RECORD OF DECISION
FOR
SEAGRASS RESTORATION IN THE
FLORIDA KEYS NATIONAL MARINE SANCTUARY

I. Introduction

The National Oceanic and Atmospheric Administration, an agency of the U.S. Department of Commerce, has prepared this Record of Decision (ROD) regarding the August 23, 2004 Final Programmatic Environmental Impact Statement (PEIS) for Seagrass Restoration in the Florida Keys National Marine Sanctuary (FKNMS). This ROD has been written pursuant to §102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.), regulations promulgated by the Council on Environmental Quality (40 CFR Part 1505.2), and the NOAA Administrative Order on implementing environmental review procedures (NOA 216-6). This ROD is a concise statement of the management planning and environmental impact analysis process completed, the nine restoration alternatives considered, and the basis for the selection of preferred alternatives.

II. Background

The PEIS systematically evaluates the short- and long-term environmental and socioeconomic effects related to the implementation of seagrass restoration and injury prevention projects in the FKNMS. As the PEIS focuses on future regional activities within the FKNMS, the discussion of potential impacts on the biological, social, and economic environments is not site or case specific; instead, it is general in scope. Accordingly, the purpose of the PEIS is to describe a range of seagrass restoration techniques, used for primary and compensatory restoration projects and seagrass injury prevention actions, that may be implemented in the FKNMS. The types of seagrass restoration and injury prevention projects evaluated in the PEIS will be implemented with funds collected through natural resource damage assessment settlements for injuries to seagrasses within the FKNMS.

III. Public Involvement

The management planning and environmental impact analysis process provided for significant public involvement. Two public scoping meetings were held in the Florida Keys on March 6, 2003. A notice of intent to prepare a PEIS on seagrass restoration appeared in the Federal Register on March 24, 2003, and set April 15, 2003 as the close of the public comment period on the scoping of the PEIS. Six written comments were received as a result of the public meetings and the notice of intent publication. The notice of availability of the draft PEIS was published in the Federal Register on June 25, 2004 and set August 9, 2004 as the close of the public comment period. In addition, copies of the PEIS were sent to those individuals that provided a written comment during the scoping period or expressed significant interest in seagrass restoration in the FKNMS. Four comments were received on the draft PEIS during the public comment period. The notice of availability of the final PEIS was published in the Federal Register on September 10, 2004 and set October 12, 2004 as the close of the mandatory waiting

period. One comment was received on the final PEIS, and those suggestions were considered in the preparation of this ROD.

IV. Alternatives Considered

The PEIS evaluates nine restoration alternatives based on thirteen factors. For each factor, both direct and indirect potential effects are analyzed. The restoration alternatives considered are:

1. No Action: The no action alternative relies on natural recovery of the seagrass injury. This alternative may be selected for those injuries that have a high probability of rapid natural recovery or for those that have logistical or technical circumstances that preclude active restoration.

2. Seagrass Transplants: Planting seagrass in injured areas is an effective way to stabilize the sediment and decrease time to full recovery. Seagrass transplants immediately replace some of the services lost due to the injury.

3. Bird Roosting Stakes: The installation of bird roosting stakes facilitates the deposition of nutrient-rich bird feces in the injury area. Nutrient fertilization reduces time to full recovery by encouraging more rapid seagrass growth.

4. Fertilizer Spikes: Direct insertion of commercial fertilizer tree spikes in the injury area provides chemical nutrient enrichment. Nutrient fertilization reduces time to full recovery by encouraging more rapid seagrass growth.

5. Sediment Fill: Deposition of 0.25-inch limestone pea rock into injury areas returns the substrate to its pre-injury grade. Sediment fill stabilizes the injury, reduces erosion, and provides the necessary conditions for seagrass reestablishment.

6. Sediment Tubes: Placement of sediment tubes in propeller trenches or on top of sediment fill reduces erosion and returns fine-grain sediment to the substrate surface.

7. Berm Redistribution: Returning displaced sediments that have formed a berm around a blowhole injury provides benefits similar to those of sediment fill. Redistribution, if undertaken soon after the injury occurs, may also save some of the seagrass covered by the berm.

8. Sod Replacement: Certain grounding injuries displace large sections of seagrass with intact rhizome mats. Placement of these mats in shallow injuries may save the living seagrass sections if done soon after the injury occurs.

9. Exclusion Cages: Mesh cages placed around seagrass transplants exclude reef-dwelling herbivores and increase the probability that the transplants will survive.

V. Decision

It is the decision of the National Oceanic and Atmospheric Administration to implement seagrass restoration in the FKNMS using the methods evaluated in the PEIS. Because the analysis is programmatic in nature, site and injury-specific features will dictate which restoration alternatives are most appropriate for individual injuries. As the restoration alternatives are not mutually exclusive, it is likely that multiple restoration alternatives will be selected for individual injuries.

In addition, it is the decision of the National Oceanic and Atmospheric Administration to harvest seagrass transplants using methods that will minimize adverse effects on donor beds. Collection of seagrass transplants will occur in the manner described in Section 2.2.2 of the PEIS.

VI. Rationale for the Selection of Preferred Alternatives

The purpose of natural resource damage assessment claims prepared in response to seagrass injuries in the FKNMS is to obtain funds to restore the affected area to pre-injury conditions. For those injuries that result in a significant excavation, returning the benthos to its pre-injury grade is often a prerequisite for seagrass reestablishment. Restoring the pre-injury grade is a primary benefit of the sediment fill, sediment tubes, and berm redistribution alternatives. Sediment fill directly replaces the lost substrate by filling the new excavation. Use of 0.25-inch limestone rock as sediment fill ensures the new material is similar in composition to that of undisturbed surrounding substrate. The placement of bulk sediment fill requires less time than installation of a similar volume of sediment tubes. It is for these reasons that sediment fill is expected to most often be selected as a preferred alternative. However, sediment tubes have the ability to retain fine-grain sediment, which may be of significant benefit in certain circumstances. Where such fine-grain sediment is desirable, sediment tubes may be selected as a preferred alternative. Berm redistribution relies on the presence of a relatively thick berm in close proximity to the excavation. Not all injuries result in both features, precluding consideration of this alternative for many injuries. In addition, depending on site specific conditions, attempting berm redistribution may increase the severity of the injury by smothering adjacent seagrass. However, in certain circumstances, berm redistribution may be significantly more cost effective than the sediment fill alternative.

Fertilization of the nutrient-limited seagrass environments of the FKNMS will increase the rate of seagrass reestablishment. The bird roosting stake and fertilizer spike alternatives are both designed to provide necessary nutrient enrichment. It is expected that bird roosting stakes will be the preferred alternative at most sites requiring fertilization. Bird roosting stakes are installed at the time of restoration, and are generally removed after eighteen months. The stakes will be assessed and repaired or replaced if necessary as part of the monitoring schedule described in the PEIS. The number of bird stakes installed will be compared to the number collected at the end of the eighteen

month period. If collection rates indicate a substantial loss of bird stakes (a contribution to marine debris), the technique will be reevaluated in an effort to decrease this loss. Experimental studies conducted to date have not experienced a significant loss of bird stakes. Commercial fertilizer spikes are more expensive than bird roosting stakes, as they have to be replaced every three to four months over the eighteen-month period. This replacement cycle would also necessitate additional site visits and labor charges. However, because bird roosting stakes cannot be installed in areas with a water depth of greater than 1.5 meters, fertilizer spikes may be selected as a preferred alternative for deeper injuries.

The seagrass transplant and sod replacement alternatives are the only restoration techniques that immediately restore some of the services lost due to the injury. Transplants act to stabilize the substrate, reducing erosion at the site. In addition, lateral growth from seagrass transplants is expected to reduce time to full recovery. For these reasons, the seagrass transplant alternative is likely to be a preferred alternative for most injuries. Sod replacement relies on the availability of dislodged sections of live seagrass with intact rhizome mats. Such sections are rarely found during the injury assessment. While sod replacement will always be undertaken when the opportunity exists, it is expected that this alternative will not be possible for most injuries.

The exclusion cage alternative is most appropriate for seagrass restoration actions in close proximity to coral reefs, which exist in relatively deep water. The majority of seagrass injuries are caused by small vessel groundings in shallow areas. Thus, most seagrass restoration sites will be sufficiently distant from coral reefs to greatly reduce the probability of reef-dependent herbivore grazing. For this reason, it is expected that exclusion cages will rarely be selected as a preferred alternative.

The no action alternative relies on natural colonization of seagrass and natural processes to fill excavations with sediment, which often occurs slowly over many years and may result in conditions that do not resemble pre-injury conditions. The no-action alternative can have two general outcomes: 1) natural recovery on a longer time scale relative to active restoration alternatives, or 2) further deterioration of the seagrass bed due to erosion or the absence of natural recovery. It is expected that the no action alternative will be selected as preferred for injuries with a low likelihood of injury expansion before natural recovery occurs, or where logistical or technological circumstances preclude active restoration.

VII. Site-Specific Compliance with NEPA

It is expected that the large majority of seagrass restoration projects undertaken in the FKNMS will be eligible for a categorical exclusion from an Environmental Assessment because the actions meet the following criteria set forth in NAO 216-6, §6.03.b.2:

1) are intended to restore an ecosystem, habitat, biotic community, or population of living resources to a determinable pre-impact condition;
2) use for transplant only organisms currently or formerly present at the site or in its immediate vicinity;

3) do not require substantial dredging, excavation, or placement of fill; and
4) do not involve a significant added risk of human or environmental exposure to toxic or hazardous substances.

Consistent with these criteria, the seagrass restoration is to return seagrass habitat to pre-grounding conditions; seagrass transplants will be taken from donor sites proximate to the injury areas; the placement of fill will be minimal and is necessary for seagrass reestablishment; and there is no added risk of human or environmental exposure to toxic or hazardous substances as a result of the restoration. Furthermore, the on-site, in-kind restoration of seagrass meadows is specifically mentioned in the NOAA NEPA guidance as an example action eligible for categorical exclusion (NAO 216-6). If future seagrass restoration projects in the FKNMS will involve techniques substantially different than those evaluated in the PEIS, NOAA will determine whether the projects qualify for a categorical exclusion or require an Environmental Assessment to tier from the PEIS.

VIII. Conclusion

The PEIS evaluates nine seagrass restoration alternatives. Each has its own merits, and therefore none can be summarily excluded from consideration as a preferred alternative. Site and injury-specific features will dictate which of the nine alternatives are selected as most preferred for a particular location. It is expected that a combination of sediment fill, bird roosting stakes, and seagrass transplants will be the alternatives most often selected as preferred for seagrass restoration in the FKNMS.

Richard W. Spinrad, Ph.D.
Assistant Administrator
Ocean Services and Coastal Zone Management
National Oceanic and Atmospheric Administration

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