

SPUNKIAD for

Bartholow, J. M. 2010. Constructing an Interdisciplinary Flow Regime Recommendation. JAWRA Journal of the American Water Resources Association 46:892-906.

Surprising?

I found surprising that Bartholow (2010) did not include management of nutrient loading to stream in his recommendation since in the description of the Cache la Poudre River seems to have high nutrient run-off from wastewater and agriculture.

Puzzling?

I found puzzling that Bartholow (2010) did not mention uncertainties inherent in his recommendation and methodology, as well as the assumption of stable climate.

Useful?

I found useful to see a framework that started by changing the hydrologic regime, then dealt with the hydraulics to create in stream habitats, then with geomorphology, and then addressed water quality and the biological integrity.

New?

I found new that the author used brown trout spawning, carp fry and tubing (recreational activity) in the same figure (Figure 2, pg. 899) to show the differences in water requirements between the three.

Knew it already?

I already knew that including ecological integrity as another factor in stream management stands alongside the current use and services provided by river ecosystem services is becoming more prominent.

Interesting?

I found interesting the way Bartholow (2010) derived the “natural flow regime” by taking out all the diversion and water transfers in the river, and use that to address the current gap between ecological integrity and ecosystem services.

Do you agree or disagree with the findings?

I agree with the theoretical procedure and the importance of reaching a compromise between the all the parties involved. However, I disagree with the assumption of a stable climate. By the time the Bartholow (2010) study was published, there were many climatic models that predict how places are being affected by climate change. Seems very important – and especially in this area that water is such a precious resource – to include projections of how climate change will impact the future use of water, and all those competing uses of water.

Reflection

Bartholow's (2010) study opens the possibility of a new paradigm in river management. This new paradigm made me reflect on the hardship of reaching that utopic management scheme, the difficulty of empirically taking into account historic impacts to streams, the motivation and origin to do these types of studies and lastly the never ending recommendation for adaptive management.

I found Bartholow's (2010) study extremely interesting to read because it addresses a new paradigm. The new paradigm is that of balancing between competing activities for a single resource, such that both ecosystems and people can co-exist. As population growth increases, more streams and rivers will be impacted, by direct sources (point source pollution) and indirect sources (non-point source pollution). While ecosystems are at the mercy of these impacts, other human-related activities such as recreation (fishing, tubing, whitewater rafting) can also suffer the consequences of a degraded environment.

With my own work, I have struggled to find a way to incorporate historic impacts in the general scheme of stream management. Bartholow (2010) mentioned geomorphological and flow regime changes that occurred around the 1860, however his analyzed flow data dates from 1976 to 1995. Historic stream records can be reconstructed via hand drawn paintings, landscape sketches and written memories to yield qualitative conclusions. However, it would be difficult to derive empirical evidence of flow regime changes using historic records.

Bartholow's (2010) study was funded by a Foundation (Kenney Brothers Foundation) which shows how scientists are using the best available science to push towards utopia – balancing the services people derive from nature with those conditions needed by nature. If the study were funded by USGS or the State's Department of Planning, then the implications of Bartholow's recommendations to change flow regime would transcend the peer-reviewed literature, towards territorial and water planning. In order for this study to transcend beyond its narrow scope of readers, state agencies would have to start promoting stakeholders meetings and adaptive management.

Saying that adaptive management is needed is much easier said than done. A big problem with scientists and planners, which has been addressed by others, is that of just reaching far enough but not over their comfort zone of work. This results in scientists working with scientists, and planners working with planners. Bridging the gap is the duty of both. However, if disciplines continue working as they are now, wouldn't it be better – cost and impact effective – for scientists to focus their efforts on studying what is already protected?