Stakeholder Engagement for the Rhode Island Shellfish Management Plan:

A Social Network Analysis

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A MAJOR PAPER SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ENVIRONMENTAL SCIENCE AND MANAGEMENT

UNIVERSITY OF RHODE ISLAND

DECEMBER 17, 2014

MAJOR PAPER ADVISOR: Dr. Don Robadue

MESM TRACK: Policy and Management
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Abstract

Stakeholder social network analysis can be used to help planning efforts identify the network that presently exist, as well as stakeholders whose preferences and knowledge are missing from the policy process thereby assisting in the identification of constituencies for change that can propel planning efforts forward and increase the likelihood of compliance or implementation. Throughout the last century, people have begun to understand the importance of coastal zone management and have seen the necessity to assess and address the needs of stakeholders within specific areas as part of the policy formulation and implementation process.

After the success of the Rhode Island (RI) Ocean Special Area Management Plan (Ocean SAMP), Rhode Island set out to complete a Beach SAMP that will revise statewide policies for shore management, as well as a Shellfish Management Plan (SMP) that updates state regulations on the harvesting and management of shellfish with strong stakeholder involvement. Academic institutions are currently working with federal, state and local governments to understand the needs of the shellfish and aquaculture industries. The goal of the SMP is to create a sustainable way to manage our shellfish resource while not impairing harvester livelihoods. Institutions such as the Coastal Resources Center (CRC) are working to identify stakeholders and find a unified way to drive this planning effort forward. This SMP effort must demonstrate the involvement of the stakeholders throughout the process to date and insure that decisions were made with stakeholder input. This study conducted a stakeholder network analysis of the SMP process, showing the peak attendance events, attendance numbers, and “betweenness” of members at individual events, a measure of the centrality of each participant within the process. The resulting network diagrams provide a visual representation of the successful stakeholder engagement in the SMP, and constitute a potential metric for helping managers to identify trends and utilize an under-
standing of the effectiveness of stakeholder engagement for meetings going forward. This method has the ability to be generalized and utilized in many management fields involving stakeholder engagement.
Acknowledgements

A special thank you to Peter August and Art Gold, who supported this idea; I appreciate all of the encouragement and advice they offered. A huge thank you goes out to Pete for being my faculty advisor and helping me to perfect this paper along with Becca Trietch and Christian Williams. Additionally, credit has to be given to my advisor, Dr. Don Robadue, who guided me through learning social network analysis and helped me to have the capacity to produce a quality report involving social network analysis. Finally, Azure Cygler, Jen McCann, and the SMP team have to be thanked for letting me pursue a paper on stakeholder analysis and social network analysis.
Overview

The goal of this major paper is to assess the value in utilizing social network analysis (SNA) to enhance the ability of planners to determine the representativeness of their stakeholder engagement efforts. The literature review highlights the significance and benefits of stakeholder engagement early in the planning process. The analysis of a particular case of coastal policy development, a plan for managing shellfish harvesting in Rhode Island, will demonstrate how a network analysis as part of project monitoring and evaluation reveals trends and visual comparisons of stakeholder involvement across meetings that have been held to date.

The analysis presented here is tailored based on the needs of the client, the Rhode Island Department of Environmental Management, supported by staff at the Coastal Resources Center at the Graduate School of Oceanography, University of Rhode Island. The literature review confirms that policy makers and researchers throughout various sectors and industries are discussing the importance of stakeholder engagement in coastal and fisheries management. However, there is relatively little discussion about the specific benefits to engaging stakeholders early on. This paper builds on existing knowledge gained from policy development for many economic uses of the marine resources, bringing all of that information into focus in relation to coastal management concerns. Social network analysis (SNA) is a valuable way to visually demonstrate the interconnectedness of stakeholders and to compare meetings/ topics to stakeholder groups that were involved. While this paper examines shellfish resources in a case where state regulation dominates a marine industry, the approach could be used for a variety of policy issues.
**Literature Review**

**Who is a Stakeholder?**

The knowledge that stakeholder involvement is important for the efficient and profitable operation of management in complex planning is growing in popularity. When thinking about stakeholder engagement, one of the first questions managers must assess is who comprises the stakeholder demographic we are looking to incorporate? Some of these answers can be found when stakeholder theory is included in the equation. Stakeholder theory has been cited repeatedly in a variety of sectors and generally calls for two main issues to be addressed when discussing stakeholders: 1) the purpose of this effort or firm and 2) the legal and governance responsibility that policy makers have to incorporate the views of stakeholders (Freeman et al., 2004). An apparent weakness in stakeholder theory is the absence of analysis and guidance on how managers should identify stakeholders that are particular to their sector. Each sector has different issues they are trying to identify and manage along with many factors that affect who should (or feasibly can) be involved in stakeholder engagement efforts.

Categorization encompassed in some stakeholder analyses includes primary and secondary stakeholders, shareholders, owners of assets or owners of shared value (Mitchell 1997). These categorizations show the variety of ways that stakeholders can be recognized and labeled in order to show their importance, from the planning leader’s perspective of specific groups and individuals. In determining the primary groups that managers would like to include in the stakeholder engagement process, they follow the stakeholder theory in determining the main focus of what this engagement hopes to accomplish and/or what will help drive the process forward.

Stakeholders can be defined broadly as all actors that can affect or are affected by the achievement of the firm’s objectives (de Langen, 2006). They differ depending on the dominant
industries involved in management, specific uses to be made of marine resources, and characteristics of the coastal population (Nutters and Pinto, 2012). Specifically defining what a stakeholder is and who should be considered as one for individual cases can be complex and involved. Creating a clear definition is needed to identify whose benefits and costs matter and are likely to be affected by the purpose of policy formulation or rule-making. In order to determine the stakeholder groupings that become less directly impacted by planning efforts and therefore end the stakeholder groups, clear boundaries must be created pertaining to whose specific concerns need to be addressed to achieve the planning goals.

While there are many models for the way stakeholder engagement is approached, this paper will discuss one model in particular, the Rabinowitz model (Rabinowitz, 2014). Rabinowitz employs three stakeholder categorizations- primary stakeholders, secondary stakeholders, and key stakeholders.

- Primary stakeholders - people directly affected by an effort or the actions of an agency, institution, or organization and the beneficiaries or targets of the effort.

- Secondary stakeholders- those indirectly affected by an effort or the actions of an agency, institution, or organization and those that are directly involved with the beneficiaries or targets of the effort.

- Key stakeholders- those who might belong to either or neither primary or secondary groups, but can have an effect on an effort, or who are important within or to an organization, agency, or institution engaged in an effort. This category includes those from the government, policy makers, media, and non-governmental organizations in some cases.

All of these categories demonstrate the importance of managers developing relationships while inspiring stakeholders and creating communities where everyone is striving for a central goal (Freeman et al., 2004).
Many papers on stakeholder engagement focus on shareholder engagement and maintain that shareholders are the driving force for stakeholder engagement (Freeman et al., 2004). While this may have been true in the past, companies are moving forward with the realization that a stakeholder does not have to be equivalent to a shareholder. Companies and organizations are not only responsible for their direct decisions, but are now being held responsible for the decisions of their suppliers in today’s global economy.

When planning efforts don’t have shareholders, determining which stakeholders should be involved is generally based on practitioner’s working knowledge of the leaders and concerned parties in the effort. People can be concerned for a variety of reasons including economics, social change, employment, time, the environment, physical and mental health, safety and security (Rabinowitz, 2014). It is vital to understand why people want to be involved in a planning effort so that stakeholder expectations can be clearly identified and managed. 

**Why Involve Stakeholders?**

In general, identifying stakeholder groups and the importance and extent to which they should be included in planning efforts can prove exhausting and costly; however, it can lead to successful integration of cohesive management. Unfortunately, some stakeholders can feel ignored when implementers don’t follow their exact suggestion, often believing that they were not heard. This, however, is not necessarily true because many stakeholder needs have to be addressed during planning and some must take precedent over others. While stakeholders can slow the process, if they are brought in from the conception of the policy, they can offer many positive aspects as well, some of which are listed below (Rabinowitz, 2014).

- They can put additional ideas on the table.
• They add varied perspectives from all sectors and elements of the community affected, thus giving a clearer picture of the community context and potential pitfalls and assets.

• Including stakeholders can gain buy-in and support for the effort from all stakeholders by making them an integral part of its development, planning, implementation, and evaluation. It becomes their effort, and they want to make it work.

• Including them saves you from being blindsided by concerns you didn’t know about. Concerns can be aired and resolved before they become stumbling blocks, even if they can’t be resolved, they won’t come as surprises that derail the effort just when you thought everything was going well.

• Their input strengthens the planning effort’s position if there’s opposition. Having all stakeholders on board makes a huge difference in terms of political clout.

• It creates social capital for the community.

• It increases the credibility of the organizations that are serving the people.

• It increases the chances for the success of the effort.

Stakeholder involvement in planning can save managers time and money by creating a more efficient participation process (International Finance Corporation, 2007). Coastal managers have to understand and identify stakeholders to streamline management and address the growing complexity of the global economy (Pomeroy, 2008). Including stakeholders and encouraging participation can aid in effective outcomes, it also includes compromise to be successful (Nutters and Pinto da Silva, 2012). Critics of stakeholder involvement early in the planning process state that it is inefficient and makes the planning process more expensive and even less conclusive (Ward, 2001). However, when stakeholders are involved from early on in a project, they suggest ideas that can be integrated into plans before a completed plan receives criticism and must be reevaluated, saving time and money during the lifetime of the planning process.

Stakeholders offer many opinions that can shape the planning and prevent a bottleneck when the plan is offered for public comment. In short, practitioners that include stakeholders in
their planning are doing so because they desire the best possible outcome for the life of their projects.

**Background on Social Network Analysis (SNA) and Utility**

The fundamental idea of Social Network Analysis, the formal study of social relationships and social structure, is that groups and individuals interact and form “stable” relationships among groups (Marin & Berkes, 2010). Social network analysis can visually represent ways that communities interact, either in person, or virtually (Robadue Jr., 2010). In person contact is the best way to create an active network that produces efficient stakeholder involvement because people continue to crave in person contact as opposed to technological contact (Robadue et al, 2010).

Social network analysis using very simple questions can lead to an extremely rich data set (Robadue et al, 2010). SNA can be done on small scales or extremely large scales and is represented by nodes, or connecting people, factors, or groups. SNA can be used as a means of understanding the inner workings of collaborative efforts (Smythe et al., 2014). The data can be imported into the SNA modeling tool via an Excel spreadsheet with a binary correlation that has been assigned to various nodes within a planning effort (Borgatti, 2013). The analysis of this particular Analyzing Social Networks book utilizes matrices and the binary scale to determine connectivity within the data that is entered. These nodes aid in the creation of string models that visually represent the coded data.

Network analysts can use ego network data, derived from personal interviews, to create powerful network maps of small to medium sized groups. Affiliation networks, the approach used in this paper can be used to infer relationships from secondary data based on the idea of presence or absence at “events” reflecting underlying patterns of a policy network. This analysis
can be conducted with a range of publicly available information. Social network analysis can show, based on event attendance and individual event attendees, which events were most productive and which people are the key “motivators” of an effort (Robadue et al., 2007). Social network analysis can take information about stakeholders that have been identified in a marine spatial planning effort where attendance and participation data is openly collected and shared, and then used to visually represent their connections. By utilizing the SNA software that is available, nodes (participants) can be eliminated to see what happens to the network (does it collapse without a specific person?) and the central people within a given social network can be identified.

Often planners and facilitators fail to include the “right” people in their meetings. Instead of engaging top policy makers and stakeholder leaders, planners may only attract low-level representatives who cannot speak for their organization and may even fail to share relevant information with their organizations. Network analysis can reveal these weaknesses in stakeholder engagement.

A SNA should be checked for accuracy among members to make sure the program didn’t make associations where there were only weak links to the body of stakeholders. Network analysis can help create a better picture of the stakeholders that are most integral to decision making and influence the stakeholders that are considered primary and key to include (Pomeroy, 2008).

**Rhode Island Marine Planning Overview**

Rhode Island is America’s smallest state. At 37 miles wide and 48 miles long; however, the tiny “Ocean State” encompasses over 400 miles of shoreline in Narragansett Bay along the Atlantic Coast (State of Rhode Island and Providence Plantations, 2014) and has been a pioneer in coastal and estuary management as well as marine spatial planning. Providence is the state capital city that includes the Port of Providence, which is only one of several ports in the area.
There are several ports in the small state offering proof that the state’s coastal areas are integral to the success of the economy of this New England state (Becker et al., 2010).

In recent years, awareness for utilizing ocean zoning to reduce conflicts and to use coastal and marine resources more sustainably has increased (Douvere, 2007). Even though Rhode Island is the smallest state, the coastal managers in the area have some big ideas they support and work to implement. The first marine planning effort was the Rhode Island Ocean Special Area Management Plan, which is considered the gold standard for the nation by many marine spatial planning practitioners. Since this concept is fairly new, practitioners are now recognizing the benefits that analyzing social networks can bring to capacity building efforts in marine spatial planning (MSP). MSP cannot be “one size fits all” because of the complexity of ecosystems and the involvement of stakeholders and federal, state, and local governments (Collie et al., 2013). Marine spatial planning is a continuation of coastal zone management, which can assist in conveying a more straightforward interpretation of MSP.

MSP is designed planning over a given spatial scale for coastal zone areas with the goal of including anthropogenic uses of the area and attempting to create best use practice plans. Marine spatial planning aims to create a plan that identifies, based on data collected both before and during the planning efforts, present uses of the marine zone in question. It also attempts to include possible future uses in the plan. MSP efforts generally focus on one or two major policy issues within the planning efforts such as the development of offshore renewable energy or the conservation of a particular species or group of organisms. With this in mind, it is imperative that the human perspective and impact on these planning efforts are fully recognized. Many MSP efforts work to identify stakeholders that should be included in meetings and planning efforts. The Rhode Island Ocean SAMP serves as a federally recognized coastal management and regulatory
tool while using the best available science to provide a balanced approach to the development and protection of Rhode Island's ocean-based resources (Sea Grant, 2014).

After completing a successful Ocean SAMP in conjunction with the state government and having it accepted by the state Coastal Resources Management Council in 2010 and the National Oceanic and Atmospheric Administration in 2011, the Coastal Resources Center and Sea Grant wanted to continue preparing for future uses of the marine environment. Rhode Island is a U.S. leader in ocean use planning and has recently permitted the first offshore wind farm in the country through the implementation of the Ocean SAMP. Grover Fugate, the Executive Director of the RI Coastal Resource Management Council (CRMC) was one of the champions of the Ocean SAMP, and is the state lead for the Northeast Regional Planning Body. The Ocean SAMP offers invaluable experience to the regional discussion on ocean planning and management.

**Rhode Island Shellfish Management Plan Background**

After the success of the RI Ocean Special Area Management Plan (Ocean SAMP), Rhode Island coastal management leaders recognized the need for additional planning in a variety of areas and set out to complete a Beach SAMP and Shellfish Management Plan (SMP). There have been a total of seven special area management plans that have been completed in Rhode Island. Due to the previous successes in these management plans throughout the state and the interagency coordination that has been achieved previously, a discussion about stakeholder involvement was a natural progression. The experience of the SAMP was one of the enabling conditions that led the desire to address some of the pertinent issues facing stakeholders that were involved in those SAMPs. Academic institutions are working with federal, state, and local governments to understand the needs of the shellfish and aquaculture industries. Rhode Island’s Department of Environmental Management has the legal responsibility for managing shellfish resources, which
is was doing under the existing authority the DEM possessed. It sought to engage a wider array of stakeholders in as constructive a way possible, using a SAMP-type process for stakeholder engagement.

The goal of the SMP is to create a sustainable way to manage our shellfish resource, while not impairing harvester livelihoods. Institutions, such as the Coastal Resource Center (CRC), worked to identify stakeholders and find a unified way to drive this planning effort. This SMP effort needs to demonstrate the involvement of the stakeholders throughout the process to ensure that shellfishers are taking ownership of the management plan. The Shellfish Management Plan is working to address concerns of stakeholders throughout the state. Fishery stakeholders and scientists are both concerned with the long-term sustainability of fishery resources and the SMP stakeholder engagement opportunity encourages these groups to come together to work on a common goal (Mackinson et al., 2014).

The Rhode Island Sea Grant program in conjunction with the Coastal Resources Center (CRC) was engaged by DEM to facilitate the creation of the SMP. The adopted document provides policy guidance for Rhode Island State waters regarding shellfish management and protection measures. Grover Fugate, the Executive Director of the Coastal Resources Management Council (CRMC), is involved in this effort because the CRMC manages the aquaculture leasing for the state. The RI Department of Environmental Management (DEM) is involved because it is charged with managing shellfish in state waters. This project began in January of 2013 with the goal of managing specific shellfish in RI- gastropods and bivalves, mainly quahogs, bay scallops, whelks, oysters, soft shell clams, and blue mussels.
In the case of the Rhode Island Shellfish Management Plan (SMP), Rabinowitz’s model makes sense because certain groups such as the wild harvest shellfishermen and the aquaculture industry could be greatly affected by decisions made through these management actions and would be primary stakeholders. The state agencies, such as RI DEM and CRMC, and the CRC are key stakeholders in this process. Secondary stakeholders would include academic institutions, non-governmental institutions, and all Rhode Island residents. While the SMP will create recommendations, it does not dictate policy, which is one of the primary reasons it has to be thorough and created through an extensive public engagement process in conjunction with the regulatory state agencies.

A memorandum of agreement related to the shellfish management plan was signed on November 17th, 2014 by leaders of the CRMC and DEM indicating their willingness to work together “concerning the inspection of aquaculture farms for the purpose of ensuring food safety, public health, and enforcement of RIDEM’s Aquaculture of Marine Species in Rhode Island Waters.”. In 2015, the plan, which is a living management guideline document and will be updated as additional information and data becomes available, will continue to undergo changes as the SMP team works to develop an implementation plan and research agenda. This plan would not have been as successful without the dozens of stakeholder meetings that broached many topics. The plan can be found at http://www.rismp.org/wp-content/uploads/2014/04/smp_version_2_11.18.pdf.
**Methodology**

Based on the literature review an analysis was performed using affiliation network techniques on data from existing stakeholder sign-in sheets from stakeholder meetings that have been held by the Shellfish Management Plan leaders. The sign-in sheet information included the names of attendees as well as their affiliation that was hand written and is public knowledge. This information was input into an Excel sheet where each person was listed by name, organization, and attendance at each of the meetings. The attendee’s organizations were then categorized much more broadly in order to show comparisons to groups that had be identified within the SMP for reporting purposes. This information was translated into a large matrix with the attendee names on the y-axis and specific organizations and meetings on the x-axis that. Each attendee was coded with a 1 if they were in attendance or were involved in a specific organization and a 0 if they were not involved in the organization or meeting. Internal Review Board (IRB) approval was not required because this project utilized public information about the RI SMP and involved only secondary analysis of the information available.

The data is analyzed quantitatively using SNA software, specifically UCINet. The product of the analysis described in the following sections is a visual network map that shows the betweenness of meetings that individuals attended as a measure of the relative centrality or importance of different SMP events. The analysis methods used have been proven reliable by previous literature reviews. Graphs showing specific stakeholder attendance at each of the meetings will be included to show the ebb and flow of attendance based on the topic that was being covered. Although there are seventeen meetings, for this analysis, the meetings were split into two categories to be analyzed. The first set of meetings that were analyzed included the kick-off meeting and the five stakeholder meetings that were held for any interested parties to attend.
The second category analyzed were those meetings that had been geared towards specific groups such as commercial and recreational fishermen, aquaculture, and agencies. The end results as described below demonstrate the value and the robust nature of stakeholder engagement in the SMP process and the variety of people that attended the public meetings.
Results

Table 1 lists all of the meetings that were held with the Shellfish Management Plan as well as the date they were held. The information held within this table will be referenced throughout the results section.

Table 1- Meeting information for the SMP that will be used with figures that occur throughout the results section.

<table>
<thead>
<tr>
<th>Meeting Number</th>
<th>Date</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/7/2013</td>
<td>Kick-off</td>
</tr>
<tr>
<td>2</td>
<td>1/16/2013</td>
<td>Aquaculture scoping</td>
</tr>
<tr>
<td>3</td>
<td>1/22/2013</td>
<td>Commercial and Recreational Harvest</td>
</tr>
<tr>
<td>4</td>
<td>1/24/2013</td>
<td>Restoration &amp; Enhancement</td>
</tr>
<tr>
<td>5</td>
<td>2/5/2013</td>
<td>Coordinating Team 1</td>
</tr>
<tr>
<td>6</td>
<td>2/27/2013</td>
<td>Agency Scoping</td>
</tr>
<tr>
<td>7</td>
<td>3/14/2013</td>
<td>SMP Use Maps</td>
</tr>
<tr>
<td>8</td>
<td>3/20/2013</td>
<td>Stakeholder #1</td>
</tr>
<tr>
<td>9</td>
<td>4/10/2013</td>
<td>Goals &amp; Objectives</td>
</tr>
<tr>
<td>10</td>
<td>4/11/2013</td>
<td>Mapping Exercise</td>
</tr>
<tr>
<td>11</td>
<td>4/17/2013</td>
<td>Coordinating Team 2</td>
</tr>
<tr>
<td>12</td>
<td>5/6/2013</td>
<td>Use Maps</td>
</tr>
<tr>
<td>13</td>
<td>5/15/2013</td>
<td>Stakeholder #2</td>
</tr>
<tr>
<td>14</td>
<td>9/17/2013</td>
<td>Stakeholder #3</td>
</tr>
<tr>
<td>15</td>
<td>10/8/2013</td>
<td>Commercial Shellfish Licensing</td>
</tr>
<tr>
<td>16</td>
<td>4/14/2014</td>
<td>Stakeholder #4/ SMP Seminar</td>
</tr>
<tr>
<td>17</td>
<td>5/18/2014</td>
<td>Stakeholder #5</td>
</tr>
</tbody>
</table>

Table 1 demonstrates which of the meetings in Figure 1 are correlated with the highest attendance. The Kick-off meeting experienced the highest turn-out with 102 in attendance. The total number of people and their affiliation for all of meetings can be found in Appendix 1. The first stakeholder meeting was the next most attended event with 76 attendees.
Figure 1- This chart demonstrates the total attendance for each of the seventeen SMP meetings and with which group the attendees self-identified.

Figure 2 is a breakdown of the number of attendees and their affiliations for the four industry specific meetings that were held. There was an aquaculture scoping session for those involved primarily in aquaculture. The Commercial and recreational harvest meeting was designed to discuss concerns related to the wild harvest of shellfish. The restoration and enhancement meeting was designed to address scientific concerns and the agency scoping session was designed to communicate with the state agencies.
Figure 2 - Attendance at industry specific meetings during the SMP stakeholder engagement efforts.

Figure 3 illustrates the attendance for the stakeholder meetings that were open to the public and welcomed public engagement and the self-listed affiliations from the sign-in sheets. The kick-off event had peak attendance for all groups while throughout all of the stakeholder meetings, the agency members and shellfish harvesters maintained the highest attendance numbers. As the stakeholder meetings progressed, each meeting had fewer attendees in general, and citizens continued to decrease attendance.
Figure 3- Attendance at open stakeholder meetings during the SMP stakeholder engagement effort.

Figure 4 demonstrates what the initial network looks like for all of those that attended the stakeholder meetings with betweenness of the meetings being measured. Each small circle is an individual and the peripheral people (isolates) are removed so that a clearer image of those people that attended multiple meetings can easily be seen in Figure 5.
Figure 4- The initial network of attendees for the stakeholder engagement of the SMP with betweenness measurement applied, but prior to the removal of people who attended one singular event (isolates).
Figure 5- This SNA model, created using UCINet, illustrates the betweenness of the kick-off meeting and the five stakeholder meetings. The coral node is the kick-off event; the five additional nodes are stakeholder meetings-dark blue-#1 yellow-#2, light blue- #3, green- #4, purple- #5.

Figure 6 shows the initial network of attendees for the four industry specific meetings (commercial and recreational harvesters, aquaculture, agencies, and restoration and enhancement) with betweenness measurement applied, but prior to the removal of people who attended one singular event, including one person that attended the commercial shellfishing licensing event. Figure 7
illustrates the same specific industry meetings, but removes the isolates from the dataset.

Figure 6- The initial network of attendees for the four industry specific meeting with betweenness measurement applied, but prior to the removal of people who attended one singular event, including one person that attended the commercial shellfisherman’s licensing event.
Figure 7- This SNA model, created using UCINet, illustrates the betweenness of the four industry specific meetings with isolates removed (people who only attended one event).
Figure 8- This SNA model, created using UCINet, illustrates the betweenness of the three main industry specific meetings. The coral node is the commercial and recreational harvester meeting, the blue node is the aquaculture, and the green node is the agency scoping meeting.

Figure 8 is similar to Figure 6 except that the restore and enhance meeting node was removed to see how the network would change if those interested in the restoration of the project were removed from this analysis.
Conclusions/ Discussion

It can be seen in Figure 1 in the results section that attendance was initially extremely high and that it ebbed and flowed as the effort moved forward. The kick-off event was the most well attended and the first stakeholder meeting was the most well attended of the stakeholder series. Figure 2 demonstrates that even though some of the meetings were originally designed to address specific concerns within industries, the meetings received many participants that were outside the anticipated stakeholder groups. In some cases the group that had been pandered to was not the stakeholder group with the most people in attendance. For instance, the commercial and recreational harvest meeting had many citizens and aquaculture constituents in attendance. Figure 3 shows the affiliations and number of people that were in attendance at the kick-off and public stakeholder meetings, giving the impression that the agencies and fishermen were the ones that consistently attended the meetings. The fishermen are the primary stakeholders and the agencies are key stakeholders in this analysis, while citizens are secondary stakeholders.

Figure 4 and Figure 5 demonstrate the importance of the stakeholder meetings. Figure 4 demonstrates that the kick-off meeting and the first stakeholder meeting were the most well attended, which means the information was directly disseminated to the largest number of stakeholders at one time. The stakeholder meetings after the first one declined in attendance excepting for the fourth meeting that was accompanied by a seminar. This could mean that many stakeholders wanted to get information about what this planning effort was going to be about and how they might be involved moving forward. After the first few public meetings, stakeholders did not attend as many events; however, many attended multiple events, meaning they were able to re-
ceive up-to-date information on the planning effort, as seen in Figure 5. The network of attendees for multiple stakeholder events was much more related as seen in the nodes of Figure 5.

The analysis show in Figures 6, 7, and 8 indicates that there were several attendees that were present at multiple of the meetings that had been created for specific concerns within industries. The commercial and recreational harvest meeting had the highest betweenness for those that attended this group of meetings. The restoration and enhancement meeting brought a variety of participants to discuss the concerns facing our shellfisheries. These network snapshots indicate that many people that attended meetings, continued throughout this planning process, even being present during meetings that did not set out to address their issues. These seventeen meetings were held from January of 2013 to May of 2014 and it may be due to the fact that the engagement process was relatively short that stakeholder attendance was fairly high throughout the process. Most of the meetings were held in rapid succession so that the maximum number of fisherman could be in attendance if they were interested and engaged, participating in the process. The meetings were not held during the summer months, or around the holiday seasons to encourage participation. This analysis demonstrates that there was a robust stakeholder engagement effort for the RI SMP that spanned many industries and concerns.

The stakeholders in this process took ownership of this effort and consistently showed up to make sure their concerns were heard and addressed. Fishing industries tend to have skeptic view toward government regulation. This caution encouraged and motivated the desire to facilitate a better planning process without criticizing any agency or group in particular, which is one of the areas the SMP team that included members from the Coastal Resources Center, were able to assist in facilitating the stakeholder engagement effort. Planning is a consensus building process, which is why Azure Cygler studied negotiation. Utilizing the CRC was one way to avoid
lopsided, industry favorable or environmentalist favorable rule making by adding representatives who are not myopic.

One of the limitations with this analysis is that the data was retrieved from sign-in sheets that were placed at the event. There may be some names that were not included on the sign-in sheets or names that were not legible and therefore were coded as different names at different meetings. Areas for future study would include a SNA that gets a true snapshot of how the people involved in this meeting are connected, opposed to the betweenness of meetings for individuals.


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### Appendix 1

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*Note for meeting 2 that not all attendees were able to sign in, so there were an estimated 15 additional attendees.