Comments by Carl Walters on draft Hydroriparian Planning Guide

Rod,

Thanks to the McClure Fire near Kamloops, I have been unable to get to our field study site and so had a chance to reply sooner to your request to look over the Coast Information Team's draft Hydroriparian planning guide. As you warned, I expect it will be quite controversial, particularly because of its extremely narrow definition of "ecosystem management" as being essentially just the design of protected areas for natural ecosystem "functions" under the assumption that any human disturbance increases risk of loss of such functions. I thought ecosystem management was about dealing effectively with a variety of tradeoffs among stakeholder interests in ecosystems, using a broad suite of technical and economic instruments (e.g. silviculture, stream channel restoration techniques) in addition to simple reserves. As it stands, your document only spells out procedures for protection agency bureaucrats to zone reserve areas in relation to habitat sensitivity indices, without even requiring the development of a set of alternative strategic options representing increasing risk of riparian impact, and without requiring that those options be clearly evaluated and compared in terms of economic/social costs to consumptive stakeholders. Nowhere in the document is there even recognition that some development (forest harvest management) options may be win-win in terms of riparian functions like water yield and anadromous fish production (e.g. logging appears to have enhanced coho salmon production in some systems like Carnation Creek).

Here are a few suggestions for making the guide more palatable to stakeholders.

Require the development of not just maps, but also dynamic landscape planning models that are widely accessible to stakeholders

Processes like LRMP have been highly centralized in terms of agency control of critical planning information and scenario development. Stakeholders see few options, and only static displays (maps) of how those options would look on the landscape. Why not use the really neat interactive watershed simulation games that now exist to make information much more accessible, not only on current watershed states (forest ages, etc), but also on future landscape patterns that would result from protection and development options that are "sketched" on the fly as the models run? Such games can provide information not only on limits to productive use and the tradeoffs between harvest and protection, but also can provide animations of future forest disturbance/recovery patterns and on time patterns of economic performance measures (yields, employment, etc.). In adaptive management planning, we have found that such models, even if very simple in terms of the landscape dynamics representation, are critical to provide understanding of tradeoffs and identification of experimental policy options.

Develop adaptive policy designs that fully recognize the importance of treatment-control comparisons for dealing with confounding of multiple factors that cause ecological change

Past adaptive management experiments, like the Carnation Creek study or the Rivers Inlet sockeye restoration program, have been haunted by the impact of multiple causal factors/stressors on indicator variables like fish abundance. For example, some fish populations in the Central/North coast have collapsed due to changes in ocean survival rates that are completely unrelated to changes in watershed characteristics. In forest systems, progressive climate changes are likely to result in dramatic impacts on riparian processes even absent logging; witness the widening of stream channels that has occurred even in unlogged watersheds in southern BC in conjunction with changes in rainfall/runoff patterns.

The obvious scientific way to deal with such confounding of effects in interpretation of results from adaptive management experiments is with replicated (or even better, paired) treatment/control comparisons. The present document only makes passing mention about such comparisons, with a comment about how reserves "may serve as control sites" (p. 33). Section 1.5 fails to even mention the need to include development of a set of strategic alternative experimental designs (increasingly invasive disturbance regimes) as part of the overall land allocation process in plan development.

Sections 3.3 and 4 make me wonder whether there is going to be any real commitment to actively adaptive management; there is no mention in these sections of laying out deliberate comparisons of policy alternatives in the landscape plan and site plans. Also, why is "learning about risk and capability" not a strategic objective in Table 1? On page 65, there is a comment about how adaptive management is about bringing managers and scientists together to "learn something about ecosystem processes and structures". Nonsense. Adaptive management is about doing a better job for stakeholders and for the public. It is about learning something about the efficacy of policy options that typically originate from the experience and thinking of both managers and scientists, and where the main role for scientists is in experimental design and design of effective, efficient monitoring schemes

Face the horrific monitoring problems of adaptive management more squarely

The single biggest implementation problem in adaptive management has turned out to be the development of cost-effective monitoring methods for large areas and complex experimental designs. When we have worked out the costs of monitoring key aquatic ecosystem variables using traditional observation methods for programs like the Watershed Restoration Program (see Keeley, E.R., C.J. Walters. 1994. The British Columbia Watershed Restoration Program: summary of the experimental design, monitoring, and restoration techniques workshop. BC MELP and MOF, Watershed Restoration Management Report No. 1. 34 p.), we have found that these costs would be a very high percentage (20-30% or more) of the total public investment (which absent monitoring would be spent on the production of more directly visible "results", like

stream clearing, silviculture, etc). One key idea in adaptive management is to avoid trying to measure everything by defining key performance indicators, and there has been considerable progress not yet evident in the draft Guide in deciding just what these should be for riparian ecosystem function (see the Keeley report above).

Two approaches seem to be important in avoiding prohibitive monitoring costs. One is to make larger up-front investments in technologies for automated monitoring (eg remote water quality monitoring stations, electronic fish counters, satellite imagery). The second is to develop new institutional arrangements for shifting much of the burden of monitoring into the hands of those stakeholders for whom the marginal costs of the monitoring activity are lowest because they are already out in the field. So for example, we now use resort owners in BC interior lakes to collect fish and fishing statistics, streamkeepers groups to collect water quality and fish abundance data, and various interest groups to collect population data on marine mammals. Presumably there is a long tradition of industry involvement or even leadership in collection of forest status and production information.

Lose meaningless (or even insulting) graphics

Figures 1 and 9.1 are meaningless or uninformative. If you are going to retain 9.1, at least change the "Assess problem" oval at the top of the loop to "define policy options to be compared", so that it reflects that a critical first step in adaptive management planning is to identify a range of policy options, where that range reflects or represents uncertainty about the best management policy.