

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
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April 22, 1988

TO: All Commissioners and Alternates
FROM: Alan R. Pendleton, Executive Director
SUBJECT: STAFF RECOMMENDATION CONCERNING MITIGATION EVALUATION
(For Commission consideration on May 5, 1988)

Summary

The staff is recommending that the Commission take the following action to ensure that the mitigation projects it requires in its permit process are successful: (1) amend the Commission's permit application form to require specific information from applicants for fill projects concerning the environmental resource values of the project area proposed to be filled; (2) direct the staff to inform Bay fill project applicants to consider developing a preliminary mitigation program early in project planning so that the mitigation program can be considered in the review of the applicant's project application; (3) include detailed mitigation conditions in permits that clearly identify the Bay resources adversely affected by the fill project, the goals of the mitigation program, the required elements of the mitigation project plan, a schedule for implementing the mitigation program, and a monitoring and maintenance program; (4) give increased priority to enforcing mitigation permit conditions; and (5) continue promoting and assisting tideland restoration research, acquisition, and implementation programs. The staff recommendation is based on the information contained in the staff's report "Mitigation: An Analysis of Tideland Restoration Projects in San Francisco Bay," dated March 1988, and oral and written comments on the report presented during the public hearing process. Public hearings on the report were held on March 17 and April 7, 1988. The specific staff recommendations below are followed by the staff's analysis and reasons for the recommendations, and the staff response to comments received on the report.

Staff Recommendation

1. Changes to the Permit Application Form. The Commission should direct the staff to begin the process of amending the Commission's permit application form to require applicants to provide information needed for the Commission to determine whether mitigation is needed and if so, the kind of mitigation and the appropriate mitigation program that will offset the specific adverse environmental impact on the Bay caused by the fill project.

The following information should be required of an applicant proposing Bay fill: (a) the kinds and amount of tidelands (such as high elevation salt marsh, pickleweed marsh, cordgrass marsh, intertidal mudflats, and subtidal lands) that would be filled or adversely affected by the project; (b) the amount of Bay surface area and volume displaced or covered by the fill; (c) the effect of the project on tidal circulation; and (d) the plants and animals displaced or adversely affected by the fill.

2. Advice to Applicants Concerning Mitigation. The Commission should direct the staff to inform each applicant proposing a Bay fill project of the probable need for a mitigation program as early as possible in the environmental review and permit process, so that the applicant has ample opportunity to assess the adverse impacts of the fill on Bay resources and to describe the location and contents of the applicant's proposed mitigation program in the permit application.

3. Changes to Permit Mitigation Conditions. When the Commission permits projects that require restoration to mitigate adverse affects, the permits should address the following specific information and permit conditions:

a. Description of Impacted Resources. Findings should clearly describe the specific Bay resources that will be lost or disturbed as a result of placing the authorized fill.

b. Statement of Mitigation Program Goals. Mitigation conditions should clearly state the mitigation program goals for offsetting the adverse environmental impacts of the fill project on Bay resources.

c. Mitigation Plan. Mitigation conditions should require preparation of a mitigation plan, to be received and approved by or on behalf of the Commission, that is prepared by or in association with a tidal hydrologist and a biologist experienced in tideland restoration. The plan should examine the specific attributes of the selected mitigation site and provide:

- (1) Precise elevations, at one-foot contour intervals, that a biologist certifies are suitable for the required plant and animal communities and that a hydrologist certifies will provide sufficient tidal prism and circulation to accommodate expected siltation and meet the mitigation project goals set by the Commission;
- (2) An analysis of both on- and off-site constraints to tidal flow to the site, such as channel dimensions, and size of levee breaches or tidal control structures;
- (3) A soils analysis to determine whether the soils are suitable for establishment of target plant and animal communities;
- (4) A list of the Bay resources to be created by the mitigation program, with an indication of how much of the mitigation site is to be occupied by each tideland vegetative community and habitat type;
- (5) A requirement that the mitigation program contractor certify that the grading and excavation are in conformance with the Commission-approved mitigation plan;
- (6) A clear schedule for meeting each element of the mitigation program; and

- (7) A list of the persons responsible for planning and implementing each element of the mitigation program, such as preparation and review of mitigation plans, site improvements, and maintenance and monitoring programs.

d. Size of Restoration Area. The mitigation program should involve restoration or enhancement of an area that is both larger in size and greater in natural resource value than the Bay resources lost or adversely affected because of the fill project.

e. Timing of Mitigation Program Implementation. Mitigation programs should be carried out concurrently with or prior to the authorized Bay fill portion of the Commission-approved project unless the Commission determines that concurrence or prior development of the mitigation site is unreasonable. In such cases, the permittee should provide a larger mitigation area and greater Bay resource values than would be provided if the mitigation program were to be carried out prior to or concurrent with the fill project.

f. Mitigation Monitoring and Maintenance Program. A monitoring and maintenance program for the mitigation project should be prepared and approved by or on behalf of the Commission, which clearly identifies the scope of monitoring and maintenance, the persons responsible for the monitoring and the maintenance, and a monitoring and maintenance schedule. Monitoring should be carried out by persons, approved by or on behalf of the Commission, who are recognized as knowledgeable in tideland restoration or enhancement. The permittee should report annually to the Commission on the status and performance of the mitigation. The report should include at least the following information:

- (1) The dates that various elements of the mitigation program were completed, such as site excavation, dike breaching, planting, etc.
- (2) An evaluation of existing site conditions, including survival rates of any planting, sedimentation rates, soil characteristics (acidity, salinity, and texture), recruitment of new plants and animals, etc.
- (3) An identification of any problems that may have arisen at the mitigation site, such as greater than anticipated sedimentation rates, bank slumping, constraints to tidal flow, failure of required plantings, accumulation of debris, etc. Particular emphasis should be placed on identifying problems that may adversely impact the mitigation program with recommendations for corrective actions.
- (4) An evaluation of how closely the resources actually occurring on the site compare with the resources shown in the approved mitigation plan, including an estimate of plant coverage.

- (5) An evaluation of whether restoration is proceeding in accord with the approved program and schedule.

The permittee should be responsible for the maintenance of mitigation sites, including such activities as clearing channels of debris, assuring that tidal control structures are functioning, maintaining levees, etc., as long as any fill for the project causing detriment remains in place. In the event that the mitigation site is transferred to another party, maintenance responsibilities should be clearly established and approved by or on behalf of the Commission much as the Commission requires for public access facilities.

Similarly, the permittee should be responsible for monitoring the performance of the mitigation program and reporting to the Commission annually until such time that 75 percent of the target resources have become established on site and the site has reached a state of dynamic equilibrium similar to that of natural wetlands. At such time, reports of the monitoring may be discontinued if approved by or on behalf of the Commission.

4. Enforcement of Mitigation Requirements. The Commission should direct the staff to increase the priority given to monitoring mitigation programs and enforcing mitigation requirements. Review of the annual monitoring reports should assist in this effort.

5. Promote and Assist Tidelands Restoration. The Commission should promote and assist tidelands restoration programs and the dissemination of knowledge concerning tidelands restoration by taking the following actions:

- a. Encourage Bay area universities and colleges to include studies of Bay Area estuarine systems in their research programs and class projects, and support the grant applications of scientists undertaking research that will advance the science of restoration. Establish contacts in the biology, natural resources, or planning departments of each of the Bay Area universities and colleges and keep them apprised of new tideland restoration projects authorized or required by the Commission.

- b. Include as part of the Commission's annual report, a discussion and analysis of the current status of Commission-required mitigation programs.

- c. Promote an aggressive, comprehensive, and regional approach to enhancement of Bay resources by supporting the acquisition of suitable areas near the Bay which can be restored to tidelands and enhanced for Bay-related wildlife habitat. To assist in implementing such a program, the Commission should support a program at the state level that would establish a regionwide mitigation bank where much of the money spent in acquiring, restoring, and managing restored tidelands is recovered by subsequent application of development fees to mitigate authorized tideland losses. The program should provide a mechanism for protecting lands suitable for restoration, as well as reserving areas that could be used as mitigation for needed and approvable water-oriented uses.

Staff Analysis

1. Changes to the Permit Application Form. Detailed information on the kinds and amount of tideland resources displaced or adversely affected by a proposed Bay fill project is essential for the Commission to understand the adverse environmental impacts on Bay resources of the proposed project. Such information is also necessary to determine whether mitigation should be required, and, if so, suitable goals for the mitigation program. Without such information to guide the mitigation effort, there is no assurance that the mitigation program, even if successfully implemented, will offset the project's impacts on Bay resources. Moreover, the recent U. S. Supreme Court decision in Nollan v. California Coastal Commission places a greater burden on the staff and the Commission to explain, with supporting evidence, what the precise adverse impacts of a given project are going to be or are likely to be, and explain precisely how the particular mitigation conditions will offset those anticipated impacts.

2. Advice to Permit Applicants. The Mitigation Evaluation study found evidence that permit applicants benefitted from preparing detailed mitigation programs sufficiently early in the permit application process so that the proposed programs could be evaluated by the public and government agencies during the public review and comment period on the project's environmental document and permit application. Generally, these projects experienced fewer delays in project construction and mitigation program implementation than those projects where a mitigation program was developed late in the review process. In addition, the study also found evidence that the lack of mitigation program success was often based on a poorly conceived mitigation program. Public review and comments and the public hearing process assists the Commission and permit applicants in identifying defects in proposed mitigation programs and is invaluable in assisting applicants and the Commission in developing early solutions to troublesome mitigation program problems early.

3. Clear Permit Mitigation Conditions. Mitigation programs involving tideland restoration must be based on specific mitigation goals and objectives set by the Commission if they are to offset a project's specific, adverse environmental impacts. Such programs must also be carefully planned and implemented to assure the creation of tidal regimes, site elevations, and soil conditions suitable for the establishment of the desired Bay resources as determined by the Commission. The expertise of a tidal hydrologist and a biologist experienced in estuarine wetland restoration is essential to designing a successful tidelands restoration project.

Though clear mitigation program goals and objectives and careful planning and implementation greatly increase the likelihood that a mitigation program will succeed in creating the desired Bay resources, there is no certainty that any given mitigation program will successfully create its target Bay resources, or that the created resources will be as long-lived as the resources lost as a result of Commission-authorized fill. Moreover, there is always a period of time between completion of required mitigation improvements and the establishment of a complex wetland community of plants and animals--a lag time that may be decades long in the case of large restoration projects. Further, until detailed studies of the diversity,

productivity, and functioning of restored tidelands are performed, one cannot be certain that restored tidelands fully duplicate and compensate all the environments and functions of natural tidelands. By requiring that mitigation programs involve restoration of larger areas having greater resource value than areas lost to fill, the risk is reduced that authorized fill projects and their associated mitigation programs will result in the continued diminution of Bay tideland resources.

The difficulty is in deciding how much larger the mitigation site and how much greater the Bay resource value should be. Any formula, while predictable, is also arbitrary. For example, how does one factor in the unknown number of years it will take for a mitigation site to fully replace Bay resources lost or disturbed as a result of a Commission-authorized fill project? Some coastal programs (e.g., New Jersey's) have attempted to address such issues by requiring that disturbance or loss of wetlands "must be compensated for by the creation or restoration of an area of wetlands at least twice the size of the surface area disturbed, unless the applicant can prove...that by restoring or creating a lesser area, there will be no net loss in the environmental value of wetlands...." Although requiring a two for one mitigation ratio will probably compensate for the time lag until a mitigation program has replaced the lost resources, as well as covering losses from partially realized mitigation programs, there simply is not the scientific knowledge at this time to establish a ratio that will assure that mitigation programs will not result in the further loss of Bay resources. However, it is obvious that the larger the ratio of mitigation resource values to resource values lost through authorized Bay fill, the greater the likelihood that a mitigation program will adequately offset a fill project's impacts. The Commission must determine the appropriate size of the mitigation site and the Bay resources to be created on a case-by-case basis, as the Commission's Bay Plan mitigation policy requires. However, the base line for determining the appropriate size and resource values to be created should be that the size is greater than the amount of Bay filled and the resource values should be greater than the Bay resources lost or adversely affected by the fill project.

The Mitigation Evaluation study also found that implementation of nine of the fourteen evaluated mitigation projects was delayed because of problems in: (a) finding and acquiring a suitable mitigation site; (b) developing an appropriate mitigation program for the selected site; and/or (c) unforeseen conditions at the mitigation site necessitating changes in the mitigation program. Such delays in implementing mitigation programs have, in some instances, resulted in the Bay suffering damage from a project for some time before the benefits of a mitigation program were realized. In a few cases, those benefits have still not been realized. To avoid recurrence of such problems, proposed mitigation programs should include a specific and enforceable implementation schedule such that the benefits of the program will be, to the extent possible, concurrent with the environmental damage caused by the project. Such a schedule is recommended for inclusion as a standard permit mitigation program condition in Recommendation No. 3 above.

In those cases where prior mitigation provision or concurrence cannot be achieved, greater mitigation, as part of the mitigation program, would offset Bay resource losses owing to the lapse in time between the damage inflicted by the project and the benefits provided by the mitigation program.

Monitoring short-term changes following site restoration, coupled with a requirement to maintain mitigation improvements allows adjustments to be made to the mitigation program in response to the actual functioning of the newly created tidelands. Monitoring also allows the results of past mitigation programs to aid the planning and implementation of future restoration projects, increases the permittee's commitment to the success of the mitigation program, and assists in the enforcement of mitigation requirements. When a Commission permit requires tideland mitigation, the permit should require the permittee, if the permittee has the necessary qualifications, or through consultants approved by the Commission, to annually report to the Commission on the status of the mitigation effort. In this manner, the Commission can best ensure that the mitigation program is being carried out in accord with the Commission's permit requirements.

4. Enforcement of Mitigation Requirements. The two factors most often responsible for the failure of mitigation programs are either (a) some portion of the required mitigation was not implemented or (b) the mitigation program was carried out incorrectly. Thus, improved enforcement of Commission-required mitigation programs is an essential action that would improve performance of these mitigation projects. The Commission could improve the enforcement of its mitigation conditions by: (a) directing staff to increase the priority given to monitoring mitigation programs (unfortunately, because of staff and funding limitations, this would probably be at the expense of other necessary enforcement activities); and (b) requiring submittal of annual monitoring reports of mitigation sites. The staff has recommended in Recommendation No. 3, above, that the Commission require a monitoring program with annual monitoring reports. The second major step the Commission can take to help ensure success of mitigation programs it has required is to direct the staff to place higher priority on enforcement of mitigation permit requirements. The staff has recommended that the Commission do this as well.

5. Promote and Assist Tidelands Restoration. Increased knowledge of how tidelands function and improvements in restoration techniques will increase both the success and the efficiency of mitigation programs involving tideland restoration. In particular, information is needed on: (a) whether the productivity, species diversity, density, food chain support, hydrologic functioning, nutrient cycling, etc. of restored tidelands are equivalent to natural tidelands; (b) whether restored tidelands are as long-lived as natural tidelands; (c) why some restoration projects fail, age rapidly, or are slow in recruiting plant and animal communities; (d) whether some resources can't be replaced (for example, efforts to establish eelgrass beds in San Francisco Bay have thus far been unsuccessful); (e) the relative habitat value and cost-effectiveness of small restoration projects in comparison to large restoration areas; and (f) whether certain restoration designs, site manipulations, and planting techniques are more effective than others in establishing a tideland community. Because restoration is a new and evolving science, it is important that the results of wetlands mitigation projects be disseminated to estuarine scientists, restoration professionals, regulatory agencies, and the public. Though the Commission itself has neither the expertise nor funds to perform or fund such original research, it can promote such research by encouraging Bay area universities and colleges to include

studies of Bay area estuarine systems in their research programs and class projects, and can support the grant applications of scientists undertaking research that will advance the science of restoration. Furthermore, by reporting on the performance of Commission-required mitigation programs on an annual basis, the Commission can also make a valuable contribution to the information available to restoration scientists and researchers.

Another important way in which the Commission can assist and encourage tidal restoration around the Bay is by taking a leadership position in promoting an aggressive, comprehensive, and regional approach to enhancement of Bay resources, particularly the acquisition of suitable areas near the Bay which can be enhanced for Bay-related habitat. Mitigation programs required by the Commission can and should be integrated with this enhancement program. Such integration will reduce the burden on applicants in finding acceptable sites and designing appropriate mitigation programs. Because development has been proposed for many of the remaining undeveloped former tidelands along the Bay's perimeter, and because the wetland policies of fish and wildlife agencies have changed so that they now generally oppose using former tidelands that are diked seasonal wetlands as mitigation sites, mitigation sites may become increasingly difficult to secure and expensive to purchase in the future.

The natural resources of the Bay can be enhanced more fully and economically if a large, regional, and enforceable enhancement program is available. Currently, there is no comprehensive regionwide plan or strategy concerning restoration and management goals for San Francisco Bay's tidelands and associated wetlands. But much technical information needed for such a plan and strategy exists, particularly in the Commission's "Diked Historic Baylands Study," completed in October 1982, and in the U.S. Fish and Wildlife Service's report on the "Protection and Restoration of San Francisco Bay Fish and Wildlife Habitat."

The Commission could promote the realization of this objective by coordinating a task force consisting of all federal, state, and local agencies with expertise or permit authority for Bay activities that would be responsible for developing and implementing a regionwide, Bay-related restoration and enhancement program for tidelands and other kinds of wetlands. Such a plan and implementation strategy will streamline mitigation efforts, assure consistency of mitigation requirements, and better assure that the total regional resource values of the Bay estuarine system are increased in the future. A comprehensive, professionally designed and managed, and regionwide restoration and enhancement program will be more likely to create the kinds and amounts of new Bay-related environmental resources that are needed, at less cost than a number of small, unrelated mitigation programs. Legislation may be required to assure that all agencies and parties involved with mitigation programs and resource restoration and enhancement activities participate fully in and are bound by a comprehensive and regional program.

Finally, after acquiring and creating Bay tidelands and associated wetlands, the state should establish a regionwide mitigation bank where much of the money spent in acquiring, restoring, and managing such wetlands is recovered by subsequent application of development fees to mitigate authorized

tideland losses. Such a proposal would provide a means for protecting lands suitable for tidal restoration, as well as reserving areas that could be used as mitigation for needed and approvable water-oriented uses.

Response to Comments

The Commission received four written comments and eight oral comments on the report. Most of these comments were responded to by the staff at the two public hearings and are recorded in the Commission minutes of March 17 and April 7, 1988. Copies of all written comments have been mailed to Commissioners and interested parties. A summary of the major comments received and the staff response follows in the order received.

1. Golden Gate Audubon Society, Arthur Feinstein (Oral statement March 17, 1988).

a. **Comment:** Although the report indicates that wetlands can be restored, there is still no certainty that any particular restoration effort will be successful. Because of the uncertainty of success of a given mitigation effort, the Commission should be careful not to approve a Bay fill project simply because the mitigation appears attractive.

Response: The staff report does state that there is no certainty that any given tidal restoration program will totally meet all of its restoration goals (p. 53). The report also includes a list of recommendations designed to increase the likelihood that future mitigation programs will succeed, thereby reducing risks of further wetland losses (p.61-71). And finally, the report (p. 7) makes clear that "[h]owever attractive a given mitigation program may be in terms of restoring Bay resources, mitigation by itself cannot make a fill project acceptable that otherwise does not meet all the McAteer-Petris Act requirements." The report emphasizes that a fill project must meet all the tests of the Commission's law and policy (i.e. that the fill is for a water-related use, that there is no alternative upland location, that the fill is the minimum necessary, etc.) before mitigation is considered.

b. **Comment:** Mitigation should take place prior to the placement of any authorized fill.

Response: The staff agrees that this is a desirable objective, but believes that such a goal is not always practical. By recommending that mitigation programs be implemented concurrently or prior to the placement of fill wherever practical; by requiring additional mitigation when it is not possible to

implement the mitigation program prior to or concurrent with fill placement, by requiring the restoration of areas that are larger in size and greater in habitat value than the area disturbed by the project, and by including a number of other recommendations that will improve future mitigation efforts, the staff believes that this concern has been addressed to the extent practical.

2. The Bay Institute, Bill Davoren, (Oral and written statement of March 17, 1988).

a. **Comment:** A low-budget, cooperative computer system with up-to-date information on ownership, resource value, and current development proposals for the land adjacent to San Francisco Bay would assist in improving land use decisions affecting such lands.

Response: Staff agrees that such a system could have value.

b. **Comment:** Recommendation No. 9 suggesting that all federal, state, and local agencies work together to prepare and implement a regionwide, Bay-related wetland enhancement program is unrealistic.

Response: Staff agrees that implementing this proposal will be difficult, but believes that such a cooperative effort is necessary to improve mitigation and restoration efforts in the Bay area as well as to coordinate critical wetland acquisition and restoration programs. The staff also believes that there is increasing support for such an effort, as witnessed by the support this recommendation received from several other speakers. Finally, the staff believes that, with proper leadership, the recommendation can be accomplished.

3. The Bay Chapter of the Sierra Club, Dana Kokubun (Oral Statement of March 17, 1988).

a. **Comment:** Agrees with most of the recommendations.

Response: Comment Noted.

b. **Comment:** Has concerns about two of the recommendations. The first concerns mitigation banking. The Sierra Club believes that contributions to mitigation banks should be accepted as mitigation only after the appropriate wetland habitat has been successfully created on an appropriate parcel. The second concern is that tideland restoration should not be accepted as mitigation until the report's other recommendations have been fully implemented.

Response: The staff report and staff recommendation make it clear that contributions to a mitigation bank should be accepted as appropriate mitigation only after a mitigation bank has been acquired and is operating under a plan approved by the Commission. The staff does not agree that contributions to such a bank should be accepted only after the appropriate wetland type has been established on the site. Conceivably, there are many situations where the Commission may wish to approve contributions to a mitigation bank even though the exact habitat lost as a result of a project's fill has not yet been created at the mitigation site. For example, the Commission may wish to approve as mitigation a contribution of money to improve a mitigation site when such a site has been acquired but has not yet been restored because of lack of funds. Or the Commission may wish to approve a contribution to a mitigation bank that has created a scarce Bay resource even though the impacted resource was quite different. The staff believes that such contributions are both in accord with the Commission's mitigation policy and may be highly desirable.

c. Comment: The study provides an inaccurate assessment of mitigation program "success" because it defines success on the basis of whether a mitigation project had both met the permit's specific mitigation requirements and created or enhanced valuable wetland resources, rather than defining success on the basis of whether the tideland restoration projects, replaced the habitats lost or disturbed by the fill.

Response: The staff agrees that it would have been desirable to measure the success of each tideland mitigation program by how well it replaced or offset the specific, adverse Bay-related impacts of the authorized Bay fill project. But as the report notes (p. 1 and p. 13), it was not possible to measure success using this criterion because: "(1) few of the evaluated permits and their associated environmental documents contain detailed information on the Bay resources lost or disturbed as a result of the authorized fill project; (2) early mitigation efforts appear to have been largely designed to create a desired habitat (in most cases, a cordgrass marsh) rather than replacing the specific resources lost as a result of authorized fill; and (3) there is no agreement regarding the relative value of various Bay resources."

The staff does not agree, however, that to use any other criteria to measure success gives an inaccurate picture of the success of a mitigation program. All of the mitigation projects evaluated in the report had been required prior to adoption of the Commission's mitigation policy in 1985, a policy which states, in part, that "benefits from the mitigation would be commensurate with the adverse impacts on the resources of the Bay and consist of providing areas and enhancement resulting in characteristics and values similar to the characteristics and values adversely affected." Thus, it is simply not reasonable to measure success based on whether a project met the requirement of a policy that had not yet been adopted. It is far more reasonable to measure success for these pre-1985 projects on the basis of whether the mitigation performed had fulfilled the conditions that the Commission had determined in approving the project would mitigate the project's adverse impacts.

Secondly, the key question regarding whether or not mitigation involving wetland restoration can compensate or replace resources lost as a result of authorized Bay fill is whether specific target resources can be created and/or restored. The study found overwhelming evidence that when a mitigation plan is carefully prepared and implemented, it is likely that the target wetland resources can be successfully created. The study found, in fact, that mitigation projects had successfully created most of the typical wetland resources found naturally in San Francisco Bay.

Finally, the staff points out there are occasions where it may be desirable to create resources other than those lost or impacted by the fill. For example, the Commission has in the past made the determination that it is sometimes appropriate to replace subtidal habitat with intertidal marshes and mudflats. Such decisions have been generally supported by environmentalists because there is a relative abundance of subtidal habitat in the Bay and a relative scarcity of intertidal marshes. Yet such mitigation does not result in in-kind replacement.

d. **Comment:** The Commission should not allow a project to proceed until the appropriate wetland resources have been fully established at the mitigation site.

Response: See response to Audubon comment 1.b. above.

4. John Zentner, Zentner & Zentner (Oral presentation of March 17, 1988 and letter dated March 16, 1988).

a. **Comment:** Recommendations of the report are good, however greater attention should be spent on mitigation program monitoring.

Response: Comment noted. Staff Recommendation Nos. 3 and 4, above, concerning permit conditions and enforcement respond to Mr. Zentner's mitigation program monitoring point.

b. **Comment:** Accessways near restoration areas should be examined to determine whether an adequate buffer is provided between public access areas and wildlife habitat.

Response: Mr. Zentner raises a very good point, and this issue will be examined closely in the public access evaluation study that is part of the Commission's 1988-89 Fiscal Year planning work program.

c. **Comment:** The concept of "in-kind" restoration was not discussed in the report.

Response: The mitigation report is an evaluation of the performance of mitigation programs required by the Commission. The report does not and was not intended to be an analysis of the kinds or concepts of mitigation currently practiced or discussed. A complete discussion of mitigation and the Commission mitigation authority is contained in the Commission document "Staff Report on Fill Controls" published in October 1984.

d. **Comment:** Mr. Zentner expressed that his independent analysis of 26 mitigation projects agreed with the results of the Commission's study. He did note that there was a slight difference in the characterization of the Dunphy Park mitigation program in Sausalito which he believed was unsuccessful and the report classified as a partial success.

Response: Comment noted.

5. Marin Audubon Society, Barbara Salzman (Oral statement of March 17, 1988)

a. **Comment:** Mr. Feinstein and Ms. Kokubun have raised some important comments.

Response: Comments noted. See response to comments 1 and 3.

b. **Comment:** Believes that a mitigation site should be twice the size of the impacted area.

Response: The staff discusses the difficulty of setting a fixed mitigation ratio on p. 65 of the report. While it is clear that mitigation projects should involve restoring areas that are larger in size and greater in habitat value than the area disturbed by the project, it is not at all clear what the appropriate ratio should be to both assure protection of the resources and not unfairly burden permittees. The Commission's existing policy emphasizes flexibility in administering mitigation requirements so that mitigation plans can be crafted to take into account a fill project's specific impacts. The staff favors continuing this policy.

c. **Comment:** Recommendation No. 9 implies that enhancement of existing wetlands can be considered mitigation. Most environmental organizations and wildlife agencies do not accept enhancement as mitigation.

Response: Staff generally agrees that mitigation should involve more than simply enhancing an existing wetland area. However, the Commission has occasionally found that enhancing an existing wetland may be appropriate mitigation when: (1) the fill is very small, with minor impacts, and the enhancement will significantly improve the functioning and values of a much larger area of enhanced wetlands; and (2) when enhancement to an existing wetland is necessary to assure that sufficient water will be available to serve the restored site (i.e. by improving and extending channels to the restored marsh).

6. Save San Francisco Bay Association, Mark Holmes (Oral presentation on April 7, 1988)

a. **Comment:** It is important for the Commission to recognize that a serious limitation of the study is its inability to answer the question of how well mitigation projects have offset the impact of Bay resources lost as a result of authorized fill.

Response: See response to the Bay Chapter of Sierra Club comment 3.c. above.

b. **Comment:** Strongly endorses the report's recommendation, particularly Recommendation No. 9, calling for a regionwide mitigation program and plan for the acquisition and restoration of lands suitable for both restoration and mitigation.

Response: Comment noted. The Commission may wish to consider initiating such an effort as part of a future planning program.

7. Bay Planning Coalition, Bradley Mart (Oral presentation and letter dated April 7, 1988)

a. **Comment:** The Coalition agrees that additional information on a Bay fill project's impact on Bay resources is desirable. Would prefer that the Commission obtain this additional information by providing a separate checklist developed specifically for projects that involve Bay fill.

Response: Comment noted. The staff will work with the Bay Planning Coalition in developing a simple and straight forward means for requesting this information from applicants.

b. **Comment:** Suggest changing one word of Recommendation No. 2 so that it will read as follows: "A requirement that the contractor ~~guarantee~~ certify that the grading and excavation are in conformance with the approved plan."

Response: This change has been made.

c. **Comment:** The Coalition opposes the recommendation that mitigation should involve restoration or enhancement of an area that is both larger in size and greater in natural resource value than the Bay resources lost or adversely affected by the fill. The Coalition believes that this recommendation reduces the Commission's flexibility in approving valuable mitigation opportunities.

Response: The report points out that there is usually a lag time between completion of required mitigation improvements and the establishment of a complex wetland community of plants and animals on the mitigation site. In addition, there is no guarantee that a mitigation program will successfully replace the lost resources. In the staff's opinion, these conclusions strongly point to the need to require mitigation projects that restore larger areas having greater habitat value than the area disturbed by the project. Otherwise, the Bay is likely to suffer a continued diminution of its wetland resources.

d. **Comment:** Agrees that a mitigation program should be identified early.

Response: Comment noted.

e. **Comment:** The Coalition suggests that although a permittee may have a responsibility to monitor and maintain a mitigation project, that responsibility should be limited to a one year obligation after satisfactorily completing the mitigation program.

Response: Staff believes that, as with the maintenance of public access facilities, responsibility for monitoring mitigation improvements should run with the land as long as the authorized fill remains in place. As with public access improvements, the responsibility for maintaining the mitigation sites may be transferred to an appropriate private entity or public agency approved by the Commission. But clearly, someone needs to be responsible for assuring that such improvements as tidal control structures, levee breaches, and channels remain functioning as designed.

Similarly, the staff believes that mitigation improvements should be monitored until such time that 75 percent of the target resources have been established and appear to be functioning similarly to a natural wetland. Such monitoring is necessary to assure reasonable enforcement of the mitigation condition, and to identify and correct problems in the design of the mitigation program. The test of a mitigation program is whether the target resources have been successfully established, an event that is not likely to occur in the first year following construction.

f. **Comment:** The Coalition supports Recommendation Nos. 8 and 9 calling for the Commission to support tideland restoration research and to promote a regional planning approach for the enhancement and acquisition of needed Bay resources.

Response: Comment noted.

8. Redwood Shores, Inc, John Brisco (Oral presentation and letter dated April 7, 1988).

a. **Comment:** Closely parallel and support those of the Bay Planning Coalition.

Response: See responses to Bay Planning Coalition 7a - 7f above.