

Social structure of a resident population of bottlenose dolphins (*Tursiops truncatus*) in NW Spain (Galicia)

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Introduction

Social network analysis is important for studying the evolution of social systems.

Bottlenose dolphins (*Tursiops truncatus*) are residents in the Ría de Arousa (Methion & Díaz López 2018).

The aim of this study is to describe the social structure of the resident population of bottlenose dolphins of the Ría de Arousa.

Material and Methods

Data were collected from January to June 2017 onboard the BDRI research vessel in the Ría de Arousa.

Photo identification was used, based on the presence of natural marks on dorsal fin, to identify individual bottlenose dolphins. Analysis were carried out in SOCPROG 2.9 and coefficient of association were calculated using the half-weight index (HWI) (Whitehead 2008).

Results

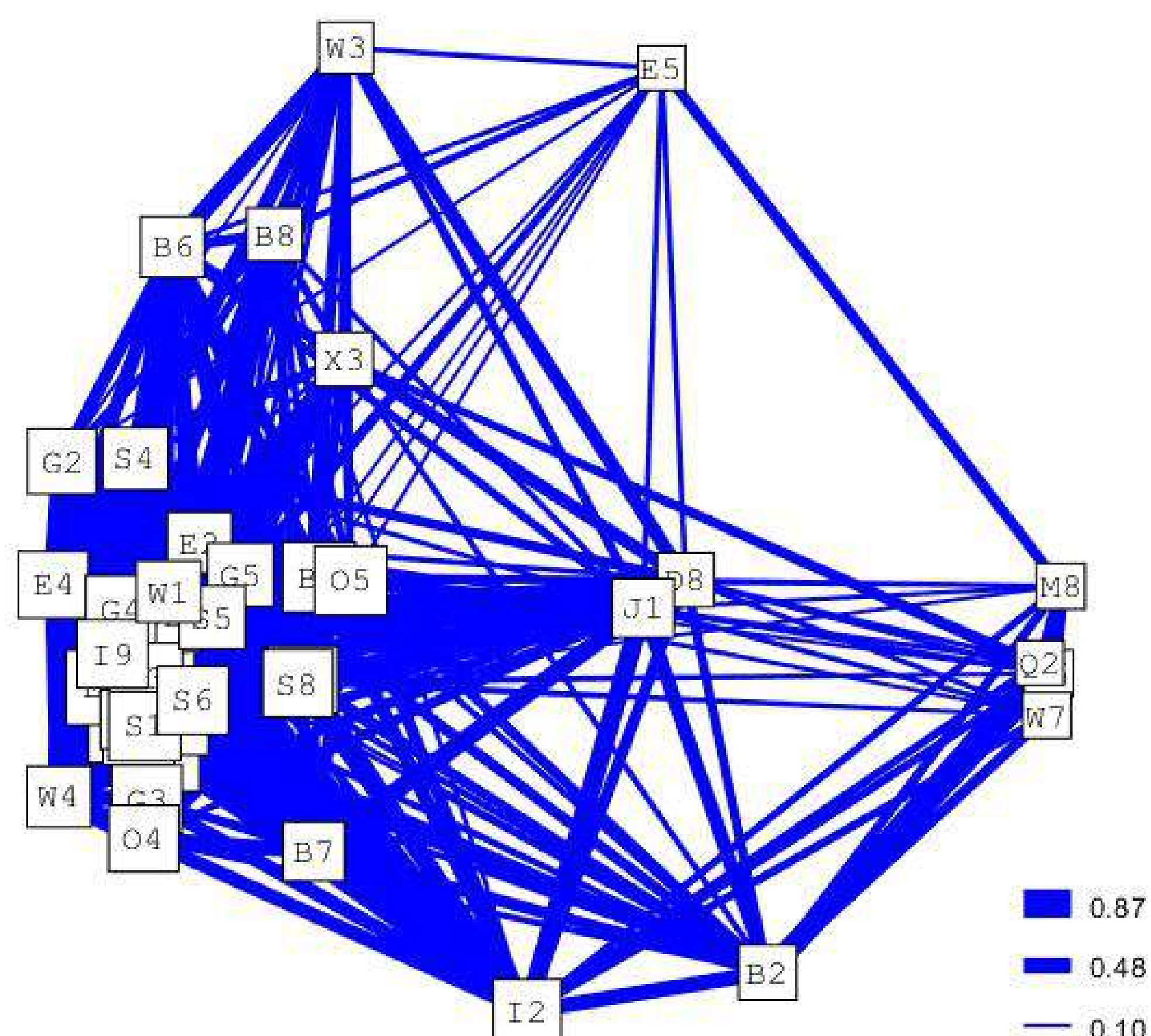


Fig 1. Social Network Diagram representing the social network of the 42 bottlenose dolphins. Each square is an individual and each line represents the link that unites them.

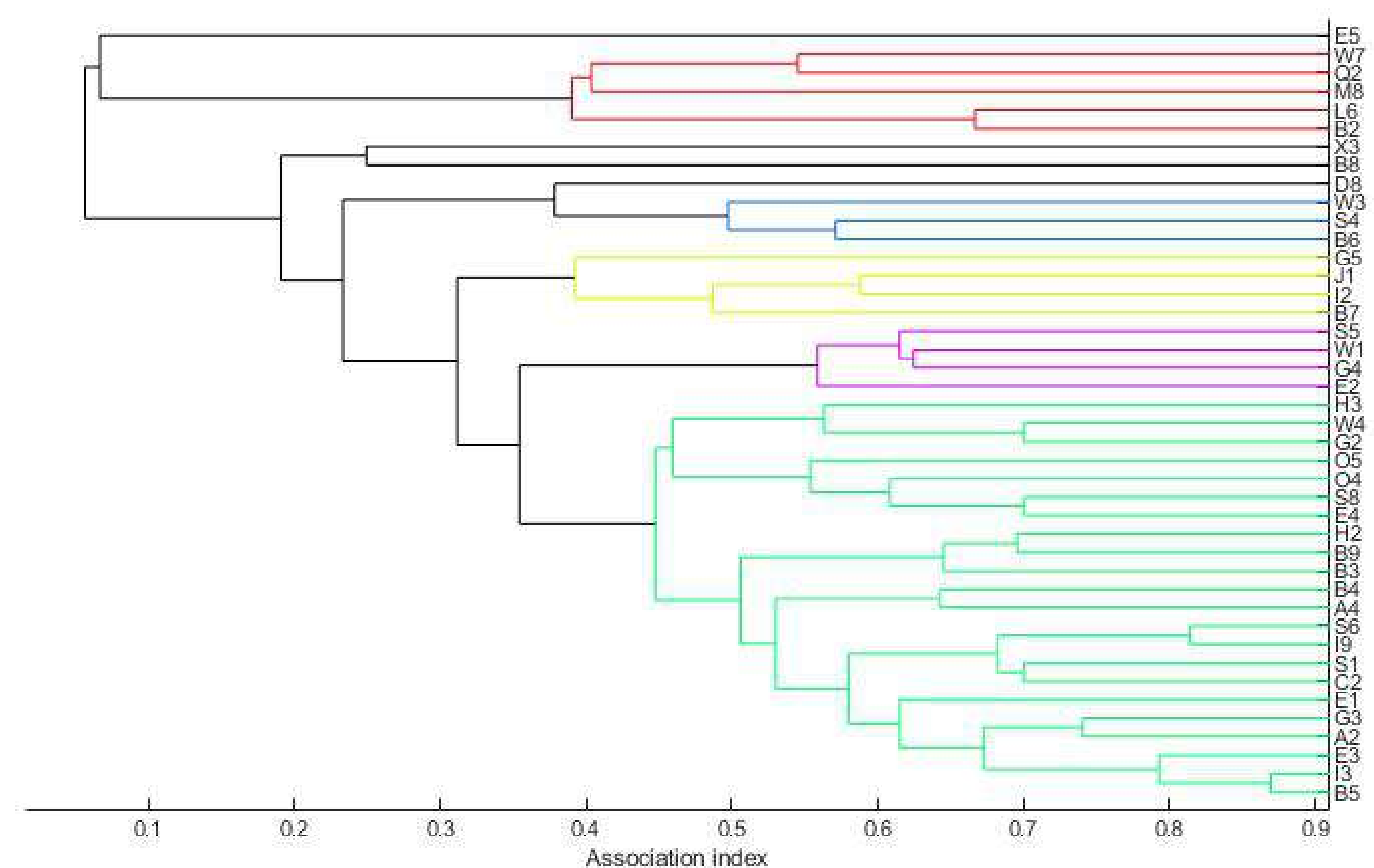


Fig 2. Hierarchical cluster showing the degree of association between each Ids. within the population, clustering using an average linkage cophenetic correlation coefficients 0.84, modularity 1 for gregariousness. 0.38.

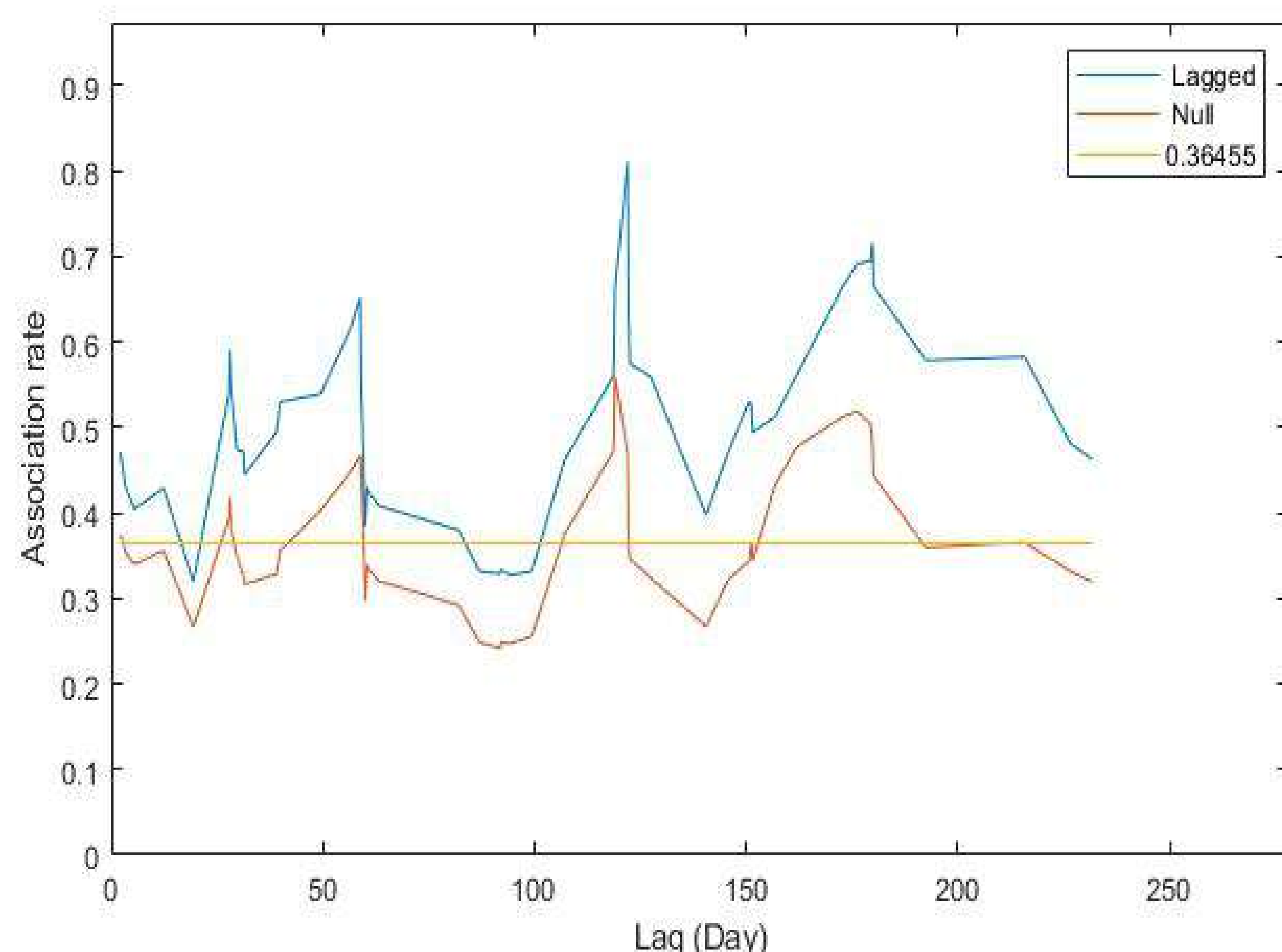


Fig 3. Lagged association rate in blue line. Null association in red line. The color yellow is the predictive best model. It represents association with rapid dissociation + preferences companions.

Conclusions

- Resident population of bottlenose dolphins in the Ria of Arousa is organised in fission-fusion society.
- Preferred associations between individuals.
- Five subgroups.
- Fluids and dynamics associations.

Acknowledgements

This study would not have been possible without the cooperation of Oriol Giralt Paradell and BDRI volunteers who gave generously of their time to help with lab and field work.

References:

- Methion, S. & Díaz López, B. 2018. Abundance and demographic parameters of bottlenose dolphins in a highly affected coastal ecosystem. Marine and Freshwater Research 69: 1-10.
- Whitehead, H. 2008. Analyzing animal societies: quantitative methods for vertebrate social analysis. Chicago University Press, Chicago, IL.