

CHARTING A COURSE TOWARD ECOSYSTEM-BASED MANAGEMENT IN THE GULF OF MEXICO

INGRID NUGENT†

LAURA CANTRAL††

I. INTRODUCTION

It is becoming generally accepted that effective management of human impacts on the environment requires consideration of all interconnected ecosystem components. This approach, incorporated in the principle of “ecosystem-based management,” has for years been the subject of much discussion in academic and government circles, and many distinguished authors have offered definitions and recommendations for its implementation.¹ From these, three common themes emerge: systems management, meaningful integration of people, and adaptive management.

Some success in applying ecosystem-based management has been realized on land.² Progress on land has been facilitated by a relatively sophisticated land management system in the United States: Land ownership is clearly defined and our understanding of the interactions of terrestrial ecosystem components, including the way they are af-

† Ingrid Nugent is a graduate student at the Nicholas School of the Environment and Earth Sciences at Duke University.

†† Laura Cantral is a Senior Mediator at the Meridian Institute.

1. See, e.g., SCIENTIFIC CONSENSUS STATEMENT ON MARINE ECOSYSTEM-BASED MANAGEMENT 1 (2005), available at http://compassonline.org/files/inline/EBM%20Consensus%20Statement_FINAL_July%2012_v12.pdf (statement was signed by 217 academic scientists and policy experts with relevant expertise and published by the Communication Partnership for Science and the Sea) [hereinafter SCIENTIFIC CONSENSUS STATEMENT]; Norman L. Christensen et al., *The Report of the Ecological Society of America Committee on the Scientific Basis for Ecosystem Management*, 6 ECOLOGICAL APPLICATIONS 665 (1996); R. Edward Grumbine, *What is Ecosystem Management?*, 8 CONSERVATION BIOLOGY 27 (1994) [hereinafter Grumbine I]; R. Edward Grumbine, *Reflections on “What is Ecosystem Management?”*, 11 CONSERVATION BIOLOGY 41 (2002) [hereinafter Grumbine II]; P.A. Larkin, *Concepts and Issues in Marine Ecosystem Management*, 6 REVS. FISH BIOLOGY & FISHERIES 139 (1996).

2. Some examples include Yellowstone National Park, Pacific Northwest Forest Management Plan, and certain military facilities.

ected by various human activities, is relatively advanced. These characteristics, however, are not shared by marine environments.

Several features of marine ecosystems make them particularly difficult to understand and manage:

- (1) Living and nonliving marine resources are difficult to inventory and monitor.
- (2) The vast majority of marine resources are held in the public trust, but private interests are deeply invested in their use.
- (3) Many land-based activities significantly affect marine environments, but the understanding of relationships between onshore and offshore processes is weak.
- (4) The scale at which management activities are needed varies and is difficult to identify.

While the concept of ecosystem-based management has evolved and gained growing recognition, there are numerous logistical, legal, and political barriers to effective implementation. As a result, marine systems continue to be managed around either single living marine species or objectives related to single uses, such as fishing or navigation.

In recent years, two expert national ocean commissions identified several factors as principal barriers to effective ocean and coastal management: a dearth of interagency collaboration, a lack of coordination across jurisdictional levels, and a suite of laws that are too often conflicting, overlapping, and confusing.³ As a solution, the U.S. Commission on Ocean Policy (“USCOP”), in its 2004 report, recommended shifting toward an ecosystem-based approach,⁴ as did the privately funded Pew Oceans Commission in its 2003 report.⁵ In addition, both commissions proposed the implementation of ecosystem-based management through regional ocean governance approaches, but offered different ideas for the functions and authorities that regional ocean governance structures should assume.⁶ Regional ocean governance also appears as a feature, albeit briefly mentioned, in the

3. See U.S. COMM’N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY: FINAL REPORT OF THE U.S. COMMISSION ON OCEAN POLICY (2004), available at http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf [hereinafter USCOP REPORT]; PEW OCEANS COMM’N, AMERICA’S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE (2003), available at http://www.pewtrusts.org/pdf/env_pew_oceans_final_report.pdf [hereinafter PEW REPORT].

4. USCOP REPORT, *supra* note 3, at 63.

5. PEW REPORT, *supra* note 3, at x.

6. USCOP REPORT, *supra* note 3, at 86-96; PEW REPORT, *supra* note 3, at 103-06.

Bush Administration's response to the USCOP report, the U.S. Ocean Action Plan.⁷

This paper discusses three elements important for moving regional ocean governance approaches forward on the path toward ecosystem-based management and describes frameworks for regional ocean governance laid out by the U.S. Commission on Ocean Policy, the Pew Oceans Commission, and the Bush Administration's U.S. Ocean Action Plan. This paper then focuses on the Gulf of Mexico Alliance, a regional management approach underway in the Gulf of Mexico region, and describes its process and progress thus far. Finally, certain aspects of the Alliance are discussed in relation to the three essential elements.

II. MOVING TOWARD ECOSYSTEM-BASED MANAGEMENT

Marine ecosystem-based management remains a confusing term. The following definition is synthesized from several published definitions:⁸

Marine ecosystem-based management is an integrated approach to management that focuses on cumulative impacts of multiple sectors, considers all interconnected parts of ecosystems, and manages human actions that impact marine ecosystems on the basis of ecological boundaries, with particular attention to ecosystem structure, functions, and processes. "The goal . . . is to maintain an ecosystem in a healthy, productive, and resilient condition so that it can provide the services humans want and need."⁹ Ecosystem-based management should reduce duplication of effort, maximize limited resources, foster a sense of stewardship, and facilitate assessment and management of cumulative impacts.¹⁰

In practical terms, ecosystem-based management means coordinating federal, state, and local efforts within specific geographic areas to address place-based issues. Boundaries of coordination efforts should be determined by ecosystem characteristics and the geographic scales of specific problems to be addressed. Scales will vary and may range from large marine ecosystems to smaller scales.¹¹

7. U.S. OCEAN ACTION PLAN: THE BUSH ADMINISTRATION'S RESPONSE TO THE U.S. COMMISSION ON OCEAN POLICY 10-11 (2004), available at <http://ocean.ceq.gov/actionplan.pdf> [hereinafter OCEAN ACTION PLAN].

8. See, e.g., Grumbine I, *supra* note 1; Larkin, *supra* note 1; Christensen et al., *supra* note 1; Grumbine II, *supra* note 1.

9. SCIENTIFIC CONSENSUS STATEMENT, *supra* note 1, at 1.

10. See USCOP REPORT, *supra* note 3, at 64-65.

11. The USCOP recommended that management boundaries encompass Large Marine Ecosystems ("LMEs") that divide "the ocean into large functional units based on shared

Regional ocean governance can be a way to implement ecosystem-based management through cooperation among multiple jurisdictions, which enables the management of marine ecosystems on ecologically oriented scales. Regional governance processes can facilitate greater coordination across multiple sectors and scales. Managing oceans and coasts on a regional ecosystem basis should reduce duplication and contradiction, making government more efficient and effective.

Three elements may be essential to implement ecosystem-based management:

- (1) *Systems Management*: Systems management involves managing in the context of multiple interacting factors. It requires that management boundaries conform to ecosystem units, while recognizing that ecosystems constantly change and that delineation of their boundaries will be necessarily imperfect. Systems management also means managing ecosystem functions, structure, and processes rather than single species or uses,¹² and considering cumulative impacts of human activities.
- (2) *Meaningful Integration of People*: Meaningful integration of people acknowledges the importance of including all stakeholders in all levels of decisionmaking in a way that participants can affect policy decisions and are accountable for outcomes.¹³
- (3) *Adaptive Management*: Adaptive management deals with uncertainty by setting clear, measurable goals, testing the effectiveness of policies to meet those goals, and adjusting management periodically based on new information.¹⁴

bathymetry, hydrography, productivity, and populations.” USCOP REPORT, *supra* note 3, at 62-63. LMEs are a concept that has evolved through numerous publications after being originally developed in VARIABILITY AND MANAGEMENT OF LARGE MARINE ECOSYSTEMS: AAAS SELECTED SYMPOSIUM 99 (Kenneth Sherman & Lewis M. Alexander eds., 1986). For a list of other LME publications, see <http://na.nefsc.noaa.gov/lme/publications.htm> (last visited Apr. 7, 2006). The USCOP recommended using LMEs and the watersheds that drain into them as a starting point for defining management boundaries for regional ocean councils. The Commission maintained that “at a minimum, councils should encompass the area from the inland extent of coastal watersheds to the offshore boundary of the nation’s exclusive economic zone.” USCOP REPORT, *supra* note 3, at 90.

12. See Christensen et al., *supra* note 1, at 666.

13. Personal Communication with Norman Christensen, Professor of Ecology, Nicholas Sch. of the Env’t & Earth Scis., Duke Univ., in Durham, N.C. (Jan. 19, 2006).

14. *Id.*

III. PROPOSED NATIONAL FRAMEWORKS

Opinions differ about how the federal government can best support regional approaches. The Pew Oceans Commission, the U.S. Commission on Ocean Policy, and the President's U.S. Ocean Action Plan each provide different models for an overarching framework for national ocean governance and different degrees of federal involvement with regional approaches. The following section provides a review of the recommendations of the two ocean commissions in this regard and an overview of actions proposed by the Bush Administration in the U.S. Ocean Action Plan.

A. *Pew Oceans Commission*

The private Pew Oceans Commission in its 2003 final report, *America's Living Oceans*, recommended a shift toward ecosystem-based management.¹⁵ Under a new National Ocean Policy Act, regional "ocean ecosystem councils" composed of state and federal representatives would be created and charged with developing enforceable, binding, and comprehensive regional ocean ecosystem plans.¹⁶ Ecosystem plans would be subject to statutory standards and approval of a new independent national ocean agency.¹⁷ The Pew Oceans Commission also recommended that the regional councils use ocean zoning as a primary management tool to separate incompatible activities.¹⁸

B. *U.S. Commission on Ocean Policy*

The Oceans Act of 2000 created the sixteen-member U.S. Commission on Ocean Policy.¹⁹ In its July 2004 final report, *An Ocean Blueprint for the 21st Century*, the USCOP recognized the necessity of managing marine and coastal resources in a more holistic manner and acknowledged the many logistical challenges to doing so.²⁰ In recognition of these challenges, the U.S. Commission envisioned a phased approach that involves both top-down and bottom-up reforms.

15. See PEW REPORT, *supra* note 3, at x.

16. *Id.* at 103.

17. *Id.* at 104.

18. *Id.* at 105.

19. Oceans Act of 2000, Pub. L. No. 106-256, §§ 3(a), (b)(1), 114 Stat. 644, 645 (2000).

20. The USCOP recommends moving toward an ecosystem-based management approach throughout its final report. See, e.g., U.S. COMM'N ON OCEAN POLICY, EXECUTIVE SUMMARY 5 (2004) available at http://www.oceancommission.gov/documents/full_color_rpt/00b_executive_summary.pdf.

The USCOP recognized that the laws governing oceans and coasts are fragmented, overlapping, and confusing, and recommended the establishment of an overarching national ocean policy to guide the actions of federal agencies.²¹ A new governance structure would include a new National Ocean Council within the White House.²² It would be composed of the heads of relevant cabinet-level departments and independent agencies, and a separate, broadly representative Council of Advisors on Ocean Policy that would provide a non-federal perspective.²³

The National Ocean Council, which would be chaired by an Assistant to the President, would be responsible for providing leadership and support for ocean and coastal policy.²⁴ Among other things, the National Ocean Council would work with a broad range of stakeholders to develop a process for regional ocean governance.²⁵ The nonfederal Council of Advisors would act as a conduit through which regions would communicate concerns to the national level.²⁶

Voluntary regional ocean councils, with support and guidance from the federal government, would act as the primary coordinating bodies for the new ocean policy at the ecosystem level. The regional ocean council system would be initiated at the grassroots level, but with federal support and guidance, thus making the system both bottom-up and top-down.²⁷

The general purpose of the regional ocean councils would be to “facilitate more coordinated and collaborative approaches” to managing ocean and coastal resources.²⁸ Functions of the regional councils would include:

- (1) coordinating agencies and stakeholders without supplanting existing authorities,
- (2) developing regional goals and priorities,
- (3) identifying the best tools for addressing issues, and
- (4) representing regional ocean issues at the national level.²⁹

21. See USCOP REPORT, *supra* note 3, at 77.

22. *Id.* at 79.

23. See *id.* The USCOP recognized that the new entities must eventually be codified to ensure long-term commitment, but that presidential action could launch them immediately.

24. *Id.*

25. *Id.* at 79-80.

26. See *id.* at 81.

27. *Id.* at 87.

28. *Id.* at 90.

29. *Id.* at 90-91.

Guidance and support from the National Ocean Council would provide some degree of consistency among the regional councils and ensure that at least minimum performance toward national goals would be met. National guidance might be related to the councils' geographic scale, scope, and membership needed to "enable them to realize their potential."³⁰ Guidance might also relate to the definition of the appropriate range of issues and the need for regional councils to look at "interactions among many activities," even those outside of their historical geographic scale and sectoral scope.³¹

Although the USCOP advocated federal guidance for regional councils, it also stressed the importance of providing regions with sufficient flexibility to develop and adapt the structure and functions of their councils to their unique circumstances.³² In addition, the USCOP maintained that regional councils should be broadly representative to take advantage of the knowledge, experience, resources, and infrastructure that involved parties bring to the table. Regional ocean councils also should be flexible to address problems of varying scales, addressing issues of sub-regional concern³³ and also drawing strong links between land and ocean management by connecting with both offshore and upstream management entities.³⁴

C. *The President's U.S. Ocean Action Plan*

The Oceans Act of 2000 required a response from the President within ninety days of the release of the USCOP's final report.³⁵ In accordance with this requirement, the Bush Administration issued an Executive Order³⁶ and released an accompanying U.S. Ocean Action Plan in December of 2004.³⁷ The Executive Order and Action Plan create a secretary-level Committee on Ocean Policy and a subsidiary body, the Interagency Committee on Ocean Science and Resource Management Integration ("ICOSRMI"), among whose duties are to ensure that regional information needs for decisionmaking are met.³⁸

30. *Id.* at 90.

31. *Id.*

32. *Id.*

33. *Id.* at 91.

34. *Id.* at 160.

35. Oceans Act of 2000, Pub. L. No. 106-256, § 4(a), 114 Stat. 644, 648 (2000), amended by 107 Pub. L. No. 107-372, 116 Stat. 3096 (2000).

36. Exec. Order No. 13,366, 3 C.F.R. 244 (2005), available at <http://www.whitehouse.gov/news/releases/2004/12/20041217-5.html>.

37. OCEAN ACTION PLAN, *supra* note 7.

38. *Id.* at 7.

Under the ICOSRMI, the Subcommittee on Integrated Management of Ocean Resources (“SIMOR”) oversees the federal response to voluntary regional approaches.³⁹ The subcommittee is co-chaired by the Associate Director of the White House Council on Environmental Quality and agency representatives as directed, and is composed of Deputy Directors and Deputy Assistant Secretary-level representatives for the agencies that are part of the Committee on Ocean Policy.⁴⁰

The U.S. Ocean Action Plan provides a list of the Administration’s near-term priority actions based on the USCOP’s recommendations.⁴¹ It does not provide structure or guidelines for regional approaches, but it does recognize two existing efforts: one in the Great Lakes region⁴² and another among the five states bordering the Gulf of Mexico.⁴³

The USCOP recommended that a national ocean council be chaired by a special Assistant to the President⁴⁴ and actively reach out to the regions to promote regional approaches.⁴⁵ Language in the U.S. Ocean Action Plan does not specify the degree of federal commitment in this regard. It appears that the Administration intends to take a relatively hands-off approach. Perhaps future versions of the U.S. Ocean Action Plan will strengthen and clarify that point.

IV. A REGIONAL APPROACH FOR THE GULF OF MEXICO

The USCOP recognized the difficulty of establishing a complete and coordinated system of regional councils because of the extent to which regions vary in interstate coordination and management capac-

39. *Id.* at 8. *See also* Priorities for the Subcommittee on Integrated Management of Ocean Resources, <http://ocean.ceq.gov/about/simor.html> (last visited Apr. 6, 2006). Another subcommittee under the ICOSRMI is the Joint Subcommittee on Ocean Science and Technology. National Science and Technology Council Joint Subcommittee on Ocean Science and Technology, <http://ocean.ceq.gov/about/jsost.html> (last visited Apr. 6, 2006).

40. Personal Communication with Kameran Onley, Assoc. Dir. for Env’tl. Policy, White House Council on Env’tl. Quality, in Wash., D.C. (Jan. 6, 2006).

41. OCEAN ACTION PLAN, *supra* note 7, at 4-5.

42. *Id.* at 10.

43. *Id.* at 11.

44. USCOP REPORT, *supra* note 3, at 80. However, instead of being administered by a special Assistant to the President as recommended by the USCOP, the Council on Ocean Policy in the U.S. Ocean Action Plan is chaired by the head of the Council on Environmental Quality, who must tend to this as one of many responsibilities. *See* OCEAN ACTION PLAN, *supra* note 7, at 6.

45. USCOP REPORT, *supra* note 3, at 80-81.

ity.⁴⁶ Accordingly, it recommended that those regions ripe for collaborative approaches should be “supported immediately” and that these initial cases could serve as “pilot projects” from which other regions could learn.⁴⁷ The following sections describe a process underway in the Gulf of Mexico region and analyze opportunities and challenges for the process as it moves forward.

The Gulf of Mexico is a large, Mediterranean-type basin located to the southeastern corner of the North American continent. It borders Mexico, Cuba, and its 1,600 mile U.S. border includes the coasts of Florida, Alabama, Mississippi, Louisiana, and Texas.⁴⁸ The region provides vital marine resources, such as seafood and minerals. It supports a \$20 billion tourism industry and seven of the top ten shipping ports (by tonnage) in the nation.⁴⁹

There are several major threats to the health of the Gulf ecosystem. For example, an 18,000 square kilometer seasonal “dead zone” of low dissolved oxygen threatens marine life on the Texas-Louisiana shelf.⁵⁰ This is caused by an overabundance of limiting nutrients that enter the Gulf through coastal runoff.⁵¹ Coastal wetlands are being lost at a rapid rate to development, agriculture, and dredging, especially along the coast of Louisiana.⁵² In addition, the Gulf suffers from degradation of coastal water quality,⁵³ overfishing,⁵⁴ and massive coral reef die-off in the Florida Keys,⁵⁵ among other problems.

46. *Id.* at 90.

47. *Id.*

48. General Facts about the Gulf of Mexico, <http://www.epa.gov/gmpo/about/facts.html> (last visited Mar. 3, 2006).

49. *Id.*

50. NAT'L OCEANIC & ATMOSPHERIC ADMIN., NAT'L OCEAN SERV., HYPOXIA IN THE GULF OF MEXICO: PROGRESS TOWARDS THE COMPLETION OF AN INTEGRATED ASSESSMENT (2000), http://www.nos.noaa.gov/products/pubs_hypox.html.

51. MISS. RIVER/GULF OF MEX. WATERSHED NUTRIENT TASK FORCE, ACTION PLAN FOR REDUCING, MITIGATING, AND CONTROLLING HYPOXIA IN THE NORTHERN GULF OF MEXICO 5 (2001), <http://www.epa.gov/msbasin/taskforce/pdf/actionplan.pdf> [hereinafter HYPOXIA REPORT].

52. U.S. GEOLOGICAL SOC'Y, FACT SHEET, LOUISIANA COASTAL WETLANDS: A RESOURCE AT RISK (1995), available at <http://marine.usgs.gov/factsheets/LAwetlands/lawetlands.html>.

53. GULF OF MEX. ALLIANCE, WHITE PAPER: IMPROVING GULF OF MEXICO WATER QUALITY 1 (May 12, 2005), available at http://www.dep.state.fl.us/gulf/files/files/WaterQuality_Florida.pdf.

54. GULFBASE.ORG, OVERFISHING AND BYCATCH (2004), available at <http://www.gulfbase.org/issue/view.php?iid=oab>.

55. *Gulf Health Crisis: Preservation Efforts Will Require Funding and Education*, SARASOTA HERALD-TRIB., Sept. 5, 2005, at A18.

Addressing threats in an area the size of the Gulf of Mexico is a challenging task. The challenges are complicated by the size of its drainage basin. Waters from approximately forty percent of the continental U.S. drain into the Gulf of Mexico.⁵⁶ The large number of jurisdictions involved creates significant complications for addressing issues, such as nutrient loading, that require watershed-level solutions.⁵⁷

The USCOP provided a list of common governance problems that should be addressed through regional approaches.⁵⁸ The following are reflected in the Gulf of Mexico situation:

- (1) agencies “rarely consider opportunities or impacts outside of their immediate jurisdictional area;”
- (2) “agency mandates are often too narrow in scope, sector-based, and poorly coordinated to address regional issues;”
- (3) “broadly accepted regional goal . . . are infrequently available to promote and gauge progress;” and
- (4) governance activities overlap, conflict, and are inconsistent with one another.⁵⁹

Another challenge that may be overcome with greater cooperation is a shortage of public resources to address these problems. A regional process might enable states to develop and coordinate more effective programs and leverage existing capacity through partnership.⁶⁰

A. *The Gulf of Mexico Alliance*

In response to a growing awareness of shared ocean and coastal issues and recognition of a need to cooperate to address them effectively,⁶¹ the five U.S. states adjacent to the Gulf of Mexico—Alabama, Florida, Louisiana, Mississippi, and Texas—formed the Gulf of Mexico Alliance (“Alliance”) in December of 2004.⁶² Governor Jeb Bush

56. USCOP REPORT, *supra* note 3, at 89.

57. HYPOXIA REPORT, *supra* note 51, at 8.

58. USCOP REPORT, *supra* note 3, at 86.

59. *Id.*

60. “We all believe these are challenges we can better meet from a regional basis, and there’s strength in numbers,” said Dugan Sabins, senior environmental scientist at the Louisiana Dept. of Env’tl. Quality.” Associated Press, *Coastal States Pledge to Cooperate on Gulf Issues*, NAPLES DAILY NEWS, June 9, 2005.

61. Letter from Jeb Bush, Governor of Fla., to Governors of Gulf States (Apr. 26, 2004), available at http://www.dep.state.fl.us/gulf/leadership/files/govBush_letter1.pdf.

62. An ultimately failed attempt to form an accord in the Gulf region in 1991 was embodied in a number of pieces of legislation in the 102nd and 103rd Congress. *See, e.g.*, Gulf of Mexico Environmental and Economic Restoration and Protection Act of 1992, H.R. 5441, 102nd

of Florida initiated the Alliance with a letter to the other Gulf state governors, inviting them to join in a regional process to improve protection of the Gulf of Mexico.⁶³ The objective of the Alliance is to protect and restore the environment of the Gulf of Mexico through greater regional cooperation.⁶⁴ The process is very much state driven. State agencies selected by the governors⁶⁵ identify priority issues that are regional in scope and the agencies work together, with the federal government in a supporting role, to formulate specific, actionable solutions to the priority issues identified.

The U.S. Ocean Action Plan calls on federal agencies to “explore partnership opportunities for key priorities in the Gulf of Mexico.”⁶⁶ In accordance, the federal agencies are assisting the Gulf states in the Alliance effort. Thirteen federal agencies are represented in the Gulf of Mexico Regional Partnership Federal Workgroup (“Federal Workgroup”),⁶⁷ which helps the states craft plans of action. The Federal Workgroup is also tasked with responding to priority issues of the states by adjusting federal agency activities to specifically address those issues. Furthermore, it identifies “high-impact” integration opportunities and immediate federal actions that can contribute to Alliance efforts.⁶⁸ The Federal Workgroup is coordinated by the Envi-

Cong. (2d Sess. 1992); Gulf of Mexico Economic and Environmental Protection Act of 1993, H.R. 1899, 103rd Cong. (1st Sess. 1993).

63. See Gulf of Mexico Alliance, <http://www.dep.state.fl.us/gulf/default.htm> (last visited Mar. 3, 2006).

64. *Id.*

65. The state agencies are the Alabama Dept. of Conservation & Natural Resources, Coastal Section, State Lands Division; Florida Department of Environmental Protection, Office of Coastal and Aquatic Managed Areas; Louisiana Department of Environmental Quality; Mississippi Department of Environmental Quality; Texas Commission on Environmental Quality. See Gulf of Mexico Alliance Links, <http://www.dep.state.fl.us/gulf/leadership/default.htm>.

66. OCEAN ACTION PLAN, *supra* note 7, at 5.

67. The Gulf of Mexico Regional Partnership Federal Workgroup includes the Council of Environmental Quality, National Aeronautics and Space Administration, National Science Foundation, U.S. Army Corps of Engineers, U.S. Department of Agriculture, U.S. Department of Commerce/National Oceanic and Atmospheric Administration, U.S. Department of Defense/U.S. Navy, U.S. Department of Energy, U.S. Department of Interior, U.S. Department of Health and Human Services/Food and Drug Administration, U.S. Department of State, U.S. Department of Transportation, U.S. Environmental Protection Agency. See Gulf of Mexico Alliance Links, <http://www.dep.state.fl.us/gulf/leadership/default.htm>.

68. NAT'L OCEANIC & ATMOSPHERIC ADMIN. & U.S. ENVTL. PROT. AGENCY, COORDINATING FEDERAL SUPPORT FOR THE GULF OF MEXICO ALLIANCE 2 (2005), available at <http://www.dep.state.fl.us/gulf/files/files/CoordinatingFederalSupport.pdf> [hereinafter COORDINATING FEDERAL SUPPORT]. The intent of federal partners in the Alliance is to work to mitigate federal barriers to state action. These barriers will be identified through a variety of mechanisms. Personal Communication with Kameron Onley, *supra* note 40.

ronmental Protection Agency's Gulf of Mexico Program and the National Oceanic and Atmospheric Administration.⁶⁹

The Alliance strategy is to focus on an initial set of priority regional issues identified by the states, and develop and implement immediate actions with the potential for tangible results. The idea behind the strategy is that short-term success will generate support for the Alliance and its cooperative approach and build state, local, and federal recognition that the Alliance may serve as an effective forum for longer-term, more comprehensive regional collaboration.⁷⁰

The states have identified five priority issues as starting points for action, drafted white papers on those issues, held community workshops to gather public input, and developed a draft Governors' Action Plan for Healthy and Resilient Coasts ("Action Plan"). The Alliance is currently awaiting federal reaction to the draft plan and completion of the community workshop process,⁷¹ and preparing for release of the final Action Plan.

The final Action Plan is scheduled to be launched in late March of 2006⁷² at the State of the Gulf of Mexico Summit 2006 at the Harte Research Institute for Gulf of Mexico Studies at Texas A&M University-Corpus Christi, TX.⁷³ The release of the Action Plan at the Summit will mark the turning point between planning and implementation for the Alliance.⁷⁴

The Alliance moved from initiation to Action Plan in a relatively short period of time.⁷⁵ The rapid pace of activity resulted from a desire to launch the Action Plan at the Summit and to take advantage of the momentum for regional approaches resulting from the release of the two ocean commission reports and the encouragement in the U.S. Ocean Action Plan.⁷⁶

69. COORDINATING FEDERAL SUPPORT, *supra* note 68, at 2.

70. Personal Communication with Brent Ache, Physical Scientist, NOAA's Ocean Serv. in Silver Spring, Md. (Jan. 6, 2006).

71. The process was postponed due to hurricanes.

72. The Summit was originally scheduled for November 2005, but the Gulf coast hurricanes that year pushed the Summit date back to March 28-30, 2006.

73. More information on the State of the Gulf of Mexico Summit can be found at www.stateofthegulf.org (last visited Apr. 7, 2006).

74. Personal Communication with David E. Guggenheim, Ph.D., Consultant, Fla. Dept. of Env'tl. Protection, in Wash., D.C. (Jan. 13, 2006).

75. The action plan was launched fourteen months after Governor Bush's letter.

76. Personal Communication with Katherine Andrews, Dir., Coastal States Org., in Wash., D.C. (Jan. 13, 2006).

B. *A Strategy Based on Short-Term Results*

Many environmental restoration initiatives begin with a comprehensive planning process and decadal-scale implementation timeframes, and might or might not identify short-term actions intended to support long-term goals.⁷⁷ In contrast, the Alliance actively chose to not develop a long-term plan, but instead proceeded to develop immediately implementable short-term—36-month—actions for a smaller suite of issues.⁷⁸

The Alliance lacks a formal governance structure, dedicated funding, and a charter, and participants are still uncertain about the structure through which the Alliance will make decisions over time.⁷⁹ The process is flexible, allowing the work to drive the nature of the relationship among participants. For example, committees are formed and dissolved dynamically as they are needed.⁸⁰ The Alliance focuses on action, and relationships are built on trust and chemistry rather than legislated rules or formal agreements.⁸¹ As one federal participant stated, “it exists because of the value of working together.”⁸²

There may be benefits to the Alliance’s approach. Scholars have maintained that on-the-ground progress can lead to meaningful public participation.⁸³ This will likely be pivotal to the longevity of the Alliance. The current approach may also allow for adjustment to changing conditions, frank discussion, and enhanced trust between participants. Some participants feel that with fewer bureaucratic hurdles to overcome, the flexibility of the process may also lead to greater efficiency in government.⁸⁴

77. A notable recent example occurring in the context of a new regional governance approach is found in GREAT LAKES REG’L COLLABORATION, FINAL REPORT: GREAT LAKES REGIONAL COLLABORATION STRATEGY TO RESTORE AND PROTECT THE GREAT LAKES (2005), available at http://www.glrc.us/documents/GLRC_Strategy.pdf.

78. Personal Communication with Brent Ache, *supra* note 70.

79. *Id.*; Personal Communication with Kameran Onley, *supra* note 40.

80. Personal Communication with David E. Guggenheim, *supra* note 74.

81. *Id.*

82. Personal Communication with Kameran Onley, *supra* note 40.

83. Steven L. Yaffee & Julia M. Wondolleck, *Building Bridges Across Agency Boundaries: The Science of Ecosystem Management*, in CREATING A FORESTRY FOR THE 21ST CENTURY 381, 387 (Kathryn A. Kohm & Jerry F. Franklin eds., 1997); Bruce Shindler & Kristin A. Cheek, *Integrating Citizens in Adaptive Management: A Propositional Analysis*, 3 CONSERVATION ECOLOGY 9 (1999), available at <http://www.consecol.org/vol3/iss1/art9/>.

84. Personal Communication with Katherine Andrews, *supra* note 76; Personal Communication with Kameran Onley, *supra* note 40.

There may also be shortcomings to the approach. Without the focus of a long-term plan, the Alliance risks spending time and resources without actually moving toward any particular goals in a meaningful way. In addition, state and federal commitment to the process may be less consistent and subject to the fluctuations of fiscal and electoral cycles than if relationships were legally required.

1. Five Priority Issues

The Alliance chose to focus initial actions on five priority issues.⁸⁵ These five issues were chosen because they are “regionally significant and can be effectively addressed through cooperation at the local, state, and federal levels.”⁸⁶ The priority issues are:

- (1) improvements in water quality, with an emphasis on beaches and shellfish beds;
- (2) restoration and conservation of coastal wetlands;
- (3) environmental education;
- (4) identification and classification of Gulf habitats for management; and
- (5) reductions in nutrient loading.

Through the spring of 2005, each of the five states took the lead in developing a white paper on each of the five priority issues. Each white paper provided background on one of the issues, and outlined current actions being taken to address it, challenges to further progress, and improvements states hope to realize through the Alliance process.⁸⁷ The five priority issues and corresponding white papers were formally presented and discussed at the first meeting of state agencies and the Federal Workgroup in Naples, FL in June 2005. While the white papers identified a number of specific needs and concerns related to each priority issue, several common themes emerge: the need for more regional data and better tools and technologies for that data, greater communication and learning, and increased funding to address the priority issues.

85. Fisheries and energy development, while recognized as important issues for the region, were shied away from as initial focus areas because of their complexity and contentiousness. These factors would have worked against the goal of getting some immediate actions underway to promote partnerships and build public support. Personal Communication with Kameran Onley, *supra* note 40.

86. COORDINATING FEDERAL SUPPORT, *supra* note 68, at 1.

87. The white papers are available at <http://www.dep.state.fl.us/gulf/files/default.htm> (last visited Apr. 7, 2006).

2. The Governors' Action Plan

Signed by all five governors, the Governors' Action Plan for Healthy and Resilient Coasts "challenges the Gulf of Mexico Alliance to create a healthier Gulf of Mexico over the next three years."⁸⁸ The Governors' Action Plan briefly outlines the five priority issues, general "long-term partnership goals," eleven specific actions to be taken over the next thirty-six months, and specific steps to be taken on each action. For each of the eleven actions, the plan provides brief justifications for making changes and thirty-six month project goals. It also lists the organizations participating in each action: lead state and federal agencies, "contributors," and "collaborators."⁸⁹ The eleven actions are organized within the five issue areas as follows:⁹⁰

Water Quality

- (1) Develop a Red Tide Forecasting Tool
- (2) Develop a Beach Water Quality Management Tool
- (3) Improve government efficiency in water quality monitoring

Wetland and Coastal Conservation and Restoration

- (4) Streamline coastal restoration efforts and maximize hurricane protection
- (5) Increase the safety of Gulf communities by better understanding the risks of sea level rise, storm surge, and subsidence

Environmental Education

- (6) Galvanize local communities through targeted education to protect the Gulf of Mexico
- (7) Conduct a media campaign for the Gulf of Mexico

Identification and Characterization of Gulf Habitats

- (8) Create and provide access to interactive habitat maps for priority Gulf of Mexico habitats

88. GULF OF MEX. ALLIANCE, STATE & FED. REV./COMMITMENTS DRAFT GOVERNORS' ACTION PLAN FOR HEALTHY AND RESILIENT COASTS 2 (Dec. 21, 2005) [hereinafter GOVERNORS' ACTION PLAN].

89. *Id.*

90. There appear to be three common themes among the action items:

- (1) holding multi-party workshops to share information, coordinate specific efforts, learning how to use new tools, and identify barriers and opportunities for more effective management;
- (2) developing models and standardizing data gathering and use while identifying needs for additional data and tools, comprehensive assessments of various parts of ecosystems, including assessments of the current state of knowledge; and
- (3) conducting pilot projects to test the use of new tools.

Reducing Nutrient Inputs to Coastal Ecosystems

- (9) Establish the Gulf of Mexico Nutrient Criteria Coordination Team
- (10) Implement nutrient reduction activities during Gulf recovery and rebuilding
- (11) Develop and promote an aligned five state Gulf voice on the need to reduce Gulf of Mexico hypoxia

C. A Path Toward Ecosystem-Based Management

The Alliance process marks the first time the Gulf states have worked together on this particular suite of issues and at this high political level.⁹¹ Federal agencies working with the Gulf states intend to use the new Gulf of Mexico process as a “laboratory for exploring better mechanisms of regional management, *applying an ecosystem approach to management*, integrating coastal and ocean observations for management purposes, and emphasizing local-state-federal collaboration.”⁹² The following sections offer reflections on ways in which the Alliance has incorporated the three essential elements for successful ecosystem-based management: systems management, meaningful participation, and adaptive management.

1. Systems Management

Systems management means focusing on interconnections between complex sets of ecological and social variables across multiple scales of time and space.⁹³

a. Boundaries

Before a system can be managed, its boundaries must be defined. As acknowledged by the USCOP, the complexity, interconnectedness, and changeability of ecosystems make delineation of perfectly accurate ecosystem boundaries impossible. There is, however, sufficient scientific knowledge to describe management boundaries that are accurate enough to effectively address certain issues.⁹⁴ The USCOP recommended that management boundaries “follow ecosys-

91. Personal Communication with Kameran Onley, *supra* note 40.

92. COORDINATING FEDERAL SUPPORT, *supra* note 68, at 2 (emphasis added).

93. Personal Communication with Norman Christensen, *supra* note 13.

94. For example, it is understood at this point that water quality may be most effectively addressed on a watershed basis.

tem boundaries, looking at interactions among elements of the system rather than addressing isolated areas or problems.”⁹⁵

The Alliance includes only those states immediately adjacent to the aquatic part of the Gulf Large Marine Ecosystem (“LME”).⁹⁶ By virtue of the three nautical mile offshore limit of state jurisdiction, the Alliance does not extend to the edge of the U.S. Exclusive Economic Zone (“EEZ”).⁹⁷ However, federal government cooperation with the Alliance means that the federal agencies whose jurisdictions extend to the outer boundary of the EEZ are represented in the process. The Alliance may be choosing the most workable approach.

While LMEs and their watersheds represent an ideal management boundary from an ecological perspective, present realities complicate the use of such extensive management areas, particularly as starting points for voluntary cooperation. The Mississippi-Atchafalaya drainage basin, the Gulf’s continental U.S. watershed, extends over 3.8 million square kilometers,⁹⁸ an area that may be prohibitively large for use as a starting point. The LME concept may instead be appropriate as a goal after the Alliance has become established and ripe for expansion.

To address some issues effectively, the Alliance will eventually need to engage additional states.⁹⁹ There is recognition of the need to do this¹⁰⁰ and a sense that effective coordination through the Alliance could provide the five Gulf governors with additional political leverage for inspiring states further up the watershed to take action.¹⁰¹

Regional approaches should be sensitive to varying scales of different problems. In other words, there is a need to manage for multi-

95. USCOP REPORT, *supra* note 3, at 61.

96. *Id.* at 64.

97. The three mile limit was established by the Submerged Lands Act of 1953, 43 U.S.C. §§ 1301-1315 (2000). Texas’ and Florida’s west coasts are exceptions. Their jurisdiction extends to 9 nautical miles from the baseline. *United States v. Florida*, 363 U.S. 121 (1960). Consistent with the United Nations Convention on Law of the Sea, the U.S. claimed a 200 mile EEZ in 1983. Proclamation No. 5030, 3 C.F.R. 22 (1984), *reprinted in* 16 U.S.C. § 1802(11) (2000).

98. See GULFBASE, GENERAL FACTS ABOUT THE GULF OF MEXICO, *available at* www.gulfbase.org/facts.php (last visited Apr. 6, 2006).

99. For example, on the issue of nutrient loading in the Gulf, a large percentage of excess nitrogen comes from agricultural states far inland. HYPOXIA REPORT, *supra* note 51, at 8.

100. The final action item in the Governors’ Action Plan is creation of a “united voice” on nutrient loading to engage states throughout the Mississippi River Basin. It is unknown how that will translate into meaningful action. *Id.* at 9-11. See also Personal Communication with Kameran Onley, *supra* note 40.

101. Personal Communication with Kameran Onley, *supra* note 40.

ple scales, not simply on a larger scale.¹⁰² The Alliance's white paper, *Reductions in Nutrient Loading to the Gulf of Mexico*, reflects a concern that the current structure will be unable to ensure "that the different ecosystems within the Gulf are addressed as separate and unique, despite their broader connection to each other."¹⁰³ The Alliance will need to collaborate with additional states on some issues and create subsets within the current structure to address smaller scale problems.

b. Managing Ecosystem Function

Ecosystem-based management "emphasizes the protection of ecosystem structure, functioning, and key processes."¹⁰⁴ Realistically, managers cannot focus equally on all components of complex systems. Instead, they must focus on key interactions. In terms of ecology, this means considering "functional groups" rather than specific species.¹⁰⁵ It requires the establishment of goals related to ecosystem functioning and services,¹⁰⁶ rather than sector-specific outputs, the participation of all relevant agencies, and the explicit consideration of interactions in the systems.¹⁰⁷

The Alliance process offers the potential for government agencies to consider the interactions among system elements. However, this will be difficult as long as agencies continue to focus on isolated problems, species, and sectors. Accounting for system interactions will require the establishment of cross-jurisdictional management goals through formal agreements and mechanisms across various levels of authorities.¹⁰⁸ Currently, the Alliance lacks formal structures and processes for aligning goals across jurisdictions. In the future, the Alliance might establish interagency working groups around particular ecosystem services. These groups could work to agree on goals related to ecosystem services and coordinated implementation.

102. See Andrew A. Rosenberg, *Regional Governance and Ecosystem-Based Management of Ocean and Coastal Resources: Can We Get There from Here?*, 16 DUKE ENVTL. L. & POL'Y F. 179 (2006).

103. GULF OF MEX. ALLIANCE, WHITE PAPER: REDUCTIONS IN NUTRIENT LOADING TO THE GULF OF MEXICO 7 (2005), available at <http://www.dep.state.fl.us/gulf/files/default.htm>.

104. SCIENTIFIC CONSENSUS STATEMENT, *supra* note 1, at 1.

105. For example, "functional groups" could include "collections of species that perform a similar function, irrespective of their taxonomic affinities." Gary L. Springer, Address at the World Trade Center of New Orleans: Integrating the Gulf of Mexico Border (June 28, 2005).

106. For example, ecosystem services include water filtration, storm protection, and food production.

107. SCIENTIFIC CONSENSUS STATEMENT, *supra* note 1, at 1.

108. *Id.* at 4.

Systems management also requires consideration of the cumulative impacts of human activities.¹⁰⁹ Regional approaches, like the Gulf Alliance, are logical vehicles to facilitate cross-sectoral cumulative impacts assessments. Most Alliance participants recognize the importance of identifying management actions through such assessments, but choose to use best professional judgment and consensus tools to identify the Alliance's initial actions.¹¹⁰

2. Meaningful Integration of People

A broad range of governmental and nongovernmental actors play important roles in the Gulf of Mexico ecosystem. Their participation is required if the Gulf region is to be managed on an ecosystem basis. The USCOP recommended that membership in regional processes represent "every level of decision making in the region" to make use of the "knowledge of all stakeholders."¹¹¹ It suggested that this could happen through council membership and through advisory bodies.¹¹²

The perspectives of all who contribute to a problem, are affected by it, and/or are necessarily part of the solution should be considered in the decisionmaking process.¹¹³ The Scientific Consensus Statement on Marine Ecosystem-Based Management encourages adoption of "co-management strategies in which governments (federal, state, local, tribal) and diverse stakeholders (local resource users, academic and research scientists, conservation interests, community members

109. Personal Communication with Norman Christensen, *supra* note 13.

110. Personal Communication with Brent Ache, *supra* note 70.

111. USCOP REPORT, *supra* note 3, at 90.

112. *Id.*

113. The Gulf of Mexico extends internationally to the shores of Mexico and Cuba. There is recognition among Alliance participants that international cooperation could contribute to better protection of the Gulf. Personal Communication with David Guggenheim, *supra* note 74.

One international institution, the Gulf of Mexico Accord is described as part of the "leadership" of the Alliance on the Alliance's website. See Gulf of Mex. Alliance, <http://www.dep.state.fl.us/gulf/leadership/default.htm> (last visited Apr. 6, 2006). The Accord is an agreement among the eleven U.S. and Mexican states adjacent to the Gulf of Mexico (Campeche, Quintana Roo, Tabasco, Tamaulipas, Veracruz, and Yucatan from Mexico and Alabama, Mississippi, Louisiana, Florida, and Texas from the U.S.) to support "working partnerships between the states to foster the evolution of economic development and infrastructure development opportunities, as well as educational and cultural exchanges." THE GULF OF MEX. STATES ACCORD, ACCORD OF THE STATES OF THE GULF OF MEXICO (May 1995), available at <http://www.gomsa.org/accord/accord.html>. At this point, the secretariat of the Gulf of Mexico States Accord is involved in some preliminary discussions with the Alliance, but the full degree of international involvement is yet to be determined. Personal Communication with David Guggenheim, *supra* note 74.

with traditional knowledge, and other stakeholders) share the responsibility for management and stewardship.”¹¹⁴

a. Agency Participants

State agency perspectives are well represented in Alliance decisionmaking. These individuals must hold a sufficiently high position in their agency if their decisions are to reflect high-level political realities.¹¹⁵ Representatives must also have some influence over policy within their state if Alliance action plans are to be effectively implemented. There are varying degrees of state representation across the five states, with some participants having more direct access than others.¹¹⁶ Perhaps states would have demonstrated a more consistently high-level of support if additional, visible Alliance related events had been arranged for the governors.¹¹⁷

The degree of high-level federal attention to regional-level management approaches will affect the commitment of federal agencies over time. The ICOSRMI's SIMOR has responsibility for coordinating federal support for regional ocean management approaches.¹¹⁸ While some agencies are more committed to the SIMOR process than others because of competing immediate needs, it is encouraging that all agencies are participating in the process.¹¹⁹

The clout (or seniority) of federal agency representatives on the Federal Workgroup supporting the Alliance is also important. Participants at the state and federal levels have stated that federal agency representatives must have an appropriate balance of authority within their agencies and knowledge of the region.¹²⁰ That is, in most cases, they must enjoy direct lines of communication to the members of SIMOR, while still having enough knowledge of the region and time to devote to the Alliance to be effectively engaged.¹²¹

114. SCIENTIFIC CONSENSUS STATEMENT, *supra* note 1, at 5.

115. Agency commitment is affected by politics and the circumstances of individual governmental actors that affect their dedication to any particular facet of their professional duties. As one federal participant stated “participation and engagement is personality dependent.” Personal Communication with Brent Ache, *supra* note 70.

116. Personal Communication with Katherine Andrews, *supra* note 76. Texas and Florida have adopted leadership roles among the states. Personal Communication with Kameran Onley, *supra* note 40.

117. Personal Communication with Katherine Andrews, *supra* note 76.

118. Personal Communication with Kameran Onley, *supra* note 40.

119. *Id.*

120. Personal Communication with Katherine Andrews, *supra* note 76; Personal Communication with Brent Ache, *supra* note 70.

121. Personal Communication with Katherine Andrews, *supra* note 76.

b. Community and Stakeholder Participation

Strong grassroots commitment could help the Alliance become effective in the long-term. Shindler and Cheek note that public involvement can “reveal issues of concern, provide an early warning system, tap local knowledge, identify ways to explore a range of alternatives, and explore consequences of the choices.”¹²² They also note that the public is generally more likely to “accept the outcomes of processes that they perceive to be fair.”¹²³

Stakeholders, local governments, and the general public are involved with the Alliance through a community workshop process. The goal of the community workshops is to gain local perspectives on priority issues related to the environmental and economic health of the Gulf region as well as build support for the Alliance.¹²⁴ A diverse range of participants have participated in the community workshops, including local land use planning bodies, business and industry representatives, local and state government, academia, and the general public.¹²⁵ Equally as important as the breadth of participation is the extent to which those participants have had a voice in the selection of priority issues, the development of white papers, and the content of the first Action Plan.

The timing of Alliance activities, including the community workshops, was dictated by an ambitious time frame enforced by Alliance organizers in their effort to ensure that the Action Plan would be launched at the Gulf Summit. The pace of progress was also affected by delays caused by the 2005 Gulf coast hurricanes. These timing related factors presented a challenge as workshop organizers struggled to engage in thoughtful step-by-step planning of public participation.¹²⁶

122. Bruce Shindler & Kristin Aldred Cheek, *supra* note 84, at 9.

123. *Id.* (citing T.B. Knopp & E.S. Caldbeck, *The Role of Participatory Democracy in Forest Management*, 88 J. FORESTRY 13 (1990); T.B. Lauber & B. Knuth, *Fairness in Moose Management Decision Making: The Citizen's Perspective*, 25 WILDLIFE SOC'Y BULL. 776 (1997)).

124. Telephone Conversation with Ginger Hinchcliff, Coastal Mgmt. Servs. Branch Chief & Brie Bierman, Coastal Mgmt. Specialist, NOAA Coastal Servs. Center (Jan. 3, 2006). Eight community workshops were planned for the region, but the 2005 Gulf coast hurricanes required organizers to change their original plans. All eight workshops have now been completed, prior to the Gulf Summit in March. *Id.* Dates and locations of workshops are as follows: Naples, FL 6/9/2005; Tampa, FL 8/23/2005; Tampa, FL 8/23/2005; Apalachicola, FL 8/25/2005; Sarasota, FL 9/14/2005; Galveston, TX 9/20/2005; Port Arkansas, TX 1/19/2006; Mississippi-Alabama 1/31/2006; Mississippi-Alabama 2/1/2006; Thibodaux, LA 2/21/2006.

125. *Id.*

126. *Id.*

While the architects of the Alliance agreed at the outset on the importance of public participation, challenges have arisen in the timing of the community workshops in relation to the state and federal decisionmaking. The Alliance began the community workshop process after the states had already selected the five priority issues and after they had already drafted the white papers on those topics.¹²⁷ The first community workshop was held on June 9, 2005,¹²⁸ the same day that federal and state representatives held their first joint meeting to discuss the white papers at a separate location, and behind closed doors, at the Rookery Bay National Estuarine Research Reserve in Naples, FL.

Whether justified or not, the timing may create a perception that the community workshops were an afterthought rather than an earnest effort to engage citizens and stakeholders in a meaningful way. Organizers commented that they would have preferred an opportunity to plan the workshops further in advance and open the public participation process earlier.¹²⁹

Another timing conflict arose in that the Governors' Draft of the Action Plan was released prior to completion of the community workshops. At the time of the draft's release, some workshops had not yet been held. The draft plan includes placeholders for additional community input arising from those workshops, but information from those meetings has obviously not been incorporated into the substance of the draft. When making important decisions in the future, the Alliance may consider the information acquired at public hearings at the same time as all other information.

Aside from these timing related shortcomings, several aspects of the workshop process have been positive. First, the hosts of the community workshops have not been remote federal or state agencies, but rather locally situated National Estuarine Research Reserves ("NERRs") and National Estuary Programs ("NEPs").¹³⁰ The NERRs and NEPs are located within the communities and have established relationships with their constituents. Alliance organizers maintain that the hosts have demonstrated the local knowledge needed to effectively advertise and lead meetings, attract a diverse group of participants, and generally tailor the workshops to the spe-

127. *Id.*; Personal Communication with David E. Guggenheim, *supra* note 74.

128. Gulf of Mex. Alliance, *available at* <http://www.dep.state.fl.us/gulf/events/workshops.htm> (last visited Apr. 7, 2006).

129. Telephone Conversation with Ginger Hinchcliff & Brie Bierman, *supra* note 124.

130. *Id.*

cific needs of the communities. Second, facilitators and workshop organizers have ensured consistency in the type of information gathered and the process used to acquire it, so that data can be effectively compared across locales.¹³¹

The USCOP points out that “concern and persistence among local stakeholders are needed to drive change at higher institutional levels.”¹³² The Alliance is committed to building grassroots support and seems to be moving in that direction, but there is also recognition among organizers that more public input is needed as the Alliance moves forward.¹³³

The Alliance should, in particular, engage interests that might effectively oppose its initiatives. To address this need, the Alliance aired the white papers through a selected group of nongovernmental organizations and business and industry stakeholders who were established contacts through the U.S. Environmental Protection Agency Gulf of Mexico Program.¹³⁴ Industry also has the potential to contribute to meeting the Alliance’s regional information needs.¹³⁵ The Alliance should work with business and industry to find ways for them to help gather and distribute data so that it is useful to environmental managers while still protecting private concerns.¹³⁶

3. Adaptive Management

“Adaptive management”¹³⁷ is an approach to dealing with scientific uncertainty. Adaptive management treats management policies as experiments that probe the responses of ecosystems as human behavior changes.¹³⁸ Collaborative governance and a bioregional scope are two important characteristics of an adaptive approach.¹³⁹ Because the Alliance has these characteristics, it may be a good opportunity to move the Gulf region toward a more adaptive approach.

131. *Id.*

132. USCOP REPORT, *supra* note 3, at 91.

133. Personal Communication with Kameran Onley, *supra* note 40.

134. Personal Communication with Brent Ache, *supra* note 70.

135. Personal Communication with Kameran Onley, *supra* note 40.

136. *Id.*

137. See generally ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT (C.S. Holling ed., 1978); CARL J. WALTERS, ADAPTIVE MANAGEMENT OF RENEWABLE RESOURCES (1986), cited in Kai N. Lee, *Appraising Adaptive Management*, 3 CONSERVATION ECOLOGY 3 (1999), available at <http://www.consecol.org/vol3/iss2/art3/>.

138. Lee, *supra* note 137, at 3.

139. *Id.* Lee offers a third important characteristic—an adaptive managerial perspective.

Walters and Holling make a distinction between “active” and “passive” feedback strategies for adaptation.¹⁴⁰ Active adaptation is deliberate, probing experimentation with management strategies that is “deliberately intended to produce an informative response in the system state or outputs.”¹⁴¹ This strategy is both difficult to implement and costly, and therefore does not seem feasible for a flexible, voluntary approach like the Alliance.

Passive adaptation means using historical data through time to construct a single best estimate or model for response.¹⁴² Decision choices assume that the model is correct until new information proves otherwise. Passive adaptation can fail when people are skeptical and conservative in the face of new information that challenges existing policies.¹⁴³

The approach being taken by Alliance participants can be considered, in some sense, to be adaptive. After all, with little formal structure, the process is very flexible to change. However, this is not what is usually meant by the phrase when used in reference to ecosystem-based management. Adaptive management requires a long-term commitment to testing the hypothesis that management is achieving specific, measurable goals.¹⁴⁴ The Alliance has established neither measurable long-term goals, nor a dependable, long-term commitment to the process.

Adaptive management increases disclosure and, therefore, leaders’ accountability for policy outcomes.¹⁴⁵ An institution carrying out adaptive management reveals not only the system’s response to management, but also the actions of decision makers, the efficiency of those actions, and whose interests are being served.¹⁴⁶ The current organization of the Alliance provides for no clear accountability for outcomes. This is politically safer for leaders, but it precludes measured analysis of the way decisions have influenced outcomes.¹⁴⁷

140. The concepts were organically developed in the work of Walters and Hollings on the Everglades. Carl J. Walters & C.S. Holling, *Large-Scale Management Experiments and Learning by Doing*, 71 *ECOLOGICAL* 2060, 2060-61 (1990).

141. WALTERS, *supra* note 137, at 259.

142. Personal Communication with Norman Christensen, *supra* note 13.

143. Lee, *supra* note 137.

144. Personal Communication with Norman Christensen, *supra* note 13.

145. Lee, *supra* note 137, at 9.

146. *Id.*

147. *Id.* Lee notes that under an adaptive approach implemented by government officials, the “balance between the benefits and risks of learning is measured in political metrics.”

Adaptive management is related to public participation in several important ways. First, the quality of public participation has important consequences for how effectively a system will adapt. In addition, individuals most affected by a policy decisions are often those who know the most about the condition of an ecosystem. They may provide important information about policy outcomes that conventional monitoring does not bring to light.¹⁴⁸ They may also provide innovative ideas or warnings that only on-the-ground experience can provide. Second, if people feel that their input is not valued, they will stop participating, a consequence with negative implications for grassroots support. Stakeholders may begin to feel that the flexible, figure-it-out-as-we-go process of the Alliance does not provide for meaningful inclusion of their input.

The Alliance's lack of formal structure may be a barrier to implementation of an adaptive approach for ecosystem-based management. For scientific monitoring to indicate whether management actions have had a desired effect can take a long time, sometimes much longer than budgetary and electoral cycles upon which Alliance membership, operations, and functions now depend. The collaborative nature of the Alliance adds to the difficulty of sustained, long-term monitoring because representatives from different agencies in various jurisdictions need to work together for significantly long periods of time to achieve meaningful, scientific results.¹⁴⁹ The Alliance process could be more adaptive with four specific modifications carried out over an appropriate timeline and with clearly defined opportunities for reflection and evaluation. The four modifications include:

- (1) the adoption of clear, measurable goals;
- (2) the use of navigational tools to determine current position relative to goals;
- (3) agreement on how to deal with uncertainty; and
- (4) agreement on how to respond once a position relative to goals is established.¹⁵⁰

V. CONCLUSION

Most experts, practitioners, and observers agree that ecosystem-based management is the necessary approach to managing marine resources. As outlined in this article, there are three elements essential

148. *Id.*

149. *Id.*

150. Personal Communication with Norman Christensen, *supra* note 13.

to ecosystem-based management: systems management, meaningful integration of people, and adaptive management. Voluntary regional ocean governance approaches offer great potential as an effective way to implement ecosystem-based management that incorporates these elements. Two independent commissions, the Pew Oceans Commission and the U.S. Commission on Ocean Policy, based their findings on the need to move toward ecosystem-based management and recommended frameworks for regional ocean governance. The commissions differed somewhat in approach, and in turn, they differed from a more hands-off approach advocated in the President's U.S. Ocean Action Plan.

The Gulf of Mexico Alliance serves as an initial experiment in regional ocean governance. The effort underway in the Gulf is a good start in that it incorporates some aspects of the three essential elements. The Alliance can forge a path for other regions by becoming more systems-oriented, more carefully integrating public input, and incorporating mechanisms for a more adaptive approach. It presents an opportunity for the Gulf states to chart a course toward an ecosystem-based management approach to address priority issues facing one of our nation's most vital marine resources. Success remains to be seen, but this early attempt has the potential to serve as a model for a more innovative approach to addressing complex coastal issues.