

2022 DELTA SCIENCE FELLOW **FACT SHEET**



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Focus Refining models of carbon sequestration rates in tidal wetlands

Award \$60,548

Research Mentor

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Community Mentors

Dr. Lisamarie Windham-Myers,
US Geological Survey

"These results can be valuable information that can guide wetland management decisions as we face climate change and rising sea levels."

PROJECT

In collaboration with the U.S. Geological Survey, this research will refine current models of carbon sequestration rates in tidal wetlands by incorporating new data on the export of dissolved inorganic carbon into other coastal and ocean waters. The project will combine high-frequency atmospheric and hydrologic flux measurements with discrete bottle sampling to yield a more accurate carbon budget.

TIMELINE

2022 Collection and analysis of high-frequency atmospheric and hydrologic carbon flux data from a restored tidal wetland located in the South San Francisco Bay.

2023 Determination of dominant dissolved inorganic carbon species, magnitude of carbon flux and potential biogeochemical drivers.

IMPACTS

Prior studies have established that wetland ecosystems can be powerful carbon sinks. However, their role as a potential "marsh CO₂ pump" – a system that sends carbon on to other hydrologic sinks – is less well understood. By further analyzing hydrological carbon export, this project will help clarify the benefits and tradeoffs of wetland restoration in the Sacramento-San Joaquin Delta in an era of climate change.

