

Stream Ecology, Forests, Fish

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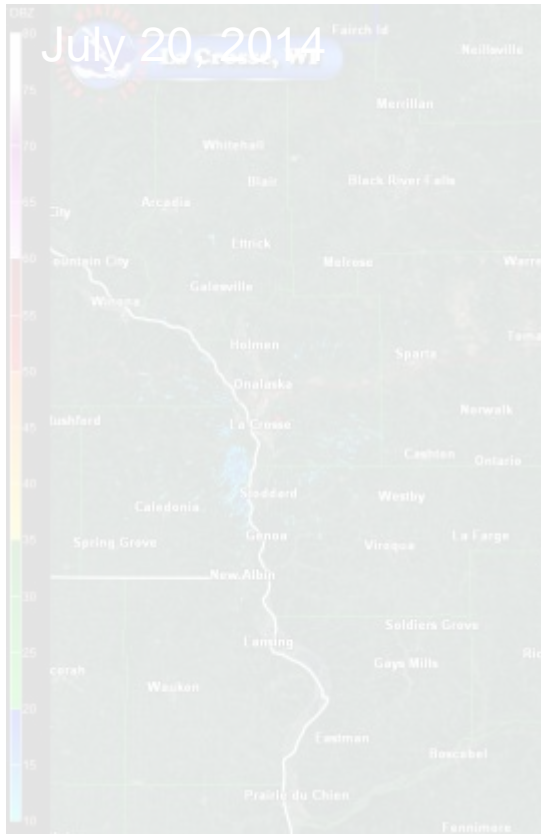
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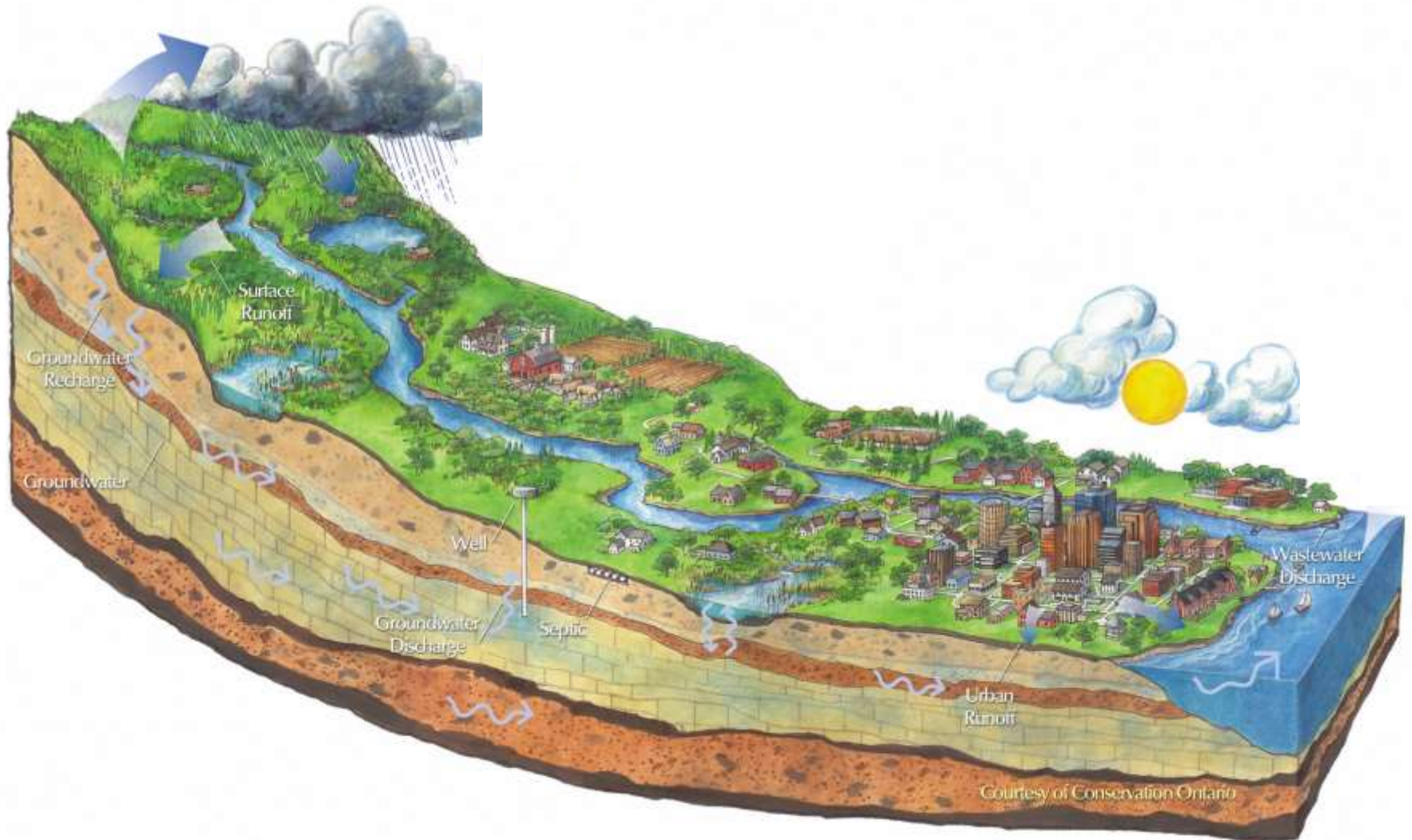


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Landscapes are heterogeneous mosaics of disparate habitats that are energetically and dynamically linked at multiple ecological scales (Turner 1989).



Streams are strongly influenced by the watersheds they drain.



Ecological connections in streams and rivers

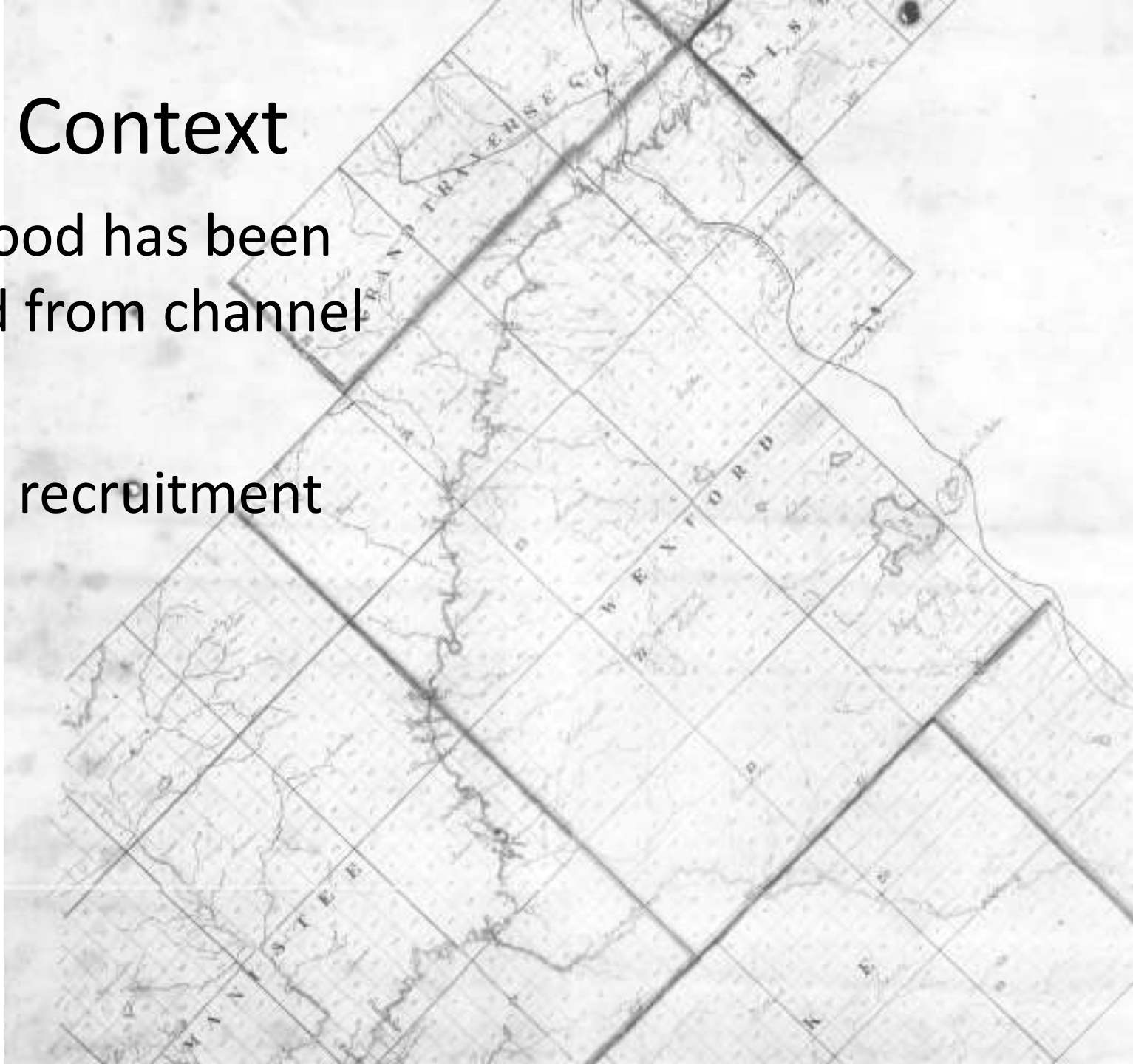


Wood in Streams



Historic Context

- Much wood has been removed from channel
- Reduced recruitment









Benefits of Healthy Forests in and Around Streams

Around a Stream

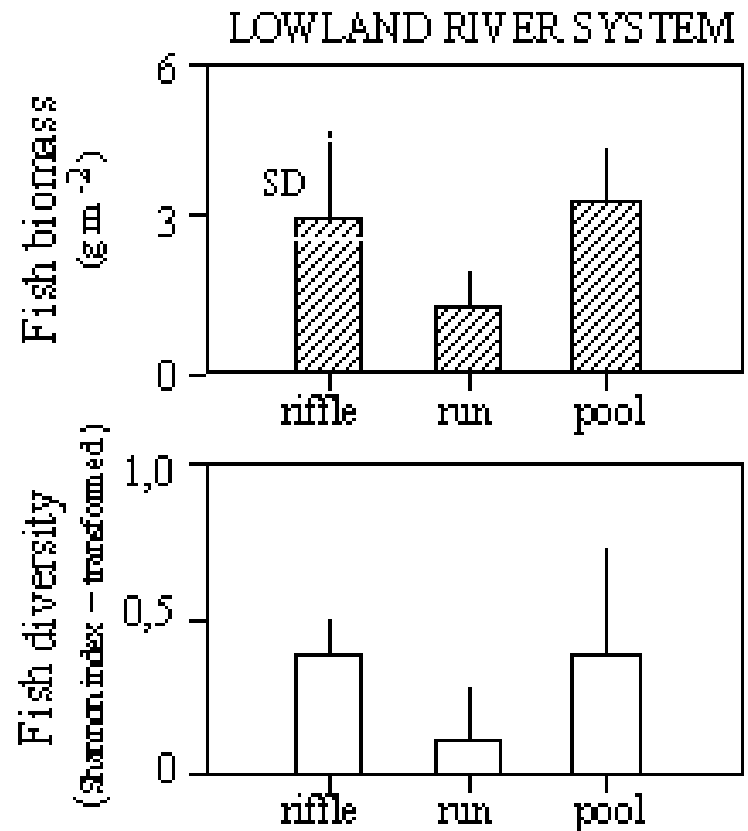
- Leaf litter input
- Shade/canopy cover
- Terrestrial invertebrate input
- Tree input

In a stream:

- Roughness – hydraulic diversity
- Organic matter retention -> nutrient processing
- Platform for primary growth (i.e., periphyton)
- Invertebrates
- Fish habitat: overhead cover, visual isolation, velocity refuge.

Large wood (LW)/fallen trees create pools

- Increases frequency
- Increases depth



The influence of habitat type on fish biomass and species diversity (after Łapińska 1996, changed)

Benefits of LW

- 81 studies that examined the response of fish to wood
 - 68 reported a positive response in fish abundance, biomass or survival for at least one fish species and life stage.

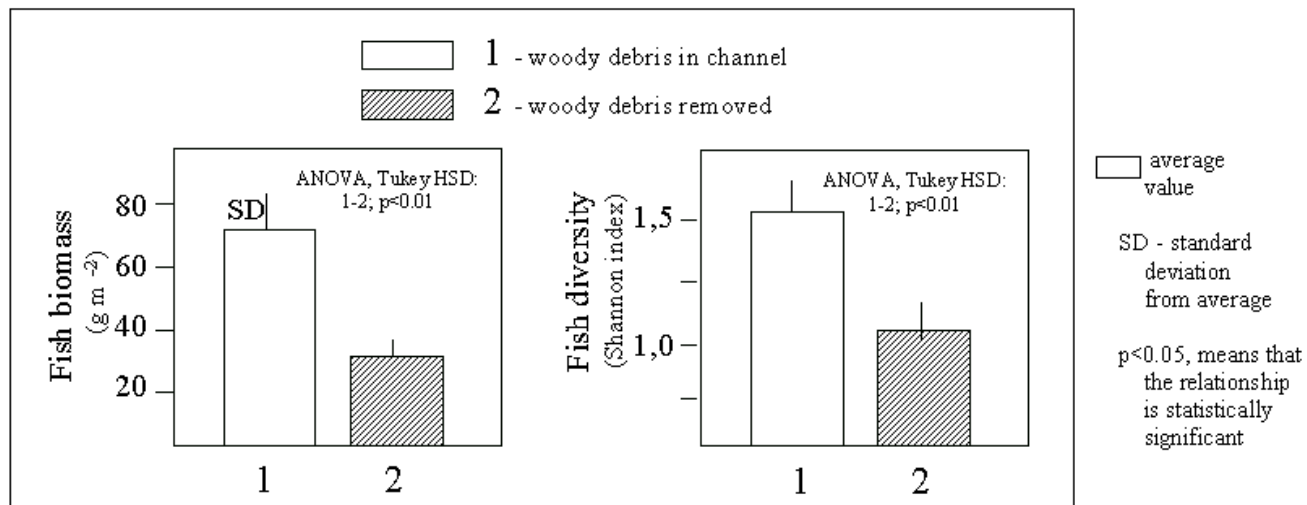


Fig. 6.3a. The effect of large woody debris (LWD) removal on fish community biomass and species diversity (Shannon Index H' , not transformed) (after Łapińska 1996, changed)

Makes fishing better





Stream channel and habitat restoration



Before



After (2 weeks)



Before



After



Riparian Restoration



Ecological connections in streams and rivers



