

## ABSTRACT

### **Ethnic Diversity, Social Capital, and the Potential for Co-Management: a case study of Hawaii's longline fishery**

**Michele Barnes-Mauthe\*, Shawn Arita, Stewart D. Allen, PingSun Leung and Steven A. Gray**

Social networks and social capital have recently been identified as key features in facilitating or constraining collaborative arrangements which can enhance resource governance and adaptability in complex social-ecological systems such as fisheries. Yet, how ethnic diversity among resource users in a competitive pelagic fishery may affect social networks and social capital, and thus, influence the potential for collaboration, has not been examined. To explore this effect, a social network analysis of the entire population of resource users in Hawaii's longline fishery was performed, which is currently characterized by a division along ethnic lines and competition over resource use. With a response rate of >90%, resource user's fishery related social networks were explicitly mapped and the impact of ethnic diversity on the level and distribution of social capital was determined from a network perspective. Specifically, we examine group level bonding and bridging social capital for each ethnic group and for the fishery as whole by employing *k*-core and cutpoint network metrics as indicators of network cohesion and structural holes. Additionally, we use relational contingency table analysis to analyze the level of observed versus expected number of ties both within and between groups to gauge (1) network homophily among ethnic fisher communities, and (2) linking social capital ties to industry leaders, government and management officials, and members of the scientific community. Results show that ethnicity significantly influences social network structure and is responsible for a homophily effect, with higher levels of ties than expected found within ethnic groups and less ties than expected between ethnic groups. Indicators of network cohesion and structural holes reveal a bridging network structure for the dominant ethnic group and for the fishery as a whole, while minority ethnic groups display a bonding network structure. In contrast to previous research on social capital, the greatest evidence of linking social capital ties was found in a minority ethnic group rather than the dominant ethnic group. However, results suggest that ethnic fragmentation may be responsible for the marginalization of another minority group, which reported a significantly low level of linking ties to industry leaders, government or management officials, and the scientific community. This study provides the first empirical evidence of the effect of ethnic diversity on social network capital in the fisheries literature, and has implications for the success of collaborative management.