Flood Potential Summary: Rocky Mountains, West Coast, and Southwest Regions

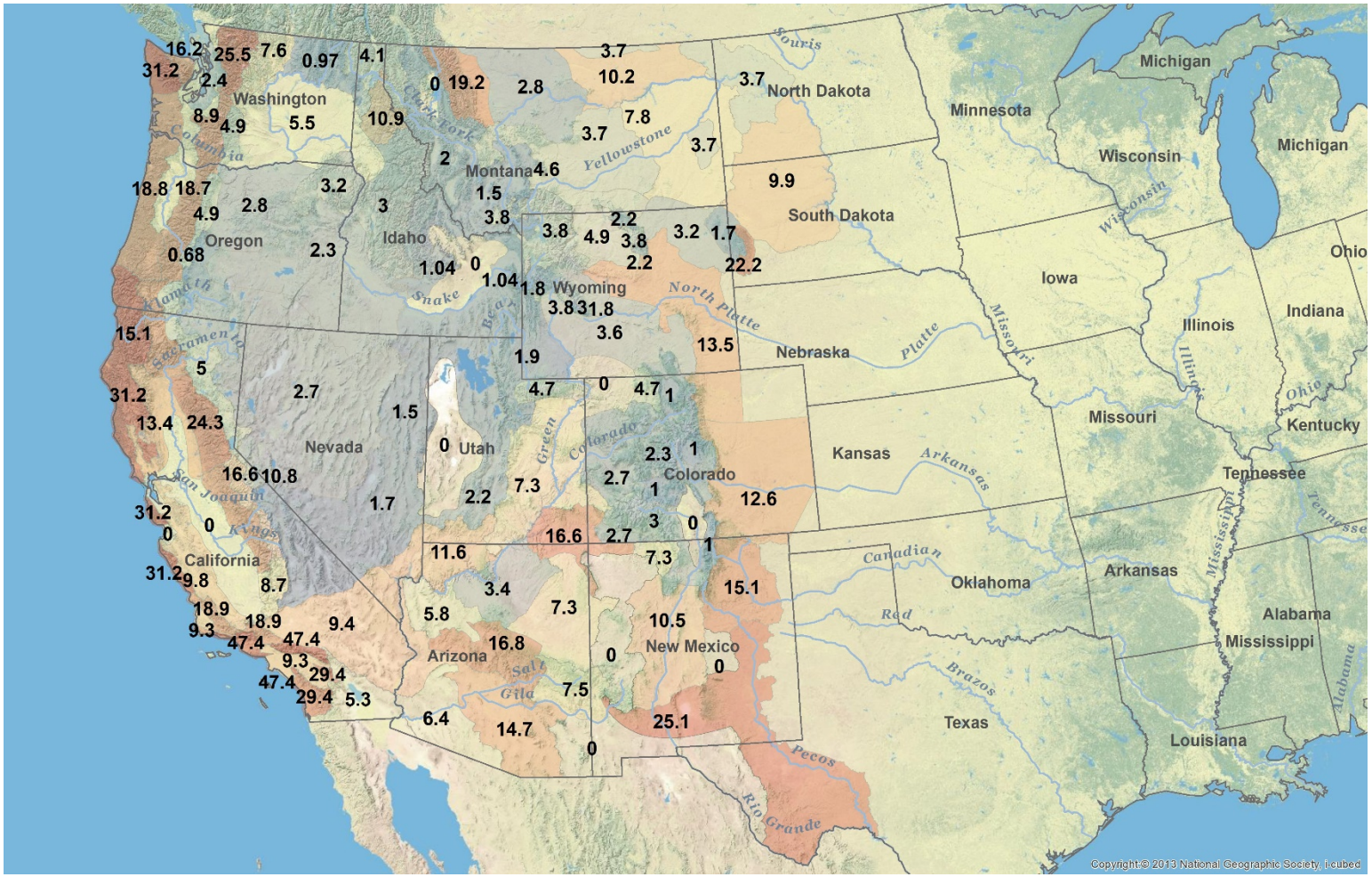
2021-2

Flood Potential Zones

77 delineated zones, with the “0” labels indicating an area with insufficient data for determining the flood potential.

Flood Potential Index (P_f)

Compares flood magnitudes to a low flood potential reference zone (2), and facilitates comparisons between zones. Using this index, flood magnitudes can be compared between any two zones. For example, floods in the Los Angeles Ranges (zone 20) experience floods 47.4/2.3 = 21 times greater than floods in the Southern Rocky Mountains (zone 3).



Flood Potential Summary, 2021-2
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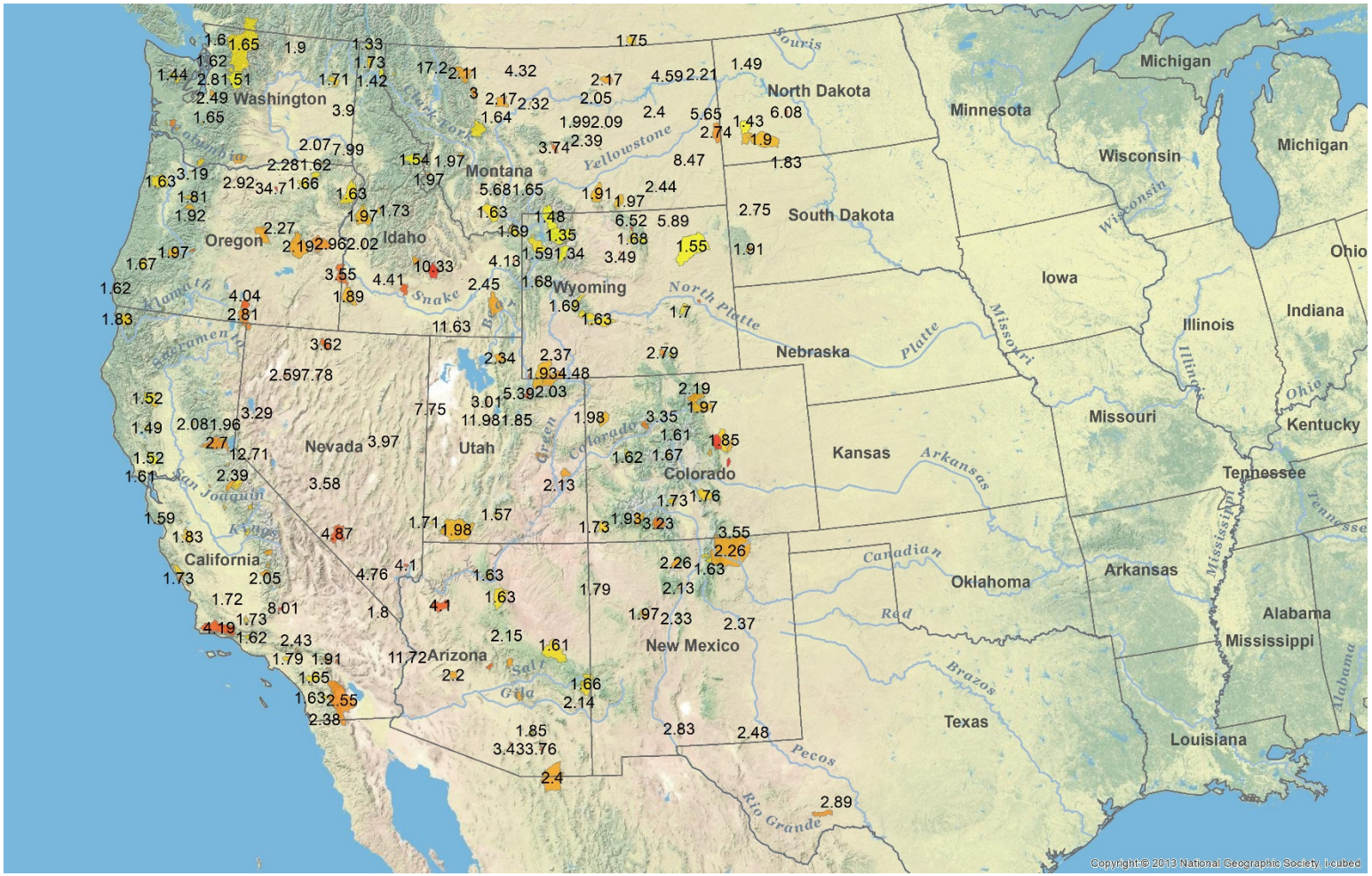
National Stream and Aquatic Ecology Center

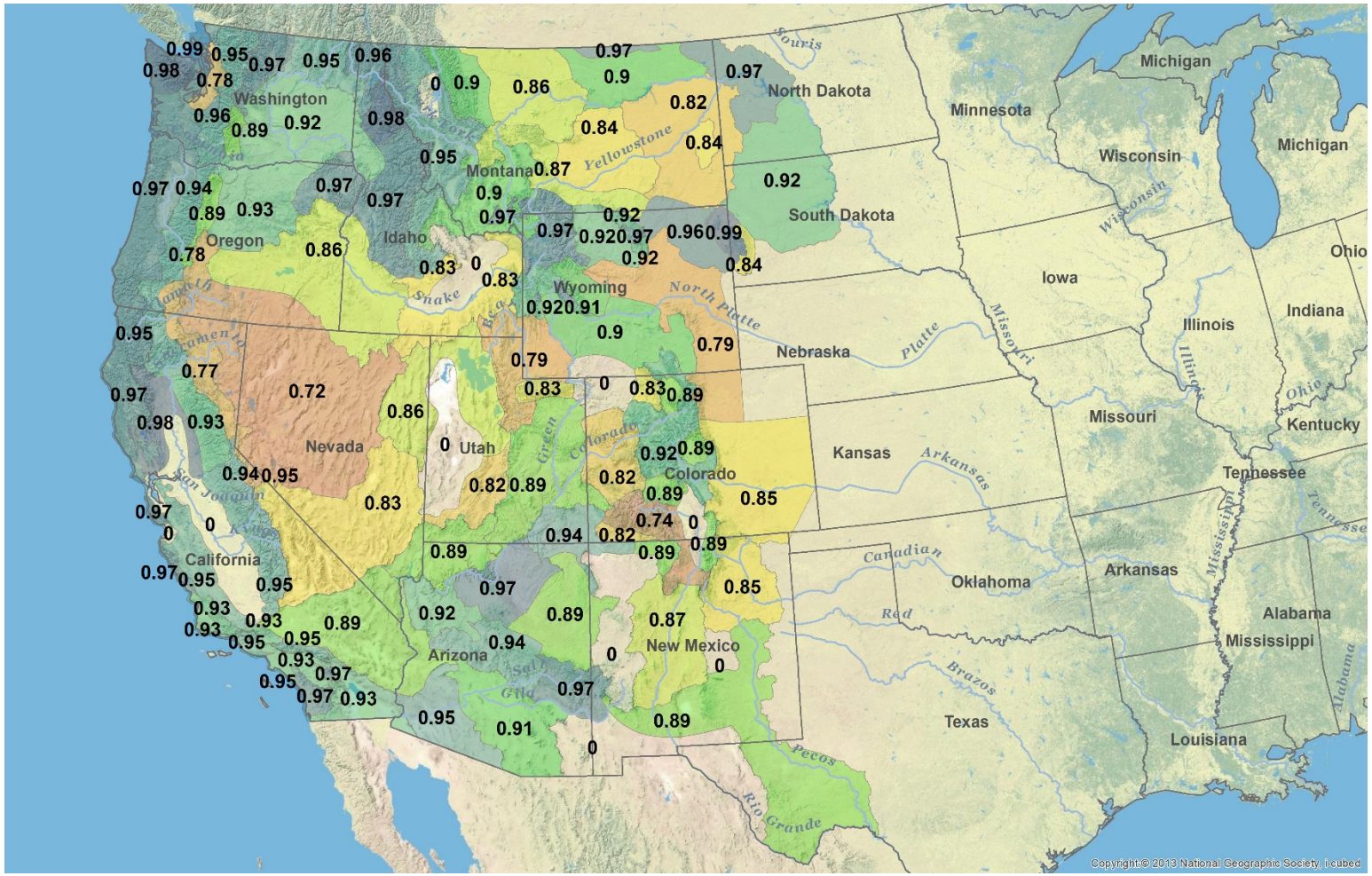
Watersheds that have Experienced Extreme Floods

Flood Extreme Index (E_f): ranks flood magnitudes and extremity, with higher values (warmer colors) indicating more extreme events. There appears to be clustering of extreme floods, including along the Rocky Mountains Front, on the Columbia Plateau of Oregon, and in the western portion of the Southwest.



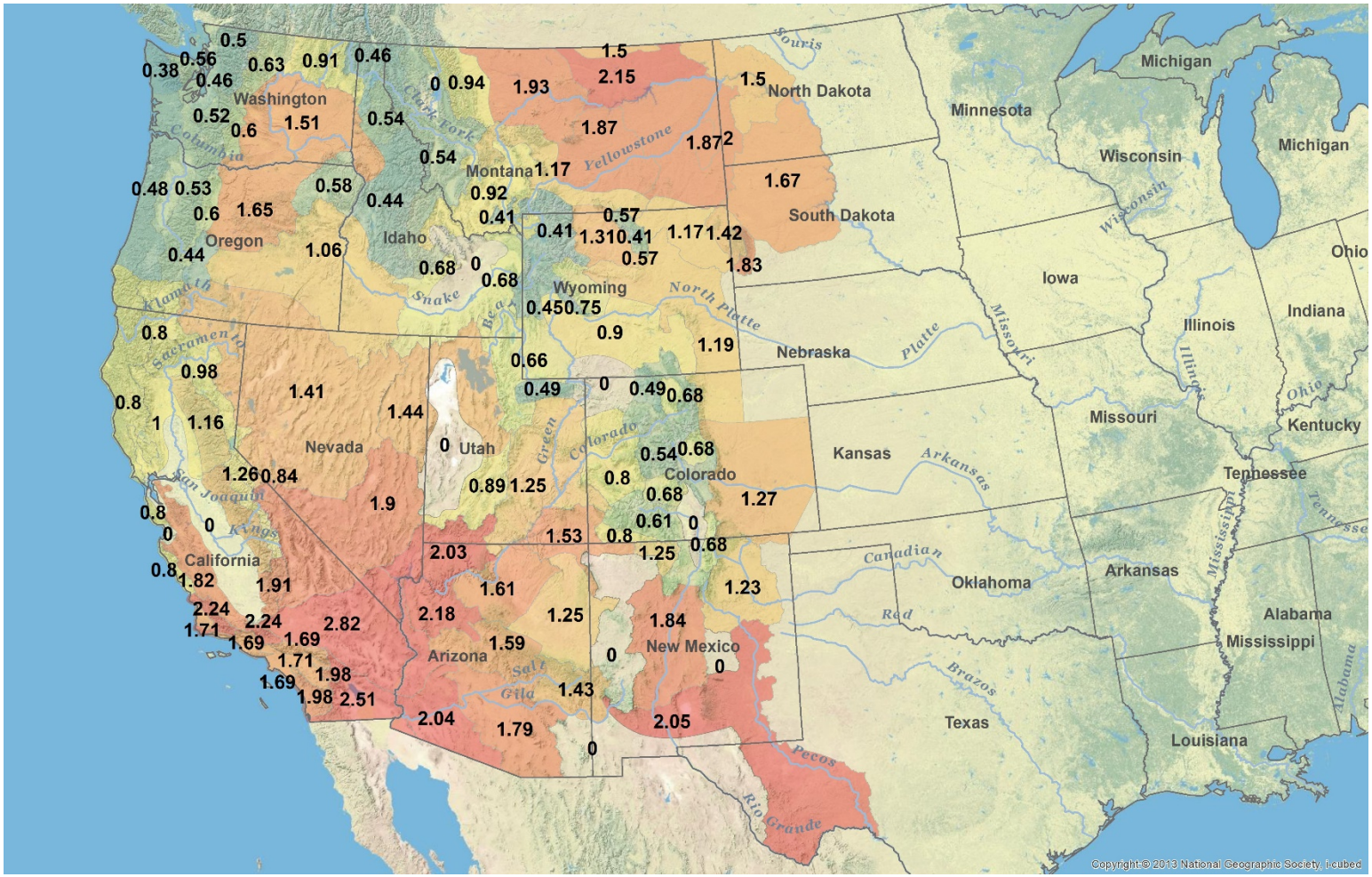
R^2

Highest explained variance for each zone, considering both area-only and 2 predictor regressions. Mean R^2 = 0.90. Where available, the multiple-variable equations should be utilized for predictions.



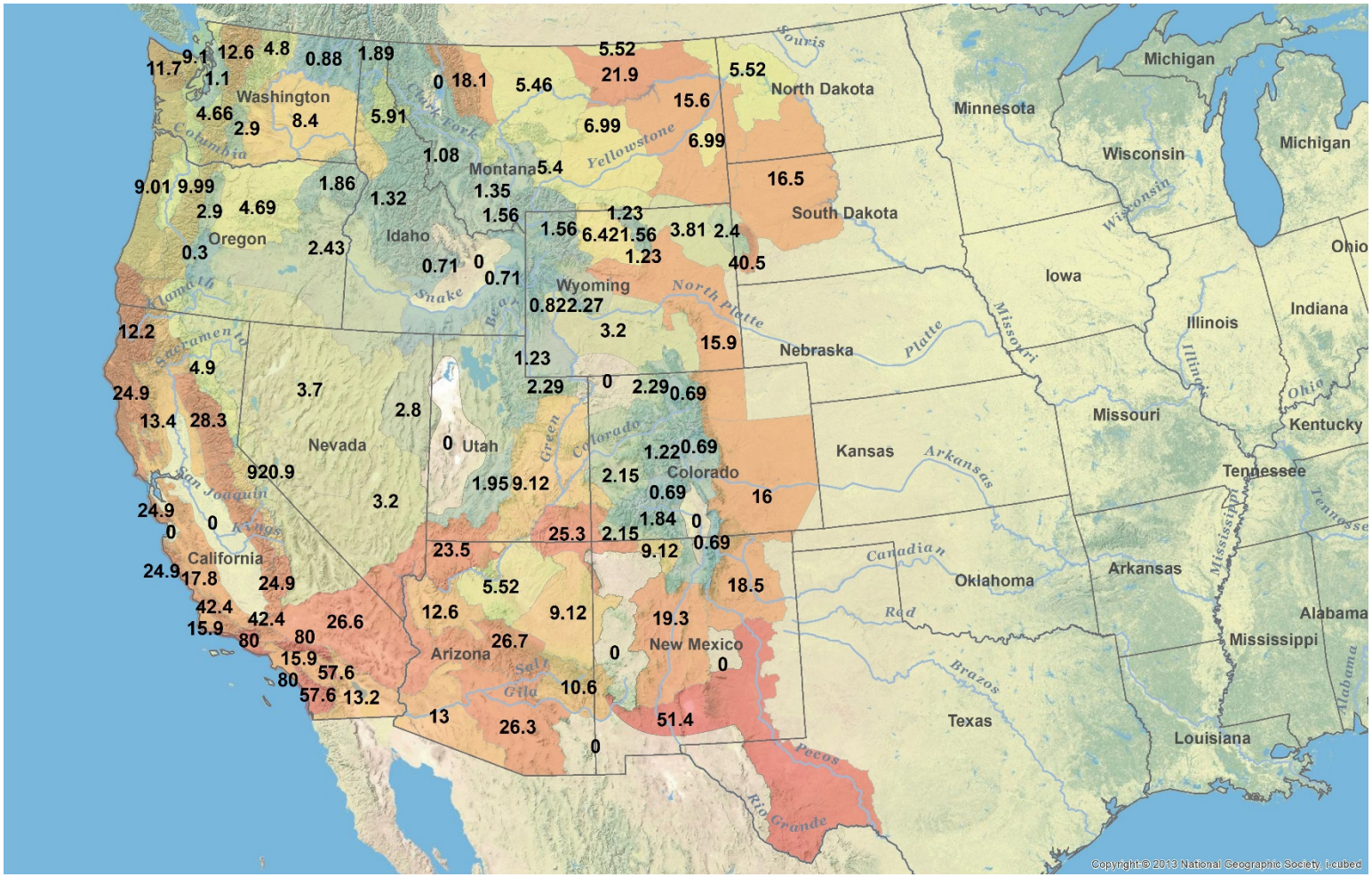
Flashiness (*F*)

Beard Flash Flood Index = *F*: quantifies flashiness, with higher values (warmer colors) indicating greater annual peak discharge variability.



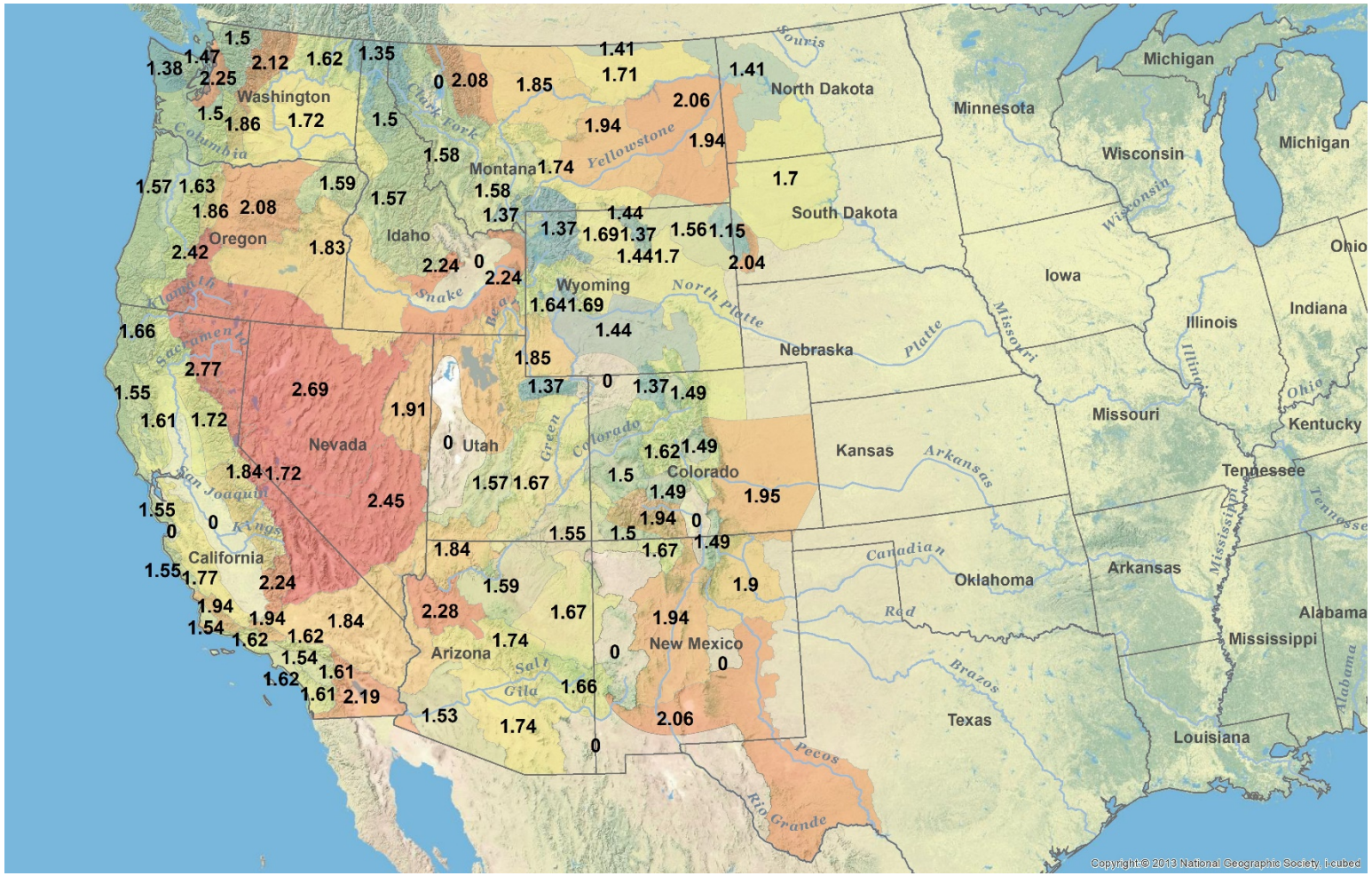
Flood Hazard Index (H_f)

Flood Hazard Index: provides a summary of overall hazard, accounting for both flood magnitude and flashiness. Higher values (warmer colors) indicate greater hazard.



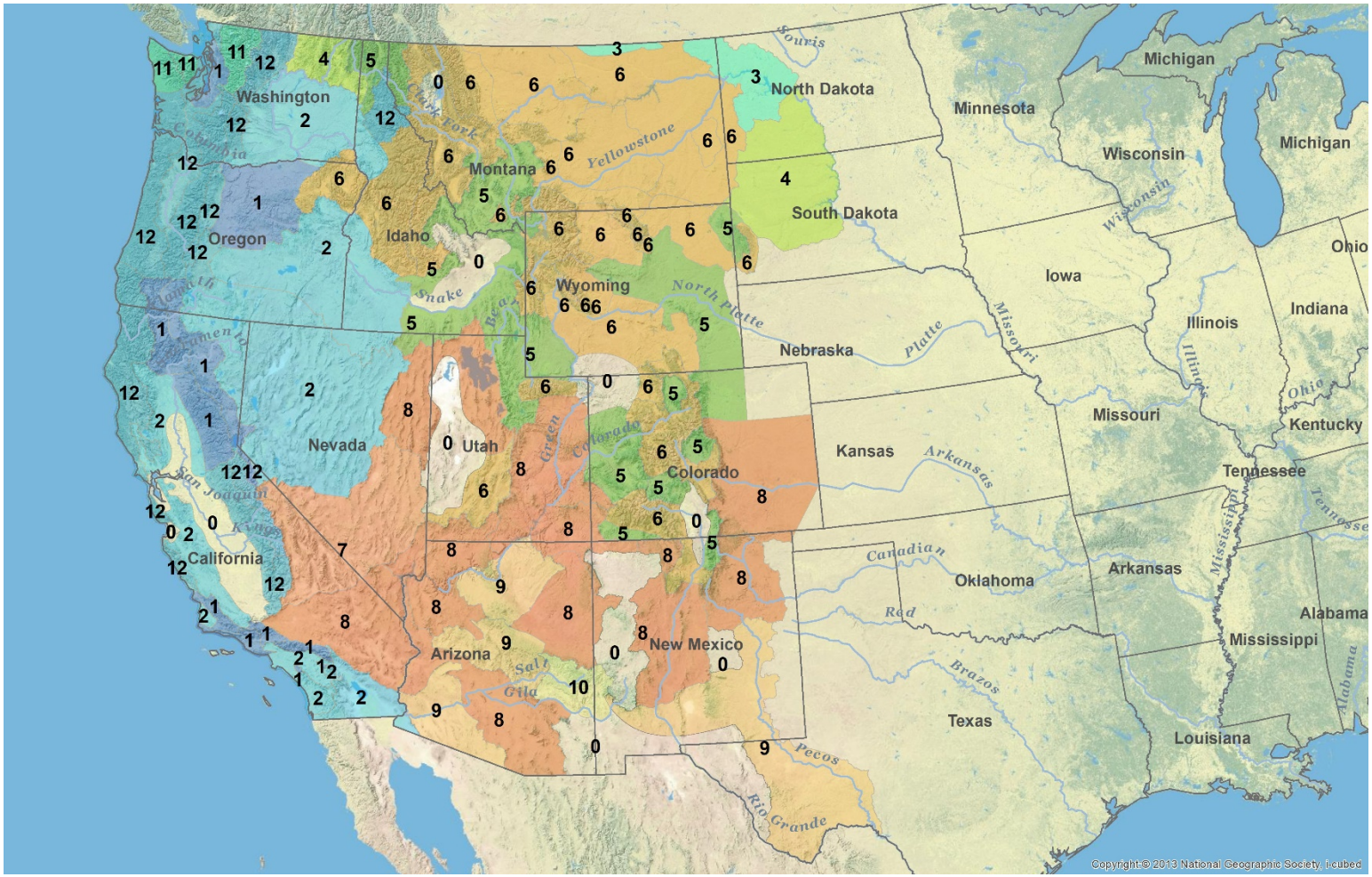
Flood Variability Index (V_f)

Describes within-zone flood magnitude variability, with higher values (warmer colors) indicating greater variability in both space and time.



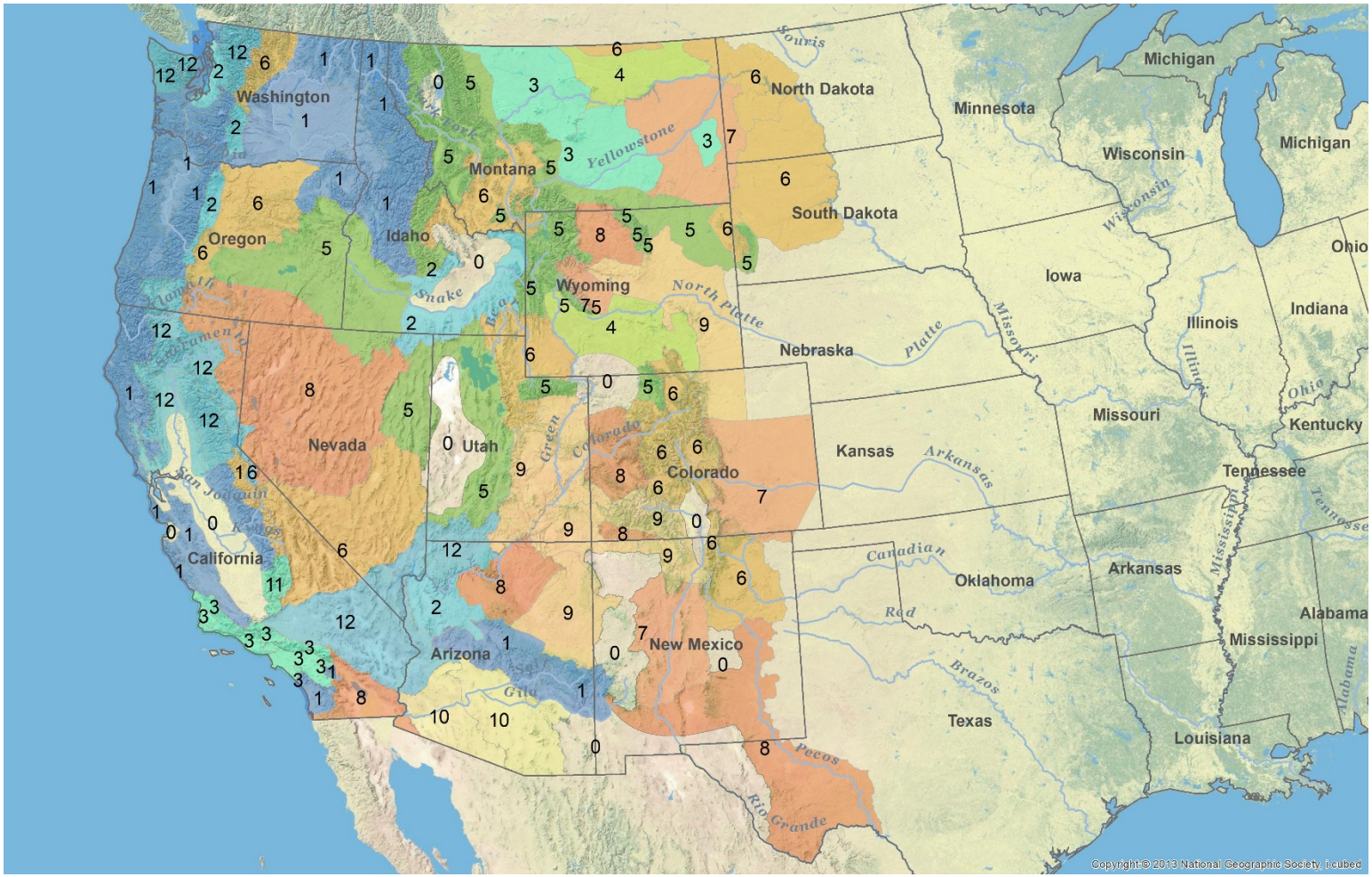
Dominant Flooding Month

Primary seasonality of largest 5% annual peak discharges.



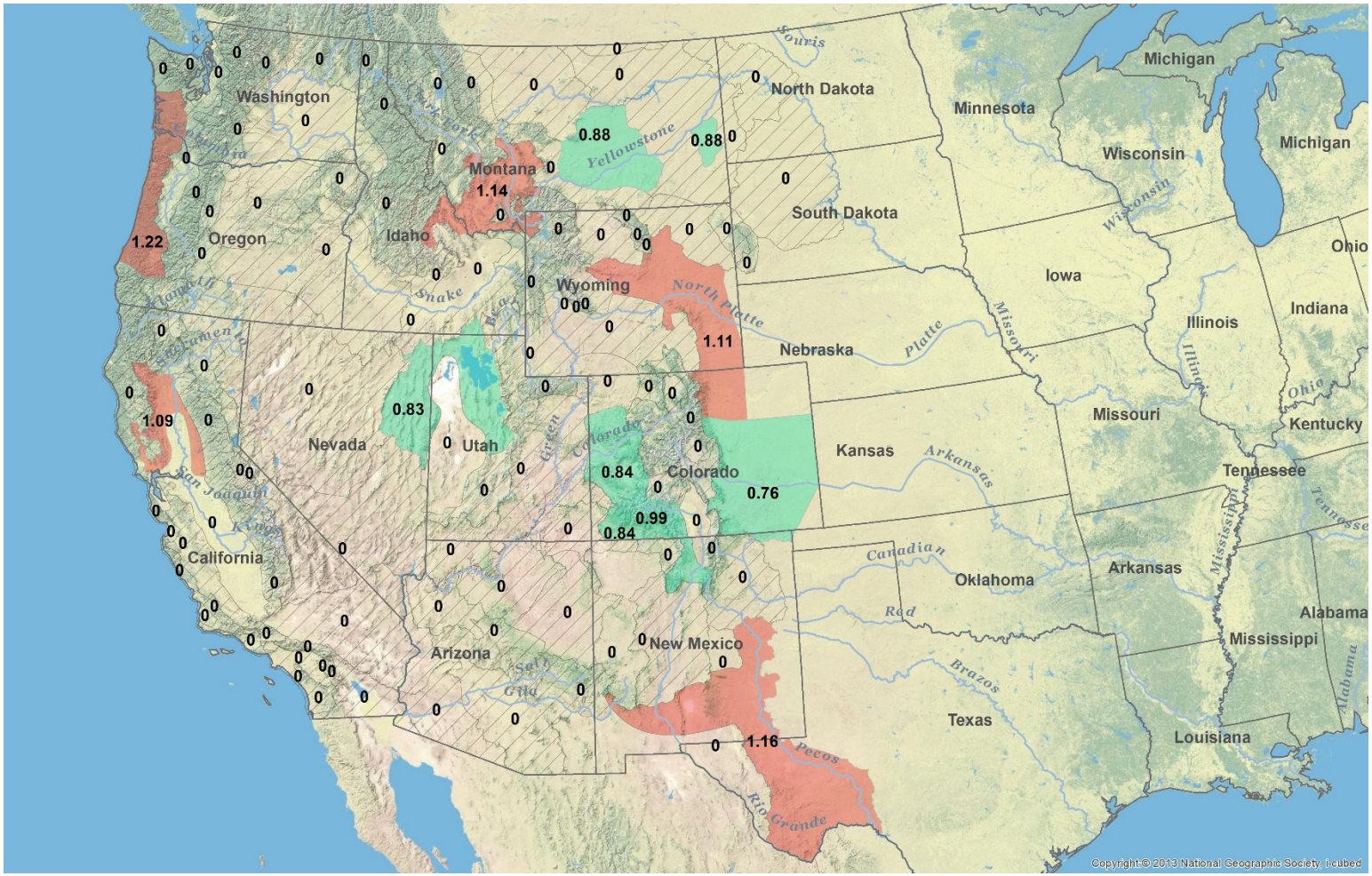
Secondary Flood Seasonality

Secondary seasonality of largest 5% annual peak discharges.



Significant Trends in Large Flood Magnitudes

Zones where significant trends in large flood magnitudes have been detected, with estimated magnitude adjustment (based on comparing the last 30 years of record with the entire record; 0 = null); red: increasing; green: decreasing; cross hatched: no significant trend.



Significant Trends in Flood Frequency

Zones where significant trends in annual peak discharges with $E_f > 0.5$, that is where $Q > 0.5*Q_{efp}$, 1945 to end of analyzed record (unadjusted for streamgage frequency); red: increasing; green: decreasing; cross hatched: no significant trend; striped: unknown, due to insufficient data.

P_{f2000} / P_{f20}

P_{f2000} / P_{f20} = ratio of flood potential index computation component for a 2000 km^2 watershed to a 20 km^2 watershed. Lower values (< 1; warmer colors) indicate that, within this zone, smaller watersheds experience higher flood magnitudes on a relative basis to other zones, while higher values (>1, cooler colors) indicate that larger watersheds experience higher flood magnitudes on a relative basis to other zones.