





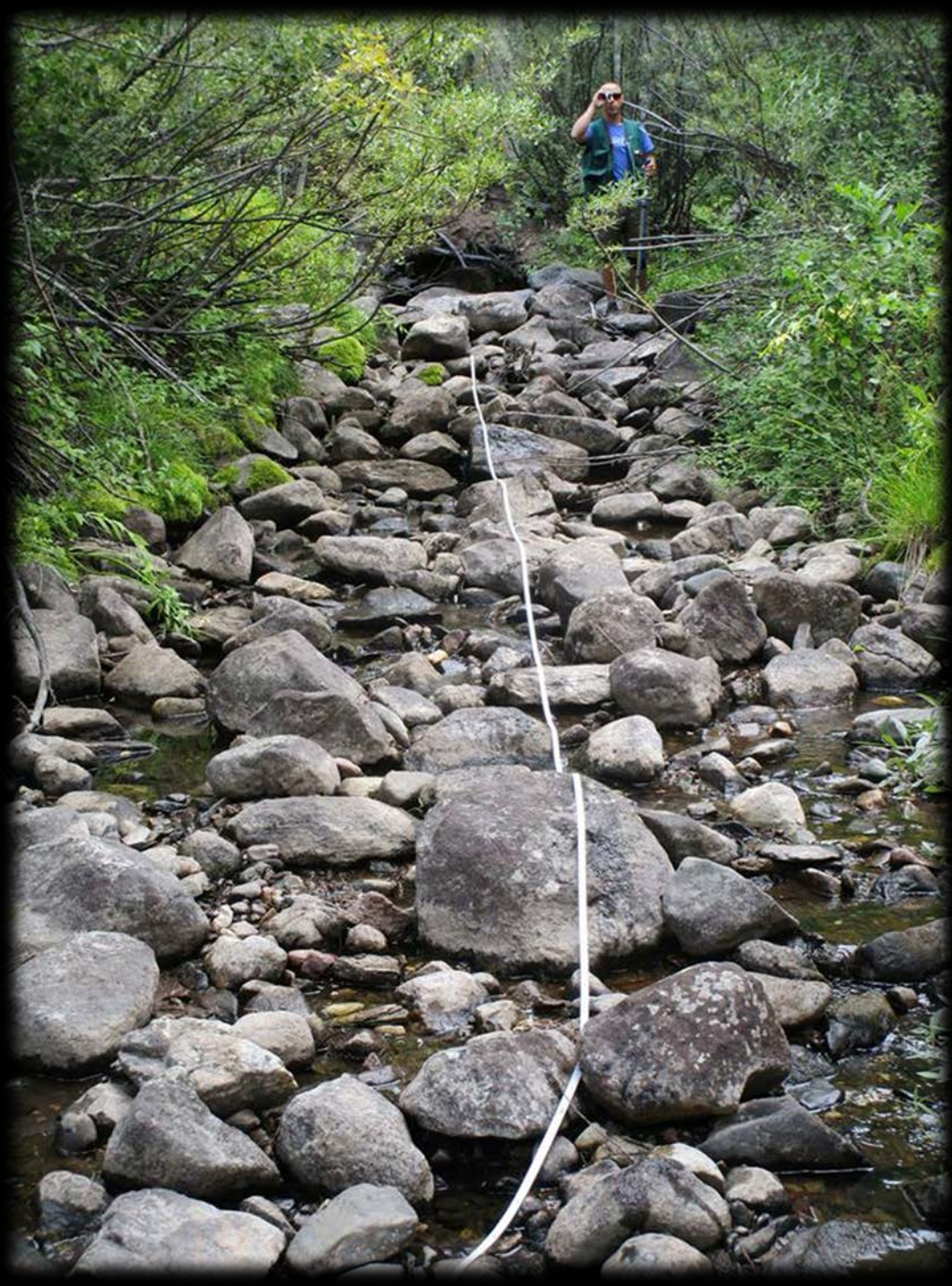
# *Appreciation To...*



- 2014 Summer Interns
- Zack Blumberg
- EPA Region IX
- Jim Harrington and the CABW & COB Programs

# *Rough Idea*

- Nevada's 2014 Efforts
- Comparison of Stream Indicators
- What's Next





# *Every Field Season is an Adventure*



- June 23 = 432 miles  
— 2 un-sampleable
- June 24 = 305 miles  
— 1 un-sampleable, 2 recons
- NRSA 2013/14  
— 10 remaining  
— 11 un-sampleable  
— 6 completed
- Nevada-Specific Program  
— 26 completed  
— 10 un-sampleable

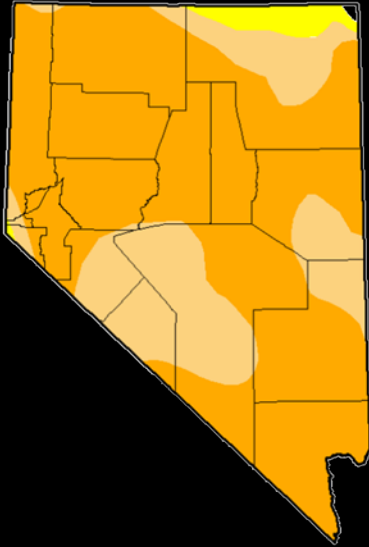




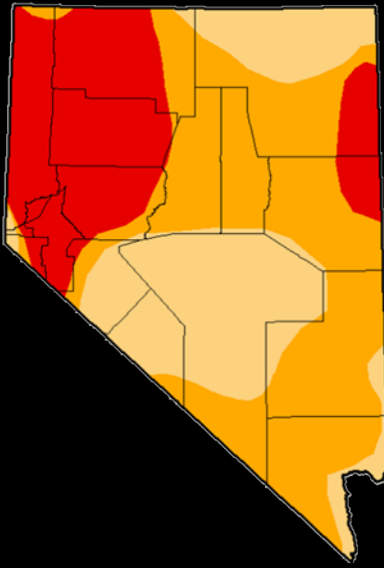
# *Nevada's Bioassessment Index Period*

**2012**

**Late May**



**Late August**



**How Dry Is It?**

**Abnormally Dry**

**Moderate Drought**

**Severe Drought**

**Extreme**

**Exceptional**



# Three Sites for Comparison



## Chiatovich Creek

- Reference Site by EPA ORD Design
- Category 1 – Fully Supporting

## Rough Creek

- Historic Mining Drainage
- Category 5 – Not Supported
  - Aquatic Life (Iron, Total-P)
  - Fish Consumption (Mercury)
  - Contact Recreation (Total-P)

## Sweetwater Creek

- Reference Site by BPJ
- Category 5 – Not Supported
  - Contact and Non-Contact Recreation (Total-P)

# *Characteristics ( $\bar{x}$ three assessments)*

	CHI	ROU	SWT
Elevation (m asl)	2191	1928	2566
Wet'd Width (m)	1.59	1.82	2.13
Canopy (%)	94	82	71
Slope (%)	7	2	8



# *Elements of Indicators*



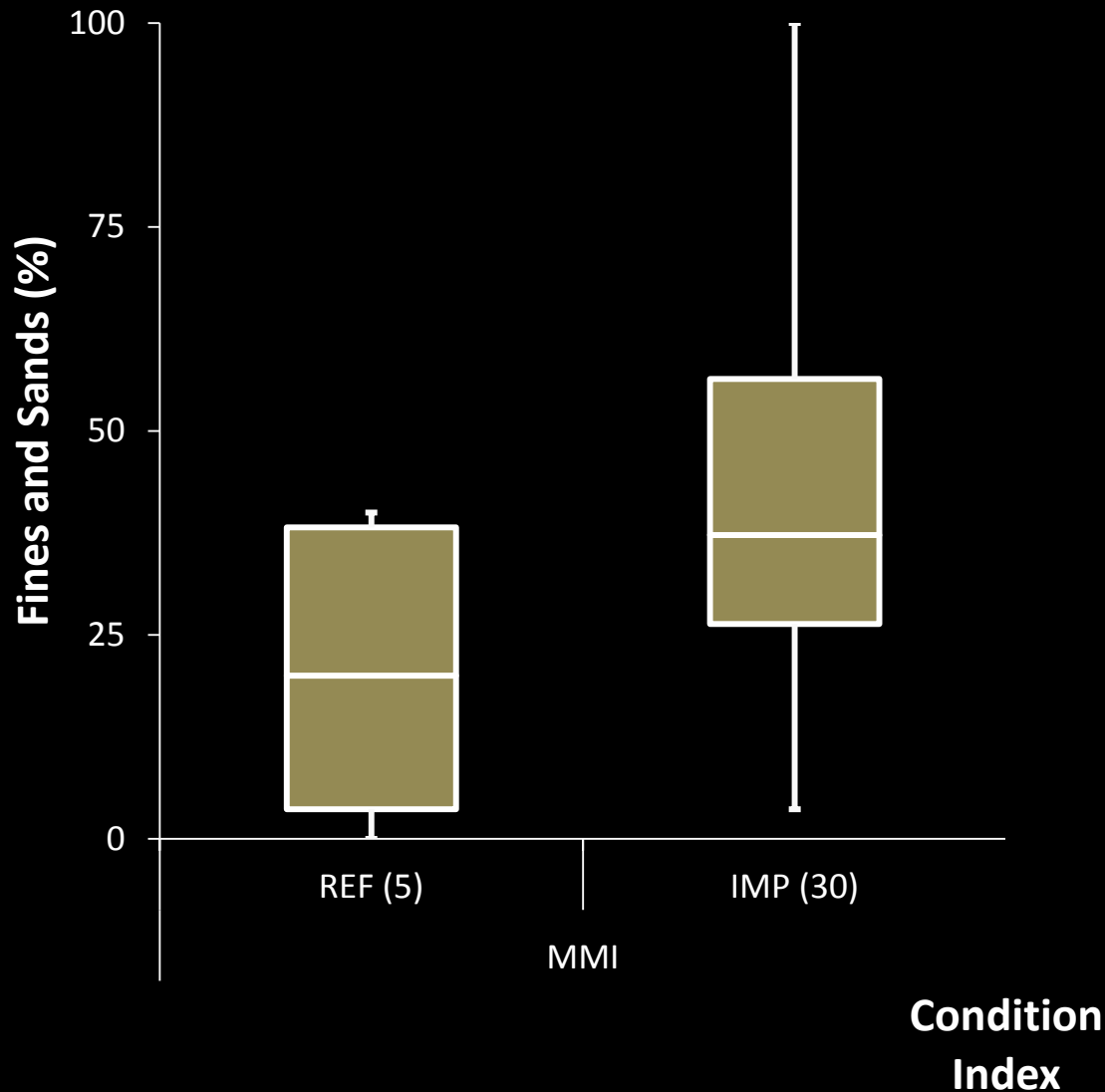
# *Substrate*



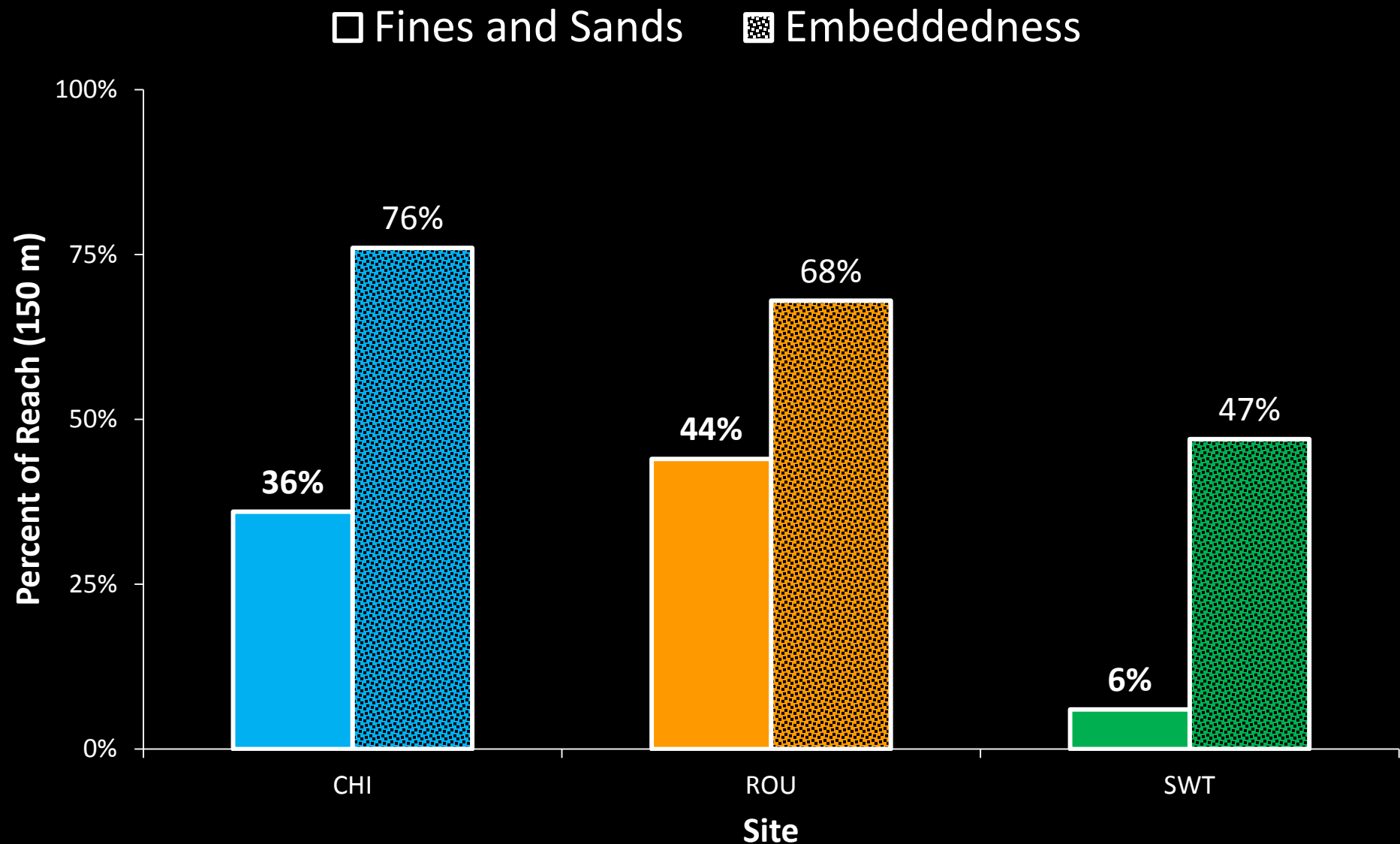


# *Fines and Sands v. Community Indices*

## *(Eastern Sierra Ecoregion Sites)*



# *Fines & Sands and Embeddedness*





# *Periphyton*



# Diatom Bioassessment Index

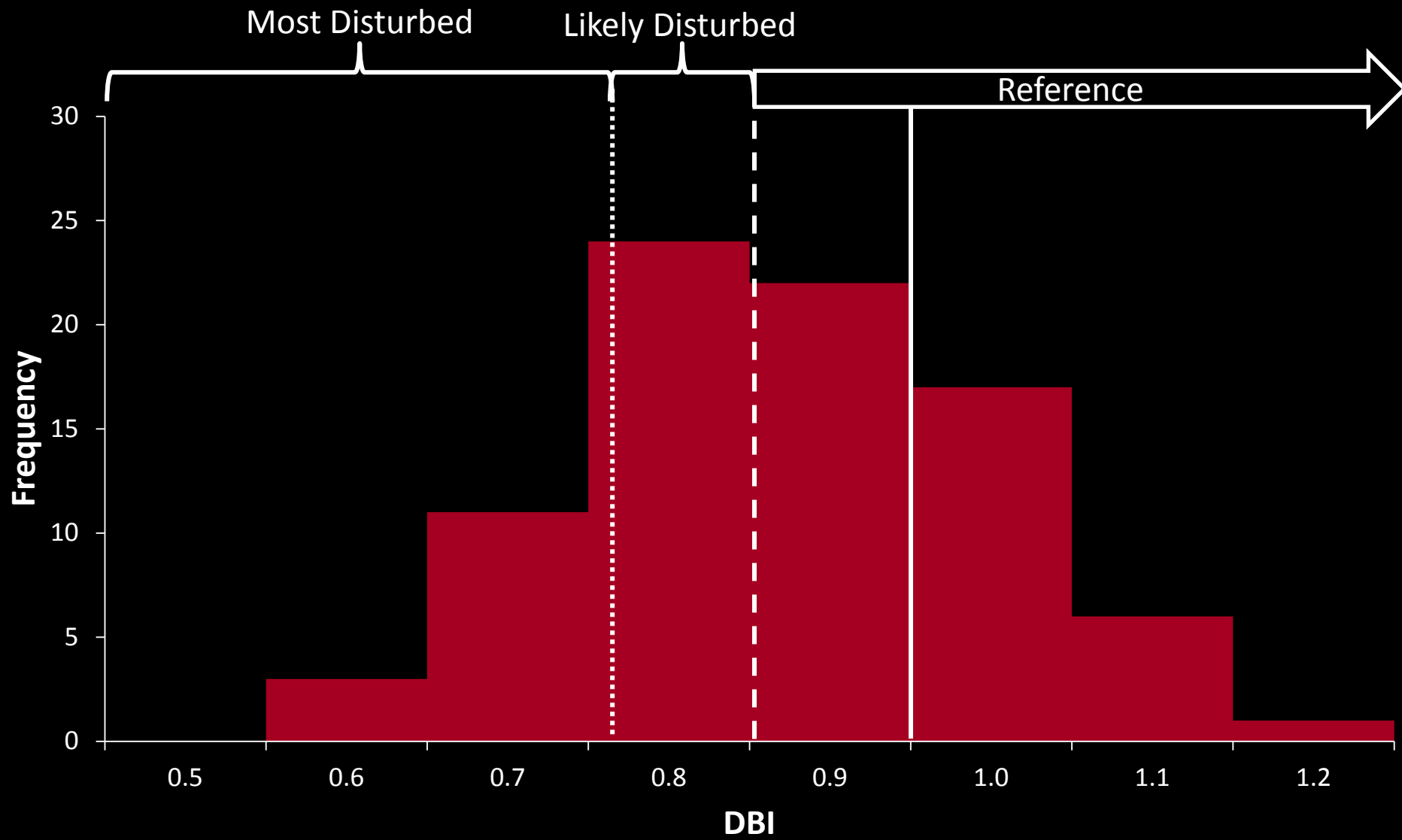
(Eastern Sierra Ecoregion Sites N=84)

Reference Sites

Mean

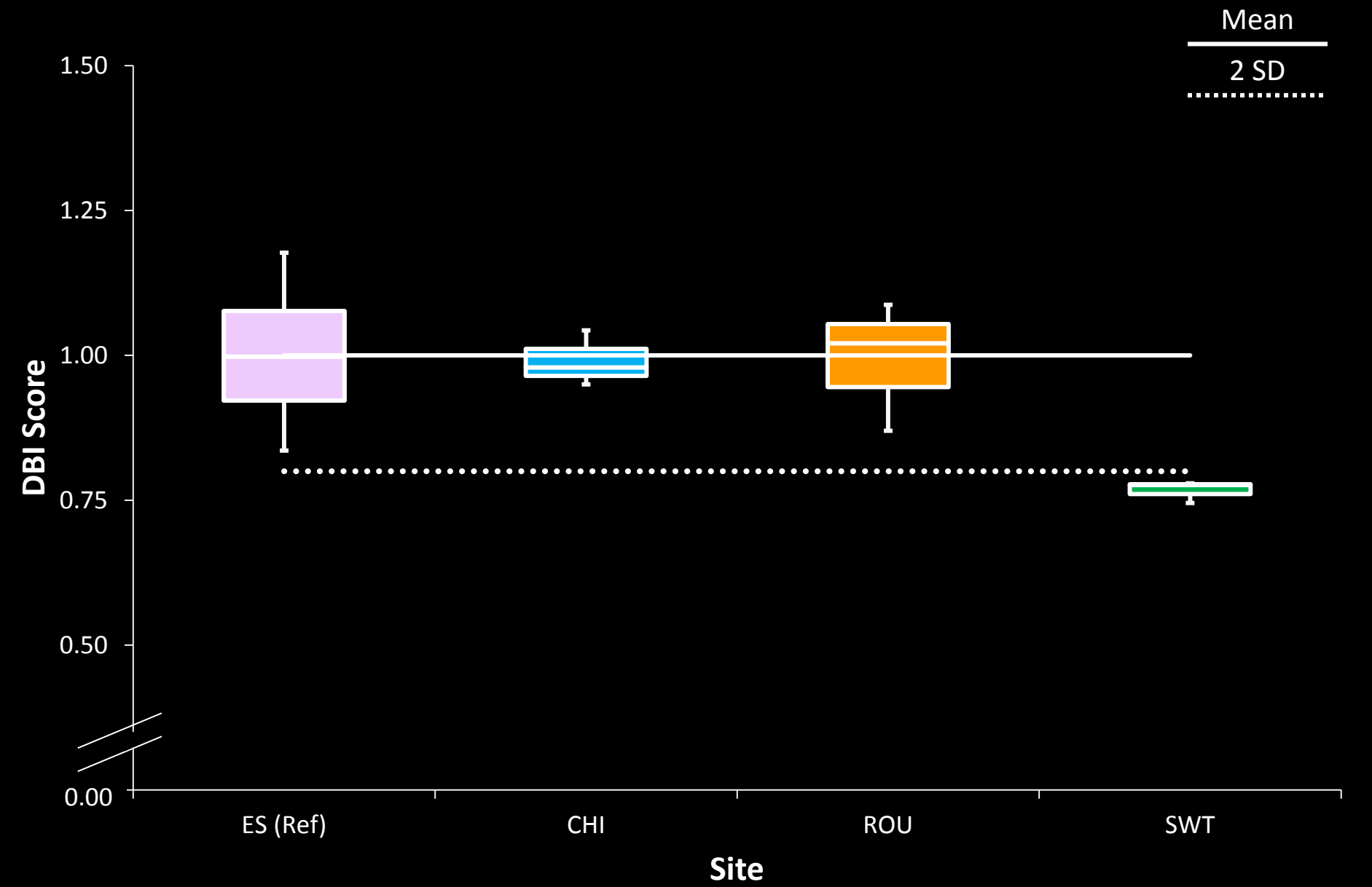
1 SD

2 SD





# *Diatom Bioassessment Index*







# *Benthics*

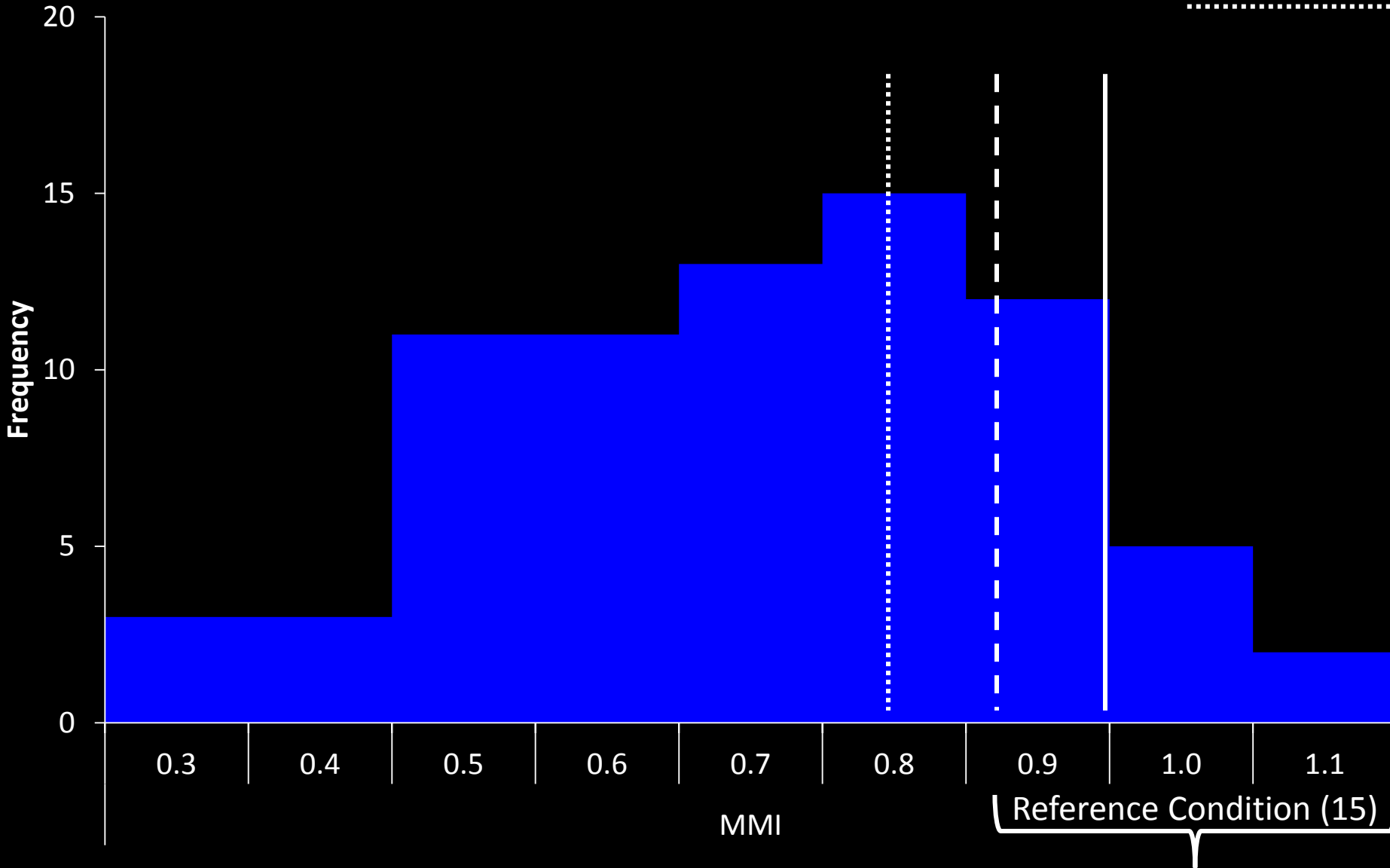


# Condition Index: MMI

(Eastern Sierra Ecoregion Sites N=75)

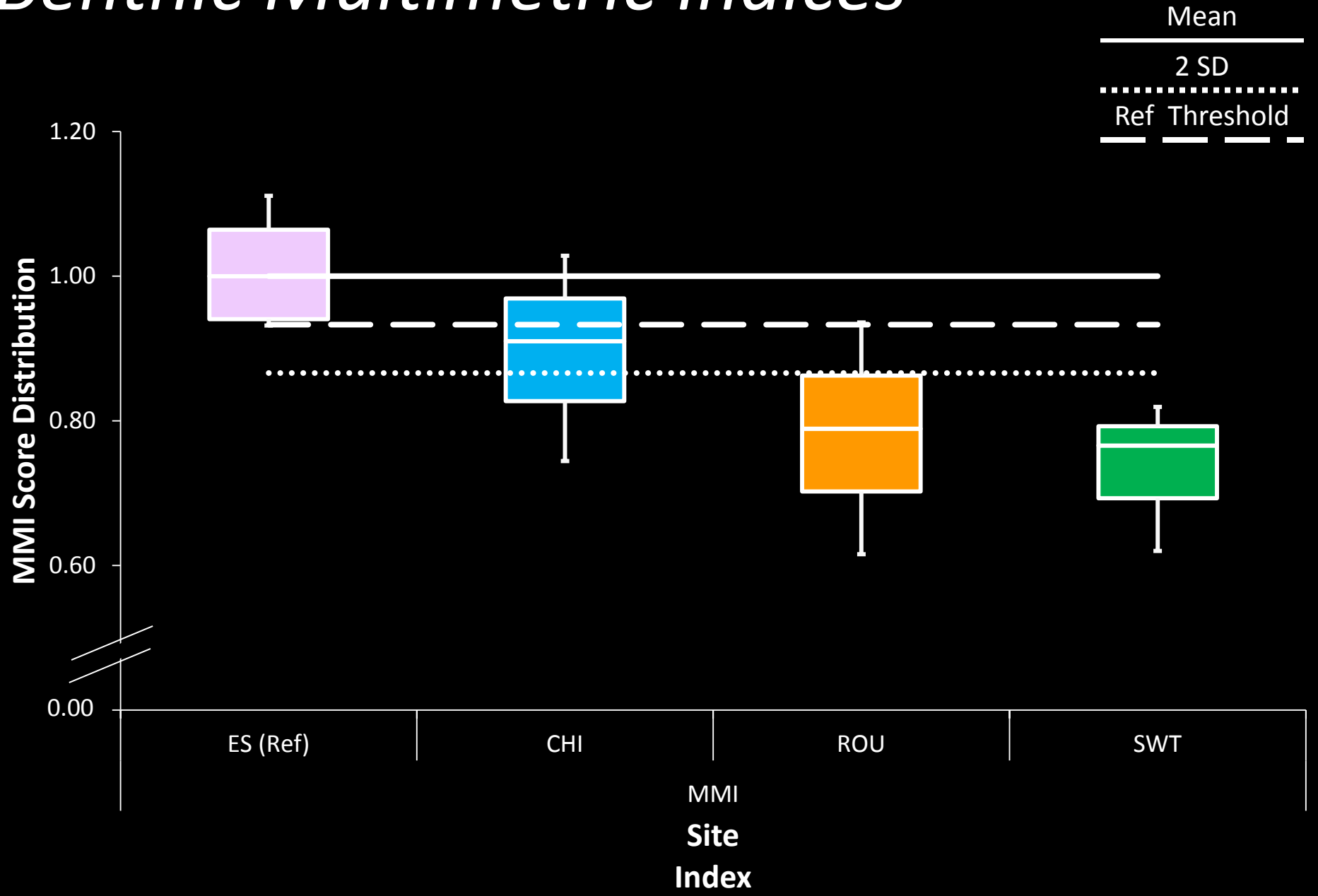
Reference Sites

Mean
1 SD
2 SD





# Benthic Multimetric Indices

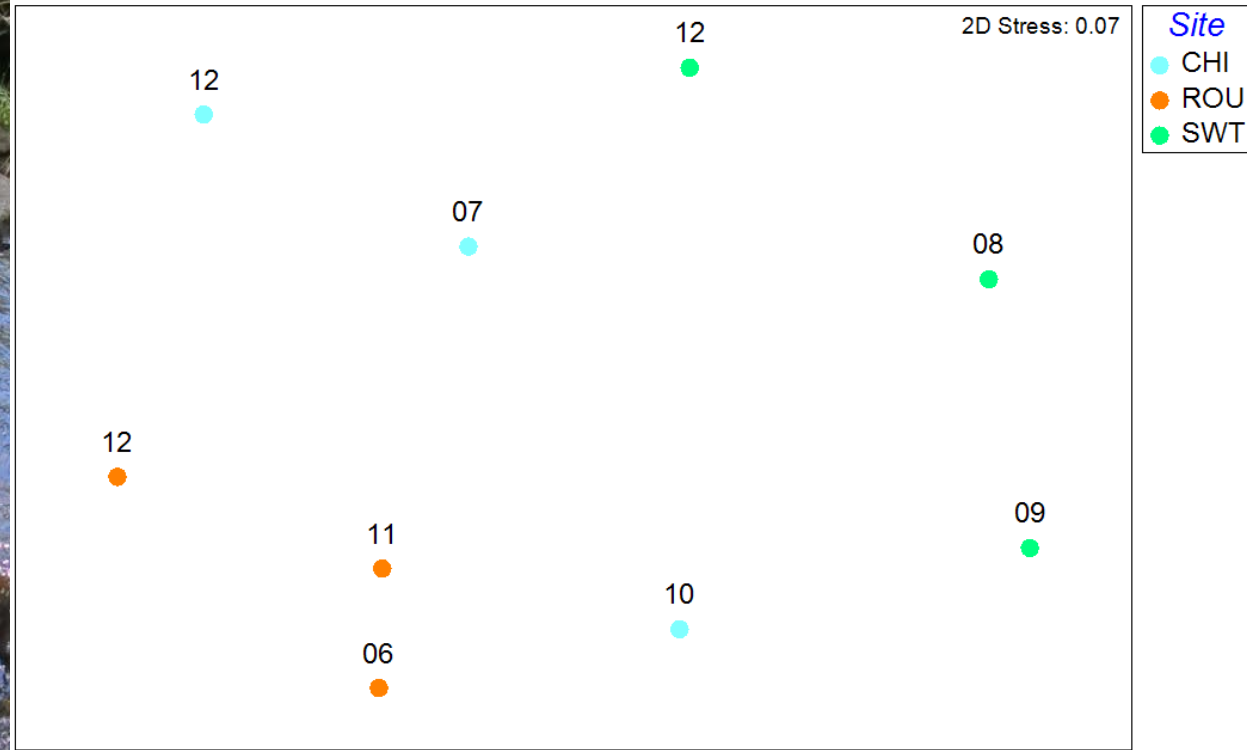




## Nevada BMI Community Structure

Transform: Square root

Resemblance: S17 Bray Curtis similarity



### Percent Similarity by Species Between Sites

	CHI	ROU	SWT
CHI	28.09	24.28	18.04
ROU		38.00	14.59
SWT			32.40



# *Well, that makes sense...*

## Chiatovich

- Fully supporting for all beneficial uses
- Low anthropogenic influences
- Consistent biological indices scores trend towards reference



## Rough

- Not supporting for 3 beneficial uses
- Biotic condition reflects physical condition
- Variability in BMI scores trending below reference



*What's going on with Sweetwater?*





# *IMHO...*

- Some streams are just some streams.
- Simplicity is better.
- Stressors can be elusive.





*“So, what do you do when it’s not field season?”*



*Develop a digital on-line reference collection  
(an excuse to increase my taxonomic identification skills &  
daydream about streams).*





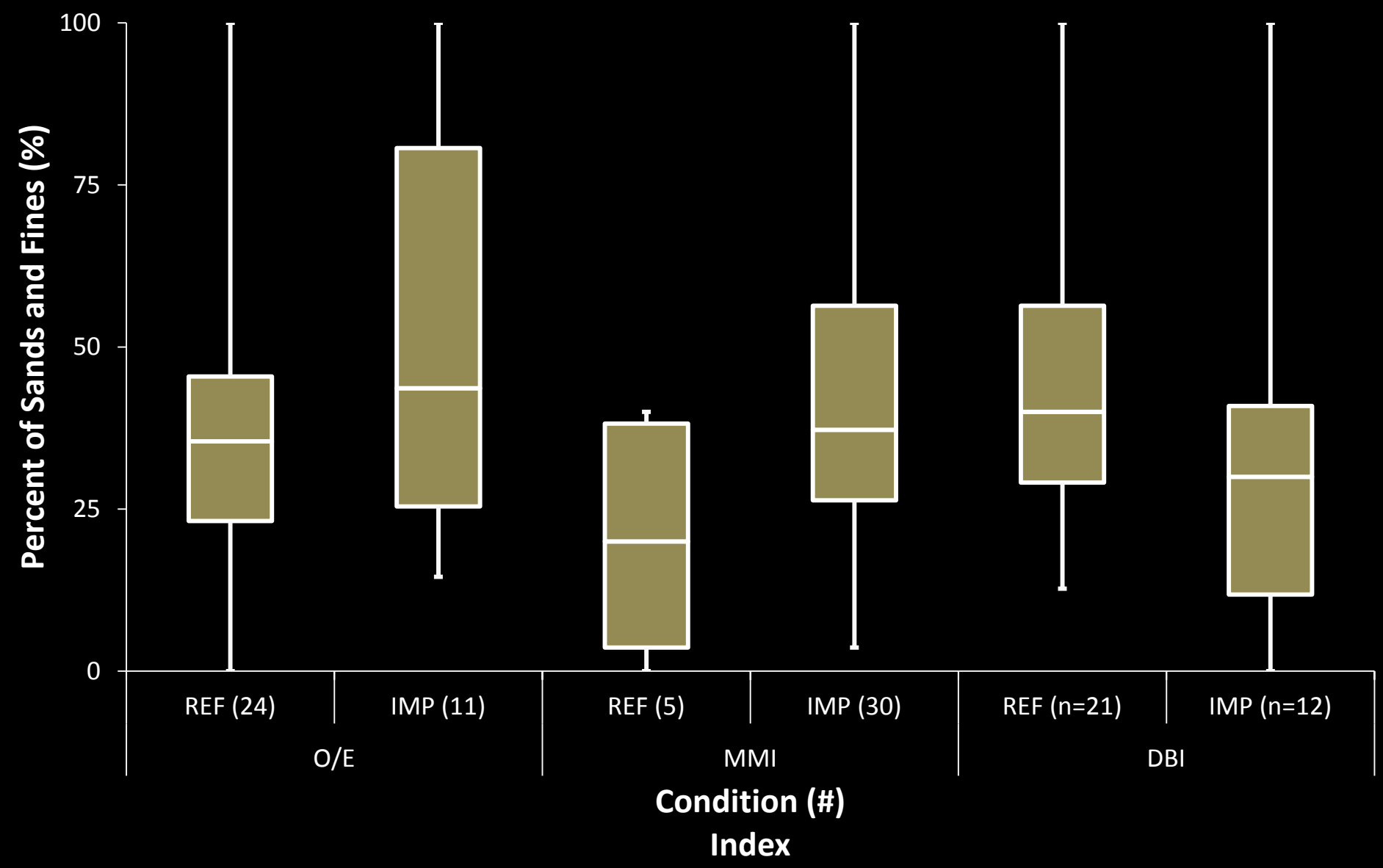
**Questions?**



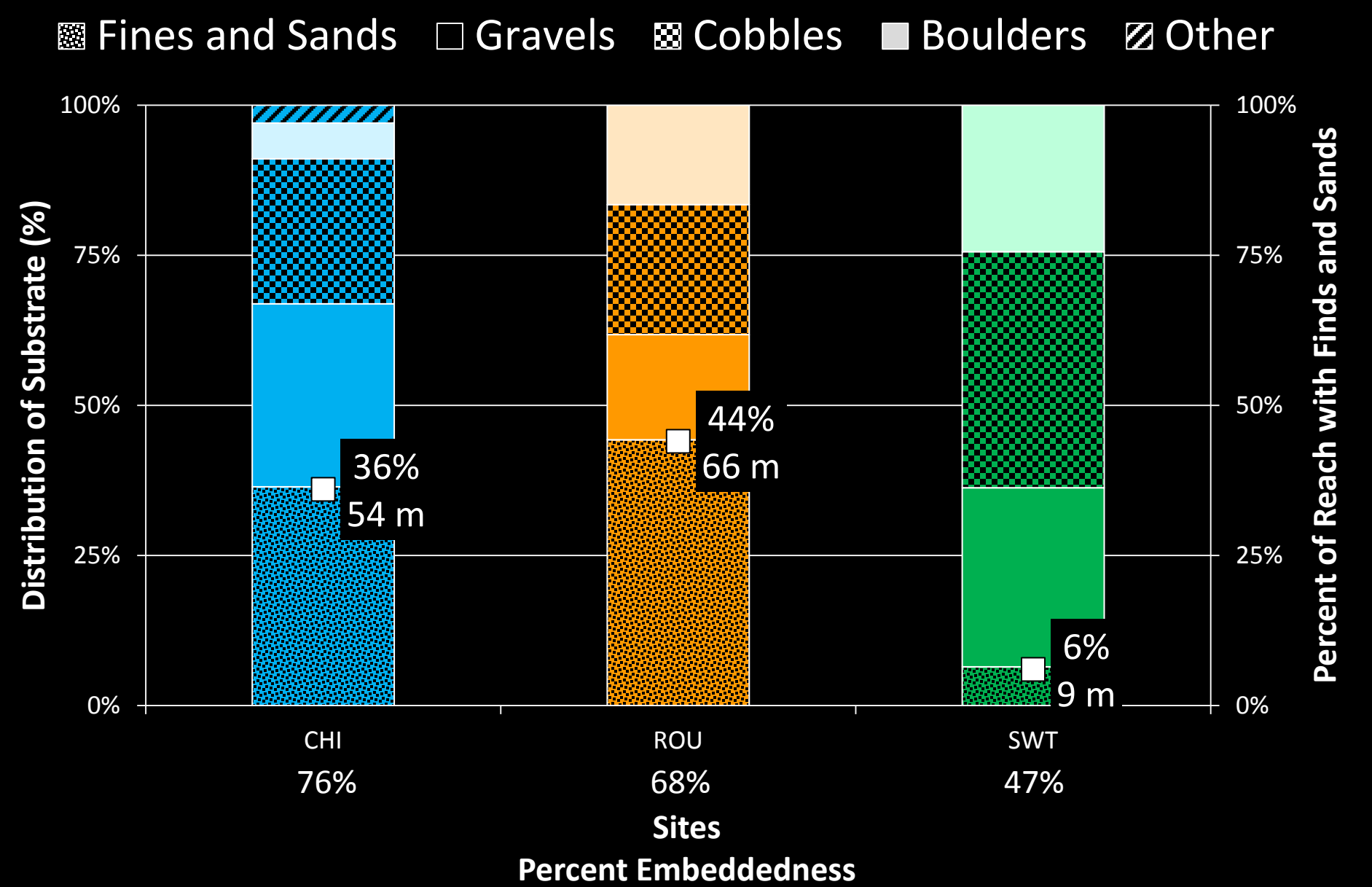


# *Fines and Sands v. Community Indices*

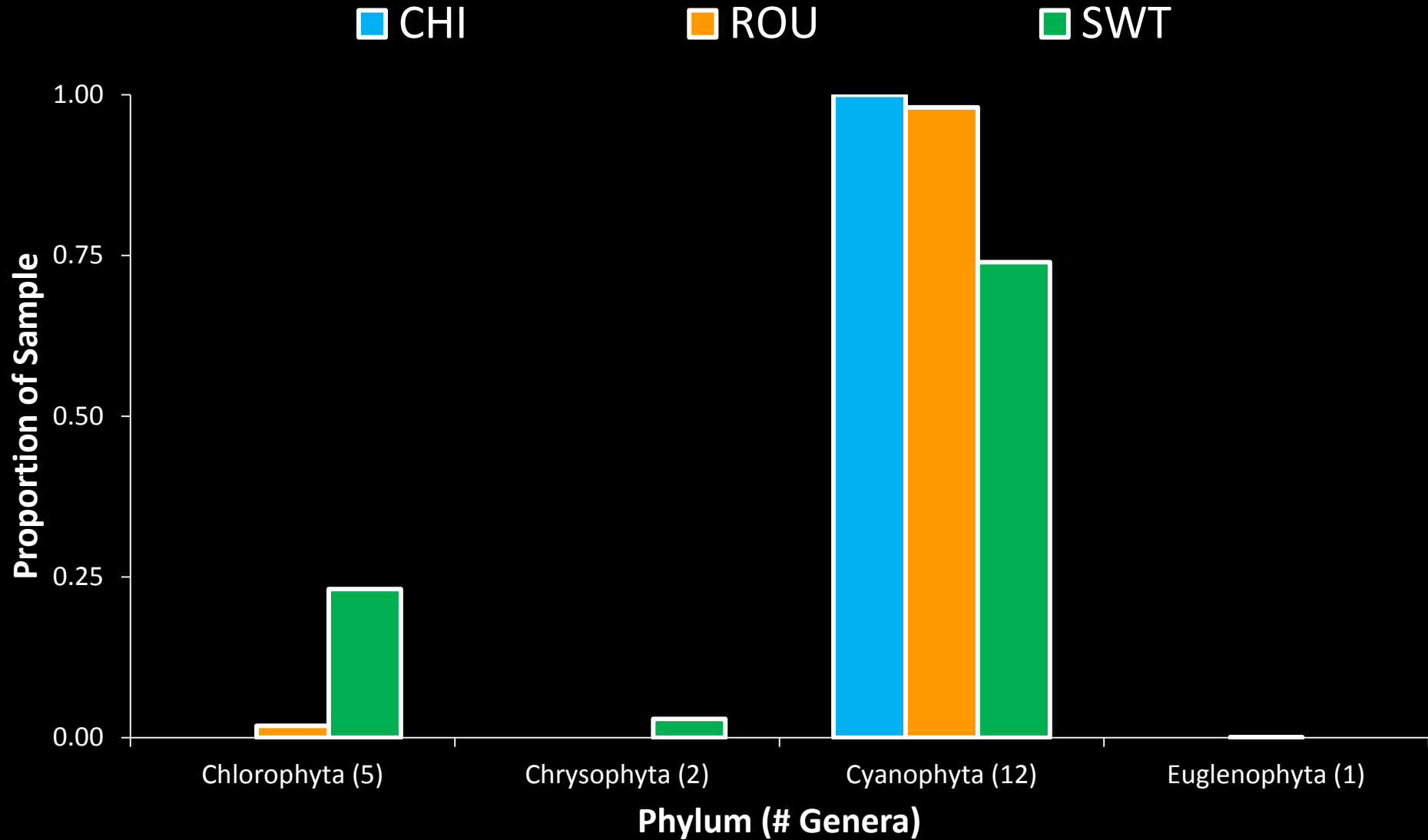
(Eastern Sierra Sites)



# Substrate Distribution

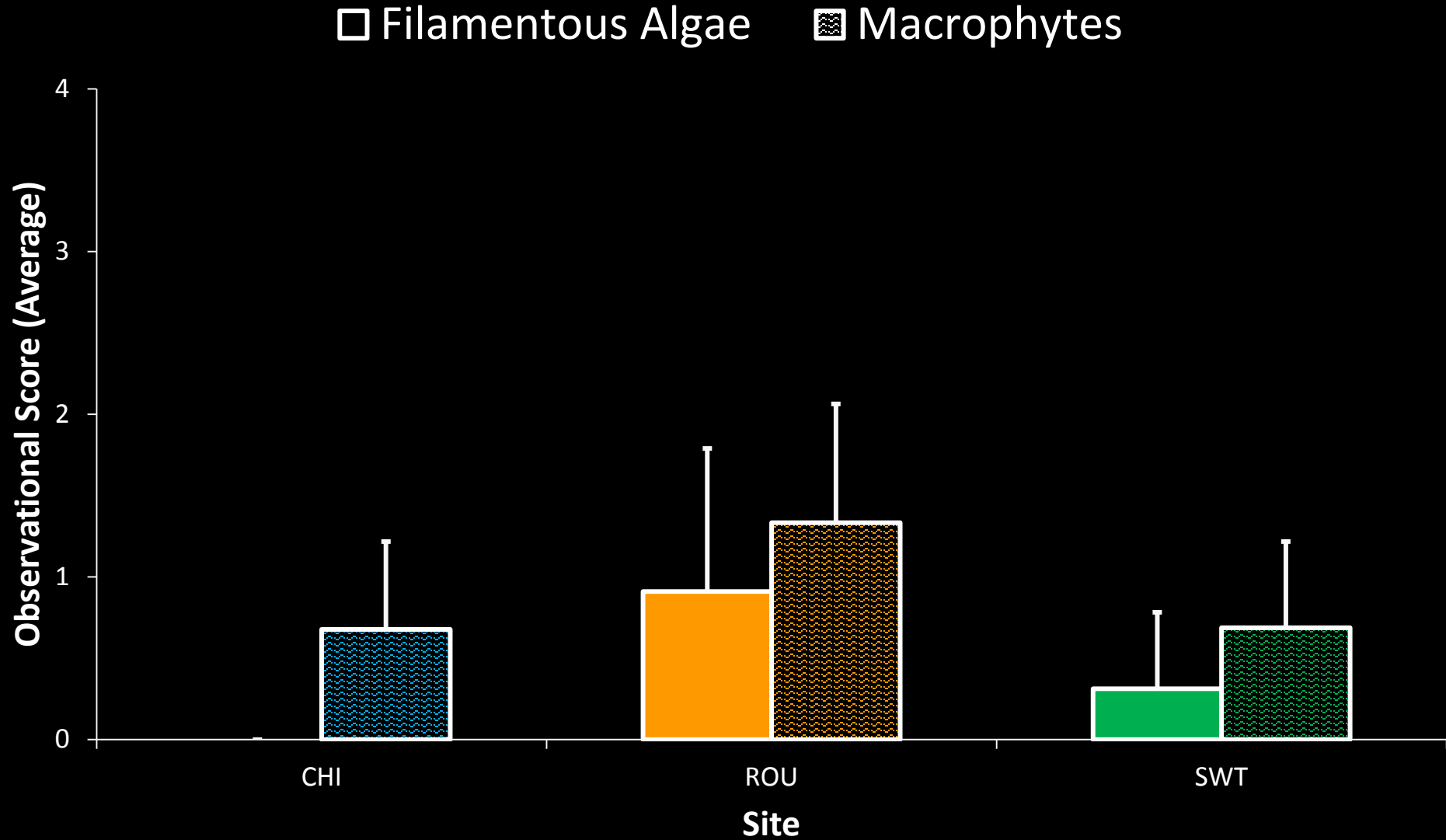


# *Soft Bodied Algae Abundance*



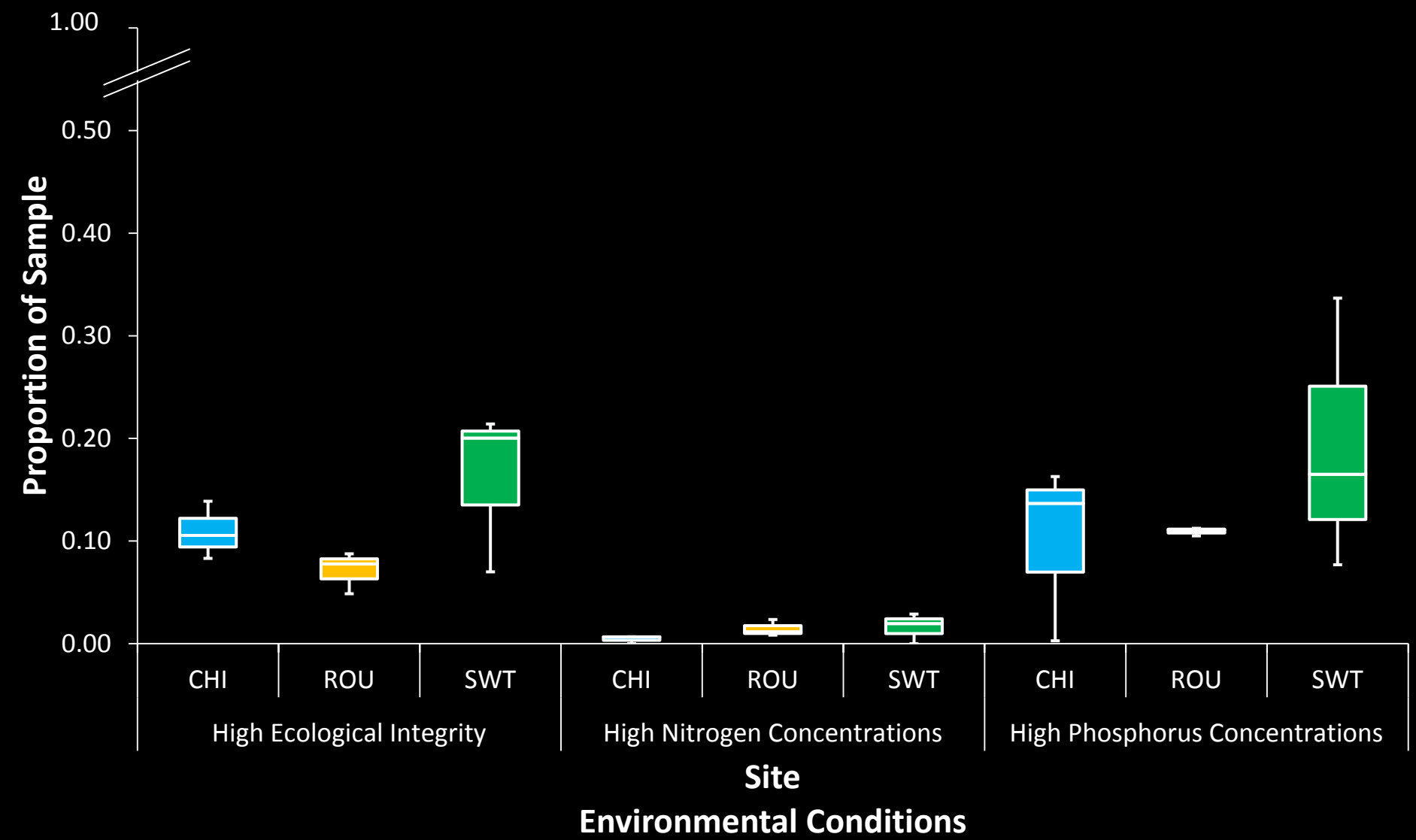


# *Other “-phyte” Stuff*



*Use of Diatoms and Soft Algae as Indicators of Environmental Determinants in the Lahontan Basin, USA. (Blinn and Herbst. 2003)*

TABLE 8





# *O/E, MMI & [C]SCI*



# Sweetwater Taxa Attributes

Attribute	2008	2009	2012
Subsampled (%)	93	98	100
Total Taxa Count	644	630	396
Species Richness	52	41	36
O/E	0.73/R	0.85/R	1.03/R
MMI	0.62/I	0.77/I	0.82/I
Shannon-Weaver	2.91	2.09	2.72
Simpson's	0.90	0.74	0.88
Hilsenhoff TV	Excellent	Good	Excellent
Herbst/Silldorff	92/100	68/100	88/100
10 Metric IBI	Supporting	Intermediate	Supporting

Abundance (%)	2008	2009	2012	$\bar{x}$
EPT	59	71	71	
Chironomidae	35	27	18	
Insect	98	99	96	
Non-Insect	2	1	4	

Shredder	8	0	12	7
Scraper	12	5	17	11
Predator	24	11	10	15
Filterer	1	0	1	1
Collector	55	83	57	65

Swimmer	14	54	4	24
Sprawler	16	25	45	29
Clinger	39	17	38	31
Climber	29	2	7	13
Burrower	2	1	4	2