

Interactive comment on “Adaptation of water resource systems to an uncertain future” by C. L. Walsh et al.

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This paper addresses an important problem and presents a nice application of a reasonably standard approach to a case study. While the results are interesting, I believe that the value of the paper to the community working in this field could be improved considerably if this research was tied into other work in this area. This should be done both in the Introduction so that it is clear where this work fits in with other recent efforts tackling the same problem, as well as the discussion to highlight similarities and differences between the findings of this and other studies. In addition, it would be useful to discuss potential limitations of the approach used in light of recent papers that have introduced more advanced methods for tackling the problem being addressed. Some

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of the papers that have dealt with issues similar to those addressed in this paper but that have not been referred to include:

Beh E.H.Y, Maier H.R. and Dandy G.C. 2015. Adaptive, multi-objective optimal sequencing approach for urban water supply augmentation under deep uncertainty, *Water Resources Research*, 51(3), 1529-1551, DOI:10.1002/2014WR016254.

Beh E.H.Y, Maier H.R. and Dandy G.C. 2015. Scenario driven optimal sequencing under deep uncertainty, *Environmental Modelling and Software*, 68, 181-195, DOI:10.1016/j.envsoft.2015.02.006.

Brown, C., Ghile, Y., Laverty, M., Li, K., 2012. Decision scaling: Linking bottom-up vulnerability analysis with climate projections in the water sector. *Water Resources Research*, 48(9): W09537. DOI:10.1029/2011WR011212

Brown, C., Werick, W., Leger, W., Fay, D., 2011. A Decision-Analytic Approach to Managing Climate Risks: Application to the Upper Great Lakes1. *JAWRA Journal of the American Water Resources Association*, 47(3): 524-534. DOI:10.1111/j.1752-1688.2011.00552.x

Haasnoot, M., J.H. Kwakkel, W.E. Walker, and J. ter Maat, 2013. Dynamic adaptive policy pathways: A method for crafting robust decisions for a deeply uncertain world, *Global Environmental Change*, 23, 485-498.

Haasnoot, M., W. P. A. van Deursen, J. H. A. Guillaume, J. H. Kwakkel, E. van Beek, and H. Middelkoop, 2014. Fit for purpose? Building and evaluating a fast, integrated model for exploring water policy pathways, *Environmental Modelling & Software*, 60, 99-120.

Herman, J. D., Reed, P. M., Zeff, H. B., and Characklis, G., 2015. How should robustness be defined for water systems planning under change? *J. Water Resour. Plann. Manage.*, 1–14.doi:10.1061/(ASCE)WR.1943-981 5452.0000509

Kang, D., and K. Lansey (2013), Scenario-Based Robust Optimization of Regional

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Kasprzyk, J. R., P. M. Reed, B. R. Kirsch, and G. W. Characklis (2009), Managing population and drought risks using many-objective water portfolio planning under uncertainty, *Water Resources Research*, 45(12).

Kasprzyk, J. R., P. M. Reed, G. W. Characklis, and B. R. Kirsch (2012), Many-objective de Novo water supply portfolio planning under deep uncertainty, *Environ. Modell. Softw.*, 34, 87-104.

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Matrosov, E., S. Padula, and J. Harou (2013a), Selecting Portfolios of Water Supply and Demand Management Strategies Under Uncertainty—Contrasting Economic Optimisation and 'Robust Decision Making' Approaches, *Water Resources Management*, 27(4), 1123-1148.

Moody, P., Brown, C., 2013. Robustness indicators for evaluation under climate change: Application to the upper Great Lakes. *Water Resources Research*, 49(6):

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3576-3588.

Mortazavi-Naeini, M., Kuczera, G., Kiem, A.S., Cui, L., Henley, B., Berghout, B., Turner, E., 2015. Robust optimization to secure urban bulk water supply against extreme drought and uncertain climate change. *Environ. Model. Softw.* 69, 437e451.

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Steinschneider, S., McCrary, R., Wi, S., Mulligan, K., Mearns, L., and Brown, C. (2015), Expanded Decision-Scaling Framework to Select Robust Long-Term Water-System Plans under Hydroclimatic Uncertainties, *Journal of Water Resources Planning and Management*, 0(0), 04015023.

Turner, S. W. D., D. Marlow, M. Ekström, B. G. Rhodes, U. Kularathna, and P. J. Jeffrey (2014), Linking climate projections to performance: A yield-based decision scaling assessment of a large urban water resources system, *Water Resources Research*, 50(4), 3553-3567.

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Zeff, H. B., J. R. Kasprzyk, J. D. Herman, P. M. Reed, and G. W. Characklis (2014), Navigating financial and supply reliability tradeoffs in regional drought management portfolios, *Water Resources Research*, 50, 4906-4923.

Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 12, 8853, 2015.

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