



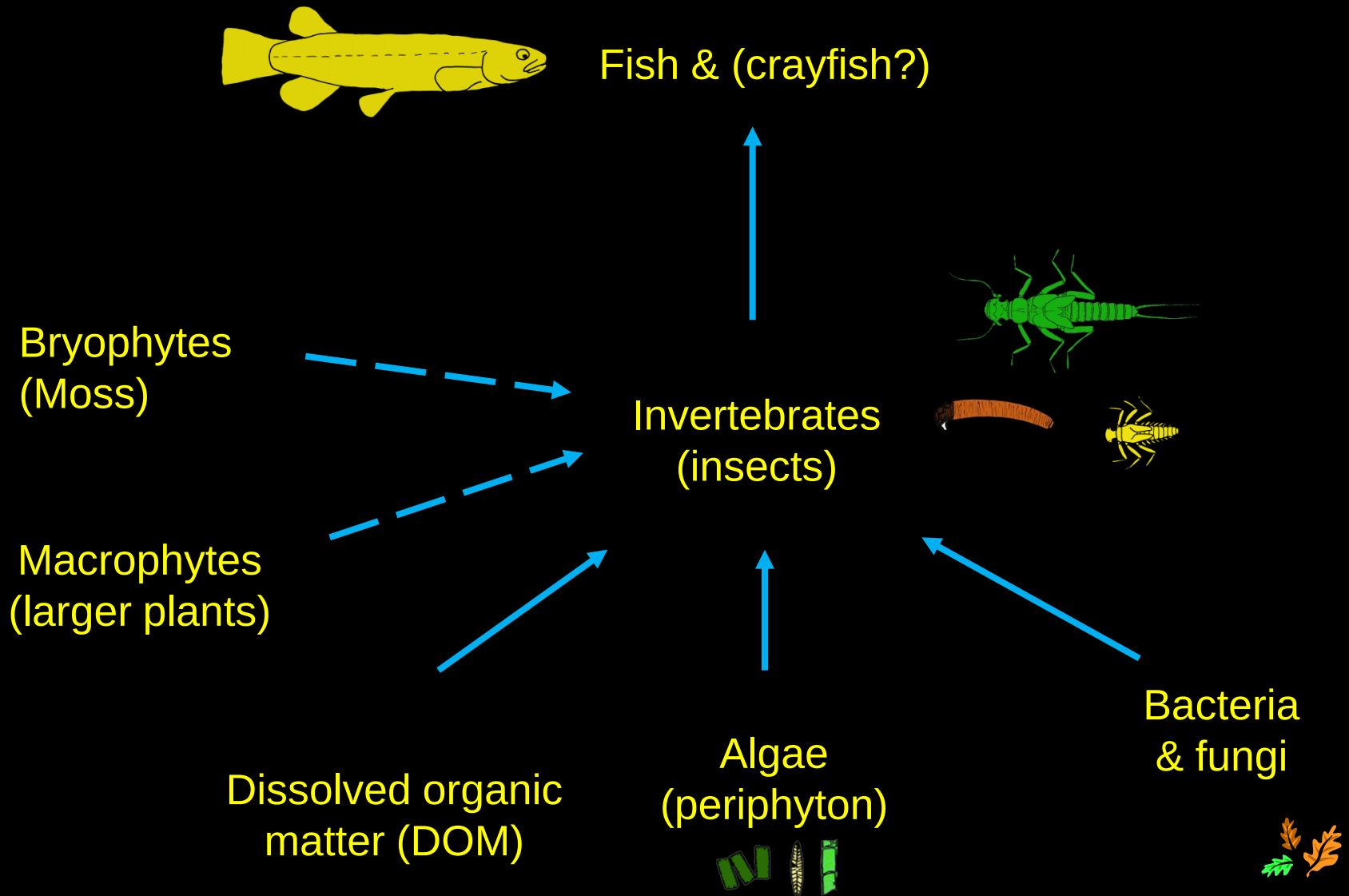
The response of stream communities to earthquake derived sand & silt

Jon Harding & Phil Jellyman

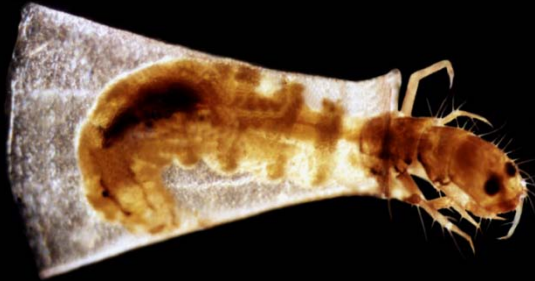
*Freshwater Ecology Research Group
School of Biological Sciences
University of Canterbury*



Christchurch stream food web



What are these invertebrates?

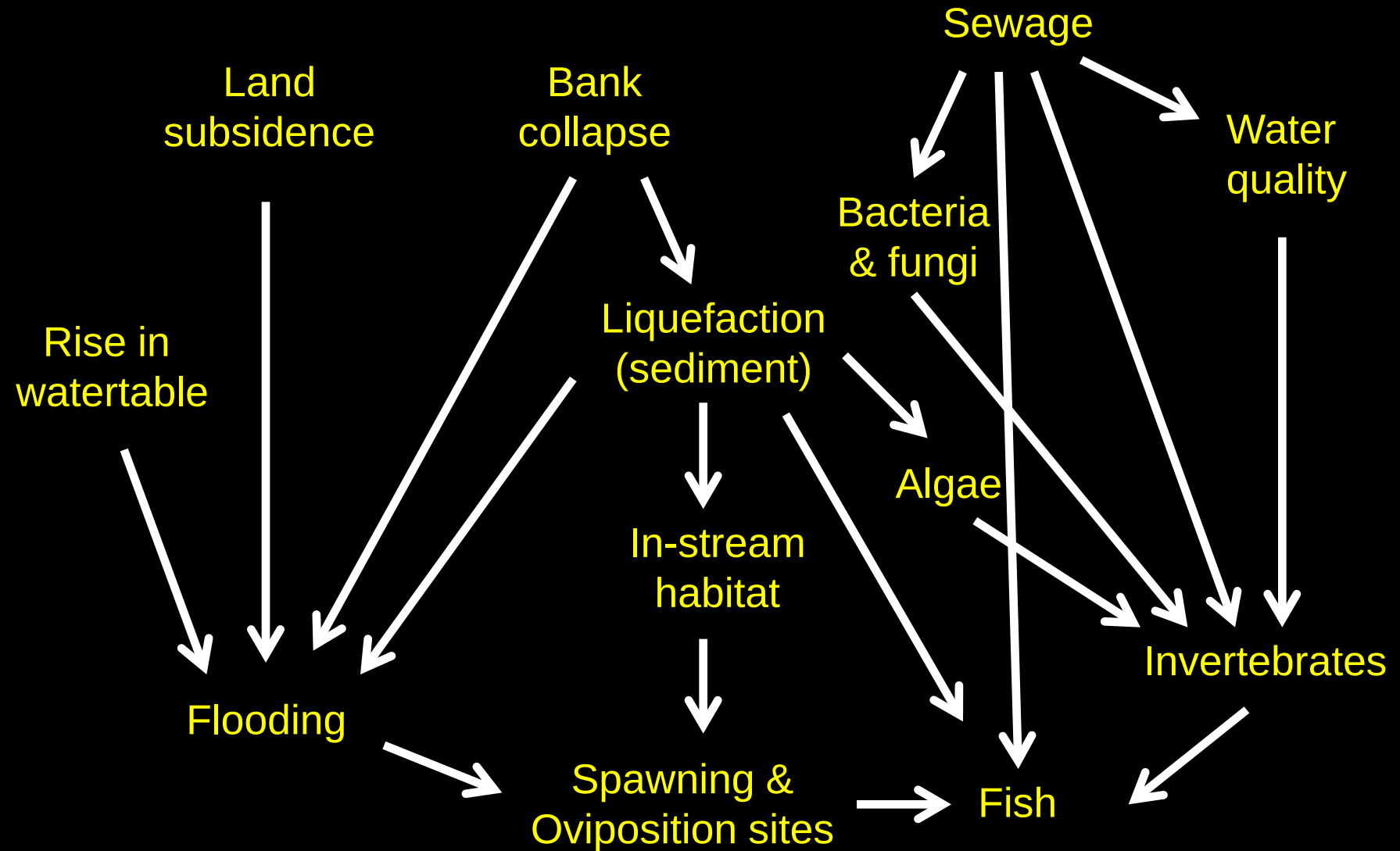


EPT (mayflies,
Stoneflies & caddisflies)

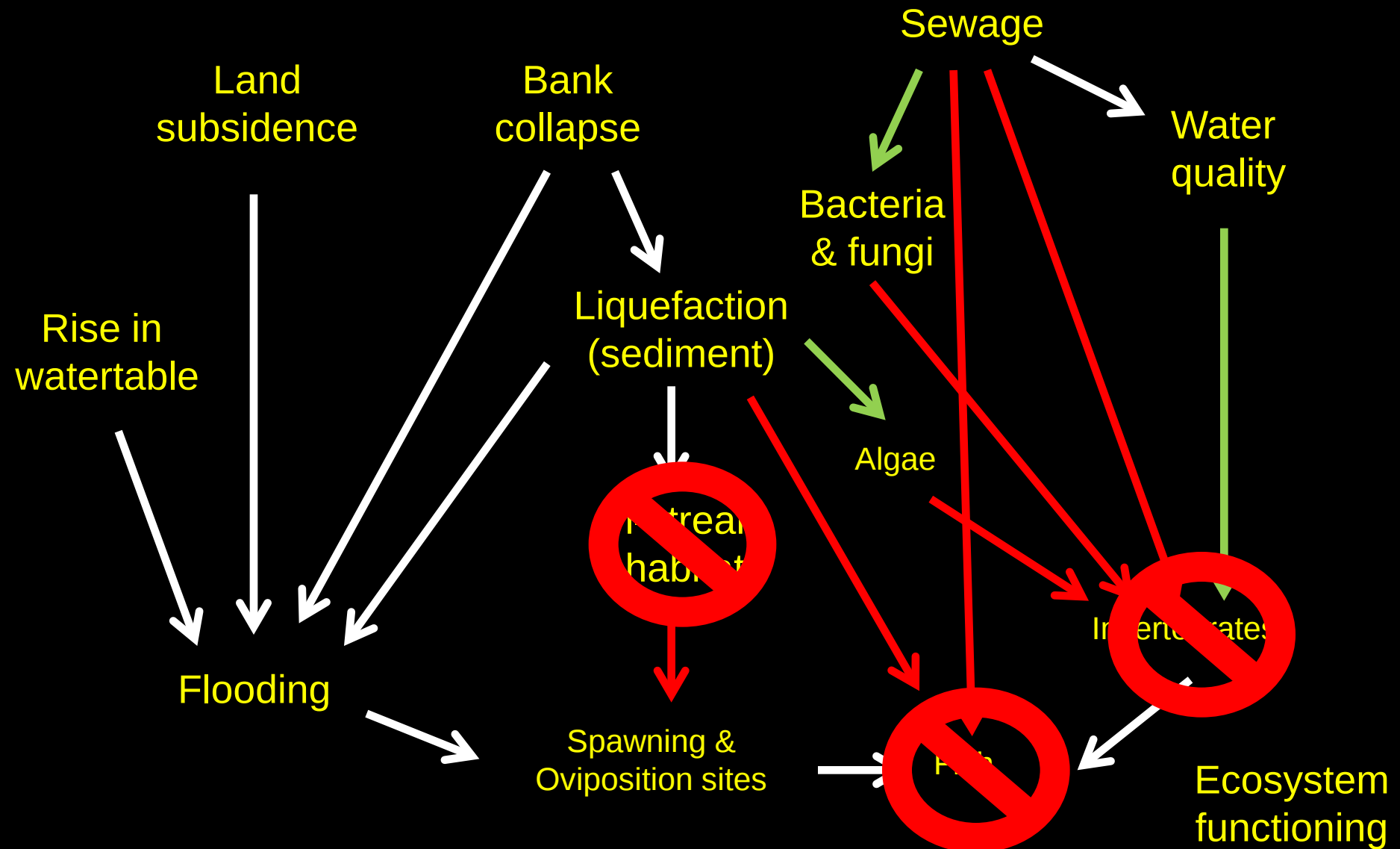




Earthquake impacts on Christchurch streams & rivers

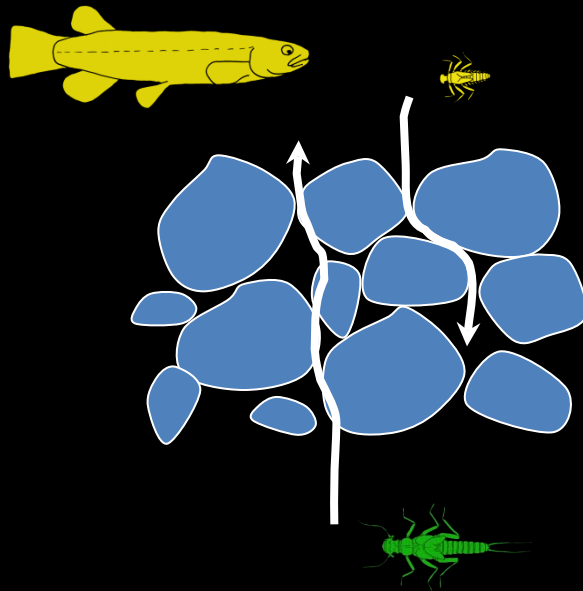


Earthquake impacts on Christchurch streams & rivers

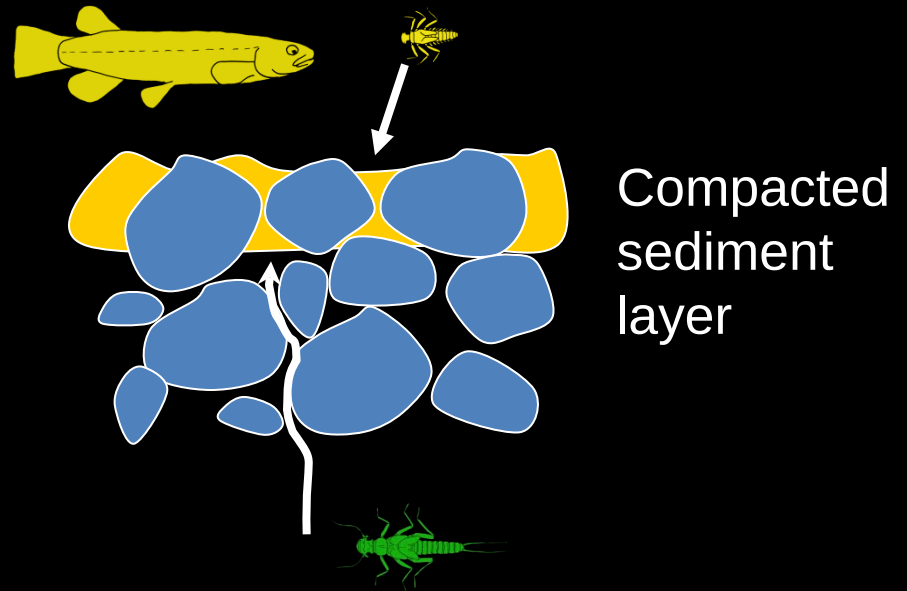


Effects of earthquake sediment movement through streambed

Natural stream bed

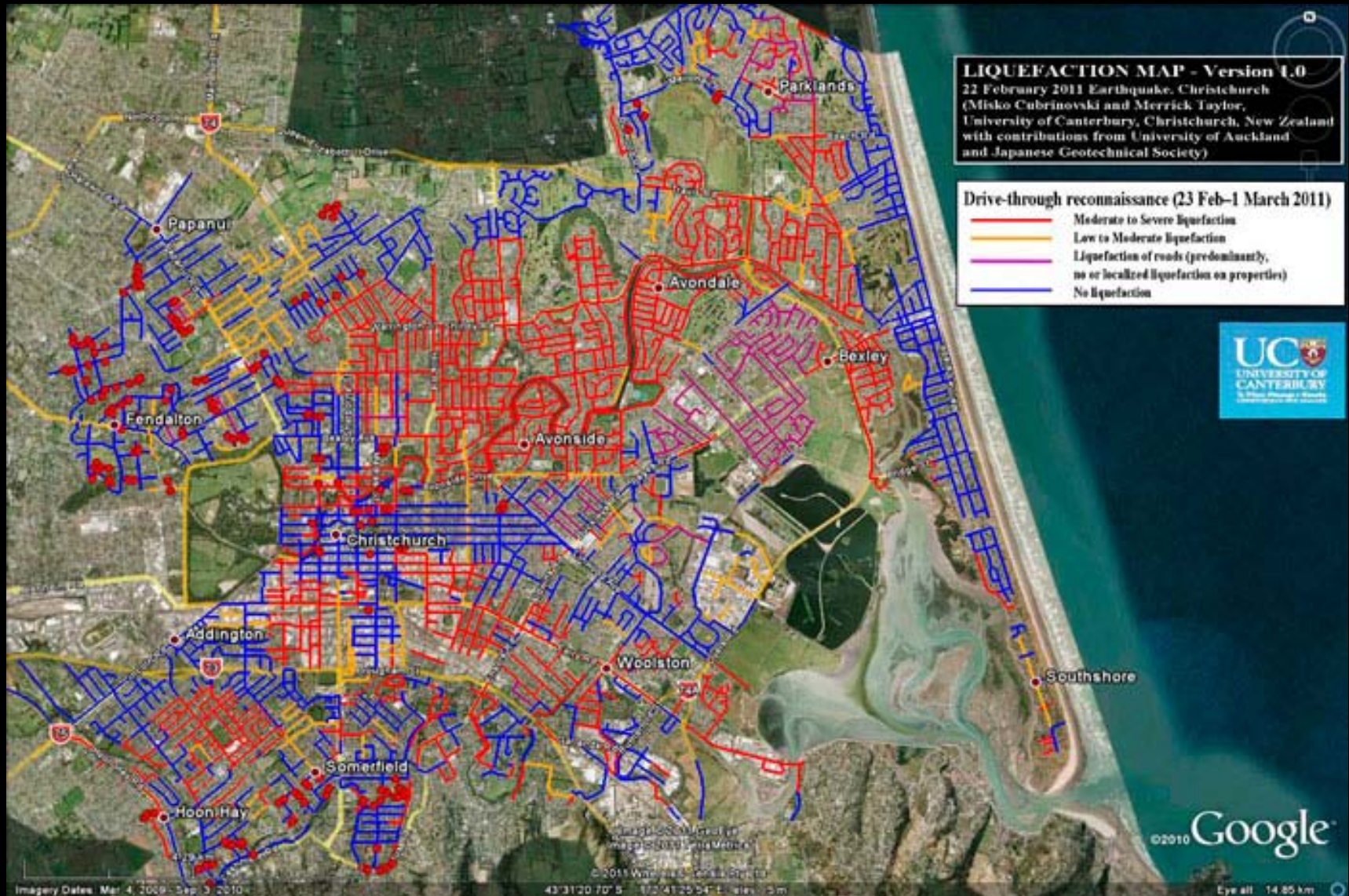


High deposited sediment



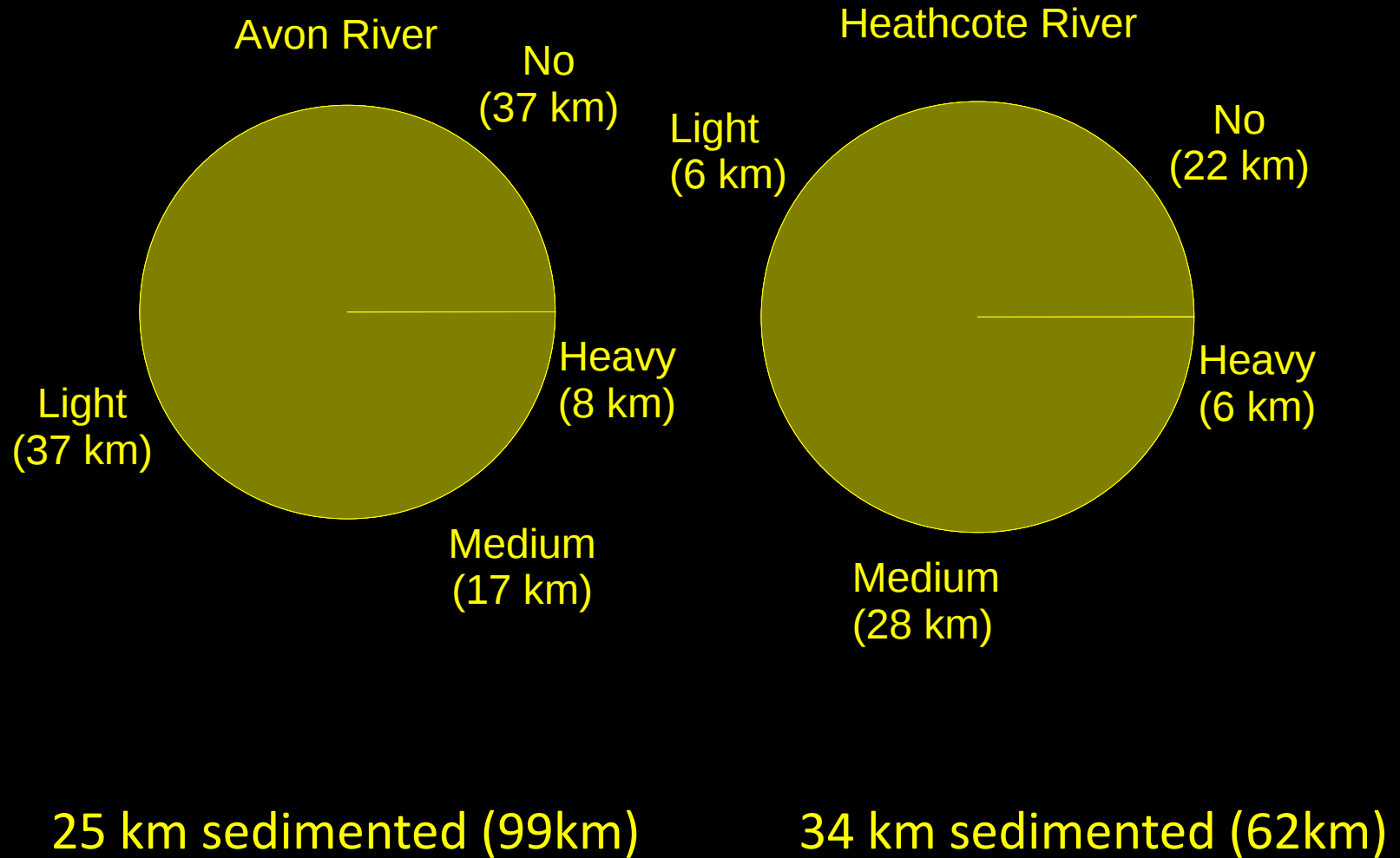
- Interstitial spaces provide refugia from floods and predators
- Animals live in the zone beneath the stream bed

Streets with liquefaction (February – March 2011)

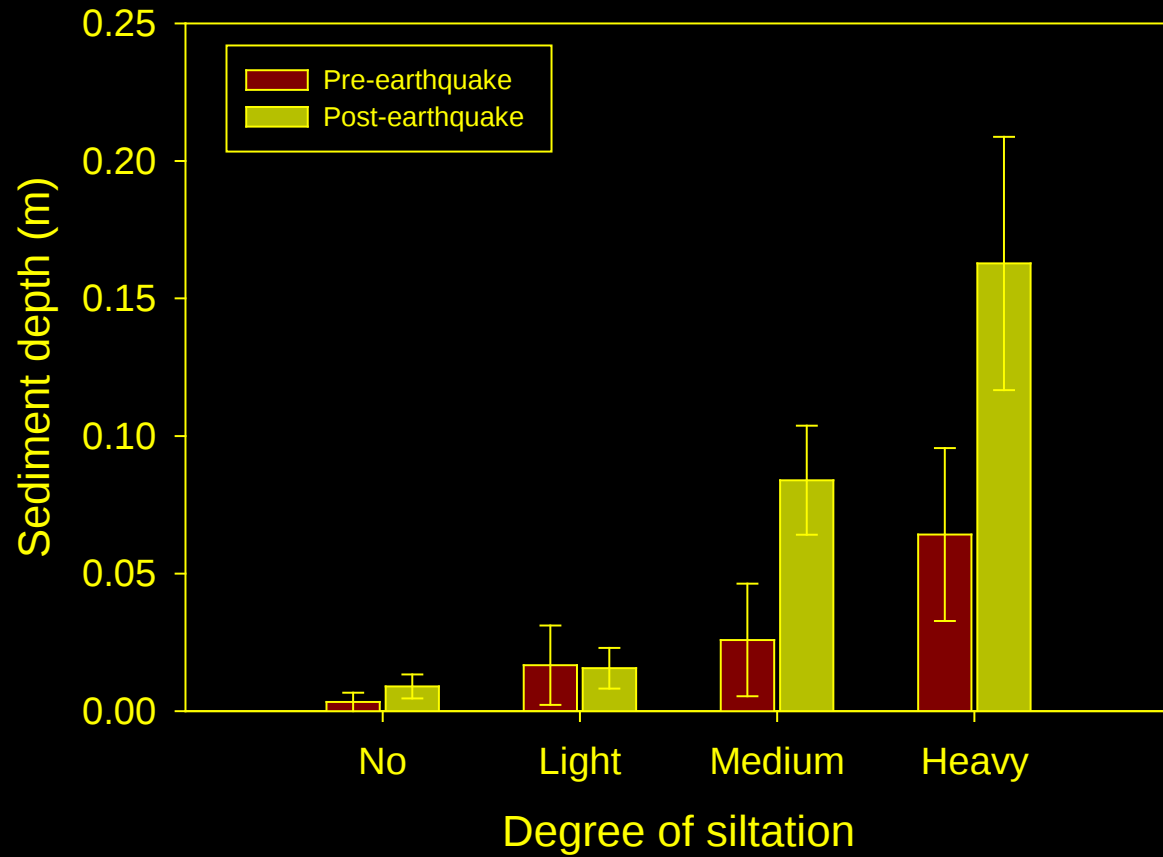




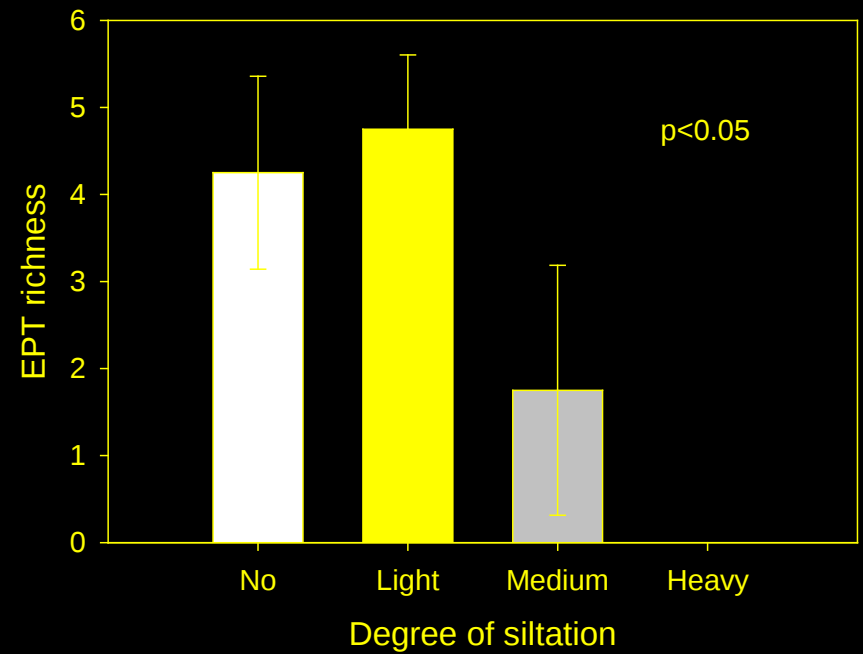
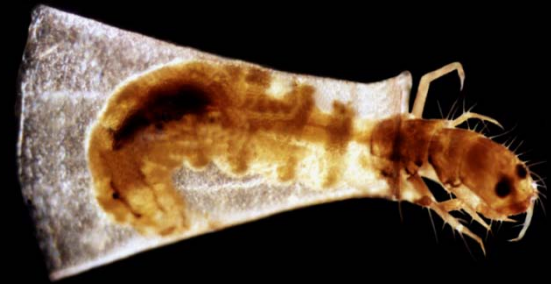
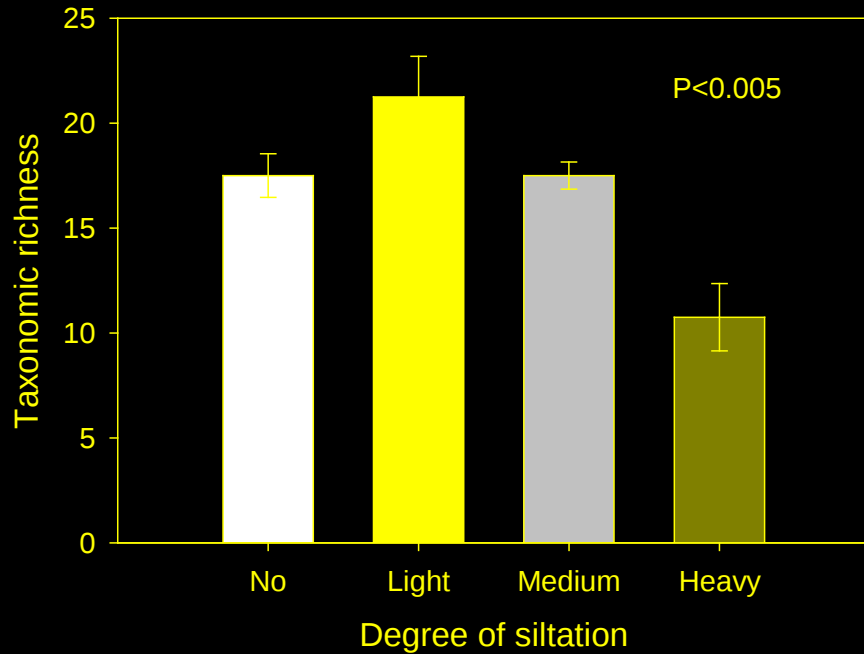
Proportion of rivers impacted by earthquake silt



Sediment depth pre- and post-earthquake (September 2011)



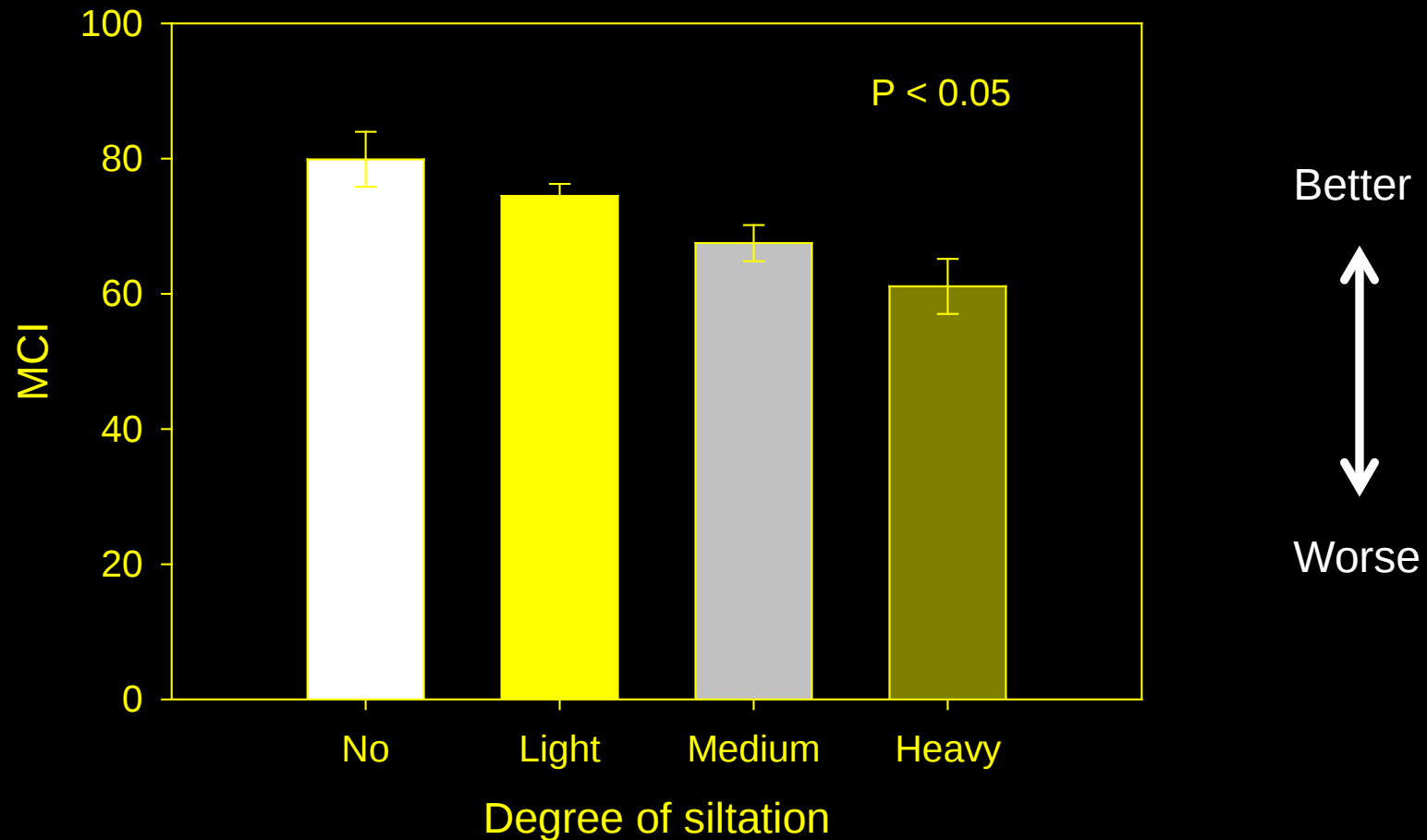
How did the invertebrates respond?



September
2011

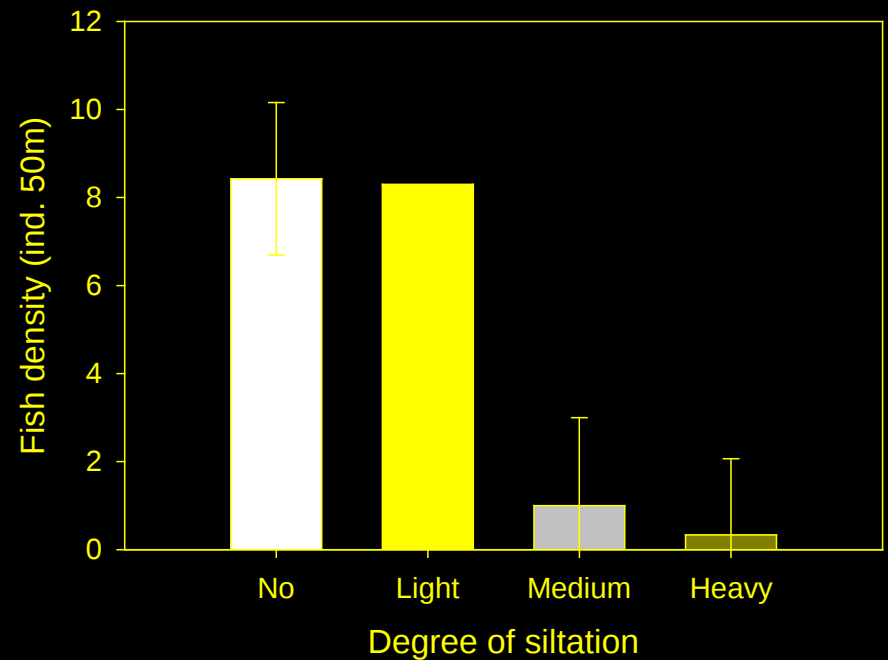
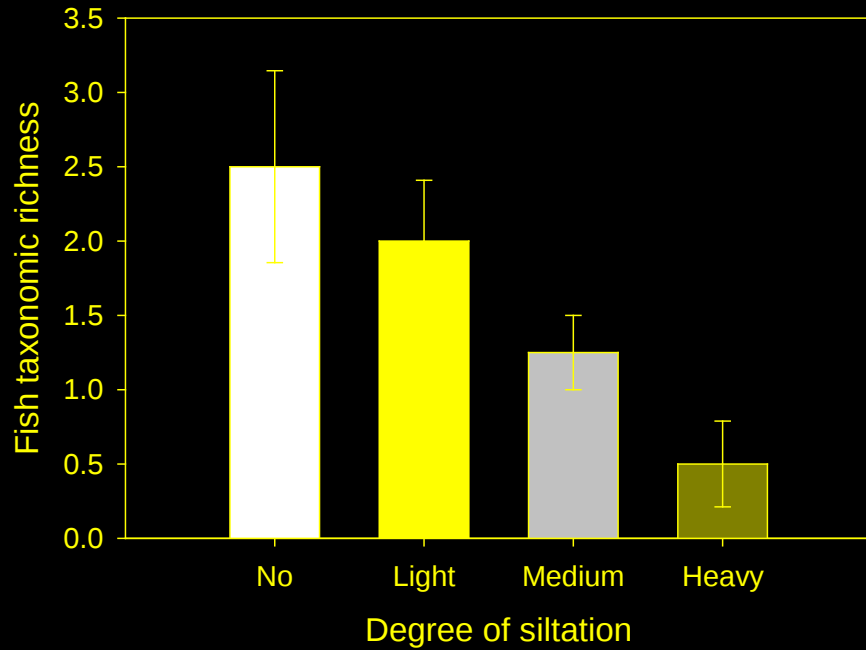


Changes in stream health index



September 2011

What about fish communities?



October 2011

Summary

- Large amounts of silt still in streams 1 year later
- Streams are small and springfed, may take a long time to flush sediment
- Invertebrate communities slowly recovering
- Fish numbers increased because migratory, but not good food
- Active silt removal may be needed
- Why might we care?