Charles R. Harman, SPWS
Principal Ecologist/Branch Manager

Summary

Years of Experience

35 Years

Office of Employment

Somerset, NJ

Areas of Expertise

- Ecological Risk Assessment
- Environmental Permitting
- Natural Resource Management
- NEPA Documentation
- Sediment Assessment

Professional Summary

Mr. Harman has almost 35 years as an environmental consultant in support of commercial/industrial parties, and non-enforcement government agencies. During his career, he has focused on addressing and resolving environmental liabilities from hazardous waste concerns. His projects have included ecological risk assessment, sediment evaluation and remediation, natural resource related assessment and management activities, environmental permitting, biological assessments, natural resource damage assessments, wetlands evaluation/mitigation, and ecological restorations. Mr. Harman has extensive experience in managing multi-discipline projects for construction and development purposes. He is the Permitting and Compliance Service Line Branch Manager for the Mid-Atlantic Office and his duties include client and project management, supervision of junior staff, and technical completion of work assignments.

Qualifications

Education

- B.S.; Wildlife Ecology; Texas A&M University; College State, Texas; 1977
- M.A.; Biology; Southwest Texas State University; San Marcos, Texas; 1986

Registrations / Certifications / Licenses

- Senior Professional Wetland Scientist; Registration 249; Issued by Society of Wetland Scientist; 1995
- Qualified by NJDEP under N.J.A.C. 7:1E to certify Environmentally Sensitive Area Protection Plans as an Ornithologist/Ecologist; 1998
- Certificate of Completion; U.S. Army Corps of Engineers Wetlands Delineator Certification Training Program

Software / Skills

Microsoft Office

Languages

- English

Experience

Ecological Risk Assessment/NRD/Sediment Assessment

Task Manager
Central Chemical CERCLA Site, Hagerstown, MD, 2018 – 2019

Responsible for the preparation of a Screening Level Ecological Risk Assessment (SLERA) conducted in accordance with the CERCLA ERAGs document. Activities included oversight of personnel conducted the SLERA, QA/QC of work products, and strategic discussions and recommendations to the Project Manager. SLERA activities included the ecological characterization of various areas of concern in surface water and sediments associated with the Site and the screening of chemical data collected from surface water and sediment samples from the areas of concern. The primary constituents of concern were pesticides and their residuals. The SLERA was prepared and submitted to USEPA Region III and is currently under review.

Project Manager
U.S. Coast Guard Station, Sediment Sampling; Cape May, NJ, 2017 – 2018

Project manager for the implementation of a sampling program to characterize sediments in Cape May Harbor in advance of planned dredging operations. Operations included organization of sampling logistics, field collection of samples using vibracoring techniques, and evaluation of laboratory data.

Technical Oversight
U.S. Army, Fort Wingate Ecological Risk Assessment, NM, 2017 – 2019

Technical reviewer providing quality review input into ecological risk assessments being conducted for various SWMUs at Fort Wingate. Responsibilities include ensure the technical presentation of the data, verifying that the ERA is being conducted in accordance with New Mexico ERA Technical Guidance, and verifying the evaluations and conclusions being drawn from the data.

Task Manager
Advansix Resins and Chemicals – SWMU 3, Ecological Risk Assessment, Hopewell, VA, 2017 – 2018

Responsibilities included the preparation of a SLERA conducted in accordance with the CERCLA ERAGs document. The site was an 8-acre fly ash and spoils area. Activities included the delineation of onsite wetlands as a precursor to potential remedial and development activities, sampling of surface soil, surface water, and sediments, the completion of the SLERA including screen of laboratory data against appropriate ecological screening benchmarks, and conservative food-chain modeling. The SLERA was prepared and submitted to Federal and state agencies, concluding that no further action relative to ecological receptors was warranted. The SLERA and its conclusions was accepted, and the project was completed.

Technical Oversight
Ecological Risk Assessment; Linde Slag site, Calvert City, KY, 2017

Responsibilities included the independent review of an internal ecological risk assessment prepared for the Site in accordance with the CERCLA ERAGs document. The focus of the assessment was on COPECs in surface water and sediments. Was asked to verify the technical approach to the ERA, confirm that validity of the assumptions used in the ERA development, and assess the conclusions reached in the ERA. Based on comments, assisted with modifications and changes to the conclusions.

Technical Support
Oak Glen Nature Preserve, Ecological Risk Assessment, Colerain Township, OH, 2017

Provided technical support to the Project Team assisting the Oak Glen Nature Preserve staff with ecological risk assessment support in response to residual chemical concentrations following the cleanup of an oil spill in the preserve. Because of the local karst geology, small amounts of PAHs and oil were still

being detected in the surface waters and sediments of the preserve several years after the release was cleaned up. Responsible for examining the monitoring plans put into place by the Responsible Party and developing opinions as the proposed approach. Asked to research PAHs and provide the team an understanding of their fate and transport as well as their potential ecological effects.

Task Manager
Confidential Client, Church Road TCE CERCLA Site, Ecological Risk Assessment, Mountain Top, PA, 2016 – Present

Technical manager for the completion of SLERA and BERA level ecological risk assessments at a CERCLA site located in north-central Pennsylvania. Responsibilities included evaluation and revisions of a SLERA prepared by a separate firm, development of an ERA Work Plan detailing the collection of additional data for a BERA, collection of that data, and the development and submission of the BERA to EPA Region III and their BTAG unit. Focus of the evaluation was the contribution of contaminated groundwater into a local stream. Sampling included collection of surface water and sediment samples at multiple locations within a two mile stretch of the stream, benthic invertebrate evaluations, and biological characterization of the riparian areas bordering the stream.

Project Manager
AstraZeneca SWCC CERLCA Site, Ecological Risk Assessment, Mt. Pleasant, TN, 2016 – 2017

Provided Senior Technical Support to the client with regards to ecotoxicological concerns with pesticides and pesticide residuals found in a surface water and sediments of a stream adjacent to the Site. Evaluated the data from the site and developed position papers outlining approaches to food chain modelling to assess the upper trophic level concerns with the pesticides, as well as approaches to additional sampling that might be required to support long-term monitoring needs. Provided guidance to the client on supplemental data needs required to further assess the concerns with the pesticides.

Task Manager
Confidential Client, Ecological Risk Assessment, Eatontown, NJ 2015 – 2016

Managed an Ecological Risk Assessment conducted as per the NJDEP EETG process. Focus was the discharge of contaminated groundwater into a small stream and the potential ecological ramifications of that discharge. The first phase was a simple Ecological Evaluation of the stream based on the comparison of surface water and surface sediment analytical data to ecological screening benchmarks. Based on that evaluation, moved into the completion of a full ERA of the stream based on benthic invertebrate sampling, toxicity testing, and ecological evaluation of the steam corridor. The ERA concluded that no intrusive remedial action was warranted, a conclusion that the NJDEP accept.

Task Manager
Confidential Company, Groundwater NRD Support, New York, 2015

In support of a confidential client, provided NRD support relative to the Trustee claims of impacts to Natural Resources (groundwater) because of historic discharges from an industrial facility. Worked with the client to develop strategic approaches to countering the claims, evaluated the technical information provided by the Trustee relative to NRD claims, and assisted with the research and identification of potential compensation projects that will be used as the payment for the NRD claims from the Trustee.

Task Manager
American Safety Razor Site, Ecological Risk Assessment, Verona, VA, 2013 – 2014

Task manager responsible for the completion of a SLERA for the American Safety Razor Site. Responsibilities included development of a work plan for the biological characterization of the site and an adjacent river, oversight of the SLERA preparation, and review of the final document. The SLERA was based on the development of several biological metrics for sediments and surface water (benthic invertebrate surveys, fish surveys), and the assessment of chemical data collected from the Site.

Technical Support
Confidential Mining Company, Natural Resource Damage Claims, Southeastern MO; 2012 – 2015

Technical lead for Natural Resource Damage Assessment support for a lead mining company negotiating with the U.S. Fish & Wildlife and Missouri Department of Natural Resources over perceived impacts to natural resources from a series of lead mines, tailings piles, and chat piles located along several waterways in Southeastern Missouri. The project as included detailed review of technical and procedural documents prepared by the Trustees and the development of strategic approaches to evaluating potential natural resource injuries and ecological impacts associated with the regional wide distribution of lead in sediments of major rivers and streams, as well as preliminary approaches to assessing and calculating possible damages.

Project Manager
NJ Transit; Washington Township Bus Garage Oil Spill Site, Ecological Risk Assessment, NJ, 2012 – 2013

Under contract to Hatch Mott MacDonald (HMM), Mr. Harman was the Project Manager for ecological consulting guidance and support to New Jersey Transit at this 10,000-gallon fuel oil spill into a local stream leading to two large water bodies in southern New Jersey. Mr. Harman oversaw the development of ecological risk strategic guidance to HMM and the interface with New Jersey Transit (NJT), New Jersey Department of Environmental Protection (NJDEP), and remediation contractor personnel. Oversaw the evaluation of surface water and sediment data results and provided guidance on post-spill sampling locations and results. Conducted site visits to evaluate the condition of affected natural resources and to aid in the evaluation of impacted wildlife. Provided guidance on the development of work plans for the subsequent implementation of fish collection from two lakes impacted by the spill and from one lake used for background. Fish were collected and sent to a specialty laboratory for chemical analysis. Oversaw the review and evaluation of the results of the chemical analysis and provided preliminary input into natural resource damage claim discussions with NJT and NJDEP. AMEC prepared the final Ecological Evaluation Report for the site, which was submitted to the designated LSRP for the project to be used in certifying that no further action is necessary in the area.

Project Manager
Fair Lawn CERCLA Site PRP Committee, Ecological Risk Assessment, Fair Lawn, NJ, 2010 – 2013

Project manager responsible for the planning and execution of an ecological risk assessment and a human health risk assessment performed for the CERCLA site PRP committee. Project includes the development of strategic approaches to completing the risk assessments, interaction with the PRP committee, regulatory agencies, and the RI/FS consulting lead on technical issues. Evaluating surface soil, surface water, and sediment data collected by the RI/FS consulting lead for the preparation of a SLERA, as well as various components of the HHRA (MESA, PAR, and BRA). Primary pathway was evaluation surface water and sediments in Henderson Brook.

Technical Oversight
NiSource, NIPSCO Bailly Generating Station Ecological Risk Assessment; Chesterton, IN, 2009 – 2014

Provided Technical Oversight and peer review for the design and performance of a multi-year series of studies as a weight-of-evidence approach for an Ecological Risk Assessment (ERA). The ERA was used to determine whether historic releases of fly ash had impacted the wildlife and the unique wetland vegetation and amphibian populations in a National Park on the shore of Lake Michigan. The ERA included the collection of hundreds of groundwater, surface water, soil, sediment, and plant tissue samples.

Task Manager
Bank of America, White Swan CERCLA Ecological Risk Assessment Sea Girt, NJ, 2009 – 2012

Task Manager responsible for the completion of an ecological and human health risk assessment for the PRP, a major Fortune-100 financial institution. Primary concern was the discharge of contaminated groundwater into a series of coastal waterways and lakes. Oversaw the preparation of a SLERA which included a comprehensive ecological characterization of the area, collection of surface water and sediment samples, benthic invertebrate assessments, threatened/endangered species habitat characterization, and preparation of the documents for submittal to the USEPA. Primary pathway was migration of groundwater contamination into local streams (Judas Creek and Hannabrand Brook) and surface water features (Wreck Pond and Stockton Lake) contaminating both surface water and sediments. Other responsibilities include interaction with the PRP and the agencies on technical points.

Technical Support
Ecological Risk Assessment, Florida Canyon Mine Project, Winnemucca, NV; 2011

Technical ecological risk lead providing assessment support regarding wildlife impacts and plant bioaccumulation concerns associated with a proposed expansion to a cyanide heap leach open pit gold mine. Support to date has included technical review of all documentation regarding current onsite ecological conditions and chemical sampling data in advance of final discussions between the client and the Bureau of Land Management.

Task Manager
Centredale Manor CERCLA Site Ecological Risk Assessment, North Providence, RI, 2008 – 2009

Task manager responsible for providing ecological evaluation support on this CERCLA site located on the Woonasquatucket River in northern Rhode Island. The objective of the support was the preparation of a report evaluating potential remedial options proposed for the site and placing them in context of potential ecological damages and land-use concerns. The support entailed the detailed vegetative characterization of a portion of the project area, general wetlands and aquatic characterization of remaining segments of the site, evaluation of historic sediment and surface soil sampling data, and the development of recommendations as to the benefits and drawbacks of the various remedial options.

Project Manager
Phelps Dodge, Newtown Creek Ecological Risk Assessments Brooklyn, NY, 2006 – 2008

Provided ecological risk assessment and natural resource damage support to a mining company with a former facility located adjacent to Newtown Creek. Support services included providing strategic guidance to the client and to the environmental consulting firm responsible for the remedial investigation/feasibility study on the implementation of a sampling program for sediments within the Creek and the analyses of collected information. Assisted with the development of regulatory submittals and provided comments and guidance on legal briefs developed by counsel for the responsible party. Evaluated data from sediment evaluations of sediments in the waterbody and evaluation of the ecological risk associated with the contaminants of concern.

Task Manager
Phelps Dodge, Orphan Mine Site Ecological Risk Assessment, Grand Canyon, AZ, 2005 – 2007

Task manager for the preparation and implementation of an ecological risk assessment being planned for a former mine site located adjacent to the Grand Canyon. Constituents of concern include several metals and various radionuclides. Assisting with negotiations with the U.S. National Park Service regarding

Conceptual Site Models and lists of preliminary Constituents of Concern. Prepared Ecological Risk Assessment Work Plans for two operable units onsite.

Project Manager
Confidential Oil Company, King Ranch Project Ecological Risk Assessment, Kingsville, TX, 2003 – 2008

Project manager for the completion of an ecological risk assessment for an ephemeral stream approximately 3 miles in length for a major oil company located in South Texas. Project included the collection of surface water, sediment and surface soil samples that were analyzed for chromium and the completion of a Screening Level Ecological Risk Assessment under Texas ecological risk guidelines. Activities also included the characterization of plant communities along the length of the stream and benthic invertebrate communities within the aquatic system. Providing strategic and technical guidance to the client on the ecological ramifications of the chromium results in negotiations with the landowner.

Task Manager
General Motor, Former Automotive Assembly Plant, Sediment Evaluation, Tarrytown, NY, 2003 – 2004

Task manager responsible for the planning and implementation of a sediment evaluation project for a former automotive assembly plant located in Tarrytown, NY. Responsibilities included the evaluation of historic sediment data from the site and the design of a comprehensive sediment sampling program to address data gaps. Additionally, oversaw the implementation of the sampling program and the presentation of the collected data.

Project Manager
Confidential Oil Company, Ecological Risk Assessment, Oil Terminal, Charleston, SC, 2001 – 2017

In support of a major oil company, conducting an ecological risk assessment for a fuel oil terminal located in Charleston, South Carolina on the Cooper River. Evaluating the potential for ecological risks to terrestrial and wetland receptors, including an extensive coastal marsh. Activities have included detailed biological characterization of the site; providing advice on the collection of surface water, sediment, and surface soil samples; evaluation of data; interaction with the client, property owner and USEPA Region IV; and preparation of submittals. Work products have included the preparation of a SLERA and a Revised SLERA. Have prepared a BERA to examine both onsite and off-site concerns, including the coastal marshes, and working to develop additional sampling activities in order to revise the BERA.

Task Manager
Avery Dennison, Ecological Risk Assessment, New Windsor, NY, 2001

As part of a comprehensive Site Investigation, Remedial Investigation, a Remedial Alternatives Analysis, Human Health Exposure Assessment, and Remedial Action Work Plan under a Voluntary Cleanup Agreement with NYSDEC (completed in 1999), evaluated the potential impact from the discharge of groundwater contaminated with volatile organic compounds (VOC) into a forested/emergent wetlands adjacent to the site. Activities included the delineation of wetlands, functional assessment of the wetlands, biological evaluation of the wetlands, collection of shallow sediment and groundwater for VOC analysis, and the ecological evaluation of that data. The results definitively indicated that there was a distinct biotransformation of the VOCs coming into the wetlands from toxic TCA and TCE, into non-toxic breakdown products.

Project Manager
Sauget Area 2 CERCLA Site PRP Committee, Ecological Risk Assessment, Sauget, IL, 2001 – 2009

Project manager responsible for the planning and execution of a large-scale ecological risk assessment on behalf of a multi-company PRP group. Ecological risk assessment includes the evaluation of potential ecological impacts to aquatic resources within 12,000 feet long section of the Mississippi River and to

terrestrial receptors in adjoining floodplain areas. Project began with the development of work plans, followed by terrestrial sampling (soil sampling, earthworm bioassay sampling, plant tissue collection and ecological description), and aquatic sampling. Aquatic sampling included the collection of surface water and sediment samples from discrete locations within the Mississippi River and analysis of those samples for chemical parameters and bioassay parameters. Other project activities include long-range planning and budgeting, interaction with the PRP committee at meetings and conference calls, and negotiations with regulatory agencies. Final Baseline Ecological Risk Assessment (BERA) was approved by USEPA Region V in 2009.

Project Manager
Commencement Bay CERCLA Site, Natural Resource Damage Claims, Tacoma, WA, 2000 – 2006

Served as expert witness in the settlement of natural resource claims at the Commencement Bay CERCLA site in the state of Washington, between the City of Tacoma and its insurance carrier. The City was seeking to be reimbursed for NRD settlement costs from its insurance carrier, which feels the reimbursement is unwarranted due to prior knowledge of the action that led to the claim. In support of the carrier, reviewing site related NRD documents, participated in depositions, and prepared trial presentation material.

Technical Support
BROS CERCLA Site, Ecological Risk Assessment, Bridgeport, NJ, 2000 – 2005

Provided technical support to the project team on the development of wetlands information regarding quality and type of wetlands found in the project area. Assisted with the development of ecological risk values and supported the development of wetlands restoration options in advance of remediation.

Project Manager
Ecological and Human Health Risk Assessment, Bethlehem Steel, Lackawanna Risk Assessment, Lackawanna, NY, 2000 - 2005

Project director for the completion of the human health and ecological risk assessment for this abandoned steel mill facility located in Lackawanna, New York. The ecological activities include the preparation of a detailed ecological risk assessment that was submitted to USEPA Region II. To support the completion of the ecological risk assessment and to address comments made by the agency on the draft assessment, conducted supplemental surface water and sediment sampling, macroinvertebrate community assessment, surface soil sampling, wetlands delineation and description of terrestrial biological communities.

Task Manager
Risk Assessment; Kerramerican Former Zinc Mine; Blue Hill, ME; 2000 - 2003

Managed the risk assessment activities (both ecological and human health) in support of a remedial investigation/feasibility study being conducted by the AMEC Mississauga, Ontario office. Conducted a screening level ecological risk assessment at a former zinc mine site in coastal Maine. Project included the detailed biological assessment of terrestrial, wetland and aquatic ecosystems along the two mile stretch of an upper order stream flowing past the mine site, the preparation of a WET functional evaluation of local wetlands, and the evaluation of surface water, sediment and biological samples.

Project Manager
Various Clients and Sites, Baseline Ecological Evaluations/Ecological Evaluations; NJ, 2000 – Present

Project director for the completion of over 150 Baseline Ecological Evaluations (BEEs) and Ecological Evaluations (EEs), performed in accordance with the New Jersey Department of Environmental Protection (NJDEP) *Technical Requirements for Site Remediation* (TRSR) and the *Ecological Evaluation Guidance Document* for sites managed both by Wood project managers and by other environmental consulting firms. Both BEE and EE evaluations are screening ecological risk assessments performed in a manner like the Federal SLERA process. Projects have assessed sites ranging in from simple gasoline service stations

to complicated industrial facilities that are hundreds of acres in size, and environmental settings from terrestrial uplands to freshwater swamps to coastal marshes. Every evaluation had a connection to a surface water body, ranging in size from upper order streams in the Valley/Mountain Region of northern New Jersey to major river systems such as the Delaware River, the Hackensack River, and the Raritan River. Surface water/sediment evaluations included such activities as chemical sampling, toxicity testing, and benthic invertebrate evaluations. In at least 20 instances, the findings of the BEEs/EEs have led to the performance of an ecological risk assessment, conducted in a manner identical to the Federal BERA process.

Environmental Permitting/NEPA Support/Wetlands Management

Task Manager
USCG; Craighill Channel Range Light Replacement, Maryland, 2021 – Present

Overseeing preparation of USACE Nationwide Permit applications and Maryland permit applications for the replacement of two aids to navigation. Permits include NWP 6 applications for the completion of geotechnical surveys in advance of the demolition of the existing aids. This will be followed by the preparation of an NWP1 application and associated Maryland permits for the demolition and construction of the new aids to navigation. Responsible for oversight of Section 106 clearance using a local speciality subcontractor.

Task Manager
USCG; Delaware Bay Navigational Light Replacement, Delaware, 2019 – Present

Overseeing preparation of USACE Nationwide Permit applications and Delaware State permit applications for the replacement of four aids to navigation. Permits include NWP6 applications for the completion of geotechnical surveys in advance of the demolition of the existing aids. That was followed by the preparation of an NWP1 application and associated Delaware Letter of Authorization for the demolition and construction of the new aids to navigation. Responsible for oversight of Section 106 clearance using a local speciality subcontractor.

Task Manager
Confidential Client; New Pier Development, Corpus Christi, TX; 2018 – 2020

Managed the development of a Section 404/Section 10 permit application for the construction of a new ship berth at the mouth of Corpus Christi Harbor. Developed the Section 404 application and prepared the NEPA Environmental Assessment.

Task Manager
Confidential Client; Pier 1 Replacement; Port Arthur, TX; 2018 – 2019

Developed a USACE Section 404 Permit and Section 10 permit application for a ship berth development**.** Managed all aspects development including pre-application meeting, application preparation and submission, response to public comments, and interaction with the USACE to resolve technical issues.

Technical Support
DC DOT, NEPA CATEX Development, Memorial Bridge Between Washington, D.C. and Arlington, VA, 2018 – 2019

Provided technical support for the development of a Categorical Exclusion document regarding the repair and expansion of the Theodore Roosevelt Memorial Bridge over the Potomac River. Provided guidance and writing support in the development of the document being prepared by Department of Transportation standards, as well as guidance and technical assistance on addressing stakeholder comments as well as permitting requirements.

Task Manager
USCG A/E Services for Site Evaluation and NEPA EA for Eastport Housing Project, ME, 2019 - 2020

Served as Environmental Task Manager for the Feasibility Study conducted for the siting of USCG housing. Responsible for completion of the wetland assessments, and Endangered Species Act consultation management, as well as completion of a cultural resource assessment conducted by Gray & Pape. Managed the development of the NEPA Environmental Assessment, including the resolution of multiple rounds of comments from residents and stakeholders.

Technical Support
USCG Sector Puget Sound, Programmatic Biological Evaluation, Oakland, CA. 2019

Provided Technical Review and Quality Control of a Programmatic Biological Evaluation of Waterways Actions for the USCG Sector Puget Sound.

Technical Support
USCG Station Mooring Ballast, Naval Base Point Loma (NBPL), Biological Assessment, San Diego, CA. 2018

Provided Technical Review and Quality Control of a Biological Assessment for maintenance dredging to be conducted at the USCG Station.

Project Manager
CSX Transportation, Environmental Permitting, Rail Bridge over Overpeck Creek, Ridgefield, NJ at MP QR-5.83, 2017 – 2018

Project Manager for the development for a post-emergency response permit to the USACE and NJDEP for the rail bridge over Overpeck Creek. CSX needed to implement emergency measures to ensure the stability of the bridge. Wood had previously supported CSX in evaluating the need to replace the bridge. After completion of the emergency work, Wood prepared appropriate notices for the USACE issuance of an NWP-3 (no PCN required), and a Waterfront Development Application and 401 Water Certification through the NJDEP.

Task Manager
Elk Street Development, Environmental Permitting, Buffalo River, Buffalo, NY, 2016 – 2018

In support of a local developer, provided permitting support for the installation of a sheetpile bulkhead wall extending about 1300 feet in length outboard of an existing concrete pier that will serve to control seepage of contaminated groundwater into the Buffalo River. Conducted two pre-application meetings with the USACE and the NYSDEC to discuss permitting approaches. Prepared and submitted a Joint Permitting Application to the regulatory agencies addressing a potential Nationwide Permit #38 Pre-Construction Notification through the USACE, and NY State Environmental Quality Review Act Documentation through the NYSDEC.

Project Manager
Risberg Gas Pipeline, EmKey Energy, Environmental Permitting, Pennsylvania to Ohio, 2016

In support of EmKey Energy, provided preliminary permitting support for the sighting and construction of a gas pipeline to be located running from northwest Pennsylvania to northeast Ohio. Responsible for development of initial constraints analysis mapping and strategic guidance relative to positioning of the pipeline. Conducted pre-application meetings with the Ohio EPA and the Pennsylvania DEP for the project and established permitting requirements though both agencies. Conducted a pre-application meeting with FERC to identify technical approaches required for the preparation of required FERC.

Permitting/NEPA Manager
USFWS, Edwin B. Forsythe National Wildlife Refuge, Marsh Restoration Project, Ocean and Monmouth Counties, NJ, 2015 – 2018

Design lead and permitting/NEPA manager for the implementation of a design/build project funded by the USFWS to address potential impacts to coastal marshes from sea level rise. Responsible for managing all aspects, including direction of subcontractors, of investigative programs to evaluate the health of the tidal marshes at 7 project areas, and assist with the design and implementation of construction projects to aid in the resiliency of the marshes. Responsible for overseeing the development of NEPA documentation to support the construction activities, as well as the required permits for the actions through the USACOE and NJDEP. Completed the EA for the pole removal project, including support of the USFWS at the Public Meeting during the comment period on the EA. As part of the NEPA process to address Section 106 Cultural Resource concerns, overseeing the documentation and mitigation of onsite cultural features eligible for listing on the National List of Historic Places. Permits obtained included separate Individual Permits for Dredging activities for three of the project areas, as well as Coastal General Permits through the NJDEP. Also obtained a Nationwide Permit #3 and a Coastal General Permit #24 for the installation of a drainage culvert to facilitate tidal flushing from one of the project areas.

Permitting/NEPA Manager
USFWS, Cape May National Wildlife Refuge, Marsh Restoration Project, Cape May County, NJ, 2015 – 2018

Design lead and permitting/NEPA manager for the implementation of a design/build project funded by the USFWS to address potential impacts to coastal marshes from sea level rise. Responsible for managing all aspects, including direction of subcontractors, of investigative programs to evaluate the health of the tidal marshes at 2 project areas, and assist with the design and implementation of construction projects to aid in the resiliency of the marshes. Additionally, responsible for overseeing the development of NEPA documentation to support the construction activities, as well as the required permits for the actions through the USACOE and NJDEP. Permits obtained included a Nationwide Permit #27 for each of the two project areas through the USACE and a Coastal Wetlands General Permit #24 through the NJDEP.

Permitting/NEPA Manager
USFWS, Edwin B. Forsythe National Wildlife Refuge, HQ Impoundment Project; Ocean and Monmouth Counties, NJ, 2015 – 2017

Permitting/NEPA manager for the implementation of a design/build project funded by the USFWS to repair damages to the HQ Impoundment system at the Refuge and to address potential impacts to associated coastal marshes from sea level rise. Assisting with management of all aspects of the project, including support of field investigations of hydrologic conditions, and coordination with all investigative and construction subcontractors. Managed the oversight of initial construction activities to install rip/rap over select segments of the Impoundment Dikes, as well as the oversight of management activities at three water control structures. Responsible for overseeing the development of NEPA documentation to support the construction activities, as well as the required permits for the actions through the USACOE and NJDEP. This included support of the USFWS at the Public Meeting during the comment period on the EA. Permits obtained included a Nationwide Permit #3 and a Nationwide Permit #13 through the USACE and a Waterfront Development Permit, a Coastal Wetlands General Permit #24, a Section 401 Water Quality Certification, and a Dam Safety Permit through the NJDEP.

Project Manager
USFWS, Edwin B. Forsythe National Wildlife Refuge, Westecunk Creek Barrier Removal Project, Ocean County, NJ, 2014 – 2016

Project manager for the implementation of a design/build project to remove an abandoned cranberry dam/barrier that is impeding the ability of downstream anadramous fish populations to move upstream. Managed all aspects of the development of the design for the barrier removal, as well as the oversight of the construction removal process, including the management of all subcontractors involved with the project. Oversaw the pre-design investigations to develop detailed topographic surveys of the site, including hydrologic studies to ensure that the removal of the barrier will not result in downstream flooding. Oversaw the development of the NEPA documentation to support the construction activities, including support of the USFWS at a public meeting during the comment period for the EA. Oversaw the survey of the site for potential endangered plant species potentially found in the area. Managed the development of NJDEP permits for the barrier removal, including the development of streambank restoration plans to be implemented following removal of the barrier. Permits included a Coastal General Permit #24 through the NJDEP. Following the completion of all construction activities, oversaw the completion of all punch list construction actions and the close-out of the project.

Task Manager
Department of Comment FirstNET PEIS; Northeast Region; 2014 – 2015

As part of a nationwide team working on the development of a Programmatic Environmental Impact Statement for the Department of Commerce, provided technical support in the develop of sections of the document pertaining to the Northeast Section of the United States (Maine, New Hampshire, Vermont, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, and the District of Columbia). Technical support was focused in the research and development of Affected Environment sections, specifically discussion of mammals, birds, reptiles, fish, insects, as well as threatened and/or endangered species and critical habitats.

Project Manager
CSX Transportation, Environmental Permitting, Rail Bridge over Popolopen Creek, Orange and Rockland Counties MP QR-42.41, 2014 – 2015

Project manager and principal permit writer for the submission of a permit application to the USACOE, New York District, and various state agencies for the rehabilitation of two bridge abutments at Popolopen Creek, a tributary of the Hudson River. Oversaw the collection of site-specific information required for the development of the permit application and prepared the various applications for submission. Permits included a Joint Permit Application for a USACOE NWP-3, NYSDEC 401WQC, NYSDEC Protection of Waters Permit, Coastal Zone Permit, and clearance through the Office of General Services under the State SEQRA process.

Project Manager
CSX Transportation, Environmental Permitting, Rail Bridge over QC385.80 Over Black Creek, Churchville, NY, 2014

Project Manager for initial permit management support related to the repair and of this bridge. Wood evaluated the proposed repair approaches and developed permitting matrices and strategic approaches. CSX decided to defund the project after the initial start-up.

Project Manager
Cranbury Brickyard Development, Wetlands Mitigation Construction Oversight/EOD Oversight, Cranbury, NJ, 2013 – 2016

Retained by a brownfield developer, Clarion Partners, to serve as owner's onsite engineering representative responsible for oversight of large wetlands mitigation construction activities. Interacted

with the remediation contractor and remediation consultant to verify the permit requirements for mitigation purposes were adhered to. Interacted with NJDEP personnel to ensure that their requirements for wetlands construction were met. Additionally, as the site had to be cleared of MEC material, contracted the placement and management of a full-time EOD tech onsite to verify that MEC clearance activities were conducted in accordance with the Work Plan for the project.

Project Manager
JMC Corporation, Wetlands Permitting/Restoration, Former Arsynco Site, Carlstadt, NJ, 2012 – 2015

Project manager for wetlands management support to Arsynco as part of a hazardous waste clean-up at a site located in the Hackensack Meadowlands. Oversaw the delineation of wetlands at the site and managed the development of both Freshwater and Coastal permits, including Tidelands Applications, as required under the NJ Freshwater Wetlands Protection Act and the Coastal Zone Management Rules. Additionally, oversaw the development of required USACOE permits for the action, as well as developed permit applications pursuant to the NJ Flood Hazard Rules. As part of a General Permit allowing for the intrusion into both freshwater and coastal wetlands to address hazardous waste clean-ups, oversaw the design of a wetlands mitigation program to restore both freshwater and coastal wetlands, as well as the riparian zone bordering an onsite stream. Worked with a local landscape firm to address planting schemes, developed a comprehensive mitigation program to account for restoration of hydrology, soil grading and management, planting implementation, and monitoring.

Project Manager
XTL Trucking, Wetlands Permitting, Newark, NJ, 2012 – 2013

Project manager for the development of permitting and site closure activities to support the construction of a vertical warehouse on top of an abandoned landfill. Activities included overseeing the wetlands delineation of the property, development of the NJDEP GP4 application, and interaction with local advocacy groups working to assist the development of the project.

Task Manager
PSE&G Salem & Hope Creek Generating Stations, Coastal Marsh Biological Survey, Salem County, NJ, 2012

Local project manager for the implementation of a anuran call surveys for green treefrog (*Hyla cinerea*), a species that previously did not occur within the state as part of the development of PSE&G's Early Site Permit (ESP) Application Project located in Lower Alloways Creek Township, New Jersey. The project location was in the coastal marshes adjacent to the Delaware River in Southern New Jersey, as well as adjacent floodplain creeks and ponds. The survey included multiple night surveys using the identification of call to determine the presence of the species. The surveys confirmed the presence of green treefrog at numerous locations in Salem and Cumberland Counties. The presence of other anuran species was also recorded.

Technical Support
Environmental Assessment; Shore Gold, Star Diamond Mine Project, Saskatchewan, CN; 2011 – 2013

Provided technical support for the development of an environmental assessment as to whether a large natural wetland could serve as a constructed wetland for stormwater polishing to remove metals from runoff at the mine. Support included reviewing literature to assess the precedent for using a natural wetland in such a manner, examining the physical/chemical properties of the wetland to evaluate its potential to remove metals, and an assessment of the potential for removal efficiencies for specific metals. Assisted the engineers in planning for best management practices to address the removal efficiencies.

Project Manager
Syncarpha Bernards Township Landfill Solar Project, Environmental Permitting, Bernards Township, NJ, 2011 – 2012

Project manager for land use permitting activities required as part of the siting of a commercial size solar energy project on an old landfill. Activities including oversee the delineation of onsite wetlands, development of permit applications, and negotiations with the NJDEP to obtain the permits.

Project Manager
Environmental Permitting; Bayonne Energy Center, Bayonne, NJ, 2011
Project manager responsible for the New Jersey state-related resource permitting for the siting of a $400 million 512 megawatt (MW) electric power production facility that will feed electricity to New York City through an underwater transmission cable. The transmission cable was installed under New York Harbor. During cable installation, it was determined that a portion of the cable in New Jersey state waters had to be installed through excavation of the dredging corridor versus the anticipated jet plow technology. Project manager for the dredging component of the project. Oversaw the development of the dredging permit, as well as the dredge management plan. Management of the dredge material included excavation, stockpiling at a local material handling facility, then replacement at the site after installation of the cable.

Task Manager
Ultra Resources, Shale Gas Development, Wetland Permitting/JPA, Potter & Tioga Counties, PA, 2010 – 2012

Task manager responsible for the development of resource permit management activities associated with the placement of drill pads, access roads, and waterlines for gas development activities. Activities include the overall management of a program to delineate wetlands around all of these planned structures, identify sensitive environmental resources, resolution of threatened and/or endangered species issues, and the development of joint permit applications to both the PADEP and the USACOE. Project includes constant interaction with various client managers, as well as the PADEP regulatory staff.

Technical Support
NiSource, HCP Environmental Impact Statement, Nationwide; 2007 – 2008

Supported a gas pipeline company in the development of an environmental impact statement associated with the preparation and submission of an Endangered Species Action (ESA) Section 10 Incidental Take Permit (ITP) application and supporting Habitat Conservation Plan (HCP). NiSource prepared the ITP as part of a long-term resource management program to address ESA issues as part of maintenance at their entire 5,000+ mile transmission line corridor. The EIS for the HCP is required under NEPA. Mr. Harman was biological resources lead for the development of the EIS and was involved with the development of preliminary scoping and planning activities, including attendance at public meetings on the EIS scope.

Technical Support
Development of Alberta, Invasive Species Risk Assessment Tool, The Invasive Alien Species Working Group, Edmonton, Alberta, CN; 2007 - 2008

Working in support of the AMEC Edmonton, Alberta, Canada office, provided technical guidance and support on the development of a computer-based tool that would quantitatively assess the likelihood of adverse impacts from potential invasive species in Alberta. Those species included terrestrial plants and aquatic plants and invertebrates. Support included the review and assessment of the efficacy of other assessment tools, definition of the ecological risk perspective to be incorporated into the tool, the review and guidance on how the tool would be developed and work, evaluation of the results from various iterations, and presentation of the tool to various planning committees within the Provincial Government.

Project Manager
General Electric, Ecological Restoration, Rest of River Project, Housatonic River CERCLA Site, Pittsfield, MA, 2007 – 2008

Assisted the client with the development of a Corrective Measures Study Report for the Rest of River area of the Housatonic River CERCLA site downstream of Pittsfield. Responsibilities include providing input to the technical team regarding potential ecological impacts to the river and floodplain from various remedial alternatives and identifying potential restoration approaches to mitigating those impacts.

Project Manager
Gamesa, Onshore Wind Permitting, Somerset County, PA, 2006 – 2012

Project manager responsible for the development of required NPDES and Federal and State Wetlands permits for the siting of a 60-megawatt wind project located in Western Pennsylvania. The project involves the installation of 30 Gamesa Eolica G87 series 2.0 MW turbines. Mr. Harman has overseen the identification and delineation of wetland associated with projected access roads, transmission line corridors, and turbine locations at this planned wind farm. Additionally, responsible for the assessment of the potential for impacts to threatened and endangered species identified by the Commonwealth of Pennsylvania and the U.S. Fish & Wildlife Service as possible at risk from the construction of the wind farm. T&E species of concern included five plant species, the Indiana bat, the eastern woodrat, and the timber rattlesnake.

Technical Support
AES Sparrows Point LNG, Third-Party EIS Support, Sparrows Point, MD, 2006 - 2009

Part of the Wood technical team assisted the AES Sparrows Point LNG, LLC, and Mid-Atlantic Express LLC to perform third-party services to the Federal Energy Regulatory Commission (FERC) regarding the Sparrows Point Project. AMEC (now Wood) was the third-party consultant to FERC for the preparation of a National Environmental Policy Act (NEPA) compliant documents (the Draft Environmental Impact Statement [DEIS] and the Final EIS) for LNG facilities and related pipelines. Specific responsibilities include the review and assessment of the Resource Reports related to Water Resources and preparation of those segments of the EIS in accordance with the 2002 FERC Guidance Manual for Environmental Report Preparation

Task Manager
Shell Wind, Onshore Wind Permitting, Terrestrial Wind Farm, Grant County, WV, 2005 – 2006

Task manager for the identification and delineation of wetland associated with projected access roads, transmission line corridors, and turbine locations at this planned wind farm located in West Virginia. Activities included reconnaissance visits to identify project wetland areas, coordination of wetland delineation activities, preparation of Jurisdictional Determination applications to the U.S. Corps of Engineers, and strategic planning with the client regarding approaches to wetlands permit and alignment of roads, corridors, and turbines.

Task Manager
New Jersey National Guard, Statewide Delineation Program, 2005 – 2006

Task manager for the delineation of wetlands at 23 National Guard Armories scattered across New Jersey. Project included the delineation of onsite wetlands at each of the facilities; the development of GPS based maps identifying wetlands boundaries for each location; the development of an information package for the Guard regarding the characteristics of the wetlands, the location of the wetlands, and their soil, vegetation, and hydrologic characteristics; and an application to the NJDEP requesting confirmation of the wetland lines.

Technical Oversight
Amtrak, Connecticut River Moveable Railroad Bridge Project/Thames River Moveable Railroad Bridge Project, Environmental Permitting, Old Lyme and Old Saybrook, Connecticut, 2005
Oversaw the development of permit applications for the proposed replacement of submarine communication and signal cables spanning the lower Connecticut River between Old Lyme and Old Saybrook and spanning the Thames River between Groton and New London. Permits were obtained from the Connecticut Department of Energy and Environmental Protection (CT DEEP) Office of Long Island Sound Programs (OLISP).

Technical Oversight
NC National Guard, Wetlands Management Program, Camp Butner, Raleigh, NC, 2004

Provided peer-review support and technical guidance on project to delineate/identify all the wetlands located on this 1,000-acre National Guard facility. Activities included site reconnaissance to identify wetland areas and provide guidance to technical staff on delineation techniques.

Task Manager
US Army, Hanover Lake Dam Rehabilitation Project, Wetlands Management, Fort Dix Military Reservation, NJ, 2003 – 2009

As part of the rehabilitation of a dam conducted in conjunction with the remediation of an adjacent floodplain wetlands, provided wetlands permitting, wetlands mitigation, and NEPA environmental assessment support. Dam had to be repaired to strengthen it and eliminate seeps in its face. The downstream wetlands had been contaminated by lead shot from firing range spoils. Delineated all wetlands at the Hanover Lake Dam restoration site as part of the EA and permitting development phase. Prepared permit applications for dam rehabilitation and floodplain restoration under both NJDEP (GP4 and GP8) and Pinelands regulations. Assisted with the preparation of the EA. Identified components required for wetlands mitigation approach, prepared the conceptual wetlands mitigation scope, and oversaw the preparation of the detailed wetlands mitigation plans and specifications. Oversaw the subcontractor excavation and restoration of the floodplain. Conducted a 5-year monitoring program of the restored wetlands.

Task Manager
US Army, Biological Assessment, Fort Dix Military Reservation, NJ, 2003

Prepared a biological assessment (BA) for the use of graphite containing smoke obscurants on four firing ranges on base. The BA evaluated the potential for short-term and long-term effects to sensitive receptors from exposure to graphite and fog oil. The BA was prepared based on an evaluation of current literature on the use of the material, a scientific review of the sensitivities of wildlife and plants to the materials, and an estimation of potential exposure patterns.

Technical Support
Jackson Ceramix CERCLA Site, Wetlands Delineation, Jefferson County, PA; 2001 – 2003

As part of a remedial investigation, delineated and evaluated the wetlands that are to be addressed in Operable Unit 2. Additionally, provided conceptual wetlands restoration design support to the Project Engineer.

Technical Support
Honeywell, Inc., Wetlands Delineation and Permitting, Perth Amboy, NJ; 2001 – 2002

As part of a remedial action being planned for a chromium residue site adjacent to Newark Bay, prepared a comprehensive wetlands permitting package for State freshwater and coastal wetlands, State waterfront development, and Federal Nationwide Permit 26. Additional, supervised the preparation of a soil erosion and sediment control plan for the planned activities at the site.

Technical Support
US Army, Wetlands Delineation, Fort Dix Military Reservation, NJ, 2001

Delineated wetlands at the Pemberton parcel as part of the preparation of an Environmental Assessments (EAs). Wetlands were delineated using the 1989 Interagency Manual. Detailed delineation reports were prepared as part of the EAs.

Project Manager
General Electric, Ecological Restoration, First ½ Mile Restoration; and Mile and ½ Restoration, Pittsfield, MA, 2000 – 2015

Developed stream bank restoration plans for the First ½ Mile segment of the Houstatonic River in advance of the excavation of floodplain soil and sediments. Following excavation of the soils and sediments from the streambank, the area was graded, stabilized to prevent future erosion, and replanted to the extent necessary to restore the vegetative community to its pre-excavation habitat value. Providing monitoring support to determine whether the streambank restoration activities are successful. Following the completion of the First ½ Mile segment, the USEPA used these restoration plans for the next Mile and ½ segment of the river. Following completion of the Mile and ½, the responsible party assumed control of the river restoration. Project manager for the implementation of a stream bank monitoring program for the restoration.

Project Manager
Sayreville Landfill III NPL Site, Wetlands Management, Sayreville, NJ, 2000 – 2002

Project manager for the oversight of RD/RA activities, including the management of wetlands issues at an abandoned landfill that is almost surrounded by wetlands. Support was provided to the PRP Committee, including ExxonMobil, Rutgers-Nease, and Rhone-Poulenc. As part of the wetlands management process, delineated the wetlands around the 32-acre landfill, developed and obtained all state and Federal wetland permits, and prepared detailed wetland mitigation plans for compensatory mitigation because of landfill capping. After completion of the wetlands mitigation project, oversaw the performance of wetlands monitoring by the onsite remediation contractor.

Offshore Wind

Project Director
Confidential Client, Onshore Infrastructure Development, Northeastern United States, 2019 – Present

Project director and client manager for support to an offshore wind developer for four projects located in New Jersey, New York, and Rhode Island. Support includes the design and construction of port facilities to be used to support either operations and maintenance activities for proposed OSW facilities or fabrication facilities to support OWS construction. Responsible for the timely and efficient execution of the project plans, ensuring the attention of individual project managers on cost effective project delivery of the facilities. Overseeing the various activities associated with project development including environmental studies, feasibility studies, permitting, engineering and architectural designs, development of bid documents, and construction oversight.

Task Manager
Confidential Client; Merit Order Study, Northeastern United States, 2019 – 2020

Supported the development of a merit order study for a confidential offshore wind developer in the NE looking at the potential development expenditures (Devex), possible capital expenditure (Capex), theoretical operational expenditures (Opex) and theoretical abandonment expenditures (Abex) for the Atlantic Shores Offshore Wind Project and other nearby prospective offshore wind projects that will be competing for future offshore renewable energy certificates and power solicitations. Mr. Harman's focus

was on the examination of regulatory requirements and impediments associated with the proposed OSW project.

Task Manager
Confidential Client, U.S. Wind Due Diligence Project, Delaware, 2019

Supported a Due Diligence project wherein an offshore wind developer was considering the purchase of the U.S. Wind project off the coast of Delaware. Responsible for examination of the Construction Operations Plan and the proposed Federal and State permitting approaches to provide opinions on the adequacy, technical approach, and time schedule of their development. Provided a summary of the findings which was included in the Due Diligence report to the client.

Task Manager
Confidential Client, Cable Feasibility Study; New York State, 2019

Provided environmental input into a feasibility study of the subsea cable run from the proposed Empire Offshore Wind Farm to the onshore substation in Brooklyn, New York. Evaluated the cable run from a standpoint of permitting requirements and concerns, and potential areas of interest that might impede the placement of the cable.

Task Manager
Avangrid Renewables/Copenhagen Infrastructure Partners, Independent Engineer, Vineyard Wind Offshore Wind Farm; Massachusetts, 2018 – 2020

Providing independent due diligence services for the Vineyard Wind project. Responsible for the review and analysis of all permitting and sighting aspects of the project, including the COP, NMFS IHA, Coastal Zone Management Issues, Federal, State, and local permits. Provided input into the Final Due Diligence Report for the bank and tax equity process.

Task Manager
Ocean Tech Services/NYSERDA, Meteorological Buoy Permitting Hudson North and Hudson South; 2018 – 2019

Working for a small ocean monitoring firm under contract to NYSERDA, oversaw the development of Nationwide Permit Applications for two meteorological buoys, one placed approximately 17 miles south of Long Island, NY, and one placed approximately 15 miles east of coastal New Jersey, for the purpose of collecting metocean data to be used in support of future offshore wind farms. The permits were approved, and the buoys were deployed.

Project Director
PSEG, Owners Engineer, Ocean Wind Offshore Wind Farm; New Jersey, 2018 – Present

Project Director supporting the technical review and analysis of all specifications and permitting for the Ocean Wind Offshore Wind Farm.

Task Manager
EDP, Due Diligence Support, Northeastern United States, 2018

Supported a due diligence project for EDP regarding the potential purchase of a third-party offshore wind developer in the United States. Support included a review of the various regulatory instruments for the entire OSW portfolio of the third-party developer. Reviewed draft and final Construction Operations Plans, permit applications, and associated correspondence and reports associated with the regulatory components of the projects within the portfolio. Reported the findings in a risk matrix prepared for EDP indicating the relative levels of project purchase risk associated with the reviewed information.

Project Director
PSEG, Owners Engineer, Garden State Offshore Wind Farm, New Jersey, 2018

Project Director supporting the technical review and analysis of all specifications and permitting for the Ocean Wind Offshore Wind Farm. Oversaw the analysis of technical details and permitting applications for the project in support of PSEG in their teaming with Deepwater Wind. Assisted with preliminary development of an application to the New Jersey Board of Public Utilities for an OREC application.

Project Director
Atlantic Shores Offshore Wind Farm, Preliminary Permitting Support, NJ; 2018 – 2019

Project Director supporting the development of preliminary siting information of the proposed Atlantic Shores Offshore Wind farm located in the NJ Wind Energy Area. Prepared a Critical Issues Analysis identifying the potential siting flaws with the project. Prepared a point of interconnect evaluation to identify potential flaws and issues with project cable landfall routes. Supported the development of the New Jersey Board of Public Utilities OREC application including the development of an Environmental Protection Plan, a permitting plan, and an air emissions consistency evaluation.

Project Director
Nautilus Offshore Wind Farm, Permitting Support, Atlantic City, NJ, 2017 – 2019

With the purchase of the Fishermen's Energy project by EDF-RE, Project Director for the permitting support for the Nautilus project including the renaming and re-permitting of the proposed off-shore wind farm. Supported the modification to the Federal and State permits to allow for the change in the project from 6 3-mw turbines to 3 9-mw turbines. Oversaw the development of responses to stakeholder concerns with the potential for impacts to protected species. Assisted with the development of the OREC application to the NJ Board of Public Utilities for the project, including the development of the Environmental Protection Plan.

Project Manager
Fishermen's Energy, Offshore Wind Siting and Permitting, Atlantic City, NJ, 2011 – 2017

Project Director and manager for the permitting and environmental aspects of a proposed offshore wind farm. Present configuration is for the placement of a 6-turbine wind farm in state waters to be located approximately 2.8 miles off Atlantic City, New Jersey in 30 feet of water. Wood managed the permitting and siting requirements for this project through the U.S. Army Corps of Engineers and the N.J. Department of Environmental Protection. Permits included an Individual Permit and a Section 10 authorization through the USACE, and a Waterfront Development Permit and a CAFRA permit through the NJDEP. Additionally, Wood managed the 404-permit process for the placement of meteorological measurement buoys both at the near shore wind farm location, and a location in BOEM managed waters for future Federal permitted wind farms. Wood has obtained NWP-5 and NWP-6 permits for buoy placement and off-shore subfloor investigation, NWP-5 permits for the placement of the buoy in state waters and Federal waters, an NWP-5 permit for potential placement of an ancillary buoy located in Cape May, NJ, and a NWP-5 permit for placement of a met buoy at the near shore site. Oversaw the development of a NEPA EA for the Department of Energy relative to their grant funding of the project.

General Environmental Consulting Support

Technical Support
Qualitative Environmental Risk Assessment, Repsol, World-Wide; 2019 – 2020

Supported Wood's Milan, Italy office in the development of a QEA document for Repsol. The objective of the document was to provide Repsol's operating facilities with a guideline for assessing the immediate environmental concerns and technical responses to a future spill or release from the facility. Responsibility included development and preparation of monetary estimations of releases based on natural resource damage claim principles.

Project Manager
Due Diligence; Argo Infrastructure Partners; Environmental/Engineering Due Diligence, NJ/PA; 2017

Managed a due diligence project evaluating the potential liabilities associated with a multi-million dollar investment into water treatment and purveyor systems in New Jersey and Pennsylvania. Support included management of water resource engineers who completed the physical evaluation of the plants, and oversight and technical review of the engineer's due diligence report characterizing the findings of the study.

Project Manager
Environmental Assessment; Chemrisk, Tire Wear Particle Investigation, Los Angeles, CA, 2014

In support of a small environmental consulting firm researching the effects of tire wear on the environment, Mr. Harman managed a project to collect data that was incorporated into research reports for a tire industrial consortium. The focus of this study was the collect of outdoor air monitoring data from industrial areas in the Los Angeles metropolitan area. Oversaw the development of study work plans, the implementation of the multi-location sampling program, the management of laboratory data, and the development of sampling reports that were provided to the ultimate client.

Task Manager
Environmental Due Diligence; Confidential Company, Gowanus Canal, Brooklyn, NY; 2012 – 2013

Provided technical support to a confidential client related to their efforts to avoid *de minimis* status at the Gowanus Canal CERCLA site. The client had purchased a company with corporate assets at the head of the canal and USEPA Region II proposed to include the company as a PRP over unsubstantiated claims of historic discharges into the Canal. Worked with the client to review sediment data and compare to historic chemicals used at the location; reviewed site information to estimate the potential for discharges from the building into the Canal through the local sewers; and helped identify and interview an old company official that was able to attest to chemical handling procedures at the facility. The USEPA ultimately decided against including the client as a PRP at the CERCLA site.

Project Manager
Environmental Assessment; Chemrisk; Tire Wear Particle Investigation, Multiple States; 2011

In support of a small environmental consulting firm researching the effects of tire wear on the environment, Mr. Harman managed a project to collect data that was incorporated into research reports for a tire industrial consortium. The focus of this study was the collect of outdoor air monitoring data and sediment data from several locations around the Chesapeake Bay area. Air monitoring samples for the presence of tire wear particles were collected from several locations near toll plazas on area highways, and sediment samples were collected from stream and rivers downstream from major road arteries of the area. Oversaw the development of study work plans, the implementation of the multi-location sampling program, the management of laboratory data, and the development of sampling reports that were provided to the ultimate client.

Project Director
Confidential Oil Company, Former Lail Property, Environmental Assessment; Paulsboro, NJ, 2000 – 2009

Project Director for the remedial investigation/ecological risk assessment for PCB-contaminated freshwater tidal sediments within open waters and wetland settings located in Paulsboro, New Jersey. Client is a major oil company. Responsible for overall technical approach to the project, quality oversight and client management. Project activities included: delineation of PCB-contaminated sediments material in tidal wetlands and mudflats through the collection of over 1000 surface water, sediment, groundwater,

vegetation, and biota samples. Oversaw the completion of a detailed fauna/flora survey and habitat characterization that will be used to support ecological restoration and mitigation activities. Directed the construction oversight and health/safety review of a one year Interim Remedial Action which resulted in the removal of approximately 40,000 cy of contaminated soil and sediment. Mr. Harman oversaw the preparation of a detailed fauna/flora survey and habitat characterization that was used to support ecological restoration and wetland mitigation activities. As part of the characterization, oversaw the detailed wetlands delineation and evaluation of all onsite wetlands. In advance of the implementation of the remedy, Mr. Harman oversaw the preparation of permit applications to the N.J. Department of Environmental Protection for a Statewide General Permit #4, and to the USACOE, for a Nationwide Wetlands Permit #38. Mr. Harman managed the development of conceptual and detailed wetland restoration plans, as well as construction specifications. Mr. Harman then oversaw the implementation of the restoration plans which included restoration of uplands, forested wetlands, and emergent marshes. Mr. Harman then managed the completion of two years of detailed monitoring activities including stem counts for survival, photographic surveys, maintenance of goose and deer fencing, and the analysis of soil samples for basic soil properties such as organic carbon and particle size.

Professional History

- Wood (2013 – Present)
- Amec, Amec Foster Wheeler (2000 – 2013)
- McLaren/Hart, Inc. (1987 – 2000)
- United States Navy (1977 - 1981)

EIA Specific Categories

Other Experience

- ***Wetlands Management; Chemsol NPL Site, NJ:*** Prior Firm Experience, developed and implemented a three-year plan to monitor the hydrologic regime of onsite wetlands to assess the potential for impacts from the construction of a groundwater pump and treat system. The program included verification of wetland delineation boundaries, vegetative characterization of the wetlands, installation of piezometers to monitor groundwater levels, and periodic monitoring of the piezometers. The monitoring program was included a baseline period prior to construction activities and concluded one year following the activation of the groundwater treatment system.
- ***Wetlands Management; CLTL NPL Site, NJ:*** Prior Firm Experience, implemented a multi-year study to evaluate the potential for impacts to the wetlands from the implementation of the groundwater pump and treat program. The impact study included the completion of a study using WET and groundwater modeling to predict the effects of the groundwater pump and treat system on the wetlands and a field evaluation to gather real-time data on potential impacts. The field study consisted of the establishment of 26 study areas both in wetlands at potential risk and in wetlands to serve as reference sites.
- ***Wetlands Management; Caldwell Trucking NPL Site, NJ:*** Prior Firm Experience, managed the evaluation of natural resource issues during the RD/RA stage of the project. At issue was whether a planned onsite groundwater pump and treat system would impact offsite wetlands. Activities included the delineation of off-site wetlands, the development of NJDEP wetlands permits, the development of a long-term monitoring program, and the evaluation of the biological integrity of a local stream.
- ***Ecological Risk Assessment; Juncos Landfill NPL Site, Juncos, PR***: Prior Firm Experience. Conducted an ecological risk assessment to assess the uptake and movement of mercury into the

food chain for the PRP Committee, which included Becton Dickinson and General Electric. This assessment included the collection of tissue samples from plants and domestic animals present onsite. Project was designed in response to Agency concerns that mercury at this abandoned municipal landfill was migrating into the environment and producing impacts to ecological receptors. Plant and animal tissues were analyzed for mercury and the resulting body burdens were evaluated. The results concluded that mercury was not being taken up in the food chain and did not pose any threat to residents.

- ***Ecological Risk Assessment; Island Chemical NPL Site, St. Croix, Virgin Islands:*** Prior Firm Experience. In support of Berlex, the primary PRP, conducted an ecological risk assessment to evaluate the potential for ecological impacts from the release of heavy metals into a drainage feature leading to a coastal mangrove swamp. NOAA identified the mangrove swamp during the remedial investigation as a trust resource and sampling measures were implemented in response to their concerns. The project included the collection of surface soil and sediment sample samples to characterize the distribution of site-related constituents. Additionally, a biological survey was conducted to identify potential ecological receptors. As project manager, was responsible for designing the evaluation program, collection of samples, and oversight of the preparation of the final report. USEPA accepted the results of the ERA with minimal comments.
- ***Ecological Risk Assessment; Bennington Landfill NPL Site, VT:*** Prior Firm Experience. Managed the ecological risk assessment of onsite and off-site wetlands assessment as part of the Remedial Investigation. Activities included the description of habitat types, delineation of all onsite wetlands, identification of endangered species and the qualitative appraisal of ecological impacts.

Training

- FERC Environmental Review and Compliance for Natural Gas Facilities Training; 2014
- Law Seminars International, Natural Resource Damages Litigation Workshop, 2014
- Law Seminars International, Natural Resource Damages Litigation Workshop, 2007
- Law Seminars International, Natural Resource Damages Litigation Workshop, 2005
- Hudson-Delaware Chapter SETAC Fall Workshop, Tools for Improved Natural Resource Damage Assessment, Habitat Enhancement and Environmental Restoration, 2005
- Nicholas School of the Environment and Earth Sciences, Duke University, Preparing and Documenting Environmental Impact Analyses, 2005
- Nicholas School of the Environment and Earth Sciences, Duke University, New Advances in Ecological Risk Assessment, 2004
- Cook College Continuing Education, Rutgers Univ., Natural Resource Damage Claims, 2004
- SETAC Short Course, Natural Resource Damage Assessment Cooperative Efforts, 2001
- Cook College Continuing Education, Rutgers Univ., Environmental and Ecological Risk Assessment, 2001
- Cook College Continuing Education, Rutgers Univ., Threatened and Endangered Species of Northern New Jersey, 2001
- Cook College Continuing Education, Rutgers Univ., Restoration of Native Woodlands, 1999
- American Society of Civil Engineers, Design & Operation of Constructed Wetlands for Wastewater Treatment, 1998
- Cook College Continuing Education, Rutgers Univ., Planning Hydrology for Wetlands Construction, 1997
- Cook College Continuing Education, Rutgers Univ., Identification of Grasses, Sedges, and Rushes, 1996
- Cook College Continuing Education, Rutgers Univ., Evaluation of Wetlands; 1996
- Cook College Continuing Education, Rutgers Univ., Wetland Vegetation Identification, 1995
- Cook College Continuing Education, Rutgers Univ., 1987 ACOE Delineation Refresher Course, 1995
- Cook College Continuing Education, Rutgers Univ., Hydric Soils, 1994

- Cook College Continuing Education, Rutgers Univ., Hydrology of Wetlands, 1994
- Cook College Continuing Education, Rutgers Univ., Wetland Construction Techniques, 1994
- Cook College Continuing Education, Rutgers Univ., NJ Freshwater Wetlands Permits, 1994
- Cook College Continuing Education, Rutgers Univ., Lake Management, 1993
- SETAC Short Course, Ecological Impact, Risk Assessments, & Cleanup Decisions at Hazardous Waste Sites, 1993
- Wetlands Mitigation and Restoration - Design, Installation and Evaluation Workshop; 1993
- Water Environment Federation/ATSDR, Ecological Risk Assessment Seminar, 1993
- SETAC Short Course, Ecological Risk Assessment, 1992
- Executive Enterprises, Minimizing and Resolving Natural Resource Damage Claims, 1992
- OSHA 8-hour Hazardous Waste Operations Supervisors Training; 1992
- REWAI Learning Center, Wetlands Delineation/Assessment Course, 1990
- OSHA 40-hour Health and Safety Training; 1987

Special Activities

2003 – Present: Course Instructor. Ecological Risk Assessments at Hazardous Waste Sites, Cook College Continuing Education Course, Rutgers University.

2016 - Present Course Instructor. Wetlands: Science, Regulation, and Management. Northwest Environmental Training Center. Course Taught on a Nationwide Basis.

2013 - Present: Course Instructor. Planning and Preparing Ecological Risk Assessments. Northwest Environmental Training Center. Course Taught on a Nationwide Basis.

2012 - Present: Named to the New Jersey Science Advisory Board Standing Committee on Ecological Process.

2010 – 2011: Lead stakeholder working with the NJDEP on the development of the Ecological Evaluation Guidance Document, which is the guidance document to be used by LSRPs in New Jersey for implementing ecological assessments at managed sites.

2007 – 2017: Internet Instructor for Lorman Education Services, National Telecommunications Seminars. Topics have included: Neglected and Underused Land Reuse; Wetland Restoration Best Practices; Ecological Restoration & Enhancements; Managing Wetland Buffers; and Restoring Native Ecosystems

2004 – 2011: Classroom Instructor, Lorman Education Services, Topics have included: Current Issues in Stormwater Management and Wetlands Regulations in New Jersey; Constructed Wetlands in New Jersey; and Administration and Enforcement of Wetlands in New York

2004 – 2009: Member Journal Editorial Board, Integrated Environmental Assessment and Management

2006: Lead Instructor. Ecologically Focused Remediation Strategies Short Course, 27th Annual Meeting of the Society of Environmental Toxicology and Chemistry, Montreal, Quebec, Canada.

Professional Associations

- Society of Wetland Scientists
- Association of State Wetland Managers
- Society of Ecological Restoration

Publications / Presentations

Publications

- Harman, C.R., Tsipoura, C.N, Ravit, E., and Pechmann, I. 2021. Vernal Pool: Review Of Mitigation Approaches Report. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Weis, J.J.; Harman, C.R.; Watson, E.; and Ravit, E. 2020. The Status and Future of Tidal Marshes In New Jersey Faced with Sea Level Rise. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Harman, C.R.; Ravit, E.; Cooke D., Tsipoura, C.N.; Bovitz, P. 2020. Evaluation of the Observed or Potential Impacts to Ocean Resources from Underwater Seismic Testing. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Harman, C.R., Bovitz, P.; Cooke, D; and Belton, T. 2019. Peer Review: New Jersey Division of Fish & Wildlife's Connecting Habitat Across New Jersey (CHANJ) Initiative. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Harman, C.R.; Bovitz, P; Tsipoura, C. N. 2018. Dredging: A Review of the Documented Impacts of Dredging on the Coastal Ecosystems Of New Jersey. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Bentivegna, C; Bovitz, P; Enache Enache, M.; Harman, C.R.; Hazen, R; Hoke, R.A.; Howson, U; Korn, L.; Qiu, Z.; Weinstein, M. 2014. Bayesian Inference: Application to Environmental Management and Decision-Making. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Bentivegna, C; Bovitz, P; DeVito, E.D.; Gallagher, M; Harman, C.R.; Hazen, R; Hoke, R.A.; Howson, U; Kennen, J; Lal, P; Luke, N; Qiu, Z.; Weinstein, M. 2012. Critical Habitat for Flora and Fauna in New Jersey: Revisiting the Definition. Final Report. Scientific Advisory Board - Ecological Processes Sub-Committee.
- Barnthouse, L., C. Harman, W. Landis, and L. Tannenbaum. 2006. Integrated Environmental Assessment and Management's Commitment to Scientific Discourse. Editorial, Integrated Environmental Assessment and Management, 2:3.
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