



# San Joaquin River's Sediment Texture Features



Erika Arreguin, Mara Brady

2576 E. San Ramon Ave M/S ST24, Fresno California 93740

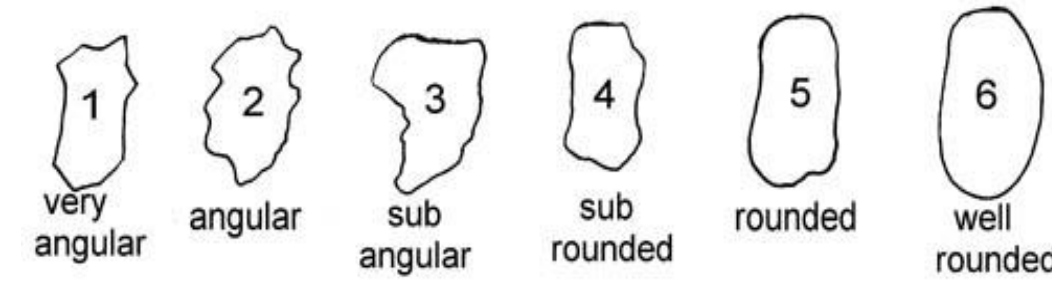
## Abstract

• **Are there any correlations between the textural features of the sediments between Turlock Lake and Riverbank formations based on their size?** The environment and the energy of the water flow have an affect on the sediments' Properties. The properties that were measured were: roundness, luster vs. dull, rough vs. smooth, and shape

• The bigger the rock, the rounder it will be because of the low energy flow of the river. All the properties will be compared with the different grain sizes. The bigger the rock, the rounder it will be because of the low energy flow of the river. Higher energy flow will shape rocks into spheres.

### •Methods

• The properties measured were roundness, luster vs. dull, rough vs. smooth, and shape. A scale of 1-6 was used to determine how well rounded and how smooth a grain is.

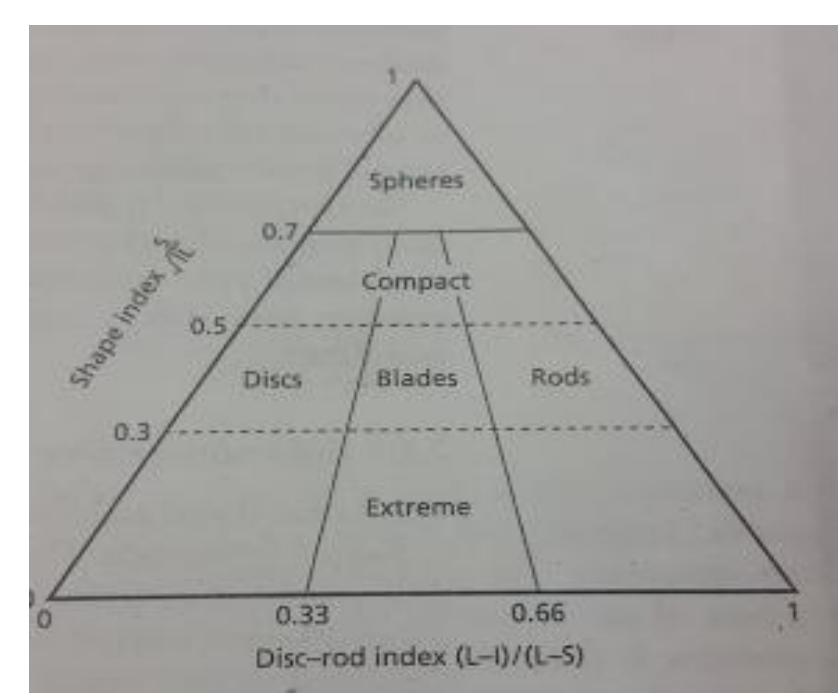


1	2	3	4	5	6
Very Rough	Rough	Semi Rough	Semi Smooth	Smooth	Very Smooth

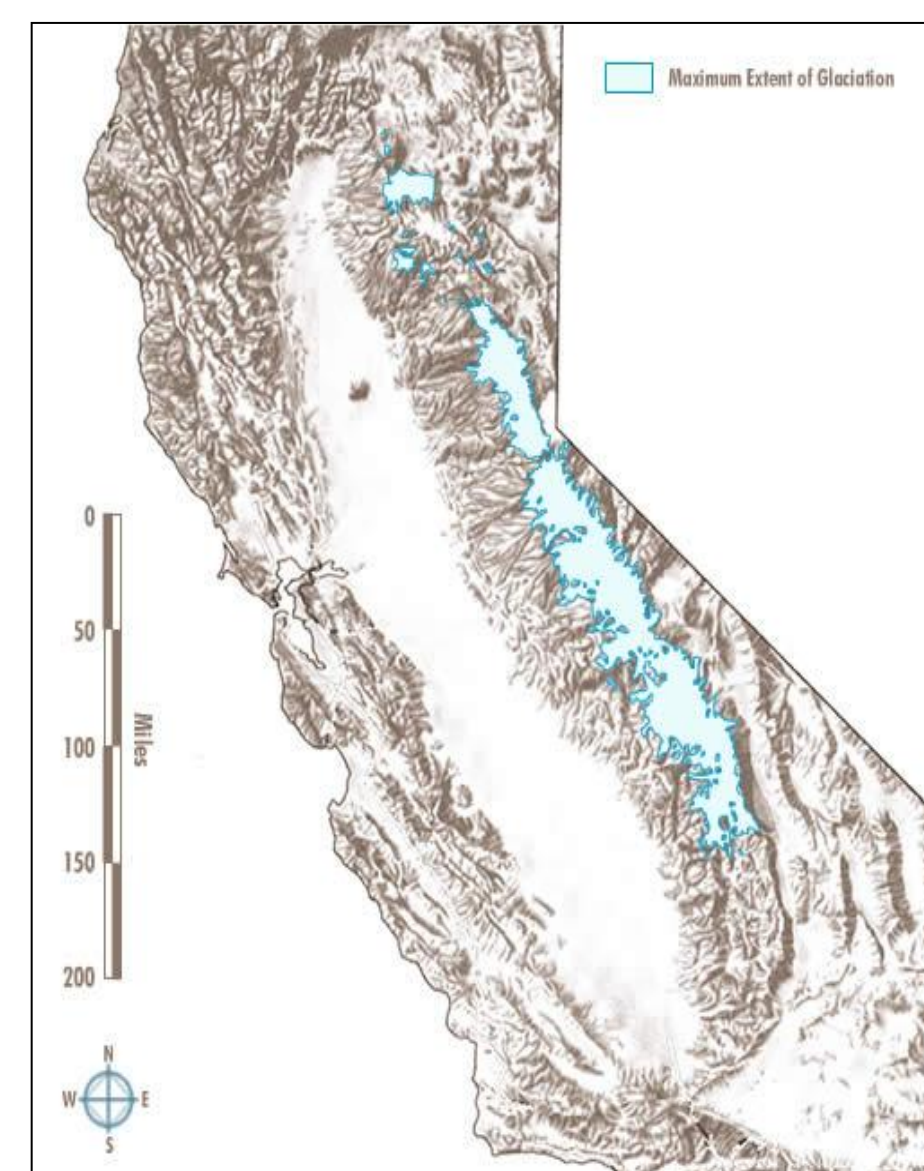
• A scale 1-4 was used to measure luster with 4 being very shiny and 1 being very dull.

1	2	3	4
Very Dull	Dull	Shiny	Very Shiny

• Shape index was used to determine the shape of the grain.



Atlas of California, 1979..

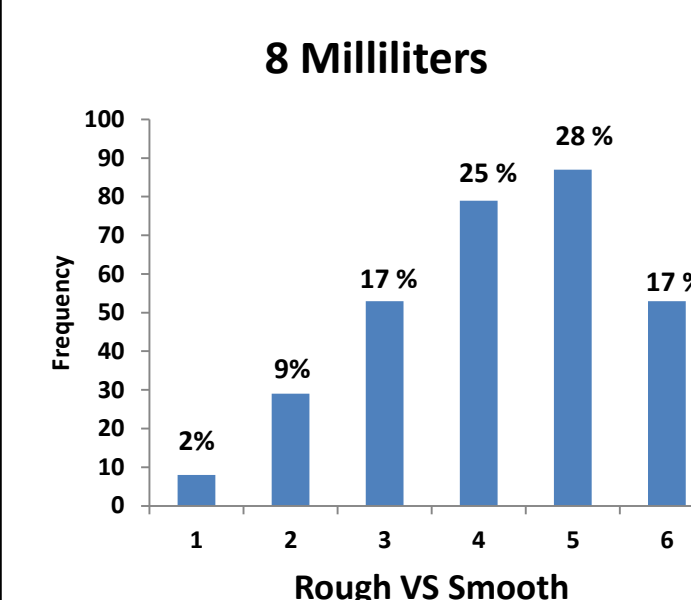


## •Background

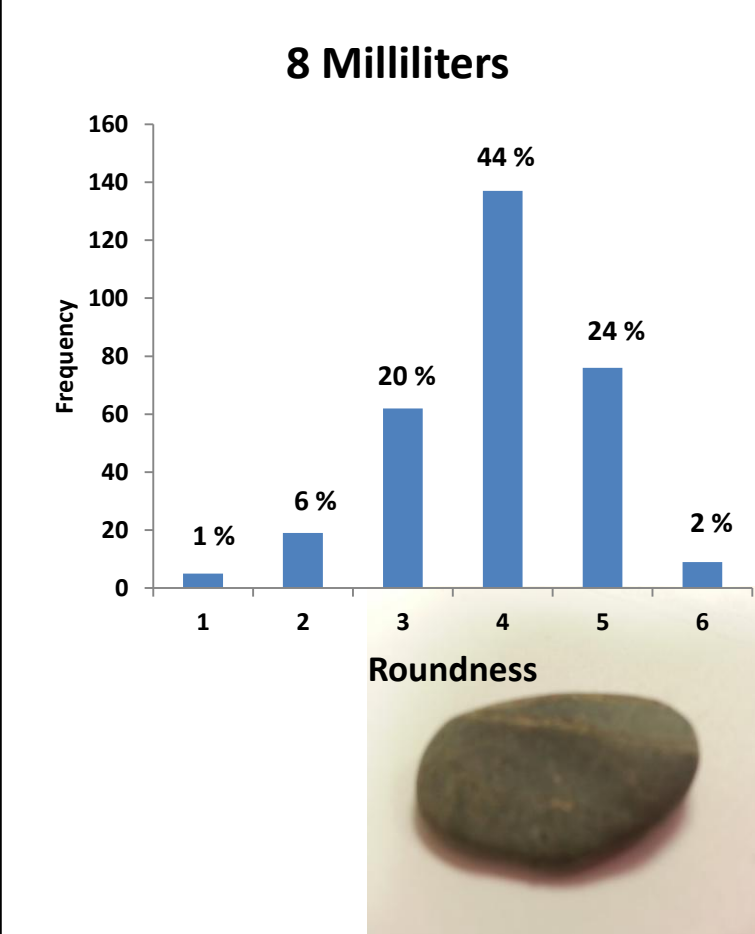
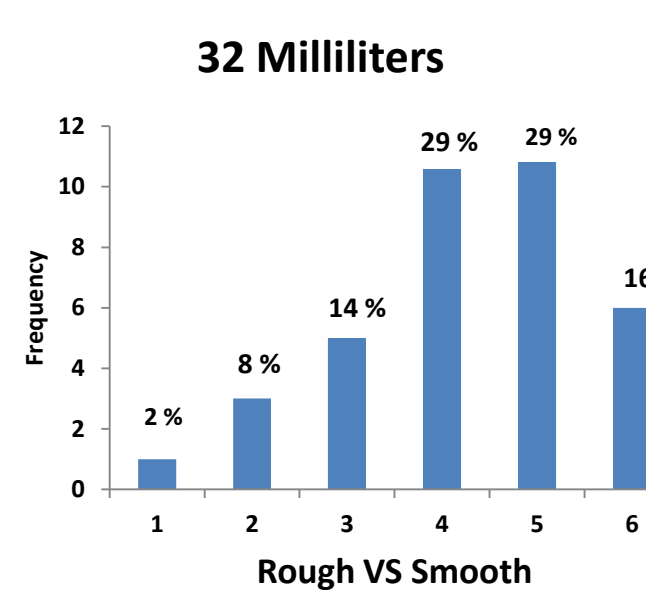
• The researched sediments that were came from the Sierra Nevada Granite about 10 thousand to 1million years ago. The different rocks that broke down from the Sierra Nevada were deposited down the river. On their journey down the river their original textural features were changed based on the energy of the water flow and the environment of the river. Some sediments did not traveled too far from their original source but others did.

The sediments that stop on their journey were because the energy of the water flow was not strong enough to move the sediment through the system. Other sediments that were able to move down the system broke off into pieces and their features changed as they traveled until they were deposited on their final destination.

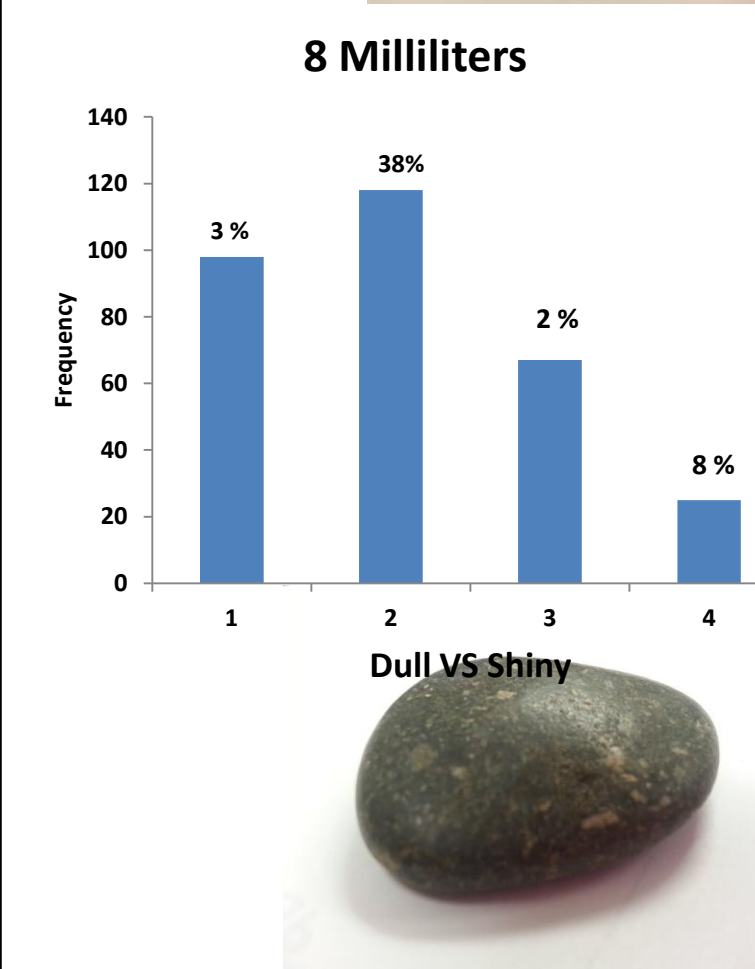
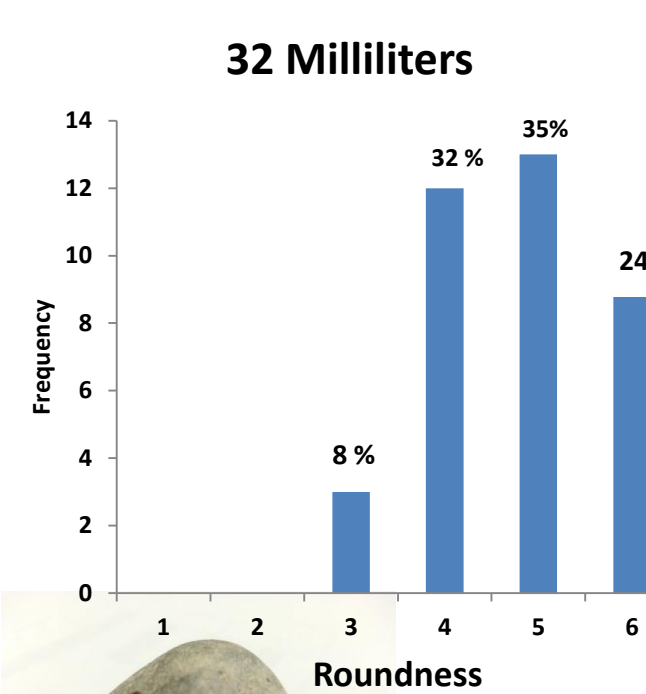
## Results



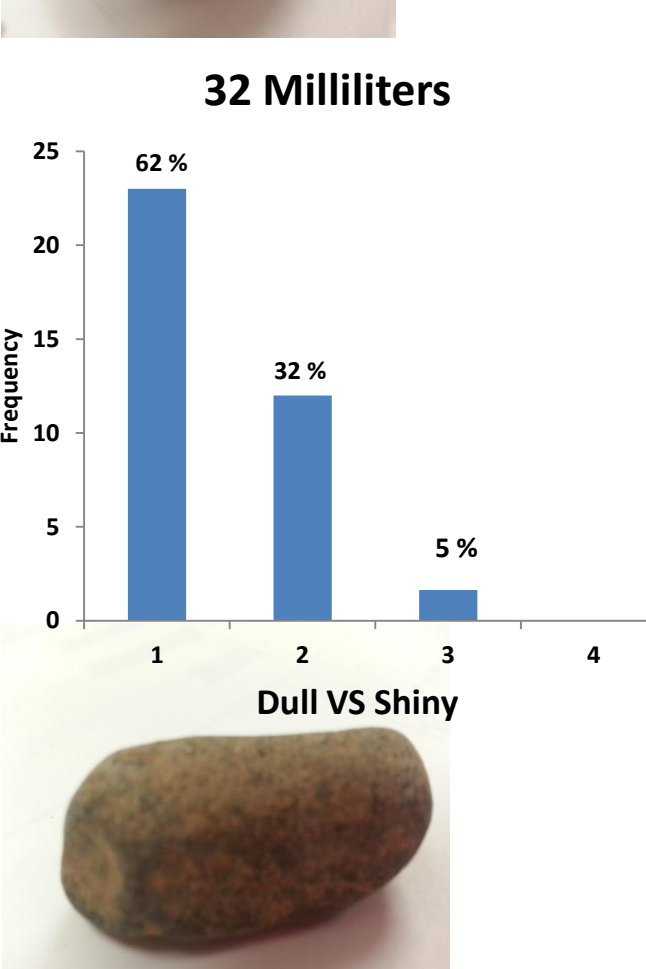
The roughness of grains are similar between 8mm and 32mm.



The larger the grain size the rounder the grain.



As the grain size gets larger the grain size becomes dull.



## Discussion

The original form of the sediment is unknown. What we do know is that the sediment's textural features changes as they travel through the system. The sediments that travel a long period of time in the system get smoother. Big sediments are round because the river with low energy flow is not able to move the sediment trough the system. The luster of the sediment is determine by different factors. One is the composition of the sediment. The more compositions the sediment has the least shiny it will be.

## Conclusions

• Based on the research of the sediment from the San Joaquin River I came to the conclusion that there are different factors that have an affect of the sediment's properties. Between the smaller grain sizes and the bigger grain sizes there some differences. The differences are the smaller the sediments they tend to have more luster and their shape changes to a more angular.

### •Goal for future study

• Other studies will focus on the compositions of the sediments to determine if the compositions has an affect on their textural feature.

• Another study will focus on the environment that the salmon like. Can salmon be brought back to the river? By learning how the sediments are transfer on the system and their textural feature we will know what type of energy flow that will benefit the salmon's living environment.

### Acknowledgments

CSU-Fresno, College of Science & Math, Department of Earth and Environment Science  
Fresno CEMEX Quarry for access to sites and permission to collect samples.

This material is based upon work supported by the Chevron Corporation, Howard Hughes Medical Institute, the National Marine Sanctuary Foundation, National Science Foundation, and S.D. Bechtel, Jr. Foundation. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the funders. The STAR program is administered by the Cal Poly Center for Excellence in STEM Education (CESAME) on behalf of the California State University.

