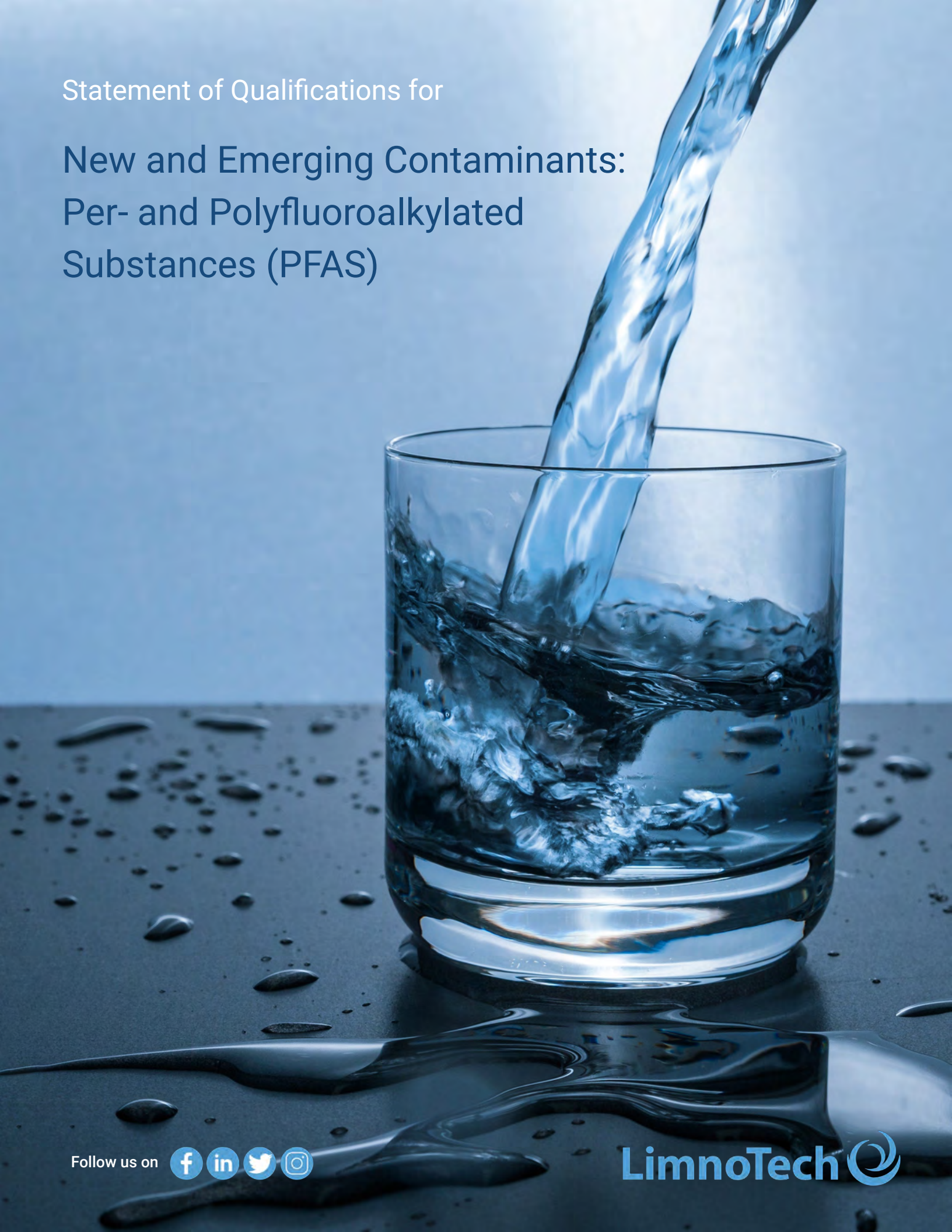
Statement of Qualifications for

New and Emerging Contaminants: Per- and Polyfluoroalkylated Substances (PFAS)



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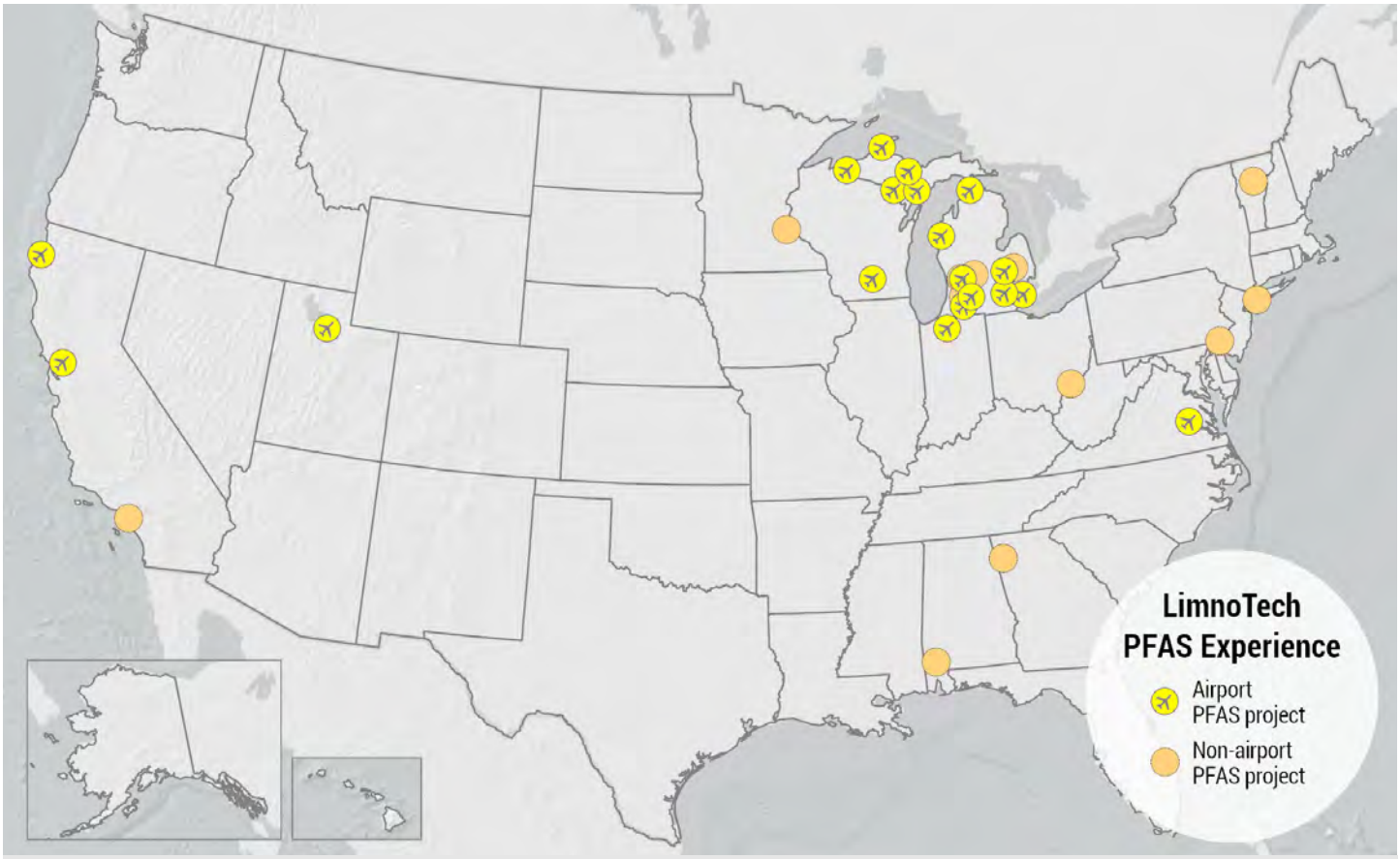
LimnoTech



LimnoTech's multi-disciplinary staff of scientists, engineers, and field personnel have the expertise and experience to understand the most complex emerging contaminant problems and the creativity and resourcefulness to develop effective and workable solutions for our clients.

The Challenge

Per- and polyfluoroalkylated substances, or PFAS, are a source of environmental concern by regulatory agencies throughout the U.S. In fact, the Environmental Protection Agency has published a PFAS Road Map outlining their plans for new regulation and has been steadily implementing those steps. This includes potentially listing certain PFAS as Superfund hazardous substances and proposing drinking water standards as low as 4 parts per trillion (ppt). In the meantime, many states have been taking PFAS regulation into their own hands, with an increasing list of compounds being regulated and standards that seem to be getting increasingly lower.

How We Help

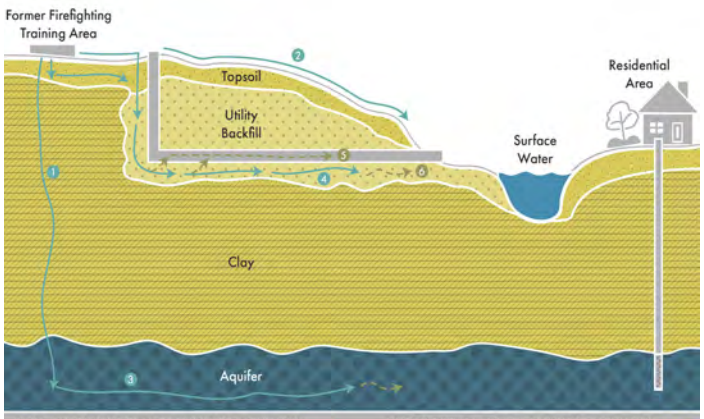
Using tailored approaches that are focused, responsive, and efficient, we've helped industrial, legal, and airport clients across the country deal with PFAS issues. For example, we've led PFAS site investigations at more than 20 airports to assess impacts from past use of AFFF. Our experience also includes source identification and reduction, like the recent work we did for a plating company, which resulted in a 99.8% reduction in PFOS in their wastewater. Other services we've performed for our clients include soil and groundwater remediation, fate and transport evaluations, and litigation support. LimnoTech's unique experience has given us the knowledge and expertise to successfully resolve a wide range of challenges in dealing with PFAS.

What We Do

LimnoTech has years of experience working on PFAS projects, and we're past the initial learning curve that many other firms still face. We've worked at airports and industrial sites, and we've investigated groundwater, surface water, and stormwater for PFAS. The scientific understanding of PFAS site investigation, fate and transport, and source identification and forensics are rapidly evolving. It is important to us that we are regular contributors to the body of knowledge that the professional community can draw upon. Our clients value this combination of expertise and desire to advance the state of the science around PFAS.

Our Services

- Site Investigation and Sampling Program Design
- Remediation Planning and Design
- Source Identification and Mitigation
- Data Analysis and Interpretation
- Fate and Transport Evaluation
- Regulatory Compliance
- Chemical Fingerprinting and Forensics
- Ecological Risk Assessment
- Litigation Support and Expert Testimony
- Water and Wastewater Treatment Planning



PFAS Investigation - California Redwood Coast

Humbolt County Airport

CLIENT
Humbolt County

LOCATION
Arcata/Eureka, CA

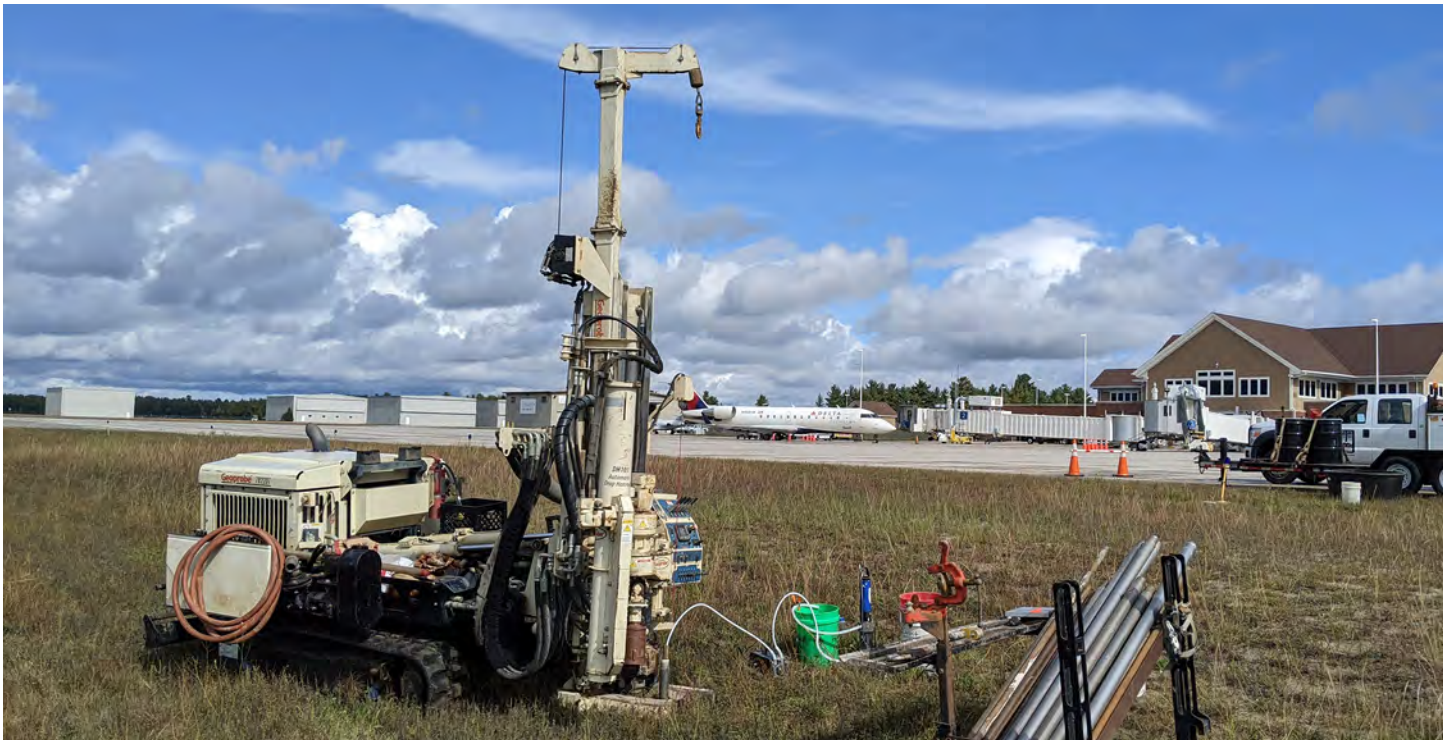
COMPLETION DATE
2022

REFERENCE
Cody Roggatz, C.M.
Director of Aviation,
Humbolt County
p: 707-839-5401
e: croggatz@co.humboldt.ca.us

Like other Part 139 airports in California, the California Redwood Coast – Humboldt County Airport in McKinleyville received the California State Water Resources Control Board (State Water Board) Order WQ 2019-0005-DWQ (Order) in late March 2020, which required the airport to conduct a "preliminary site investigation" to obtain a preliminary understanding of PFAS concentrations in soil and/or groundwater resulting from PFAS use at the airport. Humboldt County hired LimnoTech to help them respond to the Order.

LimnoTech's work included workplan preparation, performing all field investigation activities, and preparing the final report as required by the Order. Investigation activities included eight hand- augered soil borings and two deep soil borings using sonic drilling up to 160 feet below ground surface for soil and groundwater sampling.

LimnoTech received a notice to proceed only 60 days before the reporting deadline and successfully completed all field work at that deadline. The final report was submitted to the State Water Board on July 24, 2020. In response, the State Water Board determined that no further action was needed.



PFAS Investigation - Pellston, Michigan

Pellston Regional Airport

CLIENT
Emmet County

LOCATION
Pellston, MI

COMPLETION DATE
Ongoing

REFERENCE
Michael Reaves
Emmet County Administrator,
Pellston Regional Airport
p: 231-348-1701
e: mreaves@emmetcounty.org

LimnoTech was retained by Emmet County in early 2020 to support their response to an order from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to investigate per- and polyfluoroalkyl substances (PFAS) in groundwater at the Pellston Regional Airport. The order was the result of the discovery of PFAS in drinking water wells in the Village of Pellston, and EGLE suspected that the PFAS was the result of the release of aqueous film-forming foam (AFFF) associated with aircraft fire training and accident response at the Airport.

Since our initial involvement in 2020, LimnoTech has implemented several phases of site investigation to identify potential source areas, delineate PFAS impacts in the aquifer beneath the Airport, and verify locations where PFAS in shallow groundwater may be venting to the West Branch of the Maple River, adjacent to Airport property. As these investigations led to a clearer understanding of the nature and extent of PFAS, our efforts have transitioned from identification and delineation to remedial investigations. We recently completed a field pilot test using injected colloidal activated carbon to create a permeable reactive barrier to stop off-site migration of PFAS in the aquifer and initial investigation of soil stabilization alternatives.

PFAS Investigation & Groundwater Remediation - Kentwood, Michigan

Former Keeler Brass Company

CLIENT
Confidential

LOCATION
Kentwood, MI

COMPLETION DATE
Ongoing

In the late 1990s and early 2000s, LimnoTech performed site investigations at the former Keeler Brass Company, a 40-acre industrial site in Kentwood, Michigan. The work was focused on the delineation of two separate groundwater plumes, one with hexavalent chromium and the other with volatile organic compounds (VOCs). Following those investigations, LimnoTech designed and implemented remedial actions, including source removal and groundwater captureand treatment systems for each groundwater contaminant plume. Those groundwater capture and on-site treatment systems have been in operation for more than 15 years and have successfully prevented off-site migration of the plumes while discharging treated groundwater to the local sanitary sewer under a permit from the City of Grand Rapids.

In 2019, because the site was formerly a chrome plating plant, the City required testing of the treated groundwater discharges for PFAS. Those tests revealed the presence of PFAS in the treated groundwater, the results of which were reported by the City to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). As a result, EGLE ordered an additional investigation to define the extent and distribution PFAS in groundwater at the site, which is underway. Concurrent with renewed site investigations, LimnoTech upgraded and retrofitted the existing on-site groundwater treatment systems with new activated carbon systems to remove PFAS from captured groundwater before discharge. The new activated carbon groundwater treatment systems have been operational for more than two years without any exceedances of PFAS discharge limits.

PFAS Investigation - Concord, California

Buchanan Field Airport

CLIENT
Contra Costa County,
Airports Division

LOCATION
Concord, CA

COMPLETION DATE
Ongoing

REFERENCE
Beth Lee
Assistant Director of Airports
Contra Costa County, Airports Division
p: 844-359-8687
e: Beth.Lee@airport.cccounty.us

On March 20, 2019, California's State Water Resources Control Board (State Water Board) issued Order WQ 2019-0005-DWQ (Order) requiring Part 139 airports in California to conduct a "preliminary site investigation" regarding the storage and use of per- and polyfluoroalkyl substances (PFAS) and to obtain a preliminary understanding of PFAS concentrations in soil and/ or groundwater resulting from PFAS use at the airport.

The Contra Costa County Airports Division engaged LimnoTech to help with its response to the Order. LimnoTech prepared a work plan for the preliminary investigation, implemented the work at the Buchanan Field, and prepared the final investigation report required under the Order.

Investigation activities included 12 soil borings using sonic drilling to acquire soil and groundwater samples. Due to the proximity of some borings to runways and taxiways, half of the borings had to be completed overnight.

Based on the preliminary investigation findings, the state ordered an additional investigation, which LimnoTech completed in 2022. LimnoTech's investigations at the Airport have not yielded evidence of off-site migration of PFAS, and the County is negotiating the next steps with the state.

PFAS Investigation - Grand Rapids, Michigan

Gerald Ford International Airport

CLIENT
Gerald R. Ford International Airport Authority (GFIAA)

LOCATION
Grand Rapids, MI

COMPLETION DATE
Ongoing

REFERENCE
Casey Ries, PE
Engineering and Planning Director, GFIAA
p: 616-233-6000
e: cries@grr.org

In response to public concern regarding the past use of AFFF and the associated concern that foam may have contained PFAS, the GFIAA voluntarily initiated a site investigation near its former firefighting training area (FFTA) in March 2018. The airport contracted LimnoTech to lead these investigation activities, which included a compilation of historical AFFF usage information, preparation of investigation sampling and quality assurance work plans, determination of appropriate sampling locations, procurement of drilling and laboratory services, direction and oversight of field work, data compilation and analysis, report preparation, and interaction with State and local government agencies. LimnoTech reviewed the rapidly evolving state of the science as related to PFAS sampling and analytical methods and designed a phased investigation to deliberately gather data consistent with Part 201 requirements, even though the applicability of the Part 201 regulation was not certain. Building on experience conducting similar hydrogeological investigations and more recent experience with conducting environmental evaluations for PFAS, LimnoTech was able to rapidly design a sampling and analysis plan and initiate groundwater and soil sample collection. Investigation findings have been summarized using mapping software, and geologic cross-sections have been prepared using both boring information collected in the field and nearby publicly available well log information. LimnoTech also conducted an evaluation and public records search for information related to other potential sources of PFAS in the vicinity of the airport. This work is ongoing. LimnoTech has also provided support for the airport's voluntary testing of adjacent residential properties.

PFAS Investigation - Flint, Michigan

Bishop International Airport

CLIENT
Bishop International
Airport Authority (BIAA)

LOCATION
Flint, MI

COMPLETION DATE
Ongoing

REFERENCE
Chris Yeates
Chief Operating Officer, BIAA
p: 810-235-6560
e: cyeates@bishopairport.org

PFAS were discovered in soil at Bishop International Airport in Flint (FNT) during the expansion of Taxiway C West, which was required by the Federal Aviation Administration's (FAA) revised and updated airfield design standards. PFAS in the excavated soil were initially discovered in May 2018, when the soil was tested prior to off-site disposal, at the request of a potential third-party recipient. Initial sampling was conducted by the excavating contractor and subsequently confirmed by sampling conducted by LimnoTech at the request of FNT staff. After the confirmatory sampling was conducted, the Bishop International Airport Authority (BIAA) voluntarily shared the results with the Michigan Department of Environmental Quality (MDEQ). To date, additional soil testing has been completed around Taxiway C West to further define the nature and extent of impacts, and a series of meetings with the MDEQ have been conducted.

LimnoTech also planned and conducted a hydrogeological investigation at and around FNT to evaluate the presence and extent of PFAS in groundwater, as well as potential impacts to nearby water wells. Activities included a review of available hydrogeologic information, the performance of deep borings for sampling of soil and groundwater, and the installation of monitoring wells. Investigation findings have been summarized using mapping software, and geologic cross-sections have been prepared using both boring information collected in the field and nearby publicly available well log information.

MEET OUR EXPERTS

Scott Bell, PE, is the **Vice President of Business Operations** and a **Senior Environmental Engineer** at LimnoTech. Scott has been with LimnoTech since 1992. He manages projects for various industrial, municipal, and federal clients. Scott has technical expertise in environmental remediation and restoration and is LimnoTech's practice leader for PFAS and emerging contaminants. In that role, he has overseen and directed PFAS-related investigations at two dozen airports and industrial sites. Throughout his career at LimnoTech, Scott has planned and executed scores of hydrologic and hydraulic engineering, water quality management, wastewater discharge impact analysis, stormwater management, and engineering feasibility evaluation projects across North America. He has taught professional development courses for the Engineering Society of Detroit, delivered numerous technical papers and presentations, and served on several professional boards and committees.

J**essica Bleha, PG,** is a **Hydrogeologist** with more than 15 years of environmental consulting experience and over a decade of work in project management, planning, and coordination. Jessica's expertise includes hydrogeological assessments of surface and groundwater resources, environmental site assessments, conceptual modeling, data management systems, mine remediation and permitting, monitoring wells, soil boring, and remediation system installations. She has supported investigations of PFAS impacts in groundwater, soil, and stormwater from past use of aqueous film-forming foam (AFFF) at 11 airports in Michigan. Her work includes oversight of drilling subcontractors, installation of groundwater wells, and sample collection. Jessica has performed and overseen soil, groundwater, and surface water investigations for PFAS and other contaminants, evaluated municipal well-pumping test data, and provided remedial design and support for a Superfund site. She is proficient in various environmental and engineering software (ArcGIS, AQTESOLV, LogPlot, RockWorks20).

Chris Cieciek is a **Principal** and **Senior Environmental Scientist** with more than 30 years of technical and project management experience, primarily in the assessment of nonpoint sources of pollution and their impacts on surface waters. He is a specialist in the areas of airport stormwater discharge compliance, deicing operations and controls, and and investigation of per- and polyfluoroalkyl substances (PFAS). Chris has managed multi-disciplinary teams providing environmental consulting for airport stormwater management and environmental on-call issues. His technical skills include installation and operation of deicing controls; water quality monitoring and assessment; NPDES permit compliance evaluation and negotiation; implementation of innovative stormwater management programs, and quality assurance/quality control programs for field and laboratory data collection.

MEET OUR EXPERTS

Christopher Behnke serves as the **Field Services Manager** at LimnoTech. Chris has 23 years of experience as a Geologist conducting environmental sampling of various types, including surface water, groundwater, soil, sediment, and air. Each collection method requires consideration for a distinct, site-specific approach to collect the most representative sample possible based on existing conditions. Chris has experience with GIS, Excel, and various instrument-related programs used for field data collection. These skills are utilized in the planning, implementing, and reporting numerous data collection efforts. Chris' experience included the collection of soil, groundwater, and stormwater runoff samples around airfields to characterize PFAS impacts from past use of AFFF and provide oversight for field investigations of PFAS. He has conducted fieldwork at several airports to monitor the environmental impacts of aircraft deicing and has also conducted investigations of PFAS and other contaminants at numerous industrial sites.

Carrie Turner, PE, is a **Principal** and **Senior Water Resources Engineer** at LimnoTech specializing in developing affordable and sustainable solutions for wet weather pollution-related issues. Most of Carrie's 25+ years of experience with LimnoTech have been assisting municipal and nongovernmental organizations in solving their most vexing water resource issues by leveraging existing data, developing and implementing targeted sampling strategies, and applying hydraulic, hydrologic, and water quality models to identify cost-effective and scientifically sound solutions. She also has extensive experience using her chemistry background to design and implement innovative water and wastewater sampling programs, programs, conduct laboratory audits, validate data, write Quality Assurance Project Plans, and develop customized databases and data management frameworks that integrate spatial, physical and chemical data by linking them with GIS systems for analysis and visualization.

Joyce Dunkin, CPG, PG is a **Senior Hydrogeologist** and licensed professional **Geologist** with experience in site investigations and assessments of CERCLA- and RCRA-related projects, Michigan Part 201 sites, and environmental litigation projects. Joyce’s expertise includes remedial investigations and feasibility studies; work plan preparation; field investigation supervision and methods development; soils and groundwater remedial design; and groundwater modeling and supply studies; and geologic and hydrogeologic data collection and analysis. Joyce also has experience in surface and borehole geophysical interpretation.- Joyce is the lead hydrogeologist for PFAS-related investigations at several airports in Michigan, and is leading investigations of PFAS in soil and groundwater at an industrial site in Alabama.

Corporate Overview

LimnoTech is a leading environmental science and water resources consultancy headquartered in the U.S. We work with clients across a range of sectors and locations to address challenging water resource issues. We offer our clients specialized water science and engineering expertise in the areas of watershed management, impacts of wastewater discharges and water withdrawals, wet weather challenges, permitting and regulatory assistance, ecosystem restoration, groundwater pollution, eutrophication, toxics, and more. Throughout our almost 50-year history, we have served as an independent and objective consultant and partner in our work with private companies, public entities, industry, legal firms, non-governmental organizations, research organizations, other engineering firms, and universities.

Our staff has a national reputation for the scientific assessment of complex environmental issues and finding innovative and effective solutions for the water environment. Many LimnoTech senior staff are internationally recognized experts in their fields, and more than 80% of our staff possess advanced degrees. With our highly experienced multidisciplinary team, LimnoTech has successfully completed projects of every size throughout the U.S. and internationally.

LimnoTech's reputation for excellence, innovation, and service is firmly rooted in our corporate philosophy of quality through planning and prevention. We are uniquely situated to combine the depth and breadth of experience offered by a large corporation with a smaller firm's flexibility and quick response time. The success of our quality commitment is reflected in consistently high marks for our performance in our annual client surveys and our greater than 90% rate of repeat clients and client referrals. As a 100% employee-owned (ESOP) company, we take pride in our achievements and are committed to finding creative, innovative solutions to the critical water challenges our clients face.

In 2023, LimnoTech received the 'Consultant of the Year Award' for outstanding PFAS work for Michigan's aviation community.

"Your team has provided high quality environmental analysis and is being recognized for your service in advocating to have a better understanding of PFAS issues at airports nationally." - The State of Michigan Department of Transportation, Office of Aeronautics

Our clients trust our ingenuity, expertise, objectivity, and passion for sustainable clean water.

Contact Us

For more information please contact:

Scott Bell, PE, 734-821-3168, sbell@limno.com
Jessica Bleha, PG, 734-821-3139, jbleha@limno.com

Make sure to also check out our PFAS articles published on our website:

PFAS – Emerging, But Not New

Sampling for PFAS Requires Caution

PFAS Analysis – The New Wild West

Aviation and PFAS – What's the Connection?

PFAS – The Next Wastewater Utility Challenge?

Should Municipalities Worry About PFAS?

PFAS – How Low Can You Go?

Key Considerations for PFAS Field Investigations

What Would A PFOS And PFOA Hazardous Substance Designation Under CERCLA Mean For The Business Sector?

PFAS – How Low Can You Go? Now We Know!

Method 1633 For PFAS In Aqueous Samples

LimnoTech Office Locations

Headquarters, Ann Arbor, Michigan
734-332-1200

Mid-Atlantic Office, Washington, DC
202-833-9140

Central Region Office, Oakdale, Minnesota
651-330-6038

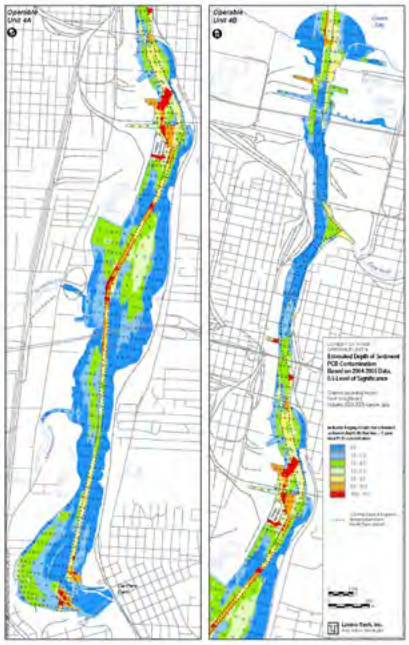
Southern California Office, Los Angeles, California
213-282-4440

limno.com

Contaminated Sediments

Industries, waterfront developers, resource managers, and site owners face real challenges as they work to remediate or control environmental impacts at contaminated sediment sites. The process of addressing legacy pollution can be complex, and remediation costs can reach hundreds of millions or even billions of dollars. LimnoTech continues to advance the science and practice of contaminated sediment site management, helping our clients throughout the United States and internationally find faster, more effective, and more affordable approaches for managing sediment sites.

LimnoTech is at the forefront of sediment site work, and we are widely recognized as leaders in remedial investigation/feasibility study, cost allocation, and litigation support. Our work has contributed to solutions at the most prominent sites in the nation, including the Hudson River, the Fox River and Green Bay, the Tittabawassee River, the greater Newark Bay complex, and the Kalamazoo River.



Innovative modeling and risk assessment studies help identify treatment alternatives for contaminated sediments.

LimnoTech has a strong and successful history of helping shape national policy; developing scientific, forensic and technical tools; and developing, building, applying, and interpreting environmental models for a wide range of municipal, industrial, and regulatory clients at hundreds of sites throughout the United States. This experience has included the drafting of multiple guidance and teaching documents for US EPA and Department of Defense (DoD); application of nearly every general-use watershed and surface water model supported by US EPA and other government agencies; and especially, the development and use of advanced hydrodynamic, sediment transport, and contaminant fate and transport models.

LimnoTech also has extensive experience in remedy design and support for remedy implementation, at sites throughout the United States and Canada. As site remediation approaches have broadened to reflect recent trends of ecological restoration and sustainable design, LimnoTech has stayed current, completing projects with a strong element of restoration design and integration with urban planning and waterfront development.

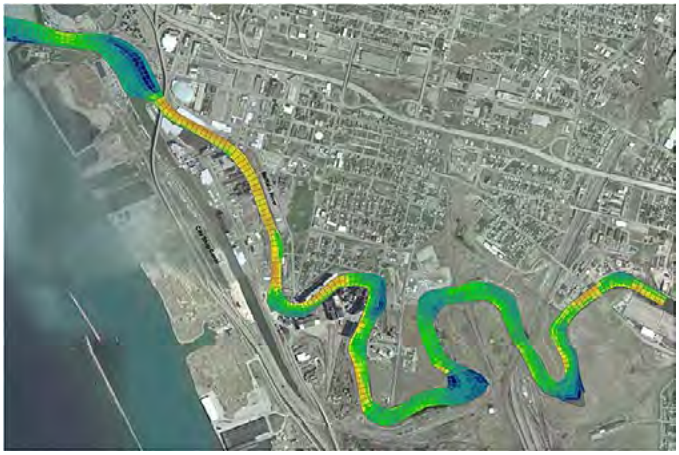
Service Areas:

- Advanced Modeling of Hydraulics, Hydrodynamics, Sediment & Contaminant Transport
- Construction Planning & Management
- Ecotoxicology & Ecological Risk Assessment
- Engineering Design & Specification
- Full Field Capabilities (hydrodynamic monitoring; bathymetric surveys; sediment probing & coring studies; sedimentation & geochronology; fisheries biology & ecological exposure monitoring)
- Geostatistical & Forensic Contaminant Analyses
- Hazardous Waste & Materials Management
- Litigation Support & Expert Testimony
- Natural Resources Damage Assessment
- Permit Application & Negotiation
- PFAS Investigation, Data Interpretation, Fate & Transport Assessment, Remediation Assessment
- Pilot/Treatability Studies
- Remedial Investigation/Feasibility Studies & Assessments

Universal Oil Products in New Jersey Meadowlands.
As part of a site remedial investigation process in the New Jersey Meadowlands, Honeywell International performed a detailed evaluation of the Former Universal Oil Products (UOP) site in East Rutherford. In support of Honeywell's work, LimnoTech has performed studies of contaminant distribution, sediment accumulation in tidal channels and wetlands, tidal hydrodynamics and sediment transport, and long-term recovery processes in the wetlands and tidal flats.

This work is providing a detailed assessment of site behavior and support for the development of comprehensive cleanup and compliance strategies for the site.

Honeywell International has conducted a remedial investigation and partial cleanup of the former Universal Oil Products (UOP) site in East Rutherford, New Jersey, which was purchased as part of a corporate merger in the 1980s. Under the Superfund process, one of the operable units consists of Ackermans Creek and associated marshlands connected to Berrys Creek, both tributaries to the Hackensack River. In addition to contamination from historical UOP activity, several other industries (current and historical) have also contributed to sediment contamination in Ackermans Creek.



Using a suite of models, LimnoTech developed remedy footprints and sediment volume estimates.

Fox River in Green Bay, Wisconsin. LimnoTech has been providing technical support in the management of the Lower Fox River since 1995. This support has included data compilation and evaluation, fate and transport modeling, oversee dredging plans, and assist with remedial unit design. LimnoTech's optimized probabilistic model has proved to be a powerful basis of design for Fox River remediation, and has made it possible for regulators and responsible parties to negotiate and agree on remedial actions.

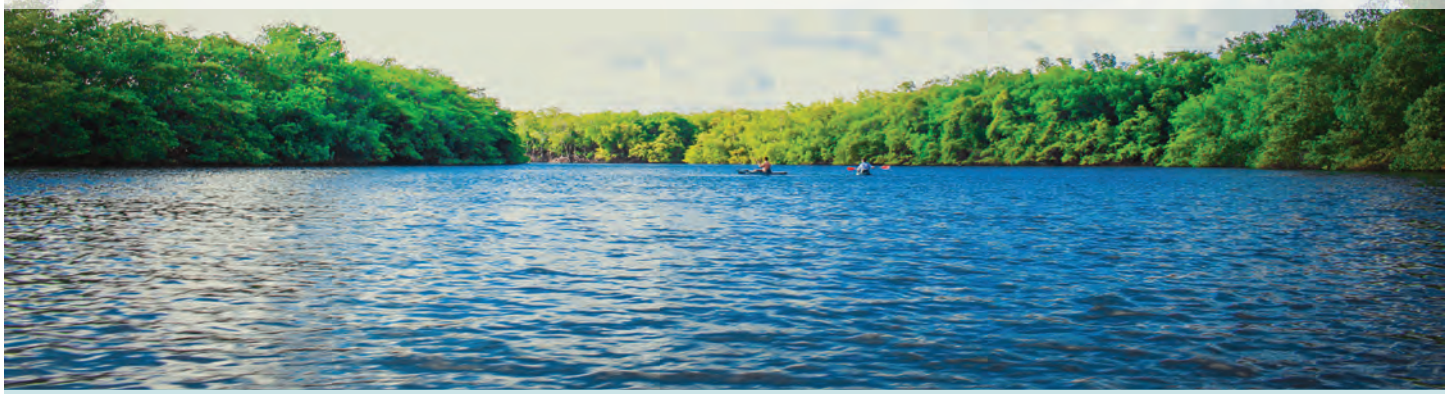
LimnoTech has been continually involved in management of the Lower Fox River since 1995, providing technical support, from characterization to closure planning. LimnoTech collected and evaluated data and developed PCB fate and transport models for the Lower Fox and Green Bay as part of the RI/FS process, is now an integral member of the team designing the remedy, and has helped to plan baseline monitoring and future and long-term monitoring of remedial effectiveness. LimnoTech's current role is to translate the extensive body of predesign site data into remedial footprints and a target dredge surface. The 2004 Record of Decisions proposed extensive environmental dredging to remove PCB-contaminated sediments. To support design, LimnoTech recommended a density for predesign sediment sampling, based on geostatistical analysis of pre-existing data, and has used those predesign core data to develop remedial dredge prisms.

Remedial Investigation and Feasibility Study of the Buffalo River, NY. LimnoTech served as technical consultant in support of eemedial investigation and feasibility study activities done as part of the Buffalo River Great Lakes Legacy Act Project Agreement. LimnoTech developed and conveyed comprehensive understanding of river hydrology and hydrodynamics, sediment transport, and analysis of the depth and distribution of organic and heavy metal contamination in Buffalo River sediments. The work was conducted under a highly compressed time frame; field investigations, numerical model development, remedial investigation reporting, and feasibility study activities were largely completed in a six-month period. LimnoTech also played a critical role in developing planning-level remedy footprints and contaminated sediment volume estimates, using a suite of geostatistical and geographic information systems (GIS).

Integrated Hydrodynamic–Sediment Transport–Water Quality Model for the Lower Maumee River and Western Basin of Lake Erie. LimnoTech is developing a linked hydrodynamic–sediment transport–advanced eutrophication model to inform restoration and management decisions in the lower Maumee River and western basin of Lake Erie. Application of the modeling framework will include evaluation of how localized sediment accretion/erosion behavior changes relative to alternatives for dredged material placement, island building, etc. This model will also be used to quantify the relationship between nutrient loads, zebra mussel density, and physical factors as stressors. The model will also support decisions on clean sediment management and watershed nonpoint source control. LimnoTech has contributed to the development of human and ecological risk assessments relative to contaminated sediments in the Ottawa River. We have also conducted an analysis of bacteria sources and fate and transport in the system.

For more information about this area of LimnoTech's work, visit our website at: ***https://www.limno.com/services/contaminated-sediments/***

Lake and Reservoir Restoration and Management



LimnoTech offers specialized services in lake and reservoir assessment, restoration, and management. Our experience includes integrated watershed and water quality investigations, evaluation of innovative restoration techniques, and other in-depth assessments on water bodies throughout the U.S. Project water bodies have ranged from small ponds and urban lakes to some of the largest lakes and reservoirs in the nation.

How We Help

Lakes and reservoirs are valuable resources, providing recreational and aesthetic enjoyment, food, hydropower, and water supply. These resources also have considerable financial value to surrounding communities. Because lakes and reservoirs can be affected by activities on the water and in their drainage areas, a holistic understanding of the waters, the living resources inhabiting them, and the lands draining to them are required to successfully manage them as resources.

Effective lake management considers a range of factors that could impact a lake, identifies and prioritizes those factors driving environmental conditions, and develops a plan to ensure that the often diverse uses of the resource are adequately protected. Implemented properly, lake and reservoir management allows for community self-determination regarding future uses, protective measures, and water quality goals.

This approach does not imply restricted uses but rather knowledgeable use based on sound science. The health of a lake depends on the interaction between physical, biological, and chemical components and the strong influence that people have on these characteristics. In this regard, lake managers must recognize that decisions regarding the use of lands adjacent to lake waters have a large effect on water quality, as can fishing and boating pressures.

Through almost 50 years of lake and watershed management projects, LimnoTech has developed the experience and techniques to understand and scientifically quantify these influences so that this knowledge can be used to effectively manage the use of a lake to meet the desires of its resident community.

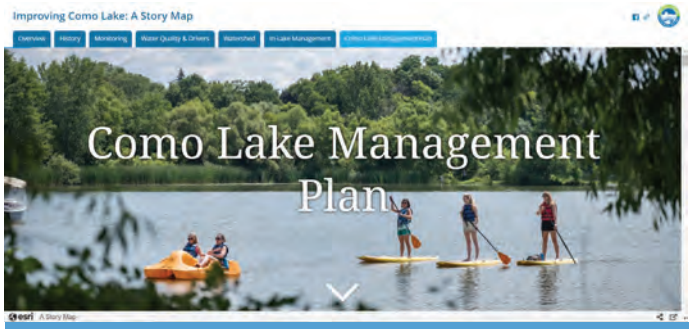
LimnoTech

What We Do

LimnoTech serves communities with their lake management issues through the following services:

- Evaluation and development of lake management goals
- Identification, compilation, and evaluation of existing data
- Diagnostic studies to assess existing water quality conditions and drivers
- Assessment of ongoing climate change impacts on water quality
- Pollutant load reduction analyses
- Water quality and hydrologic modeling
- Water quality and sediment sampling
- Design and implementation of remotely accessed, real-time monitoring sensors
- Regulatory support including calculation of TMDLs and development of site-specific nutrient criteria
- Monitoring program design and implementation
- Biological community and habitat assessments
- Evaluation of alternative management options needed to meet water quality goals, including structural BMPs, land use planning, and in-lake management techniques
- Design of alum treatments to reduce internal phosphorus loads
- Development of lake management plans, including adaptive lake management and planning

To talk about how LimnoTech can help you with your lake and reservoir restoration and management challenges, goals, and initiatives, contact **Steve Skripnik** at **sskripnik@limno.com** (p: 212-282-4440).



LimnoTech supported the Capitol Region Watershed District (CRWD) with the development of the Como Lake Management Plan. A key component of the planning process includes stakeholder engagement to define community goals for Como Lake and developing in-lake management strategies to meet those goals and regulatory requirements LimnoTech developed an online Story Map to share critical information regarding the lake.

LimnoTech supported the Cachuma Operations and Maintenance Board (COMB) with a Water Quality and Sediment Management Study for Lake Cachuma, a drinking water and recreation reservoir near Santa Barbara, California.

Scan to learn more and see how LimnoTech helps clients with lake and reservoir restoration and management.

limno.com