



CREDENTIALS

- ◆ *B.S. Marine Science, California State University – Monterey Bay, 2017*
- ◆ *M.S. Environmental Science, Western Washington University, 2021*

PROFESSIONAL EXPERIENCE

- ◆ *2025 – Present: ALL4 LLC, Bellingham, WA – Project Scientist*
- ◆ *2021 – 2025: Integral Consulting Inc., Bellingham, WA – Scientist*
- ◆ *2018 – 2021: Institute of Environmental Toxicology & Chemistry, Bellingham, WA – Research Associate*
- ◆ *2017 – 2018: U.S. Geological Survey, Santa Cruz, CA – Hydrologic Field Technician*

TECHNICAL EXPERTISE

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| ✓ <i>Environmental data analysis and visualization</i> | ✓ <i>Sediment and water quality sampling (marine and freshwater systems)</i> |
| ✓ <i>Bayesian network modeling and probabilistic risk assessment</i> | ✓ <i>Vibracore, SPI, and other field investigation methods</i> |
| ✓ <i>R programming for statistical and geospatial analysis</i> | ✓ <i>Technical report writing and regulatory documentation</i> |
| ✓ <i>ArcGIS and spatial data processing and analysis</i> | ✓ <i>Stakeholder and client communication</i> |

PROFESSIONAL OVERVIEW

With over six years of experience as an environmental scientist, I bring a multidisciplinary approach to site investigations, data-driven risk assessments, and environmental decision-making. My background spans marine and freshwater systems, with specialized expertise in marine ecology, ecological risk assessment, risk assessment of synthetic biology products, sediment quality, contaminant fate and transport, and probabilistic modeling.

My work has supported a variety of environmental projects, from Superfund site evaluations to dredging and restoration planning. I have led the development of modular Bayesian network models to assess site-specific risks from contaminated sediment and integrate diverse data streams, from vibracore and SPI imagery to chemical concentration and toxicity thresholds.

I hold a B.S. in Marine Science and an M.S. in Environmental Science, and I'm driven by a commitment to both scientific rigor and practical solutions. Whether I'm out in the field collecting samples, collaborating with stakeholders, or building models in R, my goal is to help clients make confident, informed decisions that lead to better environmental outcomes.



Synthetic Biology Ecological Risk Assessment, Ponce, Puerto Rico, Project Lead:

Used Bayesian network tools to conduct a comprehensive risk assessment for the deployment of gene drive-modified *Aedes aegypti* mosquitoes as vectors for dengue and Zika virus control in Ponce, Puerto Rico. Integrated human health and ecological endpoints into the assessment, demonstrating the applicability of synthetic biology products within the Bayesian network risk assessment framework. Conducted sensitivity analyses to identify key variables contributing to overall model uncertainty.

EMF Impact Evaluation, Renewable Energy, East Coast, Scientist:

Assisted in modeling and evaluating electromagnetic field (EMF) exposure scenarios related to offshore wind farm development.

- Interpreted EMF model outputs in the context of sensitive marine species
- Drafted technical memos for inclusion in environmental impact documents
- Helped clients demonstrate regulatory compliance with marine resource protections

Ecological Risk Assessment, Upper San Francisco Estuary, California, Scientist:

Applied a Bayesian network relative risk assessment approach to model risks to marine and freshwater species in the Upper San Francisco Estuary. Analyzed extensive data sets with consideration for spatial and temporal scope, meeting the requirements of state regulatory agencies. The assessment aimed to identify significant contributors to the decline of pelagic species within the study area.

Intake Structure Permit Litigation Support, Gulf Coast, United States, Scientist:

Provided ecological impact assessment for federal- and state-listed species, as well as commercially and recreationally important species, as part of litigation support for an intake permit. Assessed salinity thresholds and impacts related to impingement and entrainment from intake structures, ensuring comprehensive support for legal proceedings.

Mining Site, Western United States, Scientist:

Provided spatial analytics support for a natural resource damage assessment project related to contamination from mining activities at a Western U.S. mining site. The spatial analyses contributed to the understanding of the environmental impact, aiding in regulatory compliance and restoration planning.

Mercury Contamination Human Health Risk Assessment, Gulf of Thailand, Scientist:

Provided analytical support for an ecological and human health risk assessment in the Gulf of Thailand. Evaluated the risk contribution from mercury concentrations in offshore demersal and pelagic fish species to the local fishery, ensuring a comprehensive understanding of potential hazards.



Litigation Support Related to Organochlorine Compounds, Multiple Sites, United States, Scientist:
Contributed to the analysis of sum total organochlorine compound concentrations at multiple litigation sites throughout the United States. Data sets included were vast and varied in both spatial and temporal scope and therefore required evaluation for completeness, accuracy, and reliability. Used R and GIS for analyses, producing figures and summaries to support litigation efforts

Sediment Management and Dredging Assessment, Maritime Infrastructure, Puget Sound, WA, Scientist:

Supported sediment contaminant assessment for a yacht club marina expansion.

- Conducted core sampling
- Processed and analyzed sediment samples for metals and organics
- Contributed to development of a defensible dredging plan aligned with ecological sensitivity criteria

Natural Resource Damage Assessment, Mining Industry, Western U.S., Technical Analyst:

Provided spatial and technical support for NRDA litigation and restoration planning associated with historical mining releases.

- Performed contaminant mapping and habitat overlays in ArcGIS
- Integrated injury data and exposure scenarios for ecological endpoints
- Supported regulatory and legal strategy with defensible analytical outputs

PFAS Forensics and Trend Analysis, Environmental Consulting, West Coast, Scientist:

Led spatial and statistical analyses to evaluate groundwater PFAS trends at a Southern U.S. manufacturing site. Used advanced forensics techniques to trace contamination sources and identify concentration patterns.

- Developed a comprehensive PFAS database for multi-year monitoring records
- Applied principal component analysis, hierarchical clustering, and non-parametric trend analyses
- Produced regulatory deliverables with GIS visuals to support risk management strategies

Meteorological Analytics, East Coast, United States, Scientist:

Supported the development of a weather data analysis project, providing crucial data for regression analyses and environmental modeling. The analysis facilitated a comprehensive understanding of meteorological patterns, supporting projects where weather impacts were of significance.

Vessel Grounding Policy Analysis, Marine Sanctuaries, California, Project Lead:

Designed and implemented a geospatial database and mitigation strategy for vessel groundings across five National Marine Sanctuaries.

- Assessed ecological and fiscal impacts of incidents
- Facilitated multi-stakeholder working groups to establish regional action plans
- Developed recommendations to reduce vessel-related habitat damage

TRAINING WORKSHOPS

Novel Biotech Workshop, EPA ORD (Virtual), Extramural Committee — U.S. Environmental Protection Agency, July 2021, Invited Participant:

Contributed to interdisciplinary discussions on risk assessment frameworks for synthetic biology, including gene drives and other novel biotechnologies, with a focus on ecological and regulatory implications.

OPITO BOSIET CA-EBS – Basic Offshore Safety Training, Offshore Safety Provider, Trainee:

Completed training on emergency response protocols, including compressed air emergency breathing systems and helicopter safety, supporting offshore project readiness.

PUBLICATIONS/ PRESENTATIONS

- Brown, E.A., Eikenbary, S.R., and W.G. Landis. 2022. Bayesian network-based risk assessment of synthetic biology: Simulating CRISPR-Cas9 gene drive dynamics in invasive rodent management. *Risk Analysis*. doi: 10.1111/risa.13948
- Landis, W.G., E.A. Brown, and S.R. Eikenbary. 2020. An initial framework for the environmental risk assessment of synthetic biology-derived organisms with a focus on gene drives. pp. 257–268. In: *Synthetic Biology 2020: Frontiers in Risk Analysis and Governance*. B.D. Trump, C. Cummings, J. Kuzma, and I. Linkov (eds). Springer International Publishing.
- Eikenbary, S.R. 2020. Incorporating Characteristics of Gene Drive Engineered *Ae. aegypti* as Methods to Reduce Dengue and Zika Virus into the Bayesian Network–Relative Risk Model, Using Ponce, Puerto Rico as a Case Study. Thesis. Western Washington University, Bellingham, WA.
- Landis, W.G., S.R. Eikenbary, and E.A. Brown. 2023. Risk assessment of gene drive constructs as an approach for controlling populations of pests and disease bearing hosts. 2023 Annual meeting of the Society for Risk Analysis, Arlington, VA.
- Eikenbary, S.R. 2020. Addressing the need for the quantitative risk assessment of gene drives. 2020 Annual meeting of the Pacific Northwest Society of Environmental Toxicology and Chemistry, Bremerton, WA.
- Eikenbary, S.R., E.A. Brown, and W.G. Landis. 2019. Quantitative risk assessment of gene drives. 2019 Annual meeting of the Society for Risk Analysis, Arlington, VA.
- Eikenbary, S.R., N.S. Kashef, M. Palmisciano, D.M. Stafford, K.V. Saksa, S.M. Sogard, C.A. Logan, and S.L. Hamilton. 2017. Effects of seawater pH and dissolved oxygen concentration on ventilation rates in *Sebastes* spp. Annual meeting of the Western Society of Naturalists, Pasadena, CA.