

Impact of Risk Perception on Risk Communication and Community Resilience Enhancement

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INTRODUCTION

Past studies have demonstrated that there is a relationship between risk perception, risk tolerance and mitigation and adaptation planning. In terms of hazard mitigation, risk perception drives risk tolerance, which drives mitigation. When people experience high risk perception, their risk tolerance is typically lowered causing them to become more likely to demand mitigation policies or programs that help minimize losses.



This water lily was in full bloom on Fernan Lake near Coeur d'Alene, Idaho as cooler temperatures arrived on Sept. 16, 2013. (SR File Photo: Kathy Plonka) <http://www.spokesman.com/blogs/hbo/2014/sep/09/fernan-lake-health-advisory-issued/>

Understanding people's risk perception could provide information about how people will choose or implement mitigation strategies. This can help researchers determine the best risk communication methods that may make people more willing to implement hazard mitigation strategies.



STUDY AREA AND GOALS

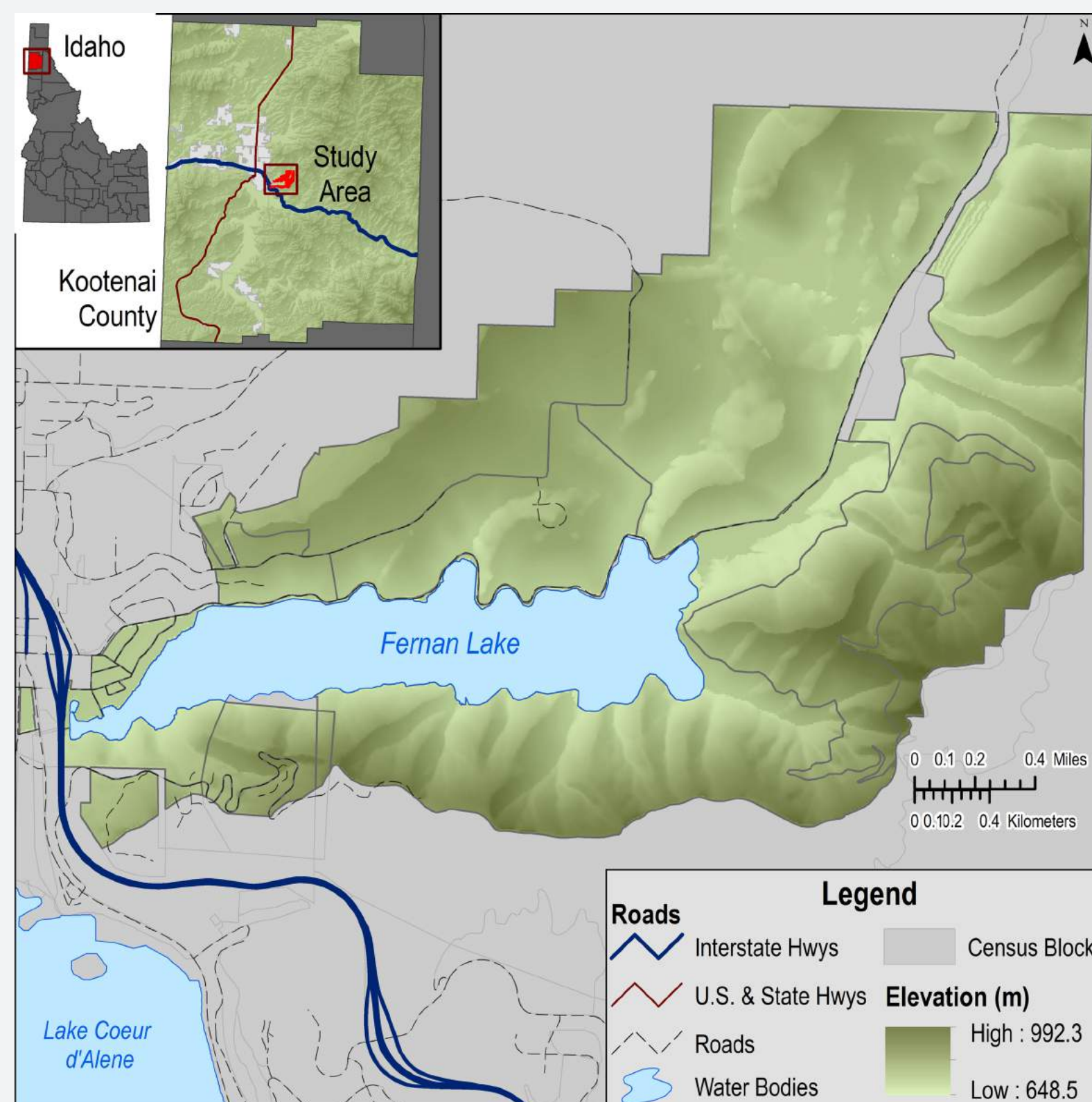
The goal of this research examines the effect of risk perception on vulnerability. This research uses a case study to examine the impact of the risk perception of blue-green algal blooms on social ecological systems (SES) vulnerability in Fernan Lake, situated in the forested mountains of northern Idaho. The region offers attractive amenities for recreational opportunities enhanced quality of life.



The blue-green algae species of *Microcystis*, *Anabaena* and *Aphanizomenon* were found in water samples by the Department

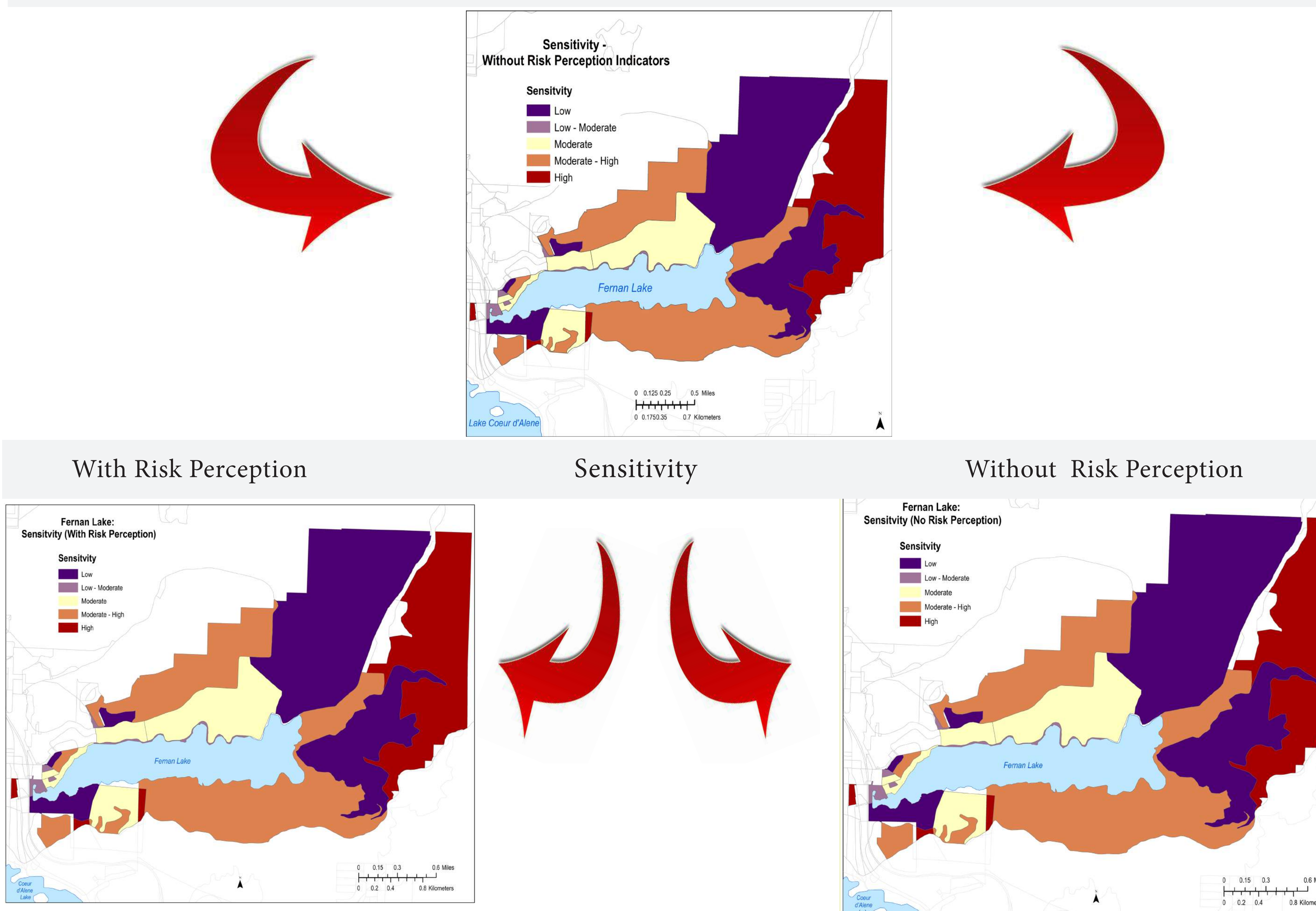
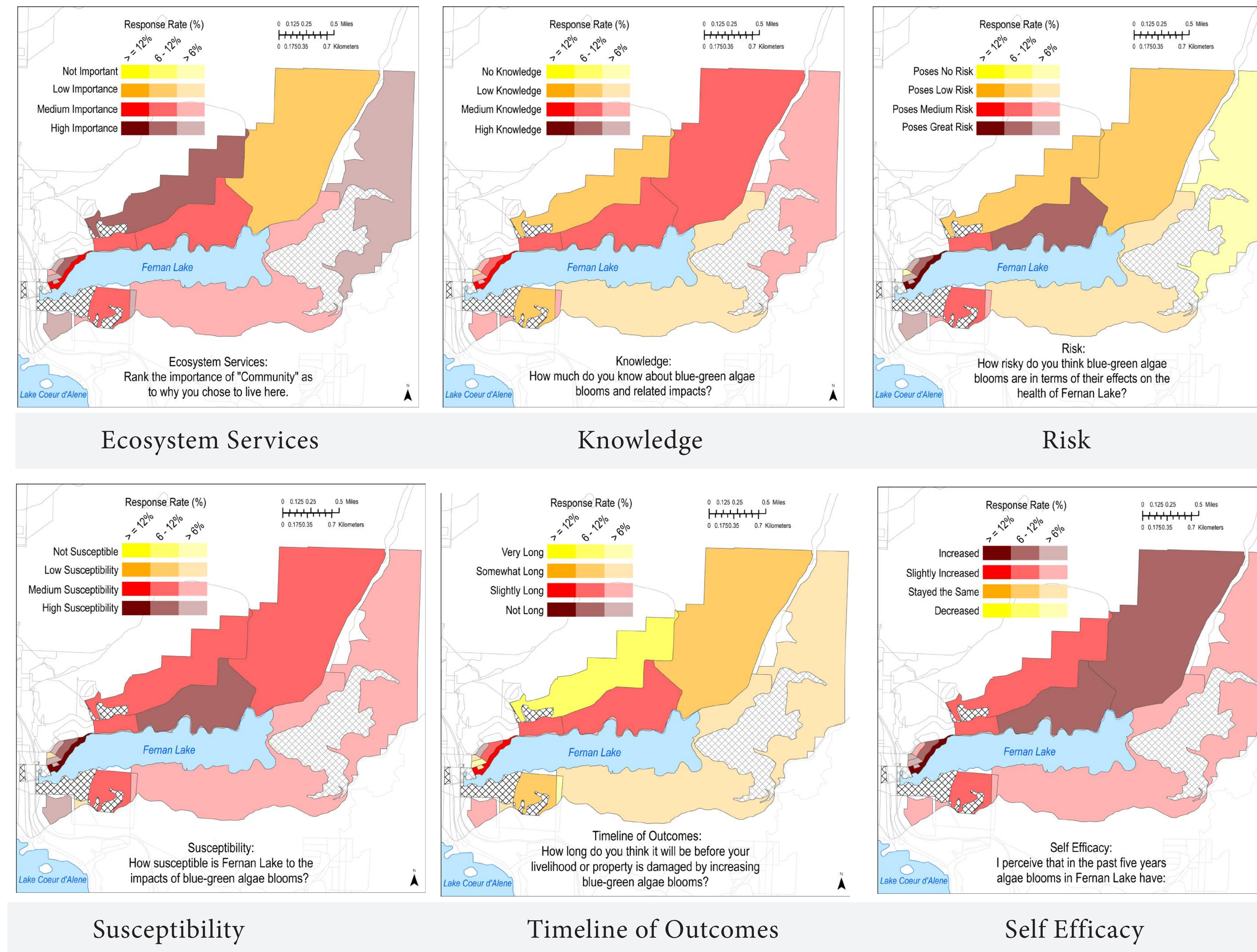
Blue-green algae on Fernan Lake courtesy of <http://www.idahoecosystem.org>

of Environmental Quality in Fernan Lake. These toxins are becoming an increasing threat to the community's access to the lake. Just last year, 2014, saw over ninety (90) days of health advisories with toxic levels nearly triple those of the World Health Organization. There is no anecdote to these toxins and they are fast acting – fatal to animals and children.



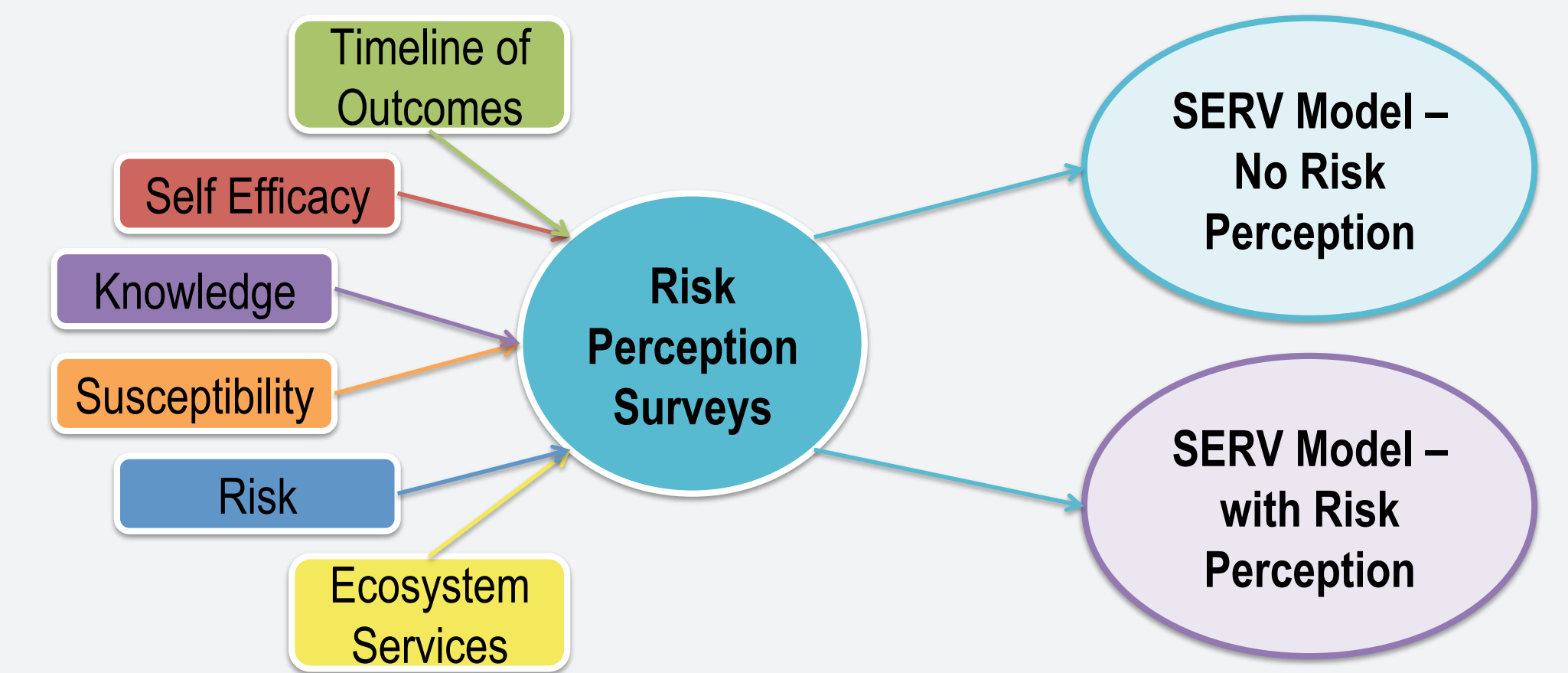
RESULTS

In order to determine the effect of risk perception on overall vulnerability, the survey results were used in a separate SERV model and compared to the original SERV model. While risk perception was found to be a significant indicator in the model, the overall classified results showed no difference between the two SERV models.



METHODS

The results were used to determine how residents felt blue-green algal blooms might impact their attitude toward future development or SES resource availability. Focus groups were then conducted to validate the survey results. These were then used as indicator inputs in the Spatially Explicit Resilience-Vulnerability (SERV) model. The SERV model measures the impact of social factors on SES vulnerability using place, spatial and scale-specific biophysical indicators for Fernan Lake, ID.



CONCLUSIONS AND FUTURE WORK

Research results demonstrate that residents are concerned about the impacts of blue-green algal blooms, but the level of interest in acting on those concerns varies across the study area. However, the size of the study area made the results of the survey have no effect on the SERV model output when they were added to the model as indicators. Future work would involve expanding the study areas and incorporating additional visualization techniques such as these below to communicate risk.



City engine is a potential tool for expressing severity of risk and enhancing risk perception to increase mitigation and adaptation efforts. Above is a virtualization of a flooded Fernan and below, fire severity. Red houses are potential new development.



ACKNOWLEDGMENTS & REFERENCES

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