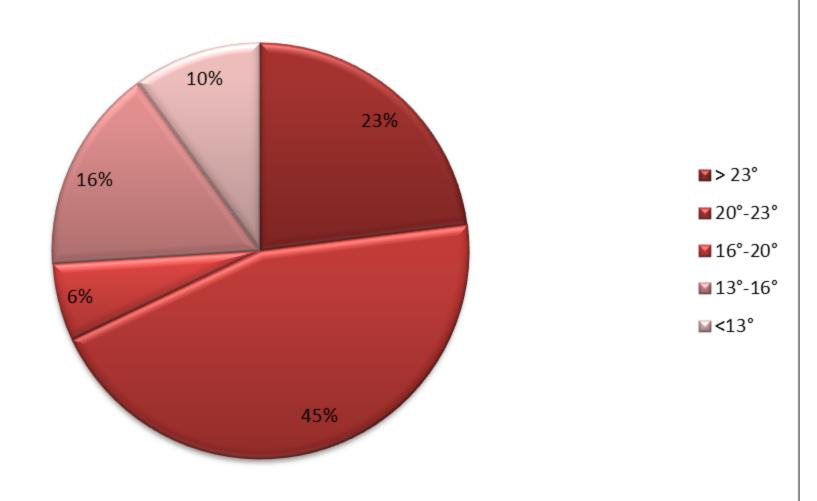
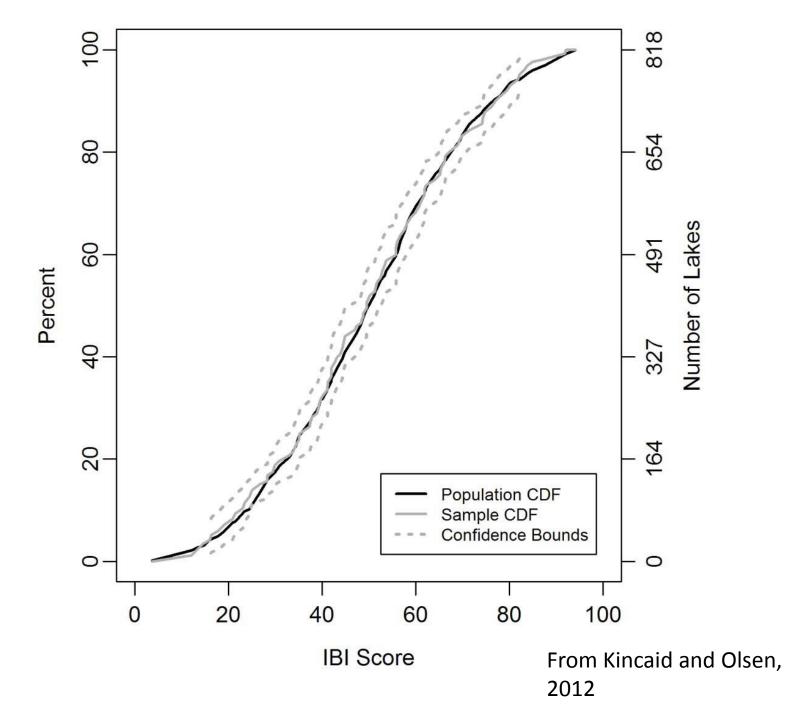


From Olsen et al., 2012

## 2011-2012 8-day Max Max temperature, proportion of total stream kilometers, John Day River basin





# MEASUREMENTS, METRICS AND INDICATORS

Indicator category	Indicator	Units	Spatial Inference Domain	Temporal Inference Domain	Metrics	Measurem ent	Metric Calculatio n	Inference Method	Software
Alkalinity	mean	Milli-	Survey	Annual	Site			Design-	R library: SP
		equivalent	frame (or		measuremen			based	Survey; R
		per liter	relevant		t of				function:
			TRT		alkalinity				cont.analysi
			populations?						S
			)						

### Components of Table

- Indicator category
- Indicator:
  - Raw summary: frequency distributions
  - What do you want to report (Graphs; tables)
  - For example: mean, median, variance, criterion violation
- Indicator units
- Spatial inference domain
- Temporal inference domain
- Metrics
  - The site/reach score that is aggregated across sites.
- Metric generation process
  - Calculated from measurements or combination of measurement types
- Measurements
- Etc.

#### Indicator categories with metrics

- Alkalinity
- Conductivity
- Embeddedness (fast water cobble)
- Pool Frequency
- Reach Channel Complexity
- Total Drift Biomass
- LWD Volume
- Channel Unit Volume
- Riffle Particle Size
- Riparian Structure

#### **Indicator Categories without Metrics**

<b>Indicator Category</b>	Metric?	Metric available?
Growth Potential	Macroinvert drift biomass  Low flow temperature integration	
Percent Below Summer Temperature Threshold	Number of days summer threshold is violated (specific to ESU and population)	
Percent Above Winter Temperature Threshold	Number of days winter threshold is violated (specific to ESU and population)	
Velocity Heterogeneity	variance of RBT velocity vector magnitude	
Channel Score (AREMP)	RBT topography (?) Wood (category?) Substrate (?) Pool Frequency	
Residual Pool Volume	RBT based estimate	
Subsurface Fines	Under development	
Channel Unit Complexity	Variance channel unit width Variance channel unit depth Variance channel unit thalweg sinuosity	
Solar Input	micro-Einsteins/m^2/yr	