

Literature Summary of Indicators of Water Vulnerability in the Western US 2000-2022

View ▾

Dates

Publication Date : 2023-08-17
Start Date : 2000
End Date : 2022

Citation

Hines, M.K., Drakes, O.O., Restrepo-Osorio, D.L., and Powlen, K.A., 2023, Literature Summary of Indicators of Water Vulnerability in the Western US 2000-2022: U.S. Geological Survey data release, <https://doi.org/10.5066/P93IDTUZ>.

Summary

This data release contains records from research focused on understanding social vulnerability to water insecurity, resiliency demonstrated by institutions, and conflict or crisis around water resource management. This data release focuses on social vulnerability to water insecurity.

The data were derived from a meta-analysis of studies in the empirical literature which measured factors of social vulnerability associated with conditions of water insecurity. In the water security context this data and associated study identify the indicators used to measure social vulnerability, the frequency at which indicators are used, and the uncertainty associated with measurements based on those indicators. Assessed studies were published between 2000 and 2022 and covered states of the conterminous U.S. located west of the Mississippi River. This meta-analysis is published as 'Social Vulnerability and water insecurity in the western US: A systematic review of framings, indicators, and uncertainty'. It is part of the Social and Economic Drivers Program's 'Measuring Intended and Unintended Effects of Water Management Decisions' study.

The data were gathered to provide baseline metrics supporting the development of a set of indicators describing vulnerability of key water-use sectors (agricultural and municipal) to conditions of water insecurity (including concerns of water quality, quantity, and access to the resource). This includes understanding the inherent vulnerabilities of populations dependent on these water-use sectors as well as those decision-making processes that can exacerbate vulnerabilities. This data may further be used to validate social vulnerability metrics, provide the basis from which sociodemographic data can be integrated into models of water use and demand, and improve models of susceptibility to water-related hazards including drought and floods.

The data release contains six (6) related datasets and their associated metadata:

Papers: Contains bibliographic data and abstract for each scientific paper included in the meta-analysis. Each entry represents a unique model of social vulnerability to water insecurity. In cases where a scientific paper included multiple models that produced different associations between social vulnerability and water insecurity, the paper is recorded separately for each unique model.

Literature Results Summary of indicators of social vulnerability to water insecurity in the Western US 2000-2022: Contains a high-level overview showing how each paper was classified. The table identifies the water-use sector of focus, thematic issue of water security covered, study location, spatial scale, dimension (thematic category) of social vulnerability covered, the determinants (attributes) of social vulnerability measured, and a count of the number of times each social vulnerability determinant (attribute) was measured.

Aggregated indicators of social vulnerability to water insecurity in the Western US 2000-2022: For each model studied this table records: the dimensions (thematic category) of social vulnerability covered, the determinants (attributes) of social vulnerability assessed, aggregated indicators (variables) used to measure individual components of each determinant, and a count of the number of individual variables used to measure each aggregated indicator (e.g., the aggregated indicator 'Dependents' may be measured by specific indicators for the population aged below 18 years as well as the population above 65 years).

Sector Summary of social vulnerability to water insecurity in the Western US 2000-2022: For each determinant (attribute) of social vulnerability assessed, this table presents a summary of the number of indicators measured and number of papers (studies) including those indicators in both the agricultural and municipal water-use sectors.

Uncertainty Summary by Determinant of social vulnerability to water insecurity in the Western US 2000-2022: Provides a high-level summary of the amount of evidence available and agreement in the literature for the direction of influence associated with each determinant of social vulnerability found in the meta-analysis.

Uncertainty Summary of social vulnerability to water insecurity in the Western US 2000-2022: For each aggregated indicator assessed, this table provides counts of the number of models in the meta-analysis for which specific relationships (positive, negative, no relationship or for which the directionality could not be determined) to conditions of water insecurity were identified. The strength of these relationships is indicated by a count of the number of models recording them. The table also provides an indication of the levels of evidence and agreement between models.

[... show less ...](#)

Child Items (6) ▾

- [Aggregated Indicators of Water Vulnerability in the Western US 2000-2022](#)
- [Literature Results Summary of Indicators of Water Vulnerability in the Western US 2000-2022](#)
- [Papers Table: Literature Summary of Indicators of Water Vulnerability in the Western US 2000-2022](#)
- [Sector Summary of Water Vulnerability in the Western US 2000-2022](#)
- [Uncertainty Summary by Determinant of Water Vulnerability in the Western US 2000-2022](#)
- [Uncertainty Summary of Water Vulnerability in the Western US 2000-2022](#)

Contacts

Point of Contact : Megan K Hines
Originator : Megan K Hines, Oronde O Drakes, Diana L. Restrepo-Osorio, Kathryn A. Powlen
Metadata Contact : Megan K Hines
Publisher : U.S. Geological Survey
Distributor : U.S. Geological Survey - ScienceBase
USGS Mission Area : Water Resources
SDC Data Owner : Integrated Information Dissemination Division

Attached Files ▾

Click on title to download individual files attached to this item.

| | | | |
|--|----------------------|----------|----------------------|
| Overview_Tables.xml <i>Original FGDC Metadata</i> | View | 17.06 KB | application/fgdc+xml |
|--|----------------------|----------|----------------------|

Purpose

Data on socioeconomic, demographics, living conditions, land tenure, health, risk perception, and exposure were

Map »



Spatial Services

ScienceBase WMS :

<https://www.sciencebase.gov/catalog>

Communities

- USGS Data Release Products
- Water Resources Mission Area - Social & Economic Drivers Program

Tags

Categories : Data
Theme : InlandWaters, social science, society
Place : United States
Harvest Set : USGS Science Data Catalog (SDC)

Provenance

Data source : Input directly

gathered to provide baseline metrics supporting the development of a set of indicators describing vulnerability of key water-use sectors (agricultural and municipal) to conditions of water insecurity. This data also helps to identify the relative importance of indicators representing dimensions of vulnerability, and the degree of agreement on their level of importance across the scientific literature.

Additional Information

Identifiers

| Type | Scheme | Key |
|------|---|-----------------------|
| DOI | https://www.sciencebase.gov/vocab/category/item/identifier | doi:10.5066/P931DTUJZ |

Item Actions

| View Item as ... |
|------------------|
| JSON |
| ATOM |
| ISO XML |

| Save Item as ... |
|------------------|
| JSON |
| FGDC |
| MODS XML |
| ISO XML |

| View Item... |
|--------------|
| Metrics |