Amy Fetters

Curriculum Vitae

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EDUCATION

M.S., Biology - California State University, Bakersfield (CSUB), CA *Expected May 2022*

- Cumulative GPA: 3.84
- *Thesis advisor*: Dr. Rae McNeish
- *Thesis*: "Anthropogenic pollution dynamics: Distribution and degradation of anthropogenic litter and microplastics in aquatic and terrestrial habitats"

B.S., Biology - Loyola University, Chicago, IL *May 2019*

- Minor in Psychology
- Cumulative GPA: 3.67

RESEARCH EXPERIENCE

Graduate Researcher, California State University, Bakersfield, CA *Fall 2019-Current*

- *Principal Investigator:* Dr Rae McNeish
- Conceptualize and fully execute multiple graduate research projects focused on understanding the abundance, distribution, and fate of anthropogenic litter and microplastics across terrestrial-aquatic gradients.

Undergraduate Research Assistant, Loyola University Chicago, IL *2017-2019*

- *Principal Investigator:* Dr. Timothy Hoellein
- Assisted graduate students, faculty, and postdoctoral fellows with extracting and quantifying microplastics from water, sediment, and fish samples.

EMPLOYMENT

Biological Technician, McCormick Biological. Bakersfield, CA *2020-Current*

- Conduct biological field surveys focused on the identification of sensitive biological resources in the San Joaquin Valley, CA.
- Enforce mitigation measures in accordance to local and federal environmental regulations.

Graduate Teaching Associate, CSUB Biology Department. Bakersfield, CA *2020-2021*

- Independently taught introductory Biology labs to science major and non-major undergraduate students.

Seasonal Laboratory Intern, Clark Environmental. Roselle, IL *2019*

- Conducted daily mosquito surveillance in the Chicagoland area using light, gravid, and scent traps.

Shift Leader, Five Guys. Downers Grove, IL *2017-2018*

- Supervised a team of employees while delegating tasks and ensuring customer satisfaction during designated shifts.

Seasonal Intern, The McCrone Group. Westmont, IL *2017*

- Assisted senior research microscopists with sample intake processing and administrative office work.

MANUSCRIPTS IN PREP

Fetters, A.K. and R.E. McNeish. (*In Prep)* Spatial variation of riverine anthropogenic litter and microplastics is linked to bridges and debris dams.
Target submission: May 2022. Anticipated journal: *River Research and Applications*.

Macaranas K., **A.K. Fetters**, and R.E. McNeish (*In Prep*) Landscape features impacts atmospheric deposition of microplastics and nutrients.
Target Submission: May 2022

FUNDING (Total: $8,500)

Awarded:

Fetters, A.K. (2021) Plastic and natural leaf degradation in terrestrial and aquatic habitats. *CSUB Student Research Scholars Award.* **Awarded**: $2,000

Fetters, A.K. (2021) Effect of anthropogenic structures on the abundance and distribution of anthropogenic litter and microplastics in an intermittent river. *California State University Council on Oceanic Affairs, Science, & Technology (CSU COAST) Graduate Student Research Award*. **Awarded**: $3,000

Fetters, A.K. (2020) Effects of anthropogenic structures on the retention and distribution of anthropogenic litter and microplastic abundances in an intermittent river. *CSUB Student Research Scholars Award*. **Awarded**: $2,000

Fetters, A.K. (2020) Impact of anthropogenic structures on the abundance and distribution of anthropogenic litter and microplastics in an intermittent river. *CSUB Graduate Collaborative Research Program*. **Awarded**: $1,500

Not Awarded:

Fetters, A.K. and R.E. McNeish. (2020) Impact of an anthropogenic structure on the transport of anthropogenic litter and microplastic pollution in an intermittent river. *CSU COAST Graduate Student Research Award*. **Requested**: $3,000

Fetters, A.K. (2020) Anthropogenic structures impact the retention and distribution of anthropogenic litter and microplastics in an intermittent river. *Sigma Xi Grants-in-Aid of Research.* **Requested**: $1,000

Fetters, A.K. (2019) Stormwater impacts on anthropogenic litter and microplastic abundance in ponds. *Sigma Xi Grants-in-Aid of Research*. **Requested**: $1,000

TEACHING EXPERIENCE

Laboratory courses (5 sections):

2020-2021 Principles of Biology Lab (BIO 1009), California State University, Bakersfield, CA (4 sections)

2020 Introductory Animal Biology Lab (BIO 2110), California State University, Bakersfield, CA (1 section)

Invited Guest Lecturer (4 classes):

2021 Human Ecology (BIO 3210), California State University, Bakersfield, CA

2021 General Ecology (BIO 3120), California State University, Bakersfield, CA

2021 Aquatic Ecology (BIO 4360), California State University, Bakersfield, CA

2020 Human Ecology (BIO 3210), California State University, Bakersfield, CA

RESEARCH PRESENTATIONS

Oral Presentations:

1. **Fetters, A.K**. (2021) Plastic and natural leaf breakdown in freshwater and terrestrial habitats. *CSUB Grad Slam Competition*. Virtual Event.

2. **Fetters, A.K**. and R.E. McNeish (2021) Riverine litter: Bridges impact the abundance and distribution of anthropogenic litter and microplastics in an intermittent river. *Society for Freshwater Science Annual Meeting*. Virtual Conference.

3. **Fetters A.K**. and R.E. McNeish (2021) Effect of anthropogenic structures on the abundance and distribution of anthropogenic litter and microplastics in an intermittent river. *CSUB Student Research Competition*. Virtual Conference.

4. **Fetters, A.K.** (2020) Riverine litter: bridges impact the distribution of anthropogenic litter in a freshwater river. *CSUB Grad Slam Competition*. Virtual Event

5. **Fetters A.K**. and R.E. McNeish (2020) Riverine litter: Bridges impact the abundance and distribution of anthropogenic litter and microplastics in an intermittent river. *CSU COAST Annual Meeting*. Virtual Conference.

Poster Presentations:

1. Macaranas, K. A., **A.K. Fetters**, and R.E. McNeish. (2021) Landscape features impact atmospheric deposition of microplastics. *Society for Freshwater Science Annual Meeting*. Virtual Conference.

2. **Fetters, A.K.** and R.E. McNeish (2020) Anthropogenic structures effect anthropogenic litter and microplastic distribution in an intermittent river. *ASLO-SFS Joint Aquatic Sciences Meeting*. Virtual Conference.

3. **Fetters, A.K.,** L. Hou, and T.J. Hoellein (2019) Microplastic in aquatic food webs: Museum specimens and ingestion experiments reveal controls on microplastic ingestion by freshwater fish. *LUROP Undergraduate Research Symposium*. Chicago, IL.

RESEARCH AND ANALYTICAL SKILLS

Analytical and Computer:

Statistical Analyses

- Data visualization and presentation
- Descriptive statistics
- ANOVA and Kruskal-Wallace analyses
- Multivariate analysis (NMDS and PERMANOVA)
- Indicator Species Analysis (ISA)
- Chi-square analyses

Specialized Software

- R and RStudio
- Microsoft Office
- ArcGIS Online, ArcGIS Collector, and ArcMap 10.7
- Image J
- Mendeley Reference Manager and Desktop
- Literature databases

Field and Laboratory:

Anthropogenic Pollution

- Field collection of water, sediment, fish, and macroinvertebrates for microplastic analysis
- Measuring rates of environmental plastic degradation though a traditional leaf pack experiment
- Extracting microplastics from field samples via size fractionation, chemical digestion, density separation, and vacuum filtration
- Visual identification of microplastics and natural-based microfibers
- Chemical identification of microplastics using Nile Red, Rose Bengal, and fluorescent microscopy
- Microplastic polymer identification using FTIR

Aquatic Ecology

- Collecting stream discharge measurements
- Water collection using a Van Dorn sampler
- Zooplankton and phytoplankton sampling using net collection techniques
- Collection of sediment from lakes using a dredge
- Performing a riparian assessment
- Performing a benthic substrate survey
- Nutrient analyses ($N\text{-}NH_4$, $N\text{-}NO_3$, $N\text{-}NO_2$, PO_4) using colorimetric methods

Plant Communities

- Field identification of sensitive plant species
- Experience using a plant dichotomous key (Jepson Manual)
- Use of a spherical crown densiometer to measure forest canopy coverage
- *In situ* sampling of freshwater plants via waders
- Calculating Residual Dry Matter (RDM) measurements on rangeland

Aquatic Biota Communities

- Collection of freshwater macroinvertebrates using D-frame nets
- Identification of freshwater fish and macroinvertebrates
- Experience using freshwater macroinvertebrate dichotomous keys
- Dissection of freshwater fish digestive tissues

Wildlife Biology

- Field identification of reptile, bird, mammal, and plant species
- Level II Blunt Nosed Leopard Lizard (BNLL) surveyor
- Certified rattlesnake handler (Oct. 2021)
- Handling of short-nosed and Heermann's kangaroo rats in the field
- Identification of active San Joaquin Kit Fox dens and Burrowing Owl burrows
- Installing and monitoring camera trap stations

Microbiology and Molecular Biology

- Aliquoting using micropipettes
- Streaking plates with microbial cultures
- Practicing aseptic technique
- Preparing samples for Polymerase Chain Reaction (PCR) and gel electrophoresis
- Performing RAMP West Nile Virus testing

Sensitive Resource Mitigation

- Familiarity with California Endangered Species Act (CESA) and Federal Endangered Species Act (FESA)
- Monitoring construction crews to ensure avoidance measures are being followed
- Preparing reports in accordance to Oil and Gas Regulatory Ordinance (OGO) guidelines

Leadership and Communication

- Training new lab members on laboratory protocols
- Coordinating and leading field surveys and sample collection events
- Providing letters of recommendation to undergraduate students

PROFESSIONAL INVOLVEMENT

Treasurer, CSUB Graduate Student Fellowship *2021-Current*
Member, The Wildlife Society Western Section (TWSWS) *2021-Current*
Member, Association for the Sciences of Limnology and Oceanography (ASLO) *2020-Current*
Member, Society for Freshwater Science (SFS) *2020-Current*

VOLUNTEER AND OUTREACH ACTIVITIES

Volunteer, CSUB Edible Garden *2021-Current*
Volunteer, Team Seas Beach Clean-up. Los Angeles, CA *2021*
Volunteer, Alliance for the Great Lakes Adopt-a-Beach Clean-ups. Chicago, IL *2018-2019*
Volunteer, TODO Chicago River Clean-up. Chicago, IL 2017

REFERENCES

Available upon request.