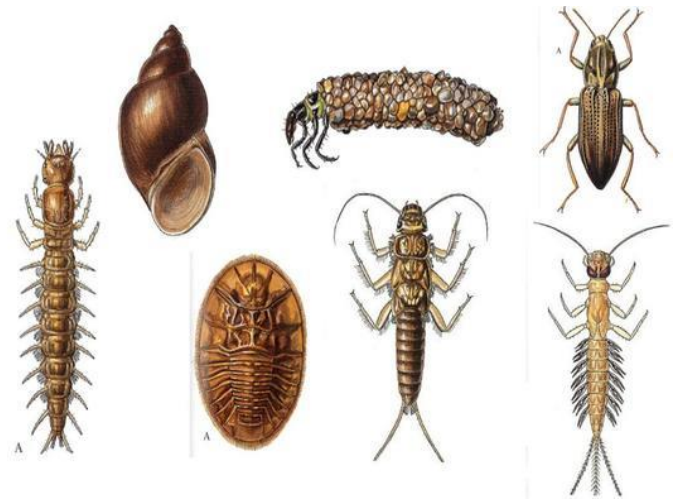




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Macroinvertebrate Monitoring





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Overview

- Purpose of Sampling
- Sampling Locations
- Procedure
- Filling out data sheets
- Results



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Purpose

- Does low flow impact the macroinvertebrate population in the upper and middle watershed?
- How do these sites compare with less impacted sections of the basin?
- Can we measure differences in water quality between sites?



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Pollution Tolerance

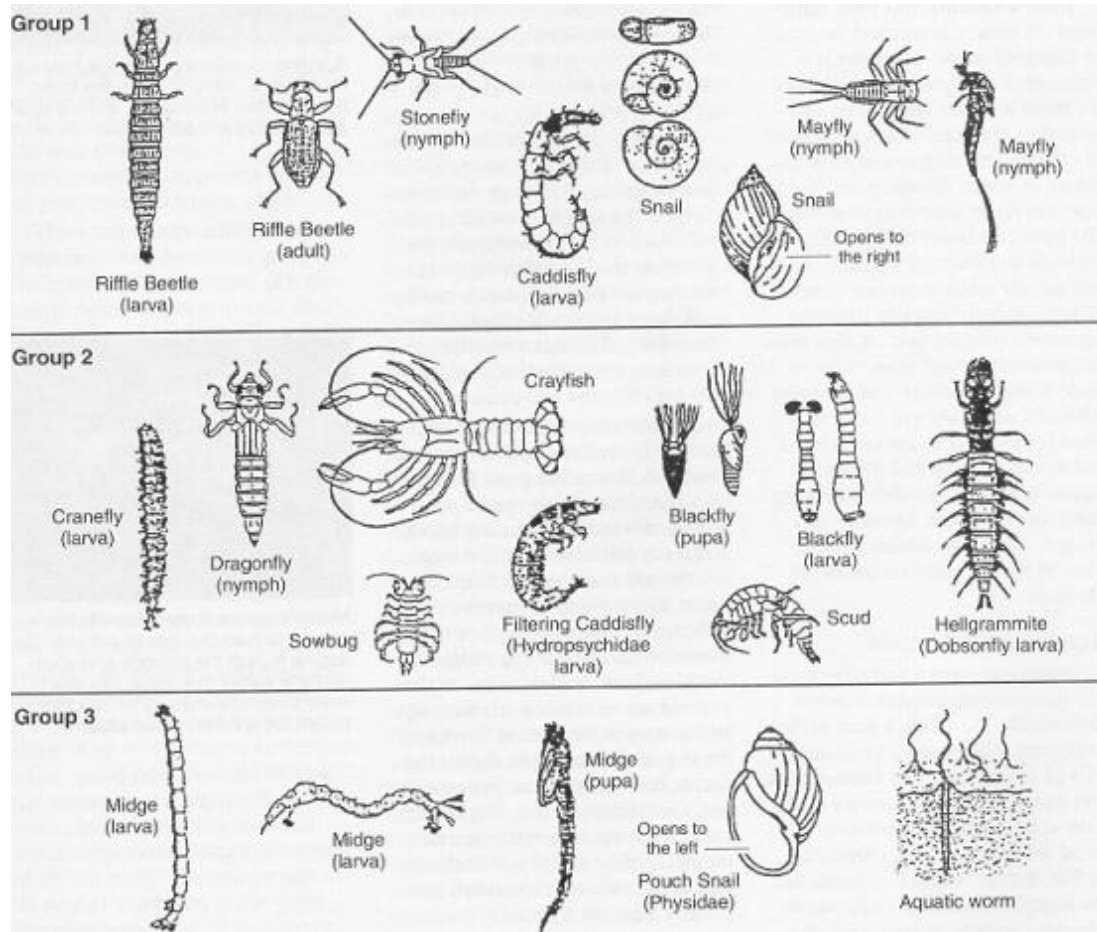


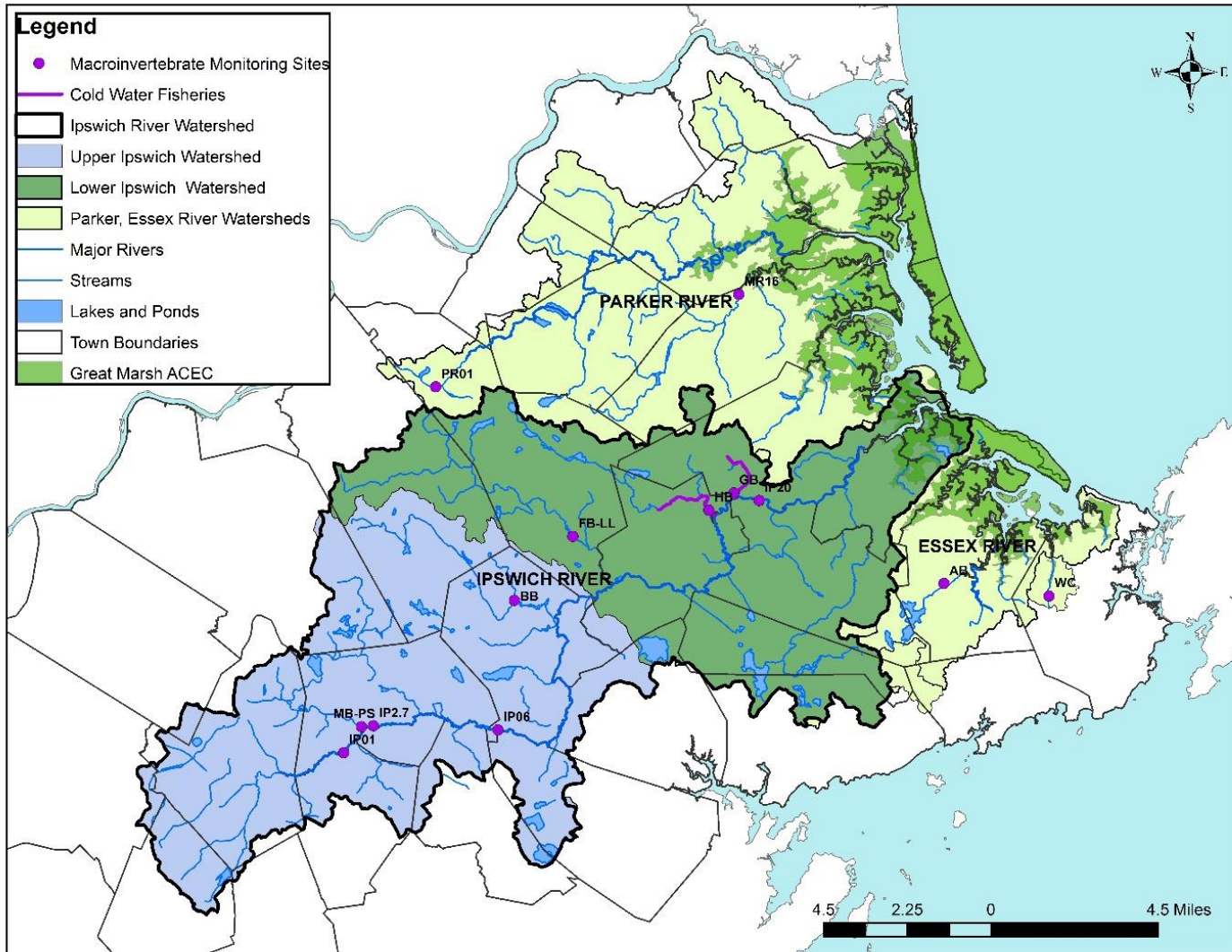
Figure 5. Macroinvertebrate groups picture key. **Group 1** organisms are generally pollution intolerant. Their dominance generally signifies excellent to good water quality. **Group 2** organisms exist in a wide range of water quality conditions. **Group 3** organisms are generally tolerant of pollution. Their dominance usually signifies fair to poor water quality. Courtesy Bio-Assess, Auburn University.



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Monitoring Sites





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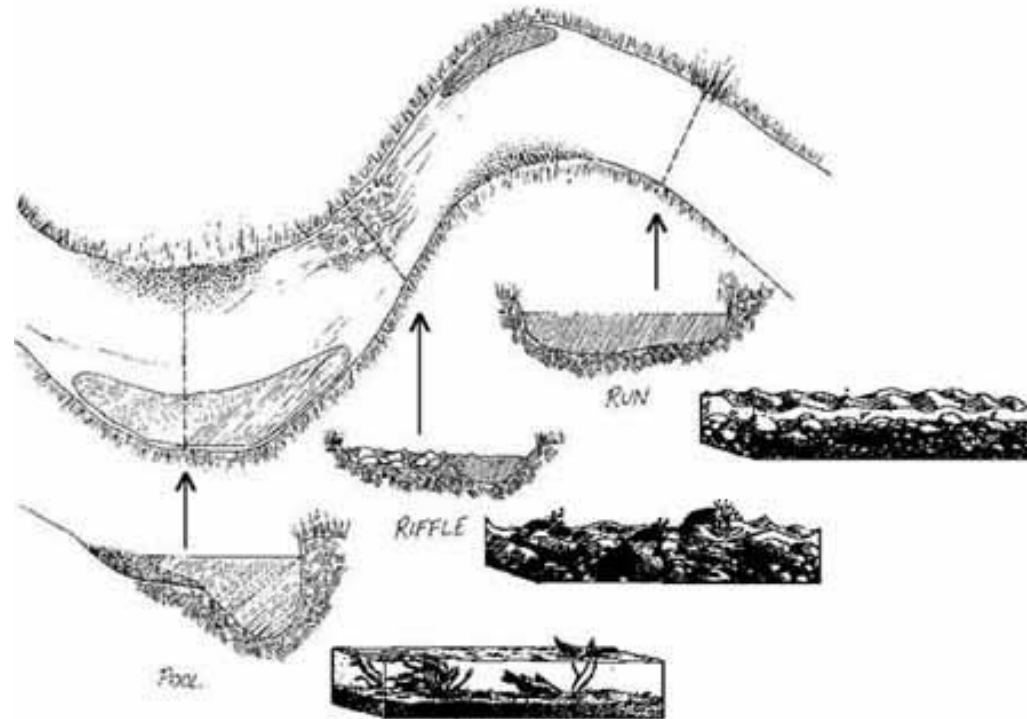
Monitoring Sites

https://www.google.com/maps/d/edit?mid=1lgV_xCX6Fgo4L8_eW6NEGiVd1lc&usp=sharing



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River Habitat





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Equipment

Equipment	Use
Data Sheets	Recording Field Data
Sampling Net (Kick Net)	Fine mesh for capturing specimens
Gloves	Protect hands
Sieve Bucket	Collecting and Transferring Samples
Brush	Cleaning rocks
Forceps	Picking specimens from net
1 quart sample bottles	Holding and storing samples
90% denatured alcohol	Preservative
Sharpie	Labeling sample bottles
Float (orange peel)	Measuring velocity
Stop Watch	Timing float
Tape measure	Measure site length and width and current velocity
Yard Stick	Measure river depth
Waders	
Clipboard	



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Data Sheet/Labels

- Fill in basic information and weather on data sheet.
- Label Sample Bottles.
 - **Date**
 - **Site ID**
 - **Preservative (90% Denatured Alcohol).**
 - **Sampler Names**



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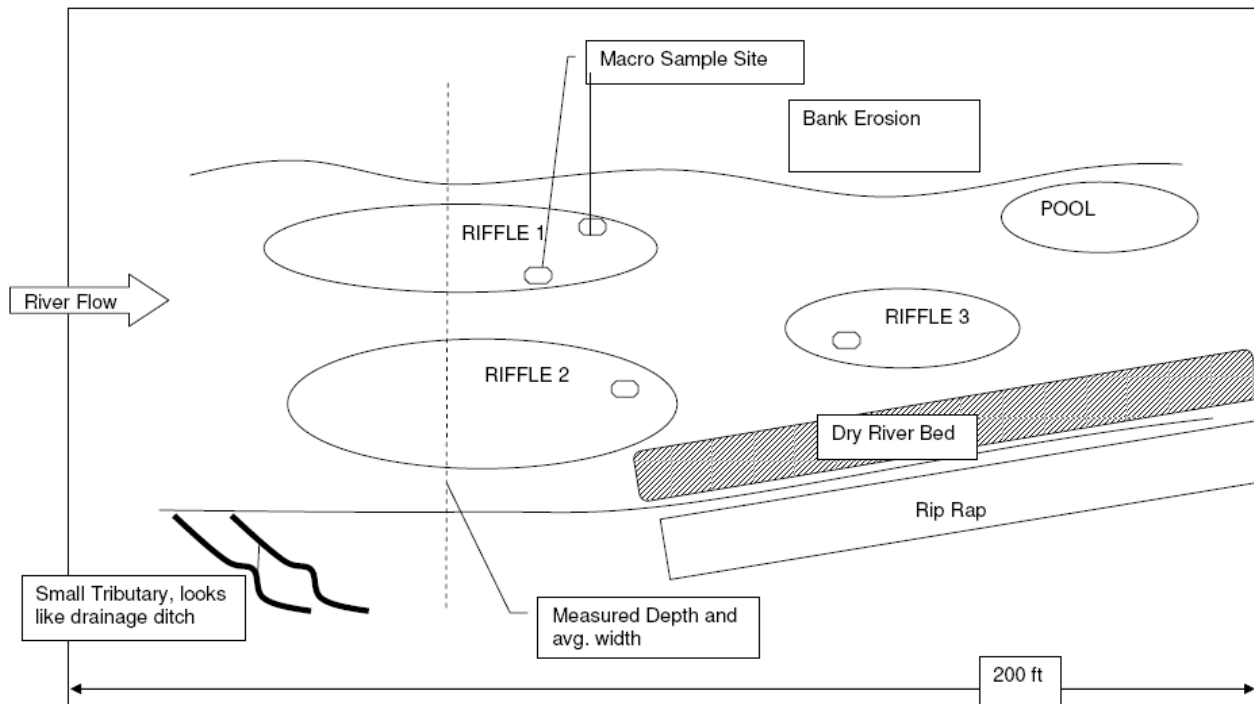
Site Selection

- “Measure” 50 foot section containing riffle habitat. Note on data sheet if less than 50 feet.
- Pick 4 locations:
 - 2 fast flowing (1.5-2.5 ft/sec)
 - 2 slow flowing(0.5-1.5 ft/sec)
- Choose representative sites if there is no difference.



Make a Sketch

Site Sketch (Include a sketch of the monitoring site. This should be a “bird’s eye” view of the 200 ft segment of the river you are sampling in including the macroinvertebrate sampling locations. Note the places where you measured current velocity and depth. Also note riffles, runs, pools, dams, tributaries, roads, wetlands, dams, riprap, pipes, ditches, landscape features and any land or water marks that will help someone else find your site.





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Sampling Procedure

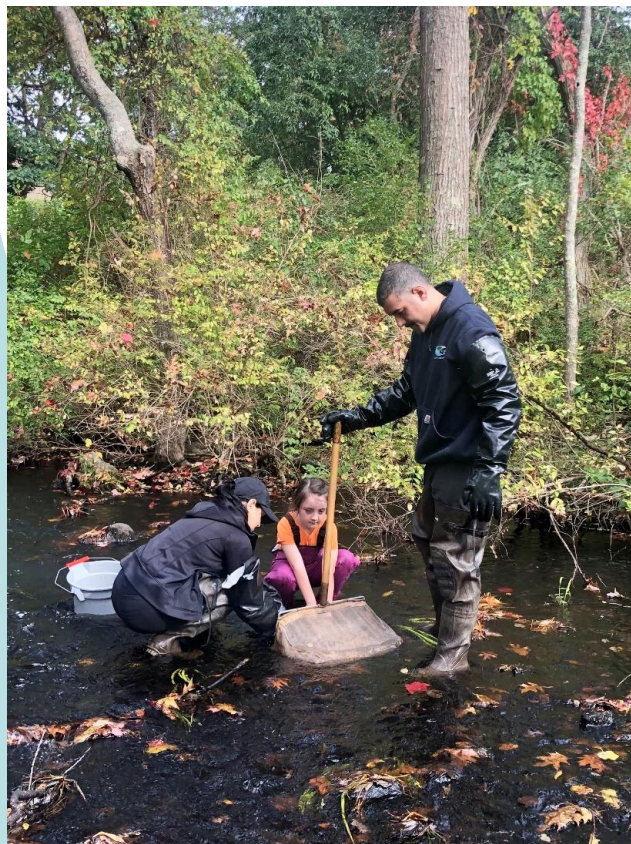
1. Begin at site furthest downstream and work your way upstream.
2. Hold net immediately downstream of sampling area (same size as the net opening).
3. Dislodge rocks; rub or brush in front of net.
4. Place rocks in sieve bucket.
5. Dig into river bottom as far as possible.



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Sampling Technique





Sampling Procedure

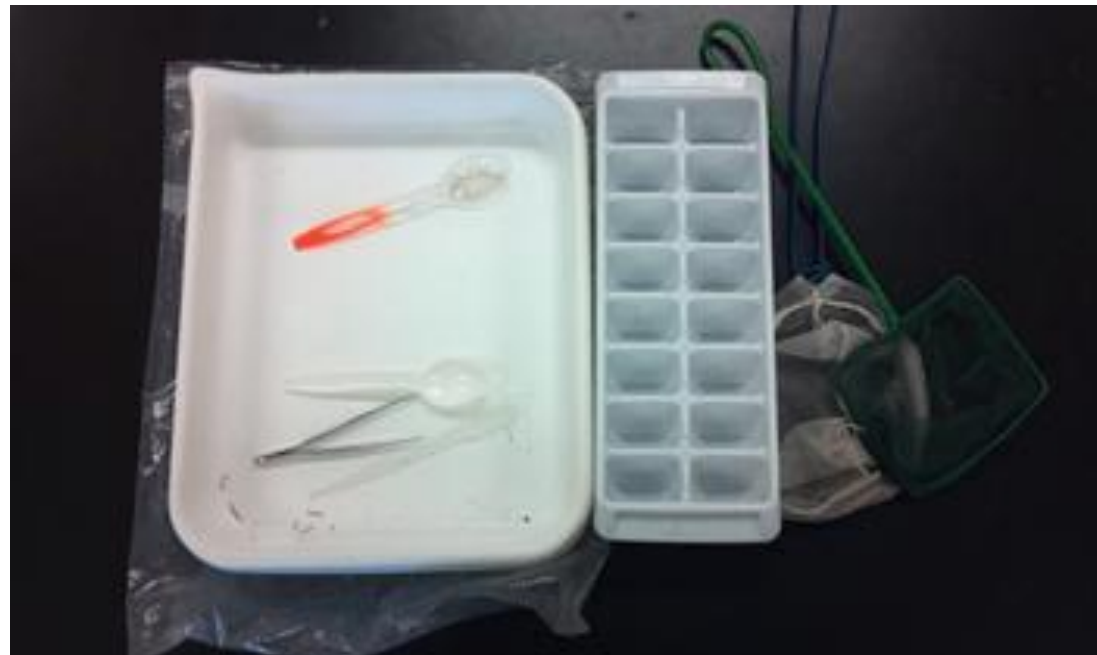
6. Clean rocks in sieve bucket, inspect and place back in stream.
7. Move to next site and repeat until all 4 sites are sampled.
8. Transfer contents of net into sieve bucket (now free of rocks).
9. Backwash net over bucket or use forceps.
10. Transfer to sample bottle.
11. Fill with 90% denatured alcohol to 1 inch above sample.
12. Indicate the number of sample containers on data sheet.



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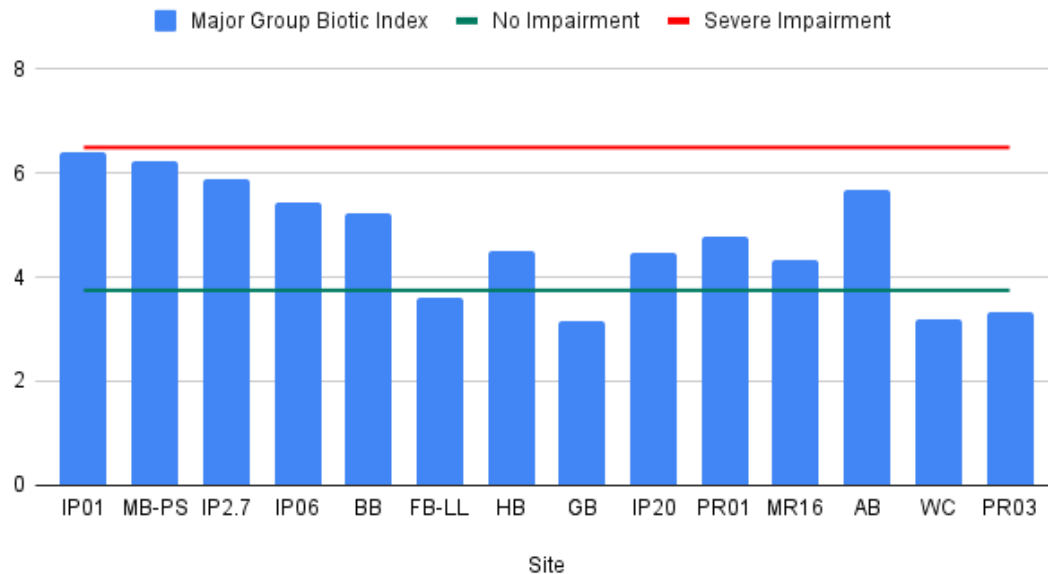
Sorting and Identification



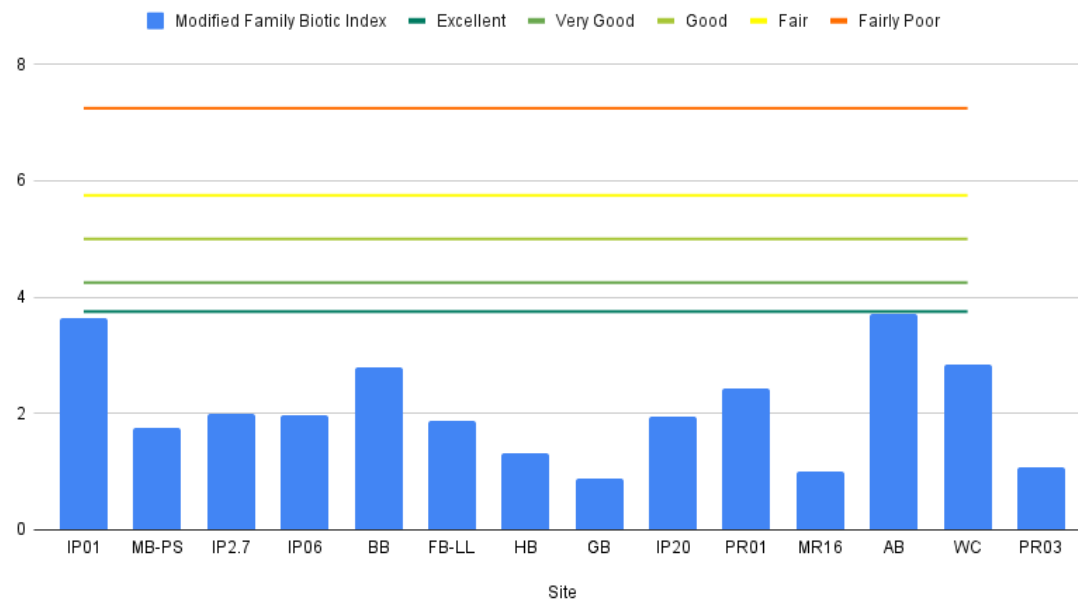


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Major Group Biotic Index

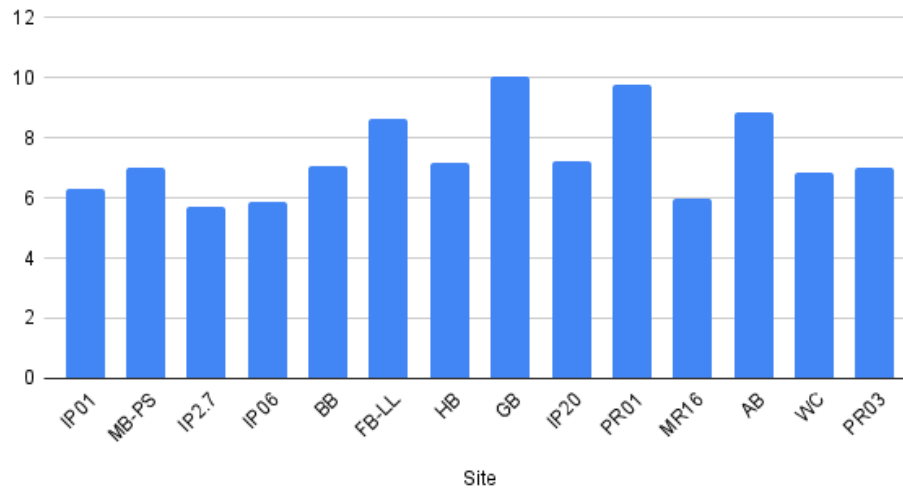


Modified Family Biotic Index

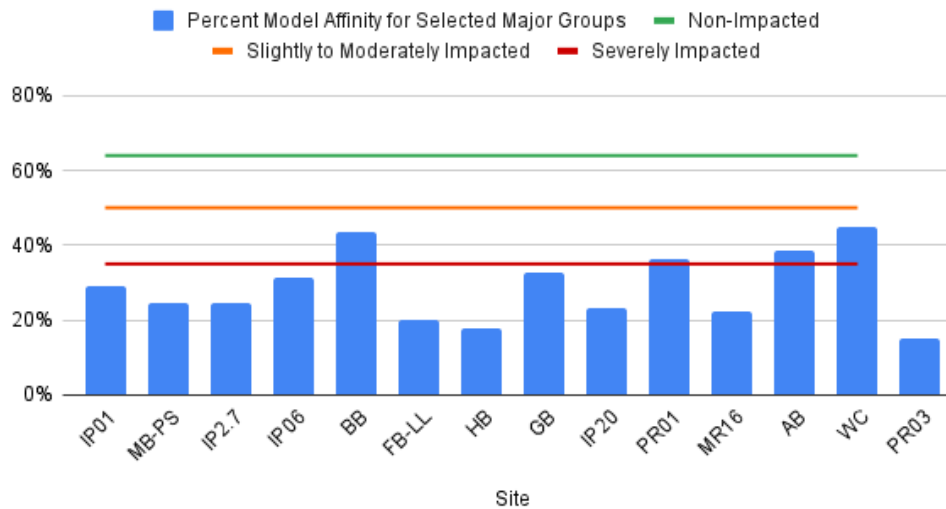




EPT Family Richness

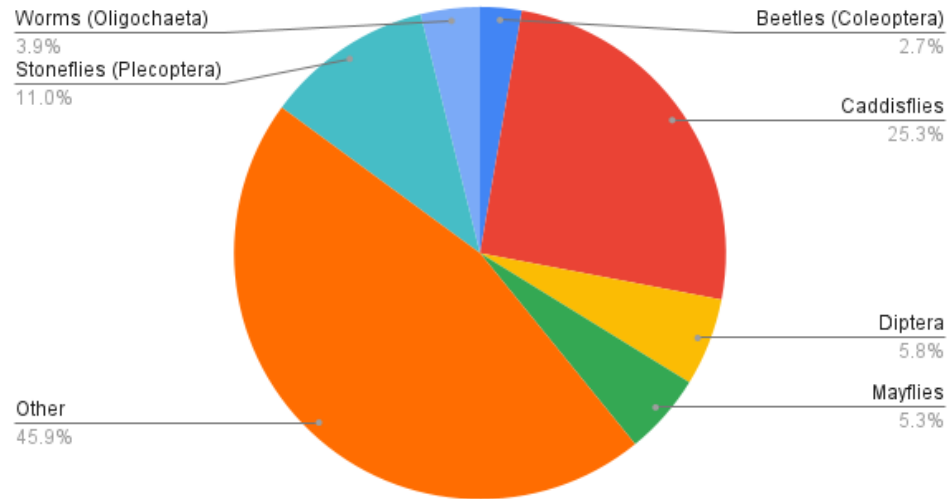


Percent Model Affinity





Selected Major Group % Ipswich River Community



Selected Major Group % Model Community

