NOAA NMFS

California Eelgrass Mitigation Policy and Implementing Guidelines

Response to Comments Received on Federal Register Draft v.2

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General Comments and Responses

In response to the draft National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) California Eelgrass Mitigation Policy (CEMP), 24 comments were received, including 194 distinct comments. Comments were provided by stakeholders from the shellfish growing industry, the boating and marina community, non-governmental organizations, federal, state, and local government agencies, and other members of the public. Additional verbal comments were received by 19 individuals during three public meetings. Not all comments resulted in changes to the CEMP or Implementing Guidelines. Based on comments received, the organization of the draft CEMP, with general information in the body of the text and additional specifics in appendices, was confusing and hard to follow for many commenters. To simplify the organization and clarify information provided, the draft CEMP was reorganized into a policy statement (*e.g.*, CEMP) and Implementing Guidelines. Furthermore, relevant information in the appendices was moved to the appropriate locations in the body of the text and the appendices were removed.

A. Overview

Some commenters expressed full support of the CEMP and the need for conservation of eelgrass in California. Many of the distinct commenters agreed with the purpose of the CEMP, but most of these also suggested specific modifications to the policy. Some commenters opposed the draft CEMP or suggested extensive revisions. The issues most frequently raised were regarding: (1) definition of eelgrass habitat, (2) mitigation ratios, (3) relevance of CEMP to shellfish culture, and (4) eelgrass habitat surveys. These issues and our responses to them are discussed below in part B. Many other issues were raised as well and are discussed in part C. Together, parts B and C describe the significant comments received and NMFS' response to those comments.

B. Most Frequently Raised Issues

Definition of Eelgrass Habitat

Six commenters mentioned that the document needs a clear and consistent definition of eelgrass habitat that includes a scientific and legal rationale. Two commenters suggested revision of the definition of eelgrass habitat to conform to the Southern California Eelgrass Mitigation Policy. One commenter requested that the definition of eelgrass habitat be changed to a combination of percent cover and aerial extent. Fourteen commenters raised concerns over the policy's rationale for use of 10m buffer and 20m exclusion. Four commenters requested that a scientific and legal background be provided for including unvegetated areas. One commenter requested that the draft policy discuss specific habitat functions that the draft policy is attempting to address. The commenter also asked why the policy does not consider it essential that eelgrass plants be contiguous across the bottom in order to define a functional bed. One commenter requested that the policy include a figure or diagram illustrating the concept of percent bottom cover in eelgrass beds. Five commenters suggested that use of historic data for potential extent of eelgrass is not appropriate for determining mitigation. The commenter stated that only recently collected data by professional biologists should be used. Five commenters stated that requiring mitigation for "potential" impacts is not supported legally or scientifically.

Language has been added to the eelgrass habitat definition in section V.A. of the CEMP Implementing Guidelines to clarify the definition of eelgrass habitat and provide scientific and policy justification. Amendment 19 to the Groundfish Fishery Management Plan (FMP) describes seagrass as essential fish habitat (EFH) habitat area of particular concern (HAPC), but does not include a detailed description to delineate eelgrass habitat. The definition of eelgrass habitat in the CEMP Implementing Guidelines serves as a practical definition for NMFS biologists implementing EFH consultations. The CEMP eelgrass habitat definition is the same as the Southern California Eelgrass Mitigation Policy (SCEMP) definition for vegetated cover, but includes further clarification of unvegetated areas. The eelgrass habitat definition includes unvegetated eelgrass areas to account for interannual variability in the location of eelgrass cover and to incorporate the area of functional influence that extents outward from eelgrass cover. This definition follows NOAA guidelines for eelgrass conservation that indicates seagrass habitat must be recognized as including not only continuous cover beds, but chronically patchy habitat; a policy that requires considering the unvegetated spaces between seagrass patches as seagrass habitat as well (Fonseca 1998). The definition also complies with the description of seagrass HAPC, which includes "those waters, substrate, and other biogenic features associated with eelgrass species…". The eelgrass habitat definition has been modified from the draft CEMP such that the recommended area of unvegetated eelgrass habitat extends out 5 m from eelgrass vegetated cover, rather than 10 m. While an argument for a 10 m zone of influence (or greater) can be made in some situations, the 5 m distance is more clearly supported in the scientific literature and agency policy, and more practical for the typical projects that impact eelgrass. A graphic depiction of the CEMP eelgrass habitat definition has been included in Attachment 1 for further clarification.

As indicated in section I.B. of the draft policy, eelgrass provides habitat functions that include: structured habitat; increased detrital enrichment of the benthos; energy dampening and sediment trapping; and alteration of current, wave, or erosion patterns, among other functions. It is not essential for full bottom coverage to exist within an eelgrass bed in order for ecological services beyond non-vegetated areas to be realized. Many eelgrass bed functions, such as source of food, surface for epiphytes, structure for food, and source of detritus, begin to materialize with the presence of low density shoots. Sediment stabilization and wave dampening begin to develop as rhizome mats start to stabilize the sediment and individual plant clusters begin to develop.

Historic data on eelgrass distribution provides an important tool for tracking changes in eelgrass bed distribution, assessing the stability of eelgrass beds, and determining the potential for eelgrass to occur within an area in the future (e.g., potential or suitable eelgrass habitat) given similarities in the physical environment with areas that have historically supported eelgrass in the area. NMFS has considered various methods to address transient eelgrass habitat, including a range of options from addressing only eelgrass habitat that supports eelgrass plants at the time of a proposed action, to considering all occupied and potential or suitable eelgrass habitat on equal footing. Because of the complexity of defining suitable eelgrass habitat and lack of clear position on the subject by partner agencies, the revised CEMP and Implementing Guidelines do not address impacts to potential future or suitable eelgrass habitat. The revised CEMP and Implementing Guidelines address the functional area of existing eelgrass habitat, which includes areas adjacent to vegetated areas. This definition provides a mechanism for assessing changes in

eelgrass distribution and density that may result from proposed actions including changes to eelgrass habitat function adjacent to vegetated areas.

NMFS recognizes impacts to potential eelgrass habitat may preclude eelgrass movement or expansion to suitable unvegetated areas in the future, potentially resulting in declines in eelgrass abundance over time. NMFS will continue to collaborate with federal and state partners on this issue. Discussion of suitable habitat has been removed from the CEMP Implementing Guidelines.

Mitigation Ratios

One commenter requested information as to why a mitigation ratio of 1.2:1 was selected. One commenter raised a concern that the discussion of the "transplant action area", "minimum targeted transplant ratio" and the "1.2:1 eelgrass mitigation ratio/area" is confusing and that more detail is needed to understand these terms. Four commenters requested that a rationale be provided for the wetland calculator. One commentator characterized the mitigation formula as too complicated and recommended replacing it with a more simplified formula that includes plain English wording. Seven commenters stated that mitigation ratios are too high for Northern California or San Francisco Bay, because eelgrass occupies all available niches, making it difficult to find a suitable mitigation site. One commenter suggested that the mitigation ratio is too low for Central California and should be increased to match the mitigation ratio for southern California. One commenter suggested that NMFS consider providing different ratios for on-site versus off-site mitigation, and should consider encouraging mitigation credit if actual establishment exceeds the 1.2 to 1 ratio. One commenter requested an explanation for why the mitigation ratio of 1.2:1 will remain unchanged in the future, despite the fact that eelgrass beds are expanding in California (anecdotally, the commenter heard this was the case in Southern California and San Francisco Bay). One commenter noted that the Southern California Eelgrass Mitigation Policy allows for a 1:1 mitigation ratio where mitigation is conducted ahead of project impact. The commenter would like to see that carried forward in the CEMP for advance mitigation and mitigation banks. One commenter stated that proposed mitigation ratios only consider bed size and not turion density. The commenter requested that the policy consider whether achievement of a target turion density would be more achievable if the density of the initial planting was increased in order to account for variable success of mitigation efforts and any initial lost that may occur immediately after planting (as is recommended for bed size). One commenter argued that the mitigation delay "penalty" ramps up too soon. One commenter suggested that the proposed CEMP should not require both high mitigation ratios that compensate for the risk of mitigation failure while also requiring monitoring and supplemental mitigation for mitigation projects. Two commenters suggested that NMFS consider incorporation of additional datasets into the 5-year review process for regions where mitigation efforts have been limited. Another commenter echoed the same concerns and additionally asked whether other non-mitigation enhancement projects will be included to reduce minimum targeted transplant ratios.

The recommended mitigation ratio of 1.2:1 was adopted because it provides full replacement of eelgrass services, including temporal losses, assuming: (1) there is no eelgrass function at the mitigation site prior to mitigation efforts, (2) eelgrass function at the mitigation site is achieved

within three years, (3) mitigation efforts are successful, and (4) there are no landscape differences between the impact site and the mitigation site. This ratio is supported by field investigations that document that eelgrass functions for fish and invertebrate communities, primary production, and three-dimensional habitat structure are achieved within two to four years of transplant when beds are successfully established. The final mitigation ratio is the same across the state even though the recommended starting mitigation ratios vary by regional success history. The 1.2:1 ratio is consistent with the mitigation ratio that has been in effect since 1991 under the SCEMP.

The determination of appropriate mitigation ratios for impacts to natural resources is a difficult and complicated task. The CEMP Implementing Guidelines utilizes a ratio calculator that was developed by NOAA's habitat program for the purpose of identifying mitigation ratios to achieve no net loss. The calculator utilizes methodology similar to Habitat Equivalency Analysis (HEA), which is an accepted method to determine the amount of compensatory restoration required to provide natural resource services that are equivalent to loss of natural resource services following an injury (http://www.darrp.noaa.gov/economics/pdf/heaoverv.pdf). HEA is commonly used by NOAA during damage assessment cases, including those involving seagrass. Similar to HEA, the mitigation calculator is based on the "net present value" approach to asset valuation, an economics concept used to compare values of all types of investments, and then modified to incorporate natural resource services.

The calculator includes a number of metrics to determine appropriate ratios that focus on comparisons of quality and quantity of function of the mitigation relative to the site of impact to ensure full compensation of lost function. These parameters are described in Appendix 4, which has been added to the CEMP Implementing Guidelines and in the referenced mitigation calculator document (Kind and Price 2004). We used best available information to populate the parameters in the calculator to determine region-specific mitigation ratios. Using the calculator allows for consistency in methodology for all areas within California, avoids arbitrary identification of size of the mitigation area, and avoids cumulative loss to eelgrass habitat that would likely occur with a standard 1:1 ratio (because of the complexity of eelgrass mitigation and the time for created eelgrass to achieve full habitat function). For example, the calculator incorporates the time it takes for a mitigation site to provide full replacement of eelgrass services lost at the impact site. A standard 1:1 ratio does not incorporate diminished services during the 3-5 years that a newly created eelgrass bed is developing. The calculator also accounts for the likelihood of mitigation success based on past experience and mitigation complexity. Specifically, with a low likelihood of mitigation success, a higher mitigation ratio will prescribe a mitigation area larger than the impact area, such that with lowered success over part of the mitigation area, mitigation still provides full replacement of services lost at the impact area. .TA simplified mitigation formula would not be able to adequately consider these important variables, and therefore, may not provide for adequate mitigation to offset the loss of a resource.

Subject to certain circumstances described in the CEMP Implementing Guidelines, NMFS biologists should recommend a 1.2:1 final mitigation ratio for projects in all parts of the state; the recommended starting mitigation ratio, which is a function of regional eelgrass mitigation success history, is higher in northern California and San Francisco Bay. Text changes have been made in Section II.F.2. to clarify this point. In northern California and San Francisco Bay, restoration success has been generally very low, thus resulting in the higher initial mitigation

ratios. The high success and low number of projects similarly results in a low initial mitigation ratio for Central California. For all of California, however, the CEMP Implementing Guidelines contemplate case-by-case consideration by the lead action agency and NMFS for a lower or higher starting mitigation ratio, where there is strong evidence that a starting ratio different from that recommended in the CEMP guidelines is more appropriate to achieve no net loss.

There is no scientific information to support the statement that eelgrass occupies all areas suitable to support eelgrass in Northern California. Furthermore, the comment fails to recognize that restoration success occurs at sites that are presently unsuited to support eelgrass but are subsequently modified to meet conditions supportive of eelgrass. In a review of eelgrass transplants conducted on the Pacific Coast (Merkel and Associates, Inc. 1998), 45 eelgrass restoration projects were reviewed to determine what criteria made a project successful. Transplantation of eelgrass into unmanipulated sites had the highest number of attempts at 17, but the lowest overall success rate at 38.2%. However, sites that had been modified to support eelgrass, including planting on fill, planting on cuts, and physical site protection against wave and current damage, had the highest success rates, all exceeding 90%.

San Francisco Bay, although supporting some of the largest areas of eelgrass in the state, also has considerable opportunities for eelgrass expansion and mitigation. Eelgrass habitat suitability models suggest significantly more areas of the bay could support eelgrass than presently do (Merkel and Associates, Inc. 2005). Further, the San Francisco Bay Subtidal Goals Program (www.sfbaysubtidal.org) has identified a target expansion of eelgrass within 8,000 acres over the next 50 years. Modeling in Humboldt Bay also indicates the potential for larger areas of the bay to become vegetated eelgrass habitat (Shaughnessy *et al.* 2012). Similar to northern California, it is not anticipated that all mitigation or restoration may be achieved without site modification to enhance the suitability of a site to support eelgrass resources.

Mitigation ratios are based on ecosystem services and habitat functions. Typically NMFS recommends that mitigation occurs within the same system as the impacts occur. In some instances where a regional strategy is available, it may be beneficial to locate mitigation further away from the area of impact.

When appropriate to the particular impacts, NMFS supports the use of mitigation bank and in-lieu fee programs to compensate for impacts to eelgrass habitat, where such instruments are available, and has maintained this position in the SCEMP and CEMP. We agree that a 1:1 mitigation ratio is generally appropriate for both pre-project implementation of project-specific mitigation as well as mitigation banks, because both scenarios likely avoid the need to mitigation for temporal loss of eelgrass habitat function. These changes have been incorporated in the draft CEMP and Implementing Guidelines.

Commenters looking at eelgrass in central California noted that the initial transplant ratios are driven by the high success of only four restoration projects. Similarly, northern California has a very limited experience history with eelgrass restoration for mitigation purposes with the vast majority of these efforts failing. The commenters have recommended the inclusion of well documented and monitored non-mitigation eelgrass restoration projects as part of the history for establishing initial transplant ratios. NMFS is supportive of this concept and has incorporated

such non-mitigation restoration efforts into calculation of the initial transplant ratios. Study projects where the ultimate goal was not the expansion of eelgrass habitats or those that were inadequately tracked to determine success or failure were not included in the calculations. Inclusion of these research programs would artificially depress success levels for the region, because many of the studies were conducted to examine stressors with the intent to push ecological limits and examine mortality levels. Future reevaluation of regional success will include all restoration programs that are adequately documented in success/failure calculations.

The 1.2:1 mitigation ratio applies to eelgrass distribution and not density. However, milestones for success of the eelgrass mitigation incorporate metrics for both habitat area and density. Depending upon prevailing environmental conditions, a variety of eelgrass planting densities may yield sufficient shoot density within a five-year monitoring period. In general, however, increased planting densities is one way of increasing success rate.

Seagrasses worldwide have historically been reduced in scale from historic levels. It is important to note that gains and losses in eelgrass habitat conditions are transitory and often cyclic in nature. Recent expansion of eelgrass in both San Francisco Bay and southern California follow periods of dramatic declines in eelgrass in both regions. Moreover, some areas that recently expanded are now suffering significant declines (*e.g.*, Morro Bay, Mission Bay). The natural variability in eelgrass beds should not be taken as justification that eelgrass impacts from controllable actions should not be offset or that mitigation ratios should be lowered in the future.

The mitigation delay multiplier was incorporated in the draft CEMP to ensure that the functions and ecological services provided by eelgrass habitat are fully offset, including the loss of function between the time of an impact and ultimate mitigation. As indicated in the draft CEMP, mitigation delay multipliers were derived by inserting different start times for mitigation into the wetland mitigation ratio calculator (King and Price 2004). As expected, the recommended mitigation ratios increase exponentially with increasing delay to compensate for cumulative loss of habitat function. While we maintain that full compensation for temporal loss of functions is important, we have removed the mitigation delay table from the Implementing Guidelines and changed it to an attachment as an example of increased mitigation ratios that may be recommended by NMFS with mitigation delay. We have inserted language into the Implementing Guidelines stating that mitigation delay will be handled on a case by case basis.

There is no relationship between the initial transplant ratio and the recommendation for mitigation monitoring to evaluate performance milestones, which may indicate a need for supplemental mitigation or adaptive management measures. For this reason, no changes have been made.

<u>Relevance of CEMP to Shellfish Culture</u>

Three commenters stated that the CEMP should recognize NOAA's Aquaculture policy and within that policy, NOAA's National Shellfish Initiative. Six commenters stated that impacts/benefits of shellfish farming need to be addressed. Six commenters stated that shellfish aquaculture should not be lumped with marinas and other development as activities requiring

mitigation. One commenter stated that the CEMP lacks a uniform and informed policy, which forces shellfish growers to address basic issues on a case-by-case basis. One commenter suggested that NOAA take a hard look at marine aquaculture policies in California, particularly those in Humboldt Bay to determine whether all recommendations have the best interest of eelgrass in mind.

NOAA has adopted the NOAA Marine Aquaculture Policy and the National Shellfish Initiative, which encourage sustainable aquaculture development that provides domestic jobs, products, and services and that is in harmony with healthy, productive, and resilient marine ecosystems, compatible with other uses of the marine environment, and consistent with the National Policy for the Stewardship of the Ocean, our Coasts, and the Great Lakes (National Ocean Policy). Implementation of CEMP through existing regulatory authorities regarding federal actions for aquaculture efforts complements NOAA Fisheries' actions regarding marine aquaculture. The regulatory efficiencies, transparency, and appropriate compensation for impacts to eelgrass promoted by the CEMP directly support the National Aquaculture Policy statements and National Shellfish Initiative through: (1) protection of eelgrass, an important component of productive and resilient coastal ecosystems in California and habitat for wild species, and (2) improved coordination with federal partners regarding planning and permitting for commercial shellfish projects. Furthermore, research conducted under the direction of the National Shellfish Initiative could be informed by and also inform implementation of CEMP. The CEMP has been revised to reflect the text above.

The intent of this policy is to promote consistent eelgrass management in California based on the best available science to achieve no net loss in function provided by eelgrass. The CEMP Implementing Guidelines discuss four mitigation strategies for achieving the policy goal (*i.e.*, comprehensive management strategies, in-kind mitigation, mitigation banks/in lieu fee instruments, and out-of-kind mitigation (with a preference for in-kind mitigation over out-of-kind mitigation). The CEMP Implementing Guidelines also provide a more consistent approach for in-kind mitigation. However, we recognize and allow for flexibility to address site specific conditions when warranted. Where differences in the guidelines exist, they are due to varying regional conditions. For instance, increased starting transplant mitigation ratios are based on localized, historical mitigation success rates. Regardless, except where special circumstances dictate otherwise, the final mitigation ratio of 1.2:1 should be recommended statewide.

A primary objective of the CEMP and Implementing Guidelines is to ensure that NMFS provides clear and consistent recommendations for avoidance, minimization, and effective mitigation of unavoidable losses to eelgrass function. It is our intent that CEMP provide eelgrass resource protection for all federal actions, irrespective of the nature of the activities. Positive or negative effects on eelgrass are possible from a wide range of activities, including habitat restoration, channel construction or maintenance, and construction of breakwaters and other circulation altering devices, depending on specifics of construction and implementation. The draft CEMP and Implementing Guidelines do not include a presumption of impacts from aquaculture or other activities. Rather, it establishes recommended procedures for determining project effects using pre- and post-activity monitoring when activities occur in or near eelgrass habitat. Where impacts may occur as a result of conditions that develop over time (*e.g.*, shading from docks or other over water structures), annual monitoring over a two year period should be used to

determine effects and extent of impacts. The survey and monitoring elements of the CEMP and Implementing Guidelines serve both to ensure that impacts that do occur to eelgrass beds are appropriately documented for purposes of mitigation as well as documenting when anticipated impacts do not occur and thus recommendations for mitigation are not warranted. We acknowledge that some aquaculture activities may be beneficial or neutral with respect to eelgrass. Projects that empirically demonstrate wholly neutral or beneficial impacts should not be subject to compensatory mitigation.

Eelgrass Habitat Surveys

Four commenters noted that the 60 day period for which a pre-construction survey would be valid is inadequate to complete up-front work for a project (e.g., permitting). One commenter requested that the policy specify if the post-action survey would include both the action area and reference area. One commenter suggested that for small projects a survey should be required at the permitting phase, but not prior to construction due to uncertainty in planning for mitigation and overall costs. One commenter asked how the error factor for a survey would be determined. One commenter requested clarification as to what is meant by "interpolation error" as it pertains to mapping of the spatial extent of eelgrass habitat. The commenter also asked for clarification through example. One commenter indicated that for small projects, bathymetric surveys should be considered optional. One commenter suggested that, as an alternative to recommending preparation of a 0.3 m bathymetry chart, NMFS should consider delivery of a spatial data layer that ties the bounding coordinates with mapped eelgrass beds and patches to local mean lower low water (MLLW) as sufficient to assess eelgrass distribution relative to depth. One commenter suggested that the survey methodology language emphasize that visual verification is required when using acoustic survey techniques. In addition, the commenter suggested that the draft policy highlight how and in what situations visual verifications should be required. Two commenters suggested that NMFS consider reducing the required minimum adjacent mapping buffer (20m) for small eelgrass impacts (floating dock, gangway, shading) or provide flexibility where the extent of any indirect impacts are unlikely to extend > a few meters beyond the footprint of the structure. One commenter raised a concern that boat-based eelgrass survey methods are not appropriate for lower intertidal and shallow subtidal habitats where eelgrass occurs in Humboldt Bay. The commenter recommended the use of high-precision surveying equipment during minus tides. One commenter asked what type of polygons should be drawn under the policy -- e.g., "minimum polygons" (connect the dots), or "maximum convex polygons" (connect the outer dots). One commenter recommended that qualified surveyors be certified to avoid costs and other impacts associated with bad or rejected surveys. One commenter mentioned that monitoring for regional health or system-wide status is outside the scope of responsibility of local agencies. The commenter suggested that any data collected in support of regional efforts should not be used to determine permit conditions or impact assessments.

The CEMP Implementing Guidelines recommend a pre-construction eelgrass survey, post-construction eelgrass survey, and if needed, a preliminary eelgrass survey. The purpose of completing multiple surveys in association with project planning and pre- and post-construction is to ensure that eelgrass impacts that ultimately do occur are effectively planned for and addressed through all phases of work. NMFS anticipates that for some projects, a preliminary

survey will need to be completed up to a year or more in advance of construction activities and during the permitting and environmental review process in order to approximate the extent of impacts to eelgrass that are likely to occur with a proposed action and for development of avoidance, minimization, and mitigation planning. This results in a baseline to be verified through the completion of pre-construction and post-construction surveys. The intent of the pre-construction survey is to directly assess impacts of the project on eelgrass by comparing the pre-construction survey results with post-construction survey results. Knowledge of the actual area of impact to eelgrass beds is essential to ensuring that impacts are effectively mitigated. For this reason, the text remains unchanged.

Pre- and post-action surveys should be completed at both the impact area and the reference site(s) in order to determine if any changes to eelgrass habitat within the impact area are similarly reflected in the reference site(s), and therefore, likely natural fluctuations in bed conditions rather than effects of the proposed project. The purpose of the reference site(s) is to ensure that impacts, if any, are correctly identified and that a permittee is not held responsible for eelgrass declines that are not the result of the permitted work.

While NMFS agrees qualified practitioners should be employed to complete eelgrass surveys, it is not within the scope of this policy or NMFS' authority to implement a certification process.

Transect survey methodologies are widely employed in eelgrass mapping but require interpolation of eelgrass between transects. Interpolation error is the error derived by extrapolation of bed distribution by incomplete sampling of the area (*e.g.*, through transects, point surveys, or aerial samples). For example, transect surveys generally include a discrete number of samples of eelgrass abundance and density, and the distribution of eelgrass between transects is interpolated. Depending upon the transect spacing, method of interpolation, and eelgrass bed complexity, error in abundance estimates may be generated by this approach. We have removed specific criterion about interpolation error from the revised CEMP Implementing Guidelines, because this may not be applicable to all situations and the level of detail may be inconsistent with aspects of the document. However, Section II.B.I. states that "Survey reports should provide a detailed description of the survey coverage (*e.g.*, number, location, and type of samples) and any interpolation methods used in the mapping.

The CEMP and Implementing Guidelines direct NMFS staff to make recommendations regarding eelgrass mitigation. NMFS does not have the authority to require visual verification of of survey results. However, it is incumbent upon surveyors to verify their mapping methodologies and utilize the correct survey methods and sample size to achieve the necessary resolution. One way to evaluate whether the survey methods undertaken adequately characterize eelgrass habitat at the impact and reference sites is to complete visual samples (*e.g.*, scuba or snorkel observation, mechanical grabs) to verify eelgrass is present where predicted by interpolation. With this method, no more than 1 in 20 samples should demonstrate an erroneous determination of eelgrass presence or absence compared to that presented in the survey map. Error can be reduced by increasing the number of survey samples (*i.e.*, transects), increasing survey control, or modifying methodologies to those more appropriate to the specific location. Irrespective of the methodologies employed in eelgrass mapping for the purposes of assessing potential project impacts, CEMP Implementing Guidelines also recommend assessment of

eelgrass habitat densities. Density counts should include visual observations (*e.g.*, counting of eelgrass shoots) within identified habitat. As a result, all eelgrass mapping should include visual verification of the presence of eelgrass, which can be used to evaluate mapping error.

As one commenter has eluded, the interpolation methods used have an effect on the estimation of eelgrass between transects. Relative to the specific selection of interpolation between transects. It is incumbent upon the biologists completing eelgrass surveys to understand and correctly conduct surveys and interpolate between samples as appropriate to the condition of the bed (*e.g.*, a relatively solid bed is best characterized by maximum convex polygons with exclusions for gaps along the surveyed transects, while a patchy bed is best characterized by a minimum polygon characterization).

We concur that not all survey methods are appropriate in all systems and circumstances. The CEMP Implementing Guidelines do not dictate a particular survey methodology but rather states that survey method should be appropriate for conditions and spatial extent of the project area.

The purpose of the mapping buffer is to serve several functions including identification of any eelgrass in the vicinity of work that may be at risk due to construction activities as well as to identify the necessity for completion of pre- and post-construction surveys based on potential for eelgrass impacts. However, in some instances, it may not be practical to complete surveys significantly beyond the proposed action area footprint. In these cases, flexibility in the survey area determination can be accommodated and the surveyor should coordinate with the appropriate NMFS area office. Text to this effect has been added.

Bathymetry is a critical and easily measured element of the physical environment that is invaluable to assessing potential for eelgrass impacts and potential success of mitigation. It also is a valuable tool to ensuring that reference sites are suitable as surrogates for the impact areas. Almost all projects that are undertaken under a regulatory program must collect and supply bathymetry as part of the regulatory process. However, the level of bathymetric detail should be commensurate with the complexity of the proposed action. For small footprint projects (*e.g.*, a single dock) a spatial data layer bound to local mean lower low water (MLLW) may be appropriate.

This policy does not propose any obligation for individuals or entities to undertake regional monitoring. Regional data collection is being undertaken by a number of parties including NMFS for the purposes of resource tracking and enhancement of resource management effectiveness. It is not intended that regional data collection take the place of project-specific surveys for purposes of impact assessment. However, regional data collection and monitoring can be an effective tool for assessing the potential needs for project surveys and to evaluate eelgrass bed changes over time. Both of these functions are important to effective resource management.

In the EFH context, NMFS recommendations are provided to the action agency, which has final approval of the action; in accordance with the MSA, the action agency may take up NMFS recommendations or articulate its reasons for not following the recommendations. In the FWCA context, NMFS makes recommendations which must be considered, but the action agency is

ultimately responsible for the wildlife protective measures it adopts (if any). For these reasons, neither the policy nor its implementing guidelines are to be interpreted as binding on the public. Given the regulatory structure and the flexibility innate in the CEMP (e.g., the potential for a different approach due to site specific concerns), NMFS disagrees with the use of the term "required" or "requirement".

C. Other General Comments

Need for and scope of policy

One commenter suggested that the introduction include a summary of the eelgrass resource in California.

This comment referenced a prior estimate of over 11,500 acres from Merkel (2004) and a recent estimate of 5,500 acres of eelgrass for southern California that was not cited but is from Bernstein, Merkel, Chesney, and Sutula (2011) as an indication of increase in eelgrass. However, the two documents reflect different totals. The Merkel (2004) value was a statewide instantaneous estimate of eelgrass presence while the 2011 value was the maximum extent of eelgrass documented in southern California. This maximum extent was derived as a composite value from multiple surveys over time and was never achieved during a single survey period.

To clarify the status of eelgrass in California, an estimate of 11,000-15,000 acres (relying on the available survey data) has been included in the text of the CEMP. This estimate is provided along with an identification of systems supporting the most extensive eelgrass habitat within the state and the risks faced by this habitat type.

One commenter stated that the policy needs significant and strong wording indicating that flexibility should be applied by regulators, policy is for guidance only, and that additional circumstances or actions could warrant different approaches.

As stated within the CEMP Implementing Guidelines, the document "serves as a common starting place for NMFS recommendations to achieve no net loss of eelgrass habitat function". In accordance with the policy, the recommendations NMFS ultimately gives should be made on a case-by-case basis to provide flexibility when site specific conditions dictate." The need for case-by-case consideration is repeated throughout the guidelines. Furthermore, in the EFH context, NMFS recommendations are provided to the action agency, which has final approval of the action; in accordance with the statute, the action agency may take up NMFS recommendations or articulate its reasons for not following the recommendations. In the FWCA context, NMFS makes recommendations which must be considered, but the action agency is ultimately responsible for the wildlife protective measures it adopts (if any). For these reasons, neither this policy nor its implementing guidelines are to be interpreted as binding on the public. In particular, the CEMP Implementing Guidelines incorporate information regarding alternative means to achieve eelgrass resource protection in section II. E., including support for development of comprehensive management plans that would provide another flexible approach to eelgrass mitigation.

One commenter stated that the draft policy should articulate a need for the mitigation policy. The commenter pointed out that the total restoration examples for San Francisco Bay were noted to be about 2 acres and the total acreage of eelgrass in San Francisco Bay is in thousands of acres. The commenter requested information on how these numbers would support the need for a statewide eelgrass mitigation policy.

Presently, there is inconsistency in when and how eelgrass surveys are conducted within many areas in the state and there is no clear guidance on how eelgrass impacts should be assessed. The eelgrass resources in San Francisco Bay have historically been poorly documented, and it is believed that many impacts to eelgrass have occurred without being documented or mitigated. Cumulative impacts to eelgrass as a result of incremental small losses are a major concern. Irrespective of the scale of eelgrass resources in a particular area or the anticipated scale of losses, the intent of the policy is promote accurate assessment of impacts and to help ensure appropriate mitigation of losses that occur. The CEMP has been modified to better articulate the need for the policy.

One commenter suggested that the policy include discussion of restoration efforts and beneficial impacts to eelgrass.

As requested, the discussion on benefits of improved environmental conditions and enhancement efforts to eelgrass has been incorporated in section I. of the draft policy.

Nine commenters suggested that regional plans, instead of a single statewide plan, would better account for regional differences in eelgrass conditions. Another commenter asked the question "If this is a state-wide policy, why does the draft propose regional variances in the mitigation policy?"

As indicated in the background information on the policy, a purpose of the CEMP is to promote consistency across California by adoption of a unified policy. In this adoption, however, it is recognized that there are some elements of the policy that cannot be maintained as consistent treatments across all areas of the state. These generally have to do with environmental factors such as growing seasons as well as mitigation history and success rates. For this reason, regional treatments have been incorporated as needed.

One commenter requested a critical review of scientific information regarding eelgrass habitat function in relation to differing density and the ephemeral nature of eelgrass habitat, etc.

NMFS agrees that an evaluation as requested would be informative; however, because the policy uses eelgrass habitat distribution and density as a proxy for eelgrass habitat function, such an undertaking is not necessary for the issuance of the CEMP and Implementing Guidelines. Whenever possible, we have included relevant citations to scientific literature documenting eelgrass habitat function and the influence of density (see section I. and II.A.). And, a review as requested could be considered in future review and revision of the Implementing Guidelines.

One commenter suggested that NMFS consider whether the proposed policy will force applicants and managers to blindly pursue one habitat type within the bay at the expense of other habitat types, without more general ecological considerations.

The policy is intended to provide guidance on eelgrass protection, survey, and mitigation with the objective of ensuring no net loss of eelgrass habitat. This policy is consistent with other marine habitat conservation policies as indicated in Section II of this policy. The policy supports the development of comprehensive management plans that integrate the protection and conservation of eelgrass with other resources not otherwise addressed under this policy as a means of addressing eelgrass resources. Furthermore, recommendations for eelgrass mitigation are often provided as part of EFH consultations, or during NEPA or FWCA reviews, for which NMFS evaluates adverse effects to all components of EFH or aquatic resources, respectively, and not solely eelgrass. Nothing in this policy is intended to detract from appropriate management actions taken with respect to other important habitat or species resources.

Cost

Six commenters stated that an economic evaluation of the cost of implementing the policy needs to be provided. The commenter recommended that examples of typical mitigation cost scenarios be provided. Two commenters questioned uncertainty and cost associated with finer mapping resolution for small potential impact areas and additional surveys.

The policy does not reflect NMFS' ultimate recommendations or comments, since site-specific conditions may necessitate taking a different approach than outlined in the policy. Under the MSA-EFH provisions and the FWCA, even when NMFS recommendations or comments are ultimately made, they are recommendations or comments that would need to be adopted by an action agency before having any practical effect. Therefore, the issuance of the policy is not a cost-generating action. The CEMP Implementing Guidelines provide recommendations for avoiding, minimizing and mitigating for impacts to eelgrass that reflect what NMFS anticipates including as EFH conservation recommendations or FWCA or NEPA comments. Given that every approach will need to be adapted to the specifics of the project, it would be unduly speculative to attempt to forecast costs; for example, for an individual project, any survey expenses associated with detailed and accurate mapping may (or may not) be offset by lower costs of mitigation resulting from determination of true impacts for that particular project. Furthermore, the CEMP Implementing Guidelines frequently coincide with what NMFS has recommended in the past; these recommendations have been acted upon by other agencies (e.g., monitoring). Therefore, costs arising during the lifetime of the policy might not differ from costs arising from agency actions that have adopted the recommendations NMFS has already provided as part of individual project review and EFH consultations

One commenter claimed that there is insufficient evidence that eelgrass turion density is positively correlated with fishery habitat utilization. According to the commenter, surveys to determine turion density are an insupportable cost.

Turion density is one of the most common and easily measured characteristics of eelgrass habitat. We have added to section II.A. of the CEMP Implementing Guidelines additional

citations for scientific literature documenting that seagrass habitat with greater turion density provides organisms with greater protection against predators and has greater effect on water velocity, and thus enhance sediment trapping and sediment stabilization as well as improving larval settlement. While the quantitative relationship is unknown, all of these factors contribute to the quality of eelgrass habitat function for fish, and therefore are related to fish utilization; nevertheless, documented changes in fish utilization are not necessary for the identification of an impact to EFH. NMFS believes it is appropriate to continue monitoring turion density during eelgrass surveys and to use this bed metric in assessment of bed impacts and success of eelgrass mitigation. Given that every approach will need to be adapted to the specifics of the project, it would be unduly speculative to attempt to forecast costs; for example, for an individual project, any survey expenses associated with determining turion density may (or may not) be lower than costs to determine other measures. As above, density surveys are recommended in the SCEMP and as part of individual EFH consultations throughout California, so costs arising during the lifetime of the policy might not differ from costs arising from agency actions that have adopted the recommendations NMFS has already provided as part of other individual projects. That said, NMFS recognizes that other metrics (*e.g.*, canopy height, leaf area index, biomass) may also be utilized to evaluate eelgrass habitat function agency and to expand performance evaluation of mitigation efforts at the discretion of the Federal agency. NMFS will continue to analyze the use of other metrics and may consider changes in future revisions. However, shoot density remains one of the most pragmatic metrics to use given the ease and relative low cost of evaluation. Therefore, NMFS maintains its appropriateness in the Implementing Guidelines.

CEMP Relation to other Agencies and Policies

One commenter suggested that NMFS coordinate with other federal and state agencies to cooperate on implementation of policy

It is the intent of NMFS to collaborate with other federal, state, and local agencies charged with the protection of marine resources to seek a unified approach to actions affecting eelgrass. NMFS sought partner agency input on the draft CEMP prior to publishing in the Federal Register and before issuing the final CEMP.

One commenter identified a need to determine if policies and recommendations on eelgrass management are in line with California Department of Fish and Wildlife laws.

The policy draws heavily from the existing Southern California Eelgrass Mitigation Policy, which has been applied since 1991 and is utilized by the California Coastal Commission and California Department of Fish & Wildlife (CDFW). The 1993 State of California Wetlands Conservation Policy and Preliminary Draft Wetland Area Protection Policy, which may apply to intertidal eelgrass, call for no overall net loss and long-term gain in the quantity, quality, and permanence of wetlands acreage and values in California. The NMFS policy to recommend no net loss to eelgrass habitat function and recommendations for compensatory mitigation for eelgrass impacts complement the state protection policies for wetlands. Furthermore, the draft CEMP and Implementing Guidelines were circulated to CDFW and other state agencies for review and comment. Comments received from state agencies did not identify any regulatory conflicts with state law, regulation, policy or implementation guidelines. Language has been

inserted in the final CEMP to make clear that NMFS does not intend to make any recommendations which, if acted upon, would violate state or local law or regulations.

Impacts to Eelgrass

Two commenters suggested that small dredging and dock projects be exempted from extra studies such as light, turbidity and hydrodynamics. An additional commenter asked for clarification if the action party would be required to evaluate consequences of a proposed action on the hydrodynamics of the project area under all circumstances or only for certain types/sizes of projects.

Section II.C. of the CEMP Implementing Guidelines reads "Action agencies in coordination with NMFS should evaluate and establish impact avoidance and minimization measures on a case-by-case basis depending on the action and site-specific information, including prevailing current patterns, sediment source, characteristics, and quantity, as well as the nature and duration of work." For example, light, turbidity or hydrodynamic studies may be recommended for projects with prolonged construction periods resulting in high ambient turbidity levels or projects that may significantly alter local circulation patterns. These characteristics would not generally result from small dredging and dock projects.
See above regarding the use of the words "required" or "requirement".

One commentator stated it would not be possible to ascribe indirect project related impacts to changes in eelgrass beds. The commenter mentioned that reference sites are not useful in this regard since it is unknown whether changes at a reference site are a result of the same indirect impacts at the project site, other impacts, or natural variation. Another commenter requested that an explanation be provided for how one determines if indirect effects are caused by a project or by items such as freshwater flows and temperature when assessing impacts to eelgrass. An additional commenter suggested that, because of natural variability in eelgrass beds from year to year, it is unrealistic to attribute such changes to indirect project impacts. The commenter requested that the CEMP clarify if and/or how NMFS intends to translate impacts related to indirect effects into "required" mitigation acreage.

The CEMP Implementing Guidelines recommend two years of post-project monitoring following the initial post-project survey in order to evaluate potential indirect effects of project activities on eelgrass habitat distribution and density. Under the MSA, NMFS recommendations are provided to the action agency, which has final approval of the action; in accordance with the statute, the action agency may take up NMFS recommendations or articulate its reasons for not following the recommendations. Furthermore, given the regulatory structure and the flexibility innate in the CEMP (e.g., the potential for a different approach due to site specific concerns), NMFS disagrees with the use of the term "required". NMFS may recommend mitigation for indirect adverse effects if such effects occur as a result of the action in question, and if similar effects do not occur at the project control sites. The use of control sites for evaluating impacts is common practice and is supported in the scientific literature. They are used to separate the effect of the activity from other sources of spatial and temporal variability. Concurrent post-project monitoring at the reference site(s) also provides a level of protection to a permittee against false conclusions of project impacts. When eelgrass habitat decline occurs as a result of the federal

action and decline occurs at the impact area and reference site(s), the percentage of decline at the reference site(s) is deducted from the percentage of decline at the impact area when determining amount of mitigation needed. However, if eelgrass expands within the reference site, changes in eelgrass habitat at the impact site are evaluated only against the 100 percent condition of the pre-construction survey and not against the expanded reference site performance. The effectiveness of a reference site(s) to serve this function is directly associated with the proper selection of the number and location of reference site(s).

Avoidance and minimization measures

One commenter requested an explanation of the desirable circulation patterns for protecting eelgrass as discussed in the draft policy.

Text has been added to the CEMP Implementing Guidelines to clarify that desirable circulation refers to maintaining good water flow and low residence time of water within eelgrass beds. Further detail regarding appropriate flow and residence times may be gleaned from scientific literature and/or analysis of conditions that support persistent eelgrass beds elsewhere in the project vicinity.

One commenter requested that the policy specifically define the process NMFS will use to make a decision to recommend light or comparable monitoring.

Light and turbidity monitoring during project activities as indicated in the draft policy are of a particular concern in San Francisco Bay, because of a combination of typically high ambient turbidity levels as well as generally fine sediment conditions. NMFS has developed a specific San Francisco Bay Light Monitoring Protocol for projects that are likely to generate significant and prolonged suspended sediment loads in areas supporting eelgrass, if other minimization measures are not feasible. This protocol is less likely to be needed in other regions of the state. Section II.C.1. of the guidelines addresses the factors to be considered by NMFS when making recommendations for the application of light and turbidity monitoring. These factors include, but are not limited to, distance to eelgrass, prevailing currents and therefore anticipated turbidity plume distribution from the action area, sediment types that may be disturbed, and anticipated duration of turbidity generation.

One commenter requested an explanation for how data from turbidity monitoring would be used. The commenter asked whether impacts to eelgrass beds would be assumed based on turbidity levels and whether mitigation for turbidity effects would be required. If so, the commenter asked what form mitigation would take and what thresholds would be used in terms of reduction in H_{sat} values or number of days or hours of reduced levels.

Impacts to eelgrass beds will not be assumed based on turbidity monitoring. Under the CEMP Implementing Guidelines, turbidity monitoring data collection will be used to facilitate management of activities to minimize turbidity associated impact to eelgrass (*e.g.*, modify timing or method of dredging). In the event eelgrass losses do occur, irrespective of the turbidity monitoring efforts, and are reflected as changes between pre-action and post-action survey and not reflected at the reference site, those changes would be subject to mitigation recommendations

under the CEMP Implementing Guidelines, except where fact specific circumstances dictate otherwise.

See above regarding use of the words “requirement” or “required”.

One commenter stated that nutrient loading measures go beyond the control of most individual boat owners. The commenter suggested that the phrase "where appropriate to the level of impact and where sources are under the control of the permittee" be added.

Language to clarify the intent that nutrient reduction be performed where appropriate and tied to a regulated impact has been added to the CEMP Implementing Guidelines.

One comment was received regarding the use of special light passing materials for docks, piers, and gangways. The commenter indicated that such materials should not be used where they pose potential safety hazards and ADA compliance conflicts.

We agree with this comment and have added clarifying text as follows: "The use of these shade reducing options may be appropriate where they do not conflict with safety, ADA compliance, or structure utility objectives."

Monitoring

One commenter suggested that the proposed approach to multi-year monitoring for "indirect" impacts is unrealistic.

The CEMP Implementing Guidelines recommend a multi-year monitoring approach for assessing indirect impacts that follows the existing SCEMP, which has been in place since 1991. Based on our experience with the SCEMP and completion of multi-year monitoring for indirect project impacts to eelgrass habitat, we disagree that the monitoring is unrealistic. Furthermore, our experience in the application of SCEMP affirms our understanding of the potential for long term gradual effects and the need for continued monitoring of these effects. It is unlikely that activities that may have long-term but gradual effects on eelgrass distribution (e.g., as a result of shading or changes in circulation patterns), can be fully understood without the multi-year monitoring outlined in these Guidelines. Two annual monitoring events following the post-construction survey will allow the changes in beds over time to become clear To the extent that the commenter believes that the recommendations are unrealistic in that they believe they would come at too great an economic cost, please see the discussion above under “Cost”.

One commenter suggested that the level of required monitoring and reporting should be reduced for early mitigation success.

The purpose of the monitoring program is to track progress in establishment against milestones for success. In addition, it is to ensure that an adequate period of time has been provided during the monitoring period to assess stability of the mitigation area through multiple seasons and environmental conditions. The five year time period coincides with the typical establishment period for wetland mitigation under various state and federal programs.

See above regarding the use of the words “required” or “requirement”.

Reference Sites

One commenter asked that clarification be provided regarding the use of "etc." in section III(B)3 of the draft policy, which addresses reference site selection criteria relative to potential impact areas.

Parameters have been added to the text in section II.B.4 of the Guidelines to clarify the additional characteristics that should be similar between reference site(s) and the impact site. This section now reads “Environmental conditions (*e.g.*, sediment, currents, proximity to action area, shoot density, light availability, depth, onshore and watershed influences) at the reference site(s) should be representative of the environmental conditions at the impact area (Fonseca *et al.* 1998).”

One commenter requested that an explanation be provided for how measurements of natural variability at a reference site would be used in the determination of impact area. The commenter cited the following text from the draft policy: "The actual area of impact shall be determined from an analysis that compares the pre-action condition of eelgrass beds with the post-action conditions...".

The CEMP and Implementing Guidelines rely on monitoring of eelgrass reference site(s) in close proximity and with environmental similarities to the impact area as a means to track and remove natural variability in assessing impacts to eelgrass habitat. Where eelgrass within the impact area declines coincident with declines in eelgrass habitat at reference site(s), the percentage of reference site decline may be deducted from the decline of the eelgrass within the impact area, unless declines at the impact area are clearly direct and permanent (*e.g.*, dredge or fill footprint). However, if eelgrass expands within the reference site, the eelgrass habitat at the impact site should be evaluated only against the 100 percent condition of the pre-construction survey and not against the expanded reference site performance.

One commenter stated that the requirement for a reference site at the time of the pre-construction survey is a new and potentially onerous burden on private dock owners who often do not impact eelgrass. The commenter stated that it would be easier to accommodate this recommendation if NMFS could share monitoring data on reference sites through the different systems.

The inclusion of a reference site survey coincident with an eelgrass survey in an action area is not new for actions presently covered under the SCEMP and reviewed during individual EFH consultations. In most instances, NMFS will continue recommending the use of a reference site; reference sites are included as a means to protect a project proponent against encountering false positives for impacts that are not project related, but rather are the result of natural fluctuations that should be detectable both within the action area and a properly selected reference site. Given that every approach will need to be adapted to the specifics of the project, it would be unduly speculative to attempt to forecast additional burdens (if any) associated with any particular mitigation recommendation, but the burden of conducting eelgrass surveys both within

an action area and a reference site during the same survey period could be very minor when balanced against the burden of potential mitigation due to the lack of ability to distinguish between project effects and natural bed dynamics.

NMFS does not conduct surveys on reference sites as an ongoing practice, nor would it be appropriate for all action areas to utilize the same reference sites given that appropriate reference sites should be selected based on the characteristics of the action area. However, NMFS would consider the use of an established reference network if it were part of a regional eelgrass monitoring program.

See above regarding the use of the words “required” or “requirement”.

One commenter indicated that the reference site should be similar in coverage and density as the impact site.

We modified the text to include language indicating that eelgrass densities at the reference site(s) should be similar to the impact area, and where practical, the reference site(s) should be at least the size of the anticipated mitigation area. The purpose of the reference site is to control for natural variability to ensure that a project is not held responsible for mitigation of impacts that are due to factors beyond the project activities. The larger a reference site is, provided it shares characteristics with the impact site, the better it serves the function of representing regional trends as opposed to patch scale conditions.

Mitigation Options

Seven commenters recommended that options for "out-of-kind" as well as alternative mitigation be included.

Section II.E. of the CEMP Implementing Guidelines describes mitigation options, including comprehensive management strategies, in-kind mitigation, mitigation banks and in-lieu-fee programs, and out-of-kind mitigation. Because eelgrass is extremely limited on a statewide basis and is recognized as one of the most productive of marine habitats, there is a preference for in-kind mitigation of unavoidable impacts to this habitat. Recommendations for out-of-kind mitigation are provided for on a case-by-case basis. Proposals for out-of-kind mitigation should be described in a watershed or bay-wide perspective and demonstrate why out-of-kind mitigation is environmentally preferable to in-kind eelgrass mitigation. In addition, NMFS supports the development of comprehensive management plans as a mechanism to address the conservation objectives of the policy through alternative means. This support for comprehensive plans is intended to provide greater flexibility in how the no-net-loss policy for eelgrass may be achieved.

Two commenters requested that the policy mention the City of Newport Eelgrass Protection and Mitigation Plan for Shallow Waters in Lower Newport Bay: An Ecosystem Based Management Plan.

The draft Newport Beach local management plan for eelgrass has been identified in the revised text as one example in section II.E.1. If satisfactorily completed and adopted, it is anticipated the protection measures for eelgrass described in the plan would be adequate to meet the objectives of the CEMP and Implementing Guidelines.

One commenter suggested that adaptive management options be recommended that allow for supplemental mitigation areas (SMA) as well as other ways of ensuring that compensatory mitigation obligations are met. The commenter also asked for more explanation regarding the SMA examples.

To address this concern, text has been added to section II.F.8. to reference adaptive management actions and to clarify that out of kind options in lieu of an SMA may be appropriate in rare circumstances on a case-by-case basis. In addition, the SMA examples have been clarified and moved to an attachment as one example of supplemental mitigation.

<u>In-kind Mitigation</u>

One commenter recommended that the NMFS reconsider the timing of policy elements in concert with other environmental windows. With fall project activities, transplantation likely is not appropriate immediately following completion of work. The commenter raised concerns about potential penalties associated with delays in completing transplants associated with this timing.

The CEMP Implementing Guidelines address this concern in section II.F.5. with language stating "for impacts initiated within 90 days prior to, or during, the low-growth for the region, mitigation transplantation may be delayed to the beginning of the following growing season or 90 days following impacts, whichever is longer, without the need for additional mitigation."

Two commenters stated that mitigation success should be based solely on eelgrass cover that existed in the impacted area prior to construction.

Change in areal extent of eelgrass between the pre- and post-construction surveys is the primary factor in determining need for mitigation. However, particularly in cases of indirect effects, changes in eelgrass density may also trigger the need for mitigation. For example, when the actions proposed may result in changes to the environment such as reduction of light, modification of circulation patterns, or reduced water quality, annual monitoring over a two-year period provides a good measure of the true effects of the action on the eelgrass habitat. As such, changes in both aerial extent and/or density as triggers for mitigation have been retained in the policy.

Three commenters stated that the sequence and timeframes in which surveys, permitting, and mitigation are to take place is not clearly explained. A flow chart is recommended.

To address this request for clarification on intended sequencing of elements of the CEMP, language has been added to the CEMP Implementing Guidelines, and a flow chart has been added as Attachment 3. The flow chart follows the typical flow of activities that have been followed by projects under the SCEMP for several years and as such it is a well-tested process.

One commenter suggested that NMFS evaluate the extent of unoccupied potential eelgrass habitat and verify that potential mitigation sites are available and appropriate for mitigation.

As previously indicated, NMFS and its partner agencies are investigating eelgrass distribution patterns in a number of locations. However, this work is not focused specifically on identifying mitigation opportunities. In some areas in southern California, central California and portions of Humboldt Bay, eelgrass may occupy much of the available habitat suitable to support eelgrass. In such cases, it has generally been necessary to create appropriate habitat conditions to support eelgrass mitigation through raising or lowering substrate levels, altering substrate conditions, or modifying circulation patterns to improve suitability to accept eelgrass restoration. This approach has been determined to be the most effective means to establish eelgrass within systems already supporting eelgrass resources. This approach will only be successful, however, when there is information to support identification of the limiting factor for eelgrass distribution at the mitigation site, and when it is feasible to successfully modify that habitat factor.

One commenter asked how eelgrass active growth periods were determined for each region.

Eelgrass active growth periods were determined for each region based on examining results from various project-specific and regional surveys and through discussion with eelgrass experts and resource managers in the various regions. It is noted, however, that active growth windows are not always consistent, and flexibility in timing of surveys and monitoring may be addressed on a case-by-case basis through coordination with lead regulatory agencies in consultation with NMFS. This language is in section II.B.3.

One commenter requested that a definition be provided for the phrase "fullest extent possible" when considering mitigation.

The term "to the fullest extent possible" has been modified to "maximum extent practicable.". These terms have potentially different meanings under different legal constructs. This policy, however, does not impose any legal requirement requiring a definition of the term; instead, the term is used to demonstrate NMFS' belief that avoiding impacts and minimizing project impacts should be considered and, if appropriate, pursued prior to generating an effect to mitigate. The extent to which NMFS recommends avoidance and minimization measures is done on a case-by-case basis; when thinking about what is practicable for a particular project, we would likely seek an understanding of available alternatives and the relevant costs, existing technologies, and logistics of those alternatives relative to the project purpose.

Special Circumstances

Two commenters requested that a rationale be provided for why the policy grants reduced mitigation ratios for impacts to less than 10 m square meters of eelgrass habitat as it applies only to San Francisco Bay and Northern California.

The draft CEMP included a provision for small footprint impacts of less than 10 square meters for which NMFS would consider mitigation at a ratio of 1:1. Because the circumstances of small projects are not unique to northern California, language has been revised in the final CEMP

Implementing Guidelines to apply the provisions for small footprint impacts to all portions of California.

Six commenters stated that the draft policy should make distinctions for minor and temporary impacts. Two commenters stated that there should be a de minimus threshold for impacts. Four commenters stated that minor, vaguely defined and/or temporary impacts less than 10 square meters should not require mitigation.

The revised policy addresses localized temporary impacts within section II.G. In this regard, the policy identifies local temporary impacts wherein the damage to eelgrass is less than 100 square meters and the restoration or recovery occurs within one year of initial impact as being a condition for which the 1.2:1 mitigation should not apply. Text has been added to clarify that a 1:1 mitigation would be appropriate and recovery may be natural or facilitated by restoration. This language has been modified to be consistent across all regions.

For permanent but small footprint impacts, the draft policy had previously included modifying provisions. To address comments regarding the differential regional treatments within small impact areas in the CEMP Implementing Guidelines, the regional distinction has been eliminated and the utility corridor and potential for acceptance of 1:1 mitigation ratio or out-of-kind mitigation has been applied statewide.

The draft CEMP did not include a *de minimis* standard as scientific information is not available to support identification of a *de minimis* threshold. However, in section II. G, the policy provides for reduced mitigation ratios or out-of-kind mitigation options for projects resulting in localized temporary or localized, permanent impacts to eelgrass, depending on the circumstance of each individual project. The area thresholds included in this section are taken from the SCEMP and/or reflect recommendations NMFS staff have repeatedly made during individual EFH consultations. These thresholds minimize impacts to eelgrass habitat quality and quantity, based on NMFS' experience with: (1) conducting eelgrass surveys and monitoring and (2) reviewing project monitoring results for projects implemented under SCEMP. The special circumstance included for shellfish aquaculture longlines is supported by Rumrill and Poulton (2004) and the NMFS Office of Aquaculture.

One commenter suggested that maintenance dredging be exempt from mitigation requirements. Two additional commenters requested that marinas be exempt from mitigation requirements for work within original footprint.

The CEMP Implementing Guidelines do not affect the EFH regulatory requirements or the mandatory procedures under FWCA or NEPA; accordingly the CEMP Implementing Guidelines cannot provide an "exemption". For example, federal permitting of maintenance dredging will trigger the EFH consultation requirements under MSA, irrespective of CEMP implementation. NMFS recommends that the CEMP and Implementing Guidelines be utilized as intended to streamline the regulatory process for maintenance dredging and maintenance of small marinas, where eelgrass impacts may occur.

See above regarding the use of the words “required” or “requirement”.

In addition, the CEMP guidelines provide an avenue for conducting eelgrass mitigation within maintenance areas on a one-time basis using maintenance agreements or comprehensive management strategies. Where prior dredging has resulted in eelgrass impacts that have been successfully mitigated, it is possible to utilize the provisions of the policy to develop a recognized maintenance agreement such that eelgrass mitigation will likely not be needed for future maintenance dredging events within the same footprint.

Two commenters stated that because allowances are made for harvest of eelgrass for mitigation transplants, the same level of impact should be allowed for project activities without recommendation for mitigation.

The removal of eelgrass for transplants as described in the CEMP Implementing Guidelines should be completed in a manner as to thin the existing eelgrass habitat without affecting overall abundance or density (see section II.F.3.). Furthermore, the turions removed from one area of eelgrass habitat should remain in the same system to propagate a new area of eelgrass habitat, such that no loss of eelgrass habitat function occurs. For these reasons, removal of eelgrass turions as donor material and impact to eelgrass habitat from project activities are not comparable. No changes were made to the CEMP Implementing Guidelines.

Technical Edits and Clarifications

One commenter suggested that the policy include more scientific information on eelgrass studies conducted in California.

NMFS has utilized the best scientific information available to support recommendations in the CEMP Implementing Guidelines. While there are few studies specific to California, we have added additional scientific information from studies conducted along the Pacific Coast.

One commenter suggested that NMFS incorporate into the policy the quantitative and/or qualitative criteria for the listed variables (sediment, light, energy) which correspond to conditions suitable for eelgrass growth.

We did not include specific criteria for variables of suitable eelgrass habitat, as criteria may vary with regions of California and between embayments within a region. Further, this level of detail is not consistent with other elements of the CEMP Implementing Guidelines. However, in the future NMFS may develop a guidance document that discusses ranges of criteria for eelgrass habitat. This document would be available on the NOAA NMFS West Coast Region website (https:wcr.nmfs.noaa.gov).

One commenter described the policy's assertion that recreational boating and commercial shipping are responsible for decline in eelgrass as unsubstantiated. The commenter also characterized as contradictory the policy's assertion that pollution and upland development are the primary cause.

Recreational boating and commercial shipping can contribute to eelgrass decline through water quality degradation, direct damage by dredging, and vessel grounding damage. However, as the commenter noted, aspects of boating and commercial shipping were perhaps over-emphasized in characterizing the stressors affecting eelgrass. The introduction was redrafted to put these activities into context with other factors that can adversely affect eelgrass.

Two commenters suggested that the policy include a glossary of terms. Another commenter stated that the policy's lack of definitions of terms brings into question the basis of some policy recommendations.

A Glossary of Terms has been added to the CEMP Implementing Guidelines as Part III of the document. In addition, the policy includes definitions throughout the document to facilitate ease of reading.

One commenter asked what the draft policy meant by "true effects" for small projects.

The CEMP Implementing Guidelines have been clarified to read that mapping should be appropriate to the scale of the impact in order to identify actual changes in the eelgrass habitat.

Outside Scope of Policy

One commenter suggested that NMFS should include small-scale mapping into larger regional datasets to assist in closing "data gaps."

NMFS is engaged with various partners in several monitoring and regional mapping programs in an effort to improve the overall understanding of eelgrass distribution and variability within the region as a means to assess broad scale environmental changes as well as system-wide eelgrass status through time. However, regional mapping is not within the scope of this draft policy.

One commenter suggested that spatial information for tracking existing beds and mitigation sites be publicly available.

NMFS is in the process of evaluating the capacity to serve regional eelgrass data as well as mitigation monitoring data to the public through the California Wetlands Portal (Wetlands Tracker) website. This effort is independent and unrelated to the draft mitigation under review at this time.

One commenter suggested that ACOE should be prohibited from dredging in Morro Bay farther back in the bay than the harbor mouth.

This comment is not within the scope for consideration under this policy.

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