Calculation of RBP II Bioassessment Index Metrics

1. Family Richness
   - -equals the number of families represented in the sample

2. Family Biotic Index (FBI)
   - -multiplies number of individuals in each family by a tolerance value for each species and then sums over all species:
     - Let F=# of families, x_i=# of individuals in family i, t_i = tolerance values for family i, n=total # of individuals in sample.

$$FBI = \frac{\sum_{i=1}^{F} x_i t_i}{n}$$

3. Scrapers to filter collectors
   - -this is a trophic classification which we will not use

4. Ratio of EPT to Chironomid Abundance:
   - -sums the total number of individuals in the orders Ephemeroptera, Plecoptera, and Trichoptera and divides by the number of individuals in the family Chironomidae.

5. Percent contribution of dominant family:
   - -take the number of individuals in the family with the greatest number of individuals and divide that by the total number of individuals in the sample

6. EPT Index
   - -the total number of families within the groups Ephemeroptera, Plecoptera, Trichoptera

7. Community Loss Coefficient:
   - -gives a measure of number of families found in the reference site that were missing from the study site.

$$\frac{(\text{ of families at reference site})-(\text{\# of families common to both sites})}{(\text{\# of families at study site})}$$

Calculation of RBP II Bioassessment Score

1. Calculate each metric for each sample collected at both reference and study site.

2. Determine optimal value for each metric. This will usually be the value at the reference site or if more than one reference site or sample is collected, take the maximum value observed at any reference site.

3. Express each metric value for each sample as a percent of the optimal value.

4. Determine the score (0, 2, 4, or 6) for each metric corresponding to the percentage ranges given in Fig. 6.3-4 (attached).

5. Sum the scores for each metric over a given sample to determine the final study site score to compare with the reference scores.

6. Based on comparision with reference scores determine degree of impairment at study site.