ARIEL MULDOON

I have worked as an applied statistician since I graduated with a Master's degree in Statistics in 2009. I would like to continue to use my statistical experience to work in applied statistics, with a focus on designing and implementing research projects, analyzing the resulting data with statistical rigor, and providing data visualizations of data and results. I am passionate about the importance of collaboration between statisticians and applied scientists, and believe that we can practice better science by working together.

EDUCATION

2009 | 2007

M.S., Statistics

Oregon State University — Corvallis, OR

- Final project: Comparing GEE analysis results from SAS and R procedures using ordinal multinomial data

2007 | 2005

M.S., Fisheries and Wildlife Science (minor Statistics)

New Mexico State University — Las Cruces, NM

- Thesis: Site fidelity and habitat use of a nonnative predatory fish in a manmade canal in New Mexico.

1999 | 1995

B.A., Environmental Studies (minors Geology, Spanish)

Robert D. Clark Honors College, University of Oregon — Eugene, OR

- Thesis: Water quality and quantity issues and current policies in the Mexico City Metropolitan Area, Mexico, and the world.

PROFESSIONAL EXPERIENCE

current | 2022

Applied Statistician

The Boeing Company — Remote, OR

- I am a statistical consultant, working with groups across the company to address safety, quality, and manufacturing questions with statistics. I perform statistical analyses with actionable results for customers, in many cases expanding upon standard statistical methods to appropriately analyze data. I assist customers in designing experiments, provide data visualizations so customers can fully understand their data, and provide a statistical perspective in groups working to solve problems. Specific statistical techniques I provide include generalized linear mixed models, tolerance intervals, and developing Monte Carlo approaches to capture uncertainty from a wide variety of data sources needed in estimation procedures. A key part of my job involves successfully communicating statistical results to people across a wide range of statistical expertises.

View this CV online with links at *ariel.rbind.io/files/acm_resume.html*

CONTACT

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SOFTWARE SKILLS

R/RStudio
SAS
Git/GitHub
Shiny
Markdown
SPSS
WinBUGS

*Made with the R package **pagedown**.*

The source code is available on github.com/aosmith16/resume.

Last updated on 2024-03-12.

2022 | 2012

Research Consulting Statistician

College of Forestry, Oregon State University — Corvallis, OR

- I provided statistical expertise, direction, and guidance to graduate students and faculty on topics ranging from experimental and study design, statistical analysis and interpretation, and software programming. I consulted on a wide variety of topics, from basic linear models to generalized linear mixed models, random forest models, probability sampling and estimation, survival analysis, survey design and analysis, and statistical models appropriate for time series and spatial statistics. Statistical consulting required that I have a wide breadth of statistical expertise in many specialized areas of statistics and that I have an organized set of methods for helping clients to learn about these topics. When I did not have current expertise in a statistical area, I spent time researching with a client to gain the knowledge.
- I taught workshops on statistical software programs and participated in the teaching a data analysis class offered within the Department of Forest Ecosystems and Society.
- I developed examples of R code for common issues that come up for clients and made them available in blog posts to expand my consulting reach.

2021 | 2020

Statistical Consultant

Food and Agriculture Organization of the United Nations — Rome, Italy

- I was part of the Food and Agriculture Organization's Expert Working Group on Woodfuels Modeling, working on approaches to estimate wood fuels production when a country does not provide official data. I volunteered time to assist with the predictive modeling using country and time level variables related to wood fuels production. My work involved complex data cleaning and joining of multiple wood fuels and covariate datasets, imputation of missing covariate data used as predictors, and predictive modeling using machine learning methods. Imputation was done using predictive mean modeling. I used quantile random forest to build models to predict wood fuels for countries from 1999-2019 along with 95% prediction intervals. All work was done using R.
- Since wood fuels production will need to be calculated in the future, I created a directory that uses a parameterized report to summarize future predictions and output datasets of predicted values based on inputs. This will allow FAO employees to calculate wood fuel values for later years without my direct assistance.

2012 | 2010

Fisheries Biometrician

Oregon Department of Fish and Wildlife — Salem, OR

- I worked with fisheries biologists around the state to address management and research questions through appropriate design. I consulted on a variety of statistical questions, including sample size estimates for laboratory experiments and observational studies, appropriate design and analysis for mark-recapture studies, and the appropriateness of a statistical method. In particular, I worked with the design and analysis of angler creel surveys to estimate catch numbers in water bodies throughout the state. These involved site visits, planning, preparing data sheets, oversight of the data collection, working with district biologists on data cleaning, and doing the appropriate analysis for harvest estimates.
- I led a state-wide angler survey to answer questions about perceptions of fishing on the McKenzie River.
- I developed software scripts for managers to analyze angler surveys locally.

2010 | 2009

Statistician

Department of Fisheries and Wildlife, Oregon State University — Corvallis, OR

- I analyzed data from a long-term dataset collected on larval shortnose and Lost River suckers in Upper Klamath Lake while working with researchers to improve the study design.
- I estimated status and trends for the two species of suckers in Upper Klamath Lake while incorporating Berkson measurement errors as well as age-length curves for juvenile suckers.

2009 | 2007

Teaching Assistant

Department of Statistics, Oregon State University — Corvallis, OR

- Taught laboratory recitations for undergraduate and non-statistics major graduate statistics classes.

2007 | 2005

Graduate Assistant

Fisheries and Wildlife, New Mexico State University — Las Cruces, NM

- Designed research of the irrigation systems around the middle Rio Grande to investigate if ditches and drains could be used as refugia by the endangered Rio Grande silvery minnow.

2005 | 2000

Temporary Seasonal Work

Various

- After graduating with my Bachelor's degree I held a variety of seasonal jobs, primarily in natural resources positions, for various federal and state agencies and consulting firms.
- My seasonal work ranged widely, including performing angler creel surveys along the Columbia River, surveying for marbled murrelets in NW Oregon, tracking Northern pintail ducks in the Klamath basin, doing wadeable and nonwadeable stream surveys across the Western U.S, and tracking giant garter snakes in the Sacramento Valley.

TEACHING EXPERIENCE

2021 | 2013

Data Analysis for Natural Resources

Forest Ecosystems and Society, Oregon State University — Corvallis, OR

- As co-instructor, I developed material in R and instructed lab recitations for this graduate level course on linear mixed and generalized linear models. I worked with the primary instructor to create new assignments based on realistic natural resources studies when we added new statistical topics to the course.
- In 2019 through 2021 I was the primary instructor for this 4-credit graduate level course. I adapted lectures and updated materials to discuss modern issues in statistical analysis for applied scientists and taught the lab recitations to talk about R code to do the relevant analyses.

2021

Advanced R Topics

College of Forestry, Oregon State University — Corvallis, OR

- This 1-credit course introduced tools that students at OSU don't use in introductory R courses, such as making websites with package distill and using version control with Git/GitHub. Class materials are online[1]

2020 | 2013

R Workshops

College of Forestry, Oregon State University — Corvallis, OR

- I develop and present 2-hour workshops for the R programming language, including workshops on data manipulation, R markdown, using ggplot2, and R basics.
- I create annotated code examples as well as detailed handouts that go through the workshop in written format and have added interactive tutorials, all of which are available online[2].

2019

Introduction to Shiny

Forest Ecosystems and Society, Oregon State University — Corvallis, OR

- Taught a 1-credit course to help graduate students and research faculty get started using Shiny. Class materials are online[3].

2019

Data Visualization

Forest Ecosystems and Society, Oregon State University Corvallis, OR

- Led a 1-credit discussion course for graduate students based on Healy's Data Visualization: a practical introduction[4] and Wilke's Fundamentals of Data Visualization[5].

2012

Structural Equation Modeling

Forest Ecosystems and Society, Oregon State University Corvallis, OR

- Designed from bottom up course to teach best practices for scientific visualizations.

PUBLICATIONS

2021

Understanding dissolved oxygen concentrations in a discontinuously perennial stream within a managed forest

Forest Ecology and Management. 479. 118531.

- with George G. Ice (1st), V. Cody Hale, Jeffrey T. Light, Amy Simmons, Terry Bousquet
- DOI: 10.1016/j.foreco.2020.118531[7]

2019

Consequences of reduced light for flower production in conifer-invaded meadows of the Pacific Northwest, U.S.A

Plant Ecology. 220. 901-915.

- with Jessica Celis (1st) and Charles Halpern
- DOI: 10.1007%2Fs11258-019-00952-x[8]

2017

Current landscapes and legacies of land-use past: Understanding the distribution of juvenile coho salmon (Oncorhynchus kisutch) and their habitats along the Oregon Coast, USA.

Canadian Journal of Fisheries and Aquatic Sciences. 74(4): 546-561.

- with E.A. Steel (1st), R.L. Flitcroft, J.C. Firman, K.J Anlauf-Dunn, K.M. Burnett, and R. Danehy
- DOI: 10.1139/cjfas-2015-0589[9]

2016

A large-scale, multiagency approach to defining a reference network for Pacific Northwest Streams.

Environmental Management. 58(6): 1091-1104.

- with S. Miller (1st), P. Eldred, K. Anlauf-Dunn, C. Stein, S. Hubler, L. Merrick, N. Haxton, C. Larson, A. Rehn, P. Ode, J. Vander Laan
- DOI: 10.1007/s00267-016-0739-6[10]

LINKS

I have a blog about coding in R and statistics at aosmith.rbind.io[6].

1. https://aosmith16.github.io/spring-r-topics/
2. https://ariel.rbind.io/#workshops
3. https://github.com/aosmith16/shiny_class
4. https://socviz.co/
5. https://serialmentor.com/dataviz/
6. https://aosmith.rbind.io/
7. https://doi.org/10.1016/j.foreco.2020.118531
8. https://doi.org/10.1007%2Fs11258-019-00952-x
9. https://doi.org/10.1139/cjfas-2015-0589
10. https://doi.org/10.1007/s00267-016-0739-6