

Social Capital and Marine Resource Management in Kaledupa, Wakatobi Marine National Park

Daniel R. Pratt, Jessica G. Poole, Hyung-Joo Lee

University of Essex

Abstract

Fisheries are currently declining at an alarming rate in the Wakatobi Marine National Park (WMNP). The use of destructive practices for reef fishing and other extractive purposes have continued through lack of management and collective reinforcement of rules. A co-management strategy would be the most cost-effective option, yet a high social capital base is necessary for the success of this method. Social capital was measured between 3 communities in the WMNP, which comprise of two ethnic groups: the Pulo and the Bajo, using a closed-ended questionnaire. Social capital was highest within communities and significantly variable between communities (Kruskal-Wallis: $h=10.3$, $d.f.=2$, $P<0.01$)¹. Relations of trust were a major weakness in social capital between communities, where 66% of the Pulo had a low level of trust in the Bajo. This negative relationship was reinforced by the conduct of the Bajo in Pulo territories, poverty, and lack of communication and political representation of the Bajo people. Educating the two communities about equality and conservation using the established marine-resource groups and organisations such as the Forkani

¹ Kruskal-Wallis is a statistical test which analyses the variance between 3 or more groups of data, where h = the rank sum statistic, $d.f.$ = degrees of freedom or number of variables (-1) and P = the significance value, whereby the probability of this result occurring by coincidence is 0.01 or 1%

can facilitate the generation of social capital and improve social conditions for implementing a successful conservation management strategy.

Keywords: Social capital, marine resource management, marine national park.

Introduction

Coral reef ecosystems provide natural goods and livelihoods including fisheries, construction materials, tourism and biogenic compounds. Equally important are the non-use values of coral reefs: ecosystem services which include coastal protection, biogeochemical cycling and biodiversity. The social-economic welfare of hundreds of millions of people is dependent on these highly productive ecosystems and the global economic value of coral reefs has been estimated at around US\$ 30 billion (Smith et al., 2007). The aims of coral reef management are to sustain coral reefs so that they can continue to provide ecosystem goods and services upon which humanity depends on. So far, such management strategies have failed to achieve these goals on both a regional and global scale (Bellwood et al., 2007). The Wakatobi Marine National Park (WMNP) is situated in the Tukang Besi archipelago in South East Sulawesi, Indonesia and comprises many high quality reef sites. Although it has a status of a Marine Protected Area (MPA), rules are seldom enforced and the communities living around the reef continue to use destructive practices such as Fyke nets and coral mining. In addition, general over-exploitation has led to reduced fish size, catches and potentially the collapse of the Kaledupan fishery (Coles, 2004).

Conservation management strategies are easier to implement in local groups that have a high degree of social connectedness. A cooperative society that exhibits altruistic behaviour and activities that are maintained by a collective decision have a more positive outcome on biodiversity than those with individualistic motives, which often lead to conflict of interests and can lead to degradation of natural resources (Pretty & Smith, 2004). This idea has been captured by the concept of social capital, which is a collective of underlying principles that aids cohesion, stability and cooperation in a community. Pretty & Smith (2004) have rationalized social capital through four attributing elements. Firstly, a relation of trust is an important foundation for building social capital, but is also

strengthened as a result. The second element is reciprocity and exchanges, which could simply entail trading, through to reciprocation of selfless endeavours and sharing beneficial information. Thirdly, common rules, norms and sanctions are important for social understanding and engagement between the two communities. Finally, connectedness in networks and groups provides a platform for such engagement and a measure of social organisation within and between communities.

There are two major ethnic groups inhabiting Kaledupa and its coastal range: the Pulo (Kaledupans) and the Bajo, between which there are cultural and socio-political divisions. The conservation charity organisation Operation Wallacea have a research facility based on Hoga island and recognise this division as an impediment to implementing a successful conservation management strategy. These divisions are embedded in the history between the two communities, as the Bajo have individualistic attitudes and avoid social mixing with the “people from the land”. Cultural differences in the Bajo are deeply rooted in their history of a sea-faring and nomadic existence, prior to forced settlement in the 1960s by the Indonesian government. At present, conflict is driven by differences in interest in the use of the MNP and the lack of political representation of the Bajo as the major stakeholders of marine resources (Fitzgerald, 2007), effectively rendering them second-class citizens. This divide between the two communities pose challenges in building social capital to implement a successful marine park management strategy.

The aim of this study is to determine the degree of social capital within and between local resource user communities in the Wakatobi MNP and the implications for marine park management.

The objectives are:

- (i) To assess social capital between the Bajo and Pulo communities by implementation of a questionnaire and semi-structured interview.
- (ii) Analyse the data using quantitative and qualitative methods and formulate a social capital index.
- (iii) Identify the strengths and weaknesses in the different areas of social capital in Kaledupa and discuss the implications for marine park management and potential strategies for improvement.

H₁: A higher level of social capital will be associated highly within rather than between communities and the driving force of this divide will be the differences between the Bajo and Kaledupan communities.

Methods

Sampling Location Profiles

The study was conducted between 4 villages situated on and around the island of Kaledupa in the WMNP (Fig. 1). The communities of Sampela, Ollo and Ambeua were used as experimental groups and Furake as the control group. Sampela (or Sama Bahari) is a Bajo settlement, situated a short distance offshore from Kaledupa and has a population estimated around 1300, of which the majority are women. The average wage in Sampela is less than 1 million Rupiah (RP) and over 95% of the population are marine-resource users, most commonly hook and line and net fishers. A second Bajo community, Mantigola, was within accessible proximity, however, excluded due to an issue of safety, endorsed by Operation Wallacea. Ollo and Ambeua are Pulo communities and have a collective population of 15000 on Kaledupa (Cullen et al., 2007). Both communities are considerably wealthier than Sampela, with the average wage over RP1 million. Most marine-resource users in Ollo are agar farmers but some have alternative incomes. Ambeua is the major and most developed town on Kaledupa, where most resource users are fishermen but nearly all have alternative incomes. Ollo and Ambeua were selected as they are representative of the diversity of occupational activity on Kaledupa and suitable for data collection in a study with such time constraints. Furake is an isolated Pulo community on Hoga Island, with a population of ~150. Most inhabitants are land farmers but some participate in fishing and agar farming. Furake was the most suitable control group due to their low rate of contact with other communities and widely-assumed social neutrality.

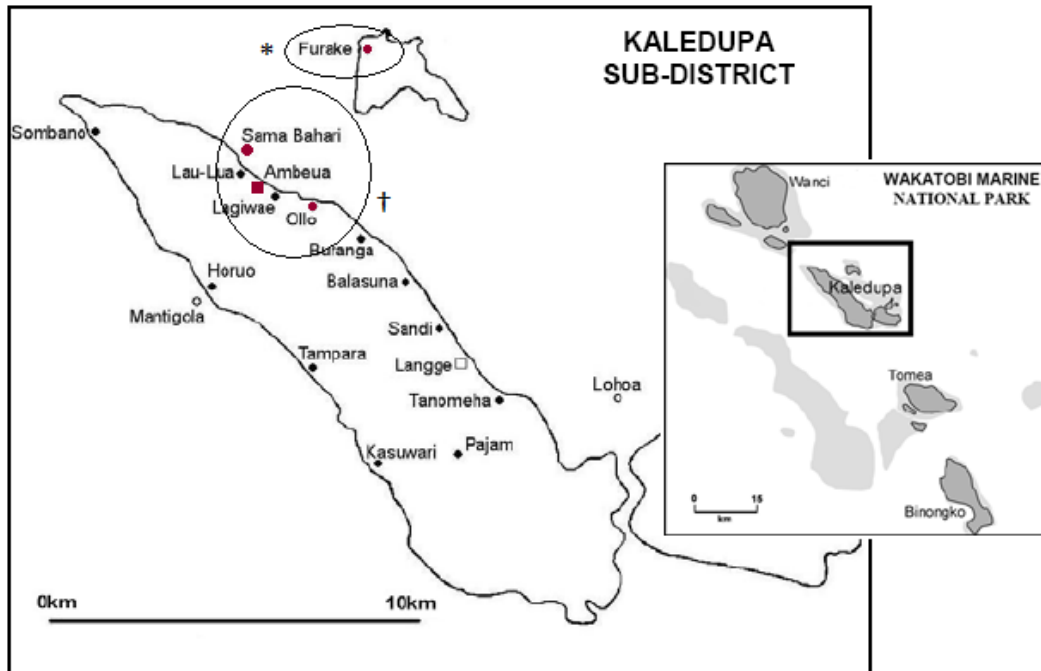


Figure 1: Location of the sampling sites: Sampela (Sama Bahari), Olo, Ambeua (†=experimental samples) and Furake (=control sample) and the position of Kaledupa in the Wakatobi Marine National Park, SE Sulawesi, Indonesia (inset). From Cullen (2007).*

Sampling Strategy and Ethical Considerations

A total of 87 participants were interviewed within 5 days during April 2009, of which 30 were obtained each from Sampela and Olo, 11 from Ambeua and 16 from Furake. A non-random sampling strategy was applied due to the target sample being a specific proportion of the community as a whole (marine resource users), constraints in time and participant availability. Permission sought from community leaders and a small sum of money (~US\$ 1) was given as a token of gratitude from Operation Wallacea. Personal data were kept confidential.

Implementation

Social capital was measured between the four communities by method of a survey comprising a household data (e.g. income, occupation) and a questionnaire (Appendix 1) that was articulated to each participant via a translator, employed by Operation Wallacea. Closed-end questions, original to this study were designed and compiled for the questionnaire to quantify the four elements of social capital derived from Pretty and Smith (2003) in the context of marine resource-user communities. The respondents answered the questions on a 5-point Likert-scale (e.g. 1= strongly disagree, 5=strongly agree). An index of social capital was calculated from the participant scores given to each question. This method was used by Lochner et al. (1999) to measure social capital, using questions based on relations of trust within a neighbourhood and has been adopted for this study, but within a marine-resource user context. Qualitative information was also extracted in form of a semi-structured interview as an extension to the given responses in the questionnaire.

Data Interpretation and Statistical Analysis

The Likert-scale system allowed semi-quantitative analysis of the data acquired through the questionnaire. A social capital index was calculated for each community from the collective data, which were then broken down and analysed as a subset of questions. The data was statistically analysed to compare observed values (respondent scoring) to the expected values (assuming a specific distribution of data) using the Chi-squared goodness-of-fit test, to determine whether social capital scores are of significant value.

Results and Analysis

Social capital was higher within each community than between different communities (Fig. 2). The disparity in social capital was driven by poor inter-community relations, especially between the Bajo (Ollo and Ambeua) and Pulo (Sampela) communities, where social capital maintained between

the Pulo communities and the Bajo community was significantly lower than the capital maintained between the Pulo communities alone (Kruskal-Wallis: $h=10.3$, $d.f.=2$, $P<0.01$)².

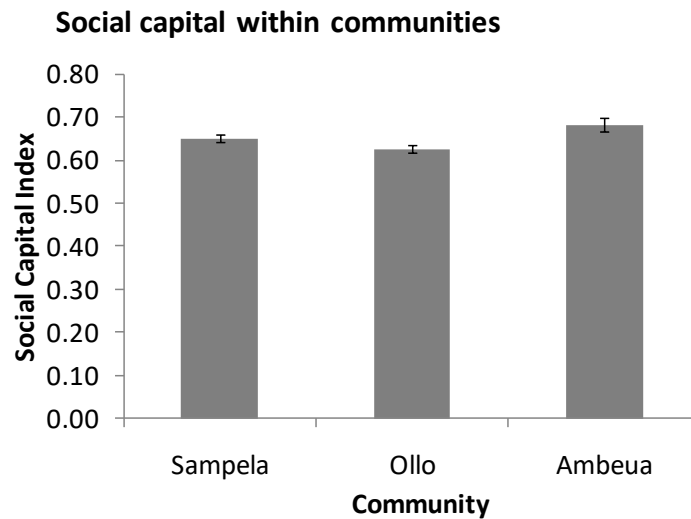


Figure 2: Social capital index was measured between individuals within each community: Sampela (n=30), Ollo (n=30) and Ambeua (n=11).

The social capital index between the control (Furake) and the Bajo (Fig. 3) was lower than the scores conveyed toward their Kaledupan counterparts in Ollo and Ambeua (Fig. 4 and 5). The Bajo community (Sampela) attained lower-end scores from both Pulo communities.

² Kruskal-Wallis is a statistical test which analyses the variance between 3 or more groups of data, where h = the rank sum statistic, $d.f.$ = degrees of freedom or number of variables (-1) and P = the significance value, whereby the probability of this result occurring by coincidence is 0.01 or 1%

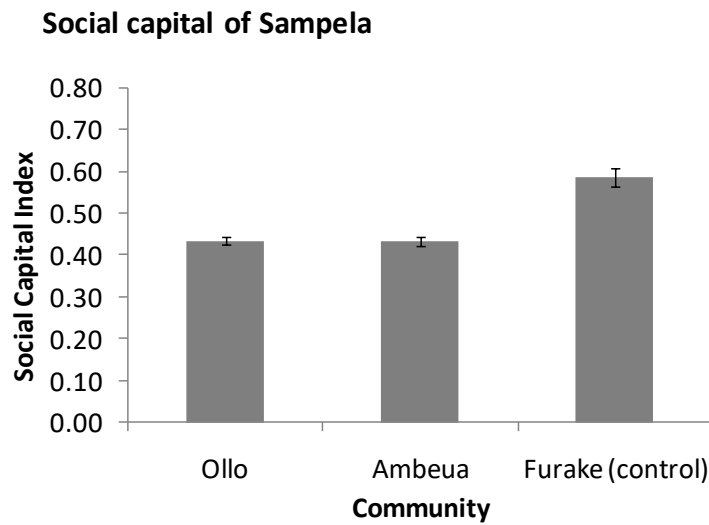


Figure 3: Social capital index between Sampela (n=30) and neighbouring communities: Ollo and Ambeua. The participating community (horizontal axis) each attribute a level of social capital (vertical axis) that they maintain with Sampela. Furake (n=16) is the negative control, giving only its opinion on the other communities.

Ollo and Ambeua exhibit higher social capital indices between each other, whereas the Bajo attributed particularly low social capital scores to both Ollo (Fig. 4) and Ambeua (Fig. 5).

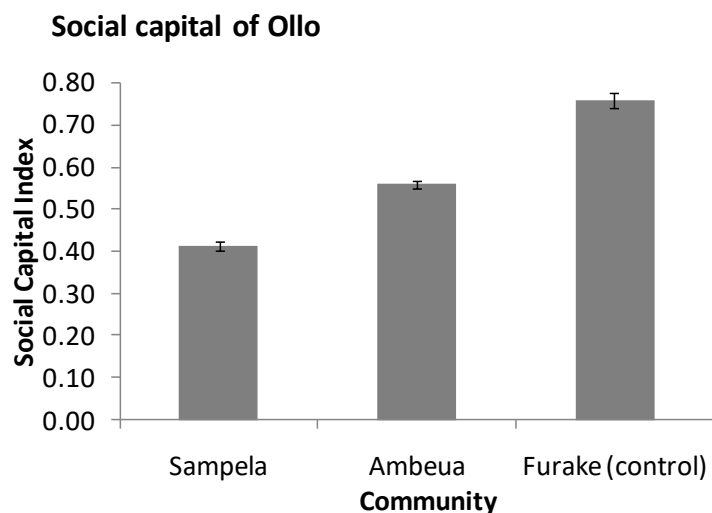


Figure 4: Social capital index between Ollo (n=30) and neighbouring communities: Sampela and Ambeua. The participating community (horizontal axis) each attribute a level of social capital (vertical axis) that they maintain with Ollo. Furake (n=16) is the negative control, giving only its opinion on the other communities.

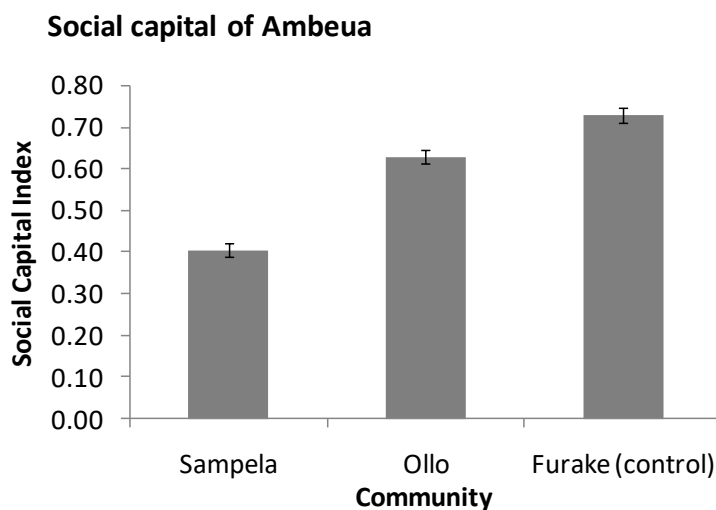


Figure 5: Social capital index between Ambeua (n=11) and neighbouring communities: Ollo and Sampela. The participating community (horizontal axis) each attribute a level of social capital

(vertical axis) that they maintain with Ambeua. Furake (n=16) is the negative control, giving only its opinion on the other communities.

The social capital indexes were composed from participant response scores to questions concerning the four elements of social capital in the context of their own and neighbouring communities. Therefore, to facilitate an understanding of the differences in social capital scores, the four elements of social capital that comprise each score were analysed (Fig. 6, 7 and 8). The participant response to questions concerning trust was significantly variable between communities ($X^2=110.4$, d.f.=11, $P<0.001$)³. 66% of participants from Ollo and Ambeua exhibited low levels of trust in those from Sampela (Fig. 6c). When interviewed, the participants from Ollo accused the Bajo from Sampela of damaging their agar when using poison to catch lobster and octopus, breaking the agar lines for boat access and the stealing of agar and fish from bubu traps. Trust was highest within communities and between the villages of Ollo and Ambeua (Fig. 6b and c).

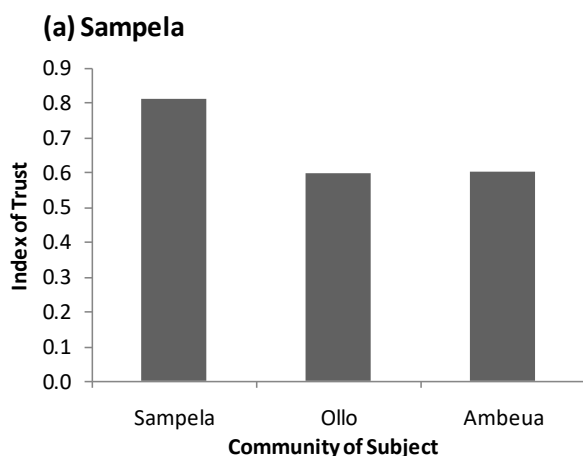
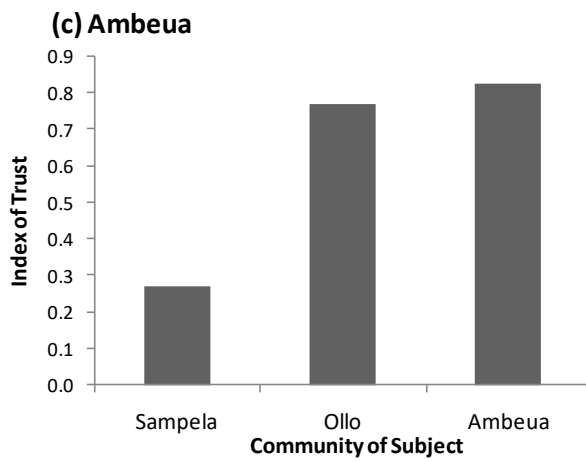
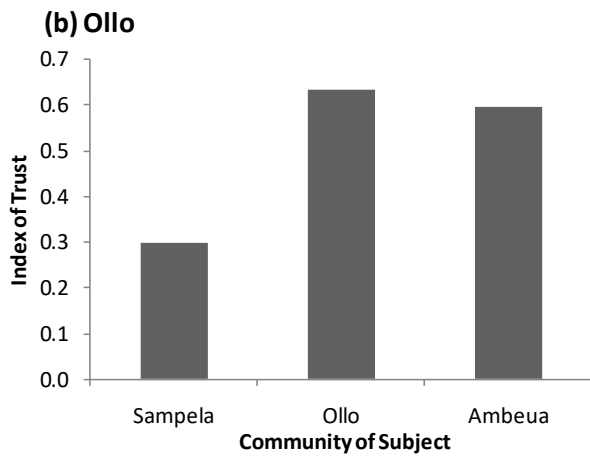


Figure 6: Indices of the social capital element: relations in trust measured within and between the communities (a) Sampela, (b) Ollo and (c) Ambeua. Each community (x-axis) attributed an index of trust (y-axis) to the community of subject.

³ Chi-squared distribution is used in this case as a test for the goodness of fit between the distribution of data from observed variables (participant response) and a theoretical distribution (assuming scores between each community are equal). X^2 = the chi-squared statistic, d.f.= degrees of freedom and P= the significance value.



The scores in reciprocity were the highest of the four elements of social capital (Fig. 7), mainly reinforced by the activities of trading, where people from Sampela, Ollo and Ambeua trade with each other at least weekly. Inter-community variation in participant response to questions relating to reciprocity was significant ($X^2=53.3$, d.f.=11, $P<0.01$) due to low willingness to exchange information between the Bajo and Pulo communities.

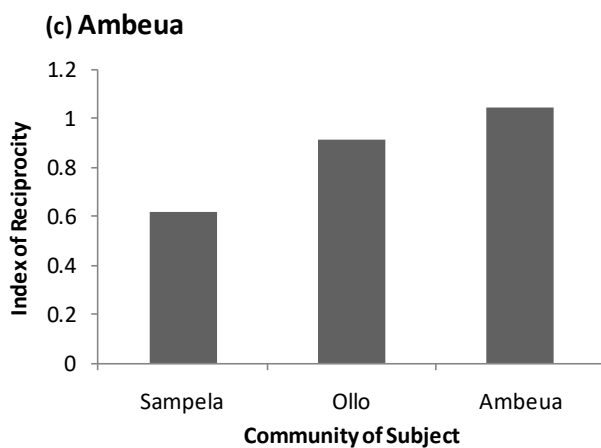
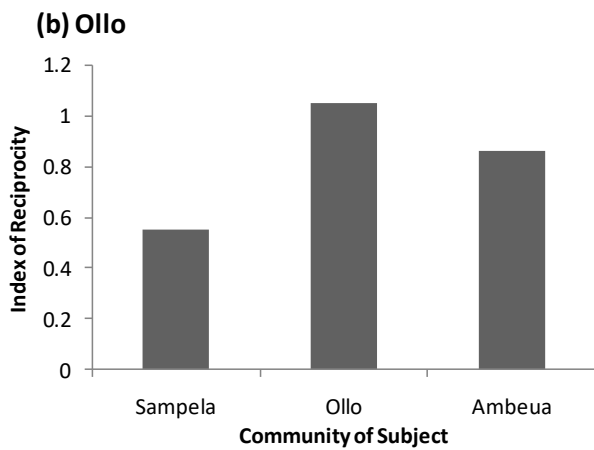
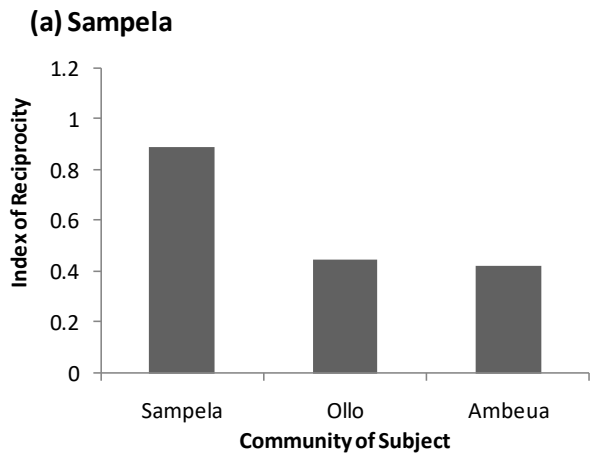


Figure 7: Indices of the social capital element: reciprocity and exchanges, measured within and between the communities (a) Sampela, (b) Ollo and (c) Ambeua. Each community (x-axis) attributed an index of reciprocity and exchanges (y-axis) to the community of subject.

There was a moderate relatedness between communities in social norms regarding sustainable fishing practice and the rules of the marine park (Fig. 8), especially where many participants believed sanctions should be enforced for breaking marine park rules.

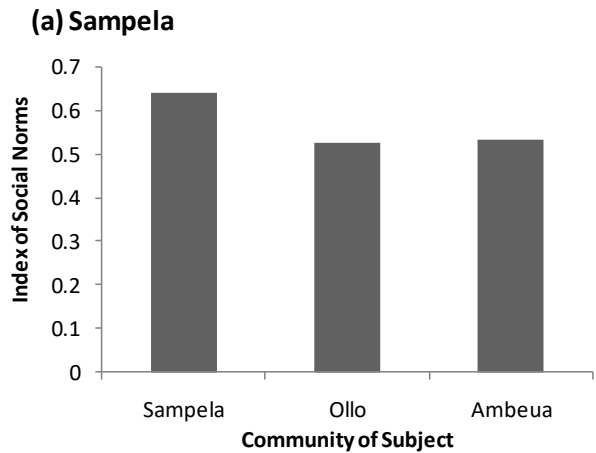
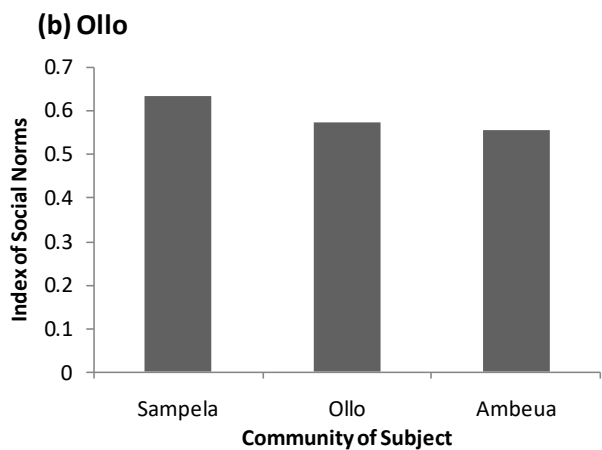
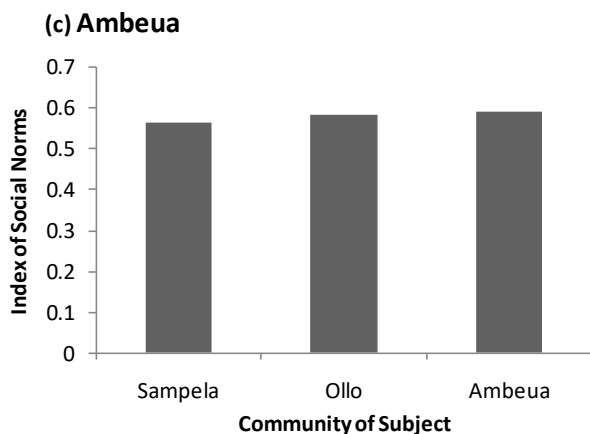


Figure 8: Indices of the social capital element: social norms rules and sanctions measured within and between the communities (a) Sampela, (b) Ollo and (c) Ambeua. Each community (x-axis) attributed an index of trust/reciprocity or relatedness in social norms (y-axis) to the community of subject.





Connectedness through groups and organisations was most substantial in Ambeua. The majority of the sampled population belonged to at least one organisation (Fig. 9) and there was a significantly positive correlation between the levels of trust that each participant held for other members of their own community and their interactions through social networking ($F_{1,3}=26.05$, $P<0.05$, $R=0.89$)⁴. Ambeua also exhibited the highest inter-community group activity, where many of the national (e.g. women’s groups) and international organisations were based. Few of these were marine related, but most notable were Forkani and Jalal Wakatobi (Table 1). Ollo exhibited a variety of groups and organisations, comprising numerous marine-based groups (particularly those concerning agar farmers). These groups were highly organised and were strongly recognised throughout the community. Conversely, marine-related groups in Sampela were mainly family-based enterprise, most of which did not even retain a name and, with exception of Furake exhibited the lowest level of affiliation with groups and organisations (Fig. 9).

⁴ Linear regression was used to analyse the relationship between two variables (responses to questions relating to trust and questions relating to connectedness through groups and organisations). P = significance value and R = regression value, where values above 0.75 indicate a strong, positive relationship.

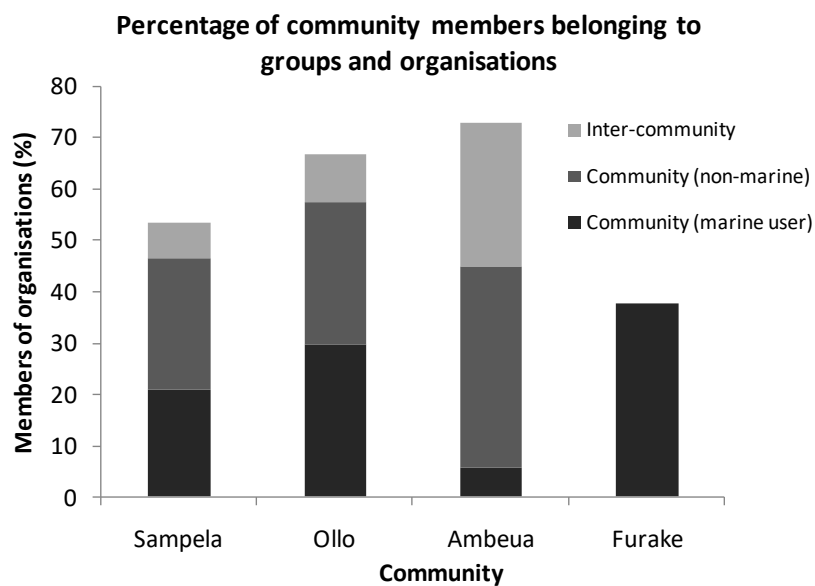


Figure 9: Connected-ness between communities through groups and organisations. The importance of groups and organisations to each community is measured through the percentage of affiliated participants. These comprise of inter-community (■) and intra-community organisations which are either marine (■) or non-marine related (■).

Table 1: Organisations and societies and their level of establishment (lateral connectedness) within the Wakatobi MNP.

Organisation/Society	Type	Level of Establishment
Agar kolompot (Sampela)	Marine user: agar	Community
Darma wanita	Women's group (civil servants)	National
Darwin Initiative	Conservation NGO (DEFRA funded)	International
Dasa Wismah	Women's group	National

Football	Sports club	Inter-community
Forkani	NGO	National
Jalal Wakatobi	Fisherman's link	Inter-community
Karang taruna	Headman's committee	Community
La Hama (Olo)	Marine user: predominant agar	Community
Net fishing kolompot (Sampela, Olo)	Marine user: net fishing	Community
Pesma (Olo)	Marine user: agar/watchdog	Community
Petani agar (Olo)	Marine user: agar	Community
PKK	Family welfare programme	National
Rongpong kolompot (Sampela)	Marine user: rongpong shareholders	Community
Volleyball	Sports club	Inter-community
Yastita	Japanese NGO	International

Finally, there was a large discrepancy in wealth between the Bajo and the Pulo communities, whereby 83% Bajo earned less than RP 1 million and 69% of the Pulo from Olo earned more than this. Nonetheless, there was no significant correlation between wealth and social capital between communities. High variability in participant response is reflected in the social capital scores (Fig.10)

and could only be attributable to individual preconceptions or bias, where for example, some participants trust their Bajo neighbours, whereas others exhibit complete distrust.

Range in Participant Response

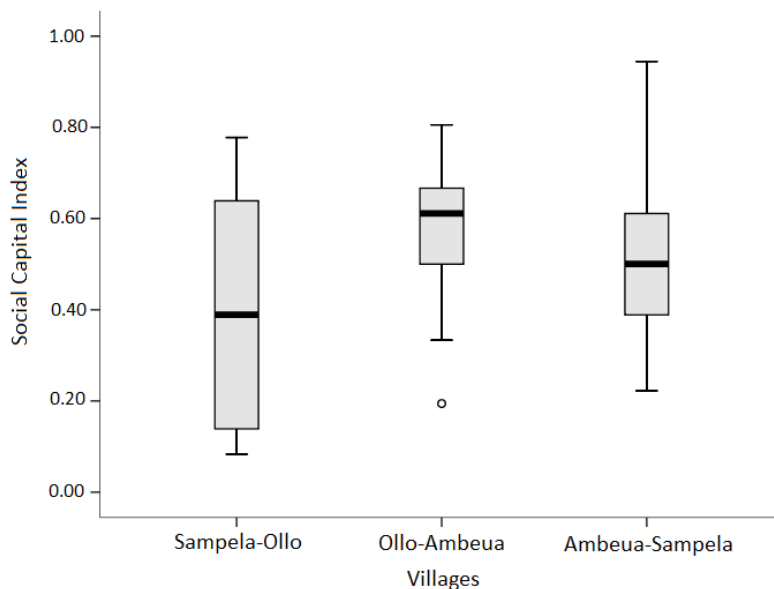


Figure10: The average social capital between villages (black horizontal line). The inter-quartile range (grey box) is where 50% of the participant response distribution lies in relation to the median value. The highest and lowest values (or participant response

Discussion

The current status of social capital in Kaledupa is not an entirely negative result and there are key areas such as reciprocity through trade that are quite strong between communities, whereas other elements, notably, relations of trust are weak and could be developed for the benefit of marine park conservation. Trust is by far the most variable element of social capital between the communities. This is mainly due to cultural and socio-political divisions between the two ethnic groups (Fitzgerald, 2007), exacerbated by unsustainable practices such as coral mining by the Bajo

and use of fish fences by the Pulo. The reporting of Bajo individuals using illegal poison fishing techniques and causing damage to agar farmers' property was a common cause of contempt from the Pulo. Trust facilitates cooperation and can create social obligation to conform to marine park rules, reducing costs in monitoring (Pretty and Smith, 2004), therefore it is essential to develop relations of trust for collective management strategies.

Intra-community scores on reciprocity were high compared to trust, which was mainly due to activities in trading. Chan (2002) observed that trading in the marketplace is the only communicative interaction the Bajo has with the Pulo, and that there are no formal channels of dialogue. This is not the present day situation, as the Bajo community is included in the Fishermans link organisation Jalal Wakatobi; yet, it is true on a social level. Most Sampelans asserted that they would not share information or local knowledge with the Pulo and vice versa, as the Bajo are considered by Pulo as competition for the resources.

The sharing of common rules, norms and sanctions between communities can be essential for long-term implementation of marine park rules. Creating new social norms can cognitively reinforce rules even when the financial or other incentives to comply diminish (Pretty & Smith, 2004). Social norms have been established in many Western societies, such as recycling, which have been reinforced through government and NGO campaigns and messages in the media (Monroe, 2003). Although many people from all communities would not act if they witnessed another user breaking the park rule, the majority of participants from all communities agreed that sanctions should be imposed for rule-breakers, providing scope for the introduction of common-rules and sanctions that could be implicated on a self-management level. Many participants from Ollo and Ambeua recognised that sustainable resource management is embedded in the culture of the Bajo, even though it is rarely recognised in their own.

The Bajo community in Sampela rely mostly on fishing practices to sustain themselves, whereas many Pulo, especially in Ambeua have multiple income streams including land-farming, trading and civil servant jobs. It is therefore important for the local government to recognise the Bajo as major stakeholders, as the most marine-resource dependent group and increase the inclusiveness

of the community in the implementation and monitoring of the MPA management strategy. Furthermore, the Bajo are a potentially valuable asset to conservation management, as they maintain a high ecological knowledge, including the identification of fish species, their spawning sites, life cycles and migration patterns utilised in traditional fishing practice (Cullen et al., 2007). Although the Bajo commit offences, their concern for fish stocks and interest for resource management indicates their potential for becoming actively involved in resource management (Clifton, 2003).

Connectedness between communities is reinforced by 3 types of social capital: bonding, which creates links with people of similar outlooks (within community), bridging, which expands those links to others with different views (e.g. Bajo and Pulo) and linking, which enables groups to engage externally with outside agents, such as NGOs (Pretty & Smith, 2004). Groups and organisations play an important role in connectedness and their activities have high potential for conserving the environment. Local landcare groups in the Philippines mobilised conservation farming through building social capital by identifying the needs of the local people and organising activities. The success of these groups is facilitated by incentives (e.g. bursaries) for compliance and penalties (e.g. fines) for defaulting against the rules (Cramb & Culasero, 2004). There are numerous organised groups in the Wakatobi MNP, both marine-resource and non-marine related, including Jalal Wakatobi and Forkani, among many agar kolompots (groups) and fishermen's guilds. The Forkani's role within the community is to find the aspirations and opinions of locals and to educate and inform them in marine conservation and policy. This organisation is important for building bridging and linking social capital with higher organisations. Other groups such as the volleyball clubs could also enhance bonding and bridging social capital, as an interface in which the Bajo and the Pulo can interact. Many of the marine-related organisations in Sampela did not go beyond the boundaries of family enterprise and therefore have less potential in their ability to construct social networks and could compromise the value of their social capital score through connectedness. Furthermore, the Bajo often ignore information passed on from their representative for Forkani, Mr Rustam. Such issues of social integrity within the Bajo to act as a community rather than individualistically are important to address.

Social capital will not always necessarily favour the facilitation of conservation, as people can become more organised in order to exploit a natural resource more effectively (Pretty & Smith, 2004). Thus, it is increasingly clear that the role of local government, NGOs (e.g. Forkani) and groups such as Operation Wallacea is vital in providing guidance to the local marine-user groups. This study also reveals the potential ability in the use of social capital analyses as a monitoring strategy to assess the progress in relationship status between the communities and impact of such interventions from external bodies.

Conclusion

To our knowledge, this was the first study where social capital has been quantified in marine-resource stakeholder communities. The development of social capital is essential for the success of marine resource management and this investigation confirmed that there is currently a low degree of social capital between the Bajo and Pulo communities, which is complicated and confounded by a history of socio-political differences between the two ethnic groups. This study also maintains that there is a large gap in wealth and social status between the Pulo and the Bajo people, where poverty and inequality is an underlying problem that requires further attention.

Furake is an isolated community of Pulo islanders, who have little contact with surrounding communities yet exhibit some bias against Sampelans. With the exception of Sampela itself, both the control and experimental community groups exhibit social disagreement towards the Bajo ethnic group. Trust is a major shortfall in the social capital between the two peoples, where the Bajo are witnessed committing offences, lack in communication and transparency with the Pulo. Conversely, the Pulo exhibit some degree of prejudice against the Bajo and utilise their greater political representation against the Bajo. Reciprocity between the Pulo and the Bajo rarely extends beyond the customs of trading, where communities do not often share information or give help to one another, regarding each other as competition for resources. The use of the established organisations including the fisherman's link Jalal Wakatobi could be essential for improving social capital as they provide a platform of dialogue and could encourage positive interactions between

communities. Conversely, each community shared some common ideals in the management of marine resources including the enforcement of penalties for the contravention of marine park rules. Marine Park rules are currently sanctioned by local government and are ineffective due to lack of surveillance. The role of marine park rule enforcement could be given to an elected local body from each community, which may also benefit reinforcement of inclusiveness and a sense of shared responsibility. Furthermore, the Bajo's knowledge of the ecosystem could be utilised to benefit marine conservation management strategy.

Finally, improvements in social capital could be facilitated through educating both communities in a multi-cultural background about inclusiveness and participation in marine park conservation management and advice from Operation Wallacea communicated through the NGO Forkani. The identification of potential Bajo representatives for these groups will also benefit conservation management and bring both communities closer to reaching these goals.

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Appendix

Questionnaire

1. What is your name? (optional)
2. Which village are you from? Sampela Ambeua Olo
3. What is your gender? Male Female
4. How old are you?
5. How many people live in your household?
6. What is your occupation? Traditional reef fisher (hook & line/speargun/gleaning)
 Net fisher Rompong fisher Fish fence fisher
 Fish farmer (aquaculture) Agar farmer Land farmer
 None Other (please specify)
7. What is your income per month? < 500,000 rp 500,000 < 1 million rp
 1 million < 1.5 million rp 1.5 million < 2 million rp ≥ 2 million rp
8. How much do you trust people from the following villages?

	Not at all	Not very much	Indifferent	Very much	Completely
Sampela					
Olo					
Ambeua					

9. How comfortable would you feel about lending your fishing / farming gear / equipment to somebody from one of the following villages?

	Not at all comfortable	Not very comfortable	Indifferent	Quite comfortable	Very comfortable
Sampela					

Ollo					
Ambeua					

10. How comfortable would you feel if somebody from one of the following villages utilised your fishing / farming area without asking?

	Not at all comfortable	Not very comfortable	Indifferent	Quite comfortable	Very comfortable
Sampela					
Ollo					
Ambeua					

11. If you do somebody a good turn from one of the following villages, how likely are they to return the favour?

	Not at all likely	Not very likely	Perhaps	Very likely	Definitely likely
Sampela					
Ollo					
Ambeua					

12. How often do you trade your goods with members of the following communities?

	Never	Annually	Monthly	Weekly	Daily
Sampela					
Ollo					

Ambeua					
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13. How likely are you to share information e.g. good fishing sites or new productive techniques, with members of the following communities?

	Not at all likely	Not very likely	Perhaps	Very likely	Definitely likely
Sampela					
Ollo					
Ambeua					

14. How strictly do you think regulations of the Wakatobi Marine National Park are adhered to by members of the following communities?

	Not at all strictly	Not very strictly	Do not know	Quite strictly	Very strictly
Sampela					
Ollo					
Ambeua					

15. In what way do you think the following communities react towards a member of their own community violating the rules of the Wakatobi Marine National Park?

	No reaction	Very little reaction	Do not know	Verbal warning	Report to police / officials
Sampela					

Ollo					
Ambeua					

16. At what level is the concept of sustainable marine resource use embedded within the culture and society 'way of thinking' within the following communities?

	Not at all	Very little	Do not know	Quite a lot	Deeply embedded / central
Sampela					
Ollo					
Ambeua					

17. Do you belong to any marine resource use / management related groups or societies within your own community? s

18. If you answered YES to question 17, what is the name of the group and what do they do?

19. Do you belong to any non-marine resource use related groups or societies within your own community (e.g. sports)? Yes No

20. If you answered YES to question 18, what is the name of the group and what do they

21. Do you belong to any groups or societies (marine or non-marine resource use related) outside of your own community? Yes No

22. If you answered YES to question 19, what is the name of the group and what do they

23. To what extent do you trust Operation Wallacea?

Not at all	Very little	Indifferent	Quite a lot	Completely

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