A Collective Interest Model Approach to Explain the BenefitCost Expectations of Participating in a Collaborative Institution

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A Collective Interest Model Approach to Explain the Benefit–Cost Expectations of Participating in a Collaborative Institution

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What factors explain stakeholder benefit–cost expectations for participating in a collaborative institution? This article examines this question by applying a version of the collective interest model. The case study includes original data from a mail-in questionnaire and in-person interviews of stakeholders’ expectations before the start of a collaborative process to establish marine-protected areas in California. The results provide little support for the traditional variables in the collective interest model with null results for group and personal efficacy. Selective incentives, especially putting in your own time versus company time, are important in explaining stakeholders’ benefit–cost expectations. The results show that ally efficacy is an important factor, suggesting that perceptions of allies compared to opponents shape initial expectations for a collaborative process. This article adds to the research on political participation in environmental management by presenting a rare exploration of ex ante beliefs before the start of a collaborative planning institution.

Keywords: collective interest model; collaboration; collaborative environmental management; marine protected areas; participation

For more than a decade, the modus operandi of environmental management has been to engage interested stakeholders in collaborative planning institutions. Collaborative institutions are decision-making arenas that

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engage interested and affected stakeholders and officials from all levels of
government in negotiations over an extended period of time to reach col-
lective agreements (Bingham, 1986; Koontz et al., 2004; Leach & Pelkey,
2001; Leach, Pelkey, & Sabatier, 2002; Lubell, Schneider, Scholz, & Mete,
2002; Sabatier et al., 2005; Stephan, 2005; Woolley & McGinnis, 1999;
Yaffee et al., 1996). The lifeline for the resilience and success of collabo-
rative institutions is stakeholder participation. Unfortunately, relatively few
studies have systematically collected empirical data to explain rationales
and expectations for participating in collaborative institutions, particularly
before the process begins (Beierle & Cayford, 2002; Byron & Curtis, 2002;
Finkel & Muller, 1998; Focht & Trachtenberg, 2005; Koontz, 2005). This
article seeks to identify the factors that explain stakeholders’ benefit–cost
expectations for participating in a collaborative institution using an adapted
version of the collective interest model (CIM; Finkel & Muller, 1998;
Finkel, Muller, & Opp, 1989; Koontz, 2005; Lubell, 2002).

The CIM is a useful approach for understanding stakeholder expecta-
tions for participating in collaborative planning institutions because it
addresses one of the major threats to collective action—the free-rider prob-
lem (Downs, 1957; Olson, 1964). The free-rider problem arises when large
groups of individuals work together to create a collective product wherein
each individual’s contributions are miniscule. In such situations, individu-
als can often enjoy the societal benefits of the collaborative process with-
out paying the participation costs. In other words, they free ride on the
efforts of others. The CIM overcomes the free-rider problem by predicting
that participation hinges on selective incentives (private benefits and costs
of participating) and a set of nonzero “collective interest variables” (Finkel
& Muller, 1998, p. 39). The collective interest variables include personal
efficacy, group efficacy, and dissatisfaction or grievance with current poli-
cies or governance. This article adapts the CIM to collaborative institutions
by including two additional variables—the efficacy of allies compared to
opponents and the efficacy of a particular management instrument.

This article begins with an explanation of the CIM and a description of the
case study, which is a collaborative process to establish marine protected
areas (MPAs) in California State ocean waters. It then summarizes the meth-
ods of data acquisition, describes the operationalizations of the variables, and
presents the data analysis. The results show that personal and group efficacy
is not significant in explaining stakeholders’ benefit–cost expectations of par-
ticipating in the collaborative process. One of the important factors in shap-
ing stakeholder expectations is ally efficacy, verifying the importance of the
interdependence among allies and opponents in collaborative processes.
The rational approach for explaining political participation assumes that people participate because of selective incentives, that is, if the private benefits exceed the private costs (Downs, 1957; Olson, 1965). Unfortunately, participation costs usually exceed the benefits, setting up the free-rider problem. The CIM overcomes the free-rider problem and explains political participation by specifying three additional collective interest variables, including group efficacy, personal efficacy, and dissatisfaction or grievance with current governance (Finkel & Muller, 1998; Finkel et al., 1989). The traditional CIM formula is usually written as

\[
\text{Political Participation} = V + P_g + P_i + S_b - S_c. \quad \text{(1)}
\]

The collective interest variables include \(V\), \(P_g\), and \(P_i\). The \(V\) represents dissatisfaction or grievances with governance, \(P_g\) represents group efficacy, and \(P_i\) represents individual efficacy. The last two variables are the selective incentives, which include \(S_b\) for private benefits and \(S_c\) for private costs. The CIM assumes, contrary to Olson (1964), that the collective interest variables are nonzero, which increases the benefits and helps explain political participation.

This article adds two additional variables to the CIM to account for some of the distinct attributes of collaborative institutions.

First, this article incorporates perceptions of the efficacy of allies and opponents. The CIM was originally applied to political protests where the group was defined by a set of relatively homogenous individuals attempting to pursue shared objectives. However, collaborative institutions are different. Collaborative institutions engage stakeholders, who represent a variety of interests and who adhere to a variety of beliefs, in heated negotiations. Whereas some collaborative institutions focus on voluntary agreements, other collaborative institutions deal with zero-sum agreements with coercive outcomes. For example, this article focuses on a collaborative institution convened by a state agency to recommend a management plan to restrict access of fishing vessels to areas of the ocean. This creates an arena where individuals compete with opponents over time to transform their objectives into a plan or policy before their opponents can do the same. To be effective in competitive collaborative institutions, participants must structure their interactions into coalitions with allies or risk being overwhelmed by political opponents (Heclo, 1978; Knoke, Pappi, Broadbent, & Tsujinaka, 1996; Sabatier & Jenkins-Smith, 1999). The rationale is that stakeholders do not have the resources (e.g., time, money, and information).
to achieve their objectives alone and, therefore, must structure their network contacts to help acquire or share critical resources to gain a competitive edge in the policy subsystem (Howlett, 2002; Pfeffer & Salancik, 1978; Putnam, 2000; Thatcher, 1998). Thus, stakeholder expectations for participation hinge not only on individual efficacy and group efficacy but also on the efficacy of allies—especially in comparison to opponents. In this article, an adapted version of the CIM is tested by including ally efficacy, which combines perceptions of allies and opponents.

Second, the CIM is adapted by looking at the efficacy of a particular governing instrument or management strategy. Whereas some collaborative institutions are open to different policy alternatives to a problem, other collaborative institutions focus on a type of policy instrument. This article focuses on a collaborative institution that was formed to negotiate the placement and implementation of MPAs—a new management instrument that bans, to some extent, ocean resource extraction. In such collaborative institutions, positive expectations of participation are not just based on group efficacy, personal efficacy, dissatisfaction with the status quo, selective incentives, or ally efficacy but also on the perceived efficacy of the instrument (MPAs) in addressing the problem. In this article, an adapted version of the CIM is tested by including perceived instrument (MPA) efficacy.

The adapted CIM formula now includes seven variables:

$\text{Political Participation} = V + P_g + P_i + S_b - S_c + P_a + P_{in}$

In the adapted version of the CIM, $P_a$ represents ally efficacy and $P_{in}$ represents instrument efficacy.

**Background on the California MPA Policy Making**

Conflict over the status and management of marine resources is becoming an increasingly contentious political issue. Several studies attest that world and U.S. fisheries are overfished or collapsed and habitats are threatened or degraded (U.S. Commission on Ocean Policy, 2004). There is also frustration with traditional approaches to marine and fisheries management, such as maximum sustained yield. In response, MPAs are being proposed to restore and protect marine fisheries and habitats (National Research Council [NRC], 2000). MPAs are a spaced-based management strategy that restricts the access to, and use of, areas of the ocean. MPAs are equivalent to placing a national park or wilderness area in parts of the ocean.
In 1999, the California Marine Life Protection Act (MLPA) required the Department of Fish and Game (DFG) to develop a plan to establish MPAs along the coast. In the summer of 2002, the DFG attempted to implement the MLPA using a collaborative process, which took the form of seven regional working groups. Each working group consisted of 14 to 18 stakeholders and a facilitator. The stakeholders were nominated by community leaders and selected for participation by the DFG. The stakeholders were charged with negotiating a range of recommendations for the placement of MPAs to the DFG. The DFG would then pass a consolidated plan from all seven working groups to the California Fish and Game Commission to designate MPAs. Negotiations began in the summer of 2002; however, the working-group process ended in the Spring of 2003 because of a lack of funding during the California budget crisis.

**Methods of Data Acquisition**

This analysis uses data acquired through a mail-in questionnaire and in-person interviews that were administered in the late summer of 2002 before the first meeting of each regional working group. The mail-in questionnaire was pretested and shared with more than a dozen stakeholders who provided feedback, helped clarify concepts, and helped ensure construct validity.

The original membership of the working groups included 105 participants. These participants were mailed questionnaires, and 70 responded (response rate of 66%). This analysis also includes an additional 19 alternate working-group members, which raises the total number of participants in the sample to 89. Concurrently with the mail-in questionnaire, 27 active or alternate members on the working groups were interviewed. In this article, the questionnaire data provide the bulk of the descriptive and explanatory analyses, and the interview data are used to help with interpretation.

**Description of Variables**

The dependent variable in this analysis is the benefit–cost expectations of participation in the MLPA working groups. In the mail-in questionnaire, stakeholders were given the following statement on a 7-point scale (with 1 = strongly disagree and 7 = strongly agree): “The costs of time and effort you put into the working-group process will be far greater than the long-term benefits you will receive.” This question was reversed to create the benefit–cost expectation variable and to help interpret the ordered logit analysis because most of the explanatory variables predict benefits.
Participants who score a 1 on the expected benefit–cost variable perceive essentially all costs and no benefits. These costs could include many factors. For example, many interviewees commented about the time they will spend preparing for, traveling to and from, and participating in the working-group meetings. Many stakeholders expected to spend time communicating working-group events back to their constituents. One commercial fisherman claimed that he would lose U.S. $5,000 to $8,000 in income over the next 2 years while in negotiations. An important and intangible cost relates to the anxiety of negotiations. Many interviewees commented on the challenges that lay ahead in the working-group negotiations. For example, one scientist said that, “The interactions will be hostile and very polarized. This will be unpleasant. It will be hard work.”

Participants who score a 7 on the expected benefit–cost variable perceive essentially all benefits and no costs. These participants are likely to focus on the long-term benefits of MPAs, which centered on the positive impact of MPAs on marine ecosystems and fisheries. California marine ecosystems feature a diverse ecological range including giant kelp forests, large estuaries, rocky reefs, and sand and mud. California marine ecosystems also support one of the more productive fisheries in the world with ground fish, herring, squid, urchin, and crab taking up the largest share of the landings (Leet, Dewees, Kingeil, & Larson, 2001). As in the case for the rest of the world, there is evidence that California’s marine habitats and fisheries are threatened (Leet et al., 2001).

Traditional and adapted versions of the CIM are used to explain the ex ante benefit–cost dependent variable. The traditional CIM is based on five variables. These variables were measured on the mail-in questionnaire. The operationalization of each concept is described in the following paragraphs.

For personal efficacy, stakeholders were given the following statement: “Your contributions are likely to make a difference in the working group’s recommendation.” This is an appropriate operationalization of personal efficacy because stakeholders would have to make a contribution to the working-group recommendations to be personally effective. The wording also parallels the operationalizations of Finkel and Muller (1998), Koontz (2005), and Lubell (2002). Consistent with the CIM, I predict that stakeholders with high personal efficacy will expect more benefits than costs to participating.

For working-group efficacy, stakeholders were given the following statement: “The working groups will significantly affect the final decision by the CA Fish and Game Commission.” This is an appropriate operationalization of working-group efficacy because, in the beginning of the MLPA process, the working groups were instructed to develop proposals for the
placement of MPAs. The working-group proposals would first go to the DFG officials who would then send a consolidated proposal to the California Fish and Game Commission to designate MPAs in California. Hence, to be effective, the working groups would have to influence the decision by the California Fish and Game Commission. I predict that stakeholders with high working-group efficacy will expect more benefits than costs to participating.

Similar to Lubell (2002), who used environmental threats as an indication of stakeholder dissatisfaction, participants in the current study were asked to express their discontent with the status of California marine habitats and fisheries. Using a 7-point scale, with 1 = strongly disagree to 7 = strongly agree, participants were asked: (a) “In general, the quality of CA marine ecosystems is better today than 10 years ago” and (b) “Most CA fisheries are economically healthy.” These questions are combined and reversed in a Marine Resource Degradation scale (factor loading = .89, alpha = .73). I predict that stakeholders who agree that California marine resources are degraded will expect more benefits than costs to participating in the working groups.

I use two variables to estimate selective benefits. For the first, I asked participants to express their environmental values (Lubell, 2002). The five statements range from 1 = strongly disagree to 7 = strongly agree and are scaled together to form an environmental values variable (alpha = .92). The statements include (factor loadings): (a) People were intended to rule over nature (.77); (b) Economic considerations should come first, ecological second (reversed on scale, –.73); (c) Environmental regulations should not be promulgated unless the proponents can prove that the monetary benefits exceed the costs (.81); (d) All species have an inherent right to exist, quite apart from human uses (reversed on scale, –.75); and (e) One person’s right to a healthy environment is more important than another’s right to gainful employment (.79). I predict that stakeholders with proenvironmental values will feel some intrinsic benefit from participating in the working groups, leading to a positive relationship with the ex ante benefit–cost dependent variable. For the second selective benefit variable, I asked participants in an open-ended question, “How often [days/year] do you fish (e.g., deep sea, near shore, free dive) on the California coast?” I predict that stakeholders who fish on the California coast will expect more benefits than costs to participating in the collaborative process because the fishers will either seek to protect their own fishing grounds or believe that MPAs will enhance their fishing opportunities.

I use two variables to estimate selective costs. For the first, I asked participants in an open-ended question, “How many hours per month do you
foresee yourself spending on issues directly related to the working groups (e.g., meetings attendance, talking with representatives, preparation, etc.)? Responses were coded on an 11-point scale to create an hours per month variable ranging from 0 equaling *no hours per month* (hpm) to 10 equaling *greater than 44 hours per month*. For the second, I asked participants, “When you work on issues directly related to the working groups is this on company time or your own time?” This own time variable was asked on a 7-point scale with 1 = *all company time* and 7 = *all own time*. I predict that actors who put in their own time and a high number of hours per month will expect more costs than benefits of participating in the working groups (a negative relationship with the ex ante benefit–cost dependent variable).

The two additional factors in the adapted CIM include instrument (MPA) efficacy and ally efficacy.

For instrument (MPA) efficacy, I investigated stakeholders’ perceptions about the effectiveness of MPAs in California waters. I used two statements measured from 1 = *strongly disagree* to 7 = *strongly agree* and scaled together (alpha = .73) to form a MPA efficacy variable (factor loading = .89): (a) MPAs will benefit depleted California fisheries and (b) MPAs will benefit degraded California habitat. I predict the MPA efficacy variable will be a positive predictor of the expected benefit–cost variable.

For ally efficacy, I compared the efficacy of allies to opponents. I asked participants to cite two affiliations that “you regard as allies on important MPA issues.” For opponent networks, I asked participants to cite two affiliations that “you disagree with most frequently on MPA issues.” I then asked participants to cite two affiliations that “you regard as important or influential on MPA issues.” This question is nearly identical to operationalizations for perceived influence used in other works (Knoke et al., 1996). The participants were given a list of 13 organizational affiliations from which to cite. Using these three statements, I created the ally efficacy variable in three steps. First, I found for each participant the number of allies perceived as influential or important (0, 1, or 2). Second, I found for each participant the number of opponents perceived as influential or important (0, 1, or 2). Third, I calculated the difference between the number of influential allies and the number of influential opponents (+2 = allies influential, –2 opponents influential). I predict that stakeholders who have efficacious allies compared to opponents (positive on the ally efficacy variable) will expect more benefits than costs to participating in the collaborative working groups.
Data Analysis

The data analysis consists of two parts. First, I provided a descriptive analysis of the variables by organizational affiliations. This first part lays an important foundation for interpreting the data and testing the CIM. Second, I ran ordered logit models for the traditional and adapted versions of the CIM to explain the expected benefit–cost dependent variable.

Descriptive Analysis

Table 1 presents the means with standard deviations in parentheses for the dependent variable and the traditional and adapted CIM variables. The left column lists the variables. The organizational affiliations are ranked in order from left to right along the top row by their mean responses to the expected benefit–cost dependent variable. The total means and significant p values are listed in the right two columns. Because Table 1 includes multiple comparisons (11 statistical tests), the probability for making Type I errors increases (Cohen & Cohen, 1983). To reduce the likelihood of rejecting a true null hypothesis, a significant level of alpha and p value is adjusted to .01. Table 1 indicates that there is significant difference (p < .01) for all variables except for working-group efficacy, personal efficacy, hours per month, and ally efficacy. The insignificant difference among organizational affiliations should be made cautiously because of the low levels of power to reject a false hypothesis.

The results from Table 1 indicate that for some variables the stakeholder community can be divided into two groups. On one side are the federal and state officials, researchers, and environmentalists. These organizational affiliations are likely to expect more benefits than costs to participating ($M_s \geq 4.3$), to perceive California marine resources as degraded ($M_s \geq 5.0$), to perceive MPAs as effective instrument for benefiting California’s degraded habitats and fisheries ($M_s \geq 5.6$), to hold strong environmental values ($M_s \geq 6$), and to spend only a few days fishing per year ($M_s$ range from 0 to 11 days/year). This grouping of affiliations makes sense. State and federal government officials, environmentalists, and scientists are likely to enjoy the intrinsic or recreational benefits of MPAs while professionally and recreationally losing very little.

On the other side are local governments, recreational fishers, and commercial fishers. These organizational affiliations are likely to expect more costs than benefits to participating ($M_s \leq 3.8$), to express a bit of skepticism about the efficacy of MPAs ($M_s \leq 4.3$), to show only moderate concern...
### Table 1
Mean Responses for CIM Variables by Organizational Affiliations

<table>
<thead>
<tr>
<th></th>
<th>Federal and State Government</th>
<th>Environmental Groups</th>
<th>Scientists</th>
<th>Local Government</th>
<th>Recreational Fishers</th>
<th>Commercial Fishers</th>
<th>Total</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n =</strong></td>
<td>6</td>
<td>21</td>
<td>8</td>
<td>8</td>
<td>13</td>
<td>31</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Expected benefit–cost ratio</td>
<td>1 = Low benefits, 7 = High benefits</td>
<td>5.7(.8)</td>
<td>5.2(1.6)</td>
<td>4.3(2.7)</td>
<td>3.8(2.0)</td>
<td>3.3(2.1)</td>
<td>3.2(1.9)</td>
<td>4.0(2.0)</td>
</tr>
<tr>
<td>Personal efficacy</td>
<td>1 = Disagree, 7 = Agree</td>
<td>5.7(.5)</td>
<td>5.1(1.3)</td>
<td>5.6(1.3)</td>
<td>5.1(1.1)</td>
<td>4.5(2.0)</td>
<td>5.1(1.4)</td>
<td>5.1(1.4)</td>
</tr>
<tr>
<td>Working-group efficacy</td>
<td>1 = Disagree, 7 = Agree</td>
<td>5.2(.75)</td>
<td>4.7(1.4)</td>
<td>5.6(1.4)</td>
<td>4.5(1.1)</td>
<td>4.3(1.6)</td>
<td>4.1(2.0)</td>
<td>4.5(1.6)</td>
</tr>
<tr>
<td>Marine resource degradation</td>
<td>1 = Disagree, 7 = Agree</td>
<td>5.0(9)</td>
<td>6.3(9)</td>
<td>6.0(1.2)</td>
<td>3.9(1.7)</td>
<td>4.5(2.4)</td>
<td>4.0(1.4)</td>
<td>4.9(1.8)</td>
</tr>
<tr>
<td>Fishing days</td>
<td>Days/Year</td>
<td>0.3(8)</td>
<td>11(15.7)</td>
<td>3(2.6)</td>
<td>12(15.3)</td>
<td>73(47.6)</td>
<td>154(99.4)</td>
<td>71(99.4)</td>
</tr>
<tr>
<td>Environmental values</td>
<td>1 = Disagree, 7 = Agree</td>
<td>6.3(.5)</td>
<td>6.1(.7)</td>
<td>6.3(.9)</td>
<td>4.4(1.2)</td>
<td>4.6(1.6)</td>
<td>3.9(1.2)</td>
<td>5.0(1.5)</td>
</tr>
<tr>
<td>Own time</td>
<td>1 = All company time, 7 = all own time</td>
<td>1.8(1.3)</td>
<td>4.6(2.5)</td>
<td>4.8(2.0)</td>
<td>3.6(2.0)</td>
<td>5.7(2.0)</td>
<td>5.7(2.1)</td>
<td>4.9(2.3)</td>
</tr>
<tr>
<td>Hours per month</td>
<td>0 = 0 hrs, 5 = 20-24 hrs, 10 = 44+ hrs</td>
<td>4.2(2.5)</td>
<td>4.6(2.2)</td>
<td>4.9(2.7)</td>
<td>3.4(1.7)</td>
<td>5.8(3.2)</td>
<td>5.1(2.8)</td>
<td>4.8(2.6)</td>
</tr>
<tr>
<td>Instrument (MPA) efficacy</td>
<td>1 = Disagree, 7 = Agree</td>
<td>6.0(.7)</td>
<td>5.9(1.5)</td>
<td>5.6(1.2)</td>
<td>4.3(1.6)</td>
<td>3.3(1.7)</td>
<td>2.8(1.4)</td>
<td>4.2(2.0)</td>
</tr>
<tr>
<td>Ally efficacy</td>
<td>–1 = Influential, +1 = Influential opponents</td>
<td>.5(.5)</td>
<td>.0(.8)</td>
<td>.4(.7)</td>
<td>.3(.9)</td>
<td>-.2(.6)</td>
<td>-.2(.8)</td>
<td>-.05(.8)</td>
</tr>
</tbody>
</table>

Notes: CIM = collective interest model; MPA = marine protected areas.
All numbers are means and numbers in parentheses are standard deviations. p Values are Welch statistics indicating significant difference among the organizational affiliations, except for fishing days which is calculated with a one-way ANOVA.
about the degradation of marine resources ($M_s \leq 4.5$), to hold moderate proenvironmental beliefs ($M_s \leq 4.6$), and to fish many days in the year ($M_s$ range from 12 to 154 days/year). This grouping of affiliations also makes sense. The fishing community and local governments are more likely to bear the costs in disruption to fishing practices and local economies from implementing MPAs.

There are also issues where stakeholders agreed more than disagreed. There is very little variance across organizational affiliations in the average number of hours per month (approximately 20 hrs). In addition, a majority of members from all organizational affiliations consider themselves efficacious ($M_s \geq 4.5$) and the working groups as efficacious ($M_s > 4.1$). I found some support for these results in the interviews where some stakeholders said they were participating because they thought they could make a difference. One environmentalist confidently stated it this way: “I want to make a difference. I want to change the direction of marine policy in CA, from a common property resource to a public trust resource domain.” Although few interviewees expressed their personal efficacy as clearly as this environmentalist, many individuals from the fishing community stated that they were participating to ensure that their “traditional” diving or fishing areas remained accessible.

The means for working-group efficacy are consistently and slightly lower than the means for personal efficacy. The low values for working-group efficacy compared to personal efficacy can be explained by stakeholder doubt about negotiating agreements, distrust of the DFG, and uncertainty about funding for the working groups.

For the own time variable, the pattern shows a split between government versus nongovernment participants. The federal, state, and local government officials expect to participate on company time ($M_s < 3.6$). Environmentalists, scientists, commercial fishers, and recreational fishers expect to participate on their own time ($M_s > 4.6$).

This descriptive analysis portrays an insightful snapshot of the stakeholder community. It shows that environmentalists, scientists, federal government officials, and state government officials express more optimism for the upcoming collaborative process than local government officials, recreational fishers, and commercial fishers. The next section seeks to explain the benefit–cost expectations using multivariate ordered logit models.

**Explanatory Analysis**

In this section, I explain the perceived benefit–cost expectations using the traditional and adapted versions of the CIM variables. I do so using the
output from two ordered logit models (Table 2). In Table 2, the explanatory variables are listed on the left column, and the benefit–cost dependent variable is across the top. The columns present the unstandardized coefficients, standardized coefficients, $p$ values, and 99% confidence intervals (CIs) in parentheses. I include the standardized coefficients to compare the relative strength of the explanatory variables to account for the variance in the benefit–cost dependent variable (Long, 1997). An adjustment to the $p$ values for the nine tests sets the level of significance at .01. The traditional and adapted versions of the CIM explain a fair amount of variance in the benefit–cost dependent variable (Pseudo $R^2 > 15\%$). The fit increases slightly from the traditional (16%) to the adapted (19%) application of the CIM. This is a significant increase based on a likelihood-ratio test ($p < .02$). The size of the 99% CIs indicates that interpretation of the results should be made cautiously.

There are several take-home points from Table 2. The own time variable is the only explanatory variable that is significant at the adjusted $p$ value of .01 in the traditional and adapted CIM applications. As expected, the negative relationship between own time and the expected benefit–cost dependent variable indicates that stakeholders who put in their own time rather than company time decreases their expected benefits compared to costs. The standardized coefficient shows that a one standard deviation increase in own time decreases the benefit–cost ratio by .30 standard deviations in the traditional CIM and the adapted CIM. This result is important for participants who volunteer, such as fishers and environmentalists.

The environmental values scale is important in the traditional CIM ($p = .006$) and has borderline significance in the adapted CIM ($p = .015$). The positive sign on the coefficient suggests that stakeholders who agreed with the proenvironmental values scale expect more benefits than costs compared to stakeholders who disagreed with the proenvironmental values scale. The environmental values scale also displays the highest standardized coefficient in the traditional and adapted CIM, suggesting that, of all the explanatory variables, it explains most of the variance in the benefit–cost dependent variable. A one standardized deviation in environmental values increases the benefit–cost ratio by .50 or .36 standardized deviations. These results should be interpreted cautiously in the adapted CIM application because of the borderline $p$ value.

In the adapted CIM, ally efficacy is significant at the .01 level with the positive sign. A one standardized increase in ally efficacy leads to a .27 standardized increase in expected benefits to costs, holding the other
Table 2
Ordered Logit Model of the Traditional and Adapted Collective Interest Model (CIM)

<table>
<thead>
<tr>
<th></th>
<th>Traditional CIM</th>
<th></th>
<th>Adapted CIM</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$b$</td>
<td>$\beta$</td>
<td>$p$ Value</td>
<td>99% Confidence Interval</td>
</tr>
<tr>
<td>Personal efficacy</td>
<td>.28</td>
<td>.16</td>
<td>.228</td>
<td>(–.32, .89)</td>
</tr>
<tr>
<td>Working-group efficacy</td>
<td>.34</td>
<td>.21</td>
<td>.077</td>
<td>(–.16, .84)</td>
</tr>
<tr>
<td>Marine resource crisis</td>
<td>−.02</td>
<td>−.01</td>
<td>.896</td>
<td>(−.44, .40)</td>
</tr>
<tr>
<td>Fishing days</td>
<td>.01</td>
<td>.24</td>
<td>.067</td>
<td>(0, .02)</td>
</tr>
<tr>
<td>Environmental values</td>
<td>.84</td>
<td>.50</td>
<td>.006</td>
<td>(.23, 1.46)</td>
</tr>
<tr>
<td>Own time</td>
<td>−.32</td>
<td>−.30</td>
<td>.006</td>
<td>(−.62, −.02)</td>
</tr>
<tr>
<td>Hours per month</td>
<td>−.04</td>
<td>−.04</td>
<td>.694</td>
<td>(−.28, .21)</td>
</tr>
<tr>
<td>Ally efficacy</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Instrument (MPA) efficacy</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>−107.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The dependent variable is the expected benefit–cost ratio. The column numbers indicate unstandardized coefficients ($b$), standardized coefficients ($\beta$), $p$ value for the test that the coefficients equal zero, and 99% confidence interval (99% CI).
variables constant. This supports the assertion that stakeholders’ expectations of participating in collaborative processes is shaped by their political network of allies and opponents.

One of the interesting findings from Table 2 is the lack of significance of a good number of the explanatory variables, including marine resource crisis, personal efficacy, working-group fishing days, hours per month, and instrument efficacy. The lack of explanatory power for personal and working-group efficacy is surprising because these two variables are the main components of the CIM. There are several plausible explanations for the null results. Personal efficacy might have been hard for stakeholders to estimate, causing many stakeholders to underestimate it. It is important to note that stakeholders, even those who sit silently, might not realize their influence on group dynamics. The insignificant results for personal and working-group efficacy might also reflect the lack of variance in the two variables among organizational affiliations (see Table 1), which possibly stems from a sample of already active stakeholders with high efficacious beliefs. On the other hand, it might also be the case that, in collaborative processes involving zero-sum decisions and value conflicts, personal efficacy is simply not as important as ally efficacy. It should be noted that working-group efficacy exhibits high standardized coefficients with fairly low p values. Its insignificance might reflect the low sample size of the current study. Additional studies of the CIM in the context of collaborative institutions should investigate these interesting null results.

In sum, I found support that benefit–cost expectations are shaped by ally efficacy and own time. The environmental values scale also explains a good deal of the benefit–cost expectations. Given adjusted p values (.01), the classic CIM variables, working-group efficacy, personal efficacy, and marine resource crisis, are insignificant.

Conclusions

This article explains the benefit–cost expectations of participating in a collaborative institution using different versions of the CIM. A traditional version of the CIM is compared to an adapted CIM, which includes ally and instrument efficacy. The results show that working-group efficacy, personal efficacy, and perceptions of a marine resource crisis are not significant predictors of the ex ante benefits-costs of participating. Some of the selective incentive variables display explanatory power including the environmental values and own time. Supporting the adapted version of CIM, stakeholders,
who perceive their allies as more influential than their opponents, are more likely to be optimistic in their benefit–cost expectations.

It is important to interpret the findings from this analysis in the context of the MLPA process. Stakeholders within the MLPA policy subsystem are largely divided in their expectations for participating in the working groups. On one side, federal and state government officials, scientists, and environmentalists are likely to expect more benefits than costs of participating in the working groups because they hold strong environmental values and perceive their allies as efficacious compared to their opponents. These stakeholders also perceive serious marine resource problems and view MPAs as an effective environmental management tool. They are unlikely to feel any disruption in their personal and professional lives from the implementation of MPAs in California waters. For them, participating is a positive opportunity to translate their normative beliefs into actual management plans. Secondary analyses of the questionnaire data support these assertions. When asked why they are participating, most federal and state government officials, scientists, and environmentalists stated that they are participating to improve California ecosystems, and very few stated that they are participating to protect their economic interests or to prevent the working groups from recommending undesirable alternatives.16

On the other side, local government officials, recreational fishers, and commercial fishers expect more costs than benefits because they hold moderate environmental values and perceive their opponents as more efficacious than their allies. These stakeholders are in a defensive position where they are less concerned about marine resource problems and are skeptical about the effectiveness of MPAs. They are also most likely to bear the costs from economic disruption and changes in professional and personal livelihoods as a result of implementing MPAs. From the perspective of the fishing community and local governments, their participation is about minimizing the potential incurred costs from implementing MPAs. A secondary analysis of the questionnaire data partly supports these assertions. When asked why they are participating, a large proportion of commercial and recreational fishers responded that they are participating to protect their economic interests or prevent the working groups from adopting unfavorable policy. Likewise, most local government officials are participating to protect economic interest.17

In finding these results, this article makes at least three contributions to research on the CIM, collaborative institutions, and environmental management.
First, previous studies predominately use stakeholder post hoc evaluations to explain participation in collaborative planning (see Coglianese, 2003; Leach & Sabatier, 2005). In post hoc studies, stakeholders might adjust or modify their beliefs to justify their participation or simply change their beliefs in light of their experiences, both of which might skew the responses and threaten the validity of results by creating an endogenous relationship between the dependent and independent variables (Finkel & Muller, 1998; Harmon-Jones & Mills, 1999; Koontz, 2005). The current study uses ex ante benefits-costs of participation in collaborative planning. Stakeholders in the current study are not yet exposed to the stimulation (or treatment) of collaboration, giving a rare insight into initial expectations for participating in collaborative institutions.

Second, the current study applies an adapted version of the CIM. It shows that perceptions of the efficacy of allies compared to opponents are an important factor in shaping expectations. This corroborates a large body of studies that show how network contacts shape aspects of beliefs and political participation (Heclo, 1978; Howlett, 2002; Knoke et al., 1996; Putnam, 2000; Sabatier & Jenkins-Smith, 1999; Thatcher, 1998). The significance of ally efficacy is probably related to the political context of the current case study. In the California MLPA, the DFG convened the seven working groups to recommend a plan for the establishment of MPAs—a management strategy with potential winners and losers. With threats of coercion, the working groups became very competitive decision-making arenas where stakeholders were unlikely to be successful on their own and instead sought help from allies to overcome the challenges from their opponents. In such contexts, individual efficacy is not as important as ally efficacy in shaping expectations. The current study suggests that the collective interest variables can be augmented to include perceptions of allies especially when analyzing collective arenas with diverse participants. Additional research is needed to confirm these results using alternative operationalizations of the adapted CIM variables and measures of participation in the context of collaborative institutions.

Third, the current study shows that participating on company time versus your own time shapes expectations. This result is particularly important for representatives from nongovernment organizational affiliations, including commercial fishers, recreational fishers, environmentalists, and researchers. Representatives from these organizational affiliations tend to participate in the collaborative process on their own time, forgoing income and other opportunities. On average, stakeholders are expecting to put in
20 hrs per month, approximately 1 month of work per year. This is a significant share of one’s income and backs one commercial fisherman’s estimate of losing $5,000 to $8,000 in income over the next 2 years of negotiating in the working groups. This supports Byron and Curtis (2002) who found fairly high burnout among participants in watershed partnerships and Langbein (2002) who argued that negotiated rule making favors stakeholders with adequate resources to participate. Additional research is needed to investigate the extent that individuals without the financial resources can participate and if insufficient financial resources adversely diminishes effective participation.

Obviously, this analysis does not provide all the answers in explaining stakeholder participation in collaborative institutions. There are limitations to the results. One of the unique aspects of the current study is the ex ante expectations for participation. Unfortunately, these measures are also problematic. The ex ante variables are possibly just as uncertain as post hoc variables because the future is harder to predict than remembering the past. This is possibly problematic when stakeholders predict the number of hours they expect to spend in the process. Second, it is unclear whether these initial expectations matter. Do initial expectations (of the CIM variables and the benefit–cost dependent variable) affect successful collaboration? What is needed is a panel study showing the extent that the variables in this analysis influence effective participation, learning through collaboration, and successful outcomes (Finkel & Muller, 1998). Third, it is important to recognize that the working-group process in the current study did not happen in a political vacuum where the participants started with blank mental models of the problem and political contexts. Working-group participants had prior experiences with allies and opponents, which shaped their expectations before the collaborative process started. An ideal research design could address this in a panel study that focuses on multiple policy participants who participate in a number of processes over long periods of time. Finally, the expected benefit–cost dependent variable is not a measure of actual participation or political activity, which most CIM studies use (Lubell, 2002). Instead, the dependent variable simply asks participants to weigh the benefits and costs of future participation in a collaborative process. Although this is different than past studies, it is exactly what the CIM was designed to explain, making this a rather unique application.

This analysis is one more piece of the puzzle to explain stakeholder participation in collaborative institutions and environmental management. It illustrates how expectations for future benefits and costs are shaped by the
extent that stakeholders participate on their own time compared to company
time and perceive influential allies compared to opponents. I expect that the
results are generalizable to other environmental conflicts where a govern-
ment agency convenes a collaborative institution that engages diverse
stakeholders in negotiations to help design management plans. I imagine
that many collaborative institutions share these characteristics, giving the
results fairly wide appeal to environmental managers and researchers.
Because all collaborative planning is dependent on effective stakeholder
participation, additional research is needed to investigate whether initial
expectations of participation affect the success of the collaborative effort
and what factors alter expectations over time.

Notes

1. The collective interest model (CIM) has been applied as an additive model (Koontz,
2005; Lubell, 2002) and as a multiplicative model (Finkel & Muller, 1998). I choose to use the
additive model to better interpret the relative explanatory strength of the dependent variable.
The methodologies from this article follow Lubell (2002).

2. It is important to note that strong allies might lead to further free riding. After all, why
should I participate in a political battle when I have strong allies that can do it for me? This
would be an interesting rival hypothesis if I were comparing participants versus nonpartici-
pants. This data set includes actors who are already committed to the collaborative process,
and the dependent variable is their benefit–cost expectations of participating. Given this sam-
ple, I hypothesize that having strong allies compared to opponents should lead to more
expected benefits than costs.

3. There were three attempts to implement the Marine Life Protection Act (MLPA). The
first approach was a top-down approach with limited public participation that ended with
public protest. The second attempt was the stakeholder working-group process discussed in
this article, which ended because of a budget crisis. A comparison of the first two attempts can
be found in Weible, Sabatier, and Lubell (2004). The third attempt was a collaborative process
that focused just on the California central coast where stakeholders reached an agreement that
the California Fish and Game Commission eventually approved (for more information see
www.dfg.ca.gov/mrd/mlpa/).

4. This creates the possibility for selection bias. Many stakeholders accused the California
Department of Fish and Game (DFG) of appointing only moderate representatives to the work-
ing groups. A secondary analysis of the data that compares direct (active and alternative
members of the working groups) to indirect (nonactive people involved in the MLPA process)
shows no discernable difference between the populations. Although this does not remove the
threat of selection bias, it does suggest that the members of the working groups were repre-
sentative of a broader set of policy participants involved in MLPA policy.

5. The sample for the current study was actually much larger. The mail-in questionnaire was
administered to 310 people with the intent to generalize to stakeholders who were either directly
or indirectly involved with, or knowledgeable about, the MLPA processes. The sample was
created from the following sources: (a) Starting with suggestions from nearly 50 preliminary interviews, a snowball sampling technique generated a list of stakeholders \( (n = 178) \)—including 19 alternate members—and a list of California DFG officials \( (n = 13) \). (b) A publicly available list provided names of the initial active members on the working groups \( (n = 105) \). (c) A publicly available list provided names of the initial members of a science planning team used in the process \( (n = 14) \). A total of 194 people responded \( (62\%) \). Of the 105 working-group members, 70 responded, including 76% of the commercial fishing interests \( (n = 21) \), 71% of commercial passenger fishing vessel representatives \( (n = 7) \), 67% of the recreational fishing interests \( (n = 9) \), 67% of the consumptive diving interests \( (n = 9) \), 44% of the nonconsumptive diving interests \( (n = 9) \), 73% of the scientists and/or educators \( (n = 11) \), 71% of the environmentalists \( (n = 14) \), 63% of the local government officials and harbormasters \( (n = 8) \), 100% of the state government officials \( (n = 2) \), 80% of federal government officials \( (n = 5) \), 75% of the kelp harvesters \( (n = 4) \), 100% of party and/or touring boat operators \( (n = 1) \), 0% of the Tribal interests \( (n = 2) \), and 0% of the U.S. military representatives \( (n = 3) \). Although these results cannot generalize to Tribal or U.S. military interests, there is little evidence of response bias in the sample. Of the 14 members of the science planning team, 8 responded (not including two California DFG officials). Of the 13 California DFG officials, 10 responded to the survey. A response rate for the alternate members cannot be calculated because, at the time of the survey, many of the alternate members to the stakeholder working groups were not identified. This article includes only active and alternate working-group members because of the nature of the research question and because the majority of the questions used in this analysis were asked only to active or alternate working-group members.

6. For example, Finkel and Muller (1998, p. 42) operationalized personal efficacy by asking participants: “If I were more involved in politics, I would have more influence on what happens.”

7. This operationalization is similar to previous applications of the CIM. For example, Koontz (2005, p. 22) operationalized group efficacy with the following question, “This group is capable of producing tangible results.”

8. Responses were coded on an 11-point scale with 0 = 0 hpm (hours per month), 1 = 1-4 hpm, 2 = 5-9 hpm, 3 = 10-14 hpm, 4 = 15-19 hpm, 5 = 20-24 hpm, 6 = 25-29 hpm, 7 = 30-34 hpm, 8 = 35-39 hpm, 9 = 40-44 hpm, 10 = > 44 hpm. The open-ended hours per month question was coded to reflect the participants who actually gave a range of hours in their response and to limit the influence of the few stakeholders who expected to participate more than 44 hpm.

9. The list of organizational affiliations included federal government officials, state government officials, local government officials, harbormasters and/or directors, kelp harvesters, commercial fishers, recreational fishers, commercial passenger fishing vessels operators, professional boating and/or touring association operators, consumptive divers, nonconsumptive divers, environmentalists, and researchers (university and consultants).

10. Because very few participants for ally efficacy scored –1 or +1 (required citing just one ally or opponent rather than two), the range for this variable was truncated and recoded such that +2 or +1 = +1 and –2 and –1 = –1. Zero remained zero. Researchers could improve the operationalization of ally efficacy by asking participants to measure the relative influence of different opponents and allies. The operationalization used in this article parallels a number of other studies (e.g., Knoke, Pappi, Broadbent, & Tsujinaka, 1996; Zafonte & Sabatier, 1998)

11. Participants were asked to place themselves in one organizational category, which was the same list mentioned in endnote 9.

12. The adjusted \( p \) value is calculated by taking the specified alpha level (.10) divided by the number of tests (11). If the intent were to compare the difference between organizational
affiliations across all variables, a more conservative adjusted p value would be made by multiplying the number of subsets \((63 = 2^5 - 1)\) by 11 independent variables equaling 693 hypotheses plus the 10 hypotheses from the Welch statistics, which generates \(.10/703\) or an adjusted p value of \(.0001\). At this p value, the benefit–cost dependent variable \((p = .0008)\) and own time \((p = .0003)\) would not exceed the adjusted p value.

13. A power analysis, which is the probability that the significant test will reject the null hypothesis given a specified alpha (alpha = .05), indicates adequate power (> .95) for all variables except for hours per month (power = .31), ally efficacy (.50), group efficacy (.39), and personal efficacy (.26). The lack of power to reject a false null hypothesis might explain the lack of statistical significance for these variables.

14. The results are robust using ordinary least square regression. Using ordinary least square regression the \(R^2\) increases from .37 in the traditional CIM to .42 in the adapted CIM.

15. Significant p values are adjusted to \(p < .01\) by taking alpha = .10 divided by seven tests in the traditional CIM or nine statistical tests in the adapted CIM. I also make the adjustment in calculating the confidence intervals.

16. Active and alternate members of the working groups were asked, “Why are you an active participant or alternate in one of the working groups? Circle up to three of your most important reasons.” The reasons included: (a) “To improve the quality of marine ecosystems”; (b) “To improve the management of CA fisheries; (c) “To prevent the working groups from recommending undesirable alternatives; (d) “To contribute insights from your personal or professional experiences; (e) “To resolve conflicts over marine resources; (f) “To protect the economic interests of your organization or constituents; (g) “Other.” For improving the quality of marine ecosystems, the highest percentage of citations came from federal and/or state government officials (100% of federal and/or state government officials chose this reason as one of their three citations for participating), environmentalists (95% of environmentalists chose this reason as one of their three citations for participating), and scientists (75% chose this reason as one of their three citations for participating). On the other hand, the lowest percentage of citations for participating to protect economic interests came from these same three affiliations (0% chose this reason as one of their three citations for participating). These three affiliations were also less likely to participate to prevent the working group from recommending undesirable alternatives (less than 40% of their citations).

17. Responding to the same question asked in endnote 16, 71% of commercial fishers, 46% of recreational fishers, and 86% of local governments said with one of their three citations that they were participating to protect their economic interests. Similarly, 64% of commercial fishers, 61% of recreational fishers, and 29% of local governments said with one of their three citations that they were participating to prevent the working groups from recommending undesirable alternatives. Of those claiming to improve ecosystems, the responses included 3% of the commercial fishers, 23% of the recreational fishers, and 43% of local government officials who used one of their citations for this rationale.

References


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