Who Leads Nonprofit Advocacy through Social Media?
Some Evidence from the Australian Marine Conservation Society's Twitter Networks

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While much in the field of public management has emphasized the importance of nonprofit advocacy activities in policy and decision-making procedures, few have considered the relevance and impact of leading actors on structuring diverse patterns of information sharing and communication through social media. Building nonprofit advocacy is a complicated process for a single organization to undertake, but social media applications such as Facebook and Twitter have facilitated nonprofit organizations and stakeholders to effectively share information and communicate with each other for identifying their mission as it relates to environmental issues. By analyzing the Australian Marine Conservation Society's (AMCS) Twitter network data from the period 1 April to 20 April, 2013, this research discovered diverse patterns in nonprofit advocacy by leading actors in building advocacy. Based on the webometrics approach, analysis results show that nonprofit advocacy through social media is structured by dynamic information flows and intercommunications among participants and followers of the AMCS. Also, the findings indicate that the news media and international and domestic nonprofit organizations have a leading role in building nonprofit advocacy by clustering with their followers.

Keywords: Nonprofit Advocacy Leader, Social Media Use, Great Barrier Reef, Australian Marine Conservation Society

Introduction

The past few years have witnessed a great deal of successful adoption of Internet-based applications and services in various nonprofit advocacy activities as well as social movements (Pinho & Macedo, 2006; Pope, Isely, & Asamoa-Tutu, 2009). Social Networking Services (SNS), also referred to as social media, are known to have played a key role in leading the successful outcomes of social movements such as the "Arab Spring" and the global "Occupy movements" (Mejias, 2011). Nonprofit advocacy organizations also have experienced significant influence of social media in their own activities (Lovejoy & Saxton, 2012). Due to the unique nature of social media

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and the magnitude of its influence on nonprofit advocacy, scholars have begun to study the adoption and adaptation of social media in movements and nonprofit advocacy activities.

Despite the prevalent view of social media as being a formidable medium for nonprofit advocacy organizations in the previous studies, much of the attention has been on how established organizations have used social media, neglecting the role of other actors in nonprofit advocacy activities. However, the power of social media lies in the power of its networks and how various actors in these networks work in tandem with nonprofit advocacy organizations. Thus, it is critical that equal attention is devoted to examination of the roles that other actors play in nonprofit advocacy activities.

With this mind, this paper examines how various actors play roles in communication and information flow in nonprofit advocacy activities. Applying the webometrics approach, this research analyzes data from the Australian Marine Conservation Society's (AMCS) Twitter network, particularly on the issue of protecting the Great Barrier Reef.

This paper is divided into four sections. The first section explores the advocacy activities of general nonprofit organizations and describes advocacy for the protection of the Great Barrier Reef in Australia with specific regard to the activities of primary nonprofit advocacy organization AMCS. Next follows an introduction to the function of social media as an information dissemination tool in advocacy activities. The third section provides a detailed explanation of the social network analysis method used to examine the study's research questions. Finally, the study's results are analyzed and its implications on nonprofit advocacy activities are discussed.

Nonprofit Advocacy Organizations

Nonprofit Advocacy indicates all organizational and individual efforts of nonprofit organizations to influence public policy. Although advocacy is often equated with the term *lobbying*, which means addressing legislators with a certain view to influencing their votes (Hopkins, 1992), it should not be confined to this narrowed definition. Nonprofits are mainly considered as a third sector of service providers, between the government and private sectors, in the various fields,[4] and most nonprofit organizations frequently engage in advocacy activities, such as framing issues, educating the public, and stimulating civic and political participation (Boris & Mosher-Williams, 1998; Reid, 2006). These activities are all related to influencing policy making.

One of the challenges of studying nonprofit advocacy is that the advocacy activities of nonprofit organizations are sometimes not explicit. In other words, they are frequently engaged in advocating activities in order to promote awareness of their concerns, even though they do not indicate advocacy as one of their purposes. In addition, advocacy activities of nonprofit organizations may not be fully recognized through the major classification systems which are used to describe and to distinguish nonprofit organizations, because those systems concern only the primary purposes of the organizations rather than their activities (Boris & Mosher-Williams, 1998). Advocating is, however, inevitable for most nonprofit organizations, with regard to their roles in facilitating civic participation in democratic civil society.

The characteristics of nonprofit advocacy have been widely explored by scholars. When the field of interest of a nonprofit is more influenced by government regulations and industry interests, the nonprofit is more likely to be involved in high levels of advocacy (Mertig, Dunlap, &

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[4] In the field of arts, culture, and humanities, education, environment and animals, health, human services, international affairs, public societal benefit, religion-related, and mutual and membership benefit (Boris & Steuerle, 2006: 8).

Morrison, 2002; Boris & Krehely, 2002). While there is no consistent argument on the relationship between funding sources (i.e. receipt of government funding) and involvement in advocacy, the amount of money that nonprofits receive is positively related to engagement in advocacy activities (Nicholson-Crotty, 2007). In addition, the literature suggests that nonprofit advocacy should be most active in politically favorable climates, in which the initial nonprofit advocacy organization has more allies (Nicholson-Crotty, 2007). Therefore, it may be asserted that managing communication between nonprofit advocacy organizations and their stakeholders is crucial. In recent years, nonprofits have just started to expand the scope of their advocacy activities particularly in response to globalization and technological improvements such as social media use.

Australian Marine Conservation Society for the Great Barrier Reef

The Great Barrier Reef is the largest coral reef ecosystem in the earth which is located off the coast of Queensland, Australia (AMCS, 2010: 8). Designated as the World Heritage Site by United Nations Educational, Scientific, and Cultural Organization (UNESCO) in 1982, the reef supports a wide diversity of wildlife to maintain a healthy marine ecosystem (Douvere & Badman, 2012). However, the reef is under the great threat due to climate change and the rapid spread of industrial development in Australia (Rothwell & Stephens, 2004; Littman et al, 2011; Greenpeace, 2012; AMCS, 2013). Among the many who attempt to publicize its significance is the Australian Marine Conservation Society (AMCS), which currently leads advocacy activities toward the preservation of the Great Barrier Reef.

The AMCS is "a registered charity and an incorporated association, which is overseen by a National Board with eight representatives from business, industry, conservation, science and education" (AMCS, 2010: 1). As a leading nonprofit organization involved in advocacy activities, the AMCS plays a critical role in promoting sustainable fisheries, protecting marine wildlife, and creating marine parks in Australia (AMCS, 2013; Finn, Udy, Baltais, Price, & Coles , 2011). Especially, aiming to raise the awareness of the industrialization occurring on the Great Barrier Reef's coastline, the AMCS works in partnership with WWF to protect the reef under the campaign slogan "Fight for the Reef".

In order to promote their goals effectively and secure their influential status, the AMCS frequently engages in various advocacy activities. Like other nonprofits, the AMCS also shapes its advocacy practices by building collaborative networks, forming productive exchange relations with funding principals, developing lobbying skills at the managerial level, dealing with government resources, and competing in the resource environment (Leroux & Goerdel, 2009). Among these activities, the AMCS particularly focuses on building collaborative environmental planning networks among diverse stakeholders, such as media, scientists, and donors (AMCS, 2013). Collaborative environmental planning networks can function as effective platforms for the overall conservation of marine biodiversity, such as protecting coral reef habitats and managing near-shore fisheries (Green et al., 2011). Consequently, these networks help the AMCS to promote their messages on the importance of protecting the Great Barrier Reef's nature to the Australian government and the public. "Fight for the Reef" is one example of the AMCS's advocacy activities.

Social Media Uses in Nonprofit Advocacy

Although mobilizing stakeholders and the general public is critical to the success of any advocacy organization, engagement of different actors may not be always beneficial as each actor possess different interests and understandings about goals and missions that organizations advocate (Ciszek, 2013). In this sense, the success of movements is highly dependent on how successfully an organization communicates its goals and missions to potential constituents as well as to its current adherents. For a faster and broader reach of communication, most advocacy groups have adopted Internet applications and services, such as the social media platforms Twitter and Facebook.

Social media is defined as a set of "applications build on Web 2.0 technologies that are internet-based and designed to promote content generation by users and to facilitate the sharing and diffusion of information through social linking and interactions" (Chun & Reyes, 2012: 441). The strength of social media lies in its ability to connect people to one another and help information reach the broader public with ease. Several studies have shown that connections with inter-organizational networks as well as with individuals via social media have helped information to reach further and more diverse audiences in different communities (Waters, Burnett, Lamm, & Lucas, 2009). Empowered by social networks, social media has become an efficient information channel, especially for disseminating messages.

Social media's role as an information dissemination tool has been widely discussed in various academic studies (Bortree & Seltzer, 2009; Greenberg & MacAulay, 2009; Waters et al., 2009). These studies point out that social media allows advocacy organizations to manage what and how information is presented; the extent to which advocacy organizations can use social media to promote their goals and missions to stakeholders and even the general public (Bortree & Seltzer, 2009; Greenberg & MacAulay, 2009; Waters et al., 2009; Shih, 2011; Solis & Breakenridge, 2009). In addition to connecting a broad array of stakeholders to its missions and goals, others suggest that social media helps to further advocacy's missions and goals to reach wider audiences (Bresciani & Schmeil, 2012; Bortree & Seltzer, 2009; Lovejoy & Saxton, 2012). Taken together, these studies show the benefits that social media is bringing to advocacy's communication landscape.

As the literature has shown, studies have primarily concentrated on the organizational use of social media. However, what makes social media interesting and important is that it provides equal opportunities for all actors to engage communication and information flow (Golbeck et al., 2009). That is, widespread social media adoption has encouraged any actor, who may not even consider themselves advocates, to be active agents in advocacy efforts. In fact, a study conducted by Ciszek (2013) clearly presents how messages of a movement were carried forth by the public who were given a platform to amplify their voices through social media and be the "bridging actors". As evident in this study, social media enables anyone to operate independent of formal advocacy organizations, lessening the burden on organizations.

The AMCS has been witnessed the power of these "bridging actors" in social media. The AMCS recently started advocacy for protecting the Great Barrier Reef through social media platforms such as Facebook (www.facebook.com/australianmarine since November 2008), Twitter (i.e., @AustMarConsSoc since March 2011 and @fightforthereef since January 2013), and YouTube (i.e., www.youtube.com/user/FightfortheReef since April 2013). In April 2013, they posted a 'new TV advertisement' on YouTube, for example, showing that the dangerous effects

of rapid and wide-scale industrialization on the Great Barrier Reef. Within two days of the start of this campaign, over 2,000 people had watched the YouTube video and more than 180 Facebook users had shared it. Clearly, the effects of networked information-sharing processes in social media can be far-reaching and "lot-reaching". In order to examine what roles the actors in information dissemination process play, this paper presents a case study of current Australian Marine Conservation Society (AMCS) advocacy activities. We look at how different actors work to disseminate information using social media, particularly Twitter. Based on this general idea, two research questions were posed: (1) who leads diverse stakeholders in the process of nonprofit advocacy? and (2) how do the leading organization and stakeholders interact in nonprofit advocacy networks using social media?

Research Design and Methods

Data Collection

In order to examine how various organizations use social media to carry out their nonprofit advocacy activities, this research focuses on the campaign, "Fight for the Reef", which is mainly led by the AMCS. This case is especially meaningful because the nonprofit advocacy activities of the AMCS have been operated not only on a national level but also at the international level. A tool for collecting data on social media applications, NodeXL was used in data collection procedures. Particularly, NodeXL allows researchers to measure network statistics and to test hypotheses based on the data derived from Twitter user accounts. This study then examines nonprofit advocacy activities organized after the initial campaign by individual users and groups who concern the Great Barrier Reef issues, and those who follows and followed by the AMCS's Twitter account.

     Data for the analysis was gathered using NodeXL for the following parameters: 1) relationship between the AMCS's Fight for the Reef twitter account and their followers, 2) when the followers that made a mention including a keyword "the Great Barrier Reef". In order to reduce data collection bias, overlapping user accounts were excluded. We were able to secure the dataset based on 20 time points between 1 April and 20 April, 2013, because cross-sectional data (i.e., only one time point) may not adequately explain certain patterns of the nonprofit advocacy process on Twitter. As a result, 2,720 actors and 3,113 resultant relationships were captured as final data for the analysis.

Methods

Social network analysis methods were applied to examine the nonprofit advocacy networks led by the AMCS on Twitter. The generated webometrics which consisted of actors' relationships measured by individual Twitter mentions of the keywords 'Great Barrier Reef'. In the webometrics, the identified types of relationships are coded by 0 or 1. The two possible ties are: (1) mutual tie and (2) unilateral tie. A mutual tie indicates the case when two actors communicate with each other (i.e., coded as both 1 and 1), and a unilateral tie indicates a unidirectional communication where one actor transmits information to the other and the other does not respond (i.e., coded as each 1 and 0 or 1 and 0). False relationships between two actors are coded as both 0 and 0.

In this analysis, only the mutual communications (i.e., coded each 1 and 1 on the matrix) between the actors are considered.

In order to identify the "most important" actors in the network within the information flow, this research examined indicators of social network analysis: (1) closeness centrality; (2) betweenness centrality; and (3) clustering coefficient. Basically, the network density indicates the extent to which actors involved in each network are connected to each other (Wasserman & Faust, 1994). The centrality measures such as closeness centrality and betweenness centrality are indicators that explain patterns of an actor to forge ties with others in terms of nonprofit advocacy networks (Borgatti, 2005; Hsu & Park, 2012). While "closeness centrality" here focuses on the degree to which an actor directly communicates with other actors, "betweenness centrality" indicates the degree to which an actor plays a bridging role located between other actors (Borgatti, 2005). In particular, the bridging role is crucial because actors with this role can effectively facilitate critical information dissemination from the leading nonprofit organization to others who can reach their followers or members in the subgroups. Visualizing nonprofit advocacy networks helps to reveal the patterns and characteristics of diverse organizations engaged in the campaign "Fight for the Reef".

NodeXL (Smith et al., 2010; Hansen et al., 2011) and UCINET 6.46 (Borgatti et al., 2002) are used for analyzing network indicators and identifying subgroups in nonprofit advocacy networks. The subgroups are identified by cluster analysis with the spring-embedding algorithm, and this analysis provides information on a significant aspect of networks to understand the way subgroups lead nonprofit advocacy networks (Hansen et al., 2011; Khan & Park, 2013). In other words, the cluster analysis results show the critical actors that support the nonprofit advocacy activities, by seeking the people who lead each subgroup. In addition, this analysis provides an opportunity to identify a pattern of the leading actors' advocacy activities within a subgroup by analyzing the centrality indexes of the leading actors.

Results and Discussion

The nonprofit advocacy networks on Twitter are shown in Figure 1, visualizing 2,720 actors and 3,113 relationships in the campaign "Fight for the Reef". As indicated above, actors with no ties to the AMCS (i.e., isolators) were excluded. The diagram depicts three clustering networks of centrifugal force in the larger network. In other words, the AMCS and other critical actors closely communicating with the AMCS are placed in the central area of the network, while those who sparsely interact with the AMCS and/or its followers are located on the outskirts of the network. One of the strengths of this analysis is that it enables one to identify the actors who hold their positions between the central and the outskirts of the network as well. This shows that these actors are playing a critical bridging role in the information flow, as they stand between the AMCS and other actors.

Table 1 shows descriptive statistics of the AMCS advocacy networks. First of all, the network density is .001, and the reciprocated edge ratio is .18. Since the nonprofit advocacy network emerged from the actors who are directly or indirectly linked to the "Fight for the Reef" campaign of the AMCS and their mentions including the keywords 'Great Barrier Reef', the reciprocal edge captures the importance of mutual relationships. There are 575 ties showing reciprocal communications, implying that about 20% of communications involved in the nonprofit advocacy process relies on reciprocal relationships in the network. Moreover, the average geodesic distance is 1.98, which suggests that certain mentions including the keywords are transmit-

ted through approximately one actor in average. This indicates the important notion that the nonprofit advocacy for preservation of the Great Barrier Reef is based on active interactions such as sharing ideas and responding to issues.

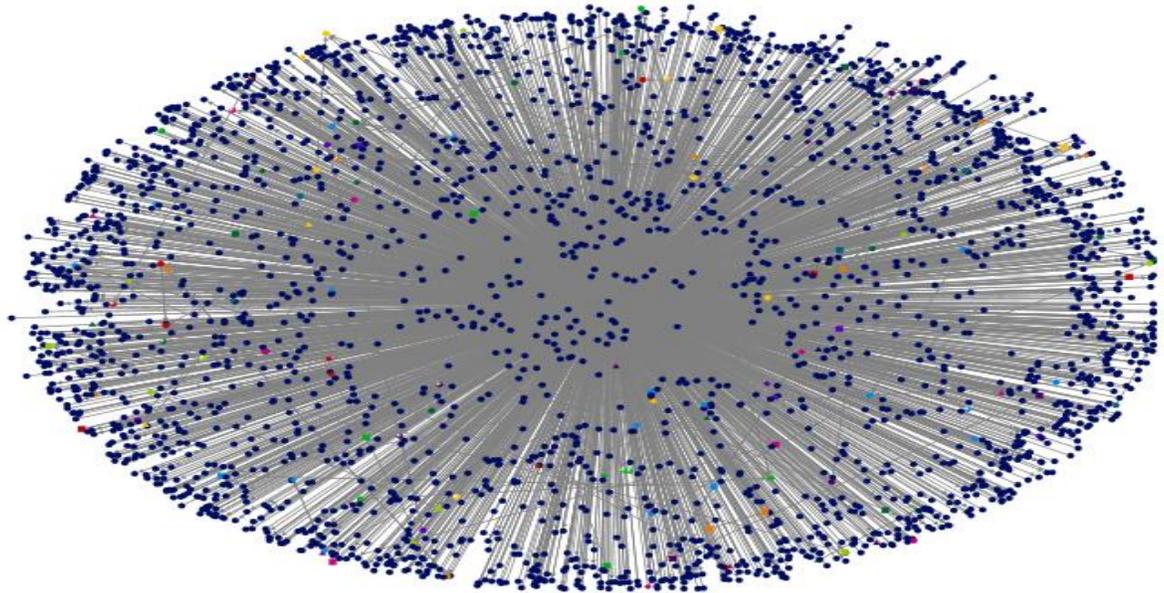**Figure 1. The AMCS' Nonprofit Advocacy Networks on Twitter**

Table 1 presents the measures for closeness centrality and betweenness centrality as well. This is a limited measure because we collected the direct or indirect relations with the AMCS, rather than the network of trending issues. In this nonprofit advocacy network, the average closeness centrality is .001 and the betweenness centrality in average is 2,716.935. These indicators suggest that actors within the networks tend to play a bridging role in between the AMCS and their followers, rather than directly communicating with them. Therefore, the second stage of this analysis is identifying actors who lead the subgroups in the Great Barrier Reef advocacy network led by the AMCS.

Subgroups are the clusters within a network that improve information flow and inter-communication (Scott, 2000). Identifying subgroups in a network is important to understand the nonprofit advocacy process, because clusters are generally developed by the effort of leading actors to facilitate goal sharing among their followers. The leading actors in the AMCS' nonprofit advocacy networks are also boundary spanners who play a crucial role in linking the AMCS to their followers. By using NodeXL, we identified 56 clusters consisting of 2,720 actors. Figure 2 shows the dynamics between 55 clusters in and around the AMCS's cluster through the NodeXL clustering algorithm (*see* Smith et al., 2010; Hansen et al., 2011).

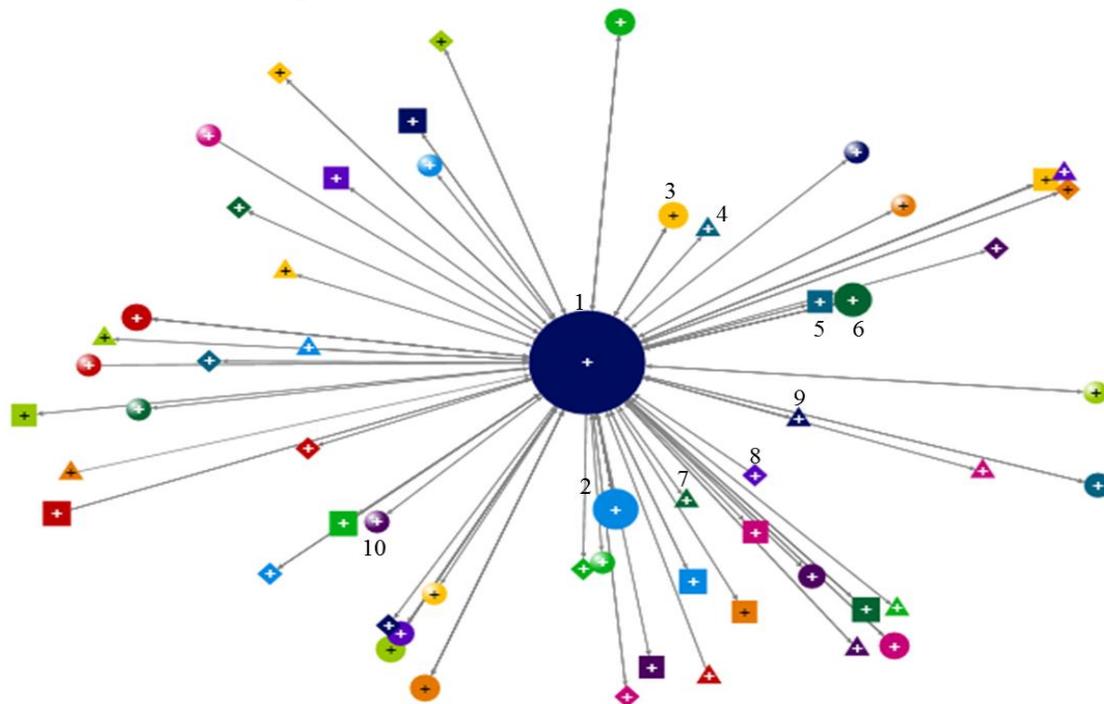**Figure 2. The AMCS' Nonprofit Advocacy Networks by 56 Clusters**

Table 2 presents leading actors with the highest clustering coefficients in the top 10 clusters within the Great Barrier Reef advocacy network. Analysis results show that the five leading actors in the cluster 1 through 5 are news media actors such as the Huffington Post and the Australian Broadcasting Corporation. More interestingly, these actors are two international (i.e., @HuffingtonPost and @newscientist), two national (i.e., @abcnews and @smh), and one regional news organizations (i.e., @couriermail in Queenslands). By sharing the AMCS's Twitter mentions such as "Did you know there are areas of the Great Barrier Reef that have yet to recover from the Shen Neng disaster? Read more http://bit.ly/10xEKik" on April 2, 2013, the actors increased the awareness of the importance of protecting the Great Barrier Reef among their followers.

Table 1. Descriptive Networks Statistics

Network Index	Value
Vertices	2,720
Total Edges	3,113
Reciprocated Edge Ratio	.185
Network Density	.001
Average Geodesic Distance	1.999
Average Closeness Centrality	.001
Average Betweenness Centrality	2,716.935
Average Clustering Coefficient	.029

Table 2. Leading Actors of the Top 10 Clusters

Cluster	Twitter Account	Affiliation	Identification
1	@HuffingtonPost	News Media	The International Internet Newspaper
2	@abcnews	News Media	The Australian Broadcasting Corp
3	@smh	News Media	The Sydney Morning Herald
4	@couriermail	News Media	The best and latest news and information for Queenslanders
5	@newscientist	News Media	The New Scientist magazine
6	@earthisland	NGO	The Earth Island Institute with the biological & cultural diversity
7	@sharkdefenders	NGO	The Shark Defenders supporting management of shark and ray species
8	@350	NGO	The global movement inspiring the challenge of the climate crisis
9	@theoceanproject	NGO	The ocean conservation in partnership with stakeholders
10	@EmeraldSparkle	Environmentalist	The environmentalist for animals, environment, and human rights

In addition, four leading actors in the cluster 6 through 9 are nonprofit organizations such as the Earth Island Institute (EII) and the Global Movement 350, which focus on addressing issues related to climate change and environmental crises. As argued by Waters et al. (2009), these results show that the AMCS leads advocacy for the preservation of the Great Barrier Reef by communicating with other international nongovernmental organizations on Twitter. For example, the Twitter account @earthisland, is an official account of the Earth Island Institute (EII) located in Berkeley, California, which focuses on protecting the earth by collaborating with their followers such as donators and volunteers; they have 31,459 twitter followers as of September 15, 2013. This shows that the EII also contributes to building nonprofit advocacy for the preservation of the Great Barrier Reef, by pooling the campaign on Twitter, beyond the Australia's geographical boundaries.

While the leading actors in the cluster 1 through 9 are at the organizational level, an individual actor also leads a subgroup and contributes to the nonprofit advocacy process. The Twitter user @EmeraldSparkle, with 2,001 followers (as of September 15, 2013), is an Australian environmentalist interested in protecting animals, the environment, and human rights. By following the AMCS and the 'Fight for the reef' on Twitter, particularly, this environmentalist attracts her followers' attention to the issue of preserving the Great Barrier Reef.

Conclusion
This study examined the information flow made between the leading actor, the AMCS, and other actors via Twitter communications related to Great Barrier Reef preservation advocacy. The

study attempted to explore the use of Twitter among them, with specific regard to defining their information dissemination networks. Analysis of tweets of the Fight for the Reef Twitter network over a two-week period has resulted in several noteworthy findings.

Unlike the traditional nonprofit advocacy activities in which only the leading actor have had the primary role of disseminating information to the public, it is a notable finding that "bridging actors" also play an active role in information dissemination processes. This does not necessarily mean that the primary organization play a less central role but rather suggests that other actors in nonprofit advocacy networks are emerging as active agents of advocacy online, in this case, especially within social networking services.

As many previous studies using specific cases such as this one have pointed out, these findings cannot and should not be universally generalized beyond the sociopolitical context in which they occur. In this case, many of the findings may have been driven by the sociopolitical context of Australia. Although the number of relationships is sufficient to analyze, the webometrics approach to the data collection on Twitter may report limited actors and their ties because Twitter only opens data to the public during previous two weeks from the date a researcher retrieves. As indicated by Hansen et al. (2011), unreported ties may present barriers to capturing the entire network. Future study should attempt to collect and analyze broader set of data in order to investigate the peculiarity as well as the generalizability of findings.

Despite its limitations, this study has potential to contribute to an understanding of how different networks of organizations, particularly bridging actors make use of social networking services. First, this study confirms that the nonprofit advocacy networks on social media are actively formed by dynamic information flow and intercommunications among participants and their followers. In the present study, actors who worked closely with the leading agency - the AMCS - played an important bridging role in the nonprofit advocacy for the preservation of the Great Barrier Reef by disseminating critical information. Second, the news media and nonprofit organizations have leading roles in nonprofit advocacy networks, as they have been clustered with their followers. This is important because the intermediating roles can facilitate the information dissemination process to span its boundary.

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