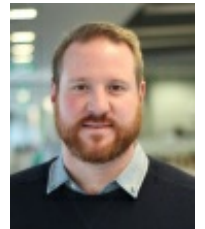


From science to action: principles for doing research that enables knowledge exchange and evidence-based decision-making

 [blogs.lse.ac.uk/impactofsocialsciences/2016/10/17/from-science-to-action-principles-for-doing-research-that-enables-knowledge-ex](https://blogs.lse.ac.uk/impactofsocialsciences/2016/10/17/from-science-to-action-principles-for-doing-research-that-enables-knowledge-exchange/)

10/17/2016

*The integration of scientific research into conservation decision-making processes remains a significant challenge. There is very little empirically grounded guidance to help scientists and decision-makers design and implement research programs that facilitate knowledge exchange and evidence-based decision-making. **Chris Cvitanovic** outlines how recent research has sought to address this problem, and in doing so established a set of key design principles to guide the development and implementation of future research programs that can be applied across all disciplines.*



Successfully responding to modern day conservation challenges requires knowledge exchange among scientists and decision-makers to enable learning and evidence-based decision-making. In recognition of the need to link conservation science to action, an emergent body of literature has sought to identify and overcome the barriers impeding knowledge exchange, so as to devise and implement new strategies to support evidence-based decision-making.

However, despite these efforts, [recent evidence](#) suggests that the integration of science into conservation decision-making processes remains a significant challenge. This is because while our conceptual understanding of knowledge exchange has advanced, there remains very little empirically grounded guidance to help scientists and decision-makers design and implement research programmes that actively facilitate knowledge exchange and evidence-based decision-making.



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To address this problem, our research team [undertook an extensive evaluation](#) of the Ningaloo Research Program (NRP). Commencing in 2006, the NRP was an intense program of marine research (valued at AUD\$36m of funding) explicitly designed to generate new knowledge for the Ningaloo region in north-western Australia that would enable conservation practitioners to make more informed decisions about the management of Ningaloo Marine Park and its surrounding area ahead of its nomination as a World Heritage Area in 2011. Through this evaluation we elucidated the perspectives and experiences of all program participants to provide a comprehensive and in-depth understanding of the factors that influenced knowledge exchange among scientists and decision-makers, from which we generated a set of key design principles to guide the development and implementation of future research programs to enhance the related decision-making processes.

Principles for designing research programs that facilitate knowledge exchange

The guiding principles generated from our study can be mapped to the three stages of scientific research programs: the development and design phase; the implementation phase; and the period following the conclusion of the research (Figure 1). Of these, the design and development phase was identified by participants as the most important for ensuring the success of knowledge exchange; with the co-development of research questions being identified as a particularly critical factor. Our findings also stressed the importance of identifying and articulating all relevant stakeholders and end-users as early as possible in a research program, so as to incorporate all of their different values and interests at the outset, and to ensure that the research that is done is the research that is needed. Furthermore, we found that the design phase should include people with expertise in knowledge exchange, as well as social scientists who can help to understand the social networks and patterns of influence among program participants (e.g. through stakeholder mapping approaches).

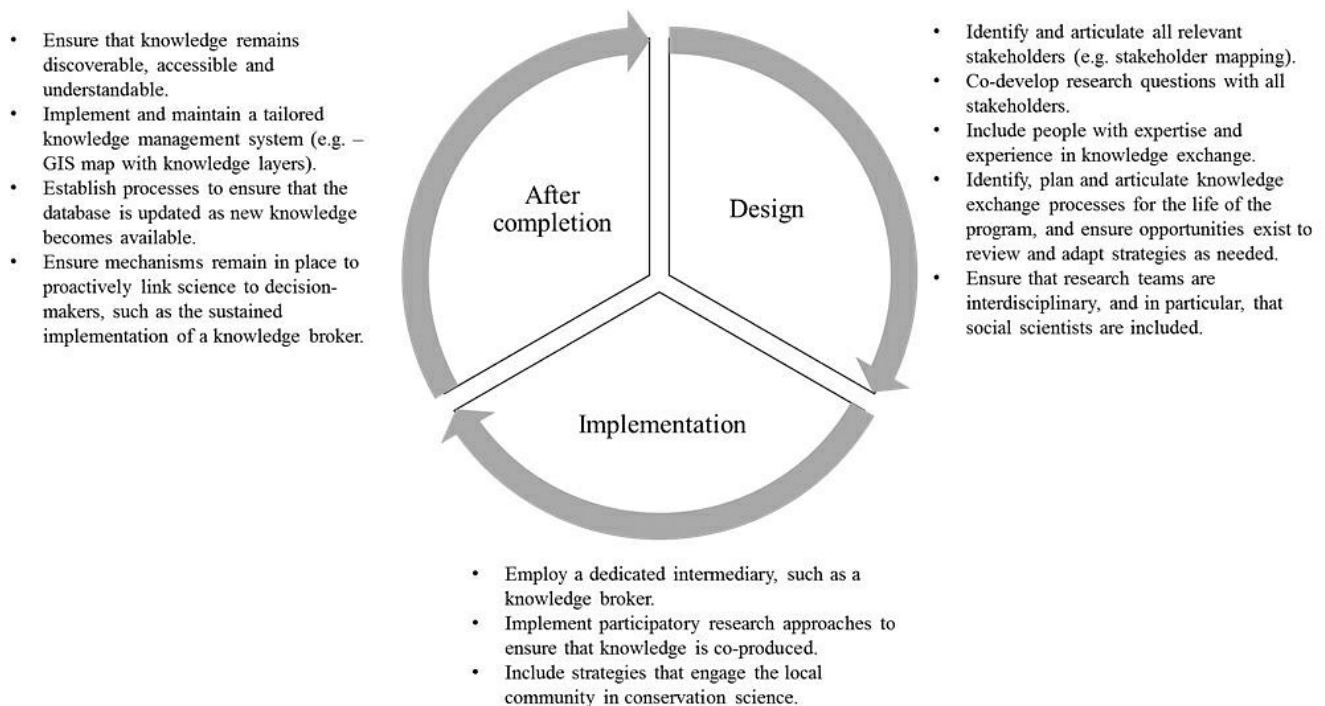


Figure 1. Key principles in each of three research phases for improving knowledge exchange among conservation scientists and decision-makers. Source: Cvitanovic et al, (2016). From science to action: Principles for undertaking environmental research that enables knowledge exchange and evidence-based decision-making, *Journal of Environmental Management*. This work is licensed under a [CC BY-NC-ND 4.0 license](#).

To facilitate knowledge exchange during the implementation of research programs we identified the potential benefits of utilising a dedicated knowledge broker throughout the life of the program, who was solely responsible for building networks among the scientists and decision-makers and facilitating the exchange of knowledge among the groups. Our results suggest that to be most effective knowledge brokers should be embedded within the management agency, be politically astute, and have strong communication skills with the ability to cultivate expansive and productive social networks.

Our results also emphasised the need for participatory research approaches during the implementation phase (e.g. knowledge co-production). Doing so ensures that decision-makers have a stronger understanding of the research content, develop a strong sense of ownership of it, and feel more confident communicating about it more broadly within their organisation.

Furthermore, to improve knowledge exchange among scientists and decision-makers during the implementation phase of research programs, we identified the need to focus on broader community engagement. While it was noted that this does not directly influence knowledge exchange processes *per se*, decision-makers in our study discussed how community engagement in science can lead to the establishment of social licence and acceptance of management actions, thus empowering them to use the new knowledge to inform decision-making processes.

Finally, our results show that knowledge exchange strategies are also needed for the period following the completion of research programs. In particular, we identified the need for effective knowledge management systems within decision-making agencies to ensure that knowledge remains discoverable, accessible and understandable to decision-makers. This requires that knowledge management systems be maintained and updated as new scientific knowledge is generated. To complement knowledge management systems, we also identified the need for a mechanism to remain in place that proactively links science to decision-making, which could be achieved through the continued involvement of a knowledge broker following the completion of a research program.

Conclusion

Our study is among the first to evaluate knowledge exchange activities associated with conservation research programs, allowing us to generate empirically grounded guidance to help scientists and decision-makers design and implement research programs that actively facilitate knowledge exchange and evidence-based decision-making. While the implementation of some of the structures outlined here are large in scale and potentially costly, doing so will improve knowledge exchange among conservation scientists and decision-makers, thus building capacity for evidence-based decision-making and increasing society's ability to respond to modern day conservation challenges.

*This blog post is based on the author's co-written article, ['From science to action: Principles for undertaking environmental research that enables knowledge exchange and evidence-based decision-making'](#), published in the *Journal of Environmental Management*.*

Note: This article gives the views of the author, and not the position of the LSE Impact Blog, nor of the London School of Economics. Please review our [comments policy](#) if you have any concerns on posting a comment below.

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Dr Chris Cvitanovic is a Research Fellow in the Centre for Marine Socioecology at the University of Tasmania, Australia, specialising in knowledge exchange, stakeholder engagement and the governance of marine resources. In doing so Chris draws on almost ten years of experience working at the interface of science and policy for the Australian Government Department of Environment, and then as a Knowledge Broker in CSIRO's Climate Adaptation Flagship. Find Chris on twitter via [@ChrisCvitanovic](#) or get in touch via email: Christopher.cvitanovic@utas.edu.au.

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