

Recommendations for a Southern California Regional Eelgrass Monitoring Program

Brock Bernstein¹, Keith Merkel², Bryant Chesney³ and Martha Sutula⁴

¹ *Independent Consultant, Ojai, CA*

² *Merkel & Associates, Inc., San Diego, CA*

³ *National Oceanic and Atmospheric Administration National Marine Fisheries Service – Southwest Region, Habitat Conservation Division, Long Beach, CA*

⁴ *Southern California Coastal Water Research Project, Costa Mesa, CA*

EXECUTIVE SUMMARY

This report presents a design for an integrated southern California Bightwide eelgrass monitoring program. It provides a framework for monitoring and assessment at the regional scale by:

- Identifying ways to improve coordination and comparability among existing eelgrass monitoring programs by addressing discrepancies in methods and survey timing
- Describing methods to fill key data gaps needed to complete the regional picture of eelgrass distribution and condition
- Identifying where new and/or improved methods would improve the accuracy, precision, reliability, and/or efficiency of monitoring approaches
- Describing adjustments to the management structures needed to support integrated regional monitoring and assessment

The program design was developed by a multistakeholder workgroup (see Acknowledgements) and addresses five core management questions, including:

- Question 1: What is the extent of eelgrass habitat and how is it changing over time?
- Question 2: Where does potential eelgrass habitat exist and where is eelgrass vegetation currently not persistent?
- Question 3: What is the condition of eelgrass habitat?
- Question 4: What are the effects of projects on regional eelgrass habitat?
- Question 5: What are the significant stressors on eelgrass habitat and what are their effects?

Having consistent and comparable answers to these questions available throughout the region will enable individuals and resource managers to more effectively predict, track, and manage the impacts of specific projects. In addition, this information will provide more complete information to management agencies about the overall status of the resource and trends in its condition, thus providing an overall regional context for making more informed decisions at the local and project scales.

An evaluation of the information available from existing eelgrass monitoring programs showed that it is currently not possible to answer any of the five questions for the Southern California Bight as a whole, although there are some well-monitored locations for which at least several of the questions may be

answered. For example, some systems with eelgrass are not thoroughly and routinely monitored for eelgrass extent (Question 1), information (specifically bathymetry) needed to identify potential habitat is available for only a few systems (Question 2), and the mechanisms by which stressors affect eelgrass condition are not always well understood and/or accepted metrics do not exist to measure these effects (Question 5).

The workgroup determined that only Questions 1 – 4 can currently be addressed with routine monitoring approaches, while addressing Question 5 will require further research into the mechanisms through which various stressors affect eelgrass habitat and condition. For Questions 1 – 4, the program design provides the rationale for the recommended design approach, selection of indicators and monitoring frequency, appropriate data products, and coordination with other efforts where relevant. The design recommendations are summarized briefly in Table 1.

While the proposed program makes specific recommendations about the technical aspects of the regional monitoring design, issues related to implementation are envisioned to be dealt with through a subsequent process directed by a multistakeholder workgroup, perhaps operating as part of the periodic Southern California Bight Program. Implementation issues that such a workgroup could address over the next two years likely include:

- Survey methods
 - Supplement aerial data in Morro Bay with sidescan sonar surveys in deeper water areas that are not well represented by current multispectral mapping methods
 - Standardize eelgrass bottom coverage categories across all programs
 - Adjust timing of individual surveys to concentrate on the late summer – early fall time period
 - Develop protocols for integrating survey methodologies for maximized efficiency (e.g., blending aerial photography with sidescan sonar surveys)
- Data management
 - Create eelgrass webpage as part of the Wetlands data portal on the California Water Quality Monitoring Council's "My Water Quality" website
 - Load maps of current eelgrass extent into the eelgrass webpage
 - Complete revisions to the project tracking form to capture data appropriate to the five management questions
 - Develop data upload protocols for loading project tracking and routine survey data into the eelgrass webpage
- Filling key data gaps
 - Make provisions for surveys in eelgrass habitat that has not been surveyed
 - Make provisions for collecting bathymetric data as a part of routine surveys
 - Collect and organize currently available bathymetric data
- Program management
 - Empanel a more permanent regional workgroup to manage program implementation and regional assessments
 - Investigate the costs and benefits of including regional eelgrass surveys as a part of the Southern California Bight Program
 - Make necessary changes to regional environmental stewardship programs and regulatory structures to facilitate funding and implementation of the regional program

The proposed monitoring program furnishes a framework and guidance for this process by including clear statements of rationale and criteria for decision-making about design options. These building blocks provide tools that can be used to adapt the regional eelgrass monitoring program over time in response to improved knowledge and/or shifting management information needs.

Table 1. Summary of the recommended regional monitoring program design to address each of the five core management questions.

Question	Approach	Sites	Indicators	Frequency
Q1: Eelgrass extent	Systematic and exhaustive surveys of all systems	Every perennial system with more than 20 acres subtidal habitat	<ul style="list-style-type: none"> • Exterior boundary of bed • Percent of bottom coverage within defined beds, if available • Bathymetry in beds and adjacent bare bottom, if available 	Every 5 years on mainland, 10 years on Channel Islands
Q2: Potential habitat	Transect surveys of all systems	Every perennial system with more than 20 acres subtidal habitat	<ul style="list-style-type: none"> • Bathymetry • Historical data on presence of eelgrass • Current eelgrass distribution and bottom coverage • Current eelgrass depth distribution curves • Distance from mouth of system • Distance from significant watershed inputs 	Annually, in late summer / early fall
Q3: Eelgrass condition	Transect surveys of all systems	Every perennial system with more than 20 acres subtidal habitat	<ul style="list-style-type: none"> • Percent bottom coverage within beds • Change in lower depth distribution over time 	Annually, in late summer / early fall
Q4: Project effects	Collect detailed information on each project	Every permitted project	Multiple descriptors	Before and after project implementation
Q5: Stressor effects	Special studies	To be determined, but likely sites that exhibit contrasts in the presence and/or severity of stressors	Wide range of indicators of condition, depending on the stressor(s) being investigated	As appropriate to the study

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/632_EelgrassRMP.pdf