



## **National Marine Fisheries Service Southwest Region**

# **Southern California Eelgrass Mitigation Policy**

**July 31, 1991**



## SOUTHERN CALIFORNIA EELGRASS MITIGATION POLICY (Adopted July 31, 1991)

Eelgrass (*Zostera marina*) vegetated areas function as important habitat for a variety of fish and other wildlife. In order to standardize and maintain a consistent policy regarding mitigating adverse impacts to eelgrass resources, the following policy has been developed by the Federal and State resource agencies (National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game).

For clarity, the following definitions apply. "Project" refers to work performed on-site to accomplish the applicant's purpose. "Mitigation" refers to work performed to compensate for any adverse impacts caused by the "project". "Resource agencies" refers to National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

1. Mitigation Need. Eelgrass transplants shall be considered only after the normal provisions and policies regarding avoidance and minimization, as addressed in the Section 404 Mitigation Memorandum of Agreement between the Corps of Engineers and Environmental Protection Agency, have been pursued to the fullest extent possible prior to the development of any mitigation program.
  
2. Mitigation Map. The project sponsor shall map thoroughly the area, distribution, density and relationship to depth contours of any eelgrass beds likely to be impacted by project construction. This includes areas immediately adjacent to the project site which have the potential to be indirectly or inadvertently impacted as well as areas having the proper depth and substrate requirements for eelgrass but which currently lack vegetation.

Protocol for mapping shall consist of the following format:

1) Coordinates

Horizontal datum - Universal Transverse Mercator (UTM), NAD 83, Zone 11  
Vertical datum - Mean Lower Low Water (MLLW), depth in feet.

2) Units

Transects and grids in meters.  
Area measurements in square meters/hectares.

All mapping efforts must be completed during the active growth phase for the vegetation (typically March through October) and shall be valid for a period of 120 days with the exception of surveys completed in October.

A survey completed in October shall be valid until the resumption of active growth (i.e., March 1). After project construction, a post-project survey shall be completed within 30 days. The actual area of impact shall be determined from this survey.

3. Mitigation Site. The location of eelgrass transplant mitigation shall be in areas similar to those where the initial impact occurs. Factors such as, distance from project, depth, sediment type, distance from ocean connection, water quality, and currents are among those that should be considered in evaluating potential sites.
4. Mitigation Size. In the case of transplant mitigation activities that occur concurrent to the project that results in damage to the existing eelgrass resource, a ratio of 1.2 to 1 shall apply. That is, for each square meter adversely impacted, 1.2 square meters of new suitable habitat, vegetated with eelgrass, must be created. The rationale for this ratio is based on:
  - 1) the time (i.e., generally three years) necessary for a mitigation site to reach full fishery utilization and
  - 2) the need to offset any productivity losses during this recovery period within five years. Transplant mitigation completed three years in advance of the impact (i.e., mitigation banks) will not incur the additional 20% requirement and, therefore, can be constructed on a one-for-one basis. However, all other monitoring requirements (outlined below) remain the same irrespective of when the transplant is completed. Project proponents should consider increasing the size of the required mitigation area by 20-30% to provide greater assurance that the success criteria, as specified in Section 9, will be met.
5. Mitigation Technique. Techniques for the construction and planting of the eelgrass mitigation site shall be consistent with the best available technology at the time of the project. Donor material shall be taken from area of direct impact whenever possible, but also should include a minimum of two additional distinct sites to better ensure genetic diversity of the donor plants. Written permission to harvest donor plants must be obtained from the California Department of Fish and Game. Plantings should consist of bare-root bundles consisting of 8-12 individual turions. Specific spacing of transplant units shall be at the discretion of the project sponsor. However, it is understood that whatever techniques are employed, they must comply with the stated requirements and criteria.
6. Mitigation Timing. For off-site mitigation, transplanting must be started prior to or concurrent to the start-up of the project resulting in the impact to the eelgrass bed. For on-site mitigation, transplanting should be postponed when construction work is likely to impact the mitigation. However, transplanting of on-site mitigation must be started no later than 45 days after completion of in-water construction activities, unless this would occur outside of the growing period or a greater site stabilization period is deemed warranted by the resource agencies. A construction schedule which includes specific starting and ending dates shall be provided to the resource agencies.

7. Mitigation Delay. Any delays in the implementation of required eelgrass mitigation work shall result in a seven percent increase of the areal extent of mitigation required per month. This increase in mitigation obligation is necessary to ensure that all productivity losses incurred during this period are sufficiently offset within five years.
8. Mitigation Monitoring. Monitoring the success of eelgrass mitigation shall be required for a period of five years for most projects. Monitoring activities shall determine the percent coverage and density of plants at the transplant site and shall be conducted at 3, 6, 12, 24, 36, 48, and 60 months after completion of the transplant. All monitoring work must be conducted during the active vegetative growth period and shall avoid the winter months of November through February. Sufficient flexibility in the scheduling of the 3 and 6 month surveys shall be allowed in order to ensure the work is completed during this active growth period. Additional monitoring beyond the 60 month period may be required in those instances where stability of the proposed transplant site is questionable.

The monitoring of an adjacent or other acceptable control area (subject to the approval of these source agencies) to account for any natural changes or fluctuations in bed width or density must be included as an element of the overall program. A monitoring schedule that indicates when each of required monitoring events will be completed shall be provided to the resource agencies prior to or concurrent with the initiation of the mitigation.

Monitoring reports shall be provided to the resource agencies within 30 days after the completion of each required monitoring period.

9. Mitigation Success. Criteria for determination of transplant success shall be based upon a comparison of vegetation coverage (area) and density (turions per square meter) between the project and mitigation sites. Extent of vegetated cover is defined as that area where eelgrass is present and where gaps in coverage are less than one meter between individual turions clusters. Density of shoots is defined by the number of turions per area present in representative samples within the control or transplant bed. Specific criteria are as follows:
  - a. a minimum of 70 percent areal coverage and 30 percent density after the first year.
  - b. a minimum of 85 percent areal coverage and 70 percent density after the second year.
  - c. a sustained 100 percent areal coverage and at least 85 percent density for the third, fourth and fifth years.

Should the required eelgrass transplant fail to meet the established criteria, then a Supplementary Transplant Area (STA) shall be constructed, if necessary, and planted. The size of this STA shall be determined by the following formula:

$$STA = MTA \times (|At + Dt| - |Ac + Dc|)$$

MTA = mitigation transplant area.

At = transplant deficiency or excess in area of coverage criterion (%).

Dt = transplant deficiency in density criterion (%).

Ac = natural decline in area of control (%).

Dc = natural decline in density of control (%).

Three conditions apply:

- 1) For years 2-5, an excess of only up to 30% in area of coverage over the stated criterion with a density of at least 60% as compared to the control area may be used to offset any deficiencies in the density criterion.
  - 2) Densities which exceed any of the stated criteria shall not be used to offset any deficiencies in area of coverage.
  - 3) Any required STA must be initiated within 120 days following the monitoring event that identifies a deficiency in meeting the success criteria. Any delays beyond 120 days in the implementation of the STA shall be subject to the penalties as described in Section 7.
10. Mitigation Bank. Any mitigation transplant success that, after five years, exceeds the mitigation requirements, as defined in Section 9., may be considered as credit in a "mitigation bank". Establishment of any "mitigation bank" and use of any credits accrued from such a bank must be with the approval of the resource agencies and be consistent with the provisions stated in this policy. Monitoring of any approved mitigation bank shall be conducted on an annual basis until all credits are exhausted.
11. Exclusions. Placement of a single pipeline, cable, or other similar utility line across an existing eelgrass bed with an impact corridor of no more than 12 inches wide may be excluded from the provisions of this policy with concurrence of the resource agencies. After project construction, a post-project survey shall be completed within 30 days and the results shall be sent to the resource agencies. The actual area of impact shall be determined from this survey. An additional survey shall be completed after 12 months to insure that the project or impacts attributable to the project have not exceeded the allowed 12 inch corridor width. Should the post-project or 12 month survey demonstrate a loss of eelgrass greater than the 12 inch wide corridor, then mitigation pursuant to provisions 1-10 of this policy shall be required.