ES06: Professional Geoscience 1: River Restoration in Canada, from Planning to Effectiveness Monitoring

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River restoration (RR) is in the middle of its fifth decade of practice. In this relatively short period, RR has grown into a global enterprise, involving all if not most of the world's largest engineering consultancy's, and an annual budget which has grown into the billions of dollars. Despite this somewhat rapid growth, RR practice continues to face many basic challenges, which limits the abilities of any one practitioner or team of practitioners to envision, develop, plan and implement effective RR projects, as measured in ecological and physical terms. For example, continuous simulation of 1-dimensional channel evolution from the basis of proposed RR designs are often difficult to interpret or understand due to a lack of adequate boundary condition information, such as rates of water and sediment supply. Climate change and the behavior of aquatic species in decline unfortunately complicates these challenges. Furthermore, coordinating and guiding RR efforts amongst many different project members and stakeholders toward a defensible design plan is a daunting task for even the most capable of managers. In many ways, RR is the contemporary litmus test of our collective abilities to successfully apply science and engineering to address the often conflicting issues of property and infrastructure protection, and ecological function. To promote a dialogue of learning, the RR community needs to convene and air successes and failures so that the approaches taken build upon our knowledge base, and push us further along the curve of meaningful restorative actions. This session invites presentations from all scales of RR with a clear focus on (1) approaches to planning for RR under fast-paced, and more traditional project timelines, (2) technical analysis pursued to support design development given the overall project objectives, or the regulatory criteria which define aspects of expected project effectiveness (e.g. fish passage performance), (3) contingency or adaptive planning in light of conditions that preclude explicit analysis (e.g. future climate and associated patterns of sediment erosion and deposition), and (4) particular successes, failures or difficulties that would help us achieve the goal of continual improvement of RR actions. One to two invited talks from leading practitioners and/or researchers will be sought.

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