

Stanford



Anna Rasmussen

Postdoctoral Scholar, Earth System Science

Bio

BIO

I am interested in how Earth's smallest constituents, microbes, cycle nutrients in aquatic ecosystems. I earned my PhD from the Department of Earth System Science at Stanford University focused on microbial ecology. I used molecular and biogeochemical approaches to understand the abundance, distribution, and activity of nitrifying bacteria and archaea in San Francisco Bay. My research used DNA, RNA, nitrification rate, and water quality data to uncover and characterize recurring massive ammonia-oxidizing archaea blooms in South Bay. For my postdoctoral work, I will use metagenomics to study subsurface microbial ecology in a river floodplain in collaboration with the Floodplain Hydro-Biogeochemistry Scientific Focus Area managed by a team at the SLAC National Accelerator Laboratory.

HONORS AND AWARDS

- McGee-Levorsen Research Grant, Stanford Earth (April 2019, August 2020)
- Data Science Scholar, Stanford Data Science (01/2020-12/2021)
- Amherst College Fellowship, Amherst College (2016, 2017, 2018)
- Graduate Research Fellowship Program (GRFP), NSF (September 2016-2021)
- Best Session Talk, Research Review Stanford Earth (April 2018)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Stanford University , ESS-PHD (2022)
- BA, Amherst College , Biology (2013)

STANFORD ADVISORS

- Christopher Francis, Postdoctoral Faculty Sponsor

LINKS

- Personal website: <https://annanrasmussenphd.wordpress.com/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am interested in the co-evolution of life and Earth, and am particularly interested in the ecology of Earth's smallest constituents: microbes. Along my path towards graduate school, I become particularly interested in marine bacteria and archaea and how they impact global biogeochemical cycles. My graduate research focused on the ecology and activity of ammonia and nitrite-eating microbes in the highly nitrogen polluted San Francisco Bay estuary. I used DNA-based and biogeochemical techniques to study some of my favorite organisms, ammonia-oxidizing archaea, that use electrons from ammonia in their energy metabolism and produce nitrite in the process. For my postdoctoral research I am focusing on microbial communities in the subsurface of river floodplains.

Publications

PUBLICATIONS

- **Ecophysiology and genomics of the brackish water adapted SAR11 subclade IIIa.** *The ISME journal*
Lanclos, V. C., Rasmussen, A. N., Kojima, C. Y., Cheng, C., Henson, M. W., Faircloth, B. C., Francis, C. A., Thrash, J. C.
2023
- **Genome-Resolved Metagenomic Insights into Massive Seasonal Ammonia-Oxidizing Archaea Blooms in San Francisco Bay.** *mSystems*
Rasmussen, A. N., Francis, C. A.
1800: e0127021
- **Genome-Resolved Metagenomic Insights into Massive Seasonal Ammonia-Oxidizing Archaea Blooms in San Francisco Bay** *MSYSTEMS*
Rasmussen, A. N., Francis, C. A.
2022; 7 (1)
- **In-depth Spatiotemporal Characterization of Planktonic Archaeal and Bacterial Communities in North and South San Francisco Bay.** *Microbial ecology*
Rasmussen, A. N., Damashek, J. n., Eloë-Fadrosh, E. A., Francis, C. A.
2020
- **Emergence of trait variability through the lens of nitrogen assimilation in Prochlorococcus** *ELIFE*
Berube, P. M., Rasmussen, A., Braakman, R., Stepanauskas, R., Chisholm, S. W.
2019; 8