

DELTA SCIENCE FELLOW 2020

NICOL PARKER, PHD



PROJECT

My work will model the risk of pesticide pollution in 225 sub-catchments of the Bay-Delta. The model will account for water management practices, land use, pesticide use rates, and cumulative pesticide stress. Additionally, my work will produce a web-based tool to simulate current and future risks based on the ranking of primary sources of pesticide contribution.

TIMELINE

2020-2021 Integrate water management regimes, flow data, and available hydrologic models into the risk model. Compile environmental data for the sub-watersheds, and prepare the tool for the web.

2021-2022 Calibrate and validate the pesticide risk model. Develop and integrate ranked pesticide sources. Investigate Bay-Delta-specific pesticide cumulative stress to aquatic fauna for the most hazardous pesticides detected.

IMPACTS

This work will provide a framework to predict risk from chemical stressors. Specific objectives are: (1) enhanced proactive chemical risk assessment, (2) creation of a tool which enables science-based chemical use decisions, (3) improved risk screening for vulnerable areas, and (4) identification of adverse effects of current and future chemical use strategies.



Post-Doctoral Fellow
*University of California,
Santa Barbara*

Focus Pesticide risk analyses and management actions, chemical fate and transport

Award \$118,511

Research Mentor
Dr. Arturo Keller, UC Santa Barbara (Bren School)

Community Mentor
Dr. David Senn, San Francisco Estuary Institute

Dr. Haw Yen, Texas A&M
Dr. Yonping Yuan, Environmental Protection Agency

“This project provides a framework for rapid and spatially explicit prediction of pesticide risk and other chemical stressors such as nutrients.”



DELTA STEWARDSHIP COUNCIL
DELTA SCIENCE PROGRAM

