

# Comparing stakeholders' preferences for how Ecological Risk Assessment Workshops are conducted: A Q study of Washington state and Delaware Bay regions

A technical report submitted to the Coastal Response Research Center by



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# **Comparing stakeholders' preferences for how Ecological Risk Assessment Workshops are conducted: A Q study of Washington state and Delaware Bay regions**

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## **1. Introduction**

This paper reports the results of two case studies that investigated what people involved in spill response planning think should be the features guiding future ecological risk assessment consensus workshops (ERAs) in their region.

This work was performed to assist the evaluation of prior ecological risk assessment consensus workshops performed as part of spill response planning. This evaluation is being conducted by the Emergency Response Division (Seattle) of NOAA. We are assisting staff in the Emergency Response Division in three ways. First, we are identifying criteria for 'success' for collaborative planning reported in the research literature that can be used to inform the evaluation of the ecological risk assessments (Tuler and Webler 2007). Second, are characterizing the ways that participants think about their experiences in ecological risk assessments in the two regions; this work is the subject of this report. Third, we are using this information to assist staff to develop evaluation instruments (i.e., surveys and interview guides) for use in their larger assessment of the ecological risk assessments.

## **2. Research Methods**

The purpose of this study was to identify perspectives about how ERAs for spill response planning should be organized and implemented. among diverse stakeholders (including federal officials). Toward this end we used Q methodology (Brown 1986, 1996, McKeown and Thomas 1988, Kalof 1998, Niemeyer et al. 2005, Tuler et al. 2005, Tuler and Webler 2006). This is a type of discourse analysis that integrates quantitative and qualitative analyses to understand, in depth, the points of view on a subject. By inquiring of people with unique points of view, Q researchers can reveal patterns in how elements of perspectives are related.

### **2.1 Selection of case studies**

In collaboration with staff from the Emergency Response Division and the Coastal Response Research Center we selected two case studies. We wanted to investigate how past participants in ERAs think that future ones should be organized. Because we wanted input representing a diversity of experiences we selected two ERAs for which there had been very different feedback. The first was the Delaware Bay ERA conducted in 2006 (Aurand and Coelho 2006a). Data were gathered for this case study during July 2007. The second was the Cape Flattery ERA conducted in 2005 (Aurand and Coelho 2006b). We call this the Washington state case study because we asked people about their preferences for a future ERA in the state, not just in the Cape Flattery region. The data for this case study were gathered during September and October 2007.

### **2.2 Selection of research subjects**

We selected individuals to participate in our research who had participated in prior ERA efforts in the two regions (Delaware Bay and Cape Flattery). We began with the list of people who attended each ERA. Then we spoke with NOAA and Coast Guard spill managers in each area to get further insight into who we might ask to participate.

Finally, as we made initial contact with people and after describing the purpose of our study we asked for further suggestions about who to invite to participate (i.e., snowball sampling). We selected a sample of ERA participants who

- have been actively involved in spill response planning and implementation;
- represented different institutional affiliations; and
- were likely to have different views about spill response objectives.

The identified individuals were approached via telephone or email and introduced to the project and told how they were selected. We described our data collection procedures and what we wanted them to do. We told people we would visit them at a time and place convenient to them and that the entire process would take about one and one-half hours. Few people explicitly declined to participate after talking with us; a few did in Washington state.

### 2.3 Q Method

In Q methodology, the researchers gain access to various perspectives on a subject – what Q practitioners often call “social discourses” – by having a small number of people with different, but well-formed opinions sort a group of statements according to their personal opinions. Participants in our case study were asked to:

- complete a Q sort on the objectives that should guide spill response in their region (the results of which are described in a companion report)
- Answer a short questionnaire about spill response objectives
- Complete a Q sort on the ERA process
- Answer a short questionnaire about their experience in the ERA in which they participated

To conduct a Q sort, each person was handed a set of small cards (about the size of a normal business card). An instruction to guide sorting of statements specified the context under which the participant was to interpret and react to the Q statements. The sorting instruction in each case was designed to focus the participants’ thinking on the topic of concern.

This is how Q sorts happened. We asked each participant to read all the statements through once or twice. Then we asked them to sort the statements into three piles, the left-hand pile being the less important ideas, the right-most pile being the most important ideas, and the middle pile being in between. The Q sort was further constrained by forcing participants to sort the cards into a specific pattern. An example pattern is shown in Figure 1.<sup>1</sup> Three cards could be placed in the two left-most columns, five in the third column, and so on. The scale was relative, not absolute. In other words, a certain participant may have felt that *all* the statements were important,

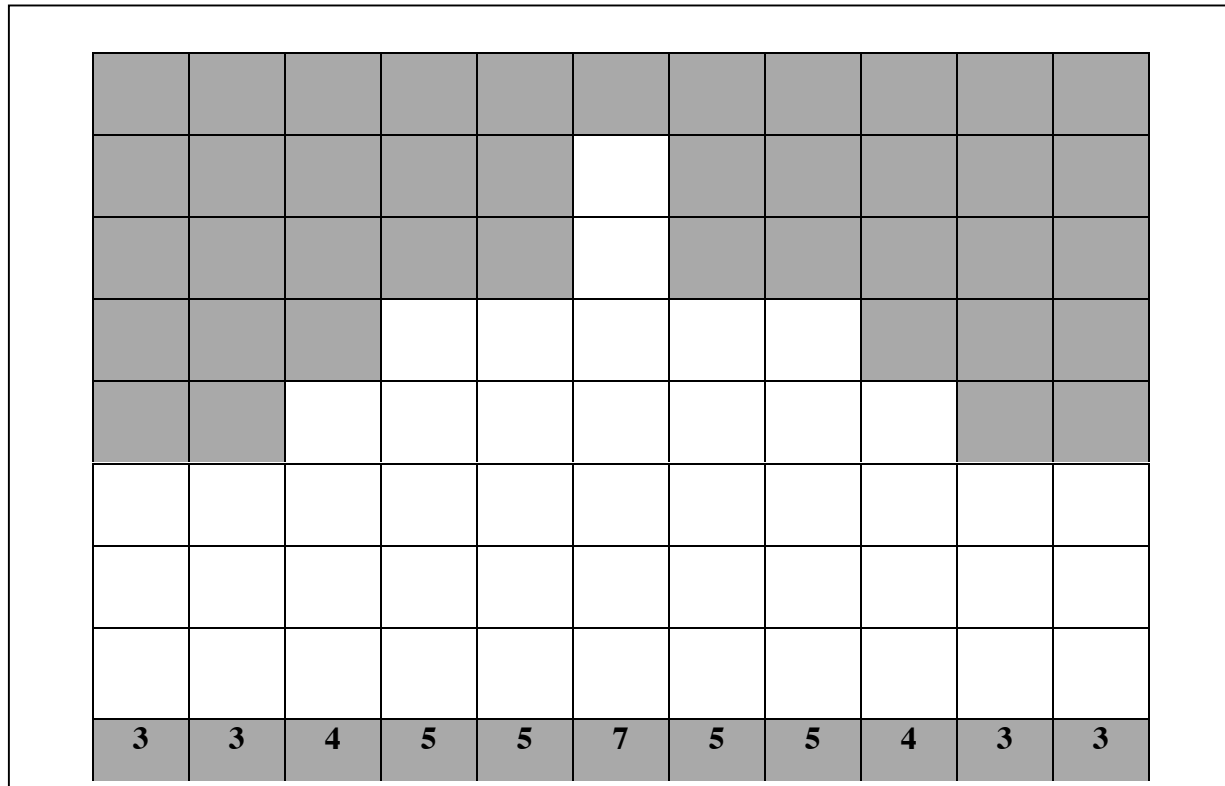
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<sup>1</sup> A question has arisen among researchers using Q methodology about whether the pattern into which people are required to sort the Q statements, such as the normal distribution shown in Figure 1, matters to the results that are obtained. The conclusion among researchers of Q is that the use of a normal distribution makes little or no difference to the results of a study. We elected to use the normal distribution because we find it helps people sort the cards and because it enables us to use software that we prefer.

but he or she still had to differentiate between those that would be *most unlikely* and *most likely* to emphasize.

Participants reported the Q sort was innovative, fun, and that it stimulated their thinking. During the Q sort the researcher asked the participant to talk about the sorting and how he or she interpreted the statements. These comments were recorded and used to help interpret the results.

**Figure 1. Layout for Q sort cards.**



Most *unlikely* to emphasize

Most *likely* to emphasize

**2.4 Q statements and the sorting instruction**

The statements were selected by the research team using prior work on evaluating public participation processes (see Webler and Tuler 2006, Tuler et al. 2005, Webler et al. 2001). The set used in the prior studies was adapted for the ERA and oil spill context. Some statements were removed because they did not apply to the goals or organization of the ERAs for example. This resulted in a set of 47 statements as shown in Table 1.

The sorting instruction for sorts relating to features that should guide the organization of future ERAs in Delaware Bay and Washington state were:

Imagine that the ERA Consensus Workshop is going to be done again. Sort the statements according to what you believe should be the least important to the most important factors guiding the design of the process.

The sorting instructions in each case and for each of the two sets of statements were designed to focus the participants' thinking on emergency phases of spill response; we asked them not to consider these objectives in latter response efforts, including restoration and damage assessment. We wanted to draw on each participants' experiences to-date and at the same time get his or her ideas of what would be the most important objectives to guide a response in the future. We did not ask people to evaluate, for example, the Bouchard-120 spill response, although we expected, of course, that their experiences would inform their ideas about a future effort.

**Table 1. List of 47 statements relating to ERA process features.**

1. Set up a situation that encourages all participants to listen to what others say and to consider it carefully.
2. Use the best available science.
3. Establish relationships that promote constructive collaboration among participants.
4. Acknowledge and explore uncertainties.
5. Develop a common language and understanding among participants.
6. Reach out in a number of different ways through different mechanisms to different communities on different issue points, throughout the process.
7. Work to build trust among the different participants during the process.
8. Hold meetings at different times and places so no one is excluded from participating.
9. Participants should be courteous and respectful to one another.
10. Provide financial resources that enable people to participate effectively (e.g., travel, hire experts).
11. Participants should see beyond their individual interests to what is good for the larger community.
12. The process cannot be open to just anyone who wants to participate, participation has to be restricted in some way.
13. Participants should be accountable for what they say, sincere in their promises, and reliable in carrying them out.
14. The process gives recommendations to the Area Committee, who then makes the final decisions.
15. Participants should have reasonable expectations about what the responsible agencies are able to do.
16. All important decisions are made according to consensus (including the agenda).
17. Participants should attend meetings regularly and see tasks through to completion.
18. It is clear under what conditions the process will end.
19. Participants should be able to deal with complex technical issues.
20. Every recommendation is justified with evidence.
21. Participants should feel comfortable and safe at the meetings.
22. Consensus is used to decide what rule is used to make decisions (simple majority vote, 2/3 majority vote, etc.)
23. There are clear groundrules that govern how people should interact.
24. The agencies involved respond in a timely way to all questions, comments, and requests.
25. Participants are involved in deciding what analyses ought to be done.

26. Opportunity can't be an empty shell; there need not only be opportunities to be heard but there also has to be some way for the public to see that the decision makers are listening.
27. Discuss the values underlying people's opinions about the issues.
28. There are mechanisms for communicating to the broader public about what decisions are being considered and made.
29. Validate all information to make certain it is correct.
30. Participants who represent groups check in with their memberships regularly to ensure that they represent their views accurately.
31. Everyone has an equal chance to put their concerns on the agenda.
32. Allow time to re-visit issues and decisions, even if it means extending the timetable.
33. The process has to be able to limit topics of discussion in order to avoid quagmires.
34. There is adequate notification of meetings, comment periods, etc.
35. The process requires unbiased and independent facilitation.
36. This process is well integrated with other response planning activities.
37. The purposes and goals of the process are clear to all involved.
38. There is adequate administrative support (e.g., funding, staffing) for the life of the process.
39. All participants have equal access to information.
40. All important stakeholders are taking part in the process.
41. There is full disclosure of information at all times.
42. At the end of the process there is a clear plan for how to implement the final decision.
43. The staff involved is receptive to questions or requests for information from the public.
44. The process makes progress on solving the right problem.
45. The process needs to get the right information.
46. The process needs an effective leader.
47. The process taps the knowledge and experiences of local people.

### 2.5 Q Method Data Analysis

The analysis that is part of Q method reveals both the content of the social discourses present in the group of participants and the extent to which particular individuals believe or subscribe to the different discourses. The assumption is that these social discourses exist partially in the subjectivity of individuals, but they are also a product of social interaction. In addition, while perspectives are held subjectively, similarities among individual views make it possible to articulate a small number of social discourses on a topic.

We arrive at the meaning of each of the social discourses that emerges from the analysis by using three approaches. First of all, Q sort data were entered into a computer program called MQMethod.<sup>2</sup> This program computes the statistical analysis, which is explained in detail below. Second, we recorded the conversation we had with the participant during the sort. We asked the participant to interpret their sort and to explain how he or she interpreted specific Q statements. We used their comments to help interpret the statistical output when composing the perspective narratives. Third,

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<sup>2</sup> This freeware program is available through <http://www.qmethod.org>. Readers interested in learning more about Q method will find this website informative.

we mailed a narrative description of each social discourse to participants whose individual sorts were most strongly correlated with it. That is, we endeavored to find participants who were most representative of the perspective represented by the social discourse and then asked each of them to verify its clarity, content, and emphasis.

MQMethod is basically a factor analysis program. A factor analysis is a way of identifying a handful of underlying variables that account for changes among a much larger group of measured variables. In both of our cases, the Q sorts are the measured variables and the factor analysis reduced them to three variables, which are called “factors.” The program produces factors that are represented as a specific Q sort. The factors identified in the analysis represent “ideal types.” Typically, the analysis reveals that each individual’s beliefs strongly shares features represented in one factor (which represents a social discourse), and has only moderate to little agreement with the others. In some cases, however, an individual’s beliefs may share features of multiple perspectives. The degree to which an individual’s beliefs share features with an “ideal” discourse is represented by a score derived as part of the factor analysis. These scores are called “factor loading scores” and a +1.00 would indicate that a participant’s sort exactly matched the factor, a 0 would mean there were no similarities at all, and a –1.00 would indicate that a participant’s sort was the exact opposite of the factor sort.

Any statistical factor analysis requires a certain amount of judgment in determining the factors. We started every analysis using principle components analysis followed by the varimax solution. Theoretically this solution accounts for the most variance in the data. However, theorists in Q methodology argue that the varimax solution is not necessarily theoretically relevant and that judgmental hand rotation is sometimes needed to find the most appropriate solution. In this case we used judgmental hand rotation because we were able to differentiate individuals more clearly with respect to their factor loading scores and we were able to reduce the number of people who did not load significantly on any factor. We selected our factors based on three criteria when using judgmental hand rotation. First, the solution should account for over 50% of the total variance in the data. Second, the factor had to be meaningful and theoretically important. Third, the number of individuals with multiple significant factor loadings or no significant factor loading was minimized.

Each of the factors represents an idealized social perspective about what is an appropriate process in the context defined by the condition of instruction. The tricky part of the analysis is figuring out exactly what each factor means: what perspective, or point of view, is being expressed by those who load significantly on a factor? Based on the arrangement of statements in each of the factors, and with the help of the notes from the conversations, we composed a written narrative describing the particular perspectives represented by each factor. Finally, we validated the narrative’s accuracy by emailing high loaders the associated narrative description to them for confirmation.

In the following sections we describe the results from each case. Then, we will discuss general findings and observations that emerge in relation to the design of the evaluation project.

### **3. What do people think should be the features guiding future ecological risk assessment consensus workshops (ERAs) in their region?**

#### **3.1 Delaware Bay ERA**

Three factors emerged from the analysis. Each factor represents a distinct perspective about what should be the appropriate features guiding the organization of a future ecological risk assessment consensus workshop in the Delaware Bay area.

Table 2 shows the loading scores for each participant in the study. A loading score greater than 0.3763 is statistically significant at the 0.05 level. This means that there is at most a 5% chance of the person loading on that factor being the result of a random event. Subjects 9 and 11 load on both Factors B and C, suggesting that they share aspects of both. Every person loaded on at least one factor, which suggests that this 3 factor solution encompasses the perspectives of all the participants. 59% of the variance is explained by this solution. Table 3 shows the correlations among the factors; these values illustrate that there is some commonality among them, but they are likely to also hold some important differences.

Three distinct and coherent factors — or what we will continue to call perspectives on public participation process — emerged from the analysis.<sup>3</sup> Each is characterized by a particular rank ordering of the Q statements into the eleven categories (–5 to +5), as discussed above. A statement ranking +5 strongly defines that perspective while a statement ranking –5 is much less associated with the meaning of that perspective. In other words, the perspectives are defined by the rankings of all the statements relative to each other. Table 4 presents the statement rankings for each of the three perspectives. The end product of the Q study is a set of narrative descriptions of each perspective. These narratives are presented next.

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<sup>3</sup> It is important to note that we cannot claim that these are the only perspectives that exist – there may be perspectives that we did not capture because they were not represented by the people we studied. We sought to overcome this potential problem by selecting a diverse group of people to complete the Q sorts, as described above. In addition, we cannot make any claims about the frequency of the perspectives in the larger population of people involved with this case study; this is an inherent limitation of Q methodology.

**Table 2. Factor loadings for Delaware Bay ERA process Q sort participants.** Loadings significant at 95% confidence level when  $\geq .3763$ . **Bold font** indicates significant loading on a factor.

| Subject                     | Factor A      | Factor B      | Factor C      |
|-----------------------------|---------------|---------------|---------------|
| Subject 1                   | <b>0.8350</b> | 0.1239        | -0.0376       |
| Subject 2                   | <b>0.7933</b> | 0.0987        | 0.1504        |
| Subject 3                   | <b>0.7548</b> | 0.0400        | 0.3090        |
| Subject 4                   | <b>0.6999</b> | 0.2234        | 0.2753        |
| Subject 5                   | <b>0.6093</b> | 0.1988        | 0.1159        |
| Subject 6                   | <b>0.6093</b> | 0.1988        | 0.1159        |
| Subject 7                   | 0.1105        | <b>0.8184</b> | -0.1785       |
| Subject 8                   | 0.2065        | <b>0.6780</b> | 0.3711        |
| Subject 9                   | 0.1655        | <b>0.5954</b> | <b>0.4496</b> |
| Subject 10                  | 0.0116        | 0.0396        | <b>0.7807</b> |
| Subject 11                  | 0.3151        | <b>0.3931</b> | <b>0.6215</b> |
| Subject 12                  | 0.3151        | 0.0069        | <b>0.5317</b> |
| <b>% variance explained</b> | 28%           | 16%           | 17%           |

**Table 3. Inter-factor correlations for Delaware Bay ERA process Q study.**

|                 | Factor A | Factor B | Factor C |
|-----------------|----------|----------|----------|
| <b>Factor J</b> | 1.0000   | 0.3565   | 0.3922   |
| <b>Factor K</b> |          | 1.0000   | 0.3441   |
| <b>Factor L</b> |          |          | 1.0000   |

**Table 4. Factor array for Delaware Bay ERA process Q study.**

| Statement   | Factor A | Factor B | Factor C |
|---|----------|----------|----------|
| 1. Set up a situation that encourages all participants to listen to what others say and to consider it carefully.                                   | 4        | 3        | 0        |
| 2. Use the best available science.  | 5        | 2        | 5        |
| 3. Establish relationships that promote constructive collaboration among participants.  | 0        | 5        | -2       |
| 4. Acknowledge and explore uncertainties.   | 0        | 1        | 2        |
| 5. Develop a common language and understanding among participants.  | 2        | 0        | 0        |
| 6. Reach out in a number of different ways through different mechanisms to different communities on different issue points, throughout the process. | -4       | -4       | -1       |
| 7. Work to build trust among the different participants during the process.   | 1        | 2        | -3       |
| 8. Hold meetings at different times and places so no one is excluded from participating.  | -5       | -5       | -5       |
| 9. Participants should be courteous and respectful to one another.  | 3        | 0        | -1       |
| 10. Provide financial resources that enable people to   | -2       | -1       | 1        |

|   |    |    |    |
|---|----|----|----|
| participate effectively (e.g., travel, hire experts).   |    |    |    |
| 11. Participants should see beyond their individual interests to what is good for the larger community.   | -3 | 4  | -2 |
| 12. The process cannot be open to just anyone who wants to participate, participation has to be restricted in some way.   | 2  | -5 | -2 |
| 13. Participants should be accountable for what they say, sincere in their promises, and reliable in carrying them out.   | -2 | -1 | -4 |
| 14. The process gives recommendations to the Area Committee, who then makes the final decisions.  | 2  | 4  | 0  |
| 15. Participants should have reasonable expectations about what the responsible agencies are able to do.  | -1 | 3  | 0  |
| 16. All important decisions are made according to consensus (including the agenda).   | 1  | 2  | -5 |
| 17. Participants should attend meetings regularly and see tasks through to completion.  | -1 | -2 | 2  |
| 18. It is clear under what conditions the process will end.   | -3 | 2  | -3 |
| 19. Participants should be able to deal with complex technical issues.  | -2 | 1  | -3 |
| 20. Every recommendation is justified with evidence.  | -2 | -3 | 0  |
| 21. Participants should feel comfortable and safe at the meetings.  | 3  | -5 | -4 |
| 22. Consensus is used to decide what rule is used to make decisions (simple majority vote, 2/3 majority vote, etc.)   | 1  | -1 | 0  |
| 23. There are clear groundrules that govern how people should interact.   | 1  | -2 | -1 |
| 24. The agencies involved respond in a timely way to all questions, comments, and requests.   | 0  | 1  | 2  |
| 25. Participants are involved in deciding what analyses ought to be done.   | -4 | 3  | 1  |
| 26. Opportunity can't be an empty shell; there need not only be opportunities to be heard but there also has to be some way for the public to see that the decision makers are listening. | -5 | -2 | -3 |
| 27. Discuss the values underlying people's opinions about the issues.   | -1 | -3 | -5 |
| 28. There are mechanisms for communicating to the broader public about what decisions are being considered and made.  | -5 | -4 | -4 |
| 29. Validate all information to make certain it is correct.   | 0  | -1 | 4  |
| 30. Participants who represent groups check in with their memberships regularly to ensure that they represent their views accurately.   | -3 | -4 | -2 |
| 31. Everyone has an equal chance to put their concerns on the agenda.   | -4 | 0  | 1  |
| 32. Allow time to re-visit issues and decisions, even if it means extending the timetable.  | -3 | 0  | 4  |
| 33. The process has to be able to limit topics of discussion in order to avoid quagmires.   | 2  | -3 | -1 |
| 34. There is adequate notification of meetings, comment periods, etc.   | -1 | 0  | 3  |
| 35. The process requires unbiased and independent facilitation.   | 4  | 3  | 3  |

|   |    |    |    |
|---|----|----|----|
| 36. This process is well integrated with other response planning activities.                        | -2 | -1 | -1 |
| 37. The purposes and goals of the process are clear to all involved.                                | 5  | 5  | 5  |
| 38. There is adequate administrative support (e.g., funding, staffing) for the life of the process. | 3  | -2 | 4  |
| 39. All participants have equal access to information.  | 0  | 1  | 3  |
| 40. All important stakeholders are taking part in the process.                                      | 4  | 2  | 5  |
| 41. There is full disclosure of information at all times.   | 3  | 0  | 3  |
| 42. At the end of the process there is a clear plan for how to implement the final decision.        | 0  | 5  | 0  |
| 43. The staff involved is receptive to questions or requests for information from the public.       | 2  | 4  | -2 |
| 44. The process makes progress on solving the right problem.  | -1 | -3 | 2  |
| 45. The process needs to get the right information.   | 1  | 0  | 2  |
| 46. The process needs an effective leader.  | 5  | -2 | 1  |
| 47. The process taps the knowledge and experiences of local people.                                 | 0  | 1  | 1  |

### **Perspective A: Pragmatic, efficient, expert-driven process**

This factor represents a perspective that envisions a pragmatic, efficient, and expert-driven process to improve oil spill response strategies and enhance existing oil spill contingency planning. It is the perspective that most closely represents the view of the planning committee.

The perspective highlights three main ingredients to a successful process.

To begin with, it is clear that the Planning Committee should have a great deal of responsibility. Participants must be clear about the objectives of the ERA consensus workshop (37), as defined by the sponsors (i.e., Delaware Bay Area Committee and the Planning Committee). It is essential that all important stakeholders be present (40). But at the same time, the process cannot be open to just anyone, participation needs to be by invitation only (12). A pragmatic and efficient process is further assured by having an effective leader (46), unbiased and independent facilitation (35), adequate administrative support (38), and a staff that is responsive to questions (43). The agenda is prepared by the Planning Committee, not the participants (31, 33), as that can side-track the process from the pre-defined purposes and goals. Toward this same purpose, revisiting earlier decisions (32) is strongly rejected (which is a stark contrast with Perspective C). As with the agenda, scenarios for analysis are generated by the Planning Committee, not the participants (25). Because the process is to involve people who are actively engaged with spill response planning it is not important to create mechanisms to engage with a broader public (28, 6). More than any other perspective, this one supported the role of consensus (16), although it was still weakly supported.

The second critical feature has to do with the role of science and information. As with Perspective C, using the best available science (2) is strongly emphasized, and the

importance of full disclosure of information (41). However, other than this, Perspective A places much less emphasis on the role of information and analysis in the process than does Perspective C. In general, there is more of a sense that the available information is limited, so that it is not practical (or even possible) to explore all uncertainties (4), validate all information (29), and justify every recommendation with evidence (20). Instead, expert judgment must be relied upon, which can be informed by local knowledge and experiences (47). The need for certain kinds of information is what defines who are the important stakeholders that should participate (40), and it is not important that *everyone* possess the same information or knowledge (39). While it is important that the process result in recommendations for the area planning committee (14), this is a secondary goal because the area planning committee is well aware of the inability of experts to provide unequivocal answers.

Finally, this perspective pays attention to the quality of the communication in the workshop. It emphasizes setting-up a situation that encourages participants to listen (1) in courteous and respectful ways (9), using a common language (5). Although it often goes without saying, it is important that participants feel safe to express their concerns and judgments (21) and this should not be overlooked. Other qualities are also important, but they were not strongly scored, in part because it is not possible to do anything about these: participants should have reasonable expectations (15), attend all meetings (17), and be accountable and sincere in what they say (13). In comparison with Perspective C, however, this perspective did place much stronger weight on qualities of the communication within the process.

### **Factor B: Protect participants from manipulation**

This perspective reflects general discontent with past ERA experiences and recommends a process that protects participants from wasting their time or, worse, potentially being manipulated. To ensure that participation in meaningful and the workshop outcomes are considerate of participants' concerns three issues must be addressed.

First, the goals and purposes of the workshop must be clear to everyone involved. There needs to be a clear plan for how the final decision is going to be implemented (42). To some people this is associated with clarifying the purpose and goal of the workshop (37) and also ensuring that outcomes are recommendations to the Area Committee (14), which will make the final decision. It makes that purpose transparent. To other people with this perspective having a clear idea of how the workshop's products will be used is key because it ensures that everyone is clear about the consequences of what is agreed to during the workshop. It also reduces the possibility of hidden agendas (or perceptions of them) that can leave some people feeling manipulated.

The second issue addressed in this perspective is to encourage everyone to come to the workshop with a genuinely open mind, that is, without a preconceived agenda. Thus, there is a focus on constructive cooperation (3), seeing beyond individual

interests to what is good for all (11), encouraging everyone to listen (1), and having reasonable expectations about what the responsible agencies can actually do (15). No one should be pushed to accept proposals that are inconsistent with their values or agency policies. It also highlights, more than the other two factors, building trust among participants (7). There is an expectation that participants should be able to abide by such behaviors without being overly managed – so that there is no need for groundrules to govern people’s interactions (23).

Third, this perspective highlights certain qualities that protect participants in the process. For example, having the process give recommendations to the Area Committee (14) who can consider them, as well as other information and requirements. There should also be unbiased and independent facilitation (35) to ensure that people are treated respectfully and that there are no hidden agendas. To ensure that the scenarios and response options considered are meaningful and relevant to people, this view supports having the participants decide what kinds of analyses should be done (25). There is disagreement with the notion that progress should be made on the ‘right’ problem, because that suggests that some people get to define what is ‘right.’ And, although it is not strongly emphasized, this perspective does highlight using consensus to make important decisions (16). Consensus protects people with minority viewpoints. An important part of involving everyone meaningfully also involves the organizers being responsive to questions (43). Finally, having a clear idea of when the process will end (18) is especially important to people who felt that past workshops did not meet their expectations. A process that seems unsavory, if it has a clearly defined lifespan is easier to tolerate than one that goes on and on.

This perspective differs significantly from Perspective C by not emphasizing the importance of using science (2), validating recommendations (20), or equal access and full disclosure of information (39, 41). Some challenges for response and restoration are not resolvable by science, information, and modelling alone (in the near term) because they are driven by agency policies and social values (20); area contingency plans and response managers must be respectful of these needs. It also stands apart from Perspective C in its emphasize on how people should behave during the process.

Unlike Perspective A, this perspective does not emphasize having an effective leader (46) because too strong a leader may push participants in directions they are not able to go. It also differed from Perspective A in its rejection of statements about restricting who participates (12) or the topics that are discussed (33). Perspective A strongly rejected the statement about allowing everyone to put their concerns on the agenda (31), but in this perspective that statement ended up near the middle of its distribution.

### **Factor C. Information-driven process**

This perspective places a very strong emphasis on the quality of information that is used in the process and the ability of people to participate in a meaningful way. It shares with Perspective B a concern about the process needing to be responsive to participants’ input. With Perspective A there is agreement that there should be clear goals of the process (37), unbiased and independent facilitation (35), full disclosure of

information (41), and adequate administrative support (e.g., funding, staffing) for the life of the process (38). But it goes beyond Perspective A in elevating the role of information. It envisions a process that is open and accommodating to different stakeholders. It also represents a factor that expresses a high degree of confidence in the capacity of participants to engage about the issues effectively, without facilitators or organizers having to “mandate” rules of interaction or “appropriate” behaviors.

The quality and accessibility of information is high on the minds of those who are associated with this perspective. Not only should the process use the best available science (2), it must validate all information to ensure it is correct (29) and ensure there is full disclosure and equal access to all information (39, 41). Furthermore, uncertainties need to be acknowledged and explored (4). Even statements about information that received weak scores across all three perspectives were ranked highest in this one - get the right information (45) and validate every recommendation with evidence (20).

This perspective emphasizes features that ensure meaningful participation. There should be adequate administrative support (38), The process should endeavor to ensure that it is clear to them what the purposes and goals are (37), and time is allowed to re-visit issues and decisions, even if it means extending the timetable (32), and do not limit topics of discussion (33). To emphasize that the process needs to be more responsive to participants, this perspective emphasized the need for the agencies involved to be responsive to all questions (24). Although not as strongly as Perspective B, this perspective did emphasize the importance of having participants decide what kinds of analysis should be done (25). This referred explicitly to the scenarios generated for study during the ERA. To ensure that all important stakeholders can take part, it is important that there is adequate notification of meetings (34).

The people that should have access to this information are all important stakeholders (40, 12), which goes beyond the usual group of spill response managers, trustees, and first responders to include local groups that represent community concerns. The idea that participants should have “reasonable expectations” is just a way of justifying the exclusion of stakeholders with unpopular views. Similarly, requirements about how people should behave or interact (23, 7, 13, 3, 11) suggest a reason for people with passion and contrary views to be excluded. Instead, those who are associated with this perspective have a high degree of confidence that participants will be professional in their interactions – even if they are passionate about the issues. People will be able to listen to those they disagree with and be respectful toward them. Thus, it is not an important priority for process leaders or sponsors.

### **Consensus Points**

There were several points on which all three perspectives had equivalent rankings. Most notably is that all three perspectives gave the highest rankings to the statement about having clear purposes and goals of the process (37). This is a necessary ingredient for a successful process. They also gave the lowest ranking to the statement about holding meetings at different times and places (8). This was seen as

unnecessary for a workshop that was for professionals, not the public. Also strongly rejected was the statement about communicating the results to the broader public (28). This was generally seen as irrelevant to the ERA process.

Having unbiased facilitation was highly ranked in all three perspectives (35), although not necessarily for the same reasons. For Perspectives A and C this is about good professional practice. But for Perspective B this was, in part, a response to a perception that the facilitator tended to push dispersants beyond the comfort point of some participants.

The last significant point of agreement among the perspectives is that all important stakeholders should be represented in the process (40). This is simply a reflection of the widespread belief that the planning process should take every interest position into account when devising a contingency plan, but there does appear to be a difference in how this statement is interpreted – in Factor C this would also include representatives of communities and advocacy groups, whereas inclusion of these is not emphasized by Factors A and B.

### 3.2 Washington state ERA

Three factors emerged from the analysis. Each factor represents a distinct perspective about what should be the appropriate features guiding the organization of a future ecological risk assessment consensus workshop in Washington state, as expressed by the 13 people who had participated in the Cape Flattery ERA.

Table 5 shows the loading scores for each participant in the study. A loading score greater than 0.3763 is statistically significant at the 0.05 level. This means that there is at most a 5% chance of the person loading on that factor being the result of a random event. Every person loaded on only one factor, which suggests that this 3 factor solution encompasses the perspectives of all the participants. 54% of the variance is explained by this solution. Table 6 shows the correlations among the factors; these values illustrate that there is some commonality among them, but they are likely to also hold some important differences.

Three distinct and coherent factors — or what we will continue to call perspectives on public participation process — emerged from the analysis.<sup>4</sup> Each is characterized by a particular rank ordering of the Q statements into the eleven categories (–5 to +5), as discussed above. A statement ranking +5 strongly defines that perspective while a statement ranking –5 is much less associated with the meaning of that perspective. In other words, the perspectives are defined by the rankings of all the statements relative to each other. Table 7 presents the statement rankings for each of the three

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<sup>4</sup> It is important to note that we cannot claim that these are the only perspectives that exist – there may be perspectives that we did not capture because they were not represented by the people we studied. We sought to overcome this potential problem by selecting a diverse group of people to complete the Q sorts, as described above. In addition, we cannot make any claims about the frequency of the perspectives in the larger population of people involved with this case study; this is an inherent limitation of Q methodology.

perspectives. The end product of the Q study is a set of narrative descriptions of each perspective. These narratives are presented next.

**Table 5. Factor loadings for Washington state ERA process Q sort participants.** Loadings significant at 95% confidence level when  $\geq .3763$ . **Bold** font indicates significant loading on a factor.

| Subject                     | Factor X      | Factor Y      | Factor Z      |
|-----------------------------|---------------|---------------|---------------|
| Subject 1                   | <b>0.7407</b> | 0.2656        | -0.1878       |
| Subject 2                   | <b>0.6862</b> | -0.0547       | 0.3183        |
| Subject 3                   | <b>0.6761</b> | -0.1877       | -0.1791       |
| Subject 4                   | <b>0.6331</b> | 0.1112        | 0.0626        |
| Subject 5                   | <b>0.5944</b> | 0.1167        | 0.3104        |
| Subject 6                   | <b>0.5536</b> | 0.1470        | 0.3746        |
| Subject 7                   | 0.1714        | <b>0.7804</b> | 0.0271        |
| Subject 8                   | 0.2982        | <b>0.7361</b> | 0.1158        |
| Subject 9                   | -0.0927       | <b>0.7021</b> | 0.2778        |
| Subject 10                  | -0.0592       | <b>0.6464</b> | -0.0864       |
| Subject 11                  | 0.2643        | 0.0200        | <b>0.8390</b> |
| Subject 12                  | 0.2767        | 0.0563        | <b>0.7060</b> |
| Subject 13                  | 0.2987        | 0.3009        | <b>0.3777</b> |
|                             |               |               |               |
| <b>% variance explained</b> | 22%           | 18%           | 14%           |

**Table 6. Inter-factor correlations for Washington state ERA process Q study.**

|                 | Factor X | Factor Y | Factor Z |
|-----------------|----------|----------|----------|
| <b>Factor X</b> | 1.0000   | 0.2490   | 0.3978   |
| <b>Factor Y</b> |          | 1.0000   | 0.1839   |
| <b>Factor Z</b> |          |          | 1.0000   |

**Table 7. Factor array for Washington state ERA process Q study.**

| Statement   | Factor X | Factor Y | Factor Z |
|---|----------|----------|----------|
| 1. Set up a situation that encourages all participants to listen to what others say and to consider it carefully. | 4        | 0        | -3       |
| 2. Use the best available science.  | 4        | 5        | 5        |
| 3. Establish relationships that promote constructive collaboration among participants.                            | 5        | -1       | -2       |
| 4. Acknowledge and explore uncertainties.   | -3       | 1        | 2        |
| 5. Develop a common language and understanding among participants.  | 0        | 0        | -1       |
| 6. Reach out in a number of different ways through  | -2       | -2       | 1        |

|   |    |    |    |
|---|----|----|----|
| different mechanisms to different communities on different issue points, throughout the process.  |    |    |    |
| 7. Work to build trust among the different participants during the process.   | 3  | 0  | -1 |
| 8. Hold meetings at different times and places so no one is excluded from participating.  | -4 | -3 | -5 |
| 9. Participants should be courteous and respectful to one another.  | 2  | -2 | 1  |
| 10. Provide financial resources that enable people to participate effectively (e.g., travel, hire experts).   | -3 | -1 | -2 |
| 11. Participants should see beyond their individual interests to what is good for the larger community.   | 0  | -4 | 0  |
| 12. The process cannot be open to just anyone who wants to participate, participation has to be restricted in some way.   | -3 | -5 | 0  |
| 13. Participants should be accountable for what they say, sincere in their promises, and reliable in carrying them out.   | -1 | -1 | 1  |
| 14. The process gives recommendations to the Area Committee, who then makes the final decisions.  | 1  | -3 | 1  |
| 15. Participants should have reasonable expectations about what the responsible agencies are able to do.  | 1  | -1 | -2 |
| 16. All important decisions are made according to consensus (including the agenda).   | -1 | -4 | -3 |
| 17. Participants should attend meetings regularly and see tasks through to completion.  | 2  | 0  | 0  |
| 18. It is clear under what conditions the process will end.   | 1  | 2  | -1 |
| 19. Participants should be able to deal with complex technical issues.  | 0  | -2 | -1 |
| 20. Every recommendation is justified with evidence.  | -2 | 1  | -4 |
| 21. Participants should feel comfortable and safe at the meetings.  | 3  | -5 | -2 |
| 22. Consensus is used to decide what rule is used to make decisions (simple majority vote, 2/3 majority vote, etc.)   | 0  | -4 | 3  |
| 23. There are clear groundrules that govern how people should interact.   | 4  | -2 | 3  |
| 24. The agencies involved respond in a timely way to all questions, comments, and requests.   | -2 | -1 | 1  |
| 25. Participants are involved in deciding what analyses ought to be done.   | -5 | 3  | -5 |
| 26. Opportunity can't be an empty shell; there need not only be opportunities to be heard but there also has to be some way for the public to see that the decision makers are listening. | -5 | -3 | -2 |
| 27. Discuss the values underlying people's opinions about the issues.   | -4 | 0  | -4 |
| 28. There are mechanisms for communicating to the broader public about what decisions are being considered and made.  | -5 | 0  | -4 |
| 29. Validate all information to make certain it is correct.   | 0  | 2  | 4  |
| 30. Participants who represent groups check in with their memberships regularly to ensure that they represent their views accurately.   | 0  | 0  | -5 |
| 31. Everyone has an equal chance to put their concerns  | 2  | 4  | -3 |

|   |    |    |    |
|---|----|----|----|
| on the agenda.  |    |    |    |
| 32. Allow time to re-visit issues and decisions, even if it means extending the timetable.          | -4 | 4  | -1 |
| 33. The process has to be able to limit topics of discussion in order to avoid quagmires.           | -1 | -5 | 1  |
| 34. There is adequate notification of meetings, comment periods, etc.                               | -3 | -3 | 0  |
| 35. The process requires unbiased and independent facilitation.                                     | 3  | 5  | 4  |
| 36. This process is well integrated with other response planning activities.                        | 1  | 2  | -3 |
| 37. The purposes and goals of the process are clear to all involved.                                | 5  | 5  | 2  |
| 38. There is adequate administrative support (e.g., funding, staffing) for the life of the process. | -2 | -2 | 2  |
| 39. All participants have equal access to information.  | -1 | 3  | 0  |
| 40. All important stakeholders are taking part in the process.                                      | 3  | 2  | 1  |
| 41. There is full disclosure of information at all times.   | -2 | 3  | 3  |
| 42. At the end of the process there is a clear plan for how to implement the final decision.        | 2  | 1  | 4  |
| 43. The staff involved is receptive to questions or requests for information from the public.       | -1 | 1  | 0  |
| 44. The process makes progress on solving the right problem.  | 2  | 2  | 3  |
| 45. The process needs to get the right information.   | 0  | 3  | 5  |
| 46. The process needs an effective leader.  | 5  | 4  | 5  |
| 47. The process taps the knowledge and experiences of local people.                                 | 1  | 1  | -1 |

### **Perspective X. Pragmatic, efficient, collaborative process**

This perspective represents a very pragmatic, action oriented view of the ERA process. Several features are important in this regard. There should be an effective leader (i.e., planning committee, 46) to guide the process and an unbiased facilitator of moderate importance (35), but these are not necessarily the same people. The purposes and goals should be clear to all involved (37), which helps to maintain focus. All important stakeholders should be involved (40) in working on the “right” problem (44) and in developing a plan for how to proceed (i.e., implementation, 42). To be efficient, the facilitator needs to do a good job running the process and, if this is done correctly, there is no need for people to revisit completed agenda items (32).

Much rests on the ability of the facilitator to ensure constructive deliberations among the participants. This is promoted through building relationships based on constructive collaboration (3), setting up an atmosphere that promotes listening (1) and helps people feel safe and comfortable (21), there are clear groundrules for interaction (23), and trust is developed among the participants (7).

It is very important that the best available science be used to inform deliberations during the ERA. However, other statements related to the quality of information and access to information were not emphasized in this perspective, in part because they would be

impractical. Full disclosure of information (41) may sound like an appealing goal, on the one hand, but in a strict sense, it is not necessary for everyone to know everything. People who attend this process come as representatives of their expertise. They cannot be expected to educate everyone to their level. For a similar reason, making sure that every justification is supported with evidence (20) and exploring uncertainties (4) are not realistic nor are they necessary.

The statement about using consensus for every important decision (16) was not supported, mainly because of the word “every.” This would seem to circumvent the role of the Planning Committee to organize the workshop. There was more support, but still weak support, overall, for using consensus to decide on how decisions would be made (22).

Several qualities were deemed of little or no importance, because of the nature of the ERA. For example:

- communicating the general public (28) was not necessary because it is not the purpose of the ERA to involve members of the public or to inform them of decisions;
- holding meetings at different times and places (8), lengthy advance notice of meetings and comment periods (34), or providing financial assistance (10) were not important because of the nature of who comes (i.e., mainly agency personnel);
- having participants involved in deciding what analyses ought to be done (25), because this seen as the purview of the planning committee;
- there should be no need to discuss the values underlying peoples’ opinions (27), because this is not a political decision making process.

### **Perspective Y. Ensure opportunity to discuss all relevant information**

This perspective emphasizes the role of participants in the process and seeks to make certain that they are able to participate effectively. This view recognizes the pragmatic value of clear goals (37) and the need for an unbiased facilitator (35). Like Perspective X, it advocates unbiased, independent facilitation (35) and an effective leader (46).

This perspective stands out in two clear ways. First, like Perspective Z it places much greater emphasis on the role of science and information in the ERA process. People advocating this perspective find that basing the process on sound science is a good way to ensure it is not captured by any special interest group. Using the best available science (2) is of utmost importance. Access to information (39, 41) is another empowering quality and it is more strongly emphasized in this perspective than either of the other two. Getting the right information (45) and validating information is deemed important here (29). Furthermore, participants should be more involved in establishing the scenarios and analysis used in the workshop (25). Finally, although it was moderately weighted, this perspective gave significantly higher weight to supporting each recommendation with evidence (20) than the other perspectives.

Second, this perspective addresses the ways that participants may shape the process. In this sense, this perspective can be read as a critique of the way the ERA was done. In many ways it seeks to make the process more responsive to the participants. For

instance, one of the places this perspective disagrees most with Perspective X is in the belief that there should be time to revisit issues, even if it means that the timetable is not followed (32). Going along with this idea of the participants controlling the process, this perspective believes that people should be allowed to shape the agenda (31), including the kinds of scenarios considered (25). Furthermore, the idea that topics of discussion would be limited to avoid quagmires (33) was soundly rejected. There was also more support in this perspective (although it was still slight) for acknowledging uncertainties (4) and discussing the values underlying people's opinions (27). The latter was strongly rejected by Perspective X because it could delay the process. The same is true for communicating with the broader public (28), or making certain that representatives go back to their constituencies and report (30), both of which are statements meant to ensure that this process serves the public interest.

At the same time the power of participants is limited. Among the three perspectives the use of consensus received the weakest support here (16, 22). This is for the reason that people who attend this process come as representatives of their expertise and interests (11). It is up to the planning committee to make sense of the input, rather than for the participants to give specific recommendations (14) to the area planning committee.

### **Perspective Z. Task-focused information-driven process**

Perspective Z is about having a task-focused information-driven process that is competently run, but which does not spend precious effort on managing the dialogue that takes place. This is a practical down-to-business perspective that, like Perspective X, believes in an efficient, top-down process that is competently planned and carried out. In this perspective, clarity is of utmost importance. This entails having an effective leader (46), an unbiased facilitator (35), clear ground rules for what is expected of participants (23), a clear plan for how the results of the workshop are going to be used (42), focus on the "right" problem (44), adequate administrative support (38), and clarity on the ERA's purposes and goals (37).

Like Perspective Y, this perspective places strong emphasis on having a process that is scientifically-informed and information-driven. This means using the best available science (2), getting the best information possible (45), validating (29) and disclosing this information to everyone involved so it can be put to its best use (41). Oil spill planning is all about making decisions under uncertainty, so examining those uncertainties is part of having a scientifically-competent process (4). Like perspective X, there should be no need to discuss the values underlying peoples' opinions (27), because this is not a political decision making process.

Where this perspective differs from the other two is in its view on the participants and their role and influence in the process. Perspective X emphasized constructive collaboration (3), listening (1), trust (7), common understanding (5), courtesy (9), reaching out to possible participants (8), and people's input to the agenda (31) and the scenario analyses (47). All of these items were much more weakly supported in this perspective. While those responsible for planning and running the workshop may need to be concerned with those qualities, the people who hold this perspective don't bear

that responsibility. They are more concerned with the process being efficient. Moreover, this perspective also takes for granted that the participants of the workshop listen, are courteous, trust each other and so on. Thus, these are not strongly weighted here.

While Perspective Y emphasized the participants having greater influence over the content and focus of the ERA, this perspective downplays this as an important concern. Although this perspective, more than any other, expressed support for using consensus to determine the decision rules used in the process (22), this support is in relation to the assessment of the scientific knowledge brought to bear on the issues. In addition, a set of statements that Perspective Y emphasized in order to ensure participant influence were ranked lower in this perspective. These included: letting people influence the agenda (31), allow time to revisit issues even if it sacrifices the timetable (32), let participants decide what analyses need to be done (25), be clear when the process will end (18), and tap the experiences of local people (47). According to one participant who loaded highly on this perspective these features have value but they can be taken so far as to derail the process, further emphasizing the practical down-to-business concerns expressed by this perspective.

### **Consensus Points**

There were a few points on which all three perspectives had equivalent rankings, and these were not always the same as in the Delaware Bay study. Most notably is that all three perspectives gave the highest rankings to the statement about using the best available science (2). They also gave low rankings to the statement about holding meetings at different times and places (8). Providing financial resources that enable people to participate effectively (10) was not highly valued in any of the perspectives either. These were seen as unnecessary for a workshop that was for professionals, not the public.

Having unbiased, independent facilitation (35) and effective leadership (46) were highly ranked in all three perspectives, although not necessarily for the same reasons. For Perspectives X and Z this is about good professional practice. But for Perspective Y this was, in part, a response to a perception that the facilitator tended to push dispersants beyond the comfort point of some participants.

## **4. Discussion**

In each case three factors emerged about what people think is the most appropriate way to organize ecological risk assessment consensus workshops for oil spill response planning. Each perspective from one case can be clearly paired with a perspective from the second case.

First, in each case there was a perspective that that envisioned a pragmatic, efficient, and expert-driven process to improve oil spill response strategies and enhance existing oil spill contingency planning – and in each case this perspective was closely associated with members of the planning committee members that participated in our

research (Perspectives A and X).

Second, perspectives B and Y can be understood as critiques of past ERAs. Those who are associated with these perspectives expressed concern about the roles of participants and the use and interpretation of information. They were concerned about marginalization of minority or unpopular views, and, hence, give some power to the participants rather than the organizing committee.

Third, Perspectives C and Z shared interest in ensuring that high quality information is used in a task-oriented process with clear goals.

In other words, there appears to be similar findings about the range of perspectives in each of the cases. This is true even for two contexts in which past ERAs were viewed very differently -- one as a successful effort and one as a controversial and ineffective effort.

The purpose of this research was to inform a larger evaluation effort of past ERAs nationwide. The similarities and differences among the perspectives suggest important issues that should be explored.

One important issue concerns the purposes of the ERA and its relationship to an area's contingency plan. Three statements were related to the purposes of an ERA:

- The process gives recommendations to the Area Committee, who then makes the final decisions (14)
- This process is well integrated with other response planning activities. (36)
- At the end of the process there is a clear plan for how to implement the final decision. (42)

Differences in how these were ranked among the factors emerging in each case study suggest that there is not clear agreement about them. In addition, results from a parallel study about objectives for spill response suggest tensions about the role of the contingency plan in spill response – without clarity about its role there is likely to also be differences among those participating in ERAs about the purposes of the workshops. This issue is ripe for further exploration in the evaluation effort. For example:

- Do participants have similar ideas about what are purposes and goals of ERA workshops? E.g., give recommendations to Area committee?
- What is the role of ERA recommendations in contingency planning?

A number of other themes emerge for exploration in the evaluation. We have loosely grouped these into several themes:

#### Goals and decision-making

- what is the role of consensus? It appears that even though the ERAs are thought of as “consensus workshops” there is very little emphasis on consensus as a groundrule. What is meant by ‘consensus’? and where is it appropriate to use?

### Leadership and facilitation

- What defines an effective leader?
- How satisfied are participants with past facilitation? Do people think facilitation has been unbiased and independent?
- Do participants think it is the responsibility of the facilitator and the process conveners to manage participants' behaviors? Is this reasonable and feasible?
- Who should be planning the ERA agendas, invitation list, etc.?

### Information quality and access

- How should scientific expertise be debated? The ERAs seem to be premised on the idea that only one expert about a topic is necessary to ensure that good discussions and recommendations emerge. Is this a widely held view? Or do people think there can be debates and want to hear about them on key topics? What are the "contested" topics?
- What is the quality of information that is available to inform deliberations? Was it widely shared? Can recommendations be based clearly on available information? How much is really needed, where should it come from, and how should it be tested or validated?
- Are scenarios used in the ERA contested? Are they developed in a fair and reasonable way? Are they structured to bias what response strategies will look good?
- If 'full disclosure of information' is impractical, then who decides what information should be provided and shared? And how much information is appropriate?

### Logistics

- Do participants think that adequate administrative support (e.g., funding, staffing) was provided for the ERA they attended?
- Is a 6 day workshop long enough?
- Is opening up the agenda setting inconsistent with ensuring clear goals?
- Should the ERA process have clear deadlines or should it be conceived of as an iterative, on-going element of contingency planning?

### Representation

- Who should participate in the ERA? Who are "important stakeholders"? Should there be limits on who can participate?
- Is it enough to have just one person expert in a particular topic? What does this imply for representation of knowledge and uncertainties and gaps? How does this limit deliberations?

It is possible to explore such issues using interviews and surveys. Within the context of interviews the topics can be explored through open-ended questions.

Within the context of surveys there are two ways of using the results of the Q studies (Danielson 2007, see chapter 6). First, people can be asked to rank different narratives in terms of their personal preferences. For example: Which of the following narratives best describes your point of view about the way that a future ERA consensus workshop should be done?

Second, respondents can be asked to express their views about specific ideas. That is, specific Q statements can be used as items in a survey question. For example: should all participants have equal access to information (statement #39). Similarly, should all recommendations be determined using consensus? Responses can be made using likert scales.

## **5. Conclusion**

ERA workshops are a primary tool for informing contingency planning in the United States. This research documents that there can be differences about how people involved with spill response planning think that ecological risk assessment consensus workshops should be organized. This is important because in order for stakeholders to fruitfully discuss information about ecological systems and their sensitivity to spills and response actions a process that is agreeable to all needs to be designed. If people believe there are “hidden agendas” or that important stakeholders or information is being excluded, spill response planning may suffer.

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