

## **METADATA**

Multiple-benefit Conservation in Practice: Metrics Data for Quantifying Multidimensional Impacts of Landscape Change in California’s Sacramento-San Joaquin Delta

## **SUMMARY**

These data represent estimated mean value, standard error, and units for a range of metrics by land cover class in the Sacramento-San Joaquin Delta. Metrics are grouped into three major categories: Agricultural Livelihoods (including metrics for gross production value, number of agricultural jobs, and annual wages per employee), Water Quality (in terms of the application rates for pesticides identified as critical pesticides, groundwater contaminants, and those posing a high or moderate risk to aquatic organisms), and Climate Change Resilience (qualitative scores representing relative tolerance for heat, drought, and flood).

## **DESCRIPTION**

These data were developed to facilitate projecting the net impacts of land cover change scenarios on multiple metrics of interest to the Sacramento-San Joaquin Delta, including potential benefits and trade-offs. They were used in initial analyses of scenarios representing habitat restoration and perennial crop expansion, and they are required for using the R package “Delta-MultipleBenefits”, which provides the code and work flow for repeating the initial analyses or analyzing new scenarios.

For additional details about the development and applications of these data, please see:

- Dybala KE, et al. (In review) Multiple-benefit Conservation in Practice: A Framework for Quantifying Multi-dimensional Impacts of Landscape Change in California’s Sacramento–San Joaquin Delta
- Dybala KE (2023) *DeltaMultipleBenefits: Projecting the Multiple Benefits of Land Cover Change in the Sacramento-San Joaquin River Delta*. R package v1.0.0. doi: [10.5281/zenodo.7718620](https://doi.org/10.5281/zenodo.7718620). Available from: <https://pointblue.github.io/DeltaMultipleBenefits>

## **FUNDING STATEMENT**

These data were developed as part of the project “Trade-offs and Co-benefits of Landscape Change on Bird Communities and Ecosystem Services in the Sacramento–San Joaquin River Delta”, funded by Proposition 1 Delta Water Quality and Ecosystem Restoration Program, Grant Agreement Number – Q1996022, administered by the California Department of Fish and Wildlife.

## **POINT OF CONTACT**

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## **SUGGESTED CITATION**

Dybala KE. 2023. Multiple-benefit Conservation in Practice: Metrics Data for Quantifying Multi-dimensional Impacts of Landscape Change in California’s Sacramento–San Joaquin Delta. doi: [10.5281/zenodo.7504874](https://doi.org/10.5281/zenodo.7504874).

## **DATA DISTRIBUTION**

Zenodo. doi: [10.5281/zenodo.7504874](https://doi.org/10.5281/zenodo.7504874)

## PROGRESS

Complete, but note that the accompanying manuscript has not yet undergone peer-review, and thus these data may require future revision.

## UPDATE FREQUENCY

As Needed

## DATE

These data were compiled in 2022, based on data from the Quarterly Census of Employment and Wages 2014-2020 (EDD 2022), annual County Agricultural Commissioners Reports 2014-2020 (CDFA 2022), Pesticide Use Report Data 2014-2018 (CDPR 2022), and qualitative assessments of climate change resilience (Peterson et al. 2020, DSC 2021).

## Literature Cited:

- CDFA. 2022. County Ag Commissioners' Data Listing. California Department of Food & Agriculture. Available from: [https://www.nass.usda.gov/Statistics\\_by\\_State/California/Publications/AgComm/index.php](https://www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/index.php)
- CDPR. 2022. Pesticide Use Report Data. California Department of Pesticide Regulation. Available from: <https://www.cdpr.ca.gov/docs/pur/purmain.htm>
- DSC. 2021. Delta Adapts: Creating a Climate Resilient Future. Public Review Draft. Delta Stewardship Council. Available from <https://deltacouncil.ca.gov/delta-plan/climate-change>
- EDD. 2022. Quarterly Census of Employment and Wages (QCEW). California Employment Development Department. Available from: <https://data.edd.ca.gov/Industry-Information-/Quarterly-Census-of-Employment-and-Wages-QCEW-/fisq-v939>
- Peterson C, Marvinney E, Dybala K. 2020. Multiple Benefits from Agricultural and Natural Land Covers in the Central Valley, CA. Migratory Bird Conservation Partnership, Sacramento, CA. Dryad Dataset doi: [10.25338/B8061X](https://doi.org/10.25338/B8061X)

## FIELD DEFINITIONS

- **METRIC\_CATEGORY:** Broad grouping assigned to each METRIC; one of Agricultural Livelihoods, Water Quality, or Climate Change Resilience
- **METRIC:** Specific metric being estimated; one of Agricultural Jobs, Annual Wages, Gross Production Value, Drought, Flood, Heat, Critical Pesticides, Groundwater Contaminant, or Risk to Aquatic Organisms
- **UNIT:** The units in which the METRIC is estimated
- **CODE\_NAME:** The land cover class or subclass for which the METRIC is estimated
- **LABEL:** A more user-friendly version of CODE\_NAME, useful for creating figures and tables
- **SCORE\_MEAN:** The mean value of each METRIC estimated for each land cover class or subclass
- **SCORE\_SE:** The standard error of the mean

## ABBREVIATION DEFINITIONS

- **FTE:** full-time equivalents; refers to converting monthly agricultural jobs data to annual estimates by dividing by 12

- **ha:** hectares
- **kg:** kilograms
- **USD:** U.S. dollars
- **yr:** year

## **ACCESS & USE CONSTRAINTS**

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## **KEYWORDS**

- **Themes:** agriculture, livelihoods, economy, water quality, pesticides, climate change, resilience, multiple-benefit conservation
- **Place:** Sacramento-San Joaquin River Delta, Central Valley, California