

ESA 2012 Abstract

**Title:** Internet-based methods to construct a stakeholder network for the sustainability of Narragansett Bay, Rhode Island

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#### Background\Questions\Methods

Conservation coalitions, where numerous organizations collaborate for the augmented environmental protection of a critical habitat, have been shown to reduce redundancy and increase effectiveness. In order to initiate an effective conservation coalition, it is important to identify key stakeholder groups and understand how stakeholders currently interact and communicate. As part of the initial phases of the US EPA's Safe and Sustainable Waters Research Program on Narragansett Bay, the presented research is an effort to elucidate the stakeholder network of organizations influencing natural resources decisions within Narragansett Bay watershed. The objectives of this network analysis are to (1) identify key and previously unrecorded stakeholders, and (2) understand fundamental network dynamics between the stakeholders. Two different stakeholder networks were constructed based on discrete, internet-based methods of edge definition: website hyperlinks and website relatedness index. Once the networks were constructed, several characteristics were measured, including degree distribution, connectedness, and diameter.

#### Results\Conclusion

Each network began with an initial node list consisting of 99 organizations solicited from expert opinion. Each network was allowed to increase in size by iteratively including unrecorded nodes that were above a connectedness threshold. The final website hyperlink network included 1328 nodes and the relatedness network included 699 nodes. As was the expectation, each network had a degree distribution with a few highly connected nodes and many nodes with low connectedness. Both methods of network construction provided a unique list of unrecorded and key nodes. Since the method of edge definition is different for each network, the dissimilar list of nodes and the resulting degree distribution provides different insights about Narragansett Bay stakeholder groups. For example, the highly connected nodes in the hyperlink network provide information about which websites the stakeholders identify as being important sources of information. The highly connected nodes in the relatedness network are the sites that the public are likely to visit based on modern internet search methods. Additionally, we identified bridging organizations that connect discrete components of the networks and different levels of governance. In addition to increasing communication efficiency and reducing redundancy, the results identify future connections that will increase long-term network stability.