

Central Valley Flood Protection Plan Climate Change Threshold Analysis Work Group Meeting #1

Worksheet 1: Community Metrics

The vulnerability of a community or structure depends on its location within the flood system, and the level of protection provided to that location by the SPFC facilities. Information on the SPFC is being developed in two companion documents to the CVFPP: the SPFC Descriptive Document, and the FCSSR.

Based on the information that is currently available, the best existing community metric is likely to be the level of protection at any location within the system. Additional characterization of flood infrastructure in terms of exposure to climate change, project objectives, and performance criteria may yield more refined community metrics.

Question 1

What metrics should be used to assess the vulnerability of a community or structure?

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Worksheet 2: Hydrologic Metrics

The following example metrics describe attributes of a flood moving through the system. These metrics are indicative of the strain put on the flood management system by flood events.

- **Peak flow** – Three-day peak flow is a widely used metric for measuring flood magnitude.
- **Volume of flow** – The volume of a flow has significant impacts on the flood system, especially in increasing pressure on flood management reservoirs.
- **Duration of flow** – The flow duration determines the amount of time the flood control system is engaged during a flood event. The system is already overtaxed, and increased duration of high flows will create additional strain.
- **Timing of flow (seasonality)** – Flood risk in California occurs at specific periods of a year, so a metric measuring the timing of flows is necessary. Several methods are currently in use to measure the seasonality of flow including spring pulse onset, center of mass, and monthly seasonal fractional flows, among others.

Question 1

Are these metrics appropriate?

Question 2

What other metrics should be used to identify hydrologic thresholds?

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Worksheet 3: Precipitation Metrics

These precipitation metrics are designed to characterize localized flooding, particularly within urban area with high-impervious areas. Stormwater collection, detention, and conveyance structures are typically designed based on precipitation intensity related to a given duration and probability of occurrence. Precipitation metrics are also used to estimate excessive runoff in dam safety applications.

Bulletin 195 (Goodridge et al., 1976) is the primary source of statistics on the frequency of intense precipitation events for stations in California. It includes statistics on short-duration rainfall events lasting between 5 minutes and 24 hours and long-duration events lasting between 1 day and 1 year. Precipitation metrics for accessing the impact of climate change on these frequency data could include changes in the frequency or intensity of events of a given duration. Additional metrics could also be defined to estimate changes in intra-annual distribution of rainfall including the timing of rainfall events, the duration of wet spells, and the number of rainy days annually.

Question 1

Are these metrics appropriate?

Question 2

What other metrics should be used to identify precipitation thresholds?