

Light, Nutrients and Macroinvertebrates

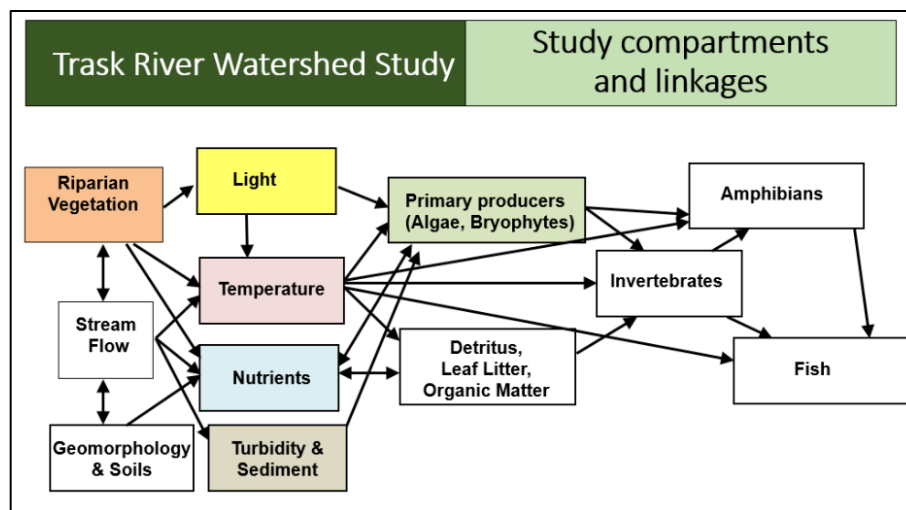
Do increases in nutrients lead to increases in algal standing stocks and primary productivity following forest harvest?

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Past research on forest-stream interactions has shown that the influence of light and dissolved nutrients on stream algae is highly variable. Our research in the Trask River Watershed, a large experimental study on the effects of forest management on aquatic ecosystems, focuses on the interaction of primary producers, stream nutrients and stream food webs. After five years of pre-treatment data collection, 7 treatment watersheds were clearcut harvested with and without riparian buffers, with 7 reference watersheds not harvested. One additional watershed was thinned. All clearcut watersheds showed increased summer nitrate during the four year post-harvest study period. Downstream of the harvested watersheds, two of the three large basins also showed elevated nitrate following harvest. Concentrations of ammonium, dissolved organic nitrogen, dissolved organic carbon and phosphorus did not increase post-harvest and the molar ratios of essential nutrients varied greatly among watersheds. In the harvested watersheds, the instream primary producers did not show increased standing stocks or chlorophyll *a*, even with the increase in light and nitrogen. These findings fit with prior research results from other studies in the Coast Range of the Pacific Northwest, and suggest that low concentrations of other nutrients, such as phosphorus, could be limiting responses of stream algae to increased light.



Trask River Watershed Study compartments and linkages and view from UM2 stream after harvest