

DISCONNECTS BETWEEN THE ENABLING LEGISLATION AND MANAGEMENT PLANNING

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Abstract.—The natural resource management paradigm in place for the past century has favored an expert-client approach, whereby managers have used wise biological principles in conjunction with clientele preferences to enable local, regional, and national decision-making. This paradigm, though acceptable when the primary clients were direct resource consumers (e.g., fishermen, hunters, loggers) and when the country's population was much smaller, has resulted in resource management plans that are tilted towards ecosystem protection, biophysical quantification, and ecological monitoring. However, the behaviors and ethos of society have changed in the past several decades, resulting in subsistence living's giving way to the grocery store, increased commercial distribution of goods, and mass media campaigns that reach the citizenry in short order. In light of this change, a disconnect has become apparent between the intent of resource management and the implementation of it.

1.0 INTRODUCTION

The intent of resource management is to provide a framework for allocating natural goods and services, protecting biodiversity, preserving important ecological functions and linkages, allowing access where appropriate, providing for recreational opportunities, maintaining commercial interests, and ameliorating user group conflicts. Resource management in the United States has changed over the past several decades. From its beginnings as an expert-based way to provide the greatest number with the greatest good to the current suite of environmental laws, society's view of, and role in, resource management has evolved. The concern we face today is that the structure in place to manage resources, from university training to agency ethos, has not kept up with this social progression.

Since contemporary resource management is a complex challenge, given the increase in national population, shifts in demographics, funding cuts, acute and chronic pollution events, declines in the numbers of many commercial species, and land development, it requires a complex management paradigm, one that is responsive to the many and often competing needs of stakeholders.

This paper focuses on the observed disconnect between the myriad social intents of resource management and management itself by examining the direction provided in legal and process documents in comparison to actions listed in the management plans that result. The authors use this comparative approach to highlight the general divide that exists between society, which pays for natural resource management, and the managers and scientists that are tasked with implementing it.

2.0 HISTORY OF NATURAL RESOURCE MANAGEMENT IN THE UNITED STATES: A SOCIAL PERSPECTIVE

In the United States, the management of natural resource can be divided into distinct eras based, among other things, on agency history, primary users, social change, environmental impacts, and resource use patterns. The dates ascribed to these eras are general starting points and sometimes end points. They are suggested frames of reference for understanding how and why we manage our resources the way we do (Table 1).

In the early days of the country, when exploration, cultivation, and development were priorities (1620-1820s), national and state governments utilized no systematic management framework. This era was characterized by chopping, damming, converting, and in general using the plentiful resources in whatever way was necessary or desirable. The forest was viewed as something to be eliminated because it was seen as building material and fuel, and because cutting it was a way to protect against enemies (natives and wild animals) lurking within. This situation continued relatively unchanged from 1825 through the 1880s. This period can be thought of as an era of further exploitation and

Table 1.—A social perspective of environmental management eras in the United States 1620-today

1620 to 1825	None
1825 to 1885 or so	Exploitation/disposal
1885 to 1920	Scientific Approach
1920 to 1960 or so	Commodity Era
1960 to 1985 or so	Environmental Movement/legislation
1985 to today	Public involvement, conflict, disagreement, and litigation

also of disposal, with the federal government turning over land to state control. With no management framework in place, and a national ethos of exploitation, environmental degradation became widespread. The realities of unregulated resource use, including flooding, pollution, and species extirpation reached proportions that prompted society to call for better stewardship of resources, culminating in the Scientific Approach (1885-1920s). It was during this era that management agencies were founded. The paradigm that followed advocated hiring well-trained staff to manage, on behalf of the public, for the greatest good for the greatest number of people. As we will see, even though social norms have changed, the Scientific Approach remains our management paradigm.

Following, and partially resulting from this new emphasis on expert-based management, was the Commodity Era. During this period, which lasted until about 1960, forests, oceans, resources in the ground, and rivers were all looked at as vast storehouses of goods and services, which management, via government agencies, should help extract. When ever-greater environmental degradation encountered a drastically increasing population with more leisure time, the Environmental Movement (1960-1985) was born. Many types of environmental legislation were written during this time and all of them had some mechanism to facilitate stakeholder participation. By 1985, an era of Public Involvement had taken hold, encouraged and mandated by the legislation of the preceding era.

3.0 CONTEMPORARY RESOURCE MANAGEMENT: THE DISCONNECT

In contrast to most of our environmental management history, as outlined above, political and economic

systems, as expressions of our social values, now drive local and national resource management (Kennedy & Thomas 1995). Because these social values are diverse, and sometimes in conflict with species and habitat protection, resource managers often find themselves in a dilemma, where *all actions* somehow violate a management constraint. And, while the legal requirements of management today mandate that resource managers properly incorporate these systems and values into the management and planning process, the complexity of the social factors governing and influencing management is often beyond the expertise of the classically trained resource manager. This training has ensured that management agencies still operate largely under the Scientific Approach (1885-1920), an approach based on a biophysically oriented expert-client relationship. Though social scientists are sometimes employed, their role has been minimal and they often work only at the regional or national level, fulfilling some legal requirement. Because of this, social science has been limited at local scales, which is where it is needed most.

Since resource management has not kept pace with social progression, many agencies find themselves mired in the conflict and litigation that arise when stakeholder interests are marginalized. This condition is not efficient and is not in keeping with a government responsive to the wise use of revenue acquired from its taxpayers.

4.0 A BRIEF CASE STUDY

4.1 The Setting

Monroe County, Florida, which encompasses the entire length of the Florida Keys island chain (Figure 1), offers a good example of an area where resource management hinges upon the social system, and where it has not been given adequate attention in the management process.



Figure 1.—South Florida and the Florida Keys.
Source: Insider's Guide.

The history of coastal management in the Florida Keys is contentious. There is a distinctly relaxed atmosphere among both long-term and new residents and a higher level of distrust of the federal government than perhaps is seen in other areas of the country. Additionally, the Florida Keys area is among the most heavily regulated in the United States due to the sensitive nature of its political location, as well as social and environmental issues. The latter was the impetus for designating the Keys as an 'Area of Critical State Concern' (Suman 1997). These factors helped drive negative opinions of the Sanctuary's planning process between 1990 and 1996.

The economy of the Florida Keys derives enormous benefits from eco-related tourism and recreation. It is the number one industry in Monroe County, providing \$1.2 billion per year in revenue to local and state coffers (Leeworthy et al. 1996). In addition, many of those who choose to make their home in these islands do so because of the myriad opportunities to SCUBA dive, fish, hike, bicycle, parasail, and view wildlife, which account for millions of revenue dollars more. These two factors combine to produce a powerful statement: natural resource management is inexorably linked to economic and social values in the Florida Keys and these values are important to residents of Monroe County.

In 1990, in response to growing social pressure to create a mechanism to protect the reef tract from potential oil exploration, and to deal with the problems of nearshore water quality and ship groundings, Congress acted to create the Florida Keys National Marine Sanctuary (FKNMS) (NOAA 1990, Suman 1997). Of the 13 existing sanctuaries in the national system, the FKNMS is the only one that was initiated by an act of Congress. The other 12 have followed the standard designation process established by the National Oceanographic and Atmospheric Administration (NOAA), as outlined in the National Marine Sanctuaries Act.

As evidenced, the social system was directly responsible for the management regime Congress put in place in the Florida Keys. Given the nature of the Keys, their location proximal to a large urban center, Monroe County's reliance on tourism revenue, and the attitudes and recreation patterns of the locals, we should expect to find that NOAA employed appropriate social science to understand user groups, determine potential conflicts, and identify acceptable alternative management strategies. However, this did not occur in an adequate way, and the resulting management plan focused almost solely on biology, thereby setting the stage for conflict (NOAA 1996).

4.2 The Result

Because NOAA chose to undertake a strategic planning process that many residents and user groups felt did not respond to their needs and concerns, local opposition to the "federal government takeover" of coastal resources in the Florida Keys was energized (Suman 1997). Groups such as the grass roots Conch Coalition coalesced to stop NOAA, often using emotional persuasion (Figure 2).

Published letters to the editor contained proclamations such as, "The Florida Keys National Marine Sanctuary Management Team will control the Keys economy" and "The Florida Keys National Marine Sanctuary is nothing less than a death sentence for the commercial fishing industry as we have known it" (Swift 1995).

Negative reaction was also generated when NOAA and Sanctuary officials proposed three no-take areas, initially called "Replenishment Reserves." Many fishermen and

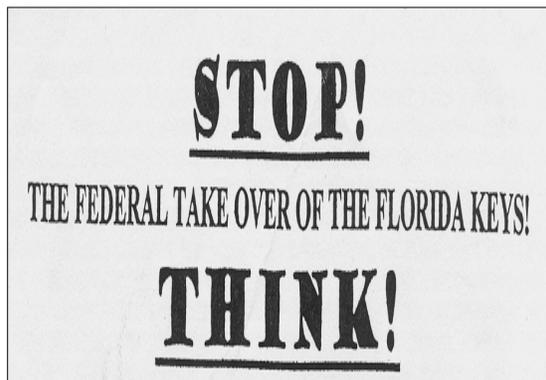
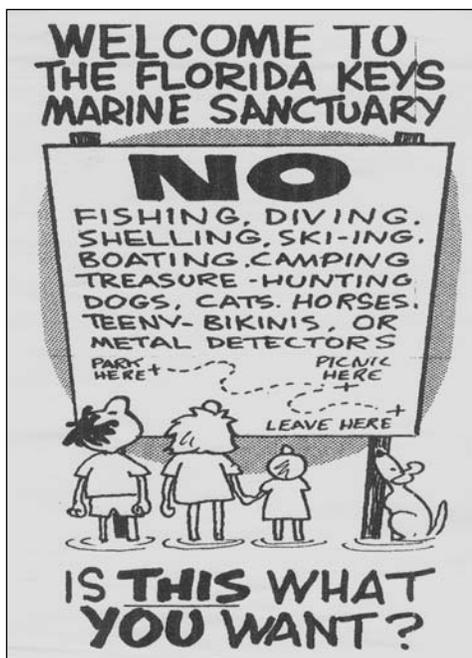


Figure 2.—Conch Coalition illustrations. Source: Florida Keys National Marine Sanctuary.

even conservationists felt that Sanctuary planners did not utilize appropriate or thorough research as to placement or effectiveness of these reserves, and where such information did exist, it was poorly transmitted to the public (Suman 1997, Swift 1995). In the words of one resident, “They [planners] did not do their homework,” leading to a perception that NOAA was in a “grab and run mentality” inspired by the publicity of the three grounding incidents.

In 1996, just prior to the release of the draft management plan for the FKNMS, a non-binding public referendum was held in Monroe County. Fifty-five percent of those who voted cast ballots against the Sanctuary. In 2001, a small-scale, non-representative survey found that 87% felt that NOAA was “heavy-handed” in its original approach (Hawkins 2001 unpublished data). The current revision of the Sanctuary management plan continues to minimize the role of the social sciences. While the Sanctuary has a comprehensive biophysical monitoring program and collaborates with numerous universities on ecological studies, there is no complementary human dimensions research and monitoring program to inform Sanctuary managers.

5.0 EXAMINING THE DISCONNECT: RESOURCE LEGISLATION VS. MANAGEMENT PLANS

5.1 Resource Legislation

To better understand how social values are expressed to managers, it is necessary to review the acts, statutes, and laws (hereafter termed enabling legislation) that authorize management regimes. As noted previously, resource legislation is a political reaction to social values and pressure concerning the use of natural resources. These values differ across commercial sectors, individuals, communities, governments, and non-profit groups. Often, different values have similar ends. For example, water conservation is a principle that individuals espouse and is something a municipality might also seek to promote. Saving endangered species can result in private-sector tourism ventures, maintain ecological linkages, and please a person in North Dakota. Sometimes, however, different values are in conflict. User groups such as fishermen and SCUBA divers value coral reefs in incompatible ways; one activity often cannot occur at the same time and place as the other, and one often takes place to the detriment of the other (Lynch et al. 2004).

Nearly all resource legislation refers to these values, either implicitly or explicitly. For the most part, however, environmental legislation discusses ecological and social themes quite generally. To avoid dictating how managers and scientists should do their jobs, and thereby constraining them, environmental laws simply state the rationale for management and the legal mechanisms available to managers to do so. These reasons are almost always a mix of human dimensions and biophysical parameters. To illustrate the social drivers behind resource management, we can now briefly examine the Findings sections of three important laws that assist marine and coastal management: The Endangered Species Act of 1973 (ESA), the National Marine Sanctuaries Act of 1972 (NMSA), and the Coastal Zone Management Act of 1972 (CZMA).

Of the three, the ESA is the most ecologically oriented, having been created to specifically address biology and habitat. Unlike other laws, which exhibit more balance between social and natural concerns, the ESA is a tool to protect species from extinction. This approach elevates the natural/environmental system over the social, political, and economic systems (to be discussed in more detail below). However, even the ESA notes that the rationale for protecting species of concern is based on “esthetic, educational, historical and, recreational values, in addition to the scientific and ecological importance to the ‘Nation and its people.’ (Thomson West 2004).

The Findings section of the NMSA states that the significance of marine conservation lies in recreational, ecological, historical, scientific, educational, cultural, archeological, or esthetic qualities. The section defines the National Marine Sanctuaries Program as a Federal initiative focused on these and other qualities and lists the following as program goals: “(A) improve the conservation, understanding, management, and wise and sustainable use of marine resources; (B) enhance public awareness, understanding, and appreciation of the marine environment; and (C) maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas” (Thomson West 2004).

Finally, in the CZMA, Congress found that in the coastal areas of the United States there is a diverse mix of natural and social factors warranting management. These include: “(a) ...a national interest in the effective management, beneficial use, protection, and development of the coastal zone. (b) The coastal zone is rich in a variety of natural, commercial, recreational, ecological, industrial, and esthetic resources of immediate and potential value to the present and future well-being of the Nation. (c) The increasing and competing demands upon the lands and waters of our coastal zone occasioned by population growth and economic development, including requirements for industry, commerce, residential development, recreation, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish, and other living marine resources, have resulted in the loss of living marine resources, wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space for public use, and shoreline erosion. (d) The habitat areas of the coastal zone, and the fish, shellfish, other living marine resources, and wildlife therein, are ecologically fragile and consequently extremely vulnerable to destruction by man’s alterations. (e) Important ecological, cultural, historic, and esthetic values in the coastal zone which are essential to the well-being of all citizens are being irretrievably damaged or lost. (f) New and expanding demands for food, energy, minerals, defense needs, recreation, waste disposal, transportation, and industrial activities in the Great Lakes, territorial sea, exclusive economic zone, and Outer Continental Shelf are placing stress on these areas and are creating the need for resolution of serious conflicts among important and competing uses and values in coastal and ocean waters” (Thomson West 2004).

With some overlap, social value terms are found more than 50 times within the Findings sections of these three acts. Together with the National Environmental Policy Act of 1969 (see Figure 3), which provides an overarching level of social direction regarding resource management, these acts attempt to strike a balance between environmental protection and the use of the Nation’s natural resources by its citizens.

“The Congress, recognizing the profound impact of man’s activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances and recognizing further the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.”

Figure 3.—A portion of the National Environmental Policy Act of 1969.
Source: Thomson West, 2004.

5.2 Management Plans

Plans addressing terrestrial, marine, and coastal management issues are many and are developed by states, the federal government, counties, municipalities, and non-governmental organizations. While a comprehensive analysis of management plans is not practical within the scope of this paper, a brief discussion is useful.

Management plans differ from place to place, as a result not just of the issues that drive them, but also of the people that write them. Management planning is not a science, but rather an art, and in the past several decades, there has been a redefining of public involvement in the decision-making process. This has been guided by social values through legislation.

Some plans are better than others in reflecting the legislative intent behind their development, so not all plans are equal in their disproportionate emphasis on biophysical parameters. However, most reviews demonstrate how a majority of plans address social issues in a superficial way. The main human dimensions parameters that can be found in management plans are access, recreation opportunities, and public education. This situation would be roughly analogous to Green Mountain National Forest biologists, in an attempt to manage the entire forest, measuring only the annual growth rate of a few trees, counting the number of squirrels in one acre, and recording yearly rainfall only in Middlebury, Vermont. While general social science language does exist in management plans, very few plans have human dimensions research components of a larger research strategy that seeks to understand users in terms

of frameworks such as satisfaction, integrative complexity, recreation specialization, group norms, procedural justice, and distributive justice—all of which can help determine acceptable management strategies.

The Missing Ingredient

A review of the social values found within enabling legislation should direct managers to design plans that incorporate a range of factors, both biophysical and social. However, owing to our expert-client approach, a comprehensive and balanced research/management model is rarely found in a management plan. Though, as noted above, management plans differ, there is usually some language about the uniqueness or special ecological features of the area, economic and social reasons the area is important, goal and objective statements, task descriptions and timelines, personnel and funding needs, and monitoring or evaluative mechanisms, the management actions in plans are generally limited to collecting biophysical data.

A main causative factor regarding the overemphasis of biophysical parameters in management plans is the biological/ecological focus found in most resource management programs in the higher education system. These programs often lack human dimensions coursework and emphasis, other than the obligatory general education requirements. Even a cursory review of natural resource management programs at the university level over the past several decades would likely reveal a large disparity between coursework in the natural sciences and coursework in the social sciences, especially at the operational or methods level. This paradigm in turn

Table 2.—A management perspective of environmental management eras in the United States 1620-today

1620 to 1825	None
1825 to 1885 or so	Exploitation/disposal
1885 to today	Scientific Approach

has led to management that is based on uni-disciplinary schemes (Risk 1999; Downs et. al. 2005). All of this results in “combat biology” wherein resource managers, having never been adequately trained in resource management social science, fail to understand and appreciate the social, political, and economic complexity inherent in their fields (Kennedy & Thomas 1995).

For resource management to be truly responsive to its parent legislation, the overarching way in which management is undertaken is fundamentally backward and must change. After benefiting from social and economic arguments, managers default to a biophysical approach. While no one system in the Kennedy and Thomas Model is dominant all of the time, the social system is the recognized driver of resource management (Kennedy & Thomas 1995). As such, social elements of resource management provide important marching orders to managers. However, these components are often recognized only as the *impetus* for legislation or management—something that can be marginalized once a regime has been established.

Therefore human dimensions parameters and research must be incorporated as equal partners in the management plan. The model that these authors endorse is one where biophysical monitoring and human dimensions monitoring work in tandem to inform managers (Figure 4). In other words, human dimensions should no longer be a spice in the management recipe, but rather a key ingredient.

6.0 A NEW PARADIGM

In contrast to Table 1 (p. 265), which is an illustration of management eras from a social perspective, management eras from a management perspective are somewhat abbreviated (Table 2.) because the Scientific Approach remains our management paradigm.

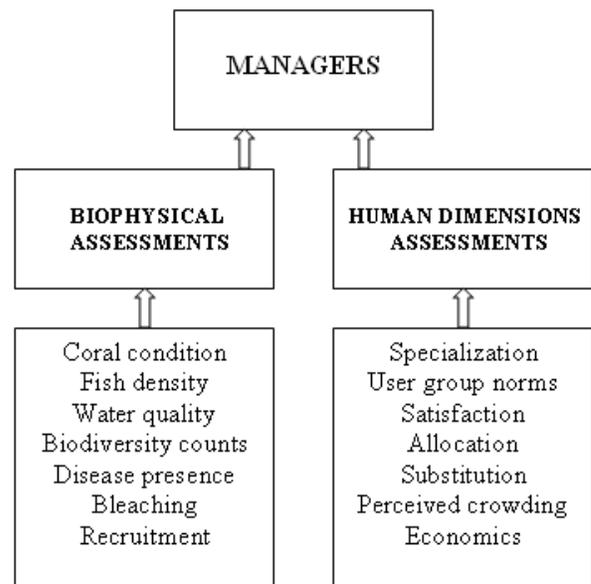


Figure 4.—Framework for integrating biophysical and human dimensions components of resource monitoring.

The Kennedy and Thomas Model (1995) offers a resource management paradigm that is different from that of the Scientific Approach by recognizing that the natural/environmental system is one of four interrelated systems; the other three are the political system, the economic system and the social system. In this model, no one system is dominant all the time, and all of the systems interact with one another. For example, when crude oil prices rise, drilling on federally protected lands suddenly becomes more attractive. When animal rights groups show graphic images of a beaver caught in a leg hold trap, voters send a message to politicians to dictate more socially acceptable means of killing creatures. However, agencies tasked with resource management remain firmly entrenched in the expert-client paradigm, which routinely, if not always, elevates the natural/environmental system over the other three, and this makes for battlefield management.

The Kennedy and Thomas Model is human-mutual, and holds that both the utilitarian viewpoint, which values nature and resources for the goods and services derived from them, as well as the intrinsic outlook, which states that ecosystems have an inherent value regardless of their utility to people, are both ultimately devices of the human mind. That is, both views take human recognition to operationalize.

7.0 CONCLUSION

If someone has a migraine headache due to stress and noise and the doctor decides only to measure how much her head hurts, would this not seem like an incomplete treatment? Would she be right to want him to be attentive to the causes of the problem? Or, should she be happy with the treatment of the symptoms only?

Because resource management is an act of societal regulation, one which incorporates various social science disciplines (e.g., social psychology, anthropology, political science, geography, recreation, demography), it is vital that our management paradigm reflect a balance between the biophysical and social sciences. Social values and economics are listed in most management plans and guidance documents as important factors in maintaining ecological function. However, while recognizing these factors is a necessary step in diverging from the century-old Scientific Approach to resource management, it is only the first step. It is clear that human dimensions are given much more weight in enabling legislation than in the development and implementation of management plans. In very few cases have there been extensive efforts to incorporate social values and desires and in almost no cases do managers use common social science terms such as procedural justice, stated choice, and integrative complexity. While the eco-based approach promotes the uniqueness and biodiversity of a given area, it should be recognized that management is not just about protecting species habitat; it is very much tied to local political, social, and economic issues. This paper is a result of a small review of enabling legislation and finds the need to manage resources in a much broader and responsive way. Managers, acting on behalf of society, continue to favor their own values and beliefs regarding why it is important to manage resources and consistently ignore the intricacy of “who cares?”

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