The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 1

List View

General Information | Contact | Default Values | Discount | Document Information | Clarification Request

Procurement Folder: 1810217
Procurement Type: Central Master Agreement
Vendor ID: VS0000050510
Legal Name: Spheros Environmental
Alias/DBA:
Total Bid: $0.00
Response Date: 11/11/2025
Response Time: 17:39
Responded By User ID: Spherosenv
First Name: Ghada
Last Name: Alajeely
Email: bidsourcing@spherosenvirc
Phone: 9494493997

SO Doc Code: CRFQ
SO Dept: 0313
SO Doc ID: DEP2600000013
Published Date: 11/5/25
Close Date: 11/12/25
Close Time: 13:30
Status: Closed
Solicitation Description: BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR
Total of Header Attachments: 1
Total of All Attachments: 1

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder:	1810217
Solicitation Description:	BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC
Proc Type:	Central Master Agreement

Solicitation Closes	Solicitation Response	Version
2025-11-12 13:30	SR 0313 ESR11112500000003079	1

VENDOR

VS0000050510
Spheros Environmental

Solicitation Number: CRFQ 0313 DEP2600000013

Total Bid: 0 **Response Date:** 2025-11-11 **Response Time:** 17:39:03

Comments:

FOR INFORMATION CONTACT THE BUYER
Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Sample Sorting and Identification to Genus Level	0.00000	EA	475.000000	0.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Sample Ident to Genus Level Only : Samples Pre-sorted	0.00000	HOUR	180.000000	0.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

Sample Identified to Genus Level Only : Samples Pre-sorted
Reference 2.2.1.1B in specifications

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Profession Staff Representation of Data in Legal	0.00000	HOUR	140.000000	0.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 2.2.1.5 in specifications

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Request for Quote
Laboratory

Proc Folder:	1810217	**Reason for Modification:**
Doc Description:	BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC	
Proc Type:	Central Master Agreement	

Date Issued	Solicitation Closes	Solicitation No	Version
2025-10-24	2025-11-12 13:30	CRFQ 0313 DEP2600000013	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:

Vendor Name :

Address : Spheros Environmental

Street : 1420 South Blaine St., Suite 14

City : Moscow

State : Idaho **Country :** USA **Zip : 83843**

Principal Contact : Megan Payne

Vendor Contact Phone: 208-882-2588 **Extension:**

FOR INFORMATION CONTACT THE BUYER
Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor Signature X Joseph Miller **FEIN#** 87-220788 **DATE** 11/11/25

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of The West Virginia Department of Environmental Protection to establish an open-end contract for the processing and identification of benthic macroinvertebrate samples collected from West Virginia waters per the attached specifications and terms and conditions.

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION		ENVIRONMENTAL PROTECTION	
DIV OF WASTE AND WATER MGT		DIVISION OF WATER AND WASTE MGT	
601 57TH ST SE		601 57TH ST SE	
CHARLESTON	WV	CHARLESTON	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Sample Sorting and Identification to Genus Level	0.00000	EA	475.00	

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:
SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION		ENVIRONMENTAL PROTECTION	
DIV OF WASTE AND WATER MGT		DIVISION OF WATER AND WASTE MGT	
601 57TH ST SE		601 57TH ST SE	
CHARLESTON	WV	CHARLESTON	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Sample Ident to Genus Level Only : Samples Pre-sorted	0.00000	HOUR	180.00	

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:
Sample Identified to Genus Level Only : Samples Pre-sorted

Reference 2.2.1.1B in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION		ENVIRONMENTAL PROTECTION	
DIV OF WASTE AND WATER MGT		DIVISION OF WATER AND WASTE MGT	
601 57TH ST SE		601 57TH ST SE	
CHARLESTON	WV	CHARLESTON	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Profession Staff Representation of Data in Legal	0.00000	HOUR	140.00	

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:
PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 2.2.1.5 in specifications

SCHEDULE OF EVENTS

Line	Event	Event Date

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Megan Payne Technical Sales

(Address) 1420 South Blaine St., Suite 1, Moscow, Idaho 83843

(Phone Number) / (Fax Number) 208-882-2588/ N/A

(email address) megan.payne@spherosenvironmental.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Spheros Environmental
(Company)

Joseph Miller
(Signature of Authorized Representative)

Joseph Miller 11/11/25
(Printed Name and Title of Authorized Representative) (Date)

5092644598 Joseph Miller
(Phone Number) (Fax Number)

jmiller@fourpeaksenv.com
(Email Address)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- [x] Addendum No. 1
- [ ] Addendum No. 2
- [ ] Addendum No. 3
- [ ] Addendum No. 4
- [ ] Addendum No. 5
- [ ] Addendum No. 6
- [ ] Addendum No. 7
- [ ] Addendum No. 8
- [ ] Addendum No. 9
- [ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Spheros Environmental
Company

Joseph Miller
Authorized Signature

11/11/25
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

EXHIBIT B
PURCHASE OF PRICING PAGE

The following shall be provided according to the contract terms and conditions contained herein. Price must be provided for all the following in whole. Please note these are estimated quantities and do not reflect any guarantee of purchase. WVDEP may purchase more or less as needed.

Item	Description	Estimated Quantity	Unit Price	Total Cost/Extended Price
1.	Sorting and identification of a 200 organism subsample to Genus level; Cost must include travel costs for sample pickup and return of sample materials (Voucher and Reference specimens) to WVDEP per unit	**400**	$475.00	$190,000.00
2.	Identification of a pre-sorted 200 organism subsample to Genus level; WVDEP will cover expense of delivery for pre-sorted samples to vendor; Vendor will cover expense of return for sample materials (Voucher and Reference Specimens) to WVDEP per unit	**200**	$180.00	$36,000.00
3.	Cost/Hour for professional staff representation of sorting and identification in legal/administrative setting	**2**	$140.00	$280.00

SPHERES ENVIRONMENTAL

Ecological Taxonomy Laboratory

Benthic Macroinvertebrate Sample Processing and/or Identification

West Virgina Department of Environmental Protection

CRFQ 0313 DEP2300000013 Due Date:11/12/2025

PREPARED FOR:

State of West Virginia Purchasing Department
Josh Hager
2019 Washington Street
East Charleston, WV 25305
(304) 558-2306
josesph.e.hageriii@wv.gov

PREPARED BY:

Megan Payne
1420 South Blaine St., Suite 14
Moscow, Idaho 83843
(208) 882-2588
megan.payne@spherosenvironmental.com

STi Sonoma Technology
A SPHERES ENVIRONMENTAL COMPANY

LRE WATER
CONNECTING WATER TO LIFE
A SPHERES ENVIRONMENTAL COMPANY

northwater
WATER + GEOSCIENCE EXPERTS
A SPHERES ENVIRONMENTAL COMPANY

EcoANALYSTS
A SPHERES ENVIRONMENTAL COMPANY

TABLE OF CONTENTS

COVER LETTER

State of West Virginia Purchasing Department
Josh Hager
2019 Washington Street
East Charleston, WV 25305
(304) 558-2306
josesph.e.hageriii@wv.gov

RE: Benthic Macroinvertebrate Sample Processing and/or Identification

Dear Josh,

Spheros Environmental is pleased to propose to the State of West Virginia our capabilities and expertise for processing and taxonomic identification of benthic macroinvertebrate samples. With the acquisition of EcoAnalysts LLC in January 2025, Spheros has 30 years of lower trophic level aquatic taxonomic experience from freshwater systems across North America. Our staff provide the highest quality identifications according to the literature and requirements of the protocol.

With the proposal material below, Spheros Environmental hopes to show an understanding of the project requirements along with the ability to meet the sample pickup and data delivery schedule. Spheros Environmental will also support with the requested legal components of the contract as needed.

Thank you for your time and consideration.

Sincerely,

Megan Payne
1420 South Blaine St., Suite 14
Moscow, Idaho 83843
(208) 882-2588
megan.payne@spherosenvironmental.com

ABOUT SPHEROS ENVIRONMENTAL

Spheros Environmental integrates a diverse array of scientific disciplines, including air quality monitoring, water resources, digital technologies, climate services, permitting, and ecological sciences, to deliver scientifically robust and sustainable solutions to both private and public-sector clients nationwide.

Our interdisciplinary teams of environmental scientists, engineers, technicians, and researchers work collaboratively across the country, applying advanced methodologies and cutting-edge technologies to tackle the most pressing environmental challenges. From regulatory compliance and policy alignment to innovative scientific research, our solutions are designed to address both immediate and long-term environmental needs.

We specialize in a range of services, including ecological and natural resource consulting, environmental laboratory services, real-time air quality monitoring, climate adaptation strategies, and water management solutions. With a data-driven, evidence-based approach, we support clients in meeting regulatory requirements, mitigating environmental risks, and advancing sustainability goals.

At Spheros, we are committed to advancing environmental science and providing actionable insights that help our clients navigate complex environmental landscapes while ensuring measurable, positive impacts on the ecosystems and communities we serve.

STATEMENT OF WORK (OPTIONAL)

Spheros Environmental's aquatic taxonomy laboratory located in Moscow, Idaho, formally named EcoAnalysts, will be handling the processing and identification of the benthic macroinvertebrate samples under this contract.

Sorting and Identification to Genus Level

Benthic samples will be collected and prepared to ship by Spheros designated staff with hazardous shipping certifications. Chain-of-custodies will be maintained from initial receipt through samples return. Immediately upon receipt of benthic macroinvertebrate samples, all containers are inspected for damage or leakage. Sample labels are checked against chain of custody forms and/or packing slips and any discrepancies are noted. Receipt records are reported to the client within one business day of sample receipt. The chain of custody logs are reported, throughout the project, according to timelines and methods requested by the client. Samples are logged into the EcoAnalysts, Inc. custom LIMS database and assigned a unique sample tracking number.

A sample is checked out by a sorting technician via the LIMS. A sorting bench sheet is printed ~~that contains the EcoAnalysts sample identification information and sorting protocols. The samples will~~ and/or identification

be prepared for sorting by rinsing in a 595µm sieve to remove additional fine particles. Inorganic material may be removed through elutriation and inspected for organisms under a 10x magnifying lamp by the primary and secondary technician. The remaining organic material will be evenly distributed into a 100-grid caton tray for quantitative subsampling.

A grid is randomly selected, and its contents transferred to a Petri dish. The material in the Petri dish will be sorted under a 10X illuminated magnifying lamp. The individual organisms are counted as they are placed into vials containing 70% ethanol. Grids are selected until the target minimum of 200 (+/-20%) benthic organisms is reached, or the entire volume has been processed. 4 grids must be sorted at minimum. Samples containing more than 240 organisms at the end of sorting and QC will be subsampled.

Sorters are trained to pick and count only benthic macroinvertebrates, with heads, that were alive during sampling and contain the attributes required for taxonomic identification. Organisms picked are placed in specific vials that will go to specialized taxonomists who focus on that group. Specimens rejected according to EcoAnalysts' standard include terrestrials, zooplankton, exuviae, and any organism without a head. Bryozoa will be sorted. Vertebrates will be retained if encountered but will not count towards the target count.

Laser-printed labels containing the appropriate sample tracking information are placed in the vial(s). The total number of organisms removed, the number of grids sorted out of the total, the time spent sorting, and the final volume of the remaining sample volume are all recorded on the sorting bench sheet, as well as comments significant to the preparation, sorting, and/or condition of the sample.

At least 20% of each sample is re-sorted by a quality control technician, who did not originally sort the sample, to ensure at least 90% of the organisms have been removed. The QCs are performed by technicians who have shown to achieve 90% efficacy on a minimum of 90% of samples they process. QC technicians are trained in the QC process by the sorting lab manager. The QC technician QCs a minimum of 20% of the sorted material from a given sample to ensure at least 90% of the organisms have been removed.

A taxonomist selects a sample for identification via the LIMS and empties it into a Petri dish. Under a dissecting and/or compound microscope, the organisms are identified to genus level, while Oligochaetes, Turbellaria, and Hirudinea will be left at family and Nemertea, Nematoda, Hydroida, and Bryozoa will be left at higher taxonomic levels, for the project following WVDEP Water Quality Standards. The taxonomist enters each taxon directly into the project database using a unique taxonomic code (this is done while at the microscope). The number of individuals of each taxon is counted and entered into the database. As the sample is being identified, the taxonomist enters data directly into the LIMS database and user interface. Benthic invertebrates will be vouchered to genus or family.

A synoptic reference collection will be prepared, where at least one specimen (preferably 3-5 specimens) of each taxon encountered is placed into a 1-dram vial containing 70% ethanol and is

properly labeled with identity and sample number. Depending on the requirements of the project, one or several reference collections can be made. Also, organisms can be vouchered by a specified taxonomic level, i.e. vouchered by each taxon per sample.

Taxonomic precision is quantified by comparing whole-sample identifications completed by a second taxonomist who did not perform the primary identification. Accuracy of taxonomy is qualitatively evaluated through specification of target hierarchical levels (e.g., family, genus, or species) and the specification of appropriate technical taxonomic literature or other references (e.g., identification keys, voucher specimens). To calculate taxonomic precision for benthic macroinvertebrate samples, 10% of the samples are randomly selected for re-identification. Comparison of the results of whole sample re-identifications provides a Percent Taxonomic Disagreement (PTD) calculated as:

Equation 1. Percent Taxonomic Disagreement (PTD)

$$PTD = \left[1 - \left(\frac{comp_{pos}}{N}\right)\right] \times 100$$

where

$comp_{pos}$ = the number of agreements

N = the total number of individuals in the larger of the two counts.

The lower the PTD, the more similar taxonomic results are and the overall taxonomic precision is better. A Measurement Quality Objective (MQO) of ≤15% is will be followed for taxonomic differences. Individual samples exceeding 15% are examined for taxonomic areas of substantial disagreement, the reasons for disagreement investigated, and corrective measures taken where needed.

Sample enumeration is another component of taxonomic precision. Final specimen counts for samples are dependent on the taxonomist, not the rough counts obtained during the sorting activity. Comparison of counts is quantified by calculation of percent difference in enumeration (PDE), calculated as:

Equation 2. Percent Difference in Enumeration

$$PDE = \left(\frac{|Tax1 - Tax2|}{Tax1 + Tax2}\right) \times 100$$

An MQO of ≤10% will be followed. Individual samples exceeding 10% are examined to determine reasons for the exceedance.

MQO Evaluation

For samples exceeding these MQOs, corrective actions can include defining the taxa for which re-identification may be necessary (potentially even by a third party), for which samples (even outside of the 10% lot of QC samples) it is necessary, and where there may be issues of nomenclatural or enumeration problems.

Samples will be identified using the most appropriate technical literature that is accepted by the taxonomic discipline and reflects the accepted nomenclature. Where necessary, the Integrated Taxonomic Information System (ITIS, http://www.itis.usda.gov/) will be used to verify nomenclatural validity and spelling. A reference collection will be compiled as the samples are identified.

Data is directly entered into the LIMS database. Throughout the project and sample analysis, data entry is double checked for accuracy, and validated by the laboratory managers. The appropriate data are combined for each sample to obtain the sorting statistics and comprehensive taxa lists and counts.

Quality assurance data sheet checks are part of the sample validation process, and include scanning for apparent entry errors, measurement errors, omissions, and anomalies. Suspect data are flagged and/or excluded from use. Data may be presented in table, graph, and chart format. Unusual data are rechecked to verify their accuracy.

Data are delivered in an electronic format and will include pdf copies of the sorting bench sheets and Microsoft Excel files of the sorting, taxonomy, and quality control data. Excel spreadsheets will include the required client information.

Identification to Genus Level (samples pre-sorted)

Immediately upon receipt of benthic macroinvertebrate samples, all containers are inspected for damage or leakage. Sample labels are checked against chain of custody forms and/or packing slips and any discrepancies are noted. Receipt records are reported to the client within one business day of sample receipt. The chain of custody logs are reported, throughout the project, according to timelines and methods requested by the client. Samples are logged into the EcoAnalysts, Inc. custom LIMS database and assigned a unique sample tracking number.

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Data are delivered in an electronic format and will include pdf copies of the sorting bench sheets and Microsoft Excel files of the sorting, taxonomy, and quality control data. Excel spreadsheets will include the required client information.

Legal Support

Spheros Environmental will provide a professional staff representative to provide data validity as requested. Data verification will include, when Spheros was notified of sample shipment or collection completion, sample condition, sample preservation and maintenance, processing dates, and results. Paperwork, including chain-of-custodies and standard operating procedures, will also be supplied upon request. No testimonies will include data interpretation. There is no schedule set for legal support.

Schedule and Deliverables

Table 1. Proposed schedule

Sample Shipment Date	Data Delivery Date	Batch Delivery Schedule	Batch Data Requirements	Return to WVDEP
April 1	August 31	6 weeks	BMI identification in Excel Pdf of sorting bench sheets PSE, PDE, & PTD	Return sample jars regularly Return voucher collection Return reference collection
August 31	December 1	6 weeks	BMI identification in Excel Pdf of sorting bench sheets PSE, PDE, & PTD	Return sample jars regularly Return voucher collection Return reference collection
December 31	February 28	6 weeks	BMI identification in Excel Pdf of sorting bench sheets PSE, PDE, & PTD	Return sample jars regularly Return voucher collection Return reference collection

Technical Capabilities

Spheros has sufficient in-house staff to effectively analyze the samples required according to schedule. Training of Spheros' project staff, when needed, is done internally through assistance from project operations staff. All benthic macroinvertebrate taxonomists will hold appropriate Society for Freshwater Science (SFS, formerly North American Benthological Society) certification. Certifications are provided at the end of the proposal, and information is also available on the Society's Taxonomic Certification Program website: http://www.sfstcp.com/.

Table 1. Spheros Freshwater Benthic Taxonomists

Name	Education	SFS Certifications
Chip Barrett	PhD – Zoology; MS – Zoology; BA – Zoology	Oligochaeta, 2025
Stacey Rice-Marshall	MA – Entomology BS – Biology	Chironomidae NA 2023
Matt Hill	MS – Fishery Science; BS - Entomology	EPT East, 2025; EPT West, 2025; General Arthropods East, 2025; General Arthropods West, 2025; Oligochaeta, 2025
William Lavoie	MS - Zoology and Physiology; BS - Fish & Wildlife Resources	EPT East, 2021; EPT West, 2021; General Arthropods East, 2021; General Arthropods West, 2021; Chironomidae NA, 2021
Kristin Hall	BS – Environmental Science/Fisheries Resource	Chironomidae NA 2023
Anndrea Navesky	MS – Entomology; BS - Biology	EPT East, 2021; EPT West, 2021; General Arthropods East, 2021; General Arthropods West, 2021
John Pfeiffer	MS – Entomology; BS – Fisheries Resource Management	EPT East, 2021; EPT West, 2021; General Arthropods East, 2021; General Arthropods West, 2021
Laine Smith	MS – Forest Health; BS - Forestry	EPT East, 2023; EPT West, 2023; General Arthropod East, 2025, General Arthropod West, 2025
Gregory Wallace	BS - Wildlife Conservation & Management	Chironomidae NA, 2025; Oligochaeta, 2025
Laurie Flaherty	PhD- Environmental and Natural Resources; MS- Environmental Science; BS- Geology	Oligochaeta, 2023

Name	Education	SFS Certifications
Michael Reuscher	PhD- Marine Biology; DIPLOM (MS & BS combine)- Biology	Oligochaeta, 2023

Chip Barrett, Marine Polychaete & Freshwater Oligochaete Taxonomist - Dr. Barrett joined EcoAnalysts in 2011 as a marine polychaete taxonomist. His primary responsibilities include taxonomic identification of marine invertebrates, quality assurance on identified samples, and the development and growth of the internal marine identification standard operating procedures. Prior to EcoAnalysts, Dr. Barrett has worked extensively in the marine bioassessment field for 20 years, including instructing entry level biology courses at the University of Hawaii, providing research assistance to the Bishop Museum in Hawaii, and as a Benthic invertebrate specialist for the Martin Ryan Institute of Galway, Ireland.

Matt Hill, Benthic and Oligochaete Taxonomist - Mr. Hill joined EcoAnalysts in 2005. His primary duties include performing original and QC identifications for general, oligochaete, and zooplankton (microcrustacea and rotifer) samples from freshwater, estuarine, and marine sites. He has also conducted field work for macroinvertebrate and planktonic collection. In addition to his laboratory and field work, Mr. Hill has also been active in employee development. He has conducted multiple courses (both internally and externally) for the subsampling and identification of oligochaetes. Mr. Hill is a certified taxonomist with the Society for Freshwater Science (formerly NABS) in EPT-East and West and is also a SCAMIT qualified taxonomist. Mr. Hill's professional experience includes performing taxonomic analyses for tribal and US government entities. Mr. Hill participated in the 2010 USEPA Rivers and Streams Assessment, the 2009 and 2014 USEPA National Lakes Assessment, the ongoing Kootenai River Field Sampling and Bioassessment for the Kootenai Tribe initiated in 2002, and the Colville Confederated Tribes' Columbia River Reservoir Morphometrics, Food Web, and Rainbow Trout Fishery Study.

William J. LaVoie, Fisheries Ecologist/Invertebrate Taxonomist and Macroinvertebrate Project Lead- Mr. LaVoie joined EcoAnalysts in 2009 as a general taxonomist. He brought with him expertise in aquatic macroinvertebrate taxonomy, salmonid ecology, hydroelectric facilities, fish passage, stream habitat assessment, fish population assessment, periphyton taxonomy, ESA/NEPA documentation (BA, EA, EIS), habitat conservation plans, impact assessments, and watershed planning. His professional experience is split between taxonomic identification and enumeration of aquatic macroinvertebrates, fisheries biology and ichthyoplankton taxonomy, and non-diatom periphyton. He is certified by the Society of Freshwater Sciences (formerly NABS) in EPT-East and West and General Arthropods-East and West.

In addition to five years of experience in environmental consulting, Mr. LaVoie completed seven years of fish passage and transportation related research on the Lower Snake and Columbia Rivers. Mr. LaVoie

has experience as a taxonomy project coordinator overseeing taxonomic protocols, quality control, and data review. Mr. LaVoie has experience writing technical and non-technical proposals, budgets, reports, presenting proposals and research findings, design and construction of research equipment, and considerable field experience. Previously a lead invertebrate and non-diatom periphyton taxonomist with Rhithron Associates, Mr. LaVoie also supervised a wet laboratory and the collection/storage of fish blood and tissue samples. Mr. LaVoie has published numerous unlisted technical reports and six peer-reviewed fisheries research publications. He has also served as a peer-reviewer for two professional journals and served a term as co-chair of the American Fisheries Society Public Visibility Committee.

Anndrea Navesky, Lead Freshwater Taxonomist - Anndrea has been with EcoAnalysts since 2012 and has been working in aquatic ecology and identifying aquatic macroinvertebrates for 8 years. Her primary duties at EcoAnalysts are to identify aquatic invertebrates, apart from chironomidae and zooplankton, to the taxonomic level specified by client, usually genus and, to a lesser degree, species. ID macroinvertebrates from regions across the continental US including NW, SW, Mid-West, Southern, SE, NE, Northern as far as Alaska and Canada, and even Hawaii. Anndrea has identified specimens from water bodies including but not limited to streams, lakes, wetlands, and mashes. She has SFS certifications for both eastern and western EPT genera along with eastern and western arthropods.

John J. Pfeiffer, Aquatic Ecologist/Senior Taxonomist - Mr. Pfeiffer has been working in aquatic ecology and identifying aquatic macroinvertebrates for over 20 years, 12 years of which have been at EcoAnalysts. His primary duties at EcoAnalysts are: identification of freshwater and marine aquatic macroinvertebrates, supervising and training of taxonomic staff, taxonomic literature research and implementation of taxonomic quality assurance procedures. Mr. Pfeiffer is certified by the Society for Freshwater Science (formerly NABS) in EPT-East and West; and General Arthropods-East and West. Prior to joining EcoAnalysts, Mr. Pfeiffer completed his graduate studies at the University of Idaho where he developed a preliminary bioassessment protocol for mid-order streams in the Palouse Region of Idaho. Concurrent with his studies, he worked part-time for a natural resource consulting company where he was responsible for taxonomy lab supervision and project QA/QC.

Gregory Wallace, Chironomid Taxonomist - Greg joined EcoAnalysts in 2008 as a Chironomid Taxonomist. Before joining EcoAnalysts, Greg worked fifteen years for the University of Missouri as a Research Technician in the Department of Fisheries and Wildlife. His responsibilities at the university included a variety of aspects of stream ecology research, primarily collection, laboratory processing and taxonomic identification of aquatic invertebrate samples for projects related to aquatic biomonitoring of Missouri streams. Greg's experience includes collecting and identifying aquatic invertebrates for the Biological Criteria of Missouri Streams project which helped establish biological criteria currently utilized by the Biological Monitoring Unit of Missouri Department of Natural Resources. He utilized MO DNR's semi-quantitative macroinvertebrate sample collection and laboratory processing protocols on subsequent projects and trained a series of co-workers in use of the procedures. Other responsibilities included stream habitat assessment, field reconnaissance of potential study sites, overseeing daily operations of an aquatic laboratory, fish sampling, and contributing to study reports and scientific manuscripts. Greg also worked five years for the Missouri Department of Conservation in the Resource—

Science Division identifying aquatic invertebrates for the Resource Assessment and Monitoring Program.

Kristin Hall, Chironomid Taxonomist - Ms. Hall joined EcoAnalysts in 2019 as a sorting and field technician and was promoted to chironomid taxonomist in 2022. Ms. Hall obtained her SFS chironomid identification certification in 2023. Ms. Hall obtained her bachelor's degree in environmental science from the University of Idaho. While pursuing her degree, she worked in several labs on-campus where she gained both lab and field experience sorting and identifying macroinvertebrate samples. Ms. Hall went on several research trips to the Frank Church Wilderness where she collected and identified macroinvertebrate samples in the mainstem and tributaries of the Middle Fork of the Salmon River. She also worked as a fisheries field technician where she collected macroinvertebrate samples using drift nets and HESS Samplers in the Lapwai Creek Watershed.

Laine Smith, Freshwater General Taxonomist - Mr. Smith joined EcoAnalysts in 2017 as a laboratory and field technician and is currently serving the company as a freshwater taxonomist and a field crew member. Prior to working at EcoAnalysts, Mr. Smith worked on his Ph.D. at the University of Idaho characterizing ground beetle (Coleopetera: Carabidae) populations in Northern Idaho for four years with activities spanning collection, curation, and statistical analysis of beetles. He has a background in forestry and terrestrial entomology, and 15 years' experience in numerous scientific field studies in terrestrial and aquatic ecosystems including at DeLamar Mine and Holden Mine. His duties at EcoAnalysts include freshwater macroinvertebrate taxonomy, quality-control of sorting protocols, and sample collection as a field crewmember.

Stacy Rice-Marshall, Chironomid Taxonomist – Ms. Rice-Marshall joined EcoAnalysts in 2021 as a chironomid taxonomist coming in with an extensive background in entomology. Ms. Rice-Marshall obtained her Master of Science in entomology from the University of Idaho in 2022 and her SFS chironomid identification certification in 2023.

Rob Bobier, Ecological Taxonomy Manager – Mr. Bobier is Spheros laboratory manager. Mr. Bobier will provide resources as necessary and balance work requirements and laboratory scheduling to ensure timely processing of samples.

Support Personnel and Certifications. In addition to the staff members specifically identified for this project, we have additional support staff that will provide additional resources for the project as necessary. We have multiple staff members that are certified to ship and receive hazardous materials, which enables EcoAnalysts to safely and legally ship and receive samples preserved in alcohol according to the Code of Federal Regulations – Title 49 – and the International Air Transportation Association regulations. We are also registered with FedEx to ship hazardous materials.

Previous Experience

EcoAnalysts, a Spheros company, was founded on freshwater benthic macroinvertebrate processing, enumeration, and identification over 30 years ago. Today, the largest revenue source still comes from ~~this service line. EcoAnalysts also assisted in the development of the Society of Freshwater Science's~~

and/or Identification

(formerly NABS) taxonomic certification program. We strive to have multiple taxonomists certified in each taxonomic group available.

US EPA National Aquatic Resource Surveys (NARS) 2007 – present

EcoAnalysts has been the preferred taxonomy provider for EPA National Aquatic Resource Surveys (NARS). Since 2007, EcoAnalysts has provided taxonomic identification for each survey for a range of indicators including benthic communities, zooplankton, phytoplankton, sediment diatoms, and wetland vegetation. The table below lists the number of samples of each indicator type we have analyzed since 2007. We are also currently under contract to perform taxonomic identifications on the most recent NRSA stream samples.

NEON Benthic Macroinvertebrate Taxonomy 2014-Present

Since 2014 EcoAnalysts has provided benthic macroinvertebrate and zooplankton taxonomic identification services for the NEON project. On average over 100 samples have been processed annually for this contract. In 2019 we began providing algae taxonomy services. Annual sample numbers have increased each year as the project was being implemented. EcoAnalysts worked in close coordination with members of the NEON team to develop appropriate laboratory and data delivery procedures designed to meet the objectives of the project. Once standard operating procedures were approved, they were implemented for the project. Annual audits were conducted for each taxonomic analysis (benthic invertebrate, zooplankton, periphyton, phytoplankton). All audits were passed, and results are available upon request.

Wetland Studies and Solutions WV/VA benthos 2021

EcoAnalysts was contracted to process sixty kick samples from wadable streams in West Virginia and Virginia during 2021. Kick samples were rinsed in a 595µm sieve and subsampled to 200 organisms quantitatively. Benthic organisms were identified to the lowest practical taxonomic genus level, with oligochaetes remaining at family. An Index of Biotic Integrity was calculated for the dataset. Data was delivered 30 days after the receipt of each batch of samples.

SFS Certifications and Resumes

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

ANNDREA NAVESKY

In recognition of continued excellence in specimen identification for

Western General Arthropods

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

ANNDREA NAVESKY

In recognition of continued excellence in specimen identification for

Eastern Ephemeroptera, Plecoptera and Trichoptera

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

ANNDREA NAVESKY

In recognition of continued excellence in specimen identification for

Eastern General Arthropods

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Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

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ANNDREA NAVESKY

In recognition of continued excellence in specimen identification for

Western Ephemeroptera, Plecoptera and Trichoptera

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

CHIP BARRETT

In recognition of excellence for specimen identification to Genus for:

North American Oligochaeta

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

GREG WALLACE

In recognition of excellence for specimen identification to Genus for:

North American Oligochaeta

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

GREG WALLACE

In recognition of excellence for image identification to Genus for:

North American Chironomidae

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

JOHN PFEIFFER

In recognition of continued excellence in specimen identification for

Eastern General Arthropods

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

JOHN PFEIFFER

In recognition of continued excellence in specimen identification for

Western Ephemeroptera, Plecoptera and Trichoptera

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

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JOHN PFEIFFER

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Western General Arthropods

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

KRISTIN HALL

In recognition of excellence for image identification to Genus for:

North America Chironomidae

Dr. Bernard Sweeney

AUGUST, 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

JOHN PFEIFFER

In recognition of continued excellence in specimen identification for

Eastern Ephemeroptera, Plecoptera and Trichoptera

Dr. Bernard Sweeney

JANUARY 2026
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

LAINE SMITH

In recognition of excellence for image identification to Genus for:

Western Ephemeroptera, Plecoptera & Trichoptera

Dr. Bernard Sweeney

AUGUST 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

LAINE SMITH

In recognition of excellence for image identification to Genus for:

Eastern General Arthropods

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

LAINE SMITH

In recognition of excellence for image identification to Genus for:

Western General Arthropods

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

LAINE SMITH

In recognition of excellence for image identification to Genus for:

Eastern Ephemeroptera, Plecoptera & Trichoptera

Dr. Bernard Sweeney

AUGUST 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

LAURIE FLAHERTY

In recognition of excellence for specimen identification to Genus for:

North American Oligochaeta

Dr. Bernard Sweeney

AUGUST, 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

MATT HILL

In recognition of excellence for image identification to Genus for:

Western General Arthropods

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

MATT HILL

In recognition of excellence for image identification to Genus for:

Western Ephemeroptera, Trichoptera and Plecoptera

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

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In recognition of excellence for image identification to Genus for:

Eastern Ephemeroptera, Trichoptera and Plecoptera

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

MATT HILL

In recognition of excellence for image identification to Genus for:

Eastern General Arthropods

Dr. Bernard Sweeney

APRIL 2030
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

MICHAEL REUSCHER

In recognition of excellence for specimen identification to Genus for:

North American Oligochaeta

Dr. Bernard Sweeney

AUGUST, 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year certification is awarded to

STACEY RICE-MARSHALL

In recognition of excellence for image identification to Genus for:

North America Chironomidae

Dr. Bernard Sweeney

AUGUST, 2028
Date of Expiry

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

WILLIAM LAVOIE

In recognition of continued excellence in specimen identification to genus for

Eastern Ephemeroptera, Plecoptera & Trichoptera

Program Co-Chair	Date of Expiry
Bern Sweeney	April 2026

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

WILLIAM LAVOIE

In recognition of continued excellence in specimen identification to genus for

Western Ephemeroptera, Plecoptera & Trichoptera

Program Co-Chair	Date of Expiry
Bern Sweeney	April 2026

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

WILLIAM LAVOIE

In recognition of continued excellence in specimen identification to genus for

North American Chironomidae

Program Co-Chair	Date of Expiry
Bern Sweeney	April 2026

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

WILLIAM LAVOIE

In recognition of continued excellence in specimen identification to genus for

Western General Arthropods

Program Co-Chair	Date of Expiry
Bern Sweeney	April 2026

Society *for* Freshwater Science

TAXONOMIC CERTIFICATION

This five year re-certification by Petition is awarded to

WILLIAM LAVOIE

In recognition of continued excellence in specimen identification to genus for

Eastern General Arthropods

Program Co-Chair	Date of Expiry
Bern Sweeney	April 2026

Anndrea Navesky

FRESHWATER INVERTEBRATE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Ms. Navesky has been working in aquatic ecology and identifying aquatic macroinvertebrates since 2005. Her primary duties at EcoAnalysts are to identify aquatic invertebrates from regions across the continental US including NW, SW, Mid-West, Southern, SE, NE, Northern as far as Alaska and Canada, and even Hawaii. She has identified specimens from all types of water bodies including streams, lakes, wetlands, marshes, etc. She also has ichthyoplankton taxonomy experience. Ms. Navesky is currently the Freshwater Taxonomy Trainer for new taxonomists and has created a freshwater taxonomy handbook to assist them.

Education

MASTER OF SCIENCE, ENTOMOLOGY & PLANT PATHOLOGY, 2011
Oklahoma State University, Stillwater, Oklahoma

BACHELOR OF SCIENCE, BIOLOGY, 2005
University of Central Oklahoma, Edmond, Oklahoma

Affiliations and Certifications

Society for Freshwater Science Taxonomic Certifications in Eastern & Western EPT, 2021
Society for Freshwater Science Taxonomic Certifications in Eastern & Western Arthropoda, 2021
Oklahoma Academy of Sciences, Member, 2004-2011
American Fisheries Society, OSU Student Sub-unit, Member, 2008-2010
Sanborn Entomology Club, Oklahoma State University, 2008-2011 Vice President, 2008-2009
SCUBA, 2008
BBB Bio Club UCO, 2003-2005
W.E.T. Wetland Education for Teachers, 2004
W.O.W. Wonders of Wetlands, 2004

Employment History

FRESHWATER DEPARTMENT LEAD/TRAINER — **ECOANALYSTS, INC.**
2020-Current — Moscow, Idaho
Ms. Navesky leads the freshwater team by assuring taxonomy projects are completed on time and within protocol. She is also the Freshwater Taxonomy Trainer for EcoAnalysts and creates the training schedule for new taxonomists, both those hired from outside the company and those laboratory technicians trained up from within the company. Ms. Navesky has also created a freshwater taxonomy handbook for the company and coordinates updates of taxonomic literature into the freshwater library.

FRESHWATER INVERTEBRATE TAXONOMIST — **ECOANALYSTS, INC.**
2012-Current — Moscow, Idaho
Ms. Navesky identifies freshwater macroinvertebrates to species level, terrestrial insects to family, and works with samples from across North America. She is one of the primary taxonomists identifying macroinvertebrates on the National Ecological Observatory Network's freshwater ecosystems project, National Park Service projects, the EPA National Aquatic Resources Survey, Department of Environmental Quality and Fish & Game statewide sampling programs across the US, Tribal projects, coastal surveys, drift samples, fish gut sample analyses, terrestrial projects including pit fall traps and pan traps, etc. Ms. Navesky participates in shaping Standard Taxonomic Efforts for various

projects, trains new hire freshwater taxonomists, serves as a Quality Control Taxonomist, workshop chair for "What is The State of Our Pacific Northwest Unionids?," invited outreach educator for live freshwater invertebrate demonstrations and entomological presentations.

IPM FIELD TECHNICIAN — **OSU IPM LABORATORY**
2011 — Stillwater, Oklahoma
Conduct Pollinator Surveys in canola fields across Oklahoma for an interdisciplinary biofuel grant. Follow scientific protocol previously set in place, mix and spray various pesticide applications, set up and take down sticky traps, interact with the public, purchase project supplies, work long hours in extreme weather conditions as necessary, navigate backcountry roads, prepare samples for storage, boost morale, etc.

MASTERS TEACHING/RESEARCH ASSISTANTSHIP — **OKLAHOMA STATE UNIVERSITY**
2008-2011 — Stillwater, Oklahoma
Teaching responsibilities include assisting with ENTO 2003, ENTO 2993, ENTO 4464/5464, and other classes as necessary. Tasks include responding to student emails and questions, prepare materials for all class projects, grade projects and other assignments, enter student grades, prepare exam review sessions, proofread exams, present lecture material when required, put together and organize an aquatic insect teaching collection used for student demonstrations, participate in outreach programs that educate the public about entomology and/or aquatic entomology, set up labs and lab practicals. Research responsibilities include determining short term water quality effects on cattle ponds in Oklahoma rangelands, with and without riparian buffers, whose watersheds are exposed to regularly prescribed fire. Duties include researching and writing sampling methods, collections of aquatic invertebrates, fish and physical/chemical water parameters, identify invertebrates to lowest taxonomic level possible, usually genus, data entry, and to oversee lab workers and field workers. Present data at scientific meetings.

SCIENCE TECHNICIAN II — **THE NATURE CONSERVANCY**
2006-2007 — Tulsa, Oklahoma
Use Geographic Information Systems to research and compile a list of the healthiest streams in Oklahoma to present to Oklahoma Conservation Commission, sample for macroinvertebrates at TNC properties and identify to genus, participate in annual bison round-up, invited outreach educator for freshwater invertebrates, attend local freshwater conferences, interact with the public, etc.

FISHERY TECHNICIAN — **H.B. PARSONS FISH HATCHERY**
2005-2006 — Oklahoma City, Oklahoma
Raise various types of fish, perform water quality tests, carry out creel surveys, data entry, interact with the public, conduct gill netting/electro-shocking, answer phone calls, kept up-to-date on fishery information/regulations, assist in projects headed by other state organizations, operate boats and various shop equipment, general upkeep of hatchery building and equipment.

SUMMER FISHERIES INTERN — **OK DEPT OF WILDLIFE CONSERVATION** – SE FISHERIES DIVISION
2005 — Oklahoma
Carry out Rosgen Level III Surveys of SE Oklahoma streams, data entry, aid in trout stocking, measured/weighed fish, conducted electro-shocking/seining/netting of fish, participate in lakes habitat work, calibrate and maintain field/office equipment, review and summarize scientific literature, streamline Streams file cabinet for easy public access, interact with public.

John J. Pfeiffer

INVERTEBRATE TAXONOMIST/AQUATIC ECOLOGIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Mr. Pfeiffer has been working in aquatic ecology and identifying aquatic macroinvertebrates for over 28 years, 25 years of which have been at EcoAnalysts. His primary duties at EcoAnalysts are; identification of freshwater and marine aquatic macroinvertebrates, supervising and training of taxonomic staff, taxonomic literature research and implementation of taxonomic quality assurance procedures.

Education

MASTER OF SCIENCE, ENTOMOLOGY, 1998
University of Idaho, Moscow, Idaho
Thesis: Macroinvertebrate Bioassessment Protocol for the Mid-Order Streams of the Palouse-Camas Prairie Region of Northern Idaho

BACHELOR OF SCIENCE, FISHERIES RESOURCE MANAGEMENT, 1995
University of Idaho, Moscow, Idaho

ASSOCIATE OF APPLIED SCIENCE, FISH & WILDLIFE MANAGEMENT, 1991
Hocking College, Nelsonville, Ohio

Affiliations and Certifications

Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT)
Society of Freshwater Science Certifications:

- Ephemeroptera, Plecoptera, Trichoptera – East, 2021
- Ephemeroptera, Plecoptera, Trichoptera – West, 2021
- General Arthropods – East, 2021
- General Arthropods – West, 2021

Employment History

INVERTEBRATE TAXONOMIST/AQUATIC ECOLOGIST — **ECOANALYSTS, INC.**
1997-Current — Moscow, Idaho
Primary duties at EcoAnalysts are: identification of freshwater and marine aquatic macroinvertebrates, supervising and training of taxonomic staff, taxonomic literature research and implementation of taxonomic quality assurance procedures.

AQUATIC INVERTEBRATE TAXONOMIST — **NORTHWEST MANAGEMENT**
1997-1998 — Moscow, Idaho
Identified 500 organism sub-samples of macroinvertebrates for several hundred benthic samples that were part of the 1996 Idaho Department of Environmental Quality Beneficial Use Reconnaissance Program. Identifications were lowest practical for most organisms, family for Chironomidae, and class for Oligochaeta.

Publications

Sullivan, S.P.; Wisseman R.W.; Pfeiffer, J. 2023. An argument in support of the development of regionalized standard taxonomic efforts for benthic Macroinvertebrate-Based monitoring. Ecological Indicators 149:110184

Hill, M.A.; Pfeiffer, J; Jacobus, L.M. 2010. A new genus and new species of Baetidae (Ephemeroptera) from lakes and reservoirs in eastern North America. Zootaxa 2481:61-68.

Pfeiffer, J; E. Kosnycki; M. Bilger; B. Marshall; and W. Davis. 2007. Taxonomic Aids for Mid Atlantic Benthic Invertebrates: Baetidae, Capniidae/Leuctridae, and Simuliidae. US Environmental Protection Agency Publication EPA-260-R08-014. 48pp.

Pfeiffer, J.J., C.A. Robinson and G.T. Lester. 2000. Biological assessment of eight macroinvertebrate sites and a comparison of sampling methods and their influence on support status. EcoAnalysts, Inc. for Montana Department of Environmental Quality.

Pfeiffer, J.J., C.A. Robinson and G.T. Lester. 1999. 1999 habitat and biological assessments of White Pine, Wepah and Big Sand Creeks. Clearwater National Forest, Orofino, ID.

Pfeiffer, J.J. and S.M. Lindstrom. 1998. Habitat survey of three tributaries of the Kootenai River, with special reference to kokanee (Oncorhynchus nerka) spawning habitat. EcoAnalysts, Inc. for Kootenai Indian Tribe, Bonners Ferry, ID.

Lester, G.T., J.J. Pfeiffer and S.M. Lindstrom. 1998. Fish and macroinvertebrate survey of Trout Creek, Long Canyon Creek, and Parker Creek: three tributaries of the Kootenai River. EcoAnalysts, Inc. for Kootenai Indian Tribe, Bonners Ferry, ID.

Pfeiffer, J.J. and C.A. Robinson. 1998. 1998 habitat and biological assessments of White Pine, Wepah and Big Sand Creeks. Clearwater National Forest, Orofino, ID.

Matthew A. Hill

MARINE/ZOOPLANKTON TAXONOMY LEAD

EcoAnalysts, LLC
A Spheros Environmental Company
Moscow, Idaho Location

Mr. Hill joined EcoAnalysts in 2005. He primarily identifies invertebrates from freshwater, estuarine, and marine environments from across North America, as well as the southern Gulf of Mexico, northern South America, eastern Mediterranean, and western Africa. Other duties include scheduling and coordinating the marine and zooplankton taxonomy teams, reviewing bids on marine and zooplankton projects, field work, report preparation, and teaching classes and workshops.

Education

MASTER OF SCIENCE, NATURAL RESOURCES, 2015
University of Idaho, Moscow, Idaho

BACHELOR OF SCIENCE, ENTOMOLOGY, 2008
University of Idaho, Moscow, Idaho

Affiliations and Certifications

Society for Freshwater Science (SFS/NABS)
SCAMIT

Employment History

MARINE/ZOOPLANKTON TAXONOMY LEAD — **ECOANALYSTS**
2018 – Current — Moscow, Idaho
Provides original and QC identifications on freshwater zooplankton and marine benthos samples. Coordinates scheduling, quality checks, and meetings with the marine and zooplankton taxonomy teams. Works with the sales team, reviewing bids on marine and zooplankton projects. Occasional field work, report preparation, outreach, and teaching classes and workshops.

INVERTEBRATE TAXONOMIST — **ECOANALYSTS**
2005 – 2018 — Moscow, Idaho
Provide original and QC identifications on freshwater zooplankton, benthos, and marine benthos samples. Occasional field work, report preparation, outreach, and teaching classes and workshops.

Publications

Rogers, D.C. and M.A. Hill. 2013. Annotated checklist of the large branchiopod crustaceans of Idaho, Oregon, and Washington, USA, with the "rediscovery" of a new species of Branchinecta (Anostraca: Branchinectidae). Zootaxa 3694:3, 249–261.

Hill, M.A. and F.M. Merickel. 2011. A new state record of Bipalium adventitium Hyman, 1943 (Tricladida: Platyhelminthes) from Idaho, with a key to the species of Bipalium known to inhabit the United States. Transactions of the Idaho Academy of Science, 47:1, 25-27.

253 original photos in Thorp, J and D. C. Rogers. 2010. Freshwater Invertebrates of North America. Burlington, MA: Academic Press.

Hill, M.A., Pfeiffer, J. and Jacobus, L.M. 2010. A new genus and new species of Baetidae (Ephemeroptera) from lakes and reservoirs in eastern North America. Zootaxa, 2481:61-68.

Rogers, D. C. and M. Hill, 2008. Key to the Freshwater Malacostraca (Crustacea) of the Mid-Atlantic Region. EPA-230-R-08-017. US Environmental Protection Agency, Office of Environmental Information, Environmental Analysis Division, Washington, DC.

William J. LaVoie

TECHNICAL SALES LEAD/INVERTEBRATE TAXONOMIST/FISHERIES BIOLOGIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Mr. LaVoie joined EcoAnalysts in 2009 as a General Taxonomist. He brought with him expertise in aquatic macroinvertebrate taxonomy, salmonid ecology, hydroelectric facilities, fish passage, stream habitat assessment, fish population assessment, periphyton taxonomy, ESA/NEPA documentation (BA, EA, EIS), habitat conservation plans, impact assessments, and watershed planning. His professional experience is split between taxonomic identification and enumeration of aquatic macroinvertebrates, fisheries biology and ichthyoplankton taxonomy, and non-diatom periphyton. In addition to five years of experience in environmental consulting, Mr. LaVoie completed seven years of fish passage and transportation related research on the Lower Snake and Columbia Rivers. Mr. LaVoie has experience as a taxonomy project coordinator overseeing taxonomic protocols, quality control, and data review. Mr. LaVoie has experience writing technical and non-technical proposals, budgets, reports, presenting proposals and research findings, design and construction of research equipment, and considerable field experience. Mr. LaVoie also supervised a wet laboratory and the collection/storage of fish blood and tissue samples. Mr. LaVoie has published numerous unlisted technical reports and six peer-reviewed fisheries research publications. He has also served as a peer-reviewer for two professional journals and served a term as co-chair of the American Fisheries Society Public Visibility Committee.

Education

MASTER OF SCIENCE, ZOOLOGY & PHYSIOLOGY (FISHERIES), 1993
University of Wyoming, Laramie, Wyoming
Thesis title: Habitat use and feeding ecology of young-of-year brown trout in Douglas Creek, Wyoming

BACHELOR OF SCIENCE, FISH & WILDLIFE RESOURCES, 1990
Michigan State University, East Lansing, Michigan

Affiliations and Certifications

Society of Freshwater Science Certifications:

- General Arthropods East & West, 2021
- EPT East & West, 2021
- Chironomidae East & West, 2021

Employment History

INVERTEBRATE TAXONOMIST/FISHERIES BIOLOGIST — **ECOANALYSTS, INC.**
2009-Present — Moscow, Idaho

Conducts taxonomic identification and enumeration of aquatic macroinvertebrates and larval fish, calculates many different regional and agency Indices of Biotic Integrity (IBI), and is responsible for data and project review prior to data delivery. Currently serves as Taxonomy Freshwater Lead at EcoAnalysts taxonomy laboratory in Moscow, Idaho supervising the freshwater taxonomy department. Lead duties include managing project schedules, ensuring adequate resources are allocated where needed, developing database/reporting tools, as well as innovating laboratory processes for increased data quality, project efficiency and workflow. Also responsible for overseeing taxonomic protocols, assisting with project bids, overall quality control (QC), data review, bioassessment calculations, report writing, assisting proposal development and serves as a fisheries biologist/aquatic ecologist conducting stream habitat surveys, macroinvertebrate sampling, and ESA-required Biological Assessments.

AQUATIC MACROINVERTEBRATE/PERIPHYTON TAXONOMIST **RHITHRON ASSOCIATES, INC.**
2005-2009 Missoula, Montana

Taxonomic identification and enumeration of aquatic macroinvertebrates and non-diatom periphyton. I also serve as taxonomy project coordinator overseeing taxonomic protocols, quality assurance, and data review. Data is primarily used to calculate benthic indices of biotic integrity (BIBI) for Clean Water Act compliance and monitoring of surface waters. Samples originate from all regions of the U.S.

FISHERIES SCIENTIST **PARAMETRIX, INC.**
2001-2005 Bellevue, Washington

While employed with Parametrix I gained extensive project experience. Representative projects include: Tri-County Model ESA 4(d) Rule Proposal-King County, Seattle, WA where we conducted independent biological review of the Counties' proposed response to the Endangered Species Act 4(d) rule; the Mid-Columbia HCP EIS-Public Utilities Districts of Chelan and Douglas Counties, WA where I assisted in the review, compilation, and response to public and agency comments on an HCP and EIS associated with Rocky Reach, Rock Island, and Wells Dams on the Columbia River; Lake Washington Chinook Salmon Survival Study, Seattle, WA which was conducted a study to assess the survival of outmigrating Chinook salmon smolts passing through the Lake Washington system including a shipping canal lock and dam; AVISTA Cutthroat and Bull Trout Radio-tracking Report which compiled and reported radio-tracking results for a study of adult westslope cutthroat trout and bull trout movement in the Coeur d'Alene and Spokane Rivers; Montana DNRC HCP and EIS-Montana Department of Natural Resources, Missoula, Montana where I contributed to an HCP and EIS for all state-owned forest trust lands in Montana with the goal of protecting habitat and species restoration opportunities for numerous ESA-listed and sensitive fish and wildlife species in a manner compatible with the revenue benefits provided to the State of Montana from timber harvest; USFS and NPS NEPA/ESA Documents - I produced numerous fisheries specialist reports and fisheries portions of ESA and NEPA documentation such as EA chapters and BAs for USFS and NPS projects such as timber sales, mining, and road reconstruction in Washington (Colville NF, North Cascades NP), north Idaho (Panhandle NF), and Arizona (Prescott NF). Projects required stream habitat surveys, fish surveys, data analysis, literature review, and effects analysis of streams within the proposed action areas, with emphasis on sensitive or ESA-listed species. Species included bull trout, white sturgeon, westslope cutthroat, redband trout, riffle sculpin, burbot, spikedace, roundtail chub, and razorback sucker; Other Project-specific Biological Assessments included, Conducted numerous other ESA-required Biological Assessments that were contracted with non-federal agencies in the Lower Puget Sound region. Projects include dam stabilizations, trail construction, sediment dredging, stream habitat restoration, road construction, a WA State Park Master Plan, and marine shoreline restoration projects. ESA-listed species addressed included bull trout, Chinook salmon, steelhead, chum salmon, coho salmon, northern spotted owls, marbled murrelets, bald eagles, as well as Essential Fish Habitat for Pacific salmonids.

RESEARCH ASSOCIATE **UNIVERSITY OF IDAHO, IDAHO COOPERATIVE FISH & WILDLIFE RESEARCH UNIT, DEPARTMENT OF FISH & WILDLIFE RESOURCES**
1994-2001 Moscow, Idaho

For seven years I served as lead research associate and project coordinator conducting research on the effects of lower Snake and Columbia River dam juvenile fish collection facilities on outmigrating chinook salmon and steelhead smolts. Studies assessed the physiological status of barge-transported and in-river migrating juvenile salmonids, and evaluated bypass facilities to improve operations. Duties included planning, conducting, and supervising field/laboratory sampling, hiring and supervising field crews, design of field and experimental research projects, proposal and scope of work preparation/presentation, data management/analysis, literature review, manuscript preparation and review, preparation of presentation graphics, oral presentations of research results, report writing, and supervision of laboratory fish care/water quality facilities. Most data collection required large-scale collection and storage of blood and tissue samples from juvenile salmonids. I was also required to coordinate operations with many federal and state agencies in the Snake and Columbia River basins, including ESA permitting. Acquired extensive working knowledge of PIT-tag detection technology and authored numerous reports.

Publications

Congleton, J. L., and W. J. LaVoie. 2001. Comparison of blood chemistry values for samples collected from juvenile Chinook salmon by three methods. Journal of Aquatic Animal Health 13: 168–172

Congleton, J. L., W. J. LaVoie, C. B. Schreck, and L. E. Davis. 2000. Stress indices in migrating juvenile Chinook salmon and steelhead of wild and hatchery origin before and after barge transportation. Transactions of the American Fisheries Society 129 (4): 946-961.

Hubert, W. A., W. J. LaVoie IV, and L. D. DeBray. 1997. Aquatic macroinvertebrates in young beaver ponds on a small prairie stream, Wyoming. Intermountain Journal of Sciences 3(1): 11-16.

LaVoie, W. J., IV, and W. A. Hubert. 1997. Late summer and fall use of stream margins by young-of-year brown trout in a high-elevation stream. Journal of Freshwater Ecology 12(2): 291-302.

Hubert, W. A., W. J. LaVoie IV, and L. D. DeBray. 1996. Densities and substrate associations of macroinvertebrates in riffles of a small, high plains stream. Journal of Freshwater Ecology 11(1): 21-26.

LaVoie, W. J., IV, and W. A. Hubert. 1996. Use of three types of stream-margin habitat by age-0 brown trout late in the growing season. Hydrobiologia 317: 89-95.

LaVoie, W. J., IV, and W. A. Hubert. 1994. Use of drifting invertebrates by young-of-year brown trout in stream-margin habitat. Journal of Freshwater Ecology 9(1): 37-43.

Gregory Wallace

CHIRONOMIDAE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Mr. Wallace joined EcoAnalysts in 2008 as a Chironomid Taxonomist. Before joining EcoAnalysts, he worked fifteen years for the University of Missouri as a Research Technician in the Department of Fisheries and Wildlife. His responsibilities at the university included a variety of aspects of stream ecology research, primarily collection, laboratory processing and taxonomic identification of aquatic invertebrate samples for projects related to aquatic biomonitoring of Missouri streams. Mr. Wallace's experience includes collecting and identifying aquatic invertebrates for the Biological Criteria of Missouri Streams project which helped establish biological criteria currently utilized by the Biological Monitoring Unit of Missouri Department of Natural Resources. He utilized MO DNR's semi-quantitative macroinvertebrate sample collection and laboratory processing protocols on subsequent projects and trained a series of co-workers in use of the procedures. Other responsibilities included stream habitat assessment, field reconnaissance of potential study sites, overseeing daily operations of an aquatics laboratory, fish sampling, and contributing to study reports and scientific manuscripts. Mr. Wallace also worked five years for the Missouri Department of Conservation in the Resource Science Division identifying aquatic invertebrates for the Resource Assessment and Monitoring Program.

Education

BACHELOR OF SCIENCE, WILDLIFE CONSERVATION & MANAGEMENT, 1993
Missouri State University, Springfield, Missouri

Affiliations and Certification

Society for Freshwater Science Certifications:
- EPT East, 2016
- Chironomidae East, 2016
- Chironomidae West, 2016
- Oligochaeta, 2013

Employment History

CHIRONOMIDAE TAXONOMIST — **ECOANALYSTS, INC.**
2008-Current — Moscow, Idaho
Taxonomic identification of Chironomidae and Oligochaeta. Training of new hires in Chironomidae taxonomy. Preparation and maintenance of in-house Chironomidae taxonomy protocols.

RESEARCH TECHNICIAN — **UNIVERSITY OF MISSOURI, DEPT OF FISHERIES & WILDLIFE**
1993-2008 — Columbia, Missouri
Sampling and taxonomic identification of aquatic macroinvertebrates, fish sampling, stream habitat assessment, oversite of aquatics laboratory, training of field and laboratory technicians, project report preparation.

RESEARCH ASSISTANT — **MISSOURI DEPARTMENT OF CONSERVATION**
2004-2008 — Columbia, Missouri
Identification of aquatic invertebrates for MDC Resource Assessment and Monitoring Program.

Publications

Rabeni, C. F. and G. S. Wallace. 1998. The influence of flow variation on the ability to evaluate the biological health of headwater streams. In: Kovar K, Tappeiner U, Peters N E, Craig R G, editors. Hydrology, water resources and ecology in headwaters (Proceeding of the Headwater '98 Conference held at Meran/Merano, Italy, April 1998). IAHS Publ. no. 248, 1998. p.411-417.

Wallace, G.S., W.R.Mabee, and M.D. Combes. 2009. Range Extension of a Nonindigenous Midge, Polypedilum nubifer (Diptera: Chironomidae), in North America. Souteastern Naturalist. 8(3). pp. 559-562.

Wallace, G.S., W.R. Mabee, and M.D. Combes. 2009. Paraboreochlus (Diptera: Chironomidae): A New Midge Record for Missouri. Transactions of the Missouri Academy of Science: Vol.43 (2009), pp. 46-48.

Wallace, G.S., W.R. Mabee, and M.D. Combes. 2010. Stilocladius (Diptera: Chironomidae): A New Midge Record for Wadeable Streams in Missouri. Transactions of the Missouri Academy of Science: Vol.44 (2010), pp. 47-49.

Wallace, G.S., S. W. Lanning, W.R. Mabee, M.D. Combes, J.H. Epler. 2016. New State Records, Habitat Characteristics, and Range Extensions for Three Aquatic Beetles (Coleoptera: Gyrinidae, Hydraenidae) from Wadeable Streams in Missouri, USA. The Coleopterists Bulletin. Vol. 70(4), pp.907-910

Dr. Laurie J. Flaherty

FRESHWATER OLIGOCHAETE & MARINE POLYCHAETE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Dr. Flaherty joined EcoAnalysts, Inc. in 2010 as a Sorting Lab Technician, bringing a wide and varied Science background with her (often focused upon water quality issues). Since joining EcoAnalysts, she has taken on various duties including Senior Technician, Algae Lab Technician and Oligochaete worm mounter. Dr. Flaherty enjoys learning taxonomy and is now the primary Freshwater Oligochaete Taxonomist. She is a member of the marine polychaete taxonomy team and is currently learning zooplankton taxonomy.

Education

PH.D, ENVIRONMENTAL AND NATURAL RESOURCE SCIENCES, 2002
Washington State University, Pullman, Washington

MASTER OF SCIENCE, ENVIRONMENTAL SCIENCE, 1994
Washington State University, Pullman, Washington

BACHELOR OF SCIENCE, GEOLOGY-CUM LAUDE, 1983
Washington State University, Pullman, Washington

Affiliations and Certifications

Phi Beta Kappa, Liberal Arts Honorary
Phi Kappa Phi, Science Honorary
Sigma Gamma Epsilon, Geology Honorary

Employment History

OLIGOCHAETE & MARINE POLYCHAETE TAXONOMIST — **ECOANALYSTS, INC.**
2019 – Current — Moscow, Idaho
Identifies freshwater oligochaetes and marine polychaetes. Serves as the primary Oligochaete taxonomist. Is currently learning zooplankton taxonomy.

OLIGOCHAETE TAXONOMIST — **ECOANALYSTS, INC.**
2014 – 2019 — Moscow, Idaho
Identified freshwater oligochaetes and trained on marine polychaete taxonomy. Performed occasional basic algal identifications as needed.

ALGAE LAB TECHNICIAN — **ECOANALYSTS, INC.**
2012 – 2013 — Moscow, Idaho
Prepared diatom slides by acid digestion and prepare algal samples as needed for analysis.

SORTING LAB TECHNICIAN — **ECOANALYSTS, INC.**
2010 – 2012 — Moscow, Idaho
Sorted macroinvertebrates out of surrounding matrix.

FIELD TECHNICIAN — **LATAH SOIL & WATER CONSERVATION DIST**
2010 — Moscow, Idaho
Planted and watered trees for stream restoration projects around Latah County.

BIOLOGY INSTRUCTOR — **EASTERN WASHINGTON UNIVERSITY**
2005 – 2010 — Cheney, Washington
Taught large Introductory Biology courses for non-Science Majors (600 students per year) as well as occasional Introductory Environmental Science and occasional Statistics and Experimental Design courses for mid-level Biology Majors.

BIOLOGY INSTRUCTOR — **SPOKANE COMMUNITY COLLEGE**
2008 – 2009 — Spokane, Washington
Taught General Biology for science and pre-med students Winter quarters (evening class).

GRADUATE FIELD & LAB RESEARCH ASSISTANT — **WASHINGTON STATE UNIVERSITY**
1994 – 2005 — Pullman, Washington
Extensive stream and lake sampling experience with weekly sampling (March-November) of Newman and Liberty Lakes, in the Spokane Valley for nearly 10 years.

Publications

Barry C. Moore, Laurie Flaherty (1996). Fish, Riparian, and Water Quality Issues in the Blue Mountains. In *Search for a Solution: Sustaining the Land, People, and Economy of the Blue Mountains* (pp. 203-242). American Forests in Cooperation with the Blue Mountians Natural Resources Institute.

Brendan M. "Chip" Barrett, Ph.D.

FRESHWATER & MARINE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Dr. Barrett joined EcoAnalysts in 2011 as a Marine Polychaete Taxonomist. His primary responsibilities include taxonomic identification of marine invertebrates and freshwater oligochaetes, quality assurance on identified samples, and the development and growth of the internal marine identification standard operating procedures. Prior to EcoAnalysts, Dr. Barrett has worked extensively in the marine bioassessment field for 25 years, including instructing entry level biology courses at the University of Hawai'i, providing research assistance to the Bishop Museum in Hawai'i, and as a Benthic invertebrate specialist for the Marine Institute, Co. Galway, Ireland

Education

PHD, ZOOLOGY, 2010
National University of Ireland Galway, Galway, Co. Galway, Ireland
Dissertation/Thesis: "A survey of the deep-sea polychaetous annelids of the Porcupine Bank and adjacent areas to the west of Ireland, with particular focus on the phylogeny and taxonomy of the Family Amphinomidae Lamarck, 1818 and Genus Paramphinome M. Sars in G. O. Sars, 1872."

MASTER OF SCIENCE, ZOOLOGY, 1999
University of Hawai'i, Honolulu, Hawai'i
Thesis: "A protocol for studying the mitochondrial DNA of Halocaridina rubra (Holthuis), with application to its conservation and management in the Hawaiian Anchialine habitat."

BACHELOR OF ARTS, ZOOLOGY, & MARINE CERTIFICATE IN BIOLOGICAL/BEHAVIORAL SCIENCE, 1992
University of Hawai'i, Honolulu, Hawai'i

Affiliations and Certifications

Biological Society of Washington
Southern California Association of Marine Invertebrate Taxonomists (SCAMIT)
Society for Freshwater Sciences, Oligochaeta Certification, 2016

Employment History

FRESHWATER & MARINE TAXONOMIST — **ECOANALYSTS, INC.**
2011 – Current — Moscow, Idaho
Primary responsibilities include taxonomic identification of marine invertebrates, quality assurance on identified samples, and the development and growth of the internal marine identification standard operating procedures. In-house training at EcoAnalysts, Inc. has provided greater experience in the identification of aquatic oligochaetes from various regions of the US leading to the production of data for a number of freshwater benthic projects. Finally, participation in staff training, reference/voucher material curation, internal and external quality control of taxonomic determinations, data management, and statistical analysis is performed as necessary.

LECTURER, BIOLOGY PROGRAM — **UNIVERSITY OF HAWAI'I**
August 2009 – December 2010 — Honolulu, Hawai'i
Prepare and present lectures for a section of Biology 171 (Introduction to Biology, Science Majors), Biology 101 (Biology & Society, Non-Science Majors), and Biology 171L (3 sections). In addition, actively teach and engage with

students on a wide variety of topics important to the different courses and assess the progress of individuals of lecture and lab courses.

RESEARCH ASSISTANT — **BISHOP MUSEUM**
March 2008 – July 2008 — Honolulu, Hawai'i
Conduct a literature search for life history information on Hawai'i's exploited reef fishes. The end-product was meant to aid local resource managers identify critical missing life history information needed to better manage reef fishes. The position required a solid understanding of rules of taxonomic nomenclature; familiarity with scientific literature; ability to work independently; perseverance, and attention to detail.

SCIENTIST (BENTHIC SPECIALIST) — **MARINE INSTITUTE**
October 2006 & October 2003 — Orenmore, Co. Galway, Ireland
Served as a scientist assisting in the sorting and identification of fish species sampled during the 2003 and 2006 Irish Groundfish Survey. However, I was primarily responsible for the sorting, identification and collection of biomass data for all non-fish taxa as the Benthic Invertebrate Specialist, as well as preparation of species occurrence lists for each trawl.

RESEARCH ASSISTANT I AND II — **UNIVERSITY OF HAWAI'I**
January 2000 – December 2002 — Honolulu, Hawai'i
Functional knowledge and understanding of principles, theories, federal and state laws, rules, regulations, systems and associated with work specialty. Supervised the operation of a functional support area assisting program management with configuration/data management implementation and operation. Prepared schedules and coordinating the time spent by staff on projects. Organized and conducted meetings with the lab staff to report on the status of their projects, problems, and progress. I also supervised and trained lab staff as necessary. Reviewed and coordinated the work of clerical personnel, student assistants, and technicians. Processed sediment samples from a soft-bottom benthic biomonitoring program according to U.S. EPA-approved methods, preserved and separated animals found in samples. Recorded and identified species found, entering the information into a database, noting dynamic differences in comparison to regional keys. Performed analysis of data, as well as drafted and edited reports of benthic invertebrate assemblages. Maintained specimen voucher collections, organized notes on specimens to be used for future reference, and gathered literature relevant to the project. Responsible for the care and maintenance of laboratory equipment. Supervised the handling and disposal of hazardous materials according to UH Environmental Health and Safety rules.

Publications

Barrett, B. M. (In Preparation). A new species of *Paramphinome* Sars, 1872 from Antarctic waters, and redescription of *P. jeffreysii* and *P. australis*.

Barrett, B. M. (In Preparation). The phylogeny and revision of the genus *Paramphinome* Sars, 1872.

Wagner F. Magalhães, Julie H. Bailey–Brock, and Brendan M. Barrett. 2011. A new species of *Sphaerephesia* (Polychaeta: Sphaerodoridae) from Mamala Bay, south shore of Oahu, Hawaii. Zootaxa 2903:39-47.

Longenecker, K., Langston, R., and B. Barrett. 2008. A compendium of life history information for some exploited Hawaiian reef fishes. Final reported prepared for the Fisheries Local Action Strategy, Bishop Museum, Hawaii Biological Survey. Bishop Museum Technical Report No. 44: 67 pp.

Barrett, B. M. & Bailey-Brock, J. H. 2005. *Progoniada oahuensis*, a new species from Oahu, Hawaii (Annelida: Polychaeta: Goniadidae). Proceedings of the Biological Society of Washington 118(2): 251-258.

Barrett, B. M. 2005. Taxonomists unaware of history are doomed to repeat it: the history of *Paramphinome jeffreysii* (McIntosh, 1868). Porcupine Marine Natural History Society Newsletter 17: 32-33.

Bailey-Brock, J. H., B. Paavo, B. M. Barrett, and J. Dreyer. 2002. Polychaetes associated with a tropical ocean outfall: Synthesis of a biomonitoring program off O'ahu, Hawai'i. Journal of Pacific Science 56(4): 459-479.

Barrett, B. M., Paavo, B., Bailey-Brock, J. H., Moretzsohn, F., and Kay, E. A. 2001. Benthic sampling in the vicinity of sewage outfalls off Tanguisson and Agana, Guam, Mariana Islands. Project Completion Report (WRRC-2001-03), Principle Investigator: Dr. Julie H. Bailey-Brock. Water Resources Research Center, University of Hawai'i, Honolulu, HI 96822. December 2001, 73 p., 22 figs., 9 tbls., 2 app.

Kristin Hall

CHIRONOMIDAE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Ms. Hall obtained her bachelor's degree in environmental science from the University of Idaho. While pursuing her degree, she worked in several labs on-campus where she gained both lab and field experience sorting and identifying macroinvertebrate samples. Ms. Hall went on several research trips to the Frank Church Wilderness where she collected and identified macroinvertebrate samples in the mainstem and tributaries of the Middle Fork of the Salmon River. She also worked as a fisheries field technician where she collected macroinvertebrate samples using drift nets and HESS Samplers in the Lapwai Creek Watershed.

Education

BACHELOR OF SCIENCE, ENVIRONMENTAL SCIENCE/FISHERY RESOURCES, 2018
University of Idaho, Moscow, Idaho

Employment History

CHIRONOMIDAE TAXONOMIST — **ECOANALYSTS, INC.**
2022-Current — Moscow, Idaho
Accurately identify and count chironomids while following projects specific protocols and utilizing a variety of scientific resources such as dichotomy keys and journals. Collaborate with fellow taxonomists and supervisors to meet deadlines. Stay up to date on current research and nomenclature. Problem solve and streamline methods for chironomid identification to increase workflow efficiency and data accuracy. Participate in QC/QA procedures with third party labs and agencies.

SORTING LAB TECHNICIAN — **ECOANALYSTS, INC.**
2019-2022 — Moscow, Idaho
Sorting freshwater and marine macroinvertebrates from inorganic and organic substrates, independently and efficiently with minimal supervision, while strictly following project- based protocols and QC processes. Maintaining accurate and organized records of macroinvertebrate counts and project sample data (elutriate and sample volumes, samples matrices). Collaborating with fellow sorting technicians, taxonomists, supervisors, and other lab staff in a professional manner. Following lab safety protocols and maintaining a clean workspace.

FISHERIES FIELD TECHNICIAN — **UNIVERSITY OF IDAHO KENNEDY LAB**
2018 — Moscow, Idaho
Observation, capturing, measuring, collecting gut contents, and tagging juvenile steelhead and other stream fishes. Macroinvertebrate collection and preservation using multiple techniques. Measuring stream habitat, including discharge, velocity, temperature substrate and cover. Doing snorkel surveys to observe eating and behavior patterns of juvenile steelhead. Care and maintenance of a broad selection of aquatic sampling gear. Macroinvertebrate sorting and identification (family and genus levels).

WATER RESOURCES TECHNICIAN — **UNIVERSITY OF IDAHO CAUDILL LAB**
2017-2018 — Moscow, Idaho
Collect and record data using DOTS and Water Tools Survey. Research freshwater mussel distribution, taxonomy & abundance. Research marine-derived nutrient cycling through freshwater mussels. Collaborate with Indigenous peoples along the Columbia River Basin. Analyze water quality using macroinvertebrate samples (EPT Taxa, Shannon Diversity Index). Analyze freshwater mussel shells (weight, color, length, age). Collecting, sorting, and identifying benthic macroinvertebrate samples (family and genus levels).

Laine Smith

FRESHWATER GENERAL TAXONOMIST
FRESHWATER FIELD TEAM LEADER

EcoAnalysts, Inc.
Moscow, Idaho Location

Mr. Smith joined EcoAnalysts in 2017 as a laboratory and field technician and is currently serving the company as a freshwater taxonomist and a field team leader. Prior to working at EcoAnalysts, Mr. Smith worked on his Ph.D at the University of Idaho characterizing ground beetle (Coleopetera: Carabidae) populations in Northern Idaho for four years with activities spanning collection, curation, and statistical analysis of beetles. He has a background in forestry and terrestrial entomology, and 17 years' experience in numerous scientific field studies in terrestrial and aquatic ecosystems including at DeLamar Mine and Holden Mine. His duties at EcoAnalysts include freshwater macroinvertebrate taxonomy, and quality-control of sorting protocols. Mr. Smith is also a field team leader for freshwater sample collection (macroinvertebrates and fish) and associated habitat data throughout the Pacific Northwest.

Education

Ph.D. (INCOMPLETE)
University of Idaho, Moscow, Idaho
Ground Beetle (Coleoptera: Carabidae) distribution in the Selkirk mountains of Northern Idaho

MASTER OF SCIENCE, FOREST HEALTH, 2010
School of Forestry, Northern Arizona University, Flagstaff, Arizona

BACHELOR OF SCIENCE, FORESTRY, 2007
School of Forestry, Northern Arizona University, Flagstaff, Arizona

Affiliations and Certifications

Smith-Root Electrofisher Certification, 2024
Society of Freshwater Science EPT Taxonomic Certification (East/West), 2023
Trained in IDEQ BURP fish & macroinvertebrate field collection methods, 2021

Employment History

FRESHWATER GENERAL TAXONOMIST — **ECOANALYSTS, INC.**
2022 – Current — Moscow, Idaho
Macroinvertebrate sample processing – identification/enumeration. Sorting quality-control.

FRESHWATER FIELD TEAM LEADER — **ECOANALYSTS, INC.**
2023 – Current — Moscow, Idaho
Macroinvertebrate sampling, fish sampling, habitat surveys, fish salvages. Compiled data from field crew and assisted in writing final reports. Responsible for maintaining field equipment readiness and equipment requisitions.

Projects: DeLamar Mine (2023) Macroinvertebrates, fish, and habitat data collection
DeLamar Annual Biomonitoring (2023) Macroinvertebrates and habitat data collection
Kepfler Mine (2023), Macroinvertebrates, fish, and habitat data collection

FRESHWATER FIELD TECHNICIAN **ECOANALYSTS, INC.**
2017 – 2023 Moscow, Idaho
Macroinvertebrate sampling, fish sampling, habitat surveys, and fish salvage for construction projects. Assisted field team leader with maintaining and storing equipment when not in use. Assisted with data recording and collection.

Projects: DeLamar Mine (2021-2022) Macroinvertebrates, fish, and habitat data collection
Beartrack Mine (2022), Macroinvertebrates, fish, and habitat data collection
Bonanza Mine (2020), Fish salvage
Holden Mine (2019), Macroinvertebrates, fish, and habitat data collection

SORTING LABORATORY TECHNICIAN **ECOANALYSTS, INC.**
2017 – 2022 Moscow, Idaho
Process macroinvertebrate samples from all freshwater and marine habitat. Train incoming technicians and perform quality control checks on all technicians. Morphotype general invertebrates for taxonomists. Complete measurements, wet weights, and dry weights.

Ph.D. RESEARCH **UNIVERSITY OF IDAHO**
2010 – 2014 Moscow, Idaho
Qualifying ground beetle community diversity in Northern Idaho Insect collection, taxonomy & curation, data analysis, professional presentations.

MASTERS' RESEARCH **NORTHERN ARIZONA UNIVERSITY**
2008 – 2010 Flagstaff, Arizona
Assaying insect communities in Douglas-fir Dwarf Mistletoe brooms tree climbing, arthropod taxonomy, statistical techniques.

LABORATORY RESEARCH TECHNICIAN **NORTHERN ARIZONA UNIVERSITY**
2004 – 2008 Flagstaff, Arizona
Bark beetle research (collection, identification/sexing, gallery studies). Misc. studies involving mycangial fungal cultures, aspen regeneration, White Pine Blister Rust, dwarf-mistletoe, flight-intercept trapping, among others.

Publications

Smith, Laine, Robert Mathiasen, and Richard Hofstetter. "Biomass of Witches' Brooms Caused by Douglas-Fir Dwarf Mistletoe in Northern Arizona." Journal of the Arizona-Nevada Academy of Science 43.1(2011): 40-47.

Smith, Laine, Richard Hofstetter, and Robert Mathiasen. "Insect Communities Associated with Douglas-Fir Dwarf Mistletoe Witches' Brooms in Northern Arizona." The Southwestern Naturalist 58.4 (2013): 395-402.

Michael G. Reuscher

POLYCHAETE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Dr. Reuscher is a polychaete and oligochaete taxonomist. He joined EcoAnalysts in 2020. Dr. Reuscher identifies polychaetes and oligochaetes from worldwide locations to the lowest possible taxonomic level. He also participates in the quality control of internal and external taxonomists. Other responsibilities include photographing specimens with microscope cameras and wet weight measurements. Dr. Reuscher started his career as a polychaete taxonomist in 2007 during his thesis research on terebellomorph polychaetes at Heidelberg University. He has published 11 peer-reviewed publications in polychaete taxonomy, in which he described more than 30 species and three new genera within the families Ampharetidae, Melinnidae, Paraonidae, Sphaerodoridae, and Terebellidae. For his taxonomic research he has visited numerous natural history museums to study specimens in their respective collections.

Dr. Reuscher was one of the lead taxonomists in a benthic lab at Texas A&M University-Corpus Christi (TAMUCC) between 2011 and 2019. In this position he identified polychaetes from a vast number of samples from the Gulf of Mexico as part of the Deepwater Horizon Natural Resources Damage Assessment (NRDA) and the follow-up Gulf of Mexico Research Initiative (GoMRI). In the benthic lab at TAMUCC, Dr. Reuscher also served as a taxonomy trainer for undergraduate and graduate students. During his time as a Postdoctoral Research Associate and Assistant Research Scientist at TAMUCC, Dr. Reuscher was heavily involved in the data analysis of the spatiotemporal impact of the Deepwater Horizon oil spill on benthic macrofauna in the Gulf of Mexico. Additionally, Dr. Reuscher has been a taxonomic editor for the World Register of Marine Species (WoRMS) since 2012, maintaining data accuracy of the families Ampharetidae and Melinnidae. In 2022 Dr. Reuscher was trained in oligochaete taxonomy by fellow EcoAnalysts taxonomist.

Education

Ph.D., MARINE BIOLOGY, 2013
Texas A&M University-Corpus Christi, Corpus Christi, Texas

DIPLOM (German University degree, equivalent of combined B.S. & M.S.), BIOLOGY, 2008
Heidelberg University, Heidelberg, Germany

Affiliations and Certifications

Member of Senckenberg Research Society (since 2009)
Member of Golden Key International Honour Society (since 2009)
First aid, CPR, and AED certification (2022)
Scuba Diving (cedip bronze certification, 2003)
DeepWorker 2000 submersible pilot certification (2009)

Employment History

POLYCHAETE TAXONOMIST — **ECOANALYSTS, INC.**
2020 – Current — Moscow, Idaho

Identify polychaetes and oligochaetes to the lowest possible taxonomic level. Maintain reference collections. Record abundance data for each taxon and enter data into AEGIS database. Take micrographic pictures of animals and maintain reference photo library. Perform quality control (QC) of other EcoAnalysts taxonomists, as well as external

taxonomists. Reconciliate taxonomic identification with internal and external QC taxonomists. Measure wet weight. Maintain and expand internal taxonomic literature library.

ADJUNCT FACULTY, DEPT OF LIFE SCIENCES — **TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2019 – 2020 — Corpus Christi, Texas
Teaching of undergraduate Biology classes, including the lecture courses Invertebrate Zoology, Professional Skills, and Senior Presentation. Responsibilities included: developing course syllabus, preparing PowerPoint presentations, composing and grading, class assignments, exams, and quizzes, maintaining office hours, organizing and conducting field trips, leading class discussions, record class attendance, and assigning final grades.

ASSISTANT RESEARCH SCIENTIST — **HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES, TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2019 — Corpus Christi, Texas
Identification of polychaetes from the Gulf of Mexico as part as part of the Gulf of Mexico Research Initiative (GoMRI), as well as several Texas Bays monitoring projects. Analyzing biodiversity and community structure of macrobenthic invertebrates and the recovery from the impact of oil pollution on these communities. Publishing research articles in peer-reviewed journals.

POSTDOCTORAL RESEARCH ASSOCIATE — **HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES, TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2014 – 2019 — Corpus Christi, Texas
Identification of polychaetes from the Gulf of Mexico as part of the Natural Resource Damage Assessment (NRDA) in the aftermath of the Deepwater Horizon oil spill and follow-up recovery monitoring as part of the Gulf of Mexico Research Initiative (GoMRI), as well as several Texas Bays monitoring projects. Analyzing biodiversity and community structure of macrobenthic invertebrates and the impact of oil pollution on these communities. Publishing research articles in peer-reviewed journals. Organization of two international workshops and a scientific conference.

ADJUNCT FACULTY, DEPT OF LIFE SCIENCES — **TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2015 — Corpus Christi, Texas
Teaching of undergraduate Biology lecture course Professional Skills. Responsibilities included: developing course syllabus, preparing PowerPoint presentations, composing and grading homework and exams, maintaining office hours, leading class discussions, record class attendance, and assigning final grades.

GRADUATE RESEARCH ASSISTANT — **HARTE RESEARCH INSTITUTE FOR GULF OF MEXICO STUDIES, TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2011 – 2013 — Corpus Christi, Texas
Identification of polychaetes from the Gulf of Mexico as part of the Natural Resource Damage Assessment (NRDA) in the aftermath of the Deepwater Horizon oil spill and follow-up recovery monitoring as part of the Gulf of Mexico Research Initiative (GoMRI), as well as several Texas Bays monitoring projects.

GRADUATE TEACHING ASST — **DEPT OF LIFE SCIENCES, TEXAS A&M UNIVERSITY-CORPUS CHRISTI**
2008 – 2011 — Corpus Christi, Texas
Teaching of undergraduate Biology classes, including the lecture course Professional Skills, the recitation class Genetics, and lab portions of the classes Intro Bio 1, Marine Botany, and Invertebrate Zoology. Responsibilities included: developing course syllabus, preparing PowerPoint presentations, composing and grading homework, class assignments, exams, quizzes, and lab practical, maintaining office hours, organizing and conducting field trips, leading class discussions, record class attendance, lab set-ups, maintaining lab safety standards, instruction of lab methods, supervision of students during hands-on exercises, and assigning final grades.

STUDENT ASSISTANT **HEIDELBERG INSTITUTE FOR THEORETICAL STUDIES**

2003 – 2008 Heidelberg, Germany

Literature search for research articles on enzyme kinetics. Extraction of pertinent data from publication and entry into online database Sabio-RK. Suggest improvements and communicate issues to database developers and bioinformaticians.

Publications

PEER-REVIEWED PUBLICATIONS

Reuscher, M.G., Baguley, J.G. & Montagna, P.A. (2020) The expanded footprint of the Deepwater Horizon oil spill in the Gulf of Mexico deep-sea benthos. PLoS ONE 15(6): e0235167. doi: 10.1371/journal.pone.0235167

Washburn, T., Reuscher, M.G., Montagna, P.A., Cooksey, C. & Hyland, J.L. (2017) Macrobenthic community structure in the deep Gulf of Mexico one year after the Deepwater Horizon blowout. Deep-Sea Research Part I 127: 21-30. doi:10.1016/j.dsr.2017.06.001

Reuscher, M.G., Baguley, J.G., Conrad-Forrest, N., Cooksey, C., Hyland, J.L., Lewis, C., Montagna, P.A., Ricker, R.W., Rohal, M. & Washburn, T. (2017) Temporal patterns of Deepwater Horizon impacts on the benthic infauna of the northern Gulf of Mexico continental slope. PLoS ONE 12 (6): e0179923. doi:10.1371/journal.pone.0179923

Reuscher, M.G. (2017) Ampharetidae (Annelida: Polychaeta) from the Red Sea reef Al Fahal (Saudi Arabia) with the description of a new species. Journal of the Marine Biological Association of the United Kingdom 97 (1): 99-104. doi:10.1017/S0025315416000059

Montagna, P.A., Baguley, J.G., Hsiang, C.-Y. & Reuscher, M.G. (2017) Comparison of sampling methods for deep-sea infauna. Limnology and Oceanography: Methods 15 (2): 166-183. doi: 10.1002/lom3.10150

Reuscher, M.G. & Shirley, T.C. (2017) Spatial and temporal patterns of benthic polychaete communities on the northern Gulf of Mexico continental slope. Hydrobiologia 790 (1): 233-245. doi:10.1007/s10750-016-3034-x

Reuscher, M.G. & Fiege, D. (2016) Ampharetidae (Annelida: Polychaeta) from cold seeps off Pakistan and hydrothermal vents off Taiwan, with the description of three new species. Zootaxa 4139 (2): 197-208. doi:10.11646/zootaxa.4139.2.4

Reuscher, M.G. (2015) Amage imajimai, a new species of Ampharetidae (Annelida: Polychaeta) from Japanese waters. European Journal of Taxonomy 154: 1-7. doi:10.5852/ejt.2015.154

Reuscher, M.G., Fiege, D. & Imajima, M. (2015) Ampharetidae (Annelida: Polychaeta) from Japan. Part IV: miscellaneous genera. Journal of the Marine Biological Association of the United Kingdom 95 (6): 1105-1125. doi:10.1017/S0025315415000545

Reuscher, M.G., Fiege, D. & Imajima, M. (2015) Ampharetidae (Annelida: Polychaeta) from Japan. Part III: the genus Amphicteis Grube, 1850 and closely related genera. Journal of the Marine Biological Association of the United Kingdom 95 (5): 929-940. doi:10.1017/S0025315414001623

Reuscher, M.G. & Shirley, T.C. (2014) Diversity, distribution, and zoogeography of benthic polychaetes in the Gulf of Mexico. Marine Biodiversity 44 (4): 519-532. doi:10.1007/s12526-014-0222-7

Zhou, J. & Reuscher, M.G. (2013) Description of a new species of Aricidea (Polychaeta: Paraonidae) from Chinese seas. Proceedings of the Biological Society of Washington 126 (3): 276-283. doi:10.2988/0006-324X-126.3.276

Montagna, P.A., Baguley, J.G., Cooksey, C., Hartwell, I., Hyde, L.J., Hyland, J.L, Kalke, R.D., Kracker, L.M., Reuscher, M. & Rhodes, A.C.E. (2013) Deep-sea benthic footprint of the Deepwater Horizon blowout. PLoS ONE 8 (8): e70540. doi:10.1371/journal.pone.0070540

Imajima, M., Reuscher, M.G. & Fiege, D. (2013) Ampharetidae (Annelida: Polychaeta) from Japan. Part II: Genera with elevated and modified notopodia. Zootaxa 3647: 137-166. doi:10.11646/zootaxa.3647.1.7

Imajima, M., Reuscher, M.G. & Fiege, D. (2012) Ampharetidae (Annelida: Polychaeta) from Japan. Part I: The genus Ampharete Malmgren, 1866, along with a discussion of several taxonomic characters of the family and the introduction of a new identification tool. Zootaxa 3490: 75-88.

Reuscher, M., Fiege, D. & Wehe, T. (2012) Terebellomorph polychaetes from hydrothermal vents and cold seeps with the description of two new species of Terebellidae (Annelida: Polychaeta) representing the first

records of the family. Journal of the Marine Biological Association of the United Kingdom 92 (5): 997-1012. doi:10.1017/S0025315411000658

Reuscher, M. & Fiege, D. (2011) Sphaerodoridae (Annelida: Polychaeta) from the deep South West Pacific, with the description of a new species of Sphaerodoropsis Hartman & Fauchald, 1971. Journal of the Marine Biological Association of the United Kingdom 91 (2): 439-445. doi:10.1017/S0025315410000469

Reuscher, M., Fiege, D. & Wehe, T. (2009) Four new species of Ampharetidae (Annelida: Polychaeta) from Pacific hot vents and cold seeps, with a key and synoptic table of characters for all genera. Zootaxa, 2191: 1-40.

BOOK CHAPTERS

Montagna, P.A., Baguley, J.G., Reuscher, M.G., Rowe, G.T. & Wade, T.L. (2020) Linking Abiotic Variables with Macrofaunal and Meiofaunal Abundance and Community Structure Patterns on the Gulf of Mexico Continental Slope. In: Murawski, S. et al. (eds.) Scenarios and Responses to Future Deep Oil Spills, pp. 109-131. Cham: Springer. doi:10.1007/978-3-030-12963-7_7

Reuscher, M.G., Montagna, P.A. & Sturdivant, S.K. (2019) Sampling techniques for the marine benthos. In: Cochran JK, Bokuniewicz HJ & Yager PL (eds.) Encyclopedia of Ocean Sciences, 3rd Edition, vol. 2, pp. 752-764. Oxford: Elsevier. doi:10.1016/B978-0-12-409548-9.10987-X

REPORTS, CHAPTERS, AND OTHER PUBLICATIONS

Reuscher, M.G. (2019) Workshops at Texas A&M University-Corpus Christi advance cutting-edge research for marine environmental impact studies. Third Coast Science 4: 10-11.

Reuscher, M.G. (2018) 2nd Benthic invertebrate taxonomy, metagenomics and bioinformatics (BITMaB-2) workshop 2018. Final report for the Gulf of Mexico Alliance, Gulf of Mexico Research Initiative (GoMRI) project 16-052. Harte Research Institute for Gulf of Mexico Studies, Corpus Christi, TX, 23pp.

Reuscher, M.G. (2017) Benthic invertebrate taxonomy, metagenomics and bioinformatics (BITMaB) workshop 2017. Final report for the Gulf of Mexico Alliance, Gulf of Mexico Research Initiative (GoMRI) project 16-052. Harte Research Institute for Gulf of Mexico Studies, Corpus Christi, TX, 15pp.

Reuscher, M. (2013) Biodiversity, ecology, and natural history of polychaetous annelids of the Gulf of Mexico. Dissertation. Texas A&M University–Corpus Christi, xvi 246 pp.

Reuscher, M., Fiege, D. & Wehe, T. (2010) Amphisamytha vanuatuensis Reuscher, Fiege & Wehe, 2009. In: Morineaux, M., Baker, M., Ramirez-Llodra, E. & Desbruyères, D. (eds.). DVD of deep-sea hydrothermal vent fauna. ChEss and Ifremer.

Reuscher, M., Fiege, D. & Wehe, T. (2010) Anobothrus apaleatus Reuscher, Fiege & Wehe, 2009. In: Morineaux, M., Baker, M., Ramirez-Llodra, E. & Desbruyères, D. (eds.). DVD of deep-sea hydrothermal vent fauna. ChEss and Ifremer.

McKenna, S.A., Lash, J., Morgan, L., Reuscher, M., Shirley, T., Workman, G., Driscoll, J., Robb, C., & Hangaard, D. (2009) Finding Coral Expedition. Cruise Report. Living Oceans Society, 52 pp.

Reuscher, M. (2007) Deep-sea polychaetes of the Pacific and Atlantic Oceans with particular consideration of the fauna from hot vents and cold seeps. Thesis. Heidelberg University, 128 pp. [In German]

Stacey Rice-Marshall

CHIRONOMIDAE TAXONOMIST

EcoAnalysts, Inc.
Moscow, Idaho Location

Mrs. Rice-Marshall joined the team of aquatic scientists at EcoAnalysts, Inc. in 2021 as a Chironomidae Taxonomist. In this position, she identifies Chironomidae specimens from water bodies across North America while ensuring protocol for each client is followed. Accurate assessment of abundance and richness are made for each project, while deadlines are met for data delivery. She is a member of the Society for Freshwater Science and the Entomological Society of America. Before joining the EcoAnalysts team, Mrs. Rice-Marshall worked as a researcher and project coordinator with economically important insect species in forest entomology and forest health protection, studying how biochar affects insects and other invertebrates. She also worked to understand and document the biology and dispersal of invasive insects in agricultural systems. She has a background in pollinator ecology as well as several years of experience working with aquatic invertebrates in rice crops. Her love of insects translates to her enthusiasm with her team members.

Education

M.S. ENTOMOLOGY, 2022
University of Idaho, Moscow, Idaho

B.S. BIOLOGICAL SCIENCES, 2015
University of California-Davis, Davis, California
Minor: Medical-Veterinary Entomology

A.S. BIOLOGICAL SCIENCES, 2007
Sierra College, Rocklin, California

A.S. LIFE SCIENCES, 2007
Sierra College, Rocklin, California

A.A. LIBERAL ARTS, 2007
Sierra College, Rocklin, California

Affiliations and Certifications

Society for Freshwater Science	2022-Current
Entomological Society of America	2014-Current
Graduate Women in Science	2019-2021

Employment History

CHIRONOMIDAE TAXONOMIST — **ECOANALYSTS, INC.**
2021 – Current — Moscow, Idaho

As a taxonomist, Mrs. Rice-Marshall enjoys processing Chironomidae samples from North America while ensuring individual protocol for each client is followed. Her responsibilities involve the accurate identification of Chironomidae to genus/species, and assessment of abundance and richness of taxa for each project, while deadlines

are met for data delivery. Reference collections are created upon request from the client. She assists with microscopic photography and preserving and organizing specimens in reference collections for quality control and archival purposes. During field season, Mrs. Rice-Marshall becomes a stream technician to assist in collecting benthic samples for our routine bioassessment monitoring projects.

GRADUATE STUDENT RESEARCHER — **UNIVERSITY OF IDAHO DEPT OF ENTOMOLOGY, PLANT PATHOLOGY AND NEMATOLOGY**

2017 – 2021 — Moscow, Idaho

Mrs. Rice-Marshall's experience involved planning, setting up, and conducting simultaneous field, lab and greenhouse-based research projects associated with forest insects and forest health protection. These projects included visual detection, monitoring, collection, preservation, identification, and management of forest insects, as well as rearing, feeding and maintenance of insect colonies for experimental use (such as mountain pine beetle, red turpentine beetle, Douglas-fir tussock moth, western spruce budworm, etc.). Routine surveys of forest insects (and other invertebrates) were performed using various pheromone-baited and non-baited trapping methods. Measuring stand density and environmental data from field sites allowed me to use ArcMap GIS software to create maps of field sites. Experienced with mentoring and training undergraduate research associates, frequently overseeing data collection and sample processing in field, greenhouse, and laboratory. Data was accurately collected, analyzed, and interpreted for multiple manuscript publications.

GRADUATE TEACHING ASSISTANT — **UNIVERSITY OF IDAHO DEPT OF ENTOMOLOGY, PLANT PATHOLOGY AND NEMATOLOGY**

Fall 2020 — Moscow, Idaho

Assisted the professor with online instruction of "Introduction to Forest Insects" entomology course, including creating assignments and grading rubrics, grading assignments, and posting grades to online classroom platform (BbLearn). Experience communicating and engaging with students, including tutoring students who attended weekly virtual office hours and assisting with communications in online BbLearn classroom platform/streamlining online content for all students (Microsoft Stream), including providing access for hearing-impaired.

VOLUNTEER (AS PART OF GRADUATE RESEARCH) — **USDA FOREST SERVICE ROCKY MOUNTAIN RESEARCH STATION**

2018 – 2020 — Moscow, Idaho

In affiliation with the USDA Forest Service, Mrs. Rice-Marshall surveyed, preserved and identified insects in a biochar-amended forest site in Arnold, CA (as part of a larger project lead by Dr. Dumroese). Volunteered as a greenhouse research collaborator for a multiple-year study on effects of biochar-amended soil on Douglas-fir and grand fir seedling stress, while creating a fertilization schedule for 120 Douglas-fir seedlings and 120 grand fir seedlings based on field water capacity. Experienced with multiple forestry site sampling and measurement tools and Scholander bomb pressure chamber equipment for measuring water potential.

JUNIOR RESEARCH SPECIALIST — **UNIVERSITY OF CALIFORNIA DAVIS DEPT OF ENTOMOLOGY AND NEMATOLOGY**

2015 – 2017 — Davis, California

In this position, Mrs. Rice-Marshall designed, set up and conducted field, lab, and greenhouse-based entomological research. Supported research on determining the efficacy of non-toxic methods of integrated pest management in aquatic rice fields (surveying for aquatic and semi-aquatic invertebrates, and toxicity assays) along with the collection, analysis, summary, and interpretation of data. Maintained multiple native and invasive species of insects for experimental purposes, prepared maintained and safely used and disposed of laboratory chemicals (solutions, reagents, etc.) and equipment used in the laboratory, field, and greenhouse. Participated in the biological control of greenhouse insect pests, while cultivating and maintaining multiple plant species in the laboratory and greenhouse. Responsible for the instruction and supervision of undergraduate research assistants.

UNDERGRADUATE STUDENT RESEARCH ASSISTANT — **UNIVERSITY OF CALIFORNIA DAVIS DEPT OF ENTOMOLOGY AND NEMATOLOGY**

2013 – 2015 — Davis, California

As an undergraduate researcher, Mrs. Rice-Marshall supported field, lab, and greenhouse-based research for the Godfrey laboratory. This included research of integrated pest management of insects in field and vegetable crops, the identification of specific and non-target macro and microscopic insects (terrestrial and aquatic) in a flooded rice field (Rice water weevil, tadpole shrimp, Chironomidae, Culicidae, etc.), and the management and organization of laboratory inventory, including chemicals (solutions and reagents) and laboratory equipment.

VOLUNTEER RESEARCH ASSISTANT — **HARRY H. LAIDLAW JR. HONEY BEE RESEARCH FACILITY**

2014 — Yolo County, California

Along with a team, Mrs. Rice-Marshall was responsible for the inspection and maintenance of over 200 Apis mellifera (honeybee) colonies throughout Yolo County, CA. Assisted with honey extraction, feeding, treating varroa mite infestation, monitoring for colony disorders and disease, and organizing all equipment and tools. Assisted with research on gene expression and behavioral changes of queen bees and collected several hundred bees for administration of anesthesia and/or insemination.

VOLUNTEER RESEARCH ASSISTANT — **NATIONAL PARK SERVICE, ALCATRAZ ISLAND**

2015 – 2016 — San Francisco, California

Helped to design, set up, and conduct field monitoring of Pacific Powderpost Beetle for a multiple-year biological assessment and management project. Lead a team to distribute sentinel monitoring devices, while creating a map to record the locations of each device. Assisted with data collection and interpretation for official NPS reports.

Publications

Rice-Marshall, S., S. P. Cook, J. Randall. 2021. Impact of biochar on Douglas-fir tussock moth, *Orgyia pseudotsugata* (Lepidoptera: Erebidae) larvae reared on synthetic diet. *Insects.* doi: 10.3390/insects12121065

Rice-Marshall, S. S.P. Cook, J. Randall. 2022. Does biochar alter insect utilization of downed ponderosa pine trees? Manuscript in process.

S. P. Cook, **S. Rice-Marshall**, L. Leblanc, D. Page-Dumroese. Effects of biochar on forest invertebrates in a post-harvest site in the Stanislaus National Forest, California. Manuscript in process.

Agahee, M. A., **S. Rice**, J. Milnes, L. Godfrey. Is *Halyomorpha halys* (Hemiptera: Pentatomidae) a threat to California rice? *Crop Protection* 111. September 2018.

I. Grettenberger, **S. Rice**, S. Joseph, L. Godfrey. Where to oviposit: influence of host plants on *Bagrada hilaris* (Hemiptera: Pentatomidae) oviposition site selection. Submitted.

Bloese, J., **S. Rice**, K. Goding, L. Godfrey. A collaborative approach to integrated pest management of tadpole shrimp in California rice fields. *Simply Sustainable*. SARE. Logan, UT. 2016.

Rice, S. J. Carey, L. Kimsey, E. Lewis. 2013. *One Minute Entomology Videos.* 2013

- https://www.youtube.com/watch?v=nkqNB-qqq3o
- https://www.youtube.com/watch?v=LhHxYrl6Lfs&list=PLq4_hV3qSh8PqnIh339Gd3oDDIH0YpFHO

Spheros Proposal for WV DEP Benthic Macroinvertebrates 2025

Final Audit Report 2025-11-11

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