

Appendix 4--Adaptive Management (SEORMP-FEIS, Chapter 3, pages 149-151)

The proposed SEORMP/FEIS is based on adaptive management, which is a continuing process of planning, implementation, monitoring, and evaluation, to adjust management strategies to meet goals and objectives of ecosystem management. The concept of adaptive management uses the latest scientific information, site-specific information/data, and professional judgment to select the management strategy most likely to meet goals and objectives. The concept also acknowledges the need to manage resources under varying degrees of uncertainty as well as the need to adjust to new information. Through continually adjusting management strategies as needed, supported by monitoring or additional information, adaptive management would result in attainment of short- and long-term trend toward meeting objectives. Adaptive management provides the capability to respond quickly to monitoring data with consideration given to past season monitoring or pre-season conditions. It also allows changes needed to meet long-term objectives of the RMP including direction from the “Wild and Scenic Rivers Act” (WSRA), ESA, CWA, and “Standards of Rangeland Health and Guidelines for Livestock Grazing Management” (S&G’s).

Although there is widespread support for the adaptive management principle and process, many critics lack confidence in the Bureau's ability to implement management based on this process. Thus, it is imperative that each part of the cyclical process be implemented on schedule or as new data become available to ensure that appropriate management of public land resources is implemented. To ensure timely step-wise progression through the adaptive management process, GMA's would be used to prioritize available funding. The detail, methodology, and intensity of studies chosen for a particular area would be determined by the nature and severity of the resource conflicts present in that area. As a result, a flexible monitoring plan is required to periodically change priorities and monitoring intensity, based on significant changes that indicate a need for more information.

The following briefly describes the four parts of adaptive management:

1) *Planning/Decision*—Plan development or revision is the process which includes decision-making. It starts with issue identification and goal development. The next step is to gather information necessary to develop alternatives for management direction that address the issues and goals. The final stage of planning is to develop alternative management strategies to address issues and meet the management goals and objectives, analyze the consequences of the alternatives, and choose a management strategy and actions for implementation.

2) *Implementation*—Plan implementation is the process of putting decisions into effect. Objectives are defined as indicators used to measure progress toward attainment of goals. They address short- and long-term actions taken to meet goals and the DRFC. Unless otherwise stated, all objectives listed in the RMP are assumed to be implemented within the life of the plan.

3) *Monitoring*—Monitoring is the orderly collection, analysis, and interpretation of resource data utilized to evaluate progress in meeting management objectives. Inventories and surveys are integral parts of monitoring and would be initiated as need is defined. Information gathered in the inventory and survey process form a baseline from which trends can be measured.

Monitoring efforts provide information to: (1) determine if planned activities have been implemented; (2) detect magnitude and duration of change in conditions and trends; (3) increase understanding of cause and

effect relationships; (4) predict impacts; and (5) assess whether S&G's are being met. If monitoring studies indicate that objectives are not being met, or that progress is not being made toward meeting the S&G's, management actions would be adjusted accordingly (see Appendix Q). The specific type and location of studies instituted would be more specifically identified within individual activity plans.

Methods of monitoring are briefly identified for each program in the narrative of Chapter 3 and expanded in Appendix W, Monitoring. Monitoring methods in some programs are not expanded in the monitoring appendix since they are not key components of rangeland health assessments. At times, data pertinent to these programs are essential on a site-specific basis (e.g., cultural, mining, social/economic values) and can be a part of the evaluation based on the situation. Methodology and intensity of studies that are chosen for a particular area or scale would be determined by the nature and severity of the resource conflicts that are present.

For monitoring data to be meaningful and useful over time, there must be consistency in the kinds and manner in which data are collected. However, a need for changes in sampling may occasionally arise when problems are detected. This could be during a review of the data collected, when analyzing and interpreting the data, or when conducting an assessment or evaluation.

4) *Evaluation/Assessment*— Analysis and interpretation of inventory and monitoring data are central to identifying progress in meeting resource management objectives outlined in the RMP and activity plans. There are three aspects of evaluation/assessment. The first is evaluation of whether planned actions have been implemented. The second is evaluation of the resource-specific information/data to determine whether identified management objectives are being accomplished. The third aspect is the evaluation of plans to determine whether identified management objectives and management actions remain appropriate to public desires or if plans need to be revised or amended.

The analysis and interpretation of inventory and monitoring data are critical in the evaluation of management actions in order to determine progress in meeting resource management objectives outlined in the plan. Since management adjustments may be needed periodically, a continual feedback loop based on new information would allow for mid-course corrections at time intervals appropriate to the systems, processes, and functions analyzed.

The final stage of evaluation is the development of recommendations for changing current management actions, as needed, to meet objectives and ecosystem management goals. Adjustments should be related to implementation of activity plan objectives, standards and guidelines, and monitoring needs. Recommendations should be used to modify land use plans, if needed, thus continuing the adaptive management cycle.