Online Environmental Management: Connecting Management and Stakeholders Via Influencer Marketing

Kapono M. Gaughen
Master’s of Environmental Management
Department of Natural Resources and Environmental Management
University of Hawaiʻi at Mānoa

Capstone Panel
Dr. Travis Idol
Dr. Creighton M. Litton
Dr. Mahealani Kaneshiro

Abstract

To effectively address modern environmental problems, managers require the input of practitioners, scientists, and stakeholders on local to international scales. With the rise of social media, traditional approaches to engaging stakeholders risk becoming antiquated. Social-media-based marketing methods may represent opportunities for managers to enhance their stakeholder engagement abilities. This project tested the utilization of Influencer Marketing (IM), an approach used to reach particular demographics through pre-established online communities and relationships, to increase the number of core stakeholders engaged by The State of Hawaii Division of Aquatic Resources (DAR). DAR sponsored Social Media Influencers (SMIs) to post sponsored content designed to engage DAR's core stakeholders and elicit their participation in four projects. Project-1 and Project-3 were meetings used to engage and inform DAR's stakeholders. Project-2 and Project-4 were online stakeholder surveys used to begin designing DAR's new policies. Each Project provided methodology lessons and potential trends adapted to the subsequent Projects. Effectiveness was determined through comparisons with DAR's past projects, survey results, SMI metadata, and independently tracked URLs. The results of each project varied, but all showed an increase in the number of engaged stakeholders compared to DAR's traditional approaches: Project-1 yielded an 83.1% increase in meeting attendance ($p<0.01$); Project-2 resulted in 3,277 survey responses, 90.3% originating from the survey "going viral" by the posts of unsponsored SMIs; Project-3 yielded a 50.7% increase in meeting attendance ($p<0.05$); Project-4 resulted in 191 survey responses, of which stakeholders submitted 99.5%. The effectiveness of IM for stakeholder engagement appears to be affected by the messaging used by sponsored SMI and the platforms sponsored content is posted on. This project demonstrated that IM could be utilized to engage the stakeholders of environmental managers and that SMIs with identities similar to those of stakeholders can have concentrations of stakeholders in their followings. Furthermore, independent SMIs were found to be able to unilaterally affect policy.

Keywords: YouTube, Instagram, Content Creator, Fisheries Management, Government Communications

List of Abbreviations

CC - Content Creator

CPM - Cost Per Mille

DAR - State of Hawaii Department of Aquatic Resources

IM - Influencer Marketing

SMI- Social Media Influencer

SM - Social Media

SE - Stakeholder Engagement

RPMF - Response Per Mille Followers

UTM - Urchin Tracking Modules

Table of Contents

Motivation

The Internet and social media (SM) have created new spaces for decision-makers to engage with their stakeholders (Claussen et al., 2013; Di Minin et al., 2015). However, some view accessing and engaging with online communities as having limited effectiveness, and research into the intersection of environmental management and SM is sparse (Alves et al., 2016). Furthermore, many government agencies still rely on antiquated forms of communication when using SM, and have yet to embrace many of its utilities (Kent, 2013). For government agencies charged with environmental management, effective communication is central to their abilities to engage their stakeholders, one of the key factors influencing the success or failure of conservation and management activities (Conservation Measures Partnership, 2020; Leong & Decker, 2020).

This dynamic is highlighted by the challenges faced by marine resource managers, organizations that often require stakeholder knowledge and backing to function, while the policy of these managers can make communicating with stakeholders difficult (Richmond et al., 2015). Marine managers are often mandated to conserve aquatic species while ensuring fisheries continue producing economic and recreational opportunities. As approaches to marine conservation commonly rely on regulating the fishing community, managers' policies can drive conflict between themselves and their stakeholders, impeding their ability to govern effectively (Degnbol et al., 2006). For instance, as biological data collection is difficult to obtain in the aquatic environment, managers often rely on catch and landing records to approximate habitat quality. For fisheries not requiring catch reporting, data collection might rely entirely on stakeholders' willingness to provide data to management. Should these stakeholders become alienated, managers can lose the ability to monitor the outcomes of their policies. Devolved stakeholder relations limit the capabilities and can threaten the environment's health (Jentoft, 2000a; Weinstein et al., 2007). How should environmental managers locate and engage the stakeholders crucial to their operations?

Over the last ten years, I have acted as a content creator (CC), creating and posting videos about fishing in Hawaii. I have seen communities interested in Hawaii-based fishing grow around my content and the content of others. Whereas in the physical environment, stakeholders are decentralized, in the virtual landscape, a broad range of stakeholders has self-centralized around shared interests. With an estimated 90% of the US population using SM, large proportions of any agency's stakeholders likely exist within online communities (Statista, 2022; Ye et al., 2021). For environmental managers, however, there are limited examples showing how online stakeholder communities can be located and effectively engaged.

In the private sector, such communities are represented as concentrations of potential customers, spurring the development of new marketing approaches (Jaakonmäki et al., 2017). One such method, influencer marketing (IM), has been found particularly effective at engaging existing online communities and has grown to be a multi-billion dollar market (Campbell & Farrell, 2020; Hudders et al., 2021). While IM has enabled marketers to reach similar demographics as those needed for the SM process of environmental managers, the utility of IM in this context remains untested.

Background

A stakeholder is defined as any person or group that can or will be affected by an organization's decisions and strategies (Bryson, 2004; Freeman, 1984). Stakeholder theory has enabled the engagement of stakeholders through traditional media; however, the approach has long-standing issues (Anderson-Wilk, 2009; Kent, 2013). In the traditional media framework, the press act as gatekeepers, determining the value of information. If government initiatives are deemed newsworthy, stakeholders receive information unidirectionally, and the government does not establish a relationship with its stakeholders. Using SM, government agencies can control the information flow, eliminating third-party gatekeeping (Hwong et al., 2017; Lee & VanDyke, 2015). Additionally, stakeholders can respond directly to the agency, enabling two-way communication and relationship building. Unfortunately, agencies often struggle with their role as CCs, failing to build a following, embrace two-way communication, and develop online relationships with their stakeholders (Alves et al., 2016; Graham, 2014; Kent, 2013). IM represents a potential sidestep or supplementation to agency use of SM, opening the possibilities for more effective stakeholder engagement (SE).

Influencer marketing (IM) allows marketers to reach a specific audience via a pre-established relationship (Lou, 2022). Under this framework, the CCs that have built up a following around their content are presumed to influence the actions and opinions of those regularly viewing and engaging with that content and are termed Social Media Influencers (SMIs) (Childers et al., 2019; Vrontis et al., 2021). Marketers sponsor SMIs, who then convey marketing materials to a community who, by following that SMI, has essentially vetted the SMI's communication abilities. As SMIs typically focus on particular topics or themes, their communities of followers are assumed to be concentrations of people interested in those topics and themes. Marketers pay SMIs to include marketing material within their posts, which is subsequently viewed by a centralized target audience via a familiar and effective communicator (Jin & Ryu, 2020; Lou & Yuan, 2019; Schouten et al., 2019).

For environmental managers, many of the benefits marketers receive may be co-opted by using IM to locate and engage with core stakeholders. Stakeholders with identities defined by a geographic space or particular activities could be discovered and communicated with via the SMIs that share in the stakeholder identity (Figure 1). Such SMIs could be building communities containing high concentrations of stakeholders with an established and normalized approach to engaging them (Okuah et al., 2019; Sedereviciute & Valentini, 2011). In this project, I tested the viability of an IM approach in the SE process of The State of Hawaii's Division of Aquatic Resources (DAR), an environmental manager whose SE methodology relied mainly on word-of-mouth, their official government website, and traditional media, which has had limited success (E. L. Kekoa, personal communication, November 10, 2021). DAR was willing to incorporate IM to supplement their standard approach to engaging their core stakeholders, those who fish in Hawaii.

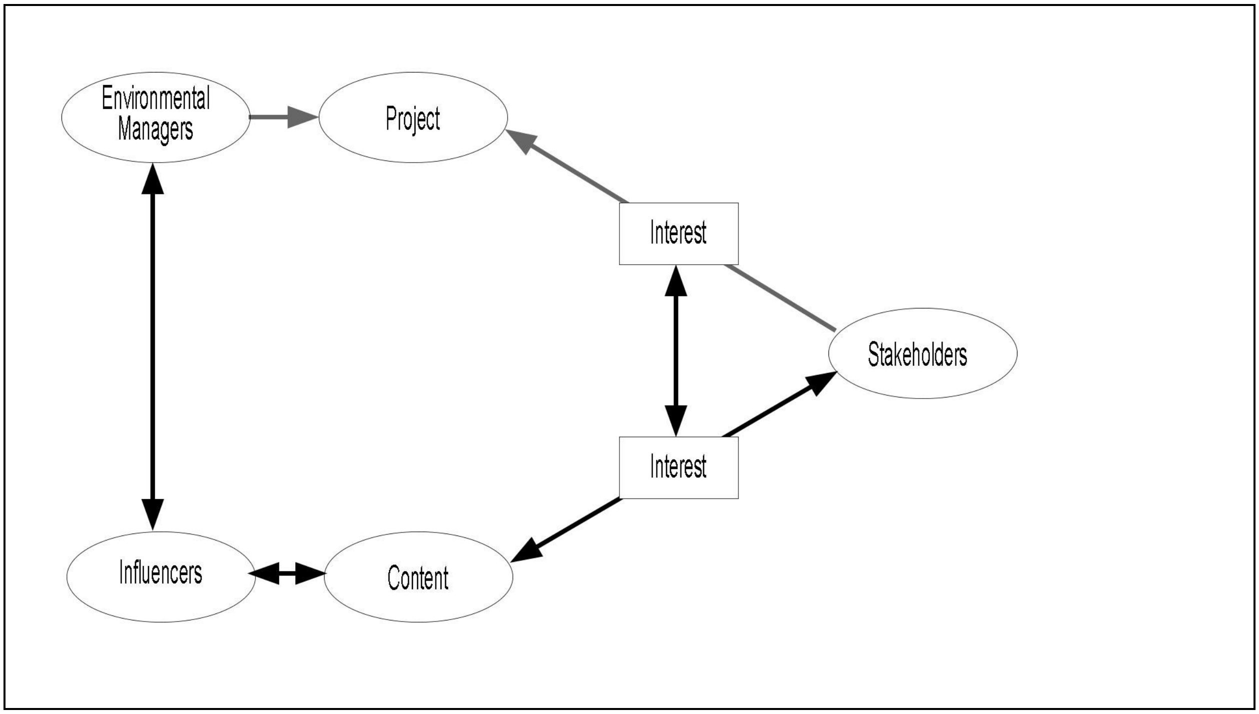

Figure 1 - Conceptualization of the influencer marketing model for the stakeholder engagement process of environmental managers. In this model, managers indirectly connect to stakeholders through social media influencers (SMIs) that make content on topics that parallel a stakeholder's potential interest in a management project. The direct point of contact between managers and stakeholders in the project that managers hope to elicit stakeholders in. The indirect route to inform stakeholders and gain their participation in the project is represented by bolded two-headed arrows, which form a pre-established chain of contact points between management and their stakeholders.

Objectives

The primary objective of my capstone project is to investigate if the stakeholders of an environmental agency can be identified and engaged through the use of IM. To fulfill this objective, I developed and implemented an IM campaign adapted to the SE process, reaching DAR's stakeholders via SMIs posting content about fishing in Hawaii, the same activities and geographic space that define DAR's core stakeholder community.

Approach

SMI Selection

I located online stakeholder concentrations through a core assumption: stakeholders will concentrate around the SMIs that consistently posted content focused on the same geography and activities as a stakeholder grouping's central characteristics. DARs' target stakeholders were those who fish in Hawaii. As such, I assumed stakeholders concentrated within the communities of the SMIs producing content focused on fishing in Hawaii. SMIs fitting this identity were found by searching for topic words associated with fishing in Hawaii on YouTube and Instagram (Paragraph A1). In total, 18 SMIs ranging from 1,000 to 126,000 followers were identified and messaged. Five responded as willing to participate in the project and were selected for sponsorship (Table 1).

Table 1 - The general characteristics of the five sponsored social media influencers (SMIs), designated as Influencer 1 to Influencer 5. All account characteristics were publicly viewable information. Each SMI had different amounts of Instagram followers and YouTube subscribers. Each SMI posted sponsored content in an attempt to engage a stakeholder group, those who fish in Hawaii. All of the sponsored SMIs made content in Hawaii that was focused either on fishing from a boat, fishing from shore, or spearfishing (labeled Diving in the table).

	Subscribers (YouTube)	Follows (Instagram)	Main Topic	Location
Influencer 1	30,600	15,400	Fishing (Boat)	Hawaii
Influencer 2	158,000	156,000	Diving	Hawaii
Influencer 3	6,000	2,700	Fishing (Shore)	Hawaii
Influencer 4	12,800	4,100	Fishing (Shore)	Hawaii
Influencer 5	6,600	3,600	Diving	Hawaii

DAR Stakeholder Engagement Projects

DAR identified four of their projects in which to test the utilities of IM as an approach to SE, one online meeting and one in-person meeting in which DAR sought to increase stakeholder attendance, and two online pilot surveys in which DAR sought to maximize stakeholder response rates (Table 2).

Table 2 - Description of the four State of Hawaii Division of Aquatic Resources (DAR) stakeholder engagement projects utilizing influencer marketing to elicit stakeholders' participation. Each of the four projects had specific content posted by sponsored social media influencers attempting to engage the stakeholders in their follower communities. For each project, DAR utilized specific types of outreach when engaging their stakeholders to accomplish a particular agency goal.

	Project 1	Project 2	Project 3	Project 4
Outreach "Type"	In-Person Meeting	Online Survey	Online Meeting	Online Survey
Outreach "Goal"	Build Maui Island Stakeholder Network for Future Island Policy Development	Understand Stakeholder's Perceptions and Practices on Shark Fishing	Inform Stakeholders on Upcoming Year's Policies and Legislation Proposals	Understand Stakeholder's Perceptions and Practices on Drone Fishing

<u>Sponsored Posts</u>

Each of DAR's SE projects received sponsored posts dedicated to informing stakeholders and eliciting their participation in a single project. I provided Sponsored SMIs a briefing informing them of each project's goal and background info. I directed SMIs' to post their sponsored content on YouTube and Instagram (Table A1). I required that sponsored YouTube posts incorporate a $\geq$ 30-second segment of sponsored content in a regular video upload and project details be placed in their description. On Instagram, I required sponsored SMIs to post a photo or video to their primary feeds and Stories, and relevant URLs be embedded in their stories and placed in their Bios. Except for explicit statements relating to DAR's project details, I gave SMIs creative freedom in the designs of their sponsored content. The number of sponsored SMIs varied from 3 to 5 across DAR's projects (Table A-1). With the exception of Project 4, sponsored SMIs were compensated \$250 per project and told to post to either Instagram or YouTube; in Project 4, they received \$500 and assigned to both platforms (Table 3).

Table 3 - The State of Hawaii Division of Aquatic Resources's (DAR) projects and the platforms on which sponsored content was posted. Social media influencers (SMIs) were compensated by DAR between $250 and $500 to create and post sponsored content to elicit stakeholders' participation in a particular project. SMIs were directed to post their sponsored content to either Instagram, YouTube, or both. For Project 4, SMIs posted sponsored content on both Instagram and YouTube and were compensated with $500.

DAR Project	Project 1	Project 2	Project 3	Project 4
Instagram	N	N	Y	Y
YouTube	Y	Y	N	Y
Compensation for Each Influencer	$250	$250	$250	$500

Data Collection

I adapted the data collection methodology to the various outreach methodology used across DAR's four Projects. Each project was treated as an iterative case study, providing lessons I incorporated into the data collection methodology of subsequent projects. All meeting attendance data were recorded and provided by DAR. I hosted both surveys on Google Forms. I included survey questions to identify how users found the study, the specific SMIs that might have informed them, and their stakeholder identities. Beginning in Project 2, I generated unique URLs for DAR for each sponsored SMI to post; for both surveys, these URLs saved responses to independent spreadsheets. In Project 3, I began shortening URLs by embedding Urchin Tracking Modules (UTMs) using Bit.ly, which allowed me to track where users clicked URLs. I collected SMI follower counts, post likes, and views from publicly available account information. Sponsored influencers volunteered data on post impressions and engagements.

Data Analysis

I quantified the effectiveness of sponsored posts for both meetings by comparing the project's meeting attendances against the average of DAR's past meeting records, confirming any statistical difference using a one-sample t-test. I quantified the effectiveness of sponsored posts in driving survey responses as differences in the number of responses elicited from each independent URL. I detected SMI-focused trends with Pearson's product-moment correlations using sponsored SMI follower counts, likes, impressions, URL click-throughs, and survey response rates.

I used the responses to survey questions to understand how users learned of the survey, how the survey spread externally to DAR's website and sponsored SMI posts, and to determine respondents' stakeholder identities. I assumed external spreading would follow the characteristics of marketing "seeding," in which an original post seeds information which is then shared organically through social networks (Goldenberg et al., 2009; Hinz et al., 2011)**.**

To determine the effectiveness of individual SMIs and their abilities to engage with stakeholders, I created a metric named "Response Per Mille Follower" (RPMF), which I based on the Cost Per Mille (CPM) metric used in marketing to quantify the cost of 1000 ad impressions. RPMF quantifies the amount of a given response per 1000 followers. This metric holds followers constant, normalizing the differences between the sizes of SMIs' follower counts. I used RPMF to quantify the difference between SMIs' abilities to mobilize their followers to respond to an outreach attempt.

To determine SMIs' abilities to mobilize stakeholders, I used the independent survey datasets and the survey questions to group respondents by stakeholder identity. I then tied the groupings to the originating SMI, quantified the RPMF values of "stakeholder responses," and compared them to "total responses" RPMF values.

Results

Project 1

Project 1, an in-person meeting on the island of Maui, resulted in 192 attendees, a significant increase of 83.1% compared to the average attendance (104.9) of recent DAR stakeholder meetings ($p<0.01$) (Table 4).

Table 4 - The State of Hawaii Division of Aquatic Resources (DAR) stakeholder meeting attendance records, their average, and the number of attendees who attended the "Project 1" meeting, promoted through influencer marketing. None of the historic stakeholder meetings utilized influencer marketing (IM) to engage stakeholders. DAR collected and provided all

attendance data. The statistical significance of any attendance differences was confirmed using a one-sample t-test. The “Project 1” meeting had a total of 192 attendees, which was a significant increase of 83.1% ($p<0.01$) above the average attendance of DAR’s past stakeholder meetings.

	Attendance
Milolii Statewide Scoping	83
Milolii Public Hearing In-person	85
Kipahulu Statewide Scoping	99
Herbivore Scoping	161
Lay Net Permit Informational Meeting	7
Holomua HFACT Kauai Session	150
Holoholo Attendance (1/27/22)	149
Historic Average	104.9
"Project 1" Meeting	192

<u>Project 2</u>

Project 2, an online survey seeking to understand stakeholder practices and perspectives on shark fishing, resulted in 3,277 survey responses. However, only seven responses resulted from sponsored SMIs. While 3,270 respondents used the survey URL posted originally on DAR’s website, only 42 respondents clicked the URL on DAR's website. The remaining 3,223 responses were primarily the result of the survey “going viral” (Table A2). On 01/26/23, DAR informed the attendees of the stakeholder meeting associated with Project 3 of the survey. The following day, independent SMIs began to include the URL in their Instagram posts (Table A3). Of the confirmed SMI posts between 01/27/23 and 01/30/23, each appeared to be advocating for the protection of sharks. Two “fishing” influencers made posts using the URL starting on 01/30/23, seemingly as a counter to the “shark” influencers. One of these SMIs was Influencer 1, who was not sponsored during Project 2. Between the first SMI post on 01/23/23 and 02/01/23, there were 3,192 responses.

I confirmed 2,179 responses originating from independent SMIs' (Figure 2). The total response and stakeholder response RPMF values varied across each independent SMI (Figure 3). When SMIs are grouped by the central topic of their regular posts, "fishing" SMIs, those making posts about fishing in Hawaii or shark fishing, and "shark" SMIs, those posting about shark conservation and diving with sharks, I found a stark difference in their abilities to mobilize stakeholders. The stakeholder response RPMF values of "fishing" SMIs (4.11) was 11,813% larger than that of "shark" SMIs (0.03). Furthermore, the stakeholder response RPMF value of "fishing" SMIs was 93% of the total response RPMF value, while for "shark" SMIs, it was only 7% (Figure 4).

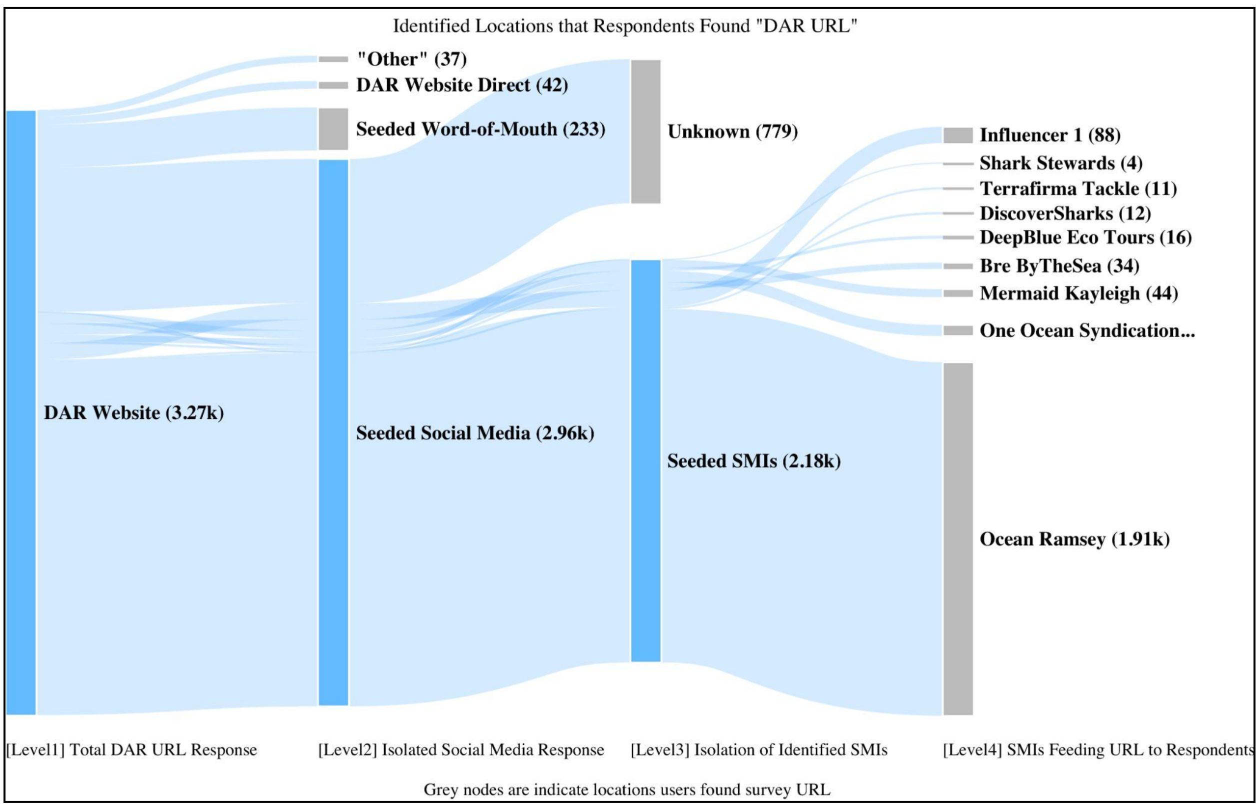

Figure 2 - Sankey Chart depicting sources that respondents of a State of Hawaii Division of Aquatic Resources (DAR) survey found and clicked the survey's URL. All survey responses were made through a URL originally posted on DAR's official website, depicted on the far left [Level 1] column of the figure. A survey question asked respondents where they found the URL, which enabled me to categorize the sources respondents clicked the survey URL, depicted in the [Level 2] column. Only 42 respondents reported clicking the URL on DAR's official website.

The URL, initially "seeded" on DAR's website, was spread across social media by independent social media influencers (SMIs). A second question asked respondents to name the accounts of any SMI they found the URL through, enabling me to group the respondents by the particular SMI independently posting the URL and eliciting their followers to complete the survey.

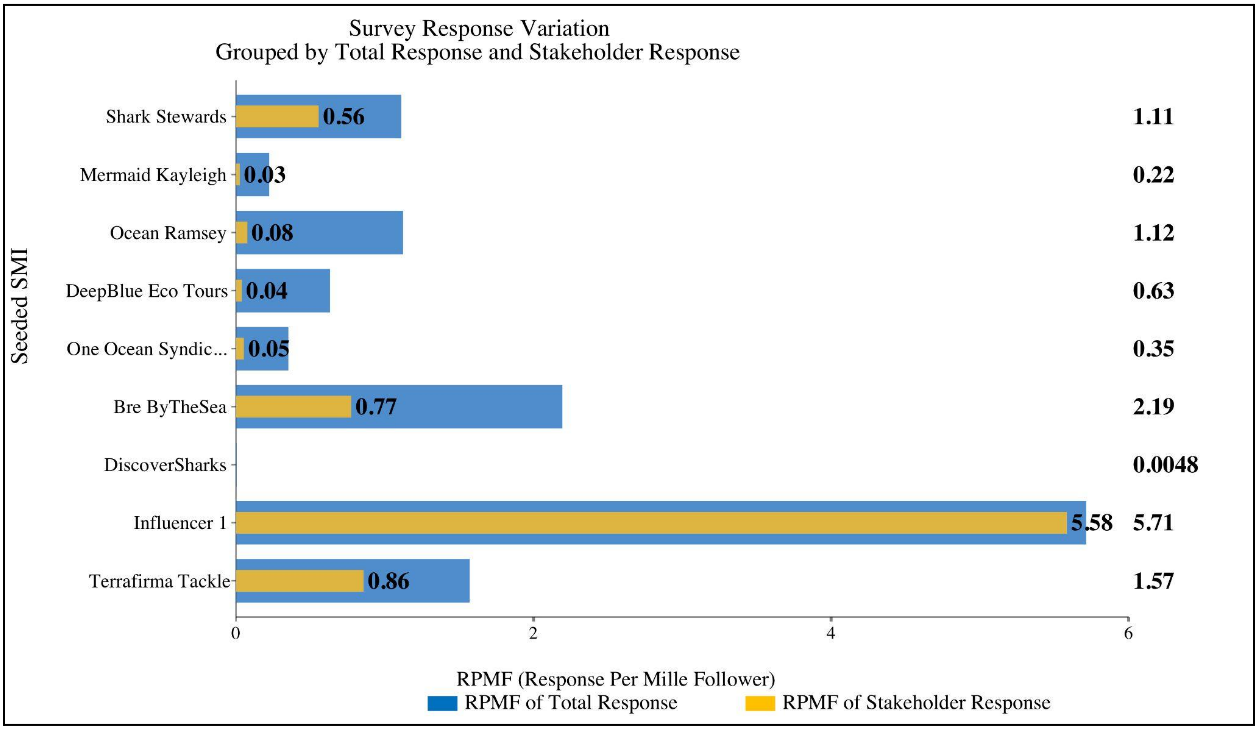

Figure 3 - The effectiveness of social media influencers (SMIs) at unilaterally driving responses to a State of Hawaii Division of Aquatic Resources (DAR) stakeholder survey. Survey respondents are grouped by the SMIs who elicited their participation in the survey via their Instagram posts. Each SMI has its effectiveness of driving total responses and stakeholder responses quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" a particular stakeholder engagement approach an SMI was able to drive, per 1,000 of their followers. RPMF values are displayed as "total response" in blue, and "stakeholder response" in yellow. "Stakeholder response" is a subgrouping of the "total response" derived by grouping responses as stakeholders or non-stakeholders based on their answers to survey questions. Influencer 1, whose posts focused on fishing in Hawaii, was most effective at engaging DAR's core stakeholders, those who fish in Hawaii.

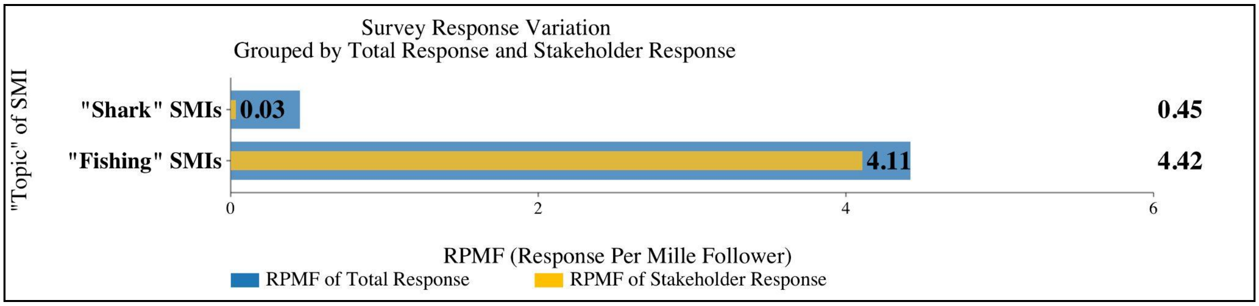

Figure 4 - The effectiveness of social media influencers (SMIs) in unilaterally driving responses to a State of Hawaii Division of Aquatic Resources (DAR) stakeholder survey, categorized by the primary topics of their regular posts. "Shark" SMIs, are those who post about diving with sharks and shark conservation, while "Fishing" SMIs post about fishing in Hawaii or Shark Fishing. Survey respondents were grouped by the SMIs who elicited their participation in the survey via their Instagram posts. The SMIs were then placed into one of the two categories based on the topics of their most recent ten posts. Both SMI categories have the effectiveness of driving total responses and stakeholder responses quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" a particular stakeholder engagement approach an SMI was able to drive, per 1,000 of their followers. Category RPMF values were derived from the sum totals of the number of responses and followers associated with all SMIs placed into the category. "Stakeholder response" is a subgrouping of the "total response" derived by grouping responses as stakeholders or non-stakeholders based on their answers to survey questions. "Fishing" SMIs were 11,813% more effective at engaging DAR's core stakeholders, those who fish in Hawaii.

<u>Project 3</u>

Project 3, a virtual meeting to brief stakeholders across Hawaii on upcoming policy, resulted in 158 attendees, a significant increase of 50.7% compared to DAR's recent attendance records ($p<0.05$) (Table 5). There were 80 clicks on the URLs posted by sponsored SMIs (Table A4). URL clicks were strongly correlated with the number of likes that previous posts received (r=0.879), and the size of influencers' following (r=0.804), and moderately correlated to the number of views sponsored stories received (r=0.796), and the number of likes the sponsored posts received (r=0.698) (Table A5).

Influencer RPMF values were variable, with the lowest value (0.27) assigned to the influencer holding the largest following (156,000 followers) (Figure 5).

Table 5 - The State of Hawaii Division of Aquatic Resources (DAR) stakeholder meeting attendance records, their average, and the number of attendees who attended the "Project 1" meeting, promoted through influencer marketing. None of the historic stakeholder meetings utilized influencer marketing (IM) to engage stakeholders. DAR collected and provided all attendance data. The statistical significance of any attendance differences was confirmed using a one-sample t-test. The "Project 3" meeting had a total of 158 attendees, which was a significant increase of 50.7% ($p<0.05$) above the average attendance of DAR's past stakeholder meetings.

	Attendance
Milolii Statewide Scoping	83
Milolii Public Hearing In-person	85
Kipahulu Statewide Scoping	99
Herbivore Scoping	161
Lay Net Permit Informational Meeting	7
Holomua HFACT Kauai Session	150
Holoholo Attendance (1/27/22)	149
Historic Average	104.9
"Project 2" Meeting	158

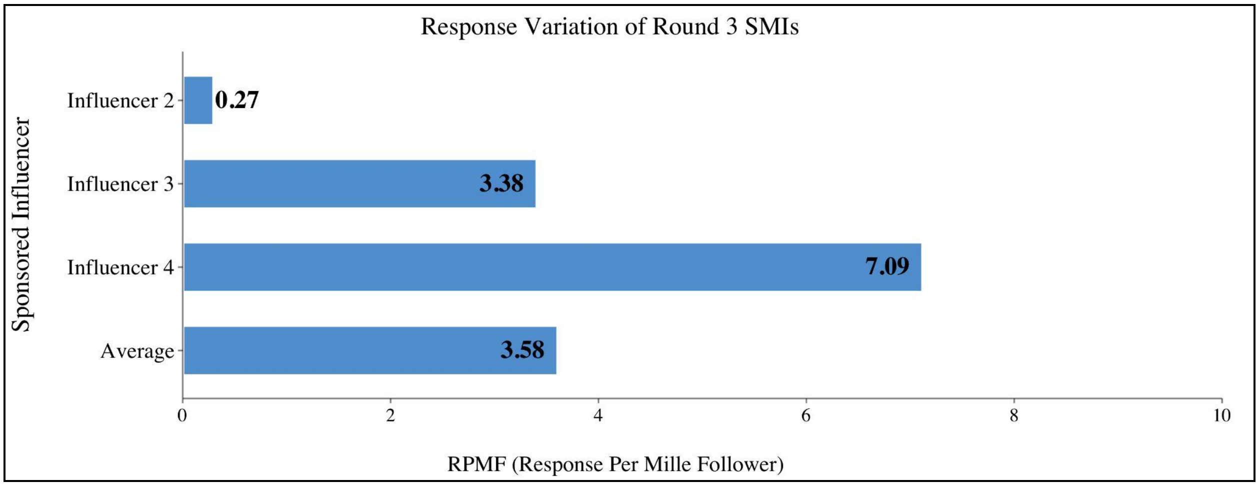

Figure 5 - The effectiveness of sponsored social media influencers (SMIs) in driving attendance to a State of Hawaii Division of Aquatic Resources (DAR) stakeholder meeting. Each SMI's effectiveness is quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" a particular stakeholder engagement approach an SMI was able to drive, per 1,000 of their followers. SMIs' intended "response" is derived from the total number of URL clicks leading to DAR's stakeholder meeting each SMI was able to elicit via their sponsored posts.

<u>Project 4</u>

Project 4, an online survey seeking to understand stakeholders' practices and perspectives on drone fishing, resulted in 191 survey responses, 96.3% of which originated from sponsored posts (Table A6). 100% of SMI elicited respondents were core stakeholders. SMIs made sponsored posts to both Instagram and YouTube during this project. While sponsored Instagram posts resulted in 122 and YouTube 48, 62.3% of those clicking a URL on YouTube completed the survey, whereas the completion rate was 39.2% through Instagram (Figure 6).

RPMF values varied between platforms, with Instagram posts providing the highest individual and average RPMF values (Table A7). The average stakeholder RPMF value on Instagram was 5.819, and on YouTube 1.006 (Table A8). Stakeholder RPMF values for sponsored posts made to Instagram were 452% higher than those made to YouTube (Figure 7).

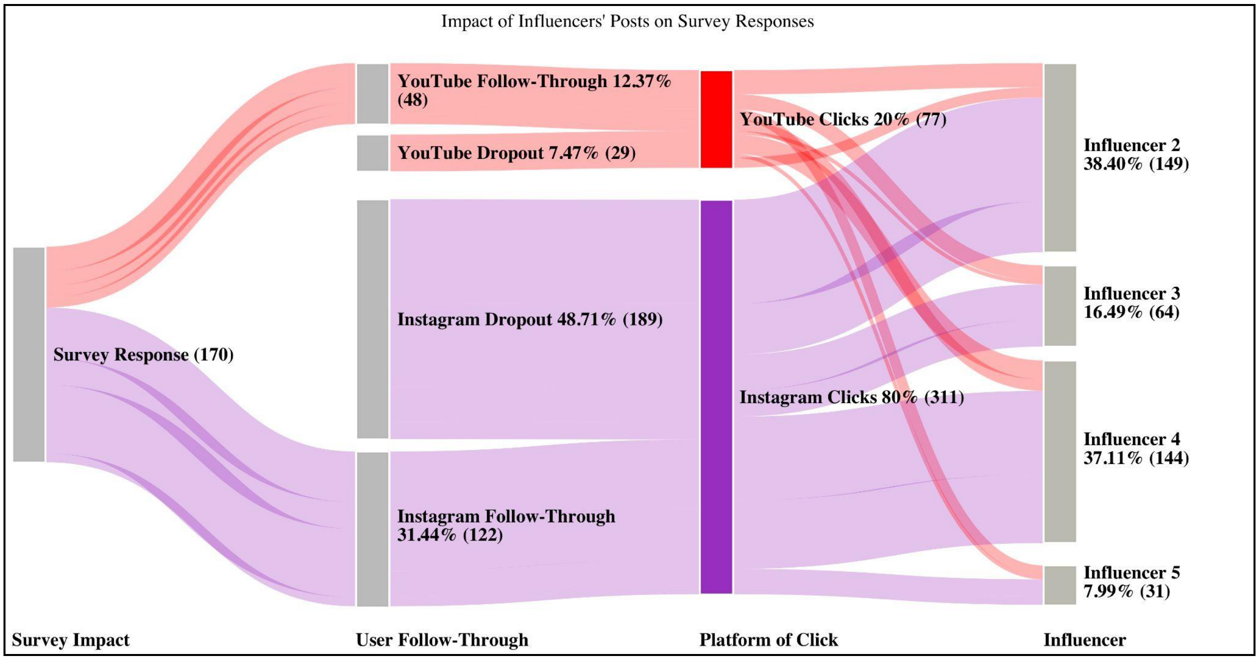

Figure 6 - Sankey Chart depicting the survey responses elicited by four social media influencers (SMIs) sponsored by the State of Hawaii Division of Aquatic Resources (DAR). Sponsored SMIs posted on both Instagram and YouTube in an attempt to elicit their followers to participate in DAR's online stakeholder survey. The SMIs sponsored posts resulted in a total of 184 survey responses; 170 were definitively tied to a particular platform based on respondents' answers to the survey. The specific platform that URLs were clicked on was tracked through a bit.ly link with an Urchin Tracking Module. Each SMI was provided a unique URL that led users to a survey that collected answers on an independent spreadsheet. The SMI responses generated by each SMI were collectively grouped by the platforms respondents reported clicking the URL. Dropout was calculated from the number of clicks all URLs received on a platform subtracted by the number who completed respondents grouped by that platform. While Instagram drove the most responses, a larger proportion of YouTube users completed the survey after clicking a URL.

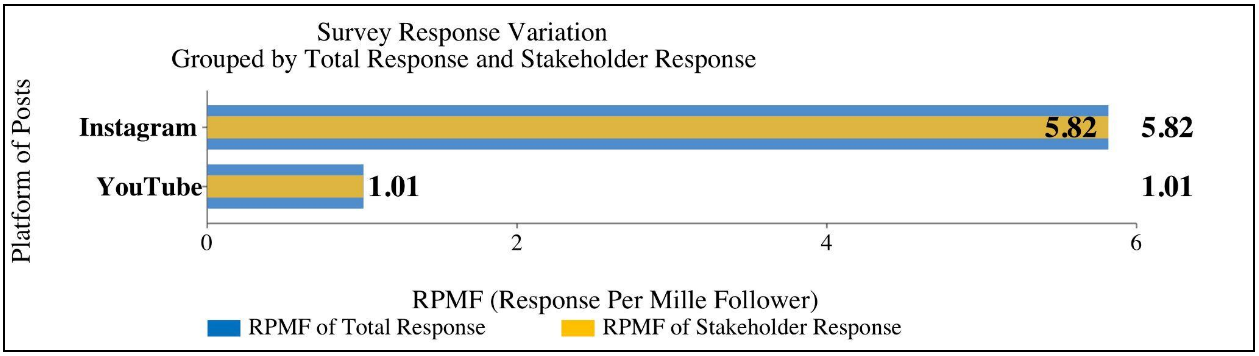

Figure 7 - The effectiveness of sponsored social media influencers (SMIs) in driving responses to a State of Hawaii Division of Aquatic Resources (DAR) stakeholder survey, categorized by the platforms sponsored posts were made to. The effectiveness of sponsored posts on either platform is quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" a particular stakeholder engagement approach an SMI's posts was able to drive, per 1,000 of their followers. Each SMI was provided a specific URL that led users to a survey that collected answers on an independent spreadsheet. Respondents were grouped by the platform they clicked a survey URL through, which was determined by their survey answers. Platform RPMF values were derived from the sum totals of the number of platform-grouped responses and the total followers of sponsored SMIs' accounts on those platforms. "Stakeholder response" is a subgrouping of the "total response" derived by sub-grouping responses as stakeholders or non-stakeholders based on their answers to the survey questions. As 100% of the survey responses resulting from sponsored SMIs were determined to be stakeholders, total and stakeholder RPMF values in this figure are equal. Sponsored Instagram posts elicited 452% more stakeholder responses than that of sponsored YouTube content.

Discussion

The objective of this project was accomplished; the stakeholders of an environmental manager were identified and engaged through the use of Influencer Marketing. This project found that stakeholders gather around SMIs producing content on the same activities and geographies that define the stakeholder group. Based on SMIs' ability to mobilize an equal proportion of their followers, influencers that produced stakeholder-topical content were, on average, 6.94 to 118.13 times more effective than SMIs creating off-topic content. This finding appears to reflect SMI traits that drive the effectiveness of IM for marketing purposes (Hugh et al., 2022; Leung, Gu, & Palmatier, 2022). The similarities of an SMI to its sponsor and audience appear to be central factors modulating marketing outcomes (Leung, Gu, Li, et al., 2022). In the context of this project, the similarity between SMIs and stakeholders might be modulating both the likelihood SMIs have concentrations of stakeholders in their followings and the ability of SMIs to mobilize stakeholders. Stakeholders might share an interest in viewing content about the activities' location central to their identities and thereby collectively concentrate around the SMIs making such content. Additionally, topical SMIs and stakeholders share central aspects of their identities, enabling these SMIs to provide perspectives on environmental management and the importance of the SE process that resonates with stakeholders. Conversely, off-topic SMIs might not be making content on the topics large proportions of stakeholders share an interest in, lowering the likelihood that stakeholders will concentrate around their content. Furthermore, off-topic SMIs could be sharing information from perspectives that are not similar to that of stakeholders, possibly lowering their ability to elicit stakeholders to engage with environmental managers.

The tone of sponsored messaging affected both SE effectiveness and management decisions. Sponsored content containing negative perspectives of DAR and its policies was effective at engaging stakeholders to participate in DAR projects. Influencer 1's posts included negative views of DAR's policies and projects but of all SMIs identified in Project 2, Influencer-1 had the highest stakeholder-RPMF values. From a marketing perspective, sponsored posts incorporating negative perspectives of a brand or product enhance followers' perceptions of authenticity and improve marketing outcomes (Leung, Gu, Li, et al., 2022; Uribe et al., 2016). Posts including negative perspectives could be viewed by stakeholders holding similar views as authentic, whereas posts with purely positive messaging might be seen as inauthentic and, therefore, unengaging. As difficulties in meaningfully engaging entrenched stakeholders have historically plagued environmental managers and hindered many projects, sponsoring SMIs that include some level of negative perspectives may provide managers with a unique opportunity to rebuild relationships with these stakeholders and overcome long-standing management issues (Degnbol et al., 2006; Jentoft, 2000b; Weinstein et al., 2007). In practice, however, Environmental managers might find sponsor content containing negative perspectives difficult. In the case of Influencer-1, DAR discontinued sponsoring this SMI after Project 1. DAR found

Influencer 1's sponsored post overcritical and potentially misleading, placing the agency at risk of blowback for sponsoring the content.

While examples of government's SMI-related fallout show minimal risk (Ong & Ito, 2019), the actions of independent SMIs can directly negatively affect environmental managers. The dataset from the online survey for Project 2 held the potential to significantly mislead decision-makers. By including survey questions that let me determine how respondents found the survey, I could discover that about 2,000 responses originated from a viral advocacy campaign. SMIs had requested their followers follow a script when answering the survey to affect the outcome of DAR's decision-making. Without the questions that allowed me to learn of these SMIs and their posts, DAR would have a dataset of 3,277 responses without knowing that most responses were scripted and provided by individuals with little to no stake in the project's outcome. As long as environmental managers engage their stakeholders with the use of the internet, they need to account for the possibility that a project might be picked up by independent SMIs, become viral, and be dramatically affected.

The specific differences between SMIs covering the same topic and their abilities to engage stakeholders remain unclear. SMIs with larger-sized followings are not necessarily more effective at SE. While the largest sponsored SMI repeatedly elicited the most stakeholder responses, the influencers closer to fitting the "micro-influencer" category (under 10,000 followers) displayed the highest RPMF values. As is the case for marketing outcomes, stakeholders might view micro-influencers as more relatable and authentic messengers (Kay et al., 2020; Pozharliev et al., 2022). Alternatively, as the correlation between the proportion of SMIs followers who viewed a sponsored Instagram Story and the number of URL clicks elicited from those posts was strongly negative (-0.993), it could be that the proportion of a following that is actively engaging with a SMIs content supersedes follower counts and that micro-influencers are not necessarily more relatable or authentic, but are more likely to have active followers due a self-selection process, in which those who decide to follow micro-influencers are innately highly active followers.

The utility of particular platforms and types of content seemed to depend on the approach of DAR's projects. While the meeting associated with sponsored YouTube content received more attendees than that of Instagram, it is unknown how the topics and locations of these meetings might have affected them. Sponsored Instagram posts were consistently the most effective for engaging stakeholders through online surveys. However, in Project 4, while there were 311 survey URL clicks through Instagram, only 39.2% resulted in a completed response, while 68.9% of the 70 clicks originating from sponsored YouTube posts completed the survey. These trends hint at the possibility that Instagram facilitates engagement requiring immediate action while YouTube promotes follow-through, trends similar to the platforms' utility for marketers (Lou et al., 2023).

Conclusion

Social media has fundamentally changed how our society communicates and forms communities. This change has created challenges and opportunities for environmental managers wherein operations may be disrupted or supplemented. With the climate likewise undergoing unprecedented change, how managers currently adjust to social media use might determine how effective they are at adapting to the environments of our near future. SMIs represent a novel opportunity to overcome long-standing difficulties in the stakeholder engagement process. While this project appears to be the only test of a government agency sponsoring SMIs as an approach to engage stakeholders in projects relating to the management of the environment, it has illustrated the potential. Influencer marketing dissolves the requirements of building an online following, bypasses the efforts needed to locate physically decentralized stakeholders, and provides a messenger who can communicate with stakeholders effectively. Social media influencers can enable decision-makers to understand the implications of their projects, proactively co-design management solutions, and ensure the health of our environments.

References

Alves, H., Fernandes, C., & Raposo, M. (2016). Social Media Marketing: A Literature Review and Implications: IMPLICATIONS OF SOCIAL MEDIA MARKETING. *Psychology & Marketing*, *33*(12), 1029–1038. https://doi.org/10.1002/mar.20936

Anderson-Wilk, M. (2009). Changing the engines of change: Natural resource conservation in the era of social media. *Journal of Soil and Water Conservation*, *64*(4), 129A-131A. https://doi.org/10.2489/jswc.64.4.129A

Bryson, J. M. (2004). What to do when Stakeholders matter. *Public Management Review*, *6*(1), 21–53. https://doi.org/10.1080/14719030410001675722

Campbell, C., & Farrell, J. R. (2020). More than meets the eye: The functional components underlying influencer marketing. *Business Horizons*, *63*(4), 469–479. https://doi.org/10.1016/j.bushor.2020.03.003

Childers, C. C., Lemon, L. L., & Hoy, M. G. (2019). #Sponsored #Ad: Agency Perspective on Influencer Marketing Campaigns. *Journal of Current Issues & Research in Advertising*, *40*(3), 258–274. https://doi.org/10.1080/10641734.2018.1521113

Claussen, J. E., Cooney, P. B., Defilippi, J. M., Fox, S. G., Glaser, S. M., Hawkes, E., Hutt, C., Jones, M. H., Kemp, I. M., Lerner, A., Midway, S. R., Nesbit, S., Osborne-Gowey, J., Roberts, R., & Steward, C. (2013). Science Communication in a Digital Age: Social Media and the American Fisheries Society. *Fisheries*, *38*(8), 359–362. https://doi.org/10.1080/03632415.2013.816289

Conservation Measures Partnership. (2020). *OPEN STANDARDS FOR THE PRACTICE OF CONSERVATION Version 4.0* (p. 81). http://conservationstandards.org/wp-content/uploads/sites/3/2020/12/CMP-Open-Standards-for-the-Practice-of-Conservation-v4.0-English.pdf

Degnbol, P., Gislason, H., Hanna, S., Jentoft, S., Raakjær Nielsen, J., Sverdrup-Jensen, S., & Clyde Wilson, D. (2006). Painting the floor with a hammer: Technical fixes in fisheries management. *Marine Policy*, *30*(5), 534–543. https://doi.org/10.1016/j.marpol.2005.07.002

Di Minin, E., Tenkanen, H., & Toivonen, T. (2015). Prospects and challenges for social media data in conservation science. *Frontiers in Environmental Science*, *3*. https://doi.org/10.3389/fenvs.2015.00063

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.

Goldenberg, J., Han, S., Lehmann, D. R., & Hong, J. W. (2009). The Role of Hubs in the Adoption Process. *Journal of Marketing*, *73*(2), 1–13. https://doi.org/10.1509/jmkg.73.2.1

Graham, M. W. (2014). Government communication in the digital age: Social media's effect on local government public relations. *Public Relations Inquiry*, *3*(3), 361–376. https://doi.org/10.1177/2046147X14545371

Hinz, O., Skiera, B., Barrot, C., & Becker, J. U. (2011). Seeding Strategies for Viral Marketing: An Empirical Comparison. *Journal of Marketing*, *75*(6), 55–71. https://doi.org/10.1509/jm.10.0088

Hudders, L., De Jans, S., & De Veirman, M. (2021). The commercialization of social media stars: A literature review and conceptual framework on the strategic use of social media influencers. *International Journal of Advertising*, *40*(3), 327–375. https://doi.org/10.1080/02650487.2020.1836925

Hugh, D. C., Dolan, R., Harrigan, P., & Gray, H. (2022). Influencer marketing effectiveness: The mechanisms that matter. *European Journal of Marketing*, *56*(12), 3485–3515. https://doi.org/10.1108/EJM-09-2020-0703

Hwong, Y.-L., Oliver, C., Van Kranendonk, M., Sammut, C., & Seroussi, Y. (2017). What makes you tick? The psychology of social media engagement in space science communication. *Computers in Human Behavior*, *68*, 480–492. https://doi.org/10.1016/j.chb.2016.11.068

Jaakonmäki, R., Müller, O., & vom Brocke, J. (2017). *The Impact of Content, Context, and Creator on User Engagement in Social Media Marketing*. Hawaii International Conference on System Sciences. https://doi.org/10.24251/HICSS.2017.136

Jentoft, S. (2000a). The community: A missing link of fisheries management. *Marine Policy*, *24*((2000) 53-59). https://doi.org/10.1016/S0308-597X(99)00009-3

Jentoft, S. (2000b). The community: A missing link of fisheries management. *Marine Policy*, *24*((2000) 53-59). https://doi.org/10.1016/S0308-597X(99)00009-3

Jin, S. V., & Ryu, E. (2020). "I'll buy what she's #wearing": The roles of envy toward and parasocial interaction with influencers in Instagram celebrity-based brand endorsement and social commerce. *Journal of Retailing and Consumer Services*, *55*, 102121. https://doi.org/10.1016/j.jretconser.2020.102121

Kay, S., Mulcahy, R., & Parkinson, J. (2020). When less is more: The impact of macro and micro social media influencers' disclosure. *Journal of Marketing Management*, *36*(3–4), 248–278. https://doi.org/10.1080/0267257X.2020.1718740

Kent, M. L. (2013). Using social media dialogically: Public relations role in reviving democracy. *Public Relations Review*, *39*(4), 337–345. https://doi.org/10.1016/j.pubrev.2013.07.024

Lee, N. M., & VanDyke, M. S. (2015). Set It and Forget It: The One-Way Use of Social Media by Government Agencies Communicating Science. *Science Communication*, *37*(4), 533–541. https://doi.org/10.1177/1075547015588600

Leong, K. M., & Decker, D. J. (2020). *Human Dimensions Considerations in Wildlife Disease Management* (Techniques and Methods) [Techniques and Methods].

Leung, F. F., Gu, F. F., Li, Y., Zhang, J. Z., & Palmatier, R. W. (2022). Influencer Marketing Effectiveness. *Journal of Marketing*, *86*(6), 93–115. https://doi.org/10.1177/00222429221102889

Leung, F. F., Gu, F. F., & Palmatier, R. W. (2022). Online influencer marketing. *Journal of the Academy of Marketing Science*, *50*(2), 226–251. https://doi.org/10.1007/s11747-021-00829-4

Lou, C. (2022). Social Media Influencers and Followers: Theorization of a Trans-Parasocial Relation and Explication of Its Implications for Influencer Advertising. *Journal of Advertising*, *51*(1), 4–21. https://doi.org/10.1080/00913367.2021.1880345

Lou, C., Taylor, C. R., & Zhou, X. (2023). Influencer Marketing on Social Media: How Different Social Media Platforms Afford Influencer–Follower Relation and Drive Advertising Effectiveness. *Journal of Current Issues & Research in Advertising*, *44*(1), 60–87. https://doi.org/10.1080/10641734.2022.2124471

Lou, C., & Yuan, S. (2019). Influencer Marketing: How Message Value and Credibility Affect Consumer Trust of Branded Content on Social Media. *Journal of Interactive Advertising*, *19*(1), 58–73. https://doi.org/10.1080/15252019.2018.1533501

Okuah, O., Scholtz, B. M., & Snow, B. (2019). A Grounded Theory Analysis of the Techniques Used by Social Media Influencers and Their potential for Influencing the Public Regarding Environmental Awareness. *Proceedings of the South African Institute of Computer Scientists and Information Technologists 2019 on ZZZ - SAICSIT '19*, 1–10. https://doi.org/10.1145/3351108.3351145

Ong, Y. X., & Ito, N. (2019). "I Want to Go There Too!" Evaluating Social Media Influencer Marketing Effectiveness: A Case Study of Hokkaido's DMO. In J. Pesonen & J. Neidhardt (Eds.), *Information and Communication Technologies in Tourism 2019* (pp. 132–144). Springer International Publishing. https://doi.org/10.1007/978-3-030-05940-8_11

Pozharliev, R., Rossi, D., & De Angelis, M. (2022). A picture says more than a thousand words: Using consumer neuroscience to study instagram users' responses to influencer advertising. *Psychology & Marketing*, *39*(7), 1336–1349. https://doi.org/10.1002/mar.21659

Richmond, L., Kotowicz, D., & Hospital, J. (2015). Monitoring socioeconomic impacts of Hawai'i's 2010 bigeye tuna closure: Complexities of local management in a global fishery. *Ocean & Coastal Management*, *106*, 87–96. https://doi.org/10.1016/j.ocecoaman.2015.01.015

Schouten, A. P., Janssen, L., & Verspaget, M. (2019). Celebrity vs. Influencer endorsements in advertising: The role of identification, credibility, and P. *INTERNATIONAL JOURNAL OF ADVERTISING*, 25.

Sedereviciute, K., & Valentini, C. (2011). Towards a More Holistic Stakeholder Analysis Approach. Mapping Known and Undiscovered Stakeholders from Social Media. *International Journal of Strategic Communication*, *5*(4), 221–239. https://doi.org/10.1080/1553118X.2011.592170

Statista. (2022, July 8). *Topic: Social media usage in the United States*. Statista. https://www.statista.com/topics/3196/social-media-usage-in-the-united-states/

Uribe, R., Buzeta, C., & Velásquez, M. (2016). Sidedness, commercial intent and expertise in blog advertising. *Journal of Business Research*, *69*(10), 4403–4410.

Vrontis, D., Makrides, A., Christofi, M., & Thrassou, A. (2021). Social media influencer marketing: A systematic review, integrative framework and future research agenda. *International Journal of Consumer Studies*, *45*(4), 617–644. https://doi.org/10.1111/ijcs.12647

Weinstein, M. P., Baird, R. C., Conover, D. O., Gross, M., Keulartz, J., Loomis, D. K., Naveh, Z., Peterson, S. B., Reed, D. J., Roe, E., Swanson, R. L., Swart, J. A., Teal, J. M., Turner, R. E., & van der Windt, H. J. (2007). Managing coastal resources in the 21st century.

Frontiers in Ecology and the Environment, *5*(1), 43–48. https://doi.org/10.1890/1540-9295(2007)5[43:MCRITS]2.0.CO;2

Ye, G., Hudders, L., De Jans, S., & De Veirman, M. (2021). The Value of Influencer Marketing for Business: A Bibliometric Analysis and Managerial Implications. *Journal of Advertising*, *50*(2), 160–178. https://doi.org/10.1080/00913367.2020.1857888

Appendix

Paragraph A1: Search terms used to find social media influencers making content about fishing in Hawaii. **"**Hawaii Fishing, Fishing in Hawaii, Hawaii Diving, Diving in Hawaii, Spearfishing Hawaii, Hawaii Spearfishing, Hawaii Boat Fishing, Shore Fishing Hawaii, Trolling in Hawaii, Ulua Fishing, Hawaii Dunking, Hawaii Whipping, Hawaii Catch and Cook, Menpachi Fishing, Papio Fishing, Akule Fishing, Big Island fishing, Maui fishing, Oahu fishing, Kauai fishing."

Table A1 - Social media influencers (SMIs), labeled Influencer 1 to Influencer 5, who made sponsored posts dedicated to engaging stakeholders and gaining their participation in a Division of Aquatic Resources (DAR) project, labeled Project 1 to Project 4. Sponsored posts were made by participating SMIs on a project-to-project basis. The number of SMIs making sponsored posts varied across each of the four DAR projects. SMIs who made a sponsored post associated with a particular DAR project are represented as "Y"; those not making a post for the specific project are represented by "N."

	Project 1	Project 2	Project 3	Project 4
Influencer 1	Y	*N*	*N*	*N*
Influencer 2	Y	*N*	Y	Y
Influencer 3	*N*	Y	Y	Y
Influencer 4	Y	Y	Y	Y
Influencer 5	Y	Y	Y	Y

Table A2 - The sources that respondents of a State of Hawaii Division of Aquatic Resources (DAR) survey found and clicked the survey's URL. With the exception of the seven responses originating from sponsored social media influencer (SMI) posts, all of the survey responses were made through a URL that was originally posted on DAR's official website. Only 42 respondents who clicked the URL did so on DAR's official website. Those clicking the URL external to DAR's website, referred to as "Seeded" sources, were largely the result of independent SMIs posting the URL on their accounts. Total stakeholder responses are a subset of the total survey response, which was categorized by respondents' answers to stakeholder identity survey questions, as were the locations respondents located and clicked the URL.

	Total Survey Responses	Stakeholder Survey Responses
Sponsored SMIs	7	7
DAR Website Direct	42	18
DAR Seeded Word-of-Mouth	233	128
DAR Seeded Social Media	2958	433
DAR Seeded "Other"	37	11
Total	*3277*	*597*

Table A3 - The Social Media Influencers (SMIs) that were able to be confirmed as making unsponsored posts that drove responses to one of the State of Hawaii Division of Aquatic Resources (DAR) stakeholder surveys. Confirmed posts were found only on Instagram. SMIs and their follower counts, and the likes of the confirmed posts are listed in the three left columns. As DAR originally posted the survey URL to their official website, the SMIs are referred to as "Seeded." N/A values represent Instagram Stories posts, which had no publicly available engagement data. The number of total survey responses each SMI drove is in column four, and the number of those responses who were confirmed as stakeholders through survey questions is in column five. Influencer 1 was not sponsored or briefed on the survey. The final column records the first survey response tied to each SMI through survey questions. Influencer 1, bolded in the table, was originally sponsored to engage stakeholders in DAR's projects, but was not sponsored to make any posts regarding this survey.

Seeded SMIs	Followers (Instagram)	Unsponsored Post Likes	Total Survey Responses	Stakeholder Survey Responses	Date and Time of First Response
Shark Stewards	3,600	190	4	2	1/27/2023 8:42:16
Mermaid	197,000	N/A	44	5	1/27/2023 17:29:40
Ocean Ramsey	1,700,000	55940	1910	130	1/27/2023 22:19:57
DeepBlue Eco	25,300	N/A	16	1	1/28/2023 15:26:29
One Ocean	170,400	2470	60	9	1/29/2023 13:24:46
Bre ByTheSea	15,500	NA	34	12	1/29/2023 17:11:27
DiscoverSharks	2,500,000	8365	12	0	1/30/2023 0:31:02
Influencer 1	**15,400**	**776**	**88**	**86**	*1/30/2023 19:47:00*
Terrafirma	7,000	N/A	11	6	1/31/2023 8:15:52
Totals	*4,634,200*	*67741*	*2179*	*251*	

Table A4 - Stakeholder engagement response from the content posted to Instagram by sponsored social media influencers (SMIs). Four SMIs of various follower sizes made sponsored posts to their Instagram Feeds and Instagram Stories in an attempt to drive the State of Hawaii Division of Aquatic Resources's (DAR) stakeholders to attend a virtual stakeholder meeting. Mean post likes represent the average amount of likes the most recent 10 non-sponsored posts received. Sponsored post likes and sponsored story views were provided by the SMIs, and URL Clicks were tracked through a bit.ly link with an Urchin Tracking Module. Each SMI received independent URLs.

	Follows (Instagram)	Mean Post Likes	Sponsored Post Likes	Sponsored Story Views	URL Clicks
Influencer 1	Not Sponsored	Not Sponsored	Not Sponsored	Not Sponsored	Not Sponsored
Influencer 2	156000	3427.8	79	4230	42
Influencer 3	2664	299.9	35	327	9
Influencer 4	4090	800.1	107	304	29
Influencer 5	3623	636.1	83	446	N/A

Table A5 - Pearson's product-moment correlations run between sponsored social media influencers, their account characteristics, the engagement their sponsored posts received, and the number of clicks to a government-hosted stakeholder engagement meeting their sponsored content resulted in. Mean post likes represent the average amount of likes on a SMIs last 10 non-sponsored posts. Historic post likes were a mean of the number of likes that the last 10 posts made by an influencer received. Sponsored post likes and sponsored story views were provided by the SMIs, and URL Clicks were tracked through a bit.ly link with an Urchin Tracking Module. Each SMI received independent URLs.

Dependent Variable	Independent Variable	r
Sponsored Post Likes	Follows	0.074
Sponsored Post Likes	Mean Post Likes	0.210
Sponsored Story Views	Follows	0.999
URL Clicks	Sponsored Post Likes	0.698
URL Clicks	Sponsored Story Views	0.796
URL Clicks	Follows	0.804
URL Clicks	Mean Post Likes	0.879
URL Clicks	(Sponsored Post Likes)/(Followers)	-0.383
URL Clicks	(Sponsored Story Views)/(Followers)	-0.993
Mean Post Likes	Follows	0.991

Table A6 - Results of sponsored YouTube and Instagram posts made by social media influencers (SMIs) attempting to elicit their followers to participate in a survey created by the State of Hawaii Division of Aquatic Resources (DAR) to understand their stakeholders' perspectives on potential policy. URL Clicks were tracked through a bit.ly link with an Urchin Tracking Module. Each SMI received independent URLs that collected survey responses on separate spreadsheets. Total stakeholder responses are a subset of the total survey response, which was categorized by respondents' answers to stakeholder identity survey questions.

	Total URL Clicks	Total Survey Responses	Total Stakeholder Responses
DAR	11	7	7
Influencer 2	191	63	62
Influencer 3	69	37	37
Influencer 4	151	67	67
Influencer 5	37	17	17
Total	459	191	190

Table A7 - Results of sponsored Instagram content made by social media influencers (SMIs) attempting to elicit their followers to participate in a survey created by the State of Hawaii Division of Aquatic Resources (DAR) to understand their stakeholders' perspectives on potential policy. Follower counts were taken from SMIs' Instagram pages. Total stakeholder responses are a subset of the total survey response, which was categorized by respondents' answers to stakeholder identity survey questions. Each SMI has its effectiveness of driving total responses and stakeholder responses quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" to a particular stakeholder engagement approach an SMI was able to elicit, per 1,000 of their followers.

Instagram	Instagram Followers	Total Survey Responses	Total Stakeholder Responses	RPMF Total Response	RPMF Stakeholder Response
Influencer 2	156000	40	40	0.256	0.256
Influencer 3	2664	21	21	7.883	7.883
Influencer 4	4090	54	54	13.203	13.203
Influencer 5	3623	7	7	1.932	1.932
Average				5.819	5.819

Table A8 - Results of sponsored YouTube content made by social media influencers (SMIs) attempting to elicit their followers to participate in a survey created by the State of Hawaii Division of Aquatic Resources (DAR) to understand their stakeholders' perspectives on potential policy. Subscriber counts were taken from SMIs' YouTube pages. Total stakeholder responses are a subset of the total survey response, which was categorized by respondents' answers to stakeholder identity survey questions. Each SMI has its effectiveness of driving total responses and stakeholder responses quantified as Response Per Millie Follower (RPMF) values. RPMF values represent how many "responses" to a particular stakeholder engagement approach an SMI was able to elicit, per 1,000 of their followers.

YouTube	YouTube Subscribers	Total Survey Responses	Total Stakeholder Responses	RPMF Total Response	RPMF Stakeholder Response
Influencer 2	158000	19	18	0.120	0.114
Influencer 3	6000	12	12	2.000	2.000
Influencer 4	12800	9	9	0.703	0.703
Influencer 5	6620	8	8	1.208	1.208
Average				1.008	1.006