

# Observer Networks: Orca (*Orcinus orca*) in the Galápagos Islands

Kerri J. Smith and Jane M. Packard, Marine Biology Interdisciplinary Degree Program, Texas A&M University

## INTRODUCTION

Marine protected areas do not necessarily protect transient cetaceans that use the sites as stop over points in long distance commutes (Hoyt 2009). Detection of rarely sighted species such as orca in the Galapagos is a challenge filled by an informal observer network (Merlen 1999, Fig. 3).

Although dedicated surveys for orca on feeding sites have been effective in northern oceans (Foote et al. 2010) an information gap remains for pan-tropical oceans.

What is the key node in a conceptual model of orca observer networks?

## METHODS

Content analysis of publicly available information (Merlen 1999, Galapagos Conservancy, Charles Darwin Research Station, YouTube?)

Social network analysis (see references in Heath et. al. 2009, Foote et al. 2010)

- UCINET6 network analysis software
- NetDraw 2.043
- Node connections classified as
  - 0: no documented information transfer
  - 1: documented information transfer
- Definition of “Key node”: the node with the most connections

## RESULTS

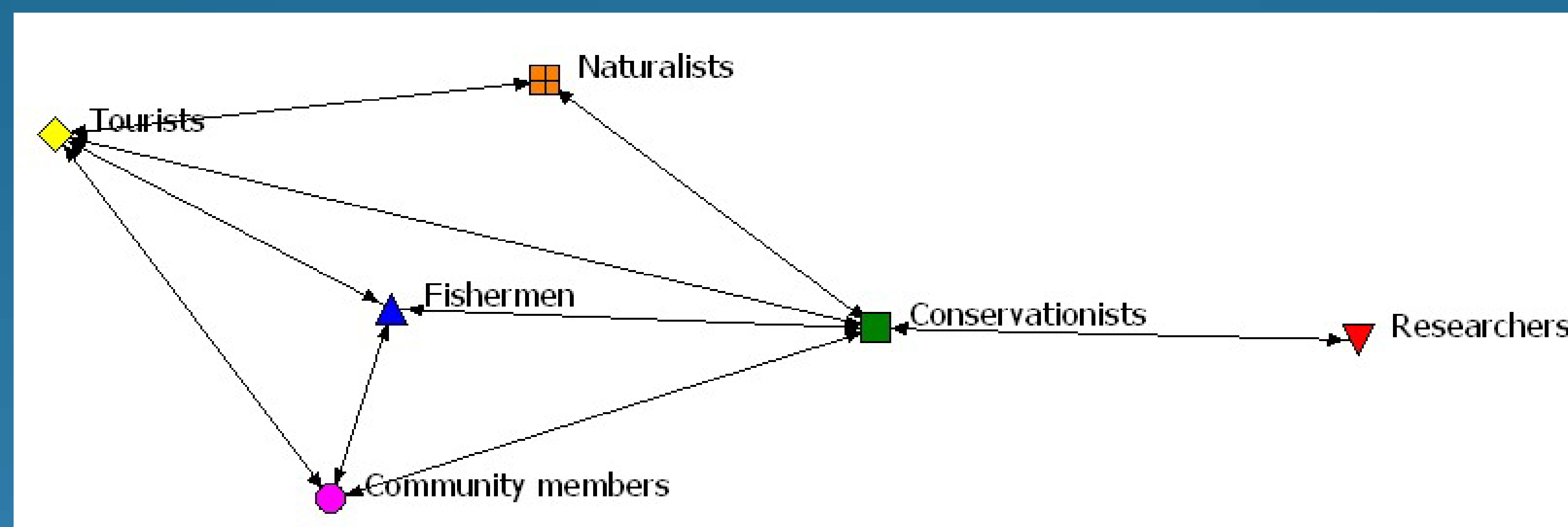


Figure 1: Conceptual model of informal orca-sighting network in the Galapagos region.

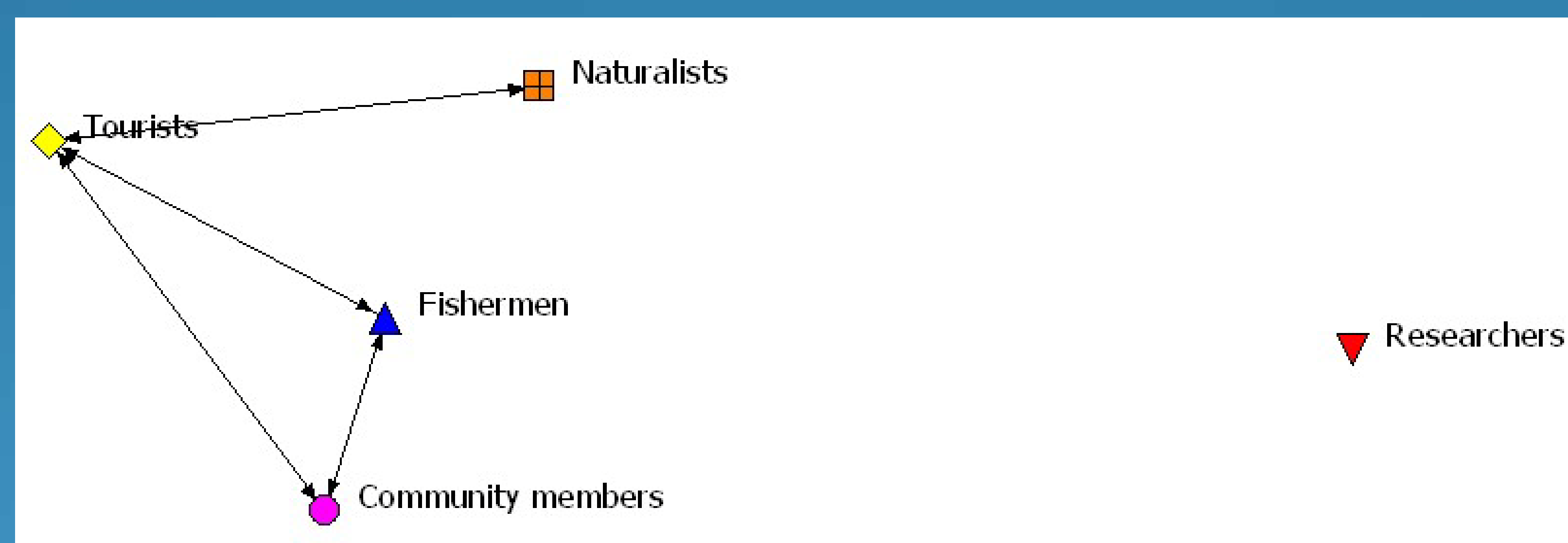


Figure 2: Predicted effect of removing the key node: conservationists.



Figure 3: Orca sighting concentrations in the Galapagos Marine Resources Reserve and Galapagos Whale Sanctuary. (Adapted from Merlen 1999)

## DISCUSSION/ RECOMMENDATIONS

Key Node (Fig. 1): Conservationists (advocates linked to groups with a mission of conservation in Galapagos)

Other nodes in conceptual model

- Fishermen (commercial, sport, charter captains)
- Researchers (authors in peer reviewed journals)
- Tourists (individuals who post videos on YouTube)
- Naturalists (guides for ecotourism enterprises)
- Community members (long- and short-term residents)

We predict removal of the key node would disrupt flow of valuable information from diverse stakeholders to the research community (Fig. 2).

“...to keep track of cetaceans...in my opinion, it requires a constant human contact with the tourist guides and others to generate a good ongoing response” (Merlen, personal communication).

## ACKNOWLEDGEMENTS

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