DAVID F. RAIKOW, Ph.D.
Aquatic Ecologist/Biogeochemist/Ecotoxicologist
PO Box 1262, Volcano, HI 96785-1262
Eve: 808-333-6481 | Day: 808-985-6325
Email: david_raikow@nps.gov

United States Citizen — SSN: XXX-XX-XXXX
Highest Grade Held: GS-13 — Veterans Preference: No

JOB OBJECTIVE: This is a resume posted on my homepage: www.davidraikow.com

EDUCATION

Ph.D. Ecology, 2002, Michigan State University, East Lansing, MI.

MS Biology, 1996; Cum Laude, University of Pittsburgh, Pittsburgh, PA.

BS Biology, 1993; Cum Laude, University of Pittsburgh, Pittsburgh, PA.

BA History & Philosophy of Science, 1993; Cum Laude, Univ. of Pittsburgh, Pittsburgh, PA.

FEDERAL POSITIONS

(details below)

2012-current — NATIONAL PARK SERVICE

- GS-13 (step 1) Program Manager / Supervisory Ecologist *(Detail)*
  Pacific Island Network, Inventory and Monitoring Division
  January 2014 - June 2014, 40hrs. per week.

- GS-11 (step 3) Ecologist *(Permanent)*
  Pacific Island Network, Inventory and Monitoring Division
  June 2012 - current, 40hrs. per week.

2006-2010 — ENVIRONMENTAL PROTECTION AGENCY

- GS-12 (step 4) Research Ecologist *(Term)*
  National Exposure Research Laboratory
  September 2006 - September 2010, 40hrs. per week.

2003-2006 — NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

- GS-11 (step 4) Research Aquatic Biologist *(Term)*
  Great Lakes Environmental Research Laboratory
  November 2003 - September 2006, 40hrs. per week.

DETAILED WORK EXPERIENCE

U.S. National Park Service (NPS) **06/2012 to Present**
PO Box 52, Hawaii National Park, HI 96718 US

Supervisory Ecologist GS-0408-13 01/2014 to 06/2014
Inventory Monitoring Division (I&M) Hours / Week: 40
Pacific Island Network (PACN) Salary $ USD / Year
Supervisor: Penelope Latham, Contact: Yes (206-220-4267) Temporary Promotion Detail

I&M NETWORK PROGRAM MANAGER: Lead and manage the Inventory and Monitoring (I&M) Pacific Island Network (PACN) ecological research program for long-term monitoring of terrestrial, freshwater, and marine natural resources (water quality, aquatic ecology, vegetation, wildlife, exotic and pest species, fisheries, climate, and ecosystem dynamics). Set goals and objectives for long term ecological monitoring programs. Oversee data management. Review monthly staff accomplishments and issue report. Exercise the full range of technical and administrative supervisory responsibilities including approval of purchasing and travel requests, time-sheets, and status reporting to region, steering committee, and Board of Directors.

COMMUNICATION: Communicate with all levels of the I&M Program including Park Superintendents, Park Resource Managers and staff, Regional I&M Managers, NPS Water Resources Division, other NPS experts, other agencies, and university researchers. Negotiate agreement among NPS scientists and managers.

STAFF SUPERVISION AND HIRING: Provide supervision and leadership to an interdisciplinary team of 19 natural resource professionals, data managers, technical specialists, technicians, and administrative support staff. Directly supervise five GS-11s. Resolve complaints, grievances, conflicts, and sensitive staff issues. Develop and implement employee performance standards. Write hiring documents including position descriptions, job analyses, and questionnaires. Work with staff to recruit, and oversee hiring process, for permanent biological technician, term biological technician, and administrative assistant.

BUDGET: Manage $1,908,600 budget. Revise and submit PACN Workplan and Financial Plan to the Steering Committee and Board of Directors. Create procedures for, and oversee implementation of a new accounting system. Project future research and funding needs, identify and develop cost estimates. Monitor expenses. Decide allocation of funds to object classes, contracts, and agreements. Evaluate and approve purchases. Oversee acquisition of new office space, supplies, and equipment. Collaborate with other I&M networks to develop funding proposals.

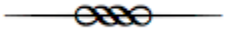
CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COR/COTR): Ensure contracts, contract modifications, agreements, and Memoranda of Understanding (MOU) are on track. Work closely with network staff and regional manager on contracting documents. Write scopes of work, project timelines, and manage new contracts with universities and Cooperative Ecosystem Studies Units (CESU).

SAFETY: Ensure safety readiness reviews are approved by parks. Review PACN safety plan, standard operating procedures (SOPs), Job Hazard Analyses (JHAs), and Green-Amber-Red models(GARs).

IMPLEMENT MONITORING PROTOCOLS: Implement the water quality, groundwater, and stream animal NPS I&M protocols. Collect and instruct others in how to collect data and calibrate instrumentation according to detailed standard operating procedures in I&M protocols. Apply expert knowledge of the theories and principles of freshwater aquatic ecology to research studies. Analyze scientific study results in freshwater aquatic ecology and interpret results. Work with park and agency staff to determine study designs and sampling frames. Work with network Geographic Information System (GIS) Technician, Western Regional Climate Center (WRCC), parks, and regional manager to create implementation plan and contracts for the Weather/Climate protocol. Assess implementation needs and security needs for weather stations at parks. Develop reporting tools, and analyses for status and trends reports.

Key Accomplishments:

- I revised and delivered FY14 PACN workplan, created and delivered the new financial plan and quarterly financial plan reconciliation on-time.
- I obtained new office space to consolidate the staff.
- I completed hiring documents for two biological technicians and one administrative assistant.
- I wrote a successful proposal to I&M for $50,000 to support the climate protocol.
- I obtained statistical training for the scientific staff by bringing an instructor on-site.
- I wrote an MOA with Hawai'i Volcanoes National Park ($10,000), a Contract with University of Kansas ($5,000), and an Agreement Modification with the Western Regional Climate Center ($83,034).



Ecologist (Aquatic) GS-0408-11 step 3 06/2012 to 01/2014, and 06/2014 to present
Inventory Monitoring Division (I&M) Hours / Week: 40
Pacific Island Network (PACN) Salary: $ USD / Year
Supervisor: Ryan Monello, 2015-present, Contact: Yes, (808-985-6183) Permanent
Penny Latham, 2014, Contact: Yes, (206-220-4267)
Greg Kudray, 2012-2014, Contact: Yes (406-459-9125)

AQUATIC ECOLOGIST: Monitoring protocol lead for water quality, groundwater, and stream animal protocols, support anchialine pool animal and climate protocols. Apply expert knowledge of the theories and principles of freshwater aquatic ecology (e.g. community and ecosystem ecology, hydrology, biogeochemistry) to research studies. Implement, critically evaluate, improve, and set goals and objectives for long term ecological monitoring programs examining status and trends in streams, anchialine pools, wetlands, groundwater, and near-shore marine habitats. Extract data from Access databases, explore data, and statistically analyze data. Analyze scientific study results in aquatic ecology, interpret results, and present results in NPS reports. Ensure scientific rigor and statistical soundness of protocol study design and data analysis.

PROJECT MANAGER: Identify, define, and resolve programmatic, administrative, and scientific problems and make alterations to improve quality control. Manage daily operations, budget, quarterly and annual sampling, data analysis, and reporting schedules for long-term monitoring in the field. Coordinate field logistics for natural resource project implementation, and oversee travel by technicians. Oversee data collection, data entry, and data verification by technicians. Work with GIS and data management support staff to improve workflow and quality control. Work with park staff including resource managers.

WATER QUALITY BIOGEOCHEMIST: Select laboratory for new water quality sample analysis contract. Collect and manage water samples, natural resources information, and data from aquatic ecosystems in 9 National Parks located in Hawaii, American Samoa, Guam, and Saipan.

COMMUNICATION: Communicate with all levels of park and I&M including Superintendents, Natural Resource Managers, NPS Water Resources Division, Steering Committee, Board of Directors, park staff. Respond to inquiries from the general public. Contribute to PACN outreach materials. Serve as technical expert to park resource management programs including fish eradication and tree fertilization proposals. Critically evaluate Environmental Impact Statements (EIS). Analyze, interpret and synthesize complex scientific information for NPS park resource managers. Write NPS reports.

CONTRACTS AND AGREEMENTS: Contracting Officer's Technical Representative (COTR) and Agreement Technical Representative (ATR). Manage financial arrangements to ensure contracts, agreements, modifications, and MOUs are on track. Work closely with network staff and regional manager on contracting documents. Write documents for new contracts.

SUPERVISOR: Supervise and mentor full-time biological technician on a daily basis, supervise remotely located biological technicians, supervise groups of technicians and volunteers in the field. Assign tasks, evaluate work quality, approve annual workplans. Develop employee performance standards and formally assess performance. Evaluate applicants and select Technicians, admin assistants.

SAFETY: Promote a culture of safety. Assist development of PACN safety plan and readiness review process. Develop new Job Hazard Analyses (JHAs), Green-Amber-Red (GAR) risk models, and safety checklists. Prepare documents for, and ensure completion of, annual readiness reviews parks. Evaluate hazards in field and alter field operations. Conduct tailgate safety briefings.

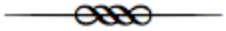
REMOTE SETTINGS: Live (e.g. extended back-country camping) and work (e.g. strenuous backpacking) in remote, mountainous, rocky terrain with steep slopes, rivers, forests, and physically hazardous settings without roads or utilities. Fly in fixed-wing aircraft. Plan logistics for complex field travel and sampling that includes boat operations.

Key Accomplishments:

- I cleared a multi-year backlog of water quality samples widely distributed among several parks and cleared a huge data entry backlog for multiple protocols.
- I wrote the first official report for the aquatic program, and have published five more reports.
- I identified serious methodological flaws in the Water Quality Protocol and implemented improvements. This resulted in improved sample quality control for the water quality protocol.
- I improved safety procedures by eliminating dangerous field sites, and wrote dozens of new safety documents and procedures.
- I reduced aquatic program costs by $8000 per year.

Self Employed **10/2010 to 06/2012**
7282 Thomas Drive Hours / Week: 15
Cincinnati, OH 45243 US Salary: $ USD/Yr

Aquatic Ecologist
Apply expert knowledge of freshwater aquatic ecology to research studies. Analyze and interpret scientific freshwater aquatic ecology study results. Mapped, analyzed, and displayed geospatial data with Geographic Information Systems (ArcGIS/ArcINFO). Integrated spatial data with output from hydrologic and hydrodynamic models. Geostatistically analyzed spatial data using Kriging, Inverse Distance Weighting, and Resource Shed Analysis. Critically reviewed primary scientific literature manuscripts and research proposals. Compiled freshwater ecological data using Microsoft Excel at expert level. Wrote peer-reviewed scientific publications documenting aquatic ecological research including significance to scientists and managers using Microsoft Word at expert level. Created scientific presentations using Microsoft PowerPoint at expert level. Presented scientific results at national conferences to scientists.



U.S. Environmental Protection Agency (EPA) **09/2006 to 09/2010**
26 Martin Luther King Drive Hours / Week: 40
Cincinnati, OH 45268 US Salary: $ USD / Year
Term

Research Ecologist (Aquatic) GS-0408-12 step 4
National Exposure Research Laboratory
Supervisor: Greg Toth, Contact: Yes (513-569-7242)

AQUATIC ECOLOGIST and ECOTOXICOLOGIST: Apply expert knowledge, design, and conduct complex, interdisciplinary, and applied scientific (freshwater aquatic ecology) research projects in streams, riparian zones, watersheds, inland lakes, The Laurentian Great Lakes, and coasts. Applied aquatic biology theories and principles (e.g. community-, ecosystem-, and landscape-ecology, biogeochemistry, ecotoxicology, and hydrology) to the design, execution, and reporting of scientific freshwater ecosystem research. Monitor status of contaminated aquatic ecosystems; e.g. exposure risk analysis, stable isotope analysis of flora and fauna, food web structure, biogeochemical processes, aquatic habitat evaluation, aquatic ecosystem connectivity, aquatic ecosystem response to chemical stressors, contaminant cycling, fate, and transport, legacy contaminants, polychlorinated biphenyls (PCBs), mercury, and emerging contaminants (tricolsan).

RESEARCH PROPOSALS AND COLLABORATION: Wrote research proposals. Coordinated and led an interdisciplinary interagency research project. Designed and oversaw an ecological-process mesocosm experiment run by contractors; reviewed methods and quality of work. Selected external lab for contract. Wrote scopes of work, Quality Assurance Project Plans, project work plans, communication plans, work breakdown structures, and timelines to manage scientific projects and multi-project programs.

PARTNERSHIPS: Worked with interdisciplinary and interagency teams of scientists including ecologists, hydrologists, and engineers. Helped colleagues plan and design ecological studies. Critically reviewed and edited federal agency science reports, primary scientific literature manuscripts, research proposals, and research methods (see *Professional Service* below).

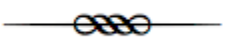
DESIGN AND CONDUCT AQUATIC ECOSYSTEM RESEARCH: Planned statistically valid studies of aquatic ecosystems. Invented new scientific protocols. Integrated organism collection, ecosystem parameter measurement, and spatial analyses into comprehensive study designs. Collected and identified benthic macroinvertebrates, fish, terrestrial insects, and spiders. Inventoried invertebrate communities. Sampled and processed sediment, organic matter, and water. Operated small boats. Mapped, analyzed, and displayed geospatial data with Geographic Information Systems, ArcGIS/ArcINFO. Created maps for publication. Integrated spatial data with output from hydrologic and hydrodynamic models; geostatistical Kriging, Inverse Distance Weighting, and Resource Shed Analysis.

STATISTICIAN: Applied statistical tests including Analysis of Variance (ANOVA), Repeated Measures ANOVA, Standard and Logistic Regression, and multivariate Principal Components Analysis (PCA) to diverse data sets. Used Systat. Explored data including large data sets and synthesized information. Created charts and graphs. Compiled data in Microsoft Excel at expert level. Created and mined databases using Microsoft Access. Created database queries.

COMMUNICATION: Wrote peer-reviewed scientific publications using Microsoft Word at expert level. Wrote research-blog entries for the public by translating complex scientific results. Created scientific posters and presentations using Microsoft PowerPoint at expert level. Presented scientific results to varied audiences including federal and state agencies, non-government organizations, and the public at national and international conferences, universities, and field stations. Briefed federal agency management. Chaired sessions at conferences. Adjusted presentation complexity-level to accommodate audience expertise-level.

Key Accomplishments:

- I wrote a successful proposal for $150,000 on mapping contaminant source areas in major watersheds and lakes funded by NOAA Sea Grant.
- I wrote a successful proposal for $70,000 to run an experiment on mercury cycling tin aquatic food webs funded by EPA.
- I wrote a successful proposal for $15,000 to fund geospatial research on large watersheds funded by EPA.
- I conducted a Natural Resource Damage Assessment and Exposure Risk Estimate for Lake Hartwell, a PCB Superfund site.
- I was awarded a Scientific and Technological Achievement Award by the EPA. It was at Level 1, which is the highest and came with a $10,000 award shared among co-authors.
- I ran a special session at the American Society of Limnology and Oceanography conference.



National Oceanic & Atmospheric Administration (NOAA) **11/2003 to 09/2006**
4840 S. State Road Hours / Week: 40
Ann Arbor, MI 48108 US Salary: $ USD / Year
Term

Research Aquatic Biologist GS-0401-11 step 3
Great Lakes Environmental Research Laboratory
Supervisor: David Reid, Contact: Yes (734-741-2019)

AQUATIC ECOLOGIST: Apply expert knowledge of the theories and principles of freshwater aquatic ecology to research studies. Design and conduct complex and interdisciplinary scientific research projects involving freshwater aquatic ecology in streams, watersheds, The Laurentian Great Lakes, and coasts. Analyze scientific study results in freshwater aquatic ecology and interpret results. Applied aquatic ecology theories and principles including community-, ecosystem-, and landscape-ecology, biogeochemistry, ecotoxicology, and hydrology to the design, execution, and reporting of scientific freshwater ecosystem research. Examine organism and ecosystem response to biological, physical, and chemical stressors. Identified and recommended research priorities especially concerning invasive species.

MANAGE PROJECTS AND COLLABORATIONS: Coordinated and led interdisciplinary and interagency research projects. Supervised technicians in field and laboratory. Wrote project work plans and timelines to manage scientific projects and programs. Recruited research teams. Wrote budgets and purchased equipment with spending authority. Selected external labs for sample analysis contract. Wrote Memoranda of Understanding. Created new relationships between federal and state agencies, universities, non-government organizations, regulators, and foreign scientists. Helped colleagues plan and design ecological studies. Worked with interdisciplinary teams of scientists including ecologists, physical scientists, chemists, hydrologists, engineers, and oceanographers.

INTERAGNECY PARTNERSHIPS: Fully engage the multi-state and international scientific and regulatory community of the Great Lakes region (see details below). I also critically reviewed, commented, or edited federal agency science reports, scientific manuscripts, research proposals, methods, proposed federal regulations, biological invasion programs and rapid emergency response plans, International Maritime Organization (IMO) Ballast Water Organism Mitigation Standards, and a report to congress.

COMMUNICATION: Created scientific publications using Microsoft Word at expert level; posters and presentations using Microsoft PowerPoint at expert level. Presented scientific results to varied audiences at national and international conferences, federal and state agencies, non-government organizations, universities, and the public. Briefed federal agency management. Created workshops for students. Adjusted presentation complexity-level to accommodate audience expertise-level.

DESIGN AND CONDUCT AQUATIC ECOSYSTEM RESEARCH: Planned statistically valid studies of aquatic ecosystem components including field survey of an entire Great Lake. Invented new scientific methods/protocols. Integrated biogeochemical sampling, organism collection, ecosystem parameter measurement, stable isotope and spatial analyses into study design. Designed protocols for field studies of aquatic environmental factors and processes. Collected and identified phytoplankton, zooplankton, and benthic macroinvertebrates. Sampled and processed sediment. Statistically explored data including large data sets by applying statistical tests and programs. Created charts and graphs. Statistically analyzed data with univariate and multivariate tests. Compiled data in Microsoft Excel at expert level. Created and mined databases using Microsoft Access.

Key Accomplishments:

- I created the Great Lakes Aquatic Nuisance Species Information System.
- I Recruited 10-member International Research Team (NOAA, USGS, Great Lakes Commission, U. of San Diego, Germany, Lithuania, and Ukraine) for a $2.5M proposal.
- I obtained $38,000 in NOAA Research Awards: Invasive Species, Great Lakes Aquatic Nonindigenous Species Information System, and International Field Years on Lake Erie.

Michigan State University 08/1996 to 08/2002
W. K. Kellogg Biological Station Hours / Week: 55
3700 E Gull Lake Dr Salary: $ USD / Year
Hickory Corners, MI 49060 United States

Research and Teaching Assistant
Supervisor: Stephen K. Hamilton, Contact: Yes (269-671-2231)

AQUATIC ECOLOGIST: Applied aquatic biology theories and principles to the design, proposal, execution, and reporting of scientific freshwater ecosystem research including community and ecosystem ecology, food web structure, biogeochemical processes, and physical habitat condition in headwater streams, rivers, wetlands, and inland lakes. Collected and identified phytoplankton, zooplankton, benthic macroinvertebrates, and freshwater mussels. Captured and cultured fish. Sampled sediment, organic matter, and water. Chemically analyzed aquatic nutrients. Used multi-parameter water-quality sondes and in-situ data loggers. Operated small boats. Compiled large sets in Microsoft Excel; analyzed univariate and multivariate statistics with SAS, SPSS, and Systat.

PROJECT MANAGER: Planned and conducted statistically valid studies of aquatic ecosystem components including state-wide synoptic field surveys, community inventories, long-term environmental monitoring, ecosystem baseline/reference condition documentation, stable isotope analysis, and in-situ mesocosm experimentation. Wrote project work plans. Invented new scientific methods/protocols. Supervised technicians in field.

COMMUNICATION AND TEACHING: Wrote peer-reviewed scientific publications documenting aquatic ecological research including significance to scientists and managers, research proposals in Word. Created scientific posters and presentations in PowerPoint. Presented scientific results to scientists at national and international conferences. Critically reviewed primary scientific literature manuscripts. Taught Genetics Recitation, Ecology Lab, Introductory Biology Lab.

Key Accomplishments:

- Supported the Long-Term Environmental Research (LTER) ecological monitoring program.
- Team Member, Lotic Intersite Nitrogen Experiment (LINX 1).
- Completed Ph.D. Dissertation: "How the Feeding Ecology of Native and Exotic Mussels Affects Freshwater Ecosystems."

WRITTEN COMMUNUICATION

NATIONAL PARK SERVICE REPORTS:

Raikow, D. F., and A. Farahi. 2015. Water Quality in Streams of Haleakala National Park: summary report 2007-2011. Natural Resource Data Series NPS/PACN/NRDS—2015/XXX.

Raikow, D. F., and A. Farahi. 2015. Water Quality in Streams of National Park of American Samoa: summary report 2007-2011. Nat. Resource Data Series NPS/PACN/NRDS—2015/753.

Raikow, D. F., and A. Farahi. 2014. Water Quality in Waikolu Stream, Kalaupapa National Historical Park: summary report 2007-2011. Natural Resource Data Series NPS/PACN/NRDS—2014/670.

Raikow, D. F., and A. Farahi. 2014. Water Quality in Anchialine Pools of Pu`uhonua O Hōnaunau National Historical Park: summary report 2007-2011. Nat. Resource Data Series NPS/PACN/NRDS—2014/665.

Raikow, D. F., and A. Farahi. 2014. Water Quality in Anchialine Pools of Ala Kahakai National Historic Trail: summary report 2008-2011. Natural Resource Data Series NPS/PACN/NRDS—2014/663.

Raikow, D. F., and A. Farahi. 2014. Water Quality in the Asan River, War in the Pacific National Park: summary report 2007-2011. Natural Resource Data Series NPS/PACN/NRDS—2014/662.

Raikow, D. F., and A. Farahi. 2014. Water Quality in Anchialine Pools of Kaloko-Honokōhau National Historical Park: summary report 2008-2011. Natural. Resource Data Series NPS/PACN/NRDS—2014/661.

Raikow, D. F., and A. Farahi. 2013. Data report for water quality in the brackish waterbody at Pu'ukohola Heiau National Historic Site: summary report 2007-2011. Natural Resource Data Series NPS/PACN/NRDS—2013/508.

ARTICLES IN REFEREED PROFESSIONAL JOURNALS:

Atkinson, J.F., Raikow, D. F., Croley, T. E., Xue, X., In Review, Delineation of Resource Sheds in Large Lakes, *Journal of Environmental Engineering.*

Walters, D. M., Raikow, D. F., J. T. Oris, C. Hammerschmidt, M. G. Mehling, A. K. Gevertz, In Review, Methylmercury bioaccumulation across a productivity gradient in streams, *Environmental Science and Technology*.

Nietch CT, Quinlan EL, Lazorchak JM, Impellitteri CA, Raikow D, Walters D., 2013, Effects of a chronic lower range of triclosan exposure on a stream mesocosm community. *Environmental Toxicology and Chemistry* 32(12):2874-87.

Raikow, D. F., and E. D'Amico, 2011, Temporal variation in spatial sources of discharge in a large watershed, *Environmental Science and Technology*, DOI: 10.1021/es103009p.

Raikow, D. F., D. M. Walters, K. M. Fritz, M. A. Mills, 2010, The distance that contaminated aquatic subsidies extend into lake riparian zones. *Ecological Applications*. DOI: 10/1890/09-1504.1.

Raikow, D. F., J. F. Atkinson, and T. E. Croley, 2010, Development of resource shed delineation in aquatic ecosystems. *Environmental Science and Technology*, 44:329-334, DOI: 10.1021/es900562t.

Walters, D. M., K. M. Fritz, M. A. Mills, D. F. Raikow, 2010, Spider-mediated flux of PCBs from contaminated sediments to terrestrial ecosystems and potential risks to arachnivorous birds. *Environmental Science and Technology*, DOI: 10.1021/es9023139.

Croley, T. E., D. F Raikow, J. F. Atkinson, C. He, 2008, Hydrological Resource Sheds. *Journal of Hydrologic Engineering*, 13:873-885.

Raikow, D. F., D. F. Reid, and P. F. Landrum, 2007, Aquatic invertebrate resting egg sensitivity to glutaraldehyde and sodium hypochlorite. *Environmental Toxicology and Chemistry* 26:1770-1773.

Raikow, D. F., D. F. Reid, E. R. Blatchley III, G. Jacobs, and P. F. Landrum, 2007, Effects of Proposed Physical Ballast Tank Treatments on Aquatic Invertebrate Resting Eggs. *Environmental Toxicology and Chemistry* 26:717-25.

Raikow, D. F., D. F. Reid, E. E. Maynard, and P. F. Landrum, 2006, Sensitivity of aquatic invertebrate resting eggs to SeaKleen® (Menadione): A test of potential ballast tank treatment options. *Environmental Toxicology and Chemistry* 25: 552-559.

Sarnelle, O., A.E. Wilson, S. K. Hamilton, L. B. Knoll, D. F. Raikow, 2005, Complex interactions between the zebra mussel, *Dreissena polymorpha*, and the noxious phytoplankter, *Microcystis aeruginosa*. *Limnology and Oceanography* 50: 896-904.

Raikow, D. F. 2004. Food web interactions between larval bluegill sunfish (*Lepomis macrochirus*) and exotic zebra mussels (*Dreissena polymorpha*). *Canadian Journal of Fish and Aquatic Sciences* 61: 497-504.

Raikow, D. F., O. Sarnelle, A. E. Wilson, and S. K. Hamilton. 2004. Dominance of the noxious cyanobacterium *Microcystisa aeruginosa* in low-nutrient lakes is associated with exotic zebra mussels. *Limnology and Oceanography* 49: 482-487.

Hamilton, S. K., J. L. Tank, D. F. Raikow, E. Siler, N. Dorn, and N. Leonard. 2004. Using stable isotope tracer additions to study food webs: A model to interpret results from a woodland stream. *Journal of the North American Benthological Society* 23: 429-448.

Raikow, D. F., and S. K. Hamilton. 2001. Bivalve diets in a Midwestern U.S. stream: A stable isotope enrichment study. *Limnology and Oceanography* 46: 514-522.

Hamilton, S. K., J. L. Tank, D. F. Raikow, W. M. Wollheim, B. J. Peterson, and J. R. Webster. 2001. Nitrogen uptake and transformation in a Midwestern U.S. stream: A stable isotope enrichment study. *Biogeochemistry* 54:297-340.

Raikow, D. F., S. A. Grubbs, K. W. Cummins. 1995. Debris dam dynamics and coarse particulate organic matter retention in an Appalachian mountain stream. *Journal of the North American Benthological Society* 14: 535-546.

Searcy, W. A., S. Coffman, and D. F. Raikow. 1994. Habituation, recovery, and the similarity of song types within repertories in red-winged blackbirds (*Agelaius phoeniceus*). *Ethology* 98:38-49.

TECHNICAL MEMOS, LETTERS, ETC:

Raikow, D.F., 2010, Dose-response versus ANOVA, *Frontiers in Ecology and the Environment*, 04/2010; 8:121-122. DOI: 10.1890/10.WB.011

Croley, T. E., C. He, J. F. Atkinson, and D. F Raikow, 2007, Resource shed definitions and computations, NOAA Technical Memorandum GLERL-141, Great Lakes Environmental Research Laboratory, Ann Arbor, Michigan.

Croley, T. E., J. F. Atkinson, and D. F Raikow, 2007, Hydrologic-hydraulic-ecologic resource sheds, The 18th International Association of Science and Technology for Development (IASTED) Conference on Water Resources Planning, May 30 – June 1, 2007, Montreal, Quebec, Canada.

Stevens, M. H. H., D. F. Raikow, M. R Servedio, R. J. Collins, T. L. Schumann, A. N. Tipper, and W. P. Carson, 1996, Hutchinson's chariot: A review of Species Diversity in Space and Time, by M. L. Rosenzweig. Plant Science Bulletin 42:48-49.

USGS Nonindigenous Aquatic Species database factsheets: *Dreissena polymorpha, Corbicula fluminea, Cercopagis pengoi, Daphnia lumholtzi, Alosa psuedoharengus, Morone America, Cordylophora caspia.*

ORAL COMMUNICATION (SUMMARY)

20 PRESENTATIONS OF SCIENTIFIC FINDINGS AT PROFESSIONAL CONFERENCES:

- North American Benthological Society (2010, 2008, 2001, 2000, 1999, 1997, 1994).
- Ecological Society of America (2002, 2000, 1997).
- International Conference on Aquatic Invasive Species (2006, 2004, 2004).
- American Society of Limnology and Oceanography (2009, 2007).
- International Large Rivers Symposium (2010).
- International Association of Great Lakes Research (2006).
- Midwest Regional Data Exchange Conference (2004).
- Long Term Ecological Research All Scientist Meeting (2000).
- Freshwater Mollusk Conservation Society (1999).
- Plus 11 additional conference contributions as a secondary author *(31 total contributions).*

9 FULL-LENGTH INVITED SEMINARS PRESENTING SCIENTIFIC FINDINGS:

- National Oceanic and Atmospheric Administration (NOAA).
- U.S. Environmental Protection Agency (EPA).
- U.S. Geological Service (USGS).
- Sam Houston State University.
- Western Michigan University.
- The Nature Conservancy.
- University of Cincinnati.
- University of Pittsburgh.
- Purdue University.

SEMINAR SERIES and PUBLIC PRESENTATIONS:

- Environmental Science Careers Seminar Series, NOAA.
- Public Seminar on Legacy Contamination, Powdermill Nature Reserve.
- Public Seminar on Invasive Species, Three Rivers Rotary Club.
- Public Seminar on Invasive Species, Kalamazoo Garden Club.

CERTIFICATIONS and SELECTED TRAINING

Certified Ecologist, Ecological Society of America, 2003-2014.
Certified in Teaching College Science and Mathematics, Michigan State University, 2002.

NPS Introduction to Park Program Management, 40 hrs, 2015
NPS SMART Performance Management, 24 hrs, 2015.
NPS Fundamentals (residential), 80 hrs, 2014.
NPS Agreement Technical Representative (ATR), 24 hrs, 2014
NPS Contracting Officer's Representative (COR), 40 hrs, 2014.
NPS Supervisory Training, 40 hrs, 2013.
NPS Operational Leadership (OLT), 16 hrs, 2012.

Wilderness First Aid, NOLS, 16 hrs., 2014.
R Statistics, PaulRStat, LLC., on-site workshop, 16 hrs, 2014.
Groundwater Pollution and Hydrology, 38 hrs, Princeton Groundwater, Inc., 2010.
Project Management, 16 hrs, Michael Greer, 2006.
Advanced Conservation GIS and Remote Sensing, 32 hrs, Smithsonian Institution, 2006.
Introduction to ArcGIS I and II, 40 hrs, ESRI, 2005.
Microsoft Access I and II, 16 hrs, Washtenaw Community College, 2004.

PROFESSIONAL SERVICE

PANELS, WORKING GROUPS, AND SYMPOSIA:

- Alternate NOAA Representative to the Great Lakes Aquatic Nuisance Species Panel, 2004.

- Invited Panelist and Speaker:
  - Invasive Species Research Priorities Forum on Great Lakes Research Needs, Michigan Department of Environmental Quality, IAGLR Conference, 2005.
  - Aquatic Invasive Species Database Summit, 2005.
  - NOAA Aquatic Invasive Species Retreat, 2005.

- Invited Participant:
  - Scientific productivity metrics committee, EERD reorganization, EPA, 2010.
  - Aquatic Invasive Species Rapid Response Workshop, NOAA, 2006.
  - Aquatic Nuisance Species and the Disruption of the Great Lakes Food Web Symposium, National Wildlife Federation, 2005.
  - Great Lakes - Baltic Sea Invasive Species Symposium, 2005.

  - Aquatic Invasive Species Retreat, NOAA, 2005.
  - National Ecological Observation Network Workshop, Kellogg Biological Station, 2004.

- Attendee:
  - Joint State Water Conference and Kona Water Roundtable, 2013.
  - Integrated Modeling for Integrated Assessment Workshop, EPA, 2007.
  - Great Lakes - Baltic Sea Invasive Species Symposium, 2004.
  - Lake Erie Science Planning Workshop, 2004.

DOCUMENTS I HAVE REVIEWED OR EDITED FOR FEDERAL AGENCIES:

- "Effects of groundwater on fishponds and coastal ocean of the Kaloko-Honokōhau National Historical Park, by Marine Research Consultants, Inc., for Kaloko-Honokohau National Historical Park, 2014.
- "Summary of results from the Kohanaiki water quality monitoring program", by Environmental Assessment, LLC, for Kaloko-Honokohau National Historical Park, 2014.
- "Court testimony concerning water quality in Kaloko-Honokohau National Historical Park", for Kaloko-Honokohau National Historical Park, 2014.
- "Pacific Island Network Workplan", NPS Inventory and Monitoring, 2014.
- "Kaloko-Makai Development Environmental Impact Statement", for Kaloko-Honokohau National Historical Park, 2013.
- "Fishpond Restoration: non-native fish and detritus removal", Pu'uhonua o Hōnaunau National Historical Park, 2013
- "Evaluation of non-target effects associated with transgenic crops", EPA NRML report, 2008.
- "An Analysis of the Effectiveness of Ballast Water Exchange in Controlling Aquatic Nonindigenous Species Introductions to the Great Lakes Basin and Chesapeake Bay", Report to Congress, 2006.
- "NOAA Aquatic Invasive Species Program Five Year Strategic Plan", 2006.
- "Aquatic Invasive Species Research Priorities", Great Lakes ANS Panel, 2004.
- "Aquatic Invasive Species Control and Management Research Priorities, NOAA AIS Research Strategy Workshop", 2004.
- "International Maritime Organization (IMO) Ballast Water Organism Mitigation Standards, Ballast Water Technology Type Testing Regulations, and Draft Guidelines for Ranking Invasive Species Projects in Natural Areas", U.S. Coast Guard, 2004.

PROPOSAL REVIEW FOR FUNDING AGENCIES:

- US National Science Foundation.
- Cooperative Institute for Coastal and Estuarine Environmental Technology.
- NOAA GLERL International Field Years on Lake Erie.
- NOAA Great Lakes Ecosystem Research.
- NOAA Sea Grant.

ARTICLE REVIEW FOR JOURNALS:

- *Journal of the North American Benthological Society*.
- *Canadian Journal of Fisheries and Aquatic Sciences*.
- *Environmental Science and Technology*.
- *Journal of Great Lakes Research*.
- *Marine Environmental Research*.
- *Marine Ecology Progress Series*.
- *Limnology and Oceanography*.
- *Ecological Engineering*.
- *Marine Biology*.
- *Hydrobiologia*.
- *Wetlands*.

HONORS & AWARDS

Monetary Award, $600, NPS, 2014.
Time-off Award, 24 hrs, NPS, 2013.
Scientific and Technological Achievement Award, Level 1 - Highest, $10,000 shared, EPA, 2011.
Superior Accomplishment Recognition Award, EPA, 2007, 2008, 2009.
Term Position Extension, EPA, 2009.
Term Position Extension, NOAA, 2005.
Service Recognition, NOAA, 2005.
Fellowship, Graduate Research Training Group (RTG), Michigan State University, 1997-1999.
Departmental Honors and Cum Laude, Biological Sciences, University of Pittsburgh, 1993.
Departmental Honors and Cum Laude, History and Philosophy of Science, U. of Pittsburgh, 1993.

REFERENCES

Ryan Monello, Pacific Island Network Program Manager, National Park Service.
Current supervisor at PACN. 808-985-6183, ryan_monello@nps.gov

Penelope Latham, Pacific West Regional I&M Coordinator (retired), National Park Service.
Supervisor for Program Manager detail in 2014. 206-220-4267, penny_latham@nps.gov

Greg Kudray, Pacific Island Network Program Manager, National Park Service.
Supervisor at PACN 2012-2014. 406-459-9125, greg@ecologyusa.com