

White Paper:

Using a Business Plan Format for Drafting MPA Management Plans in the Marine Life Protection Act Initiative

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I.

INTRODUCTION

A. *Scope of paper*

This paper looks at what would need to be included for the purpose of assessing the financial, human and physical resources

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required to establish and manage Marine Protected Areas (“MPAs”) designated under the MLPA Initiative process as part of an MPA Management Plan.¹ While the Marine Life Protection Act requires “[s]pecific identified objectives, and management and enforcement measures, for all MPAs in the system”, no clear guidance is provided as to what constitutes sufficient planning to assure the proper management of the MPAs.² As such, this paper seeks to organize a framework approach or logic for how managers can address implementing and improving activities for both individual MPAs.

In preparation for this effort, approaches of several other agencies responsible for area management plans were reviewed for input of practices appropriate for MPA management plans; while no one approach fits the specific needs of the MLPA Initiative, parts of these other approaches are incorporated where useful.³ Instead this paper takes an approach similar to that used in business plans that guide development of entrepreneurial organizations. Business plans enjoy several advantages over other types of planning processes reviewed. Rather than being created merely to satisfy statutory requirements narrowly conscribed to its specific regulatory context, a business plan is a “living document” guiding daily activities that can be modified to adapt to

1. See California Department of Fish & Game, CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE, MASTER PLAN FRAMEWORK, (Aug. 22, 2005), available at http://www.dfg.ca.gov/mrd/mlpa/pdfs/mpf_082205.pdf (last visited Sep. 16, 2006) [hereinafter “MPF”]; See also CAL. FISH & GAME CODE § 2865 (West 2006).

2. CAL. FISH & GAME CODE § 2853(c)(2) (West 2006).

3. Other management plans reviewed (and the statutory authority relied upon in parentheses) include both federal and state programs, as well as other sources. Federal programs reviewed include the Monterey Bay National Marine Sanctuary and the Channel Islands National Marine Sanctuary management plans (Marine Protection, Research, and Sanctuaries Act of 1972 as amended, 33 U.S.C.A. §§ 1401-1447(f), 2801-2805, and its implementing regulations at 15 CFR Part 922); National Park Service General Management Plans (16 U.S.C. § 1a-5; Government Performance and Results Act of 1993 [GPRA], 36 U.S.C. 1115); the National Wildlife Refuge System Comprehensive Conservation Plans (National Wildlife Refuge System Improvement Act of 1997, amendments to National Wildlife Refuge System Administration Act of 1966, 16 U.S.C.A. §§ 668dd-668ee; see also GPRA, *supra*); federal management plans also must meet provisions of the National Environmental Policy Act of 1969 (42 U.S.C.A. §§4321-4347). State programs reviewed include the California State Parks General Plans (Cal. Pub. Res. Code § 5002.2), which must also meet provisions of the California Environmental Quality Act (CAL. PUB. RES. CODE §§ 21000-21177). Other sources reviewed include the National MPA Center (E.O. No. 13158, May 26, 2000), and documents of the Australia Government Great Barrier Reef Marine Park Authority (Great Barrier Reef Marine Park Act 1975 § 39Y).

new learning throughout its implementation.⁴ Applied to MPAs, this flexibility allows adaptation to a particular area's own unique circumstances and local context. Business plans also have the benefit of being tested in countless applications and refined over time. General practices have evolved through practice and less relevant components have been discarded. The essence of the business plan format is in its pragmatism. Business plans are designed to be used, focusing on process rather than the production of a document.

Business plans typically have multiple objectives.⁵ First, they are themselves a process for thinking through the operation's processes in order to anticipate potential conflicts or contingencies that may arise in the course of business. They are planning documents.⁶ Second, business plans provide a record of what managers' expectations are so that performance can be measured at a later date and improving accountability of management.⁷ Third, business plans lend transparency to the operation by conveying key information to funding sources to justify investing in the venture.⁸ While this last purpose most often comes to people's minds when asked why business plans are created, in practice, the first two purposes are more prevalent and foundational to the outcome of the venture.

A business plan follows a general logic to justify its financial conclusions to investors in order to show the "bottom line" for funding requirements.⁹ After a brief introductory executive summary, such plans first start with a description of the company and what the company proposes to do.¹⁰ The plans then analyze how the company proposes to market its product or service, and the measures it puts forward to do so.¹¹ Finally, such plans discuss specific steps to accomplish these measures, and from those steps estimate the affiliated costs.¹² Such plans should be referred to

4. U.S. Small Business Administration website, *Starting Your Business: Business Planning*, http://www.sba.gov/starting_business/planning/usingplan.html (last visited Sep. 15, 2006).

5. ERIC S. SIEGEL, ET AL., *THE ERNST & YOUNG BUSINESS PLAN GUIDE* (David C. Carney, ed., John Wiley & Sons, 1987); see also MIKE P. MCKEEVER, *HOW TO WRITE A BUSINESS PLAN* (Richard Stim, ed., 7th ed. 2005) (1984).

6. E&Y, *supra* note 3, at 4-7.

7. *Id.* at 8.

8. *Id.* at 9-11.

9. *Id.* at 11-12.

10. *Id.* at 45-58.

11. *Id.* at 59-87.

12. *Id.* at 89-119.

in order to assess whether milestones have been met, and to provide a baseline for adapting to unforeseen circumstances.¹³ This paper will apply this business plan framework approach to the development of MPA Management Plans.

MPA Management Plans developed under this framework are envisioned to be working documents — plans kept handy on the desktop for reference, not shelved in storage. Maintaining the plans' usefulness requires regular updates to incorporate new learning gleaned from actual implementation, consistent with goals of adaptive management.¹⁴ To accomplish this, this framework includes processes for review and revision when necessary as well.

This whitepaper starts by relying upon the "Suggested Outline for Regional Management Plans (RMPs) of Marine Protected Areas" in the Master Plan Framework.¹⁵ In applying the suggested outline, this paper anticipates that the individual MPAs being planned already have full descriptions through the designation process.¹⁶ Thus this paper only addresses establishment and management issues identified and similar issues.¹⁷ While many of the issues may be identified in the designation documents,¹⁸ the MPA Management Plan allows a discussion specific to the operations of the individual MPA, more targeted than previous general descriptions.

13. *Id.* at 121-123.

14. See CAL. FISH & GAME CODE § 2852(a) (West 2006):

"'Adaptive management' with regard to marine protected areas, means a management policy that seeks to improve management of biological resources, particularly in areas of scientific uncertainty, by viewing program actions as tools for learning. Actions shall be designed so that, even if they fail, they will provide useful information for future actions, and monitoring and evaluation shall be emphasized so that the interaction of different elements within marine systems may be better understood."

15. See *Suggested Outline for Regional Management Plans (RMPs) of Marine Protected Areas*, California Department of Fish & Game, CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE, APPENDICES TO THE MASTER PLAN FRAMEWORK, appendix K, 75-78 (Aug. 22, 2005), available at <http://www.dfg.ca.gov/MRD/mlpa/pdfs/mpfapp082205.pdf> (last visited Sep. 15, 2006) [hereinafter "APPENDIX K"]; See also CAL. FISH & GAME CODE § 2856 (West 2006).

16. For components of designation documents, see CAL. FISH & GAME CODE § 2856(a)(2).

17. See Section VIII, APPENDIX K, *supra* note 13, at 78.

18. See Section III(d), APPENDIX K, *supra* note 13, at 76; see also CAL. FISH & GAME CODE § 2856(a)(2) (West 2006).

B. Summary / Structure of paper

In developing an MPA Management Plan, many basic questions arise. Why develop a plan? Who is it to be for? What does it hope to accomplish, and how does it propose to do so? The management issues listed in the suggested outline answer many of these questions.¹⁹ These issues will be separated into several groupings in this paper, according to which questions they answer:

1. MPA Management Plan Introduction (“Why” and “Where?”)
2. Constituents (“Who?”)
3. Strategies (“What?”)
4. Operations (“How?”)
5. Financials and Sensitivity Analysis (“How Much?”)
6. Milestones (“When?”)

Each section is discussed briefly in turn:

1. The “Why” & the “Where” (Introduction):

The MPA designation process answers these questions, and informs the answers to the rest of the questions. An individual MPA Management Plan should include a brief introductory statement of the goals and objectives and a brief description of the boundaries of the MPA at the outset as background for the rest of the plan.²⁰ The introductory section should be concise, analogous to a mission statement and company overview section of a business plan, setting the context for the following sections of the MPA Management Plan.²¹ This description should not be extensive, incorporating by reference the other documents from the designation process.

19. APPENDIX K, *supra* note 13, at 78.

20. See MPF, *supra* note 1 at 29-30, 53-56. See also *Outline of Information Required for Marine Protected Area Proposals*, California Department of Fish & Game, CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE, APPENDICES TO THE MASTER PLAN FRAMEWORK, appendix F, 30-41 (Aug. 22, 2005), available at <http://www.dfg.ca.gov/MRD/mlpa/pdfs/mpfapp082205.pdf> (last visited Sep. 15, 2006) [hereinafter “APPENDIX F”]. Much of this information will match that considered in Sections II, III, and VII of the Regional Management Plan suggested outline. APPENDIX K, *supra* note 13.

21. E&Y, *supra* note 3, at 51 (“This description should take no more than a few pages. . . A fine level of detail is not appropriate in this section”); see also MPF, *supra* note 1, at 60 (“Management plans should not dwell upon detail”).

2. The “Who” (Constituents):

Individual MPAs will have different affected stakeholders and different constituent groups interested in the how the MPA will be managed.²² This section should be analogous to the Market Assessment section of a business plan, which evaluates the aggregate size of all markets or constituencies, what the distribution of constituent groups may be within this combined total, and which segments may be the target market for the plan’s activities.²³ In an MPA Management Plan, the different constituent groups are those stakeholders directly affected by activities of the individual MPA, and the “target” constituency groups will be those groups most affected, or that which will have the most activities and operations focused on their concerns. Which constituent group this will be will naturally vary between MPAs as goals and objectives vary; for instance, MPAs near urban centers are likely to have much greater need for interpretative displays and educational outreach activities than remote and comparatively inaccessible locations.²⁴

Determination of constituents will also be important for identifying potential collaborators. Constituent groups bring resources that can assist in achieving strategies to achieve the goals and objectives of an MPA.²⁵ Identifying these groups during the implementation stage allows managers to better inventory resources available in long-term management of the MPA.

3. The “What” (Strategies):

Once constituent groups are known, specific strategies can be identified. This section is analogous to the Market Strategy sec-

22. See *Strategy for Stakeholder and Interested Public Participation*, California Department of Fish & Game, CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE, APPENDICES TO THE MASTER PLAN FRAMEWORK, appendix D, 21-26 (Aug. 22, 2005), available at <http://www.dfg.ca.gov/MRD/mlpa/pdfs/mpfapp082205.pdf> (last visited Sep. 15, 2006) [hereinafter “APPENDIX D”]; see also MPF, *supra* note 1, at 58-59. Much of this information will match that considered in Section V and Section III(d) of the Regional Management Plan suggested outline. APPENDIX K, *supra* note 13.

23. E&Y, *supra* note 3, at 62-63. See also, generally, PHILIP KOTLER, A FRAMEWORK FOR MARKETING MANAGEMENT, (2d. ed. 2002).

24. MPF, *supra* note 1, at 57.

25. MPF, *supra* note 1, at 68-69 (collaboration in monitoring and adaptive management). See also CAL. FISH & GAME CODE § 2855(c)(4) (West 2006) (“The department and team. . . shall solicit comments and advice for the master plan from interested parties on. . . ¶. . . Methods to encourage public participation in the stewardship of the state’s MPAs.”).

tion of a business plan, setting forth the specific activities to meet the needs of target constituencies according to the goals and objectives.²⁶ As applied to the development of MPA Management Plans, categories of issues to be considered include²⁷:

a. Interpretation and Education:

Educational outreach activities engaged in to let people know of MPA restrictions and features of the MPA.

b. Surveillance:

Oversight efforts followed to assure that restrictions are honored.

c. Enforcement:

Measures adopted to apply consequences to violators of MPA restrictions.

d. Scientific Monitoring and Research:

Procedures to be followed to meet scientific goals.

e. Restoration:

Methods taken to restore impaired habitats, as desired.²⁸

It is important to note that the assessment of activities specifies what is to be done, not who is to do it. Some activities may be best conducted by some of the constituent groups themselves. For instance, scientific monitoring and research activities may be very important to universities, yet universities can provide much of the required facilities to conduct monitoring efforts.²⁹

4. The “How” (Operations):

This section addresses the tactics to be used, and comprises the “nuts-and-bolts” of the management plan. Specific steps for how to accomplish activities listed in the previous section are detailed in this section, analogous to the Operations section of a business

26. E&Y, *supra* note 3, at 74-81, see also KOTLER, *supra* note 21.

27. APPENDIX K, *supra* note 13 at 78.

28. This activity is not listed among MLPA components or in Section III[d] of Appendix K, and thus will require some authority from the individual MPA’s goals and objectives.

29. *Supra* note 23.

plan.³⁰ As applied to MPA Management Plans, categories include³¹:

a. Equipment and Facilities :

Physical resources needed to conduct activities according to the specific MPAs goals and objectives. Depending on goals, may include boats, buildings, specific tools, etc.

b. Staffing:

The people needed to conduct activities according to the specific MPA's goals and objectives.

c. Training:

Preparation required for the personnel needed according to staffing needs in order to get them "up to speed."

d. Collaborations and Potential Partnerships:

A discussion of what other agencies or entities may exist with aligned interests that may be able to fulfill some of the staffing, training, facilities and equipment needs.

5. The "How Much" (Financials and Sensitivity Analysis):

This Section evaluates the costs affiliated with the operations identified above, and how these change if assumptions are altered. The section is analogous to a Financial Projections section of a business plan, with a sensitivity analysis to assess what are the key drivers of operational costs and strategic effectiveness.³² As applied to MPA Management Plans, categories include³³:

a. Budgeting:

Estimation of finances required to accomplish strategic activities and operational tactics. A discussion of potential financing sources is appropriately captured here as well.

b. Contingency and Emergency Planning:

A discussion of how expectations differ depending on significant changes in expected baseline conditions, and how that affects fi-

30. E&Y, *supra* note 3, at 89-119.

31. APPENDIX K, *supra* note 13, at 78.

32. E&Y, *supra* note 3, at 135-162.

33. APPENDIX K, *supra* note 13, at 78.

nances as well as performance expectations. This discussion will necessarily tie into the discussion of strategic activities in that priorities will need to be assessed, the operational tactics in that needs will change depending on conditions, and budgeting in that financial projections will vary under different scenarios.

6. The “When” (Milestones):

This section estimates a timeline of events and accountability measures. It is analogous to a Milestones section of a business plan, setting expectations of how long it will take to accomplish key objectives, and how performance is to be measured to assure progress to these goals is achieved.³⁴ As applied to MPA Management Plans, categories include³⁵:

a. Milestones and Roadmap:

A projected timeline of when specific tactics will be carried out in the pursuit of the strategic actions, with time horizons of one, three and five years at corresponding monthly, quarterly, and annual levels of detail.

b. Evaluation and Review of Effectiveness:

A method for accountability establishing how management plan milestones are measured, how results are compared with other MPA management plans so that best practices can be shared, and how the plan is to be updated to incorporate new learning and adjust future expectations.

Each section will be addressed in turn, with needs for specific MPAs being dependent on the individual MPA’s goals and objectives.

II.

THE MPA MANAGEMENT PLAN

A. Introduction

Different MPAs have different needs, depending on their individual characteristics.³⁶ A concise list of all characteristics relevant to the individual MPA at the beginning of the plan will help

34. E&Y, *supra* note 3, at 135-162.

35. APPENDIX K, *supra* note 13, at 78.

36. CAL. FISH & GAME CODE § 2857(c)(1) (West 2006) (“Individual MPAs may serve varied primary purposes while collectively achieving the overall goals and guidelines of this chapter”).

managers determine what characteristic issues apply, and which do not, simplifying the development and application of individual MPA Management Plans. This work will be done through the designation process, so need not be done separately. The management plan can incorporate by reference with just a brief overview of the highlights of the individual MPA's goals and objectives and site specifics.

This approach is consistent with other agencies' management plans for parks and other spatially explicit management areas. For instance, the National Park Service ("NPS") has substantial experience in managing ocean resources.³⁷ NPS adopts a framework for its General Management Plan development process where specific issues to be addressed are listed explicitly, and if the issues are deemed inapplicable to the given site by the managers developing the plan for that site, they can be dropped from the plan after only a short explanation of why they are inapplicable.³⁸ California's approach to park planning is similar to the National Parks Service, with a General Plan requirement for newly classified parks.³⁹ However, the list of issues dealt with in these park management plans is too general to be useful for MPAs which would require its own set of issues to be applied.⁴⁰

Also, managers in the National Park Service develop strategy plans under the Government Performance and Results Act of

37. Gary E. Davis, *Maintaining Unimpaired Ocean Resources and Experiences: National Park Service Ocean Stewardship Strategy*, 21 *GEORGE WRIGHT FORUM*, Dec. 4, 2004.

38. U.S. Department of the Interior, National Park Service, Director's Order on Park Planning (DO-2): NPS Park Planning Guidance, Dec. 1998, available at <http://www.planning.nps.gov/document/do2%5Fsourcebook%2Epdf> (last visited Sep. 15, 2006). The General Management Plan follows the National Environmental Policy Act ("NEPA") process for assessing environmental impacts of proposed alternatives compared to a baseline analysis in an Environmental Impact Statement ("EIS") document, with public comment requirements; however, NEPA applies to Federal actions and thus does not apply to state implementation of marine reserves within state waters. 42 U.S.C. §§ 4321-4347.

39. CAL. PUB. RES. CODE § 5002.2 (West 2006). Additionally, California has its own statute analogous to NEPA, the California Environmental Quality Act ("CEQA") with similar provisions for development of an Environmental Impact Report ("EIR") to assess the impacts of state actions. CAL. PUB. RES. CODE §§ 21000-21177 (West 2006). Examples of California State Parks General Plans are available on the department's website at http://www.parks.ca.gov/default.asp?page_id=21312 (last visited Sep. 15, 2005).

40. MPA management plans are specifically exempted from requirements of CEQA under the provisions of the MLPA. CAL. FISH & GAME CODE § 2859(b) (West 2006) ("...The commission's adoption of the plan and a program based on the plan shall not trigger an additional review under the California Environmental Quality Act. . .").

1993 (“GPRA”).⁴¹ The GPRA approach uses a fairly lean document that emphasizes accountability, thus provides a good template for an MPA Management Plan.⁴² The process of implementing an NPS strategic plan is to establish goals, allocate resources to accomplish those goals, take action (do the work), measure results, evaluate and report performance, and use the evaluation to adjust goals and relocate resources – then to continue the process as a loop.⁴³

For specific action items to implement goals and objectives of a larger action, the approach taken by the Monterey Bay National Marine Sanctuary (“MBNMS”) provides another example. Rather than subsume management plan details to NEPA’s requirements, the MBNMS EIS simply includes an additional section specifically for the sanctuary management plan.⁴⁴ This section addresses many of the issues that would be relevant to an MPA Management Plan in state waters at a useful level of detail.

A proposed framework would be to list the issues and the goals and objectives or site characteristics that trigger the issues. In the individual MPA Management Plan, the specific issues relevant to the MPA should be identified. Issues that are determined to be inapplicable can be waived, but the determination should be expressly written in the management plan with its reasons stated, in order to meet the accountability goals of the plan.⁴⁵ For instance, a shoreside MPA may have a priority on monitoring and research activities, and may have no need for aerial surveillance because of its proximity to land; this would then be re-

41. *Id.*

42. 36 U.S.C. 1115.

43. U.S. Department of the Interior, National Park Service, *Strategic Plan for Channel Islands National Park, October 1, 1999 - September 30, 2005*, available at <http://www.nps.gov/archive/chis/admin/fy00strategicplan.htm> (last visited Sep. 15, 2006).

44. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, *Monterey Bay National Marine Sanctuary Final Environmental Impact Statement*, Section V, June 1992, available at http://www.mbnms.nos.noaa.gov/intro/mbnms_eis/partV_sI.html (last visited Sep. 15, 2006). The MBNMS is currently updating the EIS in a joint plan with the Cordell Bank and Gulf of the Farallones National Marine Sanctuaries, in the meantime the plan in the 1992 EIS remains valid.

45. There is precedent for this provision to affirmatively state reasons for departing from prior norms in the MLPA itself: when the Joint Committee on Fisheries and Aquaculture presents recommendations to the Fish & Game Commission regarding an adopted MPA Program, “[i]f the commission does not incorporate any recommendations submitted by the joint committee, the commission shall set forth, in writing, its reasons for not incorporating that recommendation.” CAL. FISH & GAME CODE § 2859(d) (West 2006).

flected in the MPA Management Plan. This process would provide the “establish goals” step of the iterative process followed by NPS strategic plans.

The MLPA Task Force for the Central Coast approved a set of regional goals and objectives for establishing a network of MPAs.⁴⁶ Each goal lists several objectives, which prescribe more specific measures to achieve these goals. The goals include:

1. To protect the natural diversity and abundance of marine life, and the structure, function and integrity of marine ecosystems.
2. To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.
3. To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbances, and to manage these uses in a manner consistent with protecting biodiversity.
4. To protect marine natural heritage, including protection of representative and unique marine life habitats in central California waters, for their intrinsic value.
5. To ensure that central California’s MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.
6. To ensure that the central coast’s MPAs are designed and managed, to the extent possible, as a component of a state-wide network.

While there is some overlap between these goals, in short, they can be referred to as 1) protection, 2) conservation, 3) utilization, 4) preservation, 5) consistency, and 6) coordination. Some of these goals are entirely compatible with each other, while other goals require balancing competing goals. For instance, there is nothing incompatible between goals five and six and the first four goals. However, goals of protection and preservation will need to be balanced against goals of utilization and conservative harvests. Individual MPA Management Plans will vary in how the specific MPA fits within the overall Regional Plan.

46. California Marine Life Protection Act Initiative, Central Coast Project, *Adopted Regional Goals and Objectives Package Amended by the MLPA Blue Ribbon Task Force*, Nov. 30, 2005, available at <http://www.dfg.ca.gov/MRD/mlpa/pdfs/rgop092805.pdf> (last visited Sep. 15, 2006).

B. Constituents

This section of the MPA Management Plan identifies and discusses the different groups interested in the management of the MPA. This section naturally follows the MPA description referred to in the introduction, as the designating criteria and location of the MPA inform who is affected by the MPA's designation and continuing management.⁴⁷

Potential constituencies include commercial interests, recreational users, members of the scientific community, members of the conservation community, and governmental agencies.⁴⁸ Examples of possible relevant constituents include:

Commercial Interests

- Commercial fishing
- Charter recreational fishing
- Other boat charter interests (SCUBA, other)
- Guiding services
- Kelp harvesters
- Shippers (transit – i.e. for offshore MPAs)
- Power generators, Desal (i.e. Diablo Canyon, etc.)
- (etc.)

Scientific Community

- Researchers
- Restoration scientists
- Monitoring
- (etc.)

Recreational Users

- Recreational Fishing groups
- Boaters/Yacht Clubs
- Recreational Diving groups
- Beachcombers / Shore Access
- Tourists
- Educational (i.e. K-12 field trips)
- (etc.)

Conservation Community

- NGOs
- Local community groups

Governmental Entities

- Other state agencies (SWRCB, Coastal Commission, etc.)

47. See APPENDIX F, *supra* note 18.

48. For a thorough list of potential constituencies in the Central Coast region, see Gabriela Goldfarb, *Draft List of Institutions and Programs that can Affect, or be Affected by, Central Coast Marine Protected Areas*, California Marine Life Protection Act Initiative, Central Coast Project, Nov. 18, 2005 (final publication forthcoming, draft on file with author).

Other federal agencies (US Coast Guard, National Marine Sanctuaries, etc.)

Local governments (Municipalities, Counties, etc.)

Local agencies (water agencies, etc.)

This portion of the MPA Management Plan framework would list potential constituencies that would be affected similar to the listing of characteristics in the previous section. A manager of an individual MPA would use the list as a "checklist" of sorts to see which of the various constituencies are affected for the particular MPA. From the subset of constituencies that applies to the given MPA, an assessment can be made of how many people are affected and how much demand for services there will be. This will naturally depend upon the goals and objectives for the individual MPA. For instance, a remote MPA with a significant research component in the designation criteria will differ greatly from an MPA near areas frequented heavily by tourists with no significant research component; whereas the former have a much greater demand for scientific facilities while the latter will need more interpretive facilities. Much of the information of who is affected and how much effect they will have will be analyzed through the socioeconomic criteria in the designation process.

C. *Strategies*

What steps will be taken to reach the target market makes up the heart of a business plan; it is here where a company would detail its marketing strategies and sales plans.⁴⁹ In an MPA Management Plan, specific activities to be discussed would include interpretation and outreach activities, surveillance and enforcement actions, plans for scientific monitoring and research, as well as any plans for restoration of species or habitats within the MPA.⁵⁰ One part of a marketing strategy section in a business plan may seem inapposite, that of the competitive analysis. However, the counterpart in an MPA Management Plan would be an assessment of co-management possibilities with constituents.⁵¹ While a business generally hopes to eliminate competition through aggressive marketing, an MPA manager hopes to foster it and work with the competing services as collaborators.⁵²

49. E&Y, *supra* note 3, at 74-81.

50. APPENDIX K, *supra* note 13, at 78.

51. E&Y, *supra* note 3, at 74-81, 170.

52. Business schools teach the integration of the "three C's" - Customer, Competitor, and Company - for sustained competitive advantage, but in recent years have

These actions have differing levels of importance for an individual MPA depending on the identified constituencies and the objectives set for the MPA. For instance, restoration activities will be conducted only where listed as an objective. Protective actions will be necessary at all MPAs, but individual MPAs will have differing levels of protection and different levels of utilization. As such, actions will need to be designed specific to the individual MPAs.

Activities will also naturally be dependent upon the particular characteristics of the given MPA. Easily accessible MPAs frequently visited by the public and more remote MPAs known for high productivity of commercially valuable resources will both require enforcement activities to assure that “no-take” provisions are respected and that species are protected. But the former will more likely require greater interpretive resources, such as docents and signage, while the latter will require more active surveillance methods such as aerial or at-sea.

This section not only discusses what activities are planned to achieve the goals and objectives of a given MPA, it also should identify which constituents in the previous section may be interested in or available to collaborate in these activities.⁵³ How these activities are to be carried out and who will be tasked with the activity is discussed later in the plan, in the Operations section. Coordinating these parallel efforts to maximize the efficient allocation of resources falls to the Budgeting section as well. Constituent groups may change over time, as well as their capacities, the management plan will need to be updated appropriately to acknowledge this.

Following is a list of specific activities with differing treatments in an MPA Management Plan dependent of the characteristics of individual MPAs (a tabular representation of this information is included in the Appendix).

1. Interpretation and Education:

An MPA Management plan should include strategies for Interpretation and Education. Although related, these should be considered separately.⁵⁴ Interpretation is an informal educational;

expanded the model to “four C’s” to include Collaborators. See KENICHI OHMAE, *THE MIND OF THE STRATEGIST* (McGraw-Hill 1982).

53. MPF, *supra* note 1, at 61.

54. CAL. FISH & GAME CODE § 2853(c)(4) (West 2006) (“[A Marine Life Protection Program] shall include. . .[¶]. . .Provisions for educating the public about MPAs

communication process designed to help people enrich their understanding and appreciation of the MPA and their role as relates to it, through first hand involvement with the site, and is more of an explanation of a given MPAs attributes. In contrast, education is broader and more holistic, imparting the knowledge and science of ocean and coastal resources and the role of marine protected areas in general. Examples of interpretive activities include signs, dioramas, and docents for individual MPAs located either at shore stations adjacent to the MPA or at nearby embarkation points such as harbors or marinas. Educational activities might include organized field trips from K-12 classes or presentations to organizations, and is not as site-specific. While both methods of public outreach increase an awareness of what MPAs are and how they work, they do so through significantly different activities.

Interpretation activities will vary by proximity to the public. MPAs near populous or heavily visited areas will require more interpretive activities, thus more attention to interpretative activities is required of a management plan. MPAs that are accessible, but not frequently visited need less interpretation than highly visited sites; the management plan needs to assess these needs. Remote MPAs, such as far offshore or otherwise inaccessible will require the least amount of interpretation, if any at all; for such MPAs, interpretive efforts may be limited to dioramas at other locations arranged through collaborative efforts (as, for example, an informative display at an aquarium).

Educational activities will vary by the relevance of the individual MPA to educational goals. Generally, as for interpretation, accessible MPAs are better situated for educational activities (for instance, field trips are more easily arranged to accessible MPAs). But other characteristics also matter for whether an MPA is highly relevant for educational activities, such as whether the MPA contains a broad diversity of habitat types or whether it is particularly representative of an ecosystem. If a given MPA includes a "teachable moment" by its unique characteristics, the MPA is highly relevant for educational programs and will require more attention to the educational component of the management plan. Less accessible MPAs that are less representative of di-

..."). For management applied to interpretive and educational programs, see TIM MERRIMAN & LISA BROCHU, *MANAGEMENT OF INTERPRETIVE SITES: DEVELOPING SUSTAINABLE OPERATIONS THROUGH EFFECTIVE LEADERSHIP* (InterPress 2005); see also <http://www.interpnet.com/> (last visited Sep. 15, 2006).

verse or unique ecosystems are less relevant for educational programs, and will require less attention to the educational component of the management plan.

2. Surveillance:

Surveillance of MPAs means the observation of activities within an MPA boundary to assure that visitors to the MPA respect the protective restrictions in place. Observation can be done directly, with personnel visually monitoring activities within an MPA, or remotely through technological means, or some combination. A management plan needs to discuss both means of observation and determine which approach is best situated to observe the given MPA.⁵⁵

Conducting direct surveillance for more remote or inaccessible MPAs requires boats or planes to get observers in a position where they can see anything. Direct surveillance is easier to conduct for MPAs adjacent to the shore near populous areas, as observation from the shore provides a height-of-eye above sea level (thus extending the horizon), roads may provide fairly rapid access to several lookout points, and coastal residents may volunteer as deputy “sentinels.” Visual observation, however, is constrained by limitations of human eyesight in that one can only see what one looks at, and inclement weather reduces visibility.

Technological surveillance may be able to address some of the limitations of direct surveillance, but has its own set of issues. Technological observation systems may provide too little data, such as the use of radar to detect vessels in MPAs (which does not show whether the vessel is violating MPA restrictions), or may be too expensive for individual MPA use, such as satellite observation. There may be opportunities for collaboration to access observation technology, in which case these possibilities should be discussed. Many of the more exotic observation technologies (i.e. satellite observation, UAVs, VMS) may be more appropriately discussed at the state level, as adoption of such means would likely be universal among MPAs in order to be feasible.

Like interpretive activities, surveillance activities vary depending on the MPA’s proximity to populations and visitation fre-

55. CAL. FISH & GAME CODE § 2856(a)(2)(J) (West 2006) (“The master plan shall include. . . [¶]. . . Recommendations for improving the effectiveness of enforcement practices, including, to the extent practicable, the increased use of advanced technology surveillance systems”); see also MPF, *supra* note 1, at 56-57.

quency. However, unlike interpretive activities, it is not a direct correlation between the remoteness of an MPA and the lack of a need. A remote MPA with a known abundance of easily-harvested commercial species makes an attractive target for potential poachers, and thus necessitates more surveillance than, say, a less lucrative MPA close to an urban shore with many bay windows overlooking it.

In order to assess surveillance needs, an MPA Management Plan should first discuss the attractiveness of a given site for poaching activities to determine what level of observation may be needed to keep an eye on things. Logbook data and maps gleaned from commercial and recreational fisheries may be instructive for determining level of interest in a given location for extractive interests, as a baseline upon first implementation. However, such data is not useful when considering a site that has historically been closed to fishing for other reasons or for future conditions when an MPA may become attractive simply because of its protective status (see section on Evaluation and Review of Effectiveness, below). After determining the level of risk of non-compliance with a given MPA, the management plan should then discuss site-specific factors that influence surveillance choices between terrestrially-based observation or observation from boat or plane (or both, as appropriate) – whether the MPA is near-shore near populous areas, nearshore in more remote areas, or offshore.

3. Enforcement:

Surveillance and enforcement are linked, in that prosecution of violators can only happen after they are apprehended. Thus, much of the discussion of surveillance methods appropriate for an individual MPA also applies to enforcement activities. Some MPAs will need more enforcement capability than others just by nature of its design.⁵⁶ For example, some areas may be naturally inaccessible because they are too shallow for commercial vessels to enter and too hazardous for shore access (i.e. below cliffs); others may be easily accessible with multiple access points and heavy transient traffic, complicating surveillance activities. An

56. CAL. FISH & GAME CODE § 2856(a)(2)(I) (West 2006) (“The master plan shall include. . .[¶]. . . Recommendations for management and enforcement measures for the preferred alternative that apply systemwide or to specific types of sites. . .”); see also MPF, *supra* note 1, at 63-67.

MPA Management Plan should identify any unique characteristics of the individual MPA that may affect enforcement needs.

But enforcement entails more than just surveillance and prosecution of violators; it also requires adequate dissemination of regulations and restrictions in place in the MPA and public outreach efforts to improve awareness and thus compliance. An MPA Management Plan should identify embarkation points for the MPA where public notices regarding the restrictions in effect may be posted. Additional methods of communicating MPA restrictions should be identified as appropriate (see *Interpretation*, above).

4. Scientific Monitoring and Research:

Monitoring and research, as essential components of the individual MPA, will be discussed extensively during the designation process.⁵⁷ For the purpose of an MPA Management Plan, however, the two should be considered separately. Monitoring measures assess the quality of the MPA and consists of data collection and dissemination efforts, analogous to quality control measures in a business plan. Research, by comparison, seeks to learn new things about the MPA's ecosystem, analogous to R&D efforts in a business plan. Monitoring thus focuses on what is known or expected, while research seeks to understand that which is unknown.

Monitoring often suffers from a lack of respect from the scientific community. While scientists agree about the importance of monitoring, incentives are not aligned to promote such efforts to the same level as independent research initiatives. There are few tenure track professorships held out as a plum for consistent monitoring efforts. Such positions value more traditional research – peer-reviewed and published principal investigations – instead. Nonetheless, monitoring plays an essential role in the management of MPAs because only through monitoring can

57. CAL. FISH & GAME CODE § 2853(c)(4) (West 2006) (“[A Marine Life Protection Program] shall include. . .[¶]. . . Provisions for monitoring, research, and evaluation at selected sites to facilitate adaptive management of MPAs and ensure that the system meets the goals stated in this chapter”); CAL. FISH & GAME CODE § 2856(a)(2)(H) (West 2006) (“The master plan shall include. . .[¶]. . . Recommendations for monitoring, research, and evaluation in selected areas of the preferred alternative. . . to assist in adaptive management of the MPA network, taking into account existing and planned research and evaluation efforts.”); see also MPF, *supra* note 1, at 63-67.

managers tell whether management activities are having the desired effects.

Key to monitoring, however, is a selection of the critical measures to be monitored. For different MPAs, different metrics may be applicable. For instance, an MPA designated for habitat protection should measure the change in coverage of habitat types at risk, while an MPA designated to rebuild depleted species should measure species abundance against a baseline. While a wide range of possible metrics may be possible, for the purpose of an MPA Management Plan only the most important metrics should be identified. The current state should be described, with a projection of outcomes expected upon monitoring with tolerance levels set for deviations from expectations.⁵⁸

Incorporating only a few key measures in the management plan serves to streamline management activities and prioritize the importance of different measures. While additional monitoring may be desired, it is not precluded by its exclusion from the management plan. Rather, the restricted selection of monitoring objectives in the management plan is to highlight the monitoring measures that are essential to the MPA's successful implementation.

Monitoring provides a system of accountability for the MPA Management Plan. To be most effective, selection of monitoring metrics should focus on measures where reliable data can be found. Data should be relevant to risks within the individual MPA;⁵⁹ differing results in the data should have implications on management decisions if outside of identified tolerances. In order to achieve the greatest "bang for the buck," data collection and dissemination should be coordinated with other research interests where possible. All else being equal, monitoring should be conducted where data is useful for research outside of the management of the MPA.

Research differs from monitoring in that it looks to what is desired to be known, rather than measuring what is presumed to be known that needs to be confirmed. Input from the Science

58. This approach is consistent with statistical quality control methods in business management plans. While admittedly, measurement of marine environments entails much more uncertainty than measuring widgets on a factory floor, the general approach still holds merit but may require wider tolerances.

59. A relevant risk within a business plan context is bankruptcy; an investor reviewing a business plan would want to know the venture's cash flow projections. Comparable risks in an MPA context include species decline and adverse habitat modification.

Advisory Team will inform what research should be conducted for the purposes of adaptive management. The management plan should briefly identify existing research specific to the individual MPA, the Science Advisory Team's recommendations for additional research, and measures that need to be taken to provide for adequate monitoring.

5. Restoration:

The MLPA does not mandate restoration activities; however, restoration activities may be permitted within an individual MPA.⁶⁰ If included within the goals and objectives of an individual MPA, the MPA Management Plan will need to describe what steps are needed to be taken to achieve the restoration anticipated.

D. Operations

This section gets the plan put into action, the actual nuts and bolts of how strategies are to be carried out to achieve the goals and objectives of the MPA. After clearly defining the objectives, the affected constituents, and the strategic activities to bring to fruition the MPAs goals, the operational tactics naturally follow as a step-by-step guide of how to make it happen.

One of the fundamental things a business plan tries to do is explain how the enterprise proposes to implement its strategies to achieve its goals.⁶¹ So too should an MPA Management Plan explain how the strategies are to be executed. This section of the plan should include realistic projections of resources needed to engage in the identified strategies, both physical and human resources. The plan should identify equipment and facilities

60. California classifies MPAs in the Marine Managed Areas Improvement Act (Cal. Pub. Res. Code § 36600-36900), which states:

"A 'state marine reserve' is a nonterrestrial marine or estuarine area that is designated so the managing agency may achieve one or more of the following:

- (1) Protect or restore rare, threatened, or endangered native plants, animals, or habitats in marine areas
- (2) Protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems.
- (3) Protect or restore diverse marine gene pools. . ."

CAL. PUB. RES. CODE § 36700(a) (emphasis added). See also CAL. PUB. RES. CODE § 36710(a) (West 2006) ("In a state marine reserve, it is unlawful to injure, damage, take, or possess any living geological, or cultural marine resource, except under a permit or specific authorization from the managing agency for research, restoration, or monitoring purposes") (emphasis added).

61. E&Y, *supra* note 3, at 89.

needed for the MPA management, and how many staff and their respective qualifications.

It is not necessary that the agency charged with management of the MPA provide all of the resources identified, as other sources for the needs may be found. However, the needs should be explicitly identified in order to guide the allocation of resources appropriately. Naturally, MPAs with different goals and objectives will have different operations, and will have different constituent groups interested in the management of the MPA. These groups can provide additional execution support.

1. Equipment and Facilities:

The management plan should identify what physical resources are needed to accomplish its strategies. This section of the plans should include specifics, in order to quantify the needs. Plan writers should not constrain their imagination to resources currently available to the managing agency, but should think creatively in terms of what methods would best support the activities to be undertaken in regards to the MPA. Many of the facilities and equipment needs may fulfill multiple goals. Categories are useful to think about what may be needed, but should not be considered exclusive of each other (i.e. a boat desired for field studies may also be used for enforcement activities).

Interpretation and Education:

- How many and what are the preferred locations of interpretive displays and dioramas?
- What format is deemed most appropriate for the site (i.e. map brochures or mounted displays)?
- How the communication materials are to be created?
- What support equipment is desired for educational activities (such as teaching materials, etc.)?
- What educational facilities are desired (i.e. is it appropriate for the MPA to have a classroom to accommodate field trip students or mobile facilities for class visits)?
- Does this MPA need boat access for educational purposes?

Surveillance and Enforcement:

- If adjacent to shore, what shorebased surveillance options are recommended?

- If this MPA requires air or water access for surveillance, what level of aerial or marine surveillance is deemed necessary (flight hours, vessel transects, desired specs for air/water transports)?
- What specialized equipment needs are there for watching over the MPA, such as electronics or optics?
- What resources are needed to communicate MPA restrictions to affected constituents (i.e. regulation booklets at embarkation points, other media)?
- What facilities are needed to enforce restrictions on the MPA (i.e. boats, other equipment)?

Monitoring, Research, and Restoration:

- What specific tools and equipment are needed to gauge the key metrics relied upon to determine the health and well being of the MPA (tie specifically to essential monitoring metrics identified above)?
- What facilities are needed to carry out the research and monitoring activities (i.e. shoreside facilities, shipboard facilities, ROV support, etc.)? These can be combined or separate, depending on if they will be coordinated or separate activities.
- What additional equipment will be necessary to conduct any restoration actions described earlier?

2. Staffing:

Many hands make light work, and the management plan should enumerate how many hands are expected to get the job done. Estimating how many people are expected to be involved in the implementation of the MPA is essential to projecting how much equipment to procure and how large identified facilities need to be. So too does it inform other considerations below, such as how much training to anticipate.

Some positions are non-delegable, and should only be undertaken by the managing agency (i.e. enforcement coordination, although enforcement itself may be a shared duty with other agencies). Other positions can be filled by anyone capable of and interested in doing the job (i.e. in particular, scientific research may be most appropriately conducted by researchers from other institutions; restoration may be conducted by volunteers). For clarity's sake, the management plan should specify which personnel needs are deemed staff only, and which are delegable. If circumstances change, this designation may be different, but the process of designating which task is delegable and which is

not assures an analysis of when these tasks may be outsourced or not (see *Collaborations and Potential Partnerships*, below).

Finally, the management plan should include a discussion of how staff will be organized to approach the tasks. Steps anticipated for recruiting, organizing and coordinating the efforts of those carrying out the plan's strategies need to be spelled out in order to make sure they are addressed.

Interpretation and Education:

- Who will be needed to coordinate and install interpretive displays?
- How many docents or interpretive staff will be needed to conduct orientations or answer questions (anticipate seasonal needs)?
- Who will be tasked with coordinating and overseeing educational activities?

Surveillance and Enforcement:

- How many observers will be needed to watch over the MPA?
- Will outreach be needed to neighbors, for setting up a volunteer "MPA Watch" program, and if so, who will coordinate?
- How many additional enforcement personnel will be needed?
- How many additional outreach staff will be needed to raise awareness of MPA regulations (consider seasonal needs)?

Monitoring, Research, and Restoration:

- How many personnel (personnel hours) will it take to conduct monitoring operations?
- How many staff will be needed to coordinate monitoring and research efforts between the agency and outside collaborators?
- How many researchers will be needed to conduct the desired amount of scientific research?
- How many people will it take to accomplish restoration goals within the time projected?

3. Training:

Once the plan specifies the desired personnel, training needs specific to the MPA can be estimated. Local knowledge will be essential in getting capable people up to speed for the purpose of executing the management plan's strategies. Still more training is needed for personnel that do not already have the necessary competencies. A realistic management plan needs to assess the

capacities of the people available to fill given roles, and estimate the resources needed to provide appropriate training to raise their abilities to the level required for their tasks.

4. Collaborations and Potential Partnerships:

The MPA Management Plan should already have identified potential collaborators in the Constituents section, such as local universities and institutions, non-profits and NGOs, and other governmental agencies and matched them up with activities in the Strategies section. The managing agency will still maintain oversight of these activities to assure they are carried out appropriately by the entity the task is delegated to. The agency's operations to exercise this oversight needs to be addressed in the management plan, specifying who the point of contact with the managing agency will be and what sort of reporting arrangements are appropriate for the results of the collaboration.

Collaborative agreements should be listed (the list in the Strategies section is for possible collaborations, not the smaller list of actual management arrangements). A brief description of the collaborator's experience and capabilities for the work should be included, as well as expectations for completion of discrete projects or reporting on ongoing projects. Some of these collaborations may be quite formal and engaged in at the State level rather than locally (i.e. collaborative enforcement with the U.S. Coast Guard, if applicable), and need only be incorporated by reference in the MPA Management Plan. Many others will be specific to the individual MPA, and may not be formally engaged (i.e. via a Memorandum of Understanding). The MPA Management Plan provides an opportunity to document such arrangements.

Also, the plan should identify which of the other operational steps are deemed appropriate for collaborative partnerships. As constituents become more involved with MPA management activities, they may be interested in further opportunities to assist in achieving the strategies. By acknowledging in the management plan what tasks are appropriate for future collaborations, the plan helps focus collaborators attention to those needs. While it is not necessary to identify which constituents may be interested in potentially providing some of these services, a plan writer should consider this and consider what resources may be brought to bear on the operations from potential collaborators.

5. Contingency Planning:

The MPA Management Plan should also identify risks specific to the individual MPA and what can be done to minimize such risks or plans for responding to them. Risks may include catastrophic pollution events, vessel groundings, or heavy weather impacts.⁶² Depending on the nature of the MPA, some of these risks are more likely than others, and should be anticipated. For instance, MPAs nearer to heavily trafficked shipping lanes are more at risk for groundings and major oil or chemical spills than more remote MPAs.

Many of these risks already have contingency plans drawn up in other organizations, and should be referenced so they are easily referred to in the event of a catastrophe. For instance, NOAA maintains an Office of Response and Restoration that links federal emergency response efforts to protect the coastal environment from oil spills and hazardous waste sites.⁶³ In such an event, the U.S. Coast Guard and U.S. Navy may be able to contribute assets to remedial actions.⁶⁴ Contact information of these agencies should be included in the MPA Management Plan with an inventory of response assets and proximity to the MPA, as well as a discussion of any site specific risks needed to be communicated to supporting agencies to assist in their response efforts.

E. *Financials and Sensitivity Analysis*

This section merely converts the enumerated tactics into a quantified estimate of how much money the implementation is expected to cost in order to plan ahead to meet the obligations. A business plan designed to convince investors to take a stake in a company always has to answer the question – how much money do you need to do what you propose?⁶⁵ A second question an investor always asks – what is the return? By prioritizing actions

62. See U.S. Department of Commerce, National Oceanic and Atmospheric Administration, *Monterey Bay National Marine Sanctuary Final Environmental Impact Statement*, Part V.II.D, June 1992 (Contingency Plans), available at http://www.mbnms.nos.noaa.gov/intro/mbnms_eis/partV_sII.html (last visited Sep. 15, 2006).

63. U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, Office of Response and Restoration website, *Official Site of the Office of Response and Restoration*, <http://response.restoration.noaa.gov/> (last visited Sep. 15, 2006).

64. CAL. FISH & GAME CODE § 2863 (West 2006) (“The department shall confer as necessary with the United States Navy regarding issues related to its activities”).

65. E&Y, *supra* note 3, at 125.

to satisfy constituents consistent with the goals and objectives in the designating documents, this question is answered – the return is satisfied constituents.⁶⁶

1. Budgeting:

The MPA Management Plan should identify what local sources of funding for co-management arrangements may exist, if any, and identify the costs not borne by outside collaborators that remain the agency's responsibility.⁶⁷ After sorting out what needs to be done to realize the MPA's goals and objectives and who will take charge of what parts of the overall plan, the portions remaining in the charge of the managing agency can be tallied up. By waiting until the above analysis is already carried out, the author of an MPA Management Plan can be fairly sure that the budgeting arrived at from these estimates accurately reflects intended operations. Rather than establishing a "pie-in-the-sky" budget covering all actions contemplated for MPA management which may not be honored by funding sources, by waiting until after the Operations are detailed and the opportunities for collaboration are identified, a much leaner budget can be estimated without short-changing essential duties or functions. By evaluating opportunities for collaborations and partnerships with affected constituents, a planner exhibits the sort of fiscal discipline that inspires confidence in collaborators to entrust additional resources to the management effort.

2. Sensitivity Analysis:

Recognizing the inherent weaknesses in a plan in that it is forward-looking and attempts to predict the future, the management plan should include a discussion of how projections change if the world turns out to be different than expected.⁶⁸ Assumptions in the projected costs should be noted. The plan should determine the most significant drivers of costs and performance based on the specific operations of the MPA, and project how

66. An MPA Management Plan, however, differs from a business plan in that most investors want to see their initial investment returned in addition to a profit. This is not fatal to the analogy, however, as the key for both is that the expected value is to be realized from the investment in operations.

67. CAL. FISH & GAME CODE § 2856(a)(2)(K) (West 2006) ("The master plan shall include. . .[¶]. . .Recommendations for funding sources to ensure all MPA management activities are carried out and the Marine Life Protection Program is implemented.")

68. E&Y, *supra* note 3, at 136.

costs will differ if these expenses are greater or less significant than projected. The key drivers may change depending on the goals and objectives of the MPA, and may include changes in headcount, training needs, required equipment, or some other variable. For instance, if a given site has an extensive monitoring component and it later turns out that projected monitoring efforts are insufficient to get required data, this could require an upward revision of the budget to meet the needs. It is not necessary to “boil the ocean” to see what might happen in any feasible scenario to assess what the key drivers are for the individual MPA, just an acknowledgement of how the particular circumstances of the specific MPA affect projections serves the purpose of a sensitivity analysis. Sensitivity analyses attempt to put some bounds on costs and expected outcomes in the face of uncertainty in order to prepare for what would otherwise be unexpected surprises.

F. *Milestones*

An MPA Management Plan is not much use if consigned to a dusty shelf; it is valuable as a roadmap of sorts to guide the steps to be taken in MPA implementation. As such, laying out the expected course of implementation at the outset frames the expectations to follow. Furthermore, an MPA Management Plan should not exist in a vacuum. There are to be as many management plans as MPAs to be designated under the MLPA initiative, a method to share approaches can provide a system of “best practices” for future iterations of management plans.

1. *Milestones and Timeline:*

It is important to put the plan into some sort of time frame to give a sense of perspective. Such a framework represents both a schedule for actions and a “measuring stick” to assess progress by. An MPA Management Plan should project five years into the future. Beyond that day-to-day events become too speculative for meaningful planning. For the first two years, use of quarterly or semiannual milestones is more appropriate as initial implementation steps are taken.

Times estimated for achieving milestones should be general and not specific to calendar dates, recognizing that dates can slip and missed target dates may be demoralizing.⁶⁹ The purpose of a

69. E&Y, *supra* note 3, at 121.

timeline is not to set “drop-dead” target deadlines, but rather to document the exercise of establishing which actions necessarily come before other actions, and to realistically assess how long the actions will take to complete.

For the purposes of a management plan, only major events in the rollout of the MPA’s strategies and when they are to occur should be recognized. More detailed schedules would be desirable for actual scheduling purposes, but are not appropriate in a management plan. Instead, what are called for are just the key milestones that indicate progress towards the intended management outcomes (i.e. hiring of staff for key programs, acquisition of needed facilities, etc.).

2. Evaluation & Review of Effectiveness:

Milestones are useless without a mechanism to revisit projections in light of actual experience for accountability purposes. An MPA Management Plan should include a provision for annual review identifying where projections were met and where they fall short in order to meet this need.⁷⁰ An annual review would serve two purposes – first, fine tuning the expected results of the management plan, and second, incorporating changes to address changed circumstances. For the first point, recognizing how actual conditions have changed from expected conditions gives an opportunity to update the timeline of when steps are expected to be reached so that parties referring to the management plan can have a better idea of when tactics are to be carried out and they can coordinate their own contributions accordingly (this is particularly important where activities are consecutive and involve significant mobilization planning). Second, assessing the plans strengths and weakness in anticipating results of operations gives vital information about the planning process itself. Where planning succeeds, other MPA managers will want to embrace the techniques that are successful. Where the plan falls short of expectations managers can diagnose what needs to be done to correct the situation.

In order for this annual review to be most useful for the regional (and statewide) program, it is not enough for MPA Management Plan reviews to be conducted, they must also be shared with other MPA managers to compare results. Successful ap-

70. CAL. FISH & GAME CODE § 2856(a)(2)(1) (West 2006) (recommendations for evaluation of adaptive management).

proaches can be replicated, or modified as appropriate for other locations.⁷¹ By this cross-pollination of results, a “best practices” can evolve to assist in future efforts. A recommended format for accomplishing this would be for individual MPAs to submit annual reports to regional managers for compilation in a combined regional MPA management annual report. This allows a grouping of relevant data and comparing results before disseminating to plan managers as feedback for improving future planning efforts.

Finally, a plan prepared under the approach detailed in this discussion paper is temporary, projecting actions for only five years. At the end of the fourth annual review, rather than incorporating any new learning into the existing management plan, the successor plan should be drafted to look to the next five years after the conclusion of this plan. Managing an MPA that is already established with ongoing programs is a different thing than implementing the programs from scratch. Thus, as the fifth year approaches, a new management plan should be developed as a guide for the ongoing management of the MPA. It is likely that the successor management plan will be less dense in that it will likely consist of fewer actions – all of the establishing of baselines and procedures, and much of the mobilization of resources will already have been accomplished. The annual reviews will assist in preparing the successor MPA Management Plan as well, as additions and revisions will already be thought through.

III.

CONCLUSION

An MPA Management Plan directs the day-to-day management activities at a discrete site, and must deal with the daily realities of operational headaches managers will face. Rather than follow formalistic approaches appropriate for more programmatic assessments, an MPA Management Plan needs to focus on specifics relevant to the individual site in order to provide clear guidance for managerial actions. Following a business plan format focuses the manager’s energies on the tasks at hand – identifying constituents, choosing strategies, and laying out

71. Other MPAs will doubtless be able to share in successful implementation strategies as there are substantial similarities between individual MPAs. CAL. FISH & GAME CODE § 2857(c)(3) (West 2006) (“Similar types of marine habitats and communities shall be replicated, to the extent possible, in more than one marine life reserve in each biogeographical region”).

step-by-step operations to achieve these strategies. A business plan format has the advantage of being time-tested and proven; countless numbers of business plans have been followed to achieve results. When used as part of the broader Marine Life Protection Program, MPA Management Plans based on a business plan format offers a valuable tool for the MPA manager in tracking implementation programs for the individual MPA.

