originally constructed, there are at least five major faults within the vicinity of the Delta capable of generating peak ground acceleration values that would likely lead to levee failures. A preliminary analysis of the risk of levee failure due to seismicity was prepared for the CALFED Levee System Integrity Program (Torres et al. 2000). Based on standard methods and local expertise, Torres et al. (2000) estimated the magnitude and recurrence intervals of peak ground accelerations throughout the Delta. Two competing fault models were evaluated for this study, producing a wide range of potential accelerations. Then, based on local knowledge and limited geotechnical information, Damage Potential Zones were established for the Delta (Figure 7). The zones of highest risk lie in the central and west Delta where tall levees are constructed on unstable soils that are at high risk of settling or liquefaction during an earthquake. This also coincides with areas of the Delta that have the highest cumulative hydrostatic force and anthropogenic accommodation space.

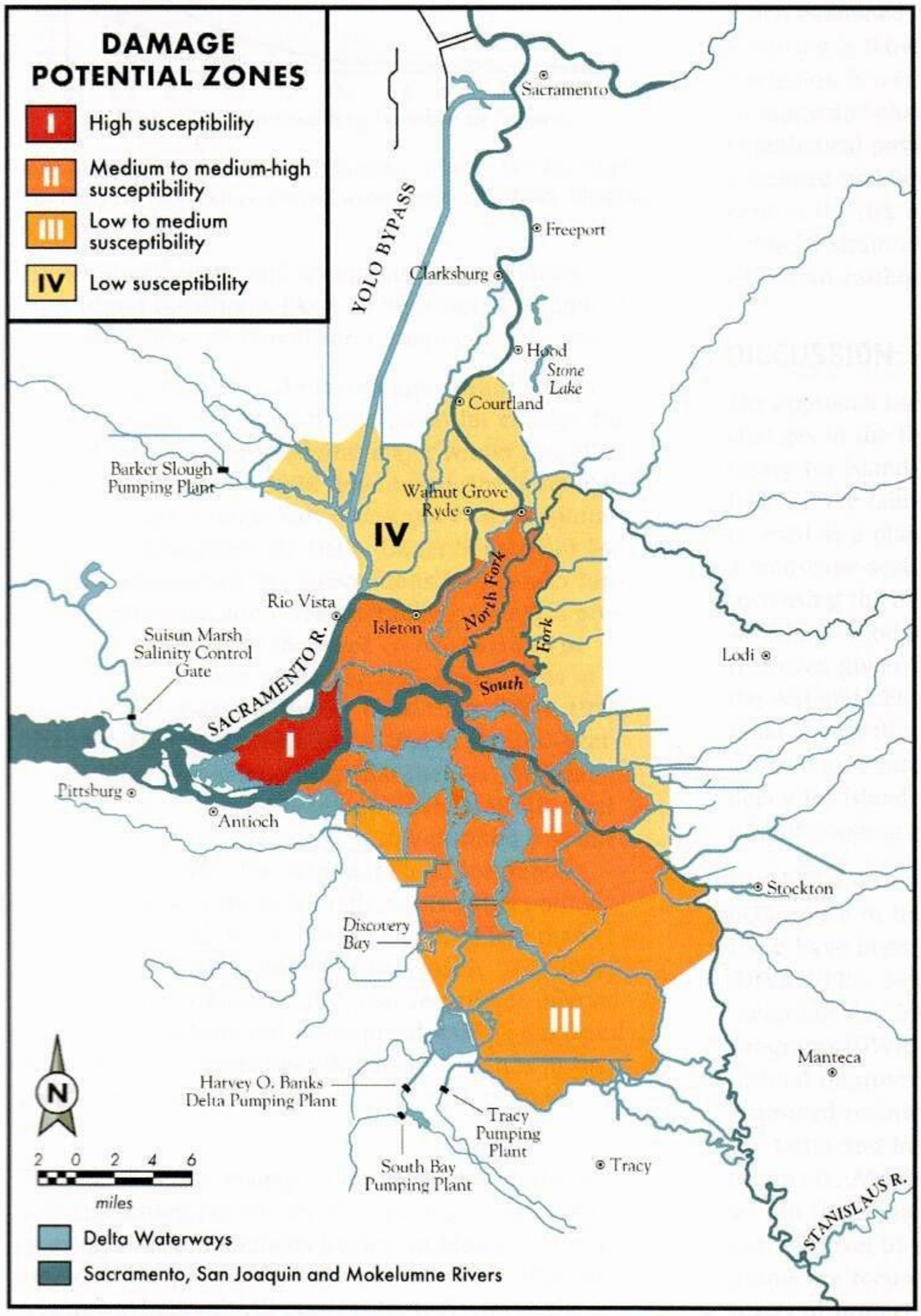

Figure 7. Zones of varying potential damage due to seismically-induced liquefaction and levee collapse. Modified from Torres et al. (2000).

Torres et al. (2000) estimated recurrence intervals for ground accelerations and the number of potential levee failures in each Damage Potential Zone. It is useful to examine their estimates of the number of failures that might occur during a 100-year event, or an event with a 0.01 probability of being equaled or exceeded in any given year (Figure 8). As in any probabilistic analysis of this sort, the range of potential responses to this kind of earthquake are broad and difficult to predict with precision. Based on their estimates, it is a roughly 50-50 chance that 5 to 20 levee segments (equal to one standard deviation around a mean of seven) will fail during a 100-year event in the Delta. This does not imply that 5 to 20 islands will flood, but just that 5 to 20 levee segments will fail. The loss of 5 to 20 levee segments in the Delta con-