Hi y'all-

Check out this new paper by Lee Harrison and colleagues!

Abstract: Large-scale river restoration programs have emerged recently as a tool for improving spawning habitat for native salmonids in highly altered river ecosystems. Few studies have quantified the extent to which restored habitat is utilized by salmonids, which habitat features influence redd site selection, or the persistence of restored habitat over time. We investigated fall-run Chinook salmon spawning site utilization and measured and modeled corresponding habitat characteristics in two restored reaches: a reach of channel and floodplain enhancement completed in 2013 and a reconfigured channel and floodplain constructed in 2002. Redd surveys demonstrated that both restoration projects supported a high density of salmon redds, 3 and 14 years following restoration. Salmon redds were constructed in coarse gravel substrates located in areas of high sediment mobility, as determined by measurements of gravel friction angles and a grain entrainment model. Salmon redds were located near transitions between pool-riffle bedforms in regions of high predicted hyporheic flows. Habitat quality (quantified as a function of stream hydraulics) and hyporheic flow were both strong predictors of redd occurrence, though the relative roles of these variables differed between sites. Our findings indicate that physical controls on redd site selection in restored channels were similar to those reported for natural channels elsewhere. Our results further highlight that in addition to traditional habitat criteria (e.g., water depth, velocity, and substrate size), quantifying sediment texture and mobility, as well as intragravel flow, provides a more complete understanding of the ecological benefits provided by river restoration projects.

Kind regards,
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