



PROPOSAL FOR  
**Water Quality Trend  
Assessment and Dashboard  
Tool Development  
(RFP NO. 20260257)**

PREPARED FOR  
**Charlotte County**

PREPARED BY  
**Geosyntec Consultants**

APRIL 2, 2026




April 2, 2026

Charlotte County Administration Center  
18500 Murdock Circle  
Port Charlotte, FL 33948-1094  
Attention: Alisa True,

**Subject: Water Quality Trend Assessment and Dashboard Tool Development (RFP NO. 20260257)**

Dear Ms. True

Geosyntec Consultants, Inc. (Geosyntec) has assembled a project team with significant experience in data mining and cleaning to assist Charlotte County (the County) with the services requested in the RFP for Water Quality Trend Assessment and Dashboard Tool Development. As demonstrated in the enclosed proposal, we are confident the Geosyntec team is the best choice for this contract for the following reasons:

- **Technical Depth in Water Quality Data and Statistical Analysis.** Geosyntec brings proven expertise in water quality data management, statistical trend analysis, and interactive dashboard development. Our team has built R Shiny dashboards for government clients, applied nonlinear statistical methods to long-term environmental datasets, and managed multi-agency water quality data pipelines—the exact combination of skills this project demands. 
- **Florida-Based Project Manager with Deep Local Knowledge.** Our Project Manager, Scott Deitche, ENV SP, is based in Clearwater, Florida—within a two-hour drive of Charlotte County. With more than 30 years of water resources experience across Southwest Florida, Scott understands the regulatory landscape, the stakeholder network, and the estuarine systems at the heart of this project. Scott has experience working with the County's Public Works department on National Pollutant Discharge Elimination System (NPDES), total maximum daily load (TMDL), staff training, and water quality projects. He will serve as the County's single point of contact throughout the nine-month engagement. He, and team member, Kevin Tyre, just began working on a large restoration plan for Cape Coral which includes water quality data analysis extending from Matlacha Pass north to the County line. 
- **Purpose-Built Team, Open Science Delivery.** Geosyntec's approach is to assemble the best team for each engagement. For this project, we have brought together specialists in R/Shiny development, Generalized Additive Model (GAM) based trend analysis, water quality data curation, and Florida estuarine science. Every deliverable—cleaned datasets, R scripts, and the Shiny dashboard—will be shared via a public GitHub repository and containerized with Docker, ensuring Charlotte County and Coastal & Heartland National Estuary Partnership (CHNEP) can reproduce, update, and extend the work annually without ongoing consultant dependency. 

If you have any questions, please do not hesitate to contact Scott Deitche at 727.440.6933 or via email at [Scott.Deitche@Geosyntec.com](mailto:Scott.Deitche@Geosyntec.com). We look forward to the opportunity to support Charlotte County and CHNEP in advancing science-based water quality management across the Greater Charlotte Harbor system.

Geosyntec acknowledges receipt of Addendum #1 (dated March 23, 2026), which revised the evaluation form (pages 13–14) to clarify the project management approach criteria. This addendum is incorporated into and reflected throughout our proposal. Acknowledgment is also noted on the Proposal Submittal Signature Form enclosed as Attachment 2.

Sincerely,



**Raphael Siebenmann, PE**  
Senior Principal  
[rsiebenmann@geosyntec.com](mailto:rsiebenmann@geosyntec.com)  
678.202.9555



**Scott Deitche, ENV SP**  
Senior Principal  
[Scott.Deitche@Geosyntec.com](mailto:Scott.Deitche@Geosyntec.com)  
727.330.9964

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## Attachments

- Attachment 1 Resumes
- Attachment 2 Proposal Submittal Form
- Attachment 3 Drug Free Workplace
- Attachment 4 Human Trafficking Affidavit

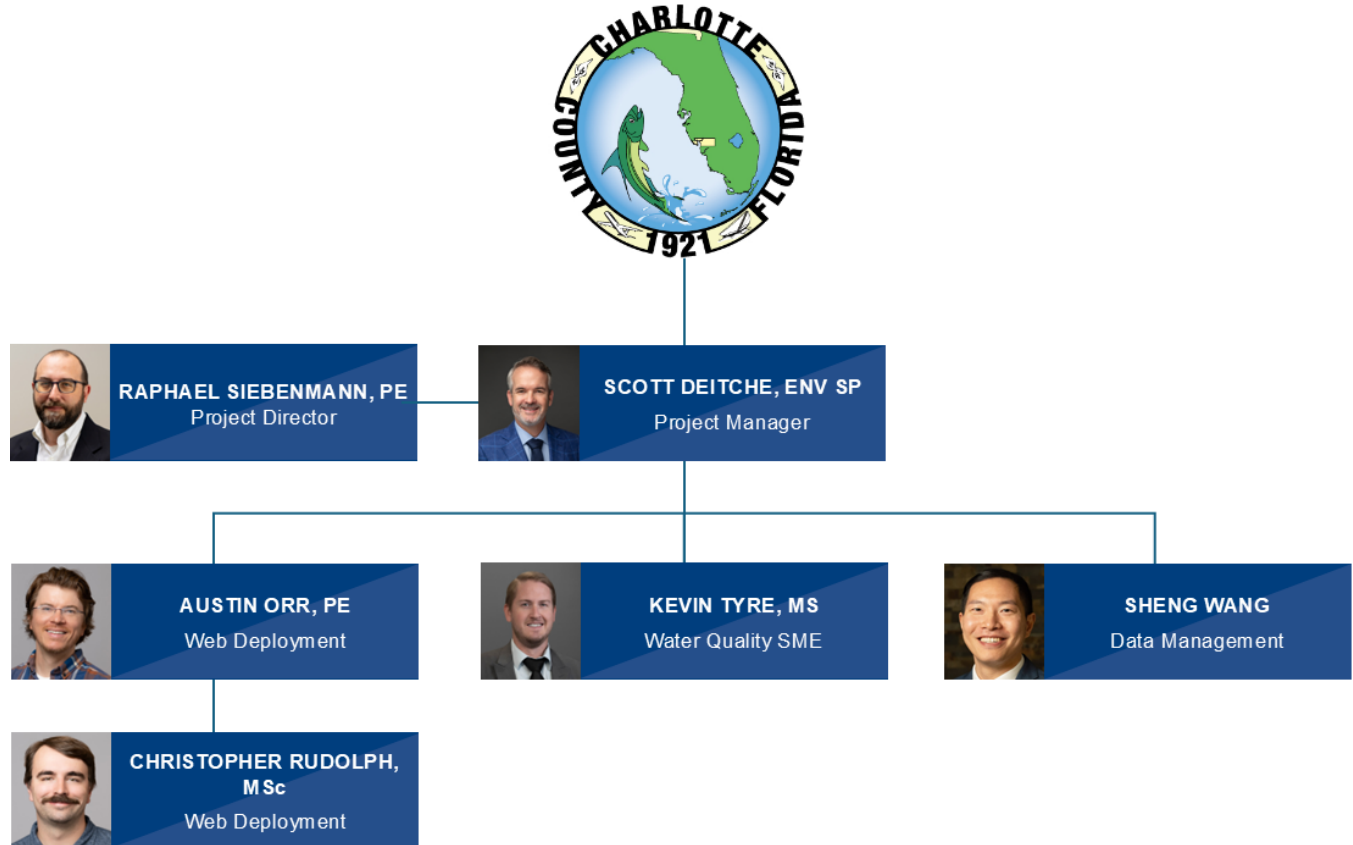
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## 1 Team Proposed for This Project

A project team organizational chart is presented below. Brief biographies for the key personnel proposed for this project are shown below, and our project team's resumes are included in Attachment 1. Our Team has the capacity and ability to perform the work promptly upon award of the contract.



*Licenses provided in resumes.*

## Biographies



### Scott Deitche, ENV SP | Project Manager

Scott Deitche has more than 30 years of experience and a broad background in water resources. He addresses all aspects of surface water quality, including stormwater infrastructure, water resource planning, evaluating best management practices (BMPs), conducting lake studies, assessing water quality, and sampling. His skill set encompasses compliance strategies for public- and private-sector clients. He uses his deep understanding of water quality permitting and regulations, including National Pollutant Discharge

Elimination System (NPDES) MS4 permitting, Multi-Sector Generic Permits (MSGP), and industrial wastewater (IWW) permitting programs, to help clients reach and maintain compliance. Scott has managed over 200 water quality projects throughout Florida, including several projects within Charlotte County.

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## Raphael Siebenmann, PE GISP | Project Director

Raphael Siebenmann is a Senior Principal with over 20 years of experience in civil and environmental engineering, data management, and statistical analysis. He integrates his environmental consulting practice with programming and Geographic Information System (GIS) expertise to design and deploy data-driven decision support tools for clients and regulatory agencies, and has experience building and managing enterprise environmental databases, conducting geospatial and statistical trend analyses, developing web-based dashboards and real-time monitoring systems, and leading AI-accelerated document review platforms.



## Kevin Tyre, MS | Water Quality SME

Kevin Tyre is a water resources scientist with extensive experience in water quality assessment, harmful algal bloom (HAB) monitoring, and the analysis of complex environmental datasets. He specializes in the design and implementation of field sampling programs, statistical evaluation of water quality trends, and geospatial analysis. His work supports the development of science-based management strategies for freshwater and estuarine systems.

Kevin provides technical leadership in the interpretation of environmental monitoring data, development of pollutant loading models for waterbodies, and the assessment of stormwater Best Management Practices (BMPs) for nutrient load reduction. He has contributed to regional and statewide initiatives focused on nutrient management, ecosystem health, and restoration planning. His responsibilities also include stakeholder engagement, preparation of technical reports, and support for regulatory compliance and grant-funded research projects. Kevin has also served as a lead scientist on projects for municipal clients and has collaborated with academic institutions on applied research related to water resource protection and restoration.



## Austin Orr, PE | Web Deployment

Austin Orr is a Senior Engineer with over 12 years of engineering consulting experience in geospatial analysis, software development, and watershed management. He integrates his water resources engineering practice with his software development and GIS analysis skills to build and deploy modeling tools for use by his colleagues and clients, and has experience creating and managing databases, building application programming interface (APIs) for querying and analyzing the data, and producing user-facing websites and dashboards to assist with data exploration, visualization, and reporting.



## Christopher Rudolph, MSc | Web Deployment

Christopher Rudolph is a professional in Geosyntec's data management group with a Master's Certificate in Climate Change and a Master of Spatial Analysis. He has 5 years of experience working in consulting and federal government as a GIS specialist with a focus on data visualization and spatial analysis. His practice area includes construction, environment, and litigation projects.

Christopher has a generalist skill set, including various programming languages (R, Python, SQL) and enterprise software (ESRI ArcGIS, Power BI, Microsoft PowerApps) to compile, interpret, and communicate the stories told by client data to stakeholders.

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## Sheng Wang | Data Management

Sheng Wang is an environmental professional and data manager with more than 15 years of experience. His technical expertise includes environmental, energy, and utility database management, modeling, and data analysis. He has extensive experience designing and developing databases that support historical data compilation, current data collection, storage, and validation. Sheng is experienced with large datasets and has developed systems that retrieve, transform, and load large datasets from various sources into a centralized data warehousing system. He has designed, developed, and maintained web dashboards for data visualization, reporting and analytics. Sheng is also experienced with real time water quality (WQ) measurement data. He has developed tools to acquire high frequency measurements for WQ parameters from various sources, process and ingest data into the databases and visualize data on web-based dashboards in real time fashion.

## Project Manager References

**Julie Vogel, Senior Capital Projects Coordinator, City of St. Petersburg.**

[julie.vogel@stpete.org](mailto:julie.vogel@stpete.org) | 727-892-5140

Scott Deitche is currently the project manager on several St. Petersburg projects, including the Bear Creek Wet Weather Stormwater Treatment project, which involves the modeling, analysis, and design of a water quality treatment system and expansion of existing stormwater treatment parcel, and the Dredge Hole Filling Oversight project, a project that involves the filling in of a dredge hole to create a submerged seagrass mitigation bank.

**Melanie Weed, Division Director, Environmental Management, Pinellas County**

[mweed@pinellas.gov](mailto:mweed@pinellas.gov) | 727-464-4425

Scott has managed several projects for Melanie over the years and worked with her at the County previously. Scott is currently Project Director for the Pinellas Major Drainage Survey, a collaborative effort between Pinellas and various municipalities to optimize stormwater maintenance practices and ensuring level of service across the County. Scott is also managing an emergency sediment sampling and water quality project to assess the impacts of a large bentonite spill into the Cross Bayou Canal.

**Chris Perrigan. Attorney at Lewis, Longman, Walker (LLW)**

[cperrigan@llw-law.com](mailto:cperrigan@llw-law.com) | 727-935-9691

Scott is currently managing a project with a confidential facility, for LLW. The project entails development of site BMPs for water quality treatment, water quality sampling and data analysis, reporting, and permit compliance.

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## 2 Proposed Management Plan

### A. Team Organization and Roles

Geosyntec has organized this project team to align specialized expertise with each of the three RFP tasks. The organizational chart presented in Section 1 illustrates the reporting structure; roles and responsibilities are summarized below.

**Scott Deitche, ENV SP – Project Manager.** Scott serves as the primary client contact and is responsible for schedule adherence, budget control, deliverable quality, and coordination with CHNEP and the County. Based in Clearwater, Florida, he is available for in-person meetings and brings more than 30 years of Florida water resources experience, including NPDES MS4 permitting, water quality assessments, and stormwater management across Southwest Florida.

**Raphael Siebenmann, PE, GISP – Project Director.** Raphael provides senior technical direction across all tasks, with particular focus on analytical approach decisions, QA/QC protocols, and deliverable review. He brings 20 years of consulting experience in environmental data management, statistical analysis, and web-based information systems.

**Austin Orr, PE – Lead Developer (Dashboard and Data Pipeline).** Austin leads Task C (Shiny dashboard development) and supports Task A (data pipeline scripting). With over 12 years of experience building web-based modeling and data exploration tools for government clients, he has delivered R-based dashboards, geospatial APIs, and interactive mapping applications for agencies including the Vermont Agency of Natural Resources and King County, Washington.

**Christopher Rudolph, MSc – Developer (Dashboard and Data Visualization).** Christopher supports Austin on Tasks B and C, contributing R Shiny development, GIS analysis, and data visualization expertise. He has built R Shiny dashboards for water resources applications, including the Butte County Well Data Management System and the CICADA environmental analytics platform, and is experienced with Leaflet mapping, plotly charting, and GitHub-based code sharing.

**Sheng Wang – Data Manager (Data Acquisition and QA/QC).** Sheng leads the data acquisition and quality assurance effort in Task A. With more than 15 years of experience designing and developing environmental databases, he has built data pipelines that retrieve, transform, and load large datasets from multiple sources into centralized warehousing systems. He has designed web dashboards for real-time water quality visualization and reporting.

### B. Internal Quality Control

Technical deliverables associated with the project will undergo Geosyntec's standard two-tier quality review process before submission. The first tier is a technical peer review by a senior staff member who did not produce the work, verifying analytical methods, data integrity, and consistency with the project scope. The second tier is a senior management review by the Senior Principal, confirming that deliverables meet Geosyntec's quality standards and the County's expectations. For this project, the Senior Principal (Raphael Siebenmann) will perform the senior review on all major deliverables: the cleaned dataset and processing report (Task A), the GAM/Mann-Kendall (MK) trend results and summary presentation (Task B), and the Shiny dashboard and documentation package (Task C).

Technical deliverables associated with the project will undergo Geosyntec's standard two-tier quality review process before submission.

In addition to human review, the data processing and analysis pipeline will include automated validation checks embedded in the R code: record count verification at each processing stage, parameter completeness checks,

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coordinate range validation, and GAM diagnostic tests (basis dimension adequacy, residual autocorrelation). These checks will log pass/fail status, creating a reproducible audit trail.

For the R Shiny dashboard specifically, our QC process will include cross-browser compatibility testing (Chrome, Firefox, Safari, Edge) to confirm consistent rendering, and load-time benchmarking to ensure the application meets the RFP requirement for quick loading on public-facing networks. We will test the dashboard with representative datasets at full station and analyte counts to verify that map rendering, plotly chart interactivity, and table filtering perform responsively under realistic data volumes. The iframe integration will be tested within a staging instance of the Water Atlas page template to confirm responsive height adjustment and absence of scrollbar or layout conflicts before final deployment.

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## 3 Previous Experience of Team Proposed for This Project

Geosyntec's team for this project reflects Principal Director Raphael Siebenmann's direct working relationships with each proposed team member.

Raphael Siebenmann has collaborated with Sheng Wang on multiple environmental data management engagements, building the data acquisition and QA/QC workflows that form the backbone of Task A. He has partnered with Austin Orr on several water quality projects, including a confidential monitoring program that required statistical analysis of turbidity data across dozens of stations over a multi-year period of record—experience directly analogous to the trend analyses required in Task B. Raphael has also worked with Christopher Rudolph's team in Canada on GIS-driven data and decision-support tools for construction projects, establishing the collaborative development practices that will carry into Task C dashboard development. And through his prior engagement with Geosyntec's Clearwater, Florida office optimizing coastal groundwater quality monitoring networks for the Southwest Florida Water Management District (SWFWMD), Raphael has an existing relationship with Project Manager Scott Deitche and firsthand familiarity with the regional water quality landscape. Project Manager Scott Deitche and Water Quality SME Kevin Tyre work together frequently on water quality projects throughout the state, including the recently started North Cape Coral Drainage Basin Alternative Restoration Plan.

**Rather than assembling a standing roster, Raphael has drawn on these proven working relationships to build a team precisely matched to the three-task scope.**

Rather than assembling a standing roster, Raphael has drawn on these proven working relationships to build a team precisely matched to the three-task scope: Florida-based water resources management (Deitche), environmental data systems and QA/QC (Wang), statistical trend analysis and senior technical oversight (Siebenmann), and R Shiny dashboard development (Orr, Rudolph). The most relevant recent projects demonstrating each member's capabilities—including the Vermont Stormwater Modeling Tool, the Butte County Well Data Management System, the SWFWMD Groundwater Quality Trend Assessment, and multiple enterprise environmental database efforts—are described in detail in Section 6.

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## 4 Project Control

Geosyntec has supported public clients for over 40 years and understands the schedule, budget, and documentation expectations of public projects. Our project management approach focuses on three essentials, schedule control, budget control, and quality control. The Project Manager leads the team and, with assigned task managers, directs daily execution, maintains required resources, and ensures deliverables meet quality standards while staying on schedule and within budget. At project initiation, the work is broken into measurable tasks with defined milestones, budgets, schedules, and deliverables to support clear accountability and effective tracking.

### A. Schedule

Geosyntec understands the importance of sound project management for the successful completion of a project, including managing budget and schedule, regular communication with the client, project team, and other key stakeholders to ensure the project stays on track and avoids unforeseen obstacles. Geosyntec's project management team will work in concert with the County representatives through the course of the project to successfully execute the scope of work and submit deliverables on schedule. We will develop a milestone schedule, as shown in Section 5 (Design Approach), for the scope of work. Our project management team will also be responsible for scheduling and running check-in meetings as appropriate, and other project management needs (i.e., invoicing).



### B. Cost Control

Geosyntec will manage costs through a fixed-fee task structure. Our Project Manager, Scott Deitche, will track labor hours weekly against task budgets using Geosyntec's internal project accounting system. Monthly progress invoices will include a summary of percent-complete by task, hours expended versus budgeted, and a narrative of work performed. If any task approaches 80% of its budget, Scott will notify the County's Contract Manager proactively and propose corrective action—whether reallocating hours between tasks or adjusting the remaining scope—before any overrun occurs. This transparent cost tracking ensures the County retains full visibility and control over project expenditures.

### C. Staff Availability and Continuity

All five team members identified in this proposal have confirmed availability for the full nine-month project duration. Our Project Manager maintains 25–50% availability for this engagement, with technical staff allocated in accordance with the task schedule presented in Section 5. Geosyntec's staffing model assigns named individuals at proposal stage and does not substitute personnel without prior County approval. In the unlikely event that a team member becomes unavailable, Geosyntec maintains bench strength across all disciplines represented on this team—including R/Shiny development, water quality statistics, and environmental data management—enabling seamless continuity without schedule impact. Our project staffing selection is based on qualifications, location, and availability and does not commit individuals to projects unless they have availability to fulfill their project roles for the duration of the assignments. To serve the County's needs, we will ensure that our proposed team members have the capacity to enter into a Professional Services Agreement and are committed to provide deliverables timely and according to the County's project schedule. The key project team members typically have 25%–50% availability to commit to the project. However, on short notice, a re-arrangement of priorities for emergencies can be managed thanks to our strong bench strength of professionals. Due to these and many other similar cordial and professional existing relationships developed over many years, Geosyntec is seen as a trusted and respected entity across the country.

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## 5 Proposed Project Management Approach

### A. Kick-Off and Monthly Project Team Meetings

Within two weeks of notice to proceed, Geosyntec will schedule a virtual kick-off meeting with the County Contract Manager and CHNEP representatives to confirm the project scope, review the milestone schedule, establish communication protocols, and identify points of contact for data access. The kick-off agenda will include a review of the 20 target analytes, confirmation of station lists and oastal Charlotte Harbor Monitoring Network (CCHMN) strata boundaries, and agreement on QA/QC decision rules for qualifier codes and duplicate records—decisions that, if deferred, can delay downstream analysis by weeks.

Following kick-off, Project Manager Scott Deitche will schedule and facilitate monthly progress meetings via Microsoft Teams, with calendar invitations issued for the full nine-month project duration at the outset. Each meeting will follow a standing agenda: progress against the milestone schedule, deliverable status, preliminary findings or data issues requiring client input, and a 30-day look-ahead. Meeting summaries with action items will be distributed within two business days. At key transitions—Task A deliverable submission, draft trend results, and dashboard beta release—we will supplement the monthly cadence with focused technical review meetings to ensure the County and CHNEP have an opportunity to provide input before work advances to the next phase.

### B. Data Collection

We will acquire the complete period-of-record water quality dataset from complementary sources. The primary retrieval pathway uses the U.S. Environmental Protection Agency (USEPA) Water Quality Portal, which consolidates Watershed Information Network (WIN) data with records from contributing organizations. We will query by organization identifiers documented in the CCHMN andard Operating Procedures, including 21FLCHCO\_WQX (Charlotte County), 21FLSWFD\_WQX (Southwest Florida Water Management District), and additional partner codes for Lee County, the City of Cape Coral, the Florida Department of Environmental Protection (FDEP), and volunteer monitoring programs. Where Water Quality Portal records are incomplete—particularly for legacy pre-2017 data—we will supplement with direct queries to the STORET Public Access application maintained by FDEP.

Data retrieval will be scripted in R, to the extent possible, and version-controlled in the project GitHub repository so that every query is reproducible and the provenance of each record is traceable to its source organization. We will coordinate with CHNEP staff during the kick-off meeting to confirm that all contributing organization codes are captured and to identify any supplemental datasets not yet published to the Water Quality Portal.

### C. Data Cleaning and Curation

The QA/QC protocol will systematically address four categories of data quality issues. First, qualifier code screening: we will flag fatal and cautionary qualifiers against Chapter 62-160, Florida Administrative Code (F.A.C.), excluding rejected results and values reported below the method detection limit. Second, duplicate resolution: a hierarchical deduplication protocol will reconcile multi-agency submissions for the same station, date, and parameter, retaining the record from the primary responsible organization. Third, depth segregation: surface and bottom samples will be separated per CCHMN protocol to ensure trend analyses are not confounded by vertical water column variability. Fourth, temporal and spatial validation: automated screening will identify coordinate mismatches, out-of-range values, and temporal outliers that may indicate transcription or analytical errors.

Every QA/QC decision will be logged programmatically so that the County and CHNEP can audit which records were excluded and why. The final cleaned dataset will be delivered as a cleaned dataset in .xlsx and a structured

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sqlite database with supporting metadata tables and a data processing report documenting all QA/QC decisions, exclusion counts by category, and station-level data completeness summaries.

## D. Trend Analysis

We will implement GenGAM trend analysis using the `wqtrends` R package (Beck et al. 2022), which provides a peer-reviewed workflow for estuarine water quality trend detection. The core model decomposes each station-parameter time series into a long-term secular trend, a repeating seasonal pattern, and a seasonal-evolution interaction term. Smoothing parameters are selected via restricted maximum likelihood (REML), allowing the data to dictate the degree of nonlinearity. This approach characterizes the shape and timing of water quality changes rather than reducing complex dynamics to a single slope coefficient.

We recognize that this methodology has already been applied to CCHMN data. Medina et al. (2025), published in *Estuaries and Coasts*, used the `wqtrends` package to analyze 22 years of CCHMN records. Our approach leverages this existing methodology while extending it to incorporate full station-level analysis, five-year rolling windows, and the interactive dashboard delivery specified in this RFP.

Stations with fewer than 50 observations or a period of record shorter than five years will be excluded from GAM modeling but will still appear in the dashboard with raw observation plots. We will complement GAM trend curves with Seasonal Mann-Kendall tests, producing directional trend indicators, p-values, and Sen's slope estimates for both the full period of record and the most recent five-year window. The combined results provide the nuanced visual narrative of how water quality has changed (GAM) alongside the binary significance statement that resource managers can interpret at a glance (Mann-Kendall).

## E. Dashboard Development and Water Atlas Integration

The dashboard will follow a three-panel layout consistent with the conceptual design in Attachment B of the RFP. An interactive Leaflet map will display CCHMN strata as polygons and fixed monitoring stations as point markers, color-coded by trend direction: green for improving, red for degrading, yellow for no significant trend, and grey for insufficient data. Trend graphs rendered via `plotly` will support hover tooltips, zoom, and PNG export. A summary data table will present station metadata and trend results with sortable columns and CSV download capability.

Trend direction classifications displayed on the map and in the summary table will follow explicit, documented rules. A station-parameter combination will be classified as "Improving" (green) if the Seasonal Mann-Kendall test yields a statistically significant trend ( $p < 0.05$ ) in the direction associated with better water quality for that parameter (e.g., decreasing for nutrients, increasing for dissolved oxygen). "Degrading" (red) applies when the significant trend runs in the adverse direction. "No Significant Trend" (yellow) applies when  $p \geq 0.05$ . "Insufficient Data" (grey) applies when the station has fewer than 50 observations or a period of record shorter than five years, consistent with the data requirements specified in RP-23.B.2. These classification rules will be documented in the technical documentation deliverable and displayed in a legend panel within the dashboard so that end users can interpret the map without external reference material.

The R Shiny application will be designed specifically for `iframe` integration into the CHNEP Water Atlas hosted by the University of South Florida. We will use the `iframe-resizer` JavaScript library to enable responsive height adjustment within the Atlas page frame. The application will be delivered as a Docker container image for dependency-free deployment and will include step-by-step instructions for launching on any Docker-capable server.

The use of Docker is intended to eliminate dependency conflicts by packaging the exact R version, library versions, and system libraries into a single image that runs identically on any server, removing the most common cause of "works on my machine" failures. The targets pipeline will track which stations have new data and re-runs only the affected analyses, reducing annual update processing time. Together, these tools lower lifecycle cost (annual

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updates become a repeatable, single-command operation), reduce deployment risk (no manual installation steps that can diverge between environments), and provide an audit trail linking every result back to the code and data that produced it.

All source code will be maintained in a public GitHub repository using the targets pipeline framework and renv for package version locking, enabling single-command annual updates as new monitoring data become available. The annual update workflow—re-running data retrieval scripts, executing the targets pipeline to incrementally update only affected stations, rebuilding the container, and redeploying—will be documented in a step-by-step maintenance guide delivered as part of the final documentation package. Code will be licensed under the MIT License to maximize reuse.

## F. Deliverables by Task

The following register maps each RFP-required deliverable to its task, format, and delivery milestone. All deliverables will be reviewed by CHNEP and deemed accurate and complete prior to invoicing, as specified in the RFP.

### **Task A – Data Processing and Cleaning (Month 3):**

Processed/cleaned period-of-record dataset (.xlsx); data processing and cleaning protocol report (.docx) detailing all QA/QC decisions, exclusion counts, and station-level completeness summaries; structured SQLite database with supporting metadata tables.

### **Task B – Nonlinear Trend Visualization Using GAMs (Month 6):**

Time plots for each station/analyte displaying observed concentration data and, where adequate data exist, the GAM-estimated trend curve (.pdf); Seasonal Mann-Kendall summary statistics for full period-of-record and five-year rolling window; summary presentation to CHNEP and other participants.

### **Task C – Web-Based Dashboard Using R Shiny (Month 9):**

Public GitHub repository containing all R scripts and associated work products; deployed R Shiny dashboard with iframe integration into the CHNEP Water Atlas; finalized interactive maps (.pdf export); time plots (.pdf); results tables (.xlsx); technical documentation and maintenance guide (.docx); Docker container image with deployment instructions; summary presentation to CHNEP and other participants.

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## 6 Present Examples of Recently Accomplished Similar Projects

The following projects demonstrate Geosyntec's ability to accomplish the data processing, statistical analysis, and web-based dashboard development described in the proposed approach.

### Massachusetts Statewide Watershed Based Plans | Technical Lead: Austin Orr, PE

Client: Massachusetts Department of Environmental Protection (MassDEP)

MassDEP selected Geosyntec to develop a web-based tool for developing WBPs anywhere within the state. Geosyntec developed an innovative watershed-planning tool at the crossroads of science, engineering, public policy, and public education. The interactive web-based tool helps users develop WBPs that meet the requirements for all nine required elements with a methodology that is documented in a USEPA approved quality assurance project plan (QAPP). Geosyntec's web-based tool provides the building blocks of a WBP for thousands of riverine, lake and coastal watersheds across Massachusetts, instantly, by simply selecting a watershed by name or clicking a location on a map. The tool will then dynamically compute runoff and pollutant loading for the user's watershed and automatically generate the tables and figures for their watershed-based plan.

#### Contact

Meghan Selby

MassDEP

617.418.9666

View the WBP website at: <http://prj.geosyntec.com/MassDEPWBP>

**Relevance:** Expertise delivering software tools and modeling calculations that implement state-approved methodologies. Experience producing software intended for use by the regulated community to prepare their planning documentation.

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Butte County Well Data Management System | Developer: Christopher Rudolph, MSc

Client: Butte County, California

Christopher developed an R Shiny dashboard for managing and visualizing groundwater well monitoring data. The application features interactive Leaflet mapping of well locations, time series plots of water quality parameters, and tabular data exploration with filtering and download—functionality mirroring the three-panel dashboard layout specified in this RFP. The tool enables county staff to explore spatial and temporal patterns across their monitoring network without specialized software, and supports data export for external analysis.

## Contact

Kelly Peterson, Water Resources Scientist

Butte County Water and Resource Conservation

530.552.3595

**Relevance:** Direct experience building the same R Shiny technology stack proposed for this project (Leaflet, plotly, DT), with a dashboard layout and user interaction model closely aligned with the CHNEP Water Atlas integration described in Task C.

## Well Water Level Visualization

**Select Basin:**  
Vina

**Select Management Area:**  
Vina North

Filter to RMS Wells:  
 Filter to Multicompletion wells:  
 Filter to Interconnected Surface Water (ICSW) wells:  
 Filter to Water Quality Monitoring wells:  
 Filter to Broad Network Wells:  
 Filter to GWL only Wells:

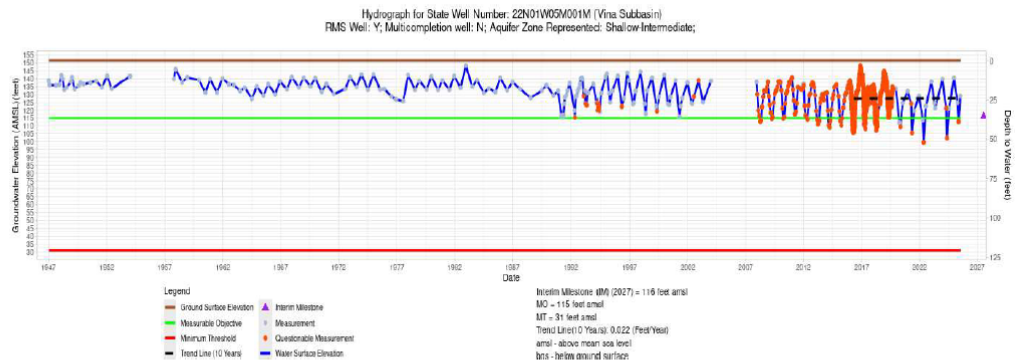
**Select Well:**  
22N01W05M001M

**Select Date Range:**  
1947-04-01 to 2025-10-08

**Select Date Range:**  
 All Time  
 Last 5 Years  
 Last 10 Years

**Show Interim Milestones:**  
 Show  
 Hide

**Show Linear Trend:**  
 Show  
 Hide



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## SWFWMD Groundwater Quality Trend Assessment | Technical Lead: Raphael Siebenmann, PE

Client: Southwest Florida Water Management District

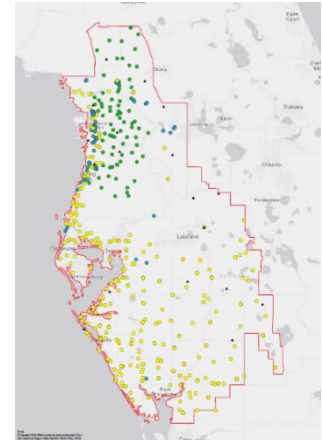
Geosyntec conducted a geostatistical spatial evaluation of the SWFWMD coastal groundwater quality monitoring network to validate existing well spacing and recommend network refinements. Raphael led the data compilation, statistical analysis, and reporting for the project, which encompassed multi-decadal water quality records from dozens of paired monitoring stations across the entire SWFWMD service area. The analysis applied Mann-Kendall trend testing, Wilcoxon Rank Sum tests, and LOWESS smoothing to assess temporal trends, along with geostatistical methods to evaluate spatial coverage and identify redundancies and gaps. The work included censored data handling for non-detect values, multiplicity corrections for simultaneous hypothesis testing, and development of recommendations for streamlined reporting and data presentation strategies. The evaluation resulted in a reduction of monitoring locations and identification of priority areas for infill wells.

### Contact

Robin Speidel, PG

SWFWMD

813.355.0434



**Relevance:** Directly analogous scope to the proposed scope of work, statistical trend analysis of a long-term, multi-station water quality monitoring network operated by a Florida water management agency, with the same goal of translating raw monitoring data into actionable management insights.

## Orange County Stormwater Tool Platform | Technical Lead: Austin Orr, PE

Client: Orange County, California

Municipal stormwater permittees in Orange County are implementing various watershed management programs to meet MS4 Permit requirements. As part of these programs, Permittees are responsible for inventorying and inspecting stormwater quality assets on public and private property. They are also required to report on progress toward watershed planning goals and regulatory requirements. To help address these requirements, Geosyntec assisted in the development of an open-source web platform for stormwater asset management and modeling – OC Stormwater Tools. This platform is intended to help manage and report on existing assets while serving as platform to model current and future assets. Geosyntec developed a web-based stormwater management platform for Orange County that integrates geospatial data, watershed modeling outputs, and compliance reporting into a unified dashboard. The platform supports data exploration, scenario comparison, and automated report generation for regulatory submittals.

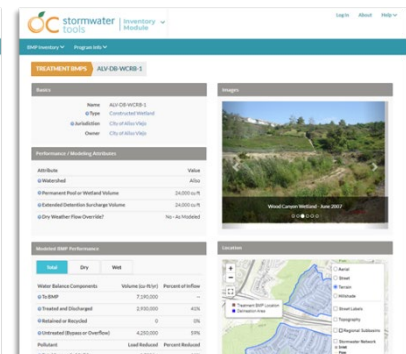
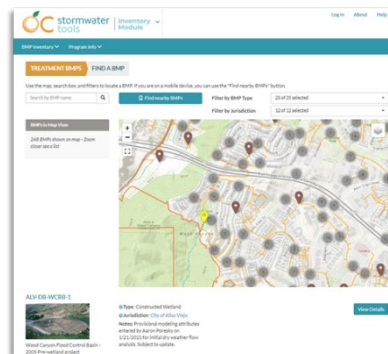
### Contact

Grant Sharp, Manager

Orange County Public Works

714.955.0633

**Relevance:** Experience with combining GIS systems, continuous hydrology, and long-term BMP performance modeling results into user-friendly software. Experience visioning and executing a modular modeling approach and delivering open-source software that integrates with existing municipal resources and software systems.



# Water Quality Trend Assessment and Dashboard Tool Development

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## 7 Experience and Capabilities

The evaluation criteria for this section address five specific capability areas. We address each below with reference to our team's direct, demonstrated experience.

### A. Meeting Planning and Facilitation

Geosyntec routinely plans and facilitates technical coordination meetings for multi-stakeholder environmental projects. Scott Deitche has managed client coordination for water quality programs across Southwest Florida for over three decades, including regular progress meetings with regulatory agencies, municipal clients, and community stakeholders. For this project, Scott will schedule and run monthly coordination meetings with CHNEP and the County, distributing agendas in advance and archiving meeting summaries in the project repository. Geosyntec will also coordinate a project kickoff meeting to confirm data sources, analytical parameters, and dashboard design preferences before work begins.

Scott Deitche has managed client coordination for water quality programs across Southwest Florida for over three decades.

### B. Water Quality Data Processing, Cleaning, and WIN Database Experience

Our team has extensive experience with water quality data processing and the Florida WIN database. Sheng Wang has designed data pipelines that retrieve, transform, and load large environmental datasets from multiple monitoring agencies into centralized database systems. He is experienced with real-time water quality measurement data and has developed tools to acquire high-frequency WQ parameter measurements from various sources, process and ingest them into databases, and visualize data on web-based dashboards.

Raphael Siebenmann has worked directly with SWFWMD water quality data, applying statistical methods to multi-decadal monitoring datasets sourced from the same WIN/STORET data pipeline that feeds the CCHMN program. Our proposed data acquisition approach uses the USEPA Water Quality Portal and WQX-formatted organization codes to retrieve WIN data programmatically, with direct STORET queries as a supplement for legacy records. The team is experienced with the qualifier code system defined in Chapter 62-160, F.A.C., non-detect handling methods, and the multi-agency deduplication challenges inherent in Florida's decentralized monitoring network.

### C. Nonlinear Trend Visualization Using Generalized Additive Models (GAMs)

Our proposed approach centers on the wqtrends R package (Beck et al. 2022), which implements GAM-based trend analysis purpose-built for estuarine water quality data. The wqtrends package uses the mgcv engine (Wood 2017) for model fitting and the gratia package (Simpson 2024) for derivative-based trend identification. Our team is well versed in the underlying statistical framework: Raphael Siebenmann has applied Mann-Kendall, Wilcoxon Rank Sum, and LOWESS trend analysis methods to long-term water quality datasets, and is experienced with the model diagnostics (basis dimension adequacy, residual autocorrelation, concavity checks) required to validate GAM outputs.

We are also familiar with the specific application of GAMs to CHNEP data. Medina et al. (2025) applied the wqtrends methodology to 22 years of CCHMN data across all 13 strata, establishing a peer-reviewed baseline that our work will extend to station-level analysis, five-year rolling windows, and interactive dashboard delivery. Our team's combined experience in nonlinear statistical methods and Florida estuarine water quality data positions us to implement this methodology rigorously and efficiently.

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## D. Web-Based Dashboards Using R Shiny with iFrame Integration

Our team has direct, production-level experience building R Shiny dashboards that serve public audiences. Christopher Rudolph developed the Butte County Well Data Management System as an R Shiny application with interactive Leaflet mapping, time series plots, and tabular data exploration—the same three-panel architecture specified in this RFP. He also contributed to the CICADA environmental analytics platform, a web-based R Shiny application providing interactive visualization and statistical analysis at scale.

Austin Orr has built web-based data exploration and reporting tools for government clients using R and complementary web frameworks, including the MassDEP Watershed Based Planning website and the Orange County Stormwater Tool Platform. The proposed dashboard will use Shiny with Leaflet for mapping, plotly for interactive charting, and DT for tabular output, with the iframe-resizer JavaScript library enabling seamless embedding into the CHNEP Water Atlas landing page.

## E. Sharing R Scripts and Work Products via GitHub

Geosyntec maintains an active organizational presence on GitHub ([github.com/Geosyntec](https://github.com/Geosyntec)) with over 40 public repositories spanning water quality analysis, stormwater modeling, and environmental data tools. Notable examples include *neriid*, a Python library powering the stormwater BMP performance calculations behind the OC Stormwater Tools and Tacoma Watershed Insights platforms (29 releases, BSD-3 license); *StormPiper*, a Docker-deployed web application for municipal stormwater decision support (17 releases, MPL-2.0 license); *pybmpdb* and *wqio*, paired libraries for processing and analyzing data from the International Stormwater BMP Database; and *cloudside*, a weather data parsing and visualization library. These repositories reflect Geosyntec's standard practice of delivering open-source, version-controlled, and continuously maintained code as a project work product — not as an afterthought.

Geosyntec maintains an active organizational presence on GitHub with over 40 public repositories spanning water quality analysis, stormwater modeling, and environmental data tools.

For this project, all R scripts, the data processing pipeline, and the Shiny application source code will be maintained in a public GitHub repository from the outset. The repository will use the targets pipeline framework for reproducible analytical workflows and *renv* for package version locking, with a comprehensive README, data dictionary, and contributor guide for future maintainers. Code will be licensed under the MIT License. This approach is consistent with how Geosyntec has delivered software on prior engagements and ensures that CHNEP staff or future contractors can fork, modify, and extend the codebase without vendor dependency.

# Water Quality Trend Assessment and Dashboard Tool Development

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## 8 Volume of Work

Over the past 24 months, Geosyntec has received **\$0** in payments from Charlotte County.

# Water Quality Trend Assessment and Dashboard Tool Development

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## 9 Location

Scott Deitche is based in Clearwater, Florida, within a two-hour drive of the County, and is available to meet face-to-face to listen to the County's priorities and confirm project needs early. To support the work, Geosyntec has assembled a team from across North America, paired with practitioners who understand the unique characteristics of Florida waters to ensure analyses and deliverables are locally relevant and technically defensible.

# Water Quality Trend Assessment and Dashboard Tool Development

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## 10. Litigation

**Have you been named as a defendant or co-defendant in a lawsuit in the last five years? If so, describe circumstances and outcome, including Case Number, Case Name, and Court.**

Geosyntec discloses the following matters:

QM LP v. Geosyntec Consultants International, Inc., Ontario Superior Court of Justice, File No. CV-22-00674600-0000. A former client filed a negligence claim in 2022 after a fee dispute; Geosyntec counterclaimed. Discovery is ongoing. A late-2027 trial date is anticipated.

Port of Tacoma Claim (Aspect Consulting, a Geosyntec division). The client alleged construction defects in January 2024. The matter was resolved through confidential mediation settlement in June 2024.

East Palestine, OH Train Derailment – Richard Tsai, et al. v. Norfolk Southern Corp., et al., Cuyahoga County Common Pleas, No. CV-25-111454 (and related Franklin County cases Nos. 25-CV-000858, 25-CV-01-859). Geosyntec was retained to perform quality checks on remediation efforts following the 2023 derailment. In February 2025, Geosyntec was named among numerous defendants in personal injury lawsuits. Responsive pleadings are being filed.

# Water Quality Trend Assessment and Dashboard Tool Development

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## 11 Minority Business

Geosyntec Consultants, Inc. is not a minority business enterprise (MBE) and is not certified as a minority-owned business.

Attachment #1

# RESUMES

Geosyntec   
consultants



**Role:** Project Manager

## Specialties

- Water Quality Assessment
- Water Resource Management
- Water Quality and Environmental Permitting

## Education

B.S., Marine Science, Eckerd College, 1994

## Registrations and Certifications

Envision Sustainability Professional

FDEP Sediment and Erosion Control Inspector and Trainer

HAZWOPER 24HR

## CAREER SUMMARY

Scott Deitche has more than 30 years of experience and a broad background in water resources. He addresses all aspects of surface water quality, including stormwater infrastructure, water resource planning, evaluating best management practices (BMPs), conducting lake studies, assessing water quality, and sampling. His skill set encompasses compliance strategies for public- and private-sector clients. He uses his deep understanding of water quality permitting and regulations, including National Pollutant Discharge Elimination System (NPDES) MS4, MSGP, and industrial wastewater (IWW) permitting programs, to help clients reach and maintain compliance.

## PROJECT EXPERIENCE

**NPDES MS4 and Total Maximum Daily Load (TMDL) Services, Charlotte County, Florida.** As Project Manager, Scott supported Charlotte County's Phase II MS4 NPDES permit and TMDL compliance. Specific tasks included general permit compliance activities, annual reporting, Florida Department of Environmental Protection (FDEP) Sediment and Erosion Control and illicit discharge training through 2023, facility inspections, Stormwater Management Plan development, educational material development and distribution, and an assessment of TDML regulations in the County from 2007-2022.

**Vulnerability Assessments, Lake County, Cities of Cocoa Beach and Titusville, Florida.** Scott is serving as the Project Manager for three current vulnerability assessments. These assessments comprise acquisition of data and critical assets for local governments, exposure and sensitivity analysis for those assets in the context of sea level rise, rainfall-driven flooding, storm surge and compound flooding. The efforts include grant management (regular deliverable reporting and tracking to FDEP), public outreach, City and County Commission meetings, and the preparation of a final report which will outline the results of the analysis and prioritize projects to protect the assets.

**NPDES MS4 and TMDL Services, Punta Gorda, Florida.** Scott supported Punta Gorda's Phase II MS4 NPDES permit and TMDL compliance. Specific tasks include illicit discharge training, facility inspections, educational material development and distribution, and an assessment of upcoming TDML regulations in the City from 2007-2022.

**Stormwater Asset Management Database and Plan, Largo, Florida.** Scott reviewed over 400 City and County datasets and identified the best available data for building the City's Stormwater asset geodatabase. GPI developed a risk-based condition-assessment framework for prioritizing capital projects and identified opportunities to reduce infrastructure life-cycle costs by optimizing maintenance schedules and timing of infrastructure renewal and replacement. GPI also field verified stormwater assets Client: City of Largo Engineering.

***North Drainage Basin Alternative Restoration Plan, Cape Coral, Florida.*** As Project Director, Scott supported the city of Cape Coral with the development of an alternative restoration plan for Charlotte Harbor intercoastal waters and the North Cape Coral Drainage Basin. The Alternative Restoration Plan will support the restoration of waterbodies by identifying causes and drivers of nutrient loadings. Tasks include data collection and analysis, water sampling and analysis, review of hydrologic and hydraulic (H&H) models, public outreach efforts, pollutant source trackign, and the development of the plan.

***Stormwater BMP Design Manual, Lakeland, Florida.*** Scott assisted the City with development of a comprehensive stormwater design manual. Tasks include integration and update of City codes and policies to support the intent of the manual and assess resiliency of such practices given hydrological uncertainties in the coming decades. Elements of the plan include review of City stormwater codes and related policy, development of a stormwater practices manual, and evaluation of impacts of potential future changes in hydrology.

***Felts Avenue Bioreactor Design and Permitting, Bonita Springs, Florida.*** Scott served as Project Manager and quality assurance/quality control (QA/QC). He supported the city on permitting and design support of a centrifugal pump system for the Felts Avenue Bioreactor system to optimize performance of a stormwater treatment system that draws water from the Imperial River, runs it through a biofiltration system to address nutrient loads, then re-directs water back into the river.

***Southwest Florida Water Management District General Engineering Contract (2014-2022, 2023-present), Southwest Florida Water Management District.*** Contract and project management for over 25 Task Work Assignments covering inspections, assessments, and dam safety work related to the District's 84 water control structures. Tasks include bridge and water control structure inspections (including S-160, S-161, Lake Tarpon Outfall, and S-155), piezometer studies of Inglis Dam, development of operations manuals for water control structures, inventory of electrical and mechanical components on all District structures, environmental monitoring, mitigation site monitoring, data analysis, and ecological projects.

***Tampa Bay Water Alafia River Watershed Model Enhancement, Tampa Bay Water, Florida.*** As Project Director, Scott supported Tampa Bay Water in building on an existing Hillsborough County watershed model to develop a tool to facilitate quantitative assessment of Alafia River water quality concentrations and loading for fluoride, evaluate load reduction approaches at multiple watershed locations, and evaluate improvements on downstream water quality conditions at Tampa Bay Water's intake. Tasks include QA/QC of the deliverables and technical memoranda.

***South Collier Boulevard Stormwater Improvements Design, Marco Island, Florida.*** Scott provided technical QA/QC for stormwater improvements on a half-mile section of Collier Boulevard. The project was to design exfiltration systems (French drains) in the bottom of the roadside swales subject to available space and utility constraints. These exfiltration systems consisted of a simple perforated pipe and gravel pack system that would facilitate infiltrating a higher volume of stormwater into the ground thereby reducing the amount of runoff that would drain via the storm inlets. This will provide the City both flooding and water quality benefit.

***ZooTampa Water Resource Services, Tampa, Florida.*** Scott assisted ZooTampa with updating their site Stormwater Pollution Prevention Plan (SWPPP), as part of the renewal of their NPDES IWW point source permit. The SWPPP update tasks included site visits, changes to the Zoo's maintenance and water program, review of spill preventions procedures, and training of 20 zoo maintenance and site staff. Geosyntec also secured an IWW permit exemption for site work on their water treatment system, updated the water system database, and developed a water budget for the facility.



**Role:** Project Director

## Specialties

- Environmental Site Characterization
- Geotechnical Instrumentation
- Geographical Information Systems
- Information Management

## Education

B.S., Civil Engineering,  
Cornell University, 2002

## Professional Registration

Professional Engineer (PE):  
No. PE033235 (Georgia)

Certified GIS Professional No.  
161352

## CAREER SUMMARY

Raphael Siebenmann is a civil and environmental engineer with over 20 years of experience in the civil and environmental consulting field. His training is in the areas of chemical fate and transport and site characterization. Raphael's experience encompasses site characterization program development and management, data management and visualization, fate and transport modeling, risk assessment, as well as geotechnical instrumentation installation and real-time monitoring. His field work and project management responsibilities include comprehensive workplan development and authoring of planning documents, development of remedial designs, execution and management of soil, groundwater, sediment, surface water, and soil gas sampling programs, and analysis and interpretation of data and results. He has experience design and maintaining large civil environmental databases, conducting data analysis, 3-dimensional visualizations, working with geographic information systems (GIS), and the deployment of web-based information management systems.

## PROJECT EXPERIENCE

***Water Quality Database Review, City of Hillsboro Water Department, Hillsboro, Oregon.*** Raphael was the database manager responsible for optimization of an water quality database for Barney Reservoir. He supervised and implemented database schema and user interface changes to facilitate better and faster data upload, quality assurance, and analysis. Field data entry was streamlined with a new user interface that dynamically generates a data-entry table based on a pair of dropbox-style selections that define which sample locations were visited. The data-entry process was redesigned specifically to allow copying and pasting data from Microsoft Excel – the client's preferred interface for manually typing data from written field notes. For laboratory data, Raphael developed a generic template generation tool that builds a standard spreadsheet for each electronic data deliverable (EDD) received.

***Geostatistical Spatial Analysis of Coastal Groundwater Quality Network, Southwest Florida Water Management District (SWFWMD), Southwest Florida.*** Raphael served as the Technical Lead for the geostatistical spatial evaluation of the coastal groundwater quality water-use permit monitoring network. The objective of the project was to provide recommendations for a refined monitoring network to ensure adequate monitoring of salt-water intrusion within the SWFWMD boundary. The primary task is an evaluation of the existing geostatistical design for the paired networks to validate existing well spacing with geostatistical analysis and interpretation to establish an extension of the monitoring location grid to include the entire SWFWMD area. Established statistical methods and other innovative analyses were applied during the evaluation to validate monitoring well spacing, and to identify deficiencies or redundancies in the current monitoring networks. A review of the analysis and reporting methods for status and trends presented in recent update reports was completed resulting

in recommendations for streamlined reporting and data presentation strategies. The evaluation resulted in a reduction of the monitoring locations and recommendations for infill well locations.

***Trans Circuits Enhanced In-Situ Bioremediation, Lake Park, Florida.*** Raphael was the GIS/Database Manager responsible for development of a real-time tracking system to monitor daily field progress of an enhanced in situ bioremediation injection system. The web-based system allowed field personnel to track and update injection quantities of electron donor (potassium lactate and emulsified oil substrate) and dechlorinating microorganisms (KB-1®). This information was immediately available to the project team and other stakeholders. As soon as data was entered, the system updated an interactive web map that displayed the injection status of each well and provided a color-coded indication of the progress made to date.

***Gowanus Canal Superfund Site, National Grid, Brooklyn, New York.*** The Gowanus Canal is a 1.8-mile-long, man-made canal in the New York City borough of Brooklyn. As a result of decades of discharges, storm water runoff, sewer outflows and industrial pollutants, the Gowanus Canal has become one of the nation's most extensively contaminated water bodies, with contaminants including polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals and volatile organic compounds (VOCs). As a consultant for National Grid, one of the PRPs listed on the administrative order, Geosyntec provides technical expertise and strategic planning services to National Grid as they comply with Environmental Protection Agency's (EPA's) administrative order under CERCLA. Raphael's primary role on this project has been to serve as the GIS and Database Manager for the Geosyntec Remedial Design team. His responsibilities have included: development and management of a database that contains historical site data (both canal and upland data) from multiple sources; creation of a 3-D model from multiple data sources that incorporates key geologic layers from the site, physical NAPL observation data, and analytical sediment data for COPCs in order to refine the CSM for the site and to calculate volumes of impacted material for remedial planning purposes; and production of numerous work products using ArcGIS and other data visualization tools to enhance the understanding of COPC distribution in sediments at the site, the conditions of bulkheads along the canal, the locations of other PRPs along the canal in relation to areas of contaminated sediment, and other key technical considerations that impact the project.

***Newtown Creek Superfund Site, National Grid, Brooklyn/Queens, New York.*** The Newtown Creek Superfund Site is comprised of a 3.8-mile-long tidal water body (Newtown Creek) and its five principal tributaries. This heavily industrialized body of water, which has a long history of manufacturing activity and urbanization dating back to the 1800s, forms the border between the boroughs of Brooklyn and Queens. Sediment and surface water at the site have been found to be contaminated with numerous hazardous chemicals including pesticides, metals, PCBs, PAHs, petroleum hydrocarbons, and VOCs. As a consultant for National Grid, one of the PRPs listed on the administrative order, Geosyntec provides technical expertise and strategic planning services to National Grid as they comply with EPA's administrative order under CERCLA. Raphael serves as Task Manager for the data compilation, data analysis and visualization Scopes of Work. His responsibilities have included: development and management of a database for the project that contains historical in creek and upland data from multiple sources; and creation of a 3-D model from multiple data sources that incorporates key geologic layers from the site, physical NAPL observation data, and sediment analytical data for COPCs. His work has been critical in the development and refinement of the CSM and estimation of impacted sediments that may require remediation.

***Climate Management System for Corrosion Control Facilities at Robins Air Force Base, Warner Robins, GA*** Raphael was the Principal Investigator responsible for the design, development, and trial of a Climate Management System (CMS) designed to increase the ability to identify, prioritize, and communicate needed maintenance, system upgrades, and other energy savings opportunities at the Building 59 (B59) Corrossion Control Facility at Robins AFB. CMS desktop software and real-time dashboards were developed to display building operational mode on monitors installed throughout the facility. In addition to a real-time dashboard, the team worked with B59's management to develop a summary report, for use by supervisors and other management providing analysis related to overall performance and energy usage.



**Role:** Water Quality SME

## Specialties

- Water Quality
- Harmful Algal Blooms
- Environmental Data Analysis
- Field Sampling
- Statistics
- Geospatial Analysis

## Education

M.S., Environmental Science, Florida Gulf Coast University, 2018

B.S., Marine Science, Florida Gulf Coast University, 2011

Certificate, Geographic Information Systems, Florida Atlantic University, 2022

## Affiliations

Florida Lake Management Society Board Member (2024-Present)

## CAREER SUMMARY

Kevin Tyre is a water resources scientist with extensive experience in water quality assessment, harmful algal bloom (HAB) monitoring, and the analysis of complex environmental datasets. He specializes in the design and implementation of field sampling programs, statistical evaluation of water quality trends, and geospatial analysis. His work supports the development of science-based management strategies for freshwater and estuarine systems.

Kevin provides technical leadership in the interpretation of environmental monitoring data, development of pollutant loading models for waterbodies, and the assessment of stormwater Best Management Practices (BMPs) for nutrient load reduction. He has contributed to regional and statewide initiatives focused on nutrient management, ecosystem health, and restoration planning. His responsibilities also include stakeholder engagement, preparation of technical reports, and support for regulatory compliance and grant-funded research projects. Kevin has also served as a lead scientist on projects for municipal clients and has collaborated with academic institutions on applied research related to water resource protection and restoration.

## PROJECT EXPERIENCE

### ***Review of Proposed Total Maximum Daily Loads (TMDLs) for Orlando Lakes, Florida Department of Transportation, Orlando, Florida (2025).***

Kevin served as Project Scientist for Geosyntec's review of proposed nutrient TMDLs for 14 Orlando lakes. Water quality data spanning from 1988 to 2023 was obtained from the Florida Department of Environmental Protection (FDEP) Impaired Water Rule (IWR) database and analyzed to assess historical trends, differences between lakes, and correlations between parameters. This included Kruskal-Wallis and Analysis of Covariance (ANCOVA) statistical tests to evaluate whether the relationships between parameters differ by water body ID (WBID), as well as correlation tests, and linear regression modeling to evaluate significant relationships between parameters. The results were used to assess the proposed numeric nutrient criteria (NNC) for the lakes. Comments were developed on behalf of the City of Orlando for FDEP consideration and incorporation into the draft TMDL for the WBIDs.

### ***Caloosahatchee Segment 2 Walk-the-WBID Evaluation, Lee County, Florida (2025).***

Kevin served as Project Scientist. Rapid urbanization along the Caloosahatchee River and Estuary (CRE) has resulted in increased pollutant loading of fecal bacteria and nutrients which contributes to declining water quality in the CRE and presents a significant risk to human health. Geosyntec was tasked to conduct a Walk-The-WBID (WTW) evaluation to help identify potential sources of fecal bacteria in Tidal Segment 2 of the CRE, which includes 5 WBIDS containing several freshwater tributaries. Existing water quality data was collected and analyzed for the 5 WBIDs within the project area to assess trends and identify hotspots where concentrations

of fecal indicator bacteria (FIB) appeared to be elevated relative to FDEP standards. Additionally, geographic information systems (GIS) data was collected for the contributing area to determine where potential FIB sources exist. This included geospatial data for sanitary wastewater infrastructure, stormwater infrastructure, septic parcels, and land use. The data was summarized into tables and figures and maps were developed showing the locations of potential FIB sources. Subsequently, a Maps on the Table (MOT) meeting was held with County and local stakeholders to review the maps and data. The purpose of this meeting was to collaboratively identify potential sources of FIB within the watershed. Meeting attendees examined the maps and made notations where potential fecal pollution sources existed. Based on the results of the MOT effort, a WTW field investigation was conducted in which potential FIB source locations were visited in-person. At each location, the team walked the area, made observations, took notes/photos, and investigated any potential sources of fecal pollution. Notable field observations were reviewed, assigned a risk ranking, and recommended actions were identified to mitigate the risk.

***WBID 3011D Lake Lovely Nutrient Source Assessment, Orange County, Florida (2025).*** Kevin served as Project Scientist. The primary objective of this project was to develop detailed hydrologic and nutrient budgets for Lake Lovely and its watershed to guide the design and prioritization of water quality improvement projects. The project included a 12+ month monitoring program involving surface water, stormwater inflow, groundwater seepage, and sediment sampling. The results of these sampling efforts were used to quantify nutrient inputs and outputs, assess internal nutrient recycling, and identify the dominant nutrient sources for the lake. The study also included delineation of contributing drainage areas and development of a hydrologic model using BMP Trains. A final report was developed which summarized the results of the assessment and included a prioritized list of structural and non-structural water quality improvement project recommendations, supported by conceptual designs, cost estimates, and pollutant removal projections. These recommendations provide Orange County with a road map for improving and protecting water quality in Lake Lovely over the next decade.

***Tallahassee Surface Water Master Plan, City of Tallahassee, Florida (2022).*** Kevin served as Project Scientist. The objective of this project was to develop a master plan to help guide the City of Tallahassee's efforts in improving surface water quality. This project evaluated available water quality data for specific waterbodies within the following drainage basins: Lake Munson Drainage Basin, Lake Lafayette Drainage Basin, Lake Jackson Drainage Basin. Additionally, Wakulla Springs and Lake Talquin, two waterbodies located outside of these primary drainage basins of which the City is a stakeholder, were examined. All waterbodies are either FDEP Class III waterbodies or waters of interest within the City's MS4. The available data for each waterbody was reviewed and summarized. Water quality trend analysis and data gap analysis was performed using existing data and this information was used to identify the sources of stressors for each waterbody. Further studies were proposed to fully capture and understand the sources of nutrients to each identified waterbody. Water quality improvement programs and project concepts were identified and summarized. The projected water quality benefit as well as preliminary costs for each program or project were developed. The City's current stormwater regulations pertaining to surface water quality were reviewed and summarized to determine sufficiency and recommend revisions and/or enhancements based on concurrency with the various regulatory agencies including FDEP and the Northwest Florida Water Management District.



Role: Web Deployment

## Specialties

- Web Development and Software Engineering
- Hydrologic, Hydraulic, and Water Quality Modeling
- Data Analysis and Visualization

## Education

M.S., Civil and Environmental Engineering, University of Utah, Salt Lake City, 2013

B.S., Civil and Environmental Engineering, University of Utah, Salt Lake City, 2011

## Professional Registration

Professional Engineer (PE):  
No. 87725 (California)

## CAREER SUMMARY

Austin Orr is a Senior Engineer with over 12 years of engineering consulting experience in geospatial analysis, software development, and watershed management. He integrates his water resources engineering practice with his software development and geographic information system (GIS) analysis skills to build and deploy modeling tools for use by his colleagues and clients, and has experience creating and managing databases, building application programming interface (APIs) for querying and analyzing the data, and producing user-facing websites and dashboards to assist with data exploration, visualization, and reporting.

## PROJECT EXPERIENCE

**Tacoma Watershed Insights, City of Tacoma, Washington.** Austin is the technical lead for this effort and served as both lead hydrologic modeler and as the lead full-stack software developer for the City of Tacoma's Watershed Insights platform. The platform incorporates receiving water conditions, watershed data, climate change scenarios, and information about specific stormwater management practices to help decision makers prioritize capital investments. The tool interfaces with the City's internal ArcGIS layers via the Representational State Transfer (REST) API and combines it with hydrologic modeling of land surface runoff and pollutant loading from the Department of Ecology's Stormwater Heatmap, built with Google Earth Engine, and with long-term best management practices (BMP) performance model results. The tool utilizes Google Cloud Platform and includes a PostGIS database, a python-based backend, and a user-friendly website written with React to support users in tasks like entering new data, exploring load reductions achieved by current BMPs, identifying priority areas for future BMPs, and running scenarios for planned projects.

**Massachusetts Watershed Based Plan (WBP) Tool, Massachusetts Department of Environmental Protection (MassDEP), Massachusetts.** Austin is the task lead for GIS-related software in the effort to improve the existing MassDEP WBP Tool. Austin's effort included developing a novel algorithm to enable fast watershed delineations from any point within the state of Massachusetts implemented in Google Earth Engine and queried via a python API, building and deploying a GIS-based zonal statistics platform for computing the average annual runoff and pollutant load generated within it, and exposing the functionality with a client-facing webmap that leverages ESRI-related javascript packages.

**OC Stormwater Tools (OCST) Project, Orange County Stormwater Program, Orange County, California.** Austin is the lead modeler and software developer for the Orange County Stormwater Tools BMP Modeling Module, an open-source web API for calculating runoff volumes and pollutant load discharged from land surfaces and treated by structural BMPs and water quality management plans (WQMPs) during both wet and dry weather conditions. The Modeling Module is easily deployable on cloud infrastructure as a Docker container, with a python-based backend, and handles many different BMP configurations that occur in the watershed, including nested

projects. The OCST Modeling Module is currently producing volume and load reduction quantification for thousands of structural BMPs in Orange County and hundreds of WQMP sites. The OCST platform was built collaboratively with ESA and is a multi-faceted web application with a user-focused design meant to facilitate municipal stormwater leaders manage their BMP asset inventory, condition, assessment, modeling, planning, and reporting.

***Aliso Creek Smart Watershed Network, Moulton Niguel Water District and Orange County Public Works, California.*** Austin is the technical lead and software developer responsible for coordinating with our software development partners at ESA to develop a web service to integrate, analyze, and visualize data from a new sensor network of over 50 monitoring sites (flow and conductivity) in the Aliso Creek Watershed. This project combines data streams from multiple data sources into a dashboard that enables users to review, analyze, and simulate management scenarios for diverting wet and dry weather flows in the watershed.

***Green Street Clean Water Plan, County of San Diego, California.*** Austin is the stormwater modeling task lead for the County's effort to evaluate multi-benefit stormwater infrastructure opportunities throughout the Unincorporated County jurisdictional area. Austin is also the lead software developer for the water quality modeling effort which included the development of a GIS analysis toolbox to support automated extraction of hydrologic modeling parameters from multiple reference input layers. He also built and deployed the modeling engine and web-based user interface of a performance evaluation tool to allow staff and County personnel to calculate long-term volume capture and pollutant load reductions for potential BMP configurations.

***Drinking Water Withdrawal Curtailment Tool, Clackamas River Water Providers, Oregon.*** Austin is the lead software developer for a web tool to help multiple water providers to coordinate their drinking water withdrawals from the Clackamas River in Oregon. The permits and regulations on this water are complex and change throughout the year depending on in-stream flows within certain date ranges. This tool was written in React and combines datasets from NOAA, USGS, and reported provider withdrawals to compute the maximum allowed withdrawal for each individual permit for each provider via a custom python API so that group members can properly plan and prepare for late-summer water shortages.

***Los Peñasquitos Watershed Master Plan, City of San Diego, California.*** Austin is the lead software developer of the Water Quality Integration Tool (WQi Tool), which was created for rapid assessment of urban BMP effectiveness. The tool integrates geospatial data, water quality results as calculated by Loading Simulation Program C++ (LSPC), BMP performance data from the International BMP Database, and the hydraulic performance and flow network connectivity from Personal Computer Storm Water Management Model (PCSWMM). The tool provides the user with tabular, graphical, and geospatial result files. The development of the tools is ongoing, and planned additions include an optimization routine to determine least-cost BMP sizings and a full graphical user interface. The WQi Tool is written entirely in Python and is packaged as a self-contained windows executable.



**Role:** Web Deployment

## Specialties

- Data Analysis and Management
- Data Visualization
- Statistical Analysis

## Education

MSc, Spatial Analysis,  
Toronto Metropolitan  
University, 2022

BSc, Environmental Studies  
and Geography, Bishop's  
University, 2019

## CAREER SUMMARY

Christopher Rudolph is a professional in Geosyntec's data management group with a Master's Certificate in Climate Change and a Master of Spatial Analysis. He has 5 years of experience working in consulting and federal government as a geographic information system (GIS) specialist with a focus on data visualization and spatial analysis. His practice area includes construction, environment, and litigation projects.

Christopher has a generalist skill set, including various programming languages (Python, R, SQL) and enterprise software (ESRI ArcGIS, Power BI, Microsoft PowerApps) to compile, interpret, and communicate the stories told by client data to stakeholders.

## PROJECT EXPERIENCE

**Port Arthur and Vicinity and Levee Raise, Port Arthur, Texas.** Christopher Implemented provided schema to compile data received from laboratory sources to maintain a SQL database and provide 2D and 3D visualization of works in desktop and web dashboard software. Christopher worked with Python, SQL and ArcGIS software to support these tasks.

**Butte County Well Data Management System, Chinco, California.** Christopher prepared a groundwater elevation dashboard integrating ESRI, PowerBI and R technologies. This dashboard visualizes key groundwater health KPIs and delivers report ready hydrographs for county use. Data is normalized from 2 Open Data portals through application programming interface (APIs) on a daily basis. Christopher works with R, Python, PowerBi, SQL and ArcGIS software to support these tasks.

**Sabine Pass LNG Terminal Dashboard, Cameron, Louisiana.** Christopher was responsible for the migration of an existing web map and analysis tools built in an earlier GIS platform to an ArcGIS Enterprise Server environment. This task included the migration of data to ArcGIS Enterprise, updating existing data to modern best-practices and implementing a database workflow to generate analysis outputs when triggered by the new dashboard.

**Rio Tinto Mt. Rosser Information Management System, Saint Catherine, Jamaica.** Christopher led the compilation and mapping of the remediation site. The site had high complexity with over 60 years of data and complicated contexts surrounding historical data management and collection, as well as coordinate systems used. Christopher prepared the data for mapping and inclusion as part of an information management system.

**CICADA (Cumulative Effects Spatial Data) Tool, Ontario, Canada.** Christopher led the data management and supported R dashboard development for a geospatial tool scoping fish and fish habitat data in support of government decision-making. Data was prepared for visualization in a web-dashboard for government personnel to spatially search for fish and fish-habitat data in proximity to works, activities and undertakings. With over 50

data producers involved, Christopher cleaned, normalized data, and indexed datasets for dashboard performance. He led the development of geospatial components of the R dashboard, optimizing for visualization and performance of the webmap interface.

**Major Research Project, Master of Spatial Analysis.** An exploratory analysis of the 2021 Great Lakes Regional Poll. Predictors of watershed governance action were identified using a Least Absolute Shrinkage and Selection Operator (LASSO) regression model. Analyzed the distribution of willingness to engage in watershed governance by census track. Identified potential predictors of watershed governance action through a LASSO regression model. Literature review relating to these predictors examines how governance outcomes may occur.

**Spatial Analyst, Fisheries & Oceans Canada, Burlington, Ontario.** Christopher developed a database and webapp to aid in fisheries management decision making. Utilized Excel, R and ArcGIS Pro to scope and QA fish species and water quality data. Identify works, undertaking, and activity datasets that relate to cumulative effects upon fisheries. Spatially related data to watershed units using ArcGIS and R. Format tabular, vector and raster data for visualization and distribution through a Shiny web app.

**Research Assistant, Toronto Metropolitan University, Toronto, Ontario.** Christopher performed spatial and statistical analysis of the results of the 2021 "IJC Great Lakes Regional Poll". Examined the distribution of responses, views, and beliefs among respondents of poll. SPSS, R, and ArcGIS Pro used to conduct research.

**GIS Data Analyst Intern, Conservation Ontario, Toronto, Ontario.** Exploration of available conservation authority (CA) datasets as part of open data initiative. ArcGIS Pro, SQL and Excel used to map coverage of monitoring activities. Christopher led consultation with CA partners to discuss availability of data and barriers to distribution.

**Cumulative Effects Tool Fisheries & Oceans, Canada.** Christopher was responsible for the preparation of data for use as part of a data visualization and distribution web tool. He conducted normalization of datasets including tabular and spatial relationships. Christopher optimized raster, vector, and tabular data formats for web distribution, as well as presented the data and approach of the tool as part of a workshop with organization stakeholders.



**Role:** Project Manager and LSRP Support

## Specialties

- Modeling
- Data Analysis
- Environmental Data Systems
- Python and SQL-based ETL pipelines
- Regulatory Data Reporting (EPA, FDEP, NPDES)
- Data Visualization (EQuIS Enterprise, R Shiny App)

## Education

M.S., Environmental Engineering, The Johns Hopkins University, 2010

B. E., Environmental Engineering, Sichuan University, 2008

## CAREER SUMMARY

Sheng Wang is an environmental professional and data manager with more than 15 years of experience. His technical expertise includes environmental, energy, and utility database management, modeling, and data analysis. He has extensive experience designing and developing databases that support historical data compilation, current data collection, storage, and validation. Sheng is experienced with large datasets and has developed systems that retrieve, transform, and load large datasets from various sources into a centralized data warehousing system. He has designed, developed, and maintained web dashboards for data visualization, reporting and analytics. Sheng is also experienced with real time water quality (WQ) measurement data. He has developed tools to acquire high frequency measurements for WQ parameters from various sources, process and inject data into the databases and visualize data on web-based dashboards in real time fashion.

## PROJECT EXPERIENCE

***Cushman Floating Surface Collector Downstream Smolt Evaluation, Tacoma Power, Lake Cushman Mason County, Washington.*** Sheng has led the database management efforts that support the evaluation of juvenile Coho salmon passage through the Cushman Hydroelectric Project to estimate the fish capture efficiency of the floating surface collector and the overall system survival rate. He has maintained the project data management system, including enhancing the data warehousing system; developing and updating data Extraction, Transformation, and Loading process that automates data processing, validation, and transmittal from various sources; and maintaining a web-based dashboard built on R Shiny App that enables project staff to interact with the data and obtain up-to-date data visualization and statistical analyses through the website.

***Lewis River Fish Passage Database, PacifiCorp, Ariel, Washington.*** Sheng managed the database that integrates fish passage data for PacifiCorp's Lewis River hydroelectric projects. He also maintained and updated the codebase of the automated procedures obtaining data from various sources (e.g. fish counts and operational information from PacifiCorp's on-site systems, release and detection data from PITAGIS web services, etc.). Sheng supported the design and development of a R Shiny App dashboard and maintained the dashboard to give PacifiCorp staff online access to project data providing PacifiCorp with near real-time access fish passage operation status to realize efficiencies in routine reporting.

***Lakeland Electric CCR Groundwater Monitoring, City of Lakeland, Florida.*** Sheng led digitization effort for field data collection using EQuIS Collect and automated QC and reporting for CCR groundwater monitoring. He developed customized reports for time series analysis (e.g. Mann-Kendall analysis), regulatory compliance and client insight.

***FDEP Dry Cleaner Sites Data Management, Florida Department of Environmental Protection, Various Locations, Florida.*** Sheng imported historical data into EQUIS and automated data collection, loading, QA/QC, and reporting processes to modernize site management across multiple dry cleaner locations.

***Gateway Medley UR, First Industrial Realty Trust, Miami, Florida.*** Utilizing software such as Python, Sheng has developed a tool to convert high-frequency, real-time air quality measurement data from PDF forms into tabular format in Excel. The tool also calculates moving 15-minute averages for each measurement, compares the calculated average to threshold, and summarizes all exceedances for compliance reporting.

***Hudson River Data Management, General Electric Company, Hudson Falls and Fort Edward, New York.*** Sheng has managed an environmental data management system that automates the data work flow from the field, laboratories, remote field instruments, compliance, and reporting during a remedial dredging project. At this Superfund site, the U.S. Environmental Protection Agency (USEPA) mandated performance standards that required around-the-clock monitoring, rapid laboratory turnaround times, and fast data reporting. Sheng has primary responsibility for day-to-day maintenance, coordination among field, laboratory, and project team staff, and preparation of data for annual reporting.

***Olin Chemical Superfund Site – DAPL and Hot Spot Groundwater Pre-Design Investigation, Olin Corporation, Wilmington, Massachusetts.*** Sheng implemented a database system to automate dataflow from pre-design investigation sampling events and hydraulic testing events. He also led the design and development of web based dashboard to provide client direct access to project data in real-time.

***San Gabriel Valley Superfund Site – Interim Groundwater Containment Remedies, East Side Performing Settling Defendants, El Monte, California.*** Sheng led migration of historical datasets into EQUIS Enterprise, automating data workflows and improving data quality. Developed digitized field data collection tools, integrated lab EDDs, and built real-time dashboards for EPA Region 9 compliance.

***Bramlette MGP Site Data Management, Duke Energy, Greenville, South Carolina.*** Sheng has developed a groundwater sampling form in EQUIS Collect (EarthSoft™) that is compatible with both Apple and Android mobile devices (phones and tablets) to digitize the data entry process during groundwater sampling events. The mobile application not only allow project team to streamline data collection and transcription processes but also enforces quality control checks that provides warnings and notifications to users to ensure data collected are of high quality.

***Vo-Toys Building Characterization and Demolition Data Management, General Electric Company, Harrison, New Jersey.*** Utilizing software technologies such as Python, Visual Basic.NET, EDGE (Environmental Data Gathering Engine, EarthSoft™), and EQUIS Collect (EarthSoft™), Sheng has designed and developed an innovative data management system that is tailored to meet the requirements of a complicated building characterization/demolition sampling and air monitoring program. The system includes a digitized field data collection process that can be deployed on various operation systems and enforces business logic during data entry and that greatly improves the data flow efficiency, automated procedures that performs quality control checks upon loading data from field and laboratory into the project database, a dashboard containing a web map that shows real-time heat map that made the around-the-clock fast decision making possible and customized data exports that provide the client direct data access on demand, and an automated data loading system that transfers real-time air monitoring data to the project database and sends text message alerts to responsible parties for measurement exceedances.

Attachment #2

# PROPOSAL SUBMITAL FORM

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**PART IV - SUBMITTAL FORMS  
PROPOSAL SUBMITTAL SIGNATURE FORM**

<b>1.</b>	<b>Project Team</b> Name and Title	<b>Years</b> experience	<b>City of office</b> individual will work out of for this project	<b>City</b> individual's office is normally located	<b>City of</b> individual's residence
	Raphael Siebenmann, Senior Principal	18	Atlanta, GA	Atlanta, GA	Atlanta, GA
	Scott Deitche, Senior Principal	30	Clearwater, FL	Clearwater, FL	Clearwater, FL
	Sheng Wang, Senior Principal	19	Columbia, MA	Columbia, MA	Columbia, MA
	Austin Orr, Senior Engineer	12	Portland, OR	Portland, OR	Portland, OR
	Christopher Rudolph, Scientist	5	Guelph, ON, CA	Guelph, ON, CA	Guelph, ON, CA
	Kevin Tyre, Project Scientist	11	Cape Canaveral, FL	Cape Canaveral, FL	Cape Canaveral, FL
<b>2.</b>	<b>Magnitude of Company Operations</b>				
	A) Total professional services fees received within last 24 months:			\$ 1.1 Billion	
	B) Number of similar projects started within last 24 months:			10	
	C) Largest single project to date:			\$ 38,114,410	
<b>3.</b>	<b>Magnitude of Charlotte County Projects</b>				
	A) Number of current or scheduled County Projects				
	B) Payments received from the County over the past 24 months (based upon executed contracts with the County).				\$ 0
<b>4.</b>	<b>Sub-Consultant(s)</b> (if applicable)	<b>Location</b>	<b>% of Work to be Provided</b>	<b>Services to be Provided</b>	
	N/A				
<b>5.</b>	<b>Disclosure of interest or involvement:</b> List below all private sector clients with whom you have an active pending contract and who have an interest within the areas affected by this project. Also, include any properties or interests held by your firm, or officers of your firm, within the areas affected by this project.				
	Firm	Address			
	Phone #	Contact Name			
	Start Date	Ending Date			
	Project Name/Description				
	Geosyntec has no private sector clients in Charlotte County				

**NAME OF FIRM** Geosyntec Consultants, Inc.

(This form must be completed and returned)

**6. Minority Business:**

Yes \_\_\_\_\_ No **X** \_\_\_\_\_

The County will consider the firm's status as an MBE or a certified MBE, and also the status of any sub-contractors or sub-consultants proposed to be utilized by the firm, within the evaluation process.

**Comments or Additional Information:**

The undersigned attests to his/her authority to submit this proposal and to bind the firm herein named to perform as per contract, if the firm is awarded the Contract by the County. The undersigned further certifies that he/she has read the Request for Proposal, Terms and Conditions, Insurance Requirements and any other documentation relating to this request and this proposal is submitted with full knowledge and understanding of the requirements and time constraints noted herein.

By signing this form, the proposer hereby declares that this proposal is made without collusion with any other person or entity submitting a proposal pursuant to this RFP.

In accordance with section 287.135, Florida Statutes, the undersigned certifies that the company is not on the Scrutinized Companies with Activities in Sudan List, the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, and does not have business operations in Cuba or Syria (if applicable) or the Scrutinized Companies that Boycott Israel List, or is not participating in a boycott of Israel.

As Addenda are considered binding as if contained in the original specifications, it is critical that the Consultant acknowledge receipt of same. The submittal may be considered void if receipt of an addendum is not acknowledged.

Addendum No. 1 Dated 3/23      Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_      Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_  
Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_      Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_      Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

Type of Organization (please check one):      INDIVIDUAL      ( ) PARTNERSHIP      ( )  
CORPORATION      (X) JOINT VENTURE      ( )

Geosyntec Consultants, Inc.      (678) 202-9500  
Firm Name      Telephone

777 Yamato Road, Suite 600      59-2355134  
Fictitious or d/b/a Name      Federal Employer Identification Number (FEIN)

Boca Raton FL 33431      43  
Home Office Address      Number of Years in Business

19321 U.S. Highway 19 North, Building C, Suite 200, Clearwater, FL 33764  
City, State, Zip      Number of Years in Business

Address: Office Servicing Charlotte County, other than above

Scott Deitche, Senior Principal      727-330-9964  
Name/Title of your Charlotte County Rep.      Telephone

Todd Kafka, Operations Vice President  
Name/Title of Individual Binding Firm (Please Print)

      April 2, 2026  
Signature of Individual Binding Firm      Date

TKafka@Geosyntec.com  
Email Address

(This form must be completed & returned)

Attachment #3

# DRUG FREE WORKPLACE

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**DRUG FREE WORKPLACE FORM**

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that Geosyntec Consultants, Inc does: (name of business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Todd K. [Signature]  
Proposer's Signature

4-2-2026  
Date

NAME OF FIRM Geosyntec Consultants, Inc.  
(This form must be completed and returned)

Attachment #4

# HUMAN TRAFFICKING AFFIDAVIT

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**HUMAN TRAFFICKING AFFIDAVIT  
for Nongovernmental Entities Pursuant To FS. §787.06**

**Charlotte County Contract #20260257**

The undersigned on behalf of the entity listed below, (the "Nongovernmental Entity"), hereby attests under penalty of perjury as follows:

1. I am over the age of 18 and I have personal knowledge of the matters set forth except as otherwise set forth herein.
2. I am an officer or representative of the Nongovernmental Entity and authorized to provide this affidavit on the Company's behalf.
3. Nongovernmental Entity does not use coercion for labor or services as defined in Section 787.06, Florida Statutes.
4. This declaration is made pursuant to Section 92.525, Florida Statutes. I understand that making a false statement in this declaration may subject me to criminal penalties.

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

Further Affiant sayeth naught.

Todd K Katka  
Signature

Todd K Katka  
Printed Name

Operations Vice President  
Title

Geosyntec Consultants, Inc.  
Nongovernmental Entity

4-2-2020  
Date

**END OF PART IV**

NAME OF FIRM Geosyntec Consultants, Inc.  
(This form must be completed and returned)

# Geosyntec<sup>®</sup>

consultants

Geosyntec Consultants is a consulting firm with engineers, geologists, environmental scientists, and other technical and project staff based in offices throughout North America and at select locations in Australia, Ireland, Finland, Sweden, Spain, the United Arab Emirates, and the United Kingdom. We address new ventures and complex problems involving our environment, natural resources, and civil infrastructure.

## Contact Information

### **Raphael Siebenmann, PE**

Senior Principal  
rsiebenmann@geosyntec.com  
678.202.9555

### **Scott Deitche, ENV SP**

Senior Principal  
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727.330.9964

Find more information at [Geosyntec.com](http://Geosyntec.com)

