

Isabella Oleksy

Ecosystem scientist

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RESEARCH INTERESTS

ecosystem ecology • limnology • biogeochemical cycling • terrestrial-aquatic linkages • benthic-pelagic coupling • freshwater metabolism • political ecology • environmental restoration • global change

EDUCATION

2014-2019 **Ph.D. in Ecology** Colorado State University • Fort Collins, CO
2012 **B.S. in Environmental Science** University of New Hampshire • Durham, NH

PROFESSIONAL EXPERIENCE

Currently **Postdoctoral Research Associate** • Cary Institute of Ecosystem Studies • Millbrook, NY
2017-2019 **USGS Graduate Research Fellow** • Colorado State University • Fort Collins, CO
2014-2017 **NSF-IGERT Graduate Research Fellow** • Colorado State University • Fort Collins, CO
2013-2014 **Laboratory Manager** • University of Michigan • Aquatic Disease Ecology Laboratory • Ann Arbor, MI
2012 **NSF-REU Program Lead Technician** • SUNY New Paltz • New Paltz, NY
2011 **NSF-REU Fellow** • SUNY New Paltz • New Paltz, NY
2010 **Undergraduate Researcher** • EcoQuest Education Foundation • Hochstetter's frog conservation • Whakatiwai, New Zealand
2010-2011 **Undergraduate Researcher** • University of New Hampshire • Department of Natural Resources • Durham, NH

FELLOWSHIPS | GRANTS | AWARDS

2018 **Graduate Degree Program in Ecology Travel Grant** • Colorado State University • (\$850)
Front Range Student Ecology Symposium • 1st Place Best Oral Presentation
Continental Divide Learning Center Research Grant • Rocky Mountain National Park • (\$2500)
Graduate Student of the Year Award • Natural Resource Ecology Laboratory
2017 **Natural Resource Ecology Laboratory Travel Grant** • Colorado State University • (\$500)
Francis Clark Soil Biology Fellowship • Colorado State University • (\$3000)
School of Global Environmental Sustainability Leadership Fellowship • Colorado State University
2016 **Stable Isotope Biogeochemistry and Ecology (ISOCAMP) scholarship** • National Science Foundation • (\$2040)
Bailey Research Fellowship • Rocky Mountain Conservancy • (\$11,000)
Student Travel Grant • Association for the Sciences of Limnology & Oceanography • (\$500)

Student Travel Grant · Turner Designs · (\$1000)

2014 **IGERT for Integrated Water, Atmospheric, Ecosystems Education and Research (I- WATER) Fellowship** · National Science Foundation · (\$72,000)

2012 **Undergraduate Travel Grant** · University of New Hampshire · (\$600)

PUBLICATIONS

- 2020 **Oleksy, I. A.**, Beck, W., Lammers, R., Steger, C., Christianson, K., Wilson, C., Johnson, G., Vincent, K., Johnson, P., Baron, J.B. The role of warm, dry summers and variation in snowpack on phytoplankton dynamics in mountain lakes. In press in *Ecology*.
- Oleksy, I. A.**, Baron, J. S., Leavitt, P., Spaulding, S. Multiple stressors interact to force mountain lakes into unprecedented ecological state. In press in *Proceedings of the Royal Society B*.
- 2019 Ren, Z.,* Martyniuk, N.,* **Oleksy, I.A.**,* Swain, A.,* Hotaling, S. Ecological stoichiometry of the mountain cryosphere. *Frontiers in Ecology and Evolution*. doi: [10.3389/fevo.2019.00360](https://doi.org/10.3389/fevo.2019.00360) * Equal author contribution.
- Moser, K. A., Baron, J. S., Brahney, J., **Oleksy, I. A.**, Saros, J. E., Hundey, E. J, Sadro, S. A., Kopacek, J., Sommaruga, R., Kainz, M. J., Strecker, A. L., Chandra, S., Walters, D .M., Preston, D. L., Michelutti, N., Lepori, F., Spaulding, S. A., Christianson, K. R., Melack, J. M., Smol, J. P. Mountain lakes: Eyes on global environmental change. *Global and Planetary Change*. doi: [10.1016/j.gloplacha.2019.04.001](https://doi.org/10.1016/j.gloplacha.2019.04.001)
- 2018 Beck, W. S., Markman, D. W., **Oleksy, I. A.**, Lafferty, M. H., and Poff, N .L. Seasonal shifts in the importance of top-down and bottom-up factors on periphyton community structure. *Oikos*. doi: [10.1111/oik.05844](https://doi.org/10.1111/oik.05844)
- 2017 **Oleksy, I.A.**, Culpepper, J. Understanding mountain lakes in a changing world. *EOS*. doi: [10.1029/2017EO082281](https://doi.org/10.1029/2017EO082281)
- 2016 Searle, C. L., Cortez, M. H., Hunsberger, K. K., Grippi, D. C., **Oleksy, I. A.**, Shaw, C. L., de la Serna, S. B., Lash, C. L., Dhir, K. L., Duffy, M. A. Population density, not host competence, drives patterns of disease in an invaded community. *The American Naturalist*. doi: [10.1086/688402](https://doi.org/10.1086/688402)
- 2014 Richardson, D. C., **Oleksy, I. A.**, Hoellein, T. J., Arscott, D. B., Gibson, C. A., Root, S. M. Habitat characteristics, temporal variability, and macroinvertebrate communities associated with a mat-forming nuisance diatom (*Didymosphenia geminata*) in Catskill mountain streams, New York. *Aquatic Sciences*. doi: [10.1007/s00027-014-0354-7](https://doi.org/10.1007/s00027-014-0354-7)
- In review **Oleksy, I. A.**, Baron, J. S., Beck, W. Nutrients and warming alter mountain lake benthic algal structure and function. In revision at *Freshwater Science*.
- Beck, W.S., **Oleksy, I. A.**, Boot, C. L., Kotalik, C. Methodological and environmental factors drive disparate benthic algal community structure measurements from in situ fluorometry and UPLC-UV-MS. In revision at *Hydrobiologia*.
- Clark, S. C., Barnes, R. T., Gratz, L. E., Cerf, E. F., **Oleksy, I.A.**, Baron, J. S., Hastings, M G. The reactive nitrogen landscape in the high Colorado alpine: quantifying atmospheric inputs. Submitted to *Environmental Science and Technology*, June 2020.
- Oleksy, I. A.**, Richardson, D. C. Climate change and teleconnections amplify lake stratification with decoupled local controls of surface water warming and deep water cooling. Submitted to *Limnology and Oceanography Letters*, May 2020.

In prep. Sadro, S., Chandra, S., Baron, J.S., Vinebrooke, R.D., **Oleksy, I.A.**, Hampton, S.E., Culpepper, J., Moser, K.A., Smits, A.P., Strecker, A.L., Williams, J., Fradkin, S., Nanus, L., Rosen, M, Noble, P. A conceptual model for understanding the role of mountain gradients on lakes. Anticipated submission to *Frontiers in Ecology & the Environment*.

Burpee, B. T., Saros, J. E., Nanus, L, Baron, J. S., Brahney, J., Bergström, A. K., Christianson, K. R., Heard, A., Hundey, B., Koinig, K., Kopáček, J., Moser, K., Nydick, K., **Oleksy, I.A.**, Sadro, S., Sommaruga, R., Vinebrooke, R., Williams, J. Scale-dependent predictors of lake sensitivity to atmospheric nutrient deposition in alpine regions. Anticipated submission to *Water Resources Research*, July 2020.

Atkins, K., Meyer, M., **Oleksy, I.A.**, Shanon, T., Framsted, N., Hackley, S., Merrell K., Gurung, D., Wozniak, M. Integrating ecological and hydrological perspectives in understanding lake surface-groundwater processes. In preparation for *Limnology and Oceanography Letters*.

INVITED TALKS

2018 **MtnClim · Consortium for Integrated Climate Research in Western Mountains · Crested Butte, CO**
"Dominant controls on mountain lake productivity differ between short time scale, regional datasets and local, long-term datasets." *Early career scientist session*

Ecology & Evolutionary Biology Department · University of Colorado · Boulder, CO
"Warm, dry summers and declining snowpack enhance primary productivity of small alpine lakes"

2017 **Impacts of a Changing Cryosphere on High Elevation Climate, Weather, and Aquatic Ecosystems · a US-China Cooperative Workshop · Qinghai Lake, Tibet**
"Impacts of global change on lakes in the central Rocky Mountains: a paleoecological perspective."

CONTRIBUTED TALKS

2018 **Association for the Sciences of Limnology and Oceanography · Victoria, British Columbia, CAN**
"A warmer and greener world: evidence of algal assemblage shifts from lake sediment core records in Rocky Mountain National Park." *Session co-chair*

Front Range Student Ecology Symposium · Fort Collins, CO
"A warmer and greener world: evidence of algal assemblage shifts from lake sediment core records in Rocky Mountain National Park."

2017 **Association for the Sciences of Limnology and Oceanography · Honolulu, HI**
"Is there a history of eutrophication preserved in the sediments of The Loch, Rocky Mountain National Park?"

2016 **MtnClim · Consortium for Integrated Climate Research in Western Mountains · Leavenworth, WA**
"Algal blooms in the alpine – investigating the effects of global change on alpine lakes"

AGU Hydrology Days · Fort Collins, CO
"Algal blooms in the alpine – investigating the coupled effects of chronic nitrogen deposition and climate change on alpine lakes."

2015 **AGU Hydrology Days · Fort Collins, CO**
"Investigating the coupled effects of climate change and nitrogen on lake periphyton."

POSTERS & CO-AUTHORED PRESENTATIONS

2019 **American Geophysical Union · San Francisco, CA**
"Understanding drivers of mountain lake phytoplankton across space and time."

- American Geophysical Union** · San Francisco, CA
"The reactive nitrogen landscape in the high Colorado alpine: quantifying atmospheric inputs" Co-authored poster.
- American Geophysical Union** · San Francisco, CA
"Thirty-Six Years in the Subalpine: Long-Term Ecosystem and Biogeochemical Research in Loch Vale Watershed, Rocky Mountain National Park, Colorado." Co-authored poster.
- 2018 **Ecological Society of America** · New Orleans, LA
"Seasonal shifts in the importance of bottom-up and top-down factors on stream periphyton community structure." Co-authored talk.
- Ecological Society of America** · New Orleans, LA
"A tale of two lakes: alpine and subalpine lake responses to a warmer and greener world." Co-authored talk.
- Association for the Sciences of Limnology and Oceanography** · Victoria, British Columbia, CAN
"A conceptual model for understanding the role of mountain gradients on lake." Co-authored talk.
- 2017 **Natural Resource Ecology Laboratory 50th Anniversary Symposium** · Fort Collins, CO
"Is there a history of eutrophication preserved in the sediments of Loch Vale (RMNP) lakes?"
- Geological Society of America** · Seattle, WA
"Mechanisms for increased phosphorus inputs and consequent enhanced lacustrine productivity during the younger dryas chronozone in The Loch, Rocky Mountain National Park, Colorado, USA." Co-authored talk.
- CSU 23rd Annual Celebrate Undergraduate Research and Creativity Conference** · Fort Collins, CO
"Identifying temporal algal community shifts using a sedimentary eDNA approach in Sky Pond." Ralson, M. & Oleksy, I.A.
- CSU 23rd Annual Celebrate Undergraduate Research and Creativity Conference** · Fort Collins, CO
"Visualizing temperature and algal biomass through space and time using GIS spatial interpolation tools." Meraz, D. & Oleksy, I.A.
- International Microelectronics Assembly and Packaging Society** · Fountain Hills, AZ
"A PCB Sensor Suite for Monitoring the Effects of Annual Variations in Precipitation Rates on Alpine Lakes in Rocky Mountain National Park." Co-authored talk.
- 2016 **Association for the Sciences of Limnology and Oceanography** · Santa Fe, NM
"Algal blooms in the alpine – investigating the coupled effects of chronic nitrogen deposition and climate change on alpine lakes."
- Association for the Sciences of Limnology and Oceanography** · Santa Fe, NM
"What is a typical condition for small, rocky mountain lakes?"
- CSU 22nd Annual Celebrate Undergraduate Research and Creativity Conference** · Fort Collins, CO
"Elucidating the impacts of N deposition and climate warming on a sub-alpine lake – a paleolimnology story." Johnstone, J. & Oleksy, I.A.
- 2015 **Gordon Research Conference · Catchment Science** · Andover, NH
"Investigating the coupled effects of climate change and nitrogen on lake periphyton." Poster.

Ecological Society of America · Sacramento, CA

"Impacts of two virulent, sterilizing pathogens on Daphnia individuals, populations, and communities."

Ecological Society of America · Sacramento, CA

"Exotic species and native parasites: Biotic resistance versus parasite spillback." *Co-authored talk.*

Ecological Society of America · Sacramento, CA

"Effects of Chaoborus predation on size of *Pasteuria ramosa* epidemics in natural Daphnia populations." *Co-authored talk.*

2014 **Ecological Society of America** · Sacramento, CA

"Multi-host interactions in the plankton: Influences of Daphnia host diversity on the common bacterial parasite *Pasteuria ramosa*." *Co-authored talk.*

2012 **Catskill Environmental Monitoring and Research** · Olivebridge, NY

"*Didymosphenia geminata* (rock snot) in the New York City watershed – factors that affect the growth, spatial distribution, and timing of the bloom in the Esopus Creek (2010-2012)."

Ecological Society of America · Sacramento, CA

"A spatial analysis of *Didymosphenia geminata* (rock snot) in the New York City watershed. Ecological Society of America annual meeting."

UNDERGRADUATE ADVISEES

Mitch Ralson · Skills for Undergraduate Participation in Ecological Research (SUPER) student researcher

Algal community changes through time inferred by sedimentary algal DNA

Melanie Burnett · Honors Thesis Student

Spatial and temporal variation in periphyton ecological stoichiometry

Diane Meraz · SUPER student researcher

Mapping spatial and temporal variability in periphyton biomass in ArcGIS

Jessica Johnson · SUPER student researcher

Investigating carbon and nitrogen concentrations and stable isotopic composition in mountain lake sediments

TEACHING

Fundamentals of Ecosystem Ecology · Graduate Course · Cary Institute of Ecosystem Studies

I co-taught the Aquatic Productivity module of this week long course with Dr. Chris Solomon. Specifically, I covered what aquatic primary production is, how it is measured, and controls on and patterns in primary production rates across a range of aquatic ecosystems. I designed an activity in which the students used oxygen time series to make back-of-the-envelope calculations of lake metabolism, which informed a discussion of what gives rise to variation in lakes of different trophic status.

EUS 102 · Introduction to Environmental Systems Science · Bard College with Dr. Robyn Smyth

Gave a guest lecture on the fundamental of aquatic ecosystem ecology, covering topics such as the role of connectivity through space and time, energy flow through food webs, and ecological indicators.

ECOL 592 · Advances in Freshwater Metabolism · Colorado State University with Dr. Jill Baron
Taught graduate seminar with a focus on reviewing foundational and novel papers in freshwater metabolism; stimulated discussion on metabolism in mountain lakes and streams; collated existing data from current and past unpublished research in the Rocky Mountains to quantify metabolism in high elevation aquatic ecosystems and evaluate major drivers over time.

ESS 411 · Earth Systems Ecology · Colorado State University with Dr. John Moore
Coordinated and led recitation discussion sections

BZ 472 · Stream Biology & Ecology Laboratory · Colorado State University with Dr. LeRoy Poff
Assisted with field laboratory on stream macroinvertebrate and algal monitoring

ESS 311 · Ecosystem Ecology · Colorado State University with Dr. Stacy Lynn
Gave guest lecture on the global nitrogen cycle annually

PROFESSIONAL SERVICE

Peer Review: Limnology & Oceanography · Water Resources Research · Arctic, Alpine, and Antarctic Research · Environmental Monitoring and Assessment · University of California Press

Societies: Association for the Science of Limnology & Oceanography · Ecological Society of America · Society for Freshwater Science · American Geophysical Union

- 2017-2019 **NREL Communications Coordinator** · Editor-in-chief of EcoPress blog for Natural Resource Ecology Laboratory; manager of the institute's social media accounts and website; voice for graduate students
- 2017 **Outreach and advising committee** · Front Range Ecology Student Symposium
- 2016 **Registration coordinator** · Front Range Ecology Student Symposium
- 2015-2016 **Student representative** · Natural Resource Ecology Laboratory Executive Committee

COMMUNITY ENGAGEMENT & SCIENCE COMMUNICATION

- 2017-2019 **Popular science contributor** · EcoPress · HumanNature · Medium · EOS
- 2019 **Interview with Colorado Public Radio** · How the longest government shutdown affected my science
- 2018 **Community Lecture for NPS staff** · Sequoia National Park · *Three Rivers, CA*
- 2017 **Community Lecture for the public** · Rocky Mountain Conservancy · *Estes Park, CO*
- 2016 **Brown bag research talk for NPS staff** · Rocky Mountain National Park · *Estes Park, CO*
- Developed a citizen science & alpine algal monitoring program** · [WATR app](#)
- 2015 **Science fair judge** · Bella Romero Elementary School · *Greeley, CO*

OTHER EXPERIENCES & INTERESTS

Semi-professional, sponsored mountain bike racer · SCUBA certified · wilderness first aid certified · long-distance backpacker · pastry artist & cake decorator

- 2018-2019 **Co-founder of Sugar Beets Cycling, women's professional cycling team** · *Fort Collins, CO*
- 2014-2017 **Independent, sponsored mountain bike racer** · *Fort Collins, CO*

2010-2012 **UNH Cycling Team Captain & President** · *University of New Hampshire, NH*

2008-2012 **Collegiate competitive cycling** · DI Athlete · *University of New Hampshire, NH*

REFERENCES

- Postdoctoral advisor **Dr. Chris Solomon** · Associate Scientist with the Cary Institute of Ecosystem Studies
Millbrook, NY, USA
✉ solomonc@caryinstitute.org ☎ +1 845 677-7600 X133
- Graduate advisor **Dr. Jill S. Baron** · Senior Scientist with the U.S. Geological Survey and Senior Research Ecologist ·
Natural Resource Ecology Laboratory
Fort Collins, CO, USA
✉ jill.baron@colostate.edu ☎ +1 970 491 1968
- Former Supervisor **Dr. Megan Duffy** · Assistant Professor, Ecology & Evolutionary Biology Dept, University of
Michigan
Ann Arbor, MI, USA
✉ duffymeg@umich.edu ☎ +1 734 763 3658
- Colleague **Dr. David Richardson** · Assistant Professor, Biology Department, SUNY New Paltz
New Paltz, NY, USA
✉ richardsond@newpaltz.edu ☎ +1 914 204-4366