

Millrace Macroinvertebrates

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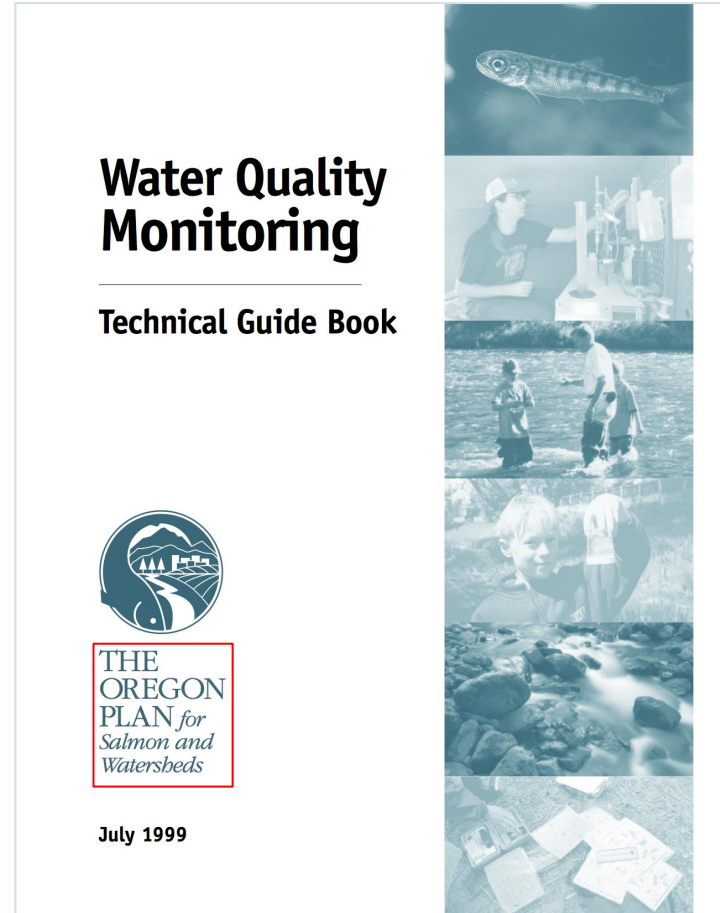
Is the millrace polluted?

- What kind of environment should we expect to find in a slough?
- Criteria for evaluation changes based on type of aquatic environment
- Aesthetic value

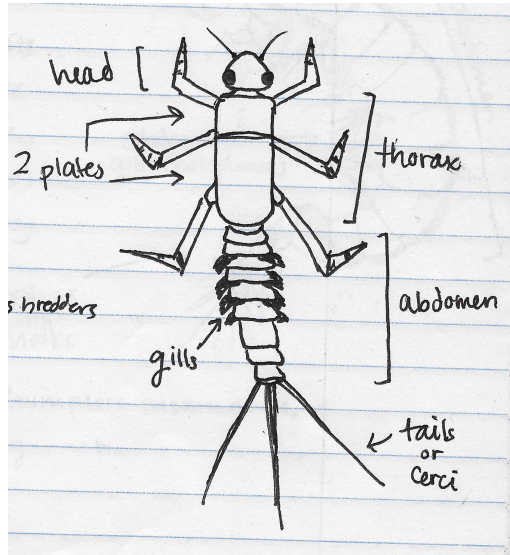


How do we monitor water quality?

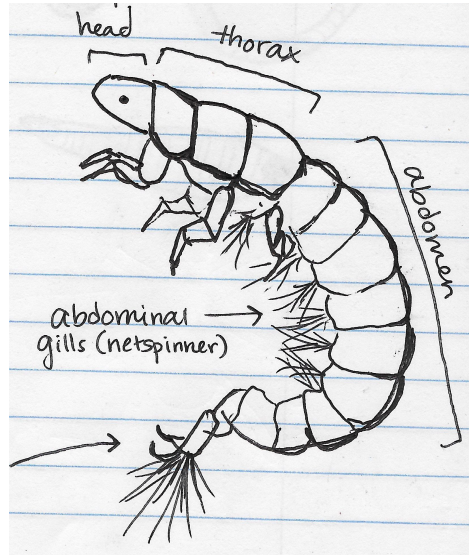
- Chemistry (dissolved O₂, pH, heavy metals, etc.)
- Physical properties (temperature, turbidity, stream bed composition)
- Biological (species richness, diversity, ecology)



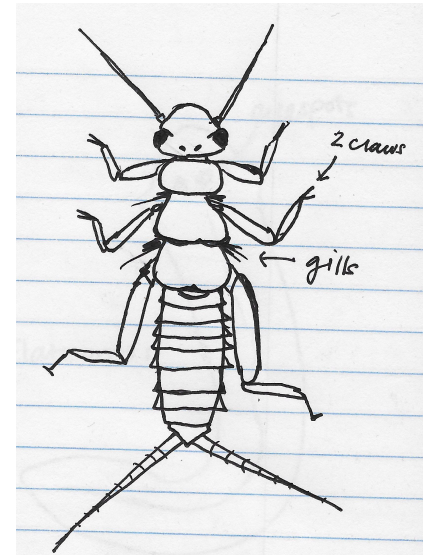
Sensitive species



Mayfly (*Ephemeroptera*)



Caddisfly (*Trichoptera*)



Stonefly (*Plecoptera*)



Sampling sites



Millrace pond
vs.
River pond



Method

- Net technique - disturb bottom of pond
- Use sieves to sort and remove debris
- Wash into tray; wait for movement
- Catch and count



Caddisfly or stick?



Case-making caddisfly (*Trichoptera*)

http://www.nwnature.net/macros/lena_jul06/images/IM_G_0651.jpg



Pea clam (*Sphaeriidae*)



Snail (*Gastropoda*)



Red midge (*Diptera*)



Scud (*Amphipoda*)



Mayfly (*Ephemeroptera*)

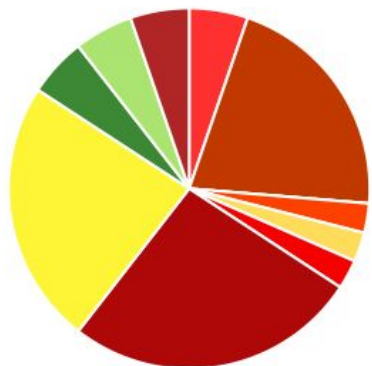


Threespine stickleback (*Gasterosteus aculeatus*);
Native to Willamette valley, found in millrace pond



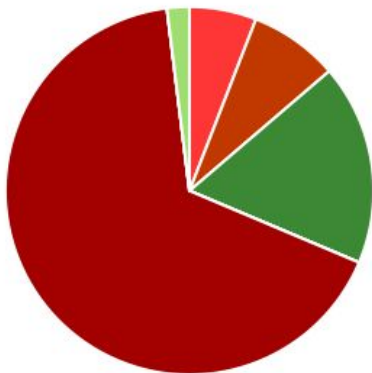
Western mosquitofish (*Gambusia affinis*);
non-native fish, found in river pond

Millrace Pond Richness



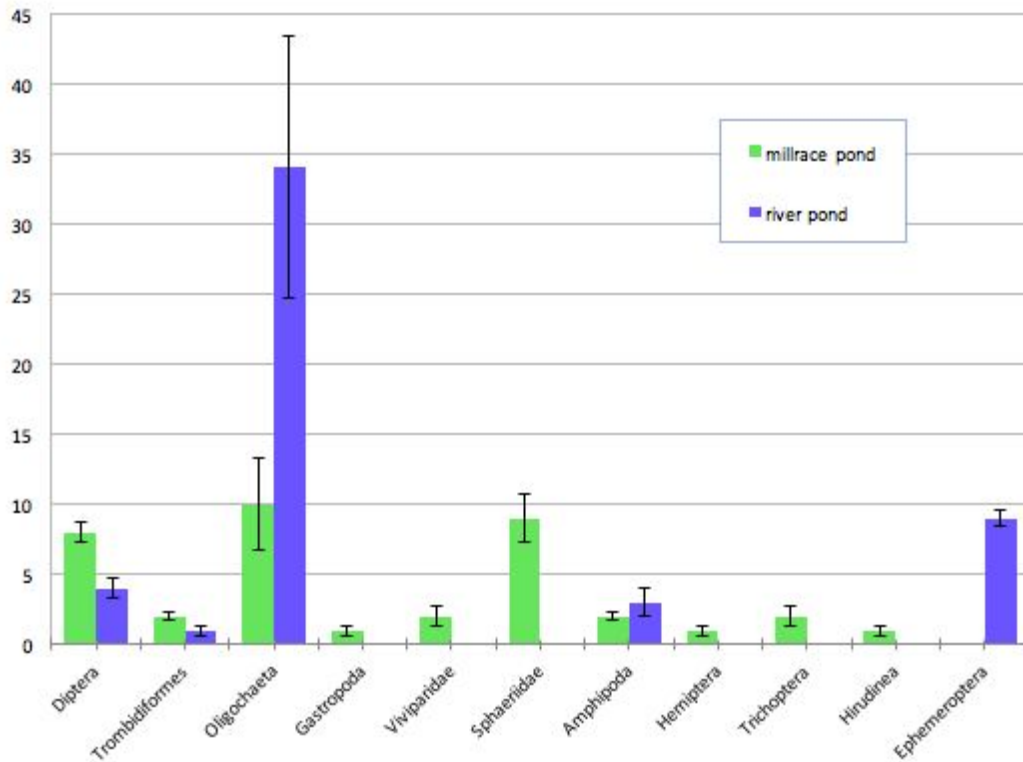
- Amphipoda • Diptera • Gastropoda • Hemiptera • Hirudinea
- Oligochaeta • Sphaeriidae • Trichoptera • Trombidiformes • Viviparidae

River Pond Richness



- Amphipoda • Diptera • Ephemeroptera • Oligochaeta • Trombidiformes

Relative abundance of species between the millrace and river



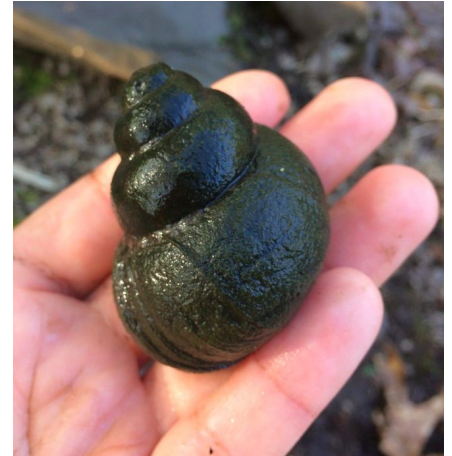
How do the millrace and river ponds compare?

- Millrace has higher richness, but fewer sensitive species
- Both mostly have pollution-tolerant species
- Neither would be good habitats for salmon
 - Good places for other species: herons, ducks, geese, etc.



Limitations and future directions

- Good to study other nearby, undisturbed ponds like at Mt. Pisgah
- Change over time (transition between spring & summer may affect the composition of invertebrates)
- Checking different places along millrace
- Identify to family or genus



Mystery snail