinar series. Comprehensive Strategies to protect drinking water from HAB's. Title: Incorporation of algaecides in source water protection. July 14, 2021. (Invited Speaker)

Society of Lake Management Professionals accreditation academy. A collective approach to regulations, technology and implementation: Uniting perspectives for managing City of Durham Stormwater. June 24, 2021. (Invited Speaker)

City of Durham Public Works Department. Online seminar. Managing nuisance aquatic plants and algae. March 18, 2021. (Invited Speaker)

Western Aquatic Plant Management Society. Virtual conference. The threat of cyanobacteria and cyanotoxins. March 2-3, 2021.

North Carolina State University. Aquatic Plant Management Workshop. Raleigh, NC. Algae control and management. March 9-11, 2021. (Invited Speaker)

Pennsylvania Lake Management Society. Virtual conference. Cyanobacteria and the future of freshwater: Theirs or Ours. March 3-4, 2021 (Invited Keynote Speaker)

North American Lake Management Society. Virtual conference. Approaches to Mitigating Cyanobacteria and Associated Cyanotoxins. November 16-20, 2020

North American Lake Management Society. Virtual conference. Consideration of Algaecide Strategies to Complement Proactive HAB Management. November 16-20, 2020. Invited Speaker as part of the APMS/NALMS HAB Management interactive session.

California Aquatic Bioassessment Workgroup. Managing the Nitrogen to Phosphorus (N:P) Ratio for Improved Aquatic Ecosystem Function. Virtual presentation October 13-14, 2020 (co-author)

EPRI (Electric Power Research Institute) Cooling Water Intake Operation, Maintenance & Optimization Interest Group Annual Workshop. *Lyngbya* Management at Southern Company. SESSION 1 – HARMFUL ALGAL BLOOMS. Virtual presentation October 13, 2020 (Invited Speaker)

Midwest Aquatic Plant Management Society. Approaches to Harmful Algal Bloom Management. Indianapolis, IN. February 10-12, 2020.

Society of Lake Management Professionals. St. Petersburg, FL. Understanding and mitigating cyanotoxin impacts on fish, wildlife, and humans. January 20-23, 2020.

Northeast Aquatic Plant Management Society. Lake Placid, NY. Advancing strategies to control harmful algal blooms. January 14-16, 2020.

North American Lake Management Society. Burlington, VT. Evaluation of herbicide Sonar Genesis for the control of *Fontinalis* sp. (Aquatic Moss). Poster Presentation. November 11-15, 2019. (Co-author)

North American Lake Management Society. Burlington, VT. Nutrient manipulation and selective control of cyanobacteria to improve trophic function in freshwater ecosystems. November 11-15, 2019.

North American Lake Management Society. Burlington, VT. Mitigating internal nutrient loading in a Florida treatment wetland. November 11-15, 2019.

Michigan Chapter, North American Lake Management Society. Lunch and Learn. Lansing, MI. Harmful Algal Blooms: Ecology, Impacts, and Management Options. Combatting Toxic Cyanobacteria. November 6, 2019. (Invited Speaker)

Florida Aquatic Plant Management Society. Understanding risks and benefits of copper-based algaecides. St. Petersburg, FL. October 14-17, 2019. (Invited Speaker)

Aquatic Plant Management Society. Accurate risk assessment of copper-based algaecides. San Diego, CA. July 14-17, 2019. (Invited Speaker)

Aquatic Plant Management Society. Poster session. Can PHOSLOCK® be used to bind and sediment microcystin-LR in aquatic systems? San Diego, CA. July 14-17, 2019. (Co-author)

Phycological Society of America. Operational management of noxious algae. Hollywood, FL. June 23-27, 2019. (Invited Speaker)

International Conference on Toxic Cyanobacteria (11th ICTC). Poster session II. Can PHOSLOCK® be used to bind and sediment microcystin-LR in aquatic systems? Kraków, Poland. May 5-10, 2019. (Co-author)

American Public Works Association (APWA), FL Chapter. A Risk-Based Decision Matrix for Managing Noxious Cyanobacteria. Daytona Beach, FL. April 15-18, 2019. (Invited Speaker)

Mid-Atlantic States Lake Forum Hosted by the Maryland Department of Natural Resources. Harmful algal blooms- Understanding the need for management. Annapolis, MD. April 9, 2019. (Invited Speaker)

Midwest Aquatic Plant Management Society. Understanding and managing the influence of nutrients in water resources. Chicago, IL. March 26-28, 2019. (Co-author)

North Carolina Chapter of American Fisheries Society Conference. *In situ* evaluation of freshwater mussel sensitivity to prescribed algaecide applications in a North Carolina Piedmont reservoir. Winston-Salem, NC. February 19-21, 2019. (Co-author)

Society of Lake Management Professionals. Memphis, TN. Importance of cyanobacteria management while managing trophy largemouth bass populations. January 22-24, 2019. (Invited Co-author)

Society of Lake Management Professionals. Memphis, TN. Phoslock, an effective Phosphorus locking technology. January 22-24, 2019.

Society of Lake Management Professionals. Memphis, TN. Vendor roundtable discussion: Copper registration review, label changes. January 22-24, 2019.

Harrel's Educational Seminar Workshop. Aquatic weeds and algae: How and why to manage. January 15, 2019. (Invited Speaker)

Northeast Aquatic Plant Management Society. Albany, NY. Algal Workshop. January 8, 2019. (Invited Co-Chair)

North American Lake Management Society. Cincinnati, OH. Strategic management of cyanobacteria in drinking water reservoirs using an action threshold-based approach. October 30-November 2, 2018.

North American Lake Management Society. Cincinnati, OH. Session D5: Phoslock (Invited Moderator). October 30-November 2, 2018.

South Carolina Aquatic Plant Management Society. North Myrtle Beach, SC. Controlling *Lyngbya wollei* with Captain XTR: Exposure/Dose Analysis and Field Results. October 3-5, 2018.

Cooperative Invasive Species Management Area (CISMA) part of Florida Invasive Species Partnership (FISP) webinar. Risks of only monitoring versus managing noxious cyanobacteria. September 26, 2018. (Invited Speaker)

North Carolina State University. Aquatic Plant and Small Impoundment Workshop. Raleigh, NC. Chemical control of algae. July 31-Aug 1, 2018. (Invited Speaker)

Aquatic Plant Management Society. Buffalo, NY. Evaluating Long-term Effectiveness of Phoslock® in Water Resource Restoration. July 15-18, 2018.

Southeastern Lake Management Conference. Asheville, NC. Shifting nutrient ratios and addressing legacy phosphorus with Phoslock. April 16-18, 2018.

Western Aquatic Plant Management Society. Reno, NV. Evaluation of pulse 'slug' application of a

chelated copper algaecide (Captain® XTR) and formulation comparisons. March 26-29, 2018.

Western Aquatic Plant Management Society. Reno, NV. Importance of Phosphorus Mitigation in Water Resource Management Programs. March 26-29, 2018.

Midwest Aquatic Plant Management Society. Cleveland, OH. Importance of Phosphorus Mitigation in Managing Nuisance Algae. February 26-March 1, 2018.

Midwest Aquatic Plant Management Society. Cleveland, OH. Evaluation of Chemical Control Strategies for Starry Stonewort (*Nitellopsis obtusa*). February 26-March 1, 2018.

NC Chapter of the American Fisheries Society. Morganton, NC. Evaluation of Freshwater Mussel Sensitivity to Algaecides for Potential Control of Giant *Lyngbya*. February 20-22, 2018.

Northeast Aquatic Plant Management Society. Newcastle, NH. A Risk-Based Decision Matrix for Managing Noxious Cyanobacteria. January 9-11, 2018. (Invited Speaker)

Finger Lakes Research Conference: Pollutants, Invasive Species, and Excess Nutrients. Geneva, NY. Evaluation of Chemical Control Strategies for Starry Stonewort (*Nitellopsis obtusa*). November 17, 2017.

Florida Aquatic Plant Management Society. Lake Buena Vista, FL. Risks of only monitoring versus managing noxious cyanobacteria. October 16-19, 2017 (Invited Speaker)

US Army Corps of Engineers Starry Stonewort Workshop. Oconomowoc, WI. Starry Stonewort Research Initiatives by SePRO. September 7-8, 2017 (Invited Speaker)

Aquatic Plant Management Society. Daytona Beach, FL. A Risk-Based Decision Matrix for Managing Noxious Algae. July 16-19, 2017.

Florida Lake Management Society. Captiva Island, FL. Importance of nutrient ratios and legacy accumulation in managing cyanobacteria. June 6-9, 2017.

Florida Lake Management Society. Captiva Island, FL. Risks of only monitoring versus managing noxious cyanobacteria. June 6-9, 2017.

USA Water Conference. Akron, OH. Effective algal management in source water reservoirs. May 31-June 1, 2017.

USA Water Conference. Akron, OH. Water Pitcher event. SeClear Algaecide and Water Quality Enhancer. May 31-June 1, 2017.

Golf Course Superintendents Association of America. Orlando, FL. Workshop: Golf course aquatic management made easy. February 6, 2017.

Northeast Aquatic Plant Management Society. New Castle, NH. Importance of nutrient ratios and legacy accumulation in cyanobacteria management. January 10-12, 2017.

Society of Lake Management Professionals. Daytona Beach Shores, FL. Integration of Phosphorus Mitigation in Water Resource Management Programs. January 24-26, 2017.

North American Lake Management Society. Banff, Canada. Shifting nutrient ratios and addressing legacy phosphorus with Phoslock. November 1-4, 2016.

North American Lake Management Society. Banff, Canada. Should nitrogen limited lakes be treated with Phoslock, in Phoslock Workshop: Addressing Phoslock knowledge gaps. November 1-4, 2016. (Invited Discussion Lead)

Algae Control Forum General Meeting. Lauderdale by the Sea, FL. Understanding and Management of Cyanobacteria. August 31, 2016. (Invited Speaker)

Aquatic Plant Management Society. Grand Rapids, MI. Effective Management of Starry Stonewort. July 17-20, 2016.

Florida Lake Management Society. Daytona Beach, FL. A risk-based decision matrix for managing noxious algae. June 7-10, 2016.

Florida Lake Management Society. Daytona Beach, FL. Importance of in-lake nutrient mitigation and effective approaches. June 7-10, 2016.

Aquatic Weed Control Short Course; University of Florida, IFAS Extension. Coral Springs, FL. Nuisance algae characterization and management options. May 2-5, 2016. (Invited Speaker)

Midwest Aquatic Plant Management Society. Grand Rapids, MI. Chemical Control of Starry Stonewort: Ecology, History, Efficacy. March 6-9, 2016.

Florida Aquatic Plant Management Society. Lake Buena Vista, FL. The evolution and future of *Lyngbya* management. October 6-8, 2015.

Aquatic Plant Management Society. Myrtle Beach, SC. The evolution and future of *Lyngbya* management. July 12-15, 2015.

Colorado Lake and Reservoir Management Association. Denver, CO. HAB's: Considerations and Ramifications of Management. April 23, 2015.

Midwest Aquatic Plant Management Society. Indianapolis, IN. Protecting drinking water through action threshold based algae management. February 22-25, 2015.

Northeast Aquatic Plant Management Society. Saratoga Springs, NY. Action threshold based algae management for preserving drinking water. January 19-21, 2015.

Pennsylvania Turfgrass Council-Eastern PA Turf Conference and Tradeshow. King of Prussia, PA. Managing aquatic weeds and algae. January 6-7, 2015. (Invited Speaker)

North American Lake Management Society. Tampa, FL. Advancements in proactive and reactive algae management. November 12-14, 2014.

South Carolina Aquatic Plant Management Society. Myrtle Beach, SC. Predictive control of mat-forming algae. October 8-10, 2014.

South Carolina Landscape and Turfgrass Association & South Carolina Nursery and Landscape Association 11th annual fall field day. Managing aquatic weeds and algae. September 25, 2014. (Invited Speaker)

Aquatic Plant Management Society. Savannah, GA. Predictive management of mat-forming algae. July 13-16, 2014.

Aquatic Weed Control Short Course; University of Florida, IFAS Extension. Coral Springs, FL. Nuisance algae characterization and management. May 6-9, 2014. (Invited Speaker)

Western Aquatic Plant Management Society. Reno, NV. Efficiency and Fate of Copper Algaecide Formulations Following Application. March 31- April 2, 2014.

Pennsylvania Lake Management Society. State College, PA. Characterization of nuisance algae afflictions and understanding management options. March 19-20, 2014. (Invited Keynote Speaker)

Pennsylvania Lake Management Society. State College, PA. Algae-What's the big deal? March 19-20, 2014. (Invited Panel Discussion Lead)

Midwest Aquatic Plant Management Society. Lombard, IL. Integration of Phosphorus Mitigation in Water Resource Management Programs. March 2-5, 2014.

SCDNR Hatchery/State Lakes Meeting. Algae characterization and Management. February 20, 2014 (Invited Speaker)

Northeast Aquatic Plant Management Society. Westbrook, CT. Algal Workshop. January 21, 2014. (Invited Co-chair)

Northeast Aquatic Plant Management Society. Westbrook, CT. Strategic design of new copper formulations. January 23, 2014.

California Weed Science Society of America. Impacts of Harmful Algal Blooms on Humans and their Environment. January 22-24, 2014. (Invited Co-author)

North American Lake Management Society. San Diego, CA. Water quality restoration via "in lake" phosphorus mitigation: Operational observations and results utilizing the lanthanum modified clay Phoslock®. October 28-31, 2013.

South Carolina Aquatic Plant Management Society. Myrtle Beach, SC. Advancing copper formulation technology. October 23-25, 2013.

South Carolina Aquatic Plant Management Society. Myrtle Beach, SC. Role of phosphorus in algae management. October 23-25, 2013.

South Carolina Aquatic Plant Management Society. Myrtle Beach, SC. Algae identification and management workshop. October 24, 2013. (Invited Speaker)

Washington Lake Protection Agency/ Oregon Lakes Association joint conference. Vancouver, WA. Comparing Risks of Applying Copper Algaecides to the No Action Alternative. October 16-18, 2013.

Midsouth Aquatic Plant Management Society. Tunica, MS. Enhancing copper herbicide performance with an innovative granular formulation. September 16-18, 2013.

Aquatic Plant Management Society. San Antonio, TX. Interactivity of phosphorus and copper in algae management. July 14-17, 2013.

Aquatic Plant Management Society. San Antonio, TX. Efficacy of three algaecides on the epiphytic cyanobacterium (order stigonematales) associated with avian vacuolar myelinopathy. July 14-17, 2013.

Southeastern Lake and Watershed Management Conference and Florida Lake Management Society. Phoslock®, A Novel Technology for *In-Situ* Phosphorus Mitigation in Water Resources. June 17-20, 2013.

Western Aquatic Plant Management Society. Coeur d'Alene, ID. Advancing the science of algaecide formulations for improved algae management. March 25-27, 2013.

Georgia Aquaculture Association Annual Meeting. Lyons, GA. Solutions promoting beneficial algae and water quality in aquaculture ponds. March 23, 2013.

Target Specialty Products Aquatic Weed Meeting. San Jose/Walnut Creek/West Sacramento, CA. Biology and control of algae. March 19-21, 2013.

Midwest Aquatic Plant Management Society. Cleveland, OH. Special Session 1: Consequences of nuisance algae and management techniques. Impacts and management of nuisance algae- a special session. March 3-6, 2013. (Invited Moderator)

Midwest Aquatic Plant Management Society. Cleveland, OH. Creating more efficient and effective copper algaecide formulations. March 3-6, 2013.

Northeast Aquatic Plant Management Society. Westbrook, CT. Integration of a novel phosphorus inactivation solution (Phoslock) in water resource management programs. January 22-24, 2013.

Aquatic Control Inc. Applicator Workshop. Indianapolis, IN. 2012 field evaluation and product update: SeClear, Phoslock, and Captain XTR. January 17-18, 2013.

North American Lake Management Society. Madison, WI. Water quality changes following application of a patented lanthanum modified clay technology. November 7-9, 2012.

South Carolina Aquatic Plant Management Society. Myrtle Beach, SC. Responses of algal assemblages to phosphorus removal and algaecide exposures. October 17-19, 2012.

Midsouth Aquatic Plant Management Society. Mobile, AL. Responses of algal assemblages to phosphorus removal and algaecide exposures. September 17-19, 2012.

National Aquatic Plant Management Society. Salt Lake City, UT. Advanced solutions for combating harmful algal infestations. July 22-25, 2012.

Aquatic Weed Control Short Course; University of Florida, IFAS Extension. Coral Springs, FL. Biology and Control of Algae. May 7-10, 2012. (Invited Speaker)

Grand Strand Stormwater Conference. Myrtle Beach, SC. The Science of Algae. March 3, 2012. (Invited Speaker)

Midwest Aquatic Plant Management Society. Grand Rapids, MI. Novel Technologies for Water Quality Enhancement. February 26-29, 2012.

Northeast Aquatic Plant Management Society. Newcastle, NH. Advanced solutions for combating harmful algal infestations. January 17-19, 2012.

North American Lake Management Society. Spokane, WA. Phosphorus, algae, and water quality: Interrelationships and management implications. October 25-28, 2011.

Midsouth Aquatic Plant Management Society. Guntersville, AL. Laboratory and field evaluation of new solutions for phosphorus, algae, and water quality management. October 4-6, 2011.

South Carolina Aquatic Plant Management Society. Clemson, SC. Laboratory and field evaluation of new solutions for phosphorus, algae, and water quality management. August 17-19, 2011.

National Aquatic Plant Management Society. Baltimore, MD. Harmful algae and toxin production: Knowledge to focus management. July 24-27, 2011. (Invited Speaker)

Florida Lake Management Society. Poster presentation; St. Augustine, FL. Phosphorus, algae, and water quality: Interrelationships and management implications. June 13-15, 2011.

Western Aquatic Plant Management Society. Westminster, CO. SeClear...Not just another copper algaecide. March 28-30, 2011.

Midwest Aquatic Plant Management Society. Grand Rapids, MI. SeClear...Not just another copper algaecide. Feb 28-March 2, 2011.

Northeast Aquatic Plant Management Society. Newcastle, NH. SeClear...Not just another copper algaecide. January 17-19, 2011.

South Carolina Aquatic Plant Management Society. Pawleys Island, SC. Algae identification workshop. August 12, 2010.

South Carolina Aquatic Plant Management Society. Pawleys Island, SC. "Responses of *Lyngbya wollei* to copper-based algaecides: The critical burden concept." August 11-13, 2010.

National Aquatic Plant Management Society. Bonita Springs, FL. "Responses of *Lyngbya wollei* to copper-based algaecides: The critical burden concept." July 11-14, 2010.

Midwest Aquatic Plant Management Society. Indianapolis, IN. "Comparative responses of target and non-target species to exposures of Algimycin®-PWF." February 28-March 3, 2010.

Midwest Aquatic Plant Management Society. Indianapolis, IN. "Algae on the move: Recent range expansions of noxious algae." February 28-March 3, 2010.

North American Lake Management Society. Hartford, CT. "Responses of Cyanobacteria from three sites to algaecides: Efficacy and microcystin measurements." October 27-31, 2009.

South Carolina Aquatic Plant Management Society. Clemson, SC. Algae identification workshop. August 13, 2009

South Carolina Aquatic Plant Management Society. Clemson, SC. "Comparison of laboratory and field responses of *Lyngbya magnifica* to similar algaecide exposures." August 12-14, 2009.

National Aquatic Plant Management Society. Milwaukee, WI. "Prediction of field responses of a

problematic cyanobacterium from laboratory exposures.” July 12-15, 2009.

Midwest Aquatic Plant Management Society. Lisle, IL. “Responses of cyanobacteria to algaecide exposures.” March 1-3, 2009.

Golden Alga International Symposium and Annual Meeting of the Texas Chapter of the American Fisheries Society. Fort Worth, TX. “Interdiction of *Prymnesium parvum* in waters of the Southern United States.” January 27-31, 2009.

Northeast Aquatic Plant Management Society. Saratoga Springs, New York. “Targeted management of problematic algae.” January 19-21, 2009.

Society of Environmental Toxicology and Chemistry: Poster Presentation. Tampa Bay, FL. “Comparative responses of seven algal species to exposures of a copper-based algaecide.” November 16-20, 2008.

Florida Aquatic Plant Management Society. Daytona Beach, FL. “*Lyngbya wollei* in Kings Bay/Crystal River, Florida: Management Implications.” October 13-16, 2008.

Texas Aquatic Plant Management Society. Bandera, TX. “Responses of Invasive Strains of *Lyngbya* to Algaecide Exposures.” September 8-10, 2008.

National Aquatic Plant Management Society. Charleston, SC. “Responses of seven algal species to Algimycin®-PWF exposures.” July 13-16, 2008.

Natural Resource Graduate Student Association (NRGSA) Symposium. Clemson University Clemson, SC. “Chemical and physiological characteristics of *Lyngbya wollei*, and implications for management.” March 7, 2008.

Midwest Aquatic Plant Management Society. Sandusky, Ohio. “Control of *Lyngbya wollei*: Variance in algaecide efficacy.” March 1-3, 2008.

Department of Forestry and Natural Resources: Readings in Aquatic Toxicology. Clemson University Clemson, SC. “Fate and fate processes.” September 24, 2007.

University of Wisconsin- Madison Center for Biology Education. Madison, WI. “Development and survivorship of *Xenopus tropicalis* embryos following chronic adult cadmium exposures.” August 9, 2006.

University of Wisconsin- Madison Center for Biology Education: Poster Presentation. Madison, WI. “Effects of density and water renewal rate on growth and development of *Xenopus tropicalis* tadpoles.” July 11, 2006.

Peer-Reviewed Publications

Sinha, AK, N. Limbaugh, N. Renukdas, **W.M. Bishop**, N. Romano. 2022. Modulating effect of elevated water hardness on growth performance, ammonia dynamics and ion-regulatory capacity in channel catfish (*Ictalurus punctatus*) following chronic challenge with high environmental ammonia and salinity stress. Aquaculture, 738489. <https://doi.org/10.1016/j.aquaculture.2022.738489>

Glisson W, Contreras-Rangel R, **Bishop WM**, Larkin D. 2022. Laboratory evaluation of copper-based

algaecides for control of the invasive macroalga starry stonewort (*Nitellopsis obtusa*). *Management of Biological Invasions*. 13 (2): 303-325.

Pokrzywinski KL, **Bishop WM**, Grasso CR, Fernando BM, Sperry BP, Berthold DE, Laughinghouse HD IV, Van Goethem EM, Volk K, Heilman M, Getsinger KD. Evaluation of a Peroxide-Based Algaecide for Cyanobacteria Control: A Mesocosm Trial in Lake Okeechobee, FL, USA. *Water*. 2022; 14(2):169. <https://doi.org/10.3390/w14020169>

Egnew, N., Renukdas, N., Romano, N., Kelly, A.M., Lohakare, J., **Bishop, W.M.**, Lochmann R.T., Sinha A.K. 2021. Assessment of physio-biochemical responses, metabolic nitrogen excretion and ion-regulatory modulations induced by high environmental iron in freshwater fish using largemouth bass (*Micropterus salmoides*) as a model. *Ecotoxicology and Environmental Safety* 208: 111526.

Willis B.E., Gravelle, J.T., **Bishop, W.M.**, Buczek, S.B., Cope, W.G. 2020. Managing the Invasive Cyanobacterium *Lyngbya wollei* in a Southeastern USA Reservoir: Evaluation of a Multi-year Treatment Program. *Water, Air, & Soil Pollution* 231:196.

Laughinghouse IV, H.D., D.E. Berthold, **W.M. Bishop**. 2020. Approaches to Managing Cyanobacterial Blooms and Altering Water Quality. *Aquatics* 42(1): 13-16.

Sinha, A.K., N. Romano, J. Shrivastava, J. Monico, **W.M. Bishop**. 2020. Oxidative stress, histopathological alterations and anti-oxidant capacity in different tissues of largemouth bass (*Micropterus salmoides*) exposed to a newly developed sodium carbonate peroxyhydrate granular algaecide formulated with hydrogen peroxide. *Aquatic Toxicology* 218: 105348.

Bishop, W.M., Willis B.E., Richardson R.J., Cope W.G. 2020. Biomass of the cyanobacterium *Lyngbya wollei* alters copper algaecide exposure and risks to a non-target organism. *Bulletin of Environmental Contamination and Toxicology* 104: 228-234.

Laughinghouse IV, H.D., F.W. Lefler, D.E. Berthold, **W.M. Bishop**. 2020. Sorption of Dissolved Microcystin Using Lanthanum-Modified Bentonite Clay. *Journal of Aquatic Plant Management* 58: 72-75.

Anderson, W.T., J.N. Yerby, J. Carlee, **W.M. Bishop**, B.E. Willis, C.T. Horton. 2019. Controlling *Lyngbya wollei* in three Alabama, USA reservoirs: summary of a long-term management program. *Applied Water Science* 9:178

Bishop, W.M., Willis B.E., Richardson R.J. 2019. Sensitivity of *Microcystis aeruginosa* Strains to Copper and Influence of Phosphorus. *Journal of Aquatic Plant Management* 57:79-89.

Crafton, E.A., Cutright, T.J., **Bishop W.M.**, and Ott, D.W. 2019. Modulating the Effect of Iron and Total Organic Carbon on the Efficiency of a Hydrogen Peroxide-Based Algaecide for Suppressing Cyanobacteria. *Water, Air, & Soil Pollution* 230:56.

Willis, B.E., Pearce M., **Bishop, W.M.** 2018. Evaluation of copper dissipation, exposure factor and algaecidal efficacy in an irrigation canal following pulse 'slug' application of a chelated copper algaecide (Captain® XTR). *Applied Water Science* 8:194.

Bishop, W.M., Richardson R.J., Willis B.E. 2018. Comparison of Partitioning and Efficacy Between Copper Algaecide Formulations: Refining the Critical Burden Concept. *Water, Air, & Soil Pollution* 229:300.

Willis, B.E., M.A. Heilman, **W.M. Bishop**, S.W. Shuler. 2018. Evaluation of Multiple Herbicides for Control of Sponge Plant (*Limnobia laevigatum*). *Journal of Geoscience and Environment Protection* 6:56-64.

Bishop, W.M., Willis B.E., Richardson R.J., Cope W.G. 2018. The Presence of Algae Mitigates the Toxicity of Copper-Based Algaecides to a Non-Target Organism. *Environmental Toxicology and Chemistry* 37(8): 2132-2142.

Bishop, W.M., G.V. Villalon, B.E. Willis. 2018. Assessing Copper Adsorption, Internalization, and Desorption Following Algaecide Application to Control *Lyngbya wollei* from Lake Gaston, NC/VA, USA. *Water, Air, & Soil Pollution* 229: 152.

Bishop, W.M., R.J. Richardson. 2018. Influence of Phoslock on legacy phosphorus, nutrient ratios and algal assemblage composition in hypereutrophic water resources. *Environmental Science and Pollution Research* 25: 4544-4557.

Bishop, W.M., C.L. Lynch, B.E. Willis, W.G. Cope. 2017. Copper-Based Aquatic Algaecide Adsorption and Accumulation Kinetics: Influence of Exposure Concentration and Duration for Controlling the Cyanobacterium *Lyngbya wollei*. *Bulletin of Environmental Contamination and Toxicology* 99(3): 365-371.

Bishop, W.M. and Willis, B.E. 2017. Comparison of Water Resource Management Programs: An Algae Action Threshold Level Approach. *Open Journal of Applied Sciences*. 7: 31-41.

Willis, B.E. and **Bishop, W.M.** 2016. Understanding Fate and Effects of Copper Pesticides in Aquatic Systems. *Journal of Geoscience and Environment Protection*. 4: 37-42.

Bishop, W.M., Willis, B.E., Horton, C.T. 2015. Affinity and Efficacy of Copper Following an Algicide Exposure: Application of the Critical Burden Concept for *Lyngbya wollei* Control in Lay Lake, AL. *Environmental Management*. 55: 983-990.

Bishop, W.M., B.M. Johnson, and J.H. Rodgers, Jr. 2014. Comparative responses of target and non-target species to exposures of a copper-based algaecide. *Journal of Aquatic Plant Management*. 52: 65-70.

Bishop, W.M., S. Hyde, T. McNabb, I. Cormican, B.E. Willis. 2014. Operational evaluation of Phoslock phosphorus locking technology in Laguna Niguel Lake CA. *Water, Air and Soil Pollution*. 225(2018): 1-11.

Bishop, W.M. and J.H. Rodgers, Jr. 2012. Responses of *Lyngbya wollei* to exposures of copper-based algaecides: The critical burden concept. *Archives of Environmental Contamination and Toxicology*. 62: 403-410.

Bishop, W.M. and H.M. Zubeck. 2012. Evaluation of microalgae for use as nutraceuticals and food supplements. *Journal of Nutrition and Food Sciences*. 2(5): 1-6.

Bishop, W.M. and J.H. Rodgers, Jr. 2011. Responses of *Lyngbya magnifica* Gardner to an algaecide exposure in the laboratory and field. *Ecotoxicology and Environmental Safety*. 74: 1832-1838.

Rodgers, Jr., J.H., B.M. Johnson, and **W.M. Bishop**. 2010. Comparison of three algaecides for controlling the density of *Prymnesium parvum*. *Journal of the American Water Resources Association*. 46(1): 153-160.

Patents

Ullah H., **W.M. Bishop**, B. Whitford. 2015. Pesticidal copper compositions and methods for using the same. US Patent # 9,137,999

Submitted patent: Aquatic Herbicide Having Functional Inert Ingredients. Attorney Docket No.: 1003-6P

Submitted patent: Compositions and Systems for Binding Nutrients from Moving Bodies of Water. Attorney Docket No.: 1003-111P

Submitted patent: Use of Trivalent Metals to Enhance Surface Water and Sediment Quality While Minimizing Risk To Aquatic Biota 1003-122P

Other Related Publications

Bishop, WM. 2022. Harmful Algal Blooms and You. South Carolina Aquatic Plant Management Society April Newsletter. (Invited contributor)

LaWell Feb 2022. Technical support expert. Shedding Light on Phosphorus. Golf Course Industry Magazine: Tees to Greens

Pokrzywinski, K, WM Bishop, C Grasso, K Volk, and K Getsinger. 2021. Chemical Management Strategies for Starry Stonewort: A Mesocosm Study. USACE Report Number: ERDC/EL TR-21-10
Link: <http://dx.doi.org/10.21079/11681/42040>

Beasley D. and W.M. Bishop. Say no to cyanos if you want big bass. PondBoss magazine article May/June 2018 issue.

Bishop, W.M. 2016. Risks and management of noxious cyanobacteria. Aquatic Ecosystem Restoration Foundation newsletter. December, no. 15.

Long, N.W., J. Ferguson, B.E. Willis, W.M. Bishop. Giving nuisance algae the one-two punch. Land and Water Magazine. Jan-Feb 2015.

Bishop, W.M. 2014. Characterization and control of the toxic golden alga: *Prymnesium parvum*. Western Aquatic Plant Management Society Winter Newsletter.

Bishop, W.M and B. Willis. 2013. Role of Phosphorus Pollution in Governing Algae Management. Aquatic Ecosystem Restoration Foundation newsletter. December, no. 9.

Bishop, W.M. and B. Willis. 2013. Efficient algae management in today's regulatory world. Western Aquatic Plant Management Society Fall Newsletter.

Bishop, W.M. and B. Willis. 2013. Managing our dynamic freshwater resources. South Carolina Aquatic Plant Management Society May Newsletter.

Bishop, W.M. 2013. Phosphorus pollution in your pond: Sources, Impacts, Solutions. AQUA DOC PONDerings Newsletter issue 19.

Hyde, S., and W.M. Bishop. 2012. Don't forget the waterbody when attempting to restore water quality. Aquatic Ecosystem Restoration Foundation newsletter. 5: 2.

Bishop, W.M. 2011. Toxin producing algae and nutrient treatment evaluations for Grand Lake St. Mary's, OH. SePRO Technical Report.

Bishop, W.M., B.M. Johnson, and J.H. Rodgers, Jr. 2010. Microcystin concentrations following treatments of harmful algal blooms. Applied Biochemists Technical Brochure.

Bishop, W.M., B.M. Johnson, J.H. Rodgers, Jr., and O. Tedrow. 2010. Management of *Microcystis aeruginosa* and microcystin with Cutrine®-Ultra in Pawnee Reservoir- Lancaster County-Nebraska. Applied Biochemists Technical Brochure.

Bishop, W.M. 2010. Algae photomicrographs and identification. Aquatic Weeds: A pocket Identification Guide for the Carolinas. North Carolina Cooperative Extension.

Social Media Presence

Private Waters Natural Resource Association (PWRNA non-profit) webinars:

- Harmful Algae Blooms (HAB)'s, Be on the Lookout: PhD West Bishop
- Getting to the "Base-ics" with pH, Alkalinity and Total Hardness: Dr. West Bishop
- Getting Serious with Algae with Dr. West Bishop
- Algae, Mats, Moss, What do I Do? From the Dr. West Bishop

Harrel's Podcast <https://www.turphdudes.com/>. **Aquatic weeds and algae.**

Twitter: @AlgaePhD, >100 followers

LinkedIn: <https://www.linkedin.com/in/west-bishop/>, >1,200 connections

Sitting Dockside Podcast, 2 episodes

YouTube informational video series: *Algae Corner with Dr. West Bishop*, over 80,000 views
<https://www.sepro.com/aquatics/algae-corner>

Episodes:

Toxic, Noxious, and Smelly Algae (part 1)

The Problem with Phosphorus

Toxic, Noxious, and Smelly Algae
(Cyanobacteria: part 2)

What are Algae?

Growth Factors and Seasonality

How to Identify Different Algae Types

Where do Algae Come From

SePRO Solutions for Algae Control

Controlling Tough Algae with Captain
XTR

The Power of Peroxide with PAK 27

Approaches to Managing Golf Course
Irrigation Water

Why You Need to Manage Golf Course
Irrigation Water

Removing Phosphorus & Enhancing Water
Quality with Phoslock

A Preview to Golf Course Water
Management

Controlling Algae and Improving Water
Quality with SeClear

Toxic Algae and Closed waterbodies

Name That Algae (Quiz)

Algae or Not (Quiz)

Fish Kill Why?

Why SePRO offers Laboratory services

SePRO Laboratory Services Overview

Fish Kill: Top questions to ask

An Introduction to Golf Course Irrigation

Algae and Taste/Odor issues

Microscope Creatures

Promoting healthy fisheries

What the Film?

Initial On-site assessment

Using the Jar Test to assess water quality

Identifying Weeds and algae by Look and
feel

Captain XTR Research Update

>20 more

Certifications

North American Lake Management Society: Certified Lake Professional (CLP certification # 14-03P)
2014-present

North Carolina State University Stormwater BMP Inspection and Maintenance Certified (certification
2015) 2014-present

North Carolina Certified Pesticide Applicator, Core, Aquatics and Research and Development
Categories (license # 026-31239): 2013-present

Safe Sanctuaries training 2014- present

Hazardous Waste Management, Environmental Health and Safety Training: May 2007-Present

Chemical Hygiene, Environmental Health and Safety Training: May 2007-Present

Biological Safety, Environmental Health and Safety Training: May 2007-Present

Animal Care and Use Training: May 2007-2013

Collection, ID, Ecology & Control of Freshwater Algae Workshop; NALMS 2011 Spokane, WA

South Carolina Certified Pesticide Applicator, Research and Development Category: May 2009-2011

Awards/ Grants

NC State Center for Turfgrass Environmental Research and Education grant. A Survey of Nutrient Concentrations, Weed Species, And Pesticide Residues in Turfgrass Irrigation Ponds. 2016

NC State Center for Turfgrass Environmental Research and Education grant. Improving golf course irrigation water quality. 2014 & 2015

South Carolina Aquatic Plant Management Society 2010, Howard B. Roach Student Paper Contest winner

National Aquatic Plant Management Society 2010, Student Paper Contest winner

Clemson University: 2009-2010 SC Life Undergraduate Research Scholarship Program Mentor

Midwest Aquatic Plant Management Society 2010, Student Paper Contest winner

North American Lake Management Society 2009, Student Travel Grant

Midwest Aquatic Plant Management Society 2009, Student Paper Contest second place

Phillip M. Fields Scholarship award through South Carolina Aquatic Plant Management Society 2008

Midwest Aquatic Plant Management Society Research Grant 2008

Western Michigan University Zoology award 2006

Western Michigan University Biology award 2006

Memberships

Aquatic Plant Management Society, 2007-Present

Northeast Aquatic Plant Management Society, 2009, 2011-present

North American Lake Management Society, 2009, 2011, 2012, 2014-present

South Carolina Aquatic Plant Management Society, 2007-2015, 2018-present

Pennsylvania Lake Management Society, 2014, 2021

Midwest Aquatic Plant Management Society, 2008-2017, 2019-present

North Carolina Lake Management Society 2017-2018

Western Aquatic Plant Management Society, 2011, 2014, 2018

Oregon Lakes Association, 2013

Washington Lake Protection Agency, 2013

MidSouth Aquatic Plant Management Society, 2007, 2008, 2010-2012

Florida Lake Management Society, 2011, 2012, 2017, 2022

Florida Aquatic Plant Management Society, 2011, 2017, 2019, 2021

Phi Kappa Phi Honor Society, 2010

American Association for the Advancement of Science (AAAS), 2010

Alliance of Hazardous Materials Professionals (AHMP), 2010

South Carolina Master Naturalist, 2010

Society of Environmental Toxicology and Chemistry, 2007, 2008

Professional Activities

Conducted numerous training seminars for lake management companies and product distribution companies including (Estate Management Services, Aquatic Control, Clarke, SOLitude, Stewards of Water meetings at world-wide venues)

Provided research funds and directed research with University Cooperators in part with UF, University of Akron, UAPB, Clemson University, NCSU, University of Toledo

Board member for SUNY Oneonta Professional degree program, Master of Lake Management

CALS, NCSU November 2, 2015. Stewards of the Future Innovation Fair Judge

Journal reviewer: JAPM, Ecotoxicology, JEST, Env Poll, Ecotox Environ Saf, water Research, SDRP Journal of Earth Sciences & Environmental Studies

Volunteer Activities

Nash County Recreation. Soccer Coach. (2019-2021)

Environmental Engineering Mentor for Undergraduate Students, University of Toledo 2021

Supported Team Algae Biofiltration. Windemere Preparatory school high school science project. EarthEcho International's EchoChallenge (Winner first place 2021)

Nashville Elementary School Virtual Science Week. Algae, cool water stuff, and the life in a drop of water. Invited presenter. April 19, 2021

Science Night. STEAM career opportunities showcase. Nashville Elementary School. Invited presenter. October 24, 2019

Town of Nashville Parks, Recreation and Cultural Resources: Environmental Camp: Algae and aquatic plants. Invited presenter. August 13-15, 2018

Scholarship Committee Member (MAPMS 2011- 2017)

Student affairs Committee Member (MAPMS 2011-2017)

NUMC Church council member (2017-present)

Town of Nashville Parks, Recreation and Cultural Resources: Environmental Camp: Water Quality.
Invited presenter. June 19-21, 2017

Pathfinders, NUMC Youth Group Leader (2011-2017)

4-H₂O Pontoon Classroom Water Quality Day Camp: June 2008, 2009, and 2010

Junior Entomologist Naturalist Program: June 12, 2010

Judge FNR 499 Senior Seminar Presentations: November 30, 2009

Junior Fisheries Biologist Naturalist Program: October 17, 2009

Junior Wildlife Biologist Naturalist Program: April 18, 2009

Junior Herpetology Naturalist Program: April 4, 2009

Upstate Regional 4-H Contest Judge: March 28, 2009

Junior Ornithology Naturalist Program: September 20, 2008

Beach Sweep Cleanup: September 15, 2007



MICHAEL W. PEARCE

mwpearce03@gmail.com / 317-552-8272
Zionsville, IN 46077

SUMMARY

A value-driven professional with demonstrated success in sales, product management, demand creation, strategic planning, business development, and environmental applications. A strong communicator with natural leadership talent and high energy. An impactful and successful individual proficient in sales and marketing while motivating personnel to new levels of performance and growth.

SKILLS

- Sales and Marketing
 - Project Management
 - Forecasting and Budget Planning
 - Leadership and Teamwork
 - Business Development
 - CRM and Lead Generation
 - Public Speaking
 - MS Office Suite
-

EXPERIENCE

EutroPHIX Business Director / SePRO Corporation – Carmel, IN

10/2023 – Current

- Help provide clean, safe, and enjoyable water to the world.
- Responsible for business development activities.
- Lead technical specialist team and sales process.
- Create and execute marketing plans and strategies.
- Develop and lead strategic advocacy objectives.
- Collaborate with key stakeholders and partners.

Sr. Marketing and Strategy Manager /SePRO Corporation – Carmel, IN

07/2022 – 09/2023

- Focused on marketing, business development, and strategy.
- Planning, implementing, and overseeing marketing campaigns.
- Lead the development and release process for new products.
- Deliver on revenue and P&L objectives.
- Conduct market research, sales forecasting, and budget planning.
- Gather and analyze market data to identify new market and demand-creation opportunities.
- Contributing to strategic advocacy initiatives.
- Interview, train, and evaluate sales and marketing personnel.

Portfolio Manager / SePRO Corporation - Carmel, IN

01/2021 – 06/2022

- Lead and manage SePRO's portfolio of algae and water quality solutions.
- Focused on the development of sales, marketing, and business development strategies.
- Collaboratively work on vision, strategy, demand creation, and release process for new products.
- Interview, train, and evaluate sales and marketing personnel.
- Generate leads for business opportunities to grow company revenue and improve EBITDA
- Achieve company growth through market expansion and new product development.
- Developed sales funnel and CRM strategy to automate leads management.
- Design, organize, and execute customer events.
- Developed and launched new division of the company – EutroPHIX www.eutrophix.com

- Developed and launched new technology – EutroSORB www.eutrosorb.com

Portfolio Leader / SePRO Corporation - Carmel, IN

07/2017 - 12/2020

- Established budgets and strategic business plans for daily operations.
- Created and implemented traditional marketing campaigns.
- Devised innovative strategies to drive customer engagement.
- Applied market knowledge and customer insight analysis to drive sales through targeted promotions.
- Developed and implemented digital marketing plans to incorporate SEO, social media, and video campaigns.
- Boosted sales by developing new product marketing strategies.
- Collaborated with team to forecast based on sales and product profitability.

Technical Sales Specialist / SePRO Corporation - Kennewick, WA

04/2011 - 06/2017

- Assessed customer needs, explained complex technical information, and provided information regarding useful products and promotions.
- Identified products and services that would be best fit for customer projects.
- Participated in local and national trade shows and conferences representing and promoting our products and services.
- Hosted customer meetings to discuss problems, solutions, and budgets to reach specific objectives.
- Developed and delivered technical sales presentations to key customer, stakeholders, and decision makers.
- Communicated effectively with customers to maintain satisfaction and loyalty.
- Built strong professional relationships through identification of client needs, which increased overall sales and opportunities.
- Met or exceeded sales goals each year using consultative sales talents.

Environmental Coordinator / Kennewick Irrigation District - Kennewick, WA

04/2000 - 03/2011

- Developed and managed the district's Integrated Vegetation Management Program.
- Coordinated all aquatic and terrestrial herbicide applications while meeting compliance with the Washington State Department of Ecology's NPDES irrigation permit.
- Adhered to safety procedures and protocols when using equipment and moving hazardous chemicals to prevent mishaps and accidents.
- Worked successfully with diverse group of coworkers to accomplish goals and address issues related to our services.
- Prioritized and organized tasks to efficiently accomplish goals.
- Demonstrated leadership by making improvements to work processes and helping to train others.

EDUCATION

Washington State University - Pullman, WA

Executive MBA: Business Management and Organizational Leadership

Washington State University - Pullman, WA

Bachelor of Arts: Social Sciences, Business Administration

Columbia Basin College - Pasco, WA

Associate of Arts: Business Management

VOLUNTEER

Special Olympics

Baseball Coach – Zionsville Little League

Basketball Coach – YMCA

TELLY RYAN SMITH
APPLIED AQUATIC MANAGEMENT, INC.
PROJECT MANAGER
CERTIFIED AQUATIC PESTICIDE APPLICATOR

EDUCATION: 1995 Graduate of Auburndale High School

PROFESSIONAL ASSOCIATIONS AND ACTIVITIES:

Florida Aquatic Plant Management Society
Board of Directors Member for FAPMS

LICENSES: Florida Pesticide Applicators License
Aquatic, Right of Way and Natural Areas Categories #CM15057

SUMMARY OF EXPERIENCE:

Mr. Smith has been in the employ of Applied Aquatic Management, Inc., since July of 2001. Mr. Smith routinely conducts aquatic plant surveys, recommends the appropriate herbicide and rates for control and maintenance of the waters surveyed. He provides supervision and direction on all projects to which he is assigned. Mr. Smith has worked on numerous aquatic vegetation management projects in the State of Florida. Specifically, he has worked on governmental projects for SFWMD, SJRWMD, FDEP and USACE. He provides aquatic plant management services to a large number of industrial and commercial clients. Mr. Smith has worked on mitigation maintenance projects for numerous industrial and private clients. Mr. Smith manages a team of technicians that service a large number of commercial and private accounts involving maintenance and eradication of exotic vegetation throughout the state of Florida.

**ARCHIE CAMPBELL
PROJECT SUPERVISOR**

CERTIFIED AQUATIC PESTICIDE APPLICATOR

EDUCATION: 1987 Graduate of Winter Haven High School

PROFESSIONAL ASSOCIATIONS AND ACTIVITIES:

Florida Aquatic Plant Management Society

LICENSES: Florida Pesticide Applicators License
Aquatic, Right of Way and Natural Areas Categories #CM19714

SUMMARY OF EXPERIENCE:

Mr. Campbell has been in the employ of Applied Aquatic Management, Inc., since 2008 and Project Supervisor since 2020. He works with Mr. Smith servicing a wide variety of routine accounts. Mr. Campbell also conducts surveys of aquatic plants and provides proposals for routine accounts. He acts as supervisor in the absence of Telly Smith. He is assigned to large scale projects when the need demands. He has worked on projects for the FDEP, USACE and mitigation maintenance and eradication projects throughout the state of Florida.

JERRY C. RENNEY, JR.

CERTIFIED AQUATIC PESTICIDE APPLICATOR

EDUCATION: 1987 Graduate of Winter Haven High School

PROFESSIONAL ASSOCIATIONS AND ACTIVITIES:

Florida Aquatic Plant Management Society
Best Applicator Paper of the Year 1994
Florida Aquatic Plant Management Society
Board Member 2007-2010
Florida Aquatic Plant Management Society President 2012

LICENSES: Florida Pesticide Applicators License
Aquatic, Natural Areas and Right of Way Categories #CM6897

SUMMARY OF EXPERIENCE:

Mr. Renney has been in the employ of Applied Aquatic Management, Inc., since May 1988. He provides supervision and direction on all projects to which he is assigned. Mr. Renney has worked on numerous aquatic vegetation management projects in the States of Florida, Alabama, Georgia and Mississippi. Specifically he has worked on projects for SFWMD, SJRWMD, FDEP, USACE, FDOT, Valencia Water Control District, Pearl River Water Supply District and several industrial and commercial clients. Mr. Renney has supervised labor crews from ground application equipment and helicopter transported crews on various exotic species eradication projects statewide. Specifically he has supervised crews in the Water Conservation Areas, Fisheating Creek, Lake Okeechobee and Save Our Rivers Lands for the South Florida Water Management District, the NPS in the BICY, Lee County and Manatee County. He has worked on numerous mitigation maintenance and exotic species eradication projects for various industrial and commercial clients.

VENDOR SUBMITTAL ACKNOWLEDGEMENT FORM

It is the policy of Pinellas County, Board of County Commissioners, to accept the lowest responsive and responsible or highest ranked submittal received meeting specifications. No changes requested by a vendor due to an error in pricing will be considered after the advertised solicitation opening date. By signing this Vendor Submittal Acknowledgment Form, vendors are attesting to their awareness and acceptance of this policy and agreeing to all solicitation of terms and conditions, including any insurance requirements.

Vendor Name (as shown on W-9): SePRO Corporation

Doing Business As (DBA) (if applicable):

Mailing Address (as shown on W-9): 11550 N. Meridian Street, Suite 600

City, State, Zip (as shown on W-9): Carmel, IN 46032

Vendor Email (primary company email): scotts@eutrophix.com

Remit to address (as shown on vendor invoice): 11550 N. Meridian Street, Suite 600, Carmel, IN 46032

Federal Tax ID (FEIN) #: 35-1902554

SAM.gov UEID No.: W12JMLAGZ599

Dun & Bradstreet D-U-N-S® UEID No. (if applicable):

Vendor Contact Information

Contact Name: Scott W Shuler

Phone Number: 317-703-9510

Email Address: scotts@eutrophix.com

Payment Terms: Net 45 (per Florida Statute F.S. 218.73) N/A % N/A Days

Deposit (if required) has been paid in the amount of \$ N/A

Proper Corporate Identity is needed for a firm registered with the Florida Division of Corporations. Please visit dos.myflorida.com/sunbiz/ for this information. It is essential to return a copy of your W-9 with your submittal.

I hereby agree to abide by all terms and conditions of this solicitation, including all insurance requirements, and certify that I am authorized to sign this solicitation for the vendor.

Authorized Signature:



Print Name: Scott W Shuler

Title: Director, Technology and Operations

THIS FORM MUST BE RETURNED WITH YOUR RESPONSE