Staff Report

on

Commission Mitigation Practices

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San Francisco Bay Conservation and Development Commission
Thirty Van Ness Avenue, Suite 2011
San Francisco, California 94102-6080

FOREWORD

The San Francisco Bay Conservation and Development Commission regulates the placement of Bay fill under the authority of the McAteer-Petris Act (the Commission's enabling legislation), the Suisun Marsh Preservation Act, and the San Francisco Bay Plan. Since 1974, the Commission has required that Bay fill project permittees offset the unavoidable adverse environmental impacts of fill authorized to be placed in San Francisco Bay through a variety of mitigation techniques. However, a written statement reflecting that policy was not included in the Bay Plan until March, 1985. The Bay Plan policy now provides guidance at early project stages to permit applicants, members of the public, and other public agencies. To provide applicants with further, more specific guidance, the Commission determined that an evaluation of its past mitigation requirements should be prepared to summarize the general forms of mitigation the Commission has required for Bay fill projects, describe potential mitigation sites around the Bay, and identify Bay Area organizations and public agencies that can assist permit applicants with mitigation projects.

In preparing this report the staff reviewed all past Commission actions involving mitigation in its permit process. The report describes how the Commission has used its mitigation policy for each type of Bay fill it has authorized. Based on this analysis, it is clear that the Commission has applied general mitigation practices with relative consistency for each type of Bay fill, i.e., floating, submerged, pile-supported, and solid earth fill. These practices, which are described both in the report and in the summary, provide quick and easy guidance as to when, how much, and what kind of mitigation is likely to be required by the Commission for a particular type of Bay fill project.

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SUMMARY

This report is intended to assist the Commission, its staff, applicants, and interested parties in determining when, how much, and what type of mitigation may be required for projects involving fill in San Francisco Bay by describing the mitigation practices that have been used by the Commission since 1974. Understanding how the Commission has applied its mitigation policy in the past should help determine what sort of mitigation is likely to be required for a particular fill project in the future.

The purpose of mitigation is to offset the specific adverse environmental impacts of a project. Because of the many variables in site conditions, project details, environmental impacts, availability of suitable mitigation, and other circumstances, it would be impractical and improper to establish precise mitigation standards that can be applied to all situations. For this reason, this report presents neither a formula nor a method for determining precisely how much and what kind of mitigation will be required for a particular fill project. Nor does the report present any new mitigation policies or standards. But in order to provide greater predictability to a permit applicant and the public in proposing a mitigation project to the Commission, this report describes the kinds of fill projects that have generally provided mitigation, and the kinds of mitigation that have been provided to offset the adverse impacts of fill.

Mitigation is an evolving practice and concept. As more knowledge is gained about the impacts of various types of Bay fill and the effectiveness of various mitigation measures, it is possible that the Commission's mitigation practices may change. It is also important to realize that some types of fill

may have insignificant impacts on Bay resources at most locations, but may have significant adverse impacts if proposed in an area of sensitive resource values. For these reasons, the impact of each fill project, and the merits of the proposed mitigation, must always be evaluated on a case by case basis.

Work in the Shoreline Band

The Commission has generally not required mitigation for work within its shoreline band jurisdiction.

Dredging

The Commission has generally not required mitigation for dredging, or for the placement of dredged materials at designated in-Bay disposal sites.

Floating Fill

Floating fill is designed to float at all or most tidal stages, and includes boat docks, historic ships, drydocks, floating breakwaters, vessels moored for extended periods, and pedestrian walkways on floats.

1. Environmental Impacts. Generally, floating fills can impact the Bay by:

- **blocking sunlight**, thereby eliminating marsh plants and reducing photosynthesis.
- **reducing wave energy**, which can increase the rate of siltation and affect tidal circulation and currents.
- **reducing oxygen exchange** by decreasing the amount of Bay surface area available for such exchange.

2. **Typical Mitigation Requirements**

a. **Boat Docks.** Mitigation has rarely been required for floating boat docks, whether proposed singly in conjunction with a single-family residence or in large numbers as part of a marina. The Commission has required mitigation for floating boat docks, however, when either construction or use of the dock(s) would adversely impact a sensitive or endangered wildlife resource, such as a harbor seal haul out ground or herring during spawning season. Mitigation in these instances has been to restrict construction and/or use of the dock(s) to times which avoid interference with wildlife use of the area.

b. **Vessels Moored for Extended Periods.** The Commission has not required mitigation for the permanent or long-term mooring of nonrecreational vessels such as historic ships, houseboats, or barges. Though not requiring mitigation, the Commission has found that the long-term mooring of these large vessels would impact the benthic community if they rest on the Bay bottom at low tide, or increase sedimentation rates, and has therefore limited the term of some of these fills so that their environmental impacts can be monitored.

c. **Dry Docks.** Mitigation has been required for drydocks authorized by the Commission. The mitigation has taken the form of removing existing fill (deteriorated piers and pilings) at the project site. In addition, the Commission has limited the term of such permits to ten years or less.

Submerged Fill

Submerged fills are predominantly underwater and include the placement of dredged materials, storm water outfall pipes, pipelines, riprap, breakwaters, and public access facilities such as tidal stairs and boat launch ramps.

1. **Environmental Impacts.** The environmental impacts of submerged fill include:

- **changes in substrate** which can significantly affect the kinds and number of benthic (bottom dwelling) organisms that live in an area.
- **alteration of currents and circulation patterns** which can affect the rate of sedimentation (breakwaters).
- **resuspension of sediments and pollutants** if dredging is involved (pipelines and outfalls).
- **alteration of the natural processes of shoreline erosion and accretion** (riprap, bulkheads, and breakwaters).
- **creation of underwater mounds affecting water circulation, volume, and currents** (placement of dredged materials at in-Bay disposal site).

2. **Typical Mitigation Requirements**

a. **Riprap.** The Commission has not required mitigation for riprap, though it typically conditions such permits to assure that fill placed for riprap creates a well-engineered, permanent, stable, and safe shoreline

requiring little future maintenance. However, the placement of major solid earth fill for shoreline protection may require mitigation (see section on earth fill).

b. **Storm Drains, Pipelines, and Outfall Pipes.** Mitigation has rarely been required for the installation of storm drains, pipelines, and outfall pipes. However, when construction will impact existing marshes or mudflats, the Commission has typically required construction practices that minimize disturbance to the existing habitat and the restoration of the site to preproject conditions, including planting disturbed areas if they have not revegetated naturally within a year of project completion.

c. **Breakwaters and Groins.** The Commission has not required mitigation for breakwaters or groins. However, the placement of major solid fill for breakwaters or groins may require mitigation (see section on earth fill).

d. **Public Access.** Mitigation has not been required for submerged fills authorized by the Commission to improve public access, such as tidal stairs, boat launching ramps, or beach replenishment projects.

e. **Dredging.** Mitigation has generally not been required for the deposit of dredged materials at U. S. Army Corps of Engineers designated disposal sites in the Bay.

Pile-Supported Fill

Pile-supported fills are structures supported above water by pilings. Under the Commission's law, the McAteer-Petris Act, both the pilings and the structure supported over water by pilings are defined as "fill." The

Commission has approved pile-supported fill for marine terminals, boat docks, bridges, public access boardwalks, and buildings which extend partially over the Bay.

1. **Environmental Impacts.** Generally, the adverse environmental impacts of pile-supported fill are similar to those of floating fill, including:

- disruption and **displacement of existing benthic communities.**
- pile-supported fill **creates shade,** which can affect water and soil temperature and influence an area's plant and animal communities.
- pilings dampen wave energy and create eddies which can alter water circulation and can **increase the rate of sedimentation.**
- pile-supported fill can **disrupt animal use** of an area and animal movement between areas.

2. **Typical Mitigation Requirements**

a. **Public Access**

- Mitigation has generally not been required for small (less than 2,500 square feet) pile-supported public access facilities such as boardwalks, fishing piers, and observation decks. In a few permits authorizing pile-supported public access fill, however, the Commission found that

project construction would result in increased human and pet disturbance of neighboring marshes. Such impacts have been mitigated by excavating channels to form a water barrier between public access areas and the neighboring marsh to reduce the likelihood of such intrusions.

- Large pile-supported public access fills (7,000 square feet or more) have all involved removal of substantial amounts of existing Bay fill so that each project resulted in a net increase in Bay surface area.

b. **Boat Docks**. Mitigation has not been required for pile-supported structures associated with recreational boat docks. However, such fills have generally been small (less than 9,000 square feet) and have often involved removal of existing pile-supported fill to make room for the newly authorized pile-supported facility, a public benefit recognized by the Commission.

c. **Buildings**. Mitigation has typically been required for all but the smallest pile-supported buildings. Generally, mitigation for such fills has involved the

on-site removal of existing, pile-supported Bay fill of equal or greater size than the proposed fill. When on-site fill removal has been infeasible, the Commission has required applicants to create a tidal marsh equal or greater in size to the proposed pile-supported fill. The only instances where the Commission has not required mitigation for pile-supported buildings have been when the proposed fill is small (less than 1,000 square feet), with insignificant adverse environmental impacts, and suitable mitigation was not readily available.

d. **Bridges**. Nearly all Commission permits for pile-supported bridges have provided mitigation, including:

- Enhancing habitat values in existing degraded tidal marshes by excavating channels and improving tidal circulation. Such enhancement projects always involve improvements to significantly larger areas than that covered by the pile-supported bridge.

- Contributing funds on a pro-rata basis to a mitigation bank where the amount of the contribution is directly related to the cost of acquiring, restoring, monitoring, and maintaining an area as tidal wetland habitat.
- Excavating an adjoining upland to create a tidal marsh equal or greater in size to the area of the Bay covered by the proposed bridge.

e. **Marine Terminals, Wharves, and Water-Related Industry**. Mitigation has been required for nearly every project involving the construction of pile-supported fill for marine terminals and water-related industrial wharves. Mitigation for such projects has generally resulted in the uncovering or the restoration of tidal action to an area as large or larger than the proposed fill. Approved mitigation has taken various forms, including:

- Removal of existing pile-supported fill at or near the project site.
- Performing extensive cleanup of shoreline debris.
- Removal of earth fill to create a new tidal marsh.

- Contributing funds to a mitigation bank equivalent to the cost of acquiring, restoring, monitoring, and maintaining an area equivalent to the proposed fill.
- Enhancing habitat values in existing degraded tidal marshes through grading, channel excavation, etc.

Earth Fill

Earth fills are solid fills placed in tidal areas to create dry land. The Commission has approved earth fill for marine terminals, water-related industry, marinas, exploratory natural gas wells, levees, bridges and bridge approaches, and public access.

1. **Environmental Impacts.** Of the various kinds of fill, earth fills have the most dramatic impact on the Bay. Earth fill transforms an existing tidal area to upland. Such fills can potentially have serious impacts on the Bay, including:

- **destruction of fish and wildlife habitat.**
- **disruption of the ecological balance** of the Bay.
- **reduction of the Bay's surface area and volume** thus decreasing the Bay's ability to maintain adequate oxygen levels in its water, reducing the amount of water available to assimilate wastes, and reducing the tidal prism that flushes wastes from the Bay.

- **reduction in the climate-moderating effects of the Bay** thereby increasing the possibility of air pollution.

2. **Typical Mitigation Requirements.** Nearly all earth fill projects approved by the Commission have been required to offset the impacts of such fill either through mitigation or through a project design that negates the adverse impacts of the fill on Bay resources. In nearly all cases, implementation of the mitigation measures has assured that the project resulted in creating Bay natural resource values and areas equal to or greater than the values lost from the filling. Mitigation approved for solid fills has included:

- Excavating existing uplands at the project site to create a new tidal marsh with suitable topography and hydrology to promote a diversity of salt marsh vegetation and wildlife habitats.
- Performing extensive cleanup of shoreline debris.
- Removal of existing deteriorated pile-supported, floating, and submerged fill.
- Contributing funds on a pro-rata basis to a mitigation bank or towards the acquisition and tidal restoration of an off-site parcel.
- Where earth fill has been proposed to support a temporary use (such as drilling exploratory natural gas wells), the Commission has typically required removal of all fill material after completing the

drilling, and reseeding with appropriate native plant species if the disturbed area has not naturally revegetated within one growing season.

In only a few instances has mitigation not been required for solid fill:

- When the fill was small (less than 1,000 square feet), with insignificant adverse environmental impacts, and suitable mitigation was not available.
- When the proposed fill site has previously been filled to an elevation above the line of highest tidal action, has vegetation and soils characteristic of uplands, but has subsequently subsided so that it is occasionally inundated by tidal waters.

INTRODUCTION

Mitigation

Mitigation, as used in this report, refers to any action taken to avoid, reduce, or offset the unavoidable adverse environmental impacts from Bay fill that affect Bay resources such as fish and wildlife habitat, water quality, or water circulation, volume, and surface area. Mitigation encompasses such diverse actions as limiting construction to certain times of the year to avoid interfering with herring during spawning season and migrating wildfowl, as well as the conversion of dry land into new tidal marsh. Mitigation must actually lessen the adverse impacts of a project. Therefore, dedicating an existing tidal marsh to a public agency does not constitute mitigation for a project that destroys tidal marsh because the change in ownership has no net effect on the habitat or water quality values of tidal marshes. Only if the change in ownership can be related directly to changes in management practices that specifically improve wildlife habitat can it be considered mitigation. Similarly, providing shoreline public access does not constitute mitigation for Bay fill. The need for and the amount of mitigation must be determined by the Commission on an individual project basis, taking into account the specific impacts of the project.

Legal Authority

For its authority to require mitigation, the Commission relies primarily on the McAteer-Petris Act, the Suisun Marsh Preservation Act, and the San

Francisco Bay Plan. In certain circumstances, the California Environmental Quality Act and the public trust provide additional authority.

Under the McAteer-Petris Act, the Commission may permit some Bay fill only if the fill project is either a water-oriented use as defined in the Act (such as ports, water-related industry, bridges, and airports), or the fill is a minor amount necessary to improve shoreline appearance or increase public access to the Bay. Further, in addition to other requirements, the McAteer-Petris Act requires the Commission to find that the public benefits of the project clearly outweigh the detriments caused by any Bay fill. Both the Act and the Bay Plan require that filling be avoided wherever possible and, where unavoidable, that the fill be the minimum necessary to accomplish the project. In order to make the legal findings necessary to authorize new development requiring fill, the Commission has occasionally found it necessary to require mitigation to assure that the public benefits of the fill clearly exceed the adverse impacts of the fill.

The California Environmental Quality Act (CEQA) is explicit on the need to mitigate for a project's specific significant adverse environmental impacts. CEQA requires the lead agency (a lead agency is usually the governmental agency with the first responsibility for project approval) to take adverse environmental impacts into account and to require mitigation or the avoidance of significant adverse effects on the environment. Under CEQA, mitigation must be feasible and the agency requiring the mitigation must have legal authority to require mitigation independent of CEQA. The McAteer-Petris Act gives broad authority to the Commission to control the amount and the impacts of fill in the Bay. Therefore, when the Commission is a lead agency it not only can, but must, require feasible mitigation for significant adverse environmental impacts caused by Bay fill.

Further authority for the Commission to impose mitigation requirements comes from the public trust. As a public property interest that applies to most of the Bay, the public trust provides the Commission with broad regulatory authority over the development of lands subject to the trust.

The Commission's authority to require mitigation, and hence the application of its mitigation policy, stems primarily from the Commission's authority to regulate fill. The Commission has not required mitigation for other activities regulated by the Commission, such as projects in the Commission's shoreline band jurisdiction, changes of use, navigational dredging, or extracting material from the Bay for commercial purposes (such as mining shell or sand deposits).

Mitigation Policy

Since 1974, the Commission has required that Bay fill project permittees offset the unavoidable adverse impacts of the fill on Bay natural resources pursuant to the authorities discussed above. A statement reflecting this long-held policy was included in the Commission's San Francisco Bay Plan in 1985. That policy (page 37) states:

> Mitigation for the unavoidable adverse environmental impacts of any Bay fill should be considered by the Commission in determining whether the public benefits of a fill project clearly exceed the public detriment from the loss of water areas due to the fill and whenever mitigation is necessary for the Commission to comply with the provisions of the California Environmental Quality Act. Whenever mitigation is needed, the mitigation program should be provided as part of the project. Mitigation should consist of measures to compensate for the adverse impacts of the fill to the natural resources of the Bay, such as to water surface, volume or circulation, fish and wildlife habitat or marshes or mudflats. Mitigation is not a substitute for meeting the

other requirements of the McAteer-Petris Act concerning fill. When mitigation is necessary to offset the unavoidable adverse impacts of approvable fill, the mitigation program should assure:

(1) That benefits from the mitigation would be commensurate with the adverse impacts on the resources of the Bay and consist of providing area and enhancement resulting in characteristics and values similar to the characteristics and values adversely affected;

(2) That the mitigation would be at the fill project site, or if the Commission determines that on-site mitigation is not feasible, as close as possible;

(3) That the mitigation measures would be carefully planned, reviewed, and approved by or on behalf of the Commission, and subject to reasonable controls to ensure success, permanence, and long-term maintenance;

(4) That the mitigation would, to the extent possible, be provided concurrently with those parts of the project causing adverse impacts; and

(5) That the mitigation measures are coordinated with all affected local, state, and federal agencies having jurisdiction or mitigation expertise to ensure, to the maximum practicable extent, a single mitigation program that satisfies the policies of all the affected agencies.

If more than one mitigation program is proposed that satisfies all five factors above, the Commission should consider the cost of the alternatives in determining the appropriate program.

To encourage cost effective and comprehensive mitigation programs, the Commission should extend credit for certain fill removal and encourage land banking provided that any credit or land bank is recognized pursuant to written agreement executed by the Commission. In considering credit or land bank agreements, the Commission should assure that the five factors listed above will be met.

The purpose of mitigation is to offset the specific adverse environmental impacts of a particular project. The Commission's mitigation

policy has evolved from practical experience based on current understanding of how various kinds of fill impact the Bay and how best to offset such impacts through mitigation measures. It is possible that the Commission's mitigation practices may change as more knowledge is gained about the impacts of Bay fill and the effectiveness of various mitigation measures. Some types of fills may have insignificant environmental impacts at most locations around the Bay, but the same fill proposed at another location, for example, in a habitat supporting endangered species or along a migratory fish or wildlife corridor, may have significant environmental impacts requiring mitigation.

Scope of Review and Report Organization

To assess how the Commission has applied its mitigation policy, all Commission permits, material amendments, and federal consistency determinations from February, 1974, when the Commission began using its current mitigation process, through December, 1986, were reviewed. Administrative permits which, by definition, consist of "minor repairs and improvements," were also reviewed, but as such projects nearly always involve only minor amounts of fill, a much smaller proportion have been required to provide mitigation. Therefore, the numbers used in the report refer only to permits and consistency determinations requiring direct Commission action after a public hearing.

Fill projects have been grouped into four categories: (1) floating fill (such as boat docks and permanently moored vessels); (2) submerged fill (such as wastewater and storm water outfall pipes, riprap, boat ramps, and beaches); (3) pile-supported fill (such as piers, bridges, boardwalks, and portions of

buildings supported on piles); and (4) solid or earth fill (such as container terminals, levees, and fill for improving shoreline appearance). Each of these fill categories is discussed in a separate chapter. The major environmental impacts of each type of fill are discussed, followed by several representative examples of fill projects within each category. Projects that were designed carefully by the applicant so that the Commission did not have to require any additional mitigation are also included. The examples have been chosen to reflect the range of mitigation that has been required, as well as to reflect historical patterns in the Commission's mitigation requirements. The conclusions of this analysis have been presented in the summary of this report.

This mitigation report is not a compilation of all fill projects approved by the Commission, nor does it list all permits where mitigation has been provided or required. And it does not establish any new mitigation policies or standards. Rather, the report illustrates how the Commission has applied its mitigation policy using representative examples to acquaint the reader with the Commission's past and likely future mitigation requirements for the general types of fill projects it has approved. Applicants should use this report as a guide for identifying suitable mitigation for a particular fill project. But applicants should not feel limited to proposing only those mitigation measures approved in the past. The key test is "that benefits from the mitigation would be commensurate with the adverse impacts on the resources of the Bay." Scarcity of appropriate mitigation sites and increasing awareness of how fill impacts Bay resources will put a premium on innovative measures to ensure compliance with the Commission's mitigation policy.

CHAPTER I. FLOATING FILL

Floating fill is designed to float at all or most tidal stages. Most floating fill authorized by the Commission has been for marina docks, permanently moored historic ships, drydocks, floating breakwaters, barges moored for extended periods, and pedestrian walkways.

Environmental Impacts

Generally, floating fills can impact the Bay by: (1) blocking sunlight, thereby eliminating marsh plants and reducing photosynthesis in planktonic and benthic (bottom dwelling) organisms; (2) reducing wave energy, thereby increasing the rate of siltation and affecting tidal circulation and currents; and (3) adversely affecting oxygen exchange by reducing the amount of Bay surface area available for such exchange. In addition, large floating fills, such as drydocks, displace large volumes of water thereby reducing the tidal prism. Floating fills that rest on the Bay bottom at some tidal stages (such as some houseboats and docks in marinas subject to heavy siltation) may smother or crush benthic organisms in the Bay muds below.

Boat Docks

Since 1974, the Commission has approved 49 major permits or material amendments involving the construction of recreational boat docks. Authorized boat docks, or floats, have ranged in size from a 384 square foot (.01 acre) boat dock at a single-family residence (Kokalis, Permit No. 12-82) to docks for a 536-berth marina covering 164,090 square feet (3.76 acres) of Bay

surface at a mixed use development (Price, Permit No. 18-85; work on this project has not commenced).

Recreational boat docks, whether proposed in large numbers at a marina or individually in conjunction with a single-family residence, are generally narrow (eight feet wide or less) and displace relatively little water volume. Their impact on water volume and circulation is relatively insignificant. Large numbers of boat docks covering a greater amount of water surface area can reduce gaseous exchange between air and water and the amount of light that penetrates to the bottom of the Bay. Although these impacts have not been well studied, it is generally assumed they are insignificant. As a result, the Commission has rarely required mitigation for boat docks.

As the Bay and its shoreline become more fully developed, an increasing number of marinas have been proposed in areas of the Bay with deteriorated wharves, sunken barges, dilapidated pilings and dolphins, and other debris. In addition, several applicants have sought to modernize or reconfigure existing marinas. In such cases, deteriorated structures in the Bay have been removed prior to installing the new berths. Also, some marinas have expanded the Bay through the excavation of dry upland to create a new or enlarged marina basin. Since 1980, of 22 major Commission permits involving boat docks, 18 involved the removal of some fill prior to project construction. In the majority of such permits, the Commission found that the removal of deteriorated structures from the Bay and the expansion of the Bay through excavation of upland areas were public benefits that helped offset any adverse impact of the project's fill. Examples of such permits include the Ballena Isle Marina project in Alameda (Permit No. 12-84) and the Vallejo Municipal Marina project in Vallejo (Permit No. 1-86).

The Ballena Isle Marina project involved the construction of 15 new boat berths covering 4,186 square feet (.09 acre), relocation of 14 existing berths, the replacement of an existing fuel dock, and the repair of existing boat berths. The permit did not include a condition requiring mitigation for the fill, but the authorization is based, in part, on a finding that:

> the reconstruction of the fuel dock and other boat berths will result in a decrease of Bay coverage of 1,700 square feet....The floating fill is clearly a water-oriented use...and together with the increase of Bay area, the Commission finds the proposed project consistent with Bay Plan policies....

The Vallejo project involved excavating 2.30 acres of upland and dredging an 18.80-acre water area to create a marina basin, constructing a 1,600-foot-long sheetpile breakwater, and installing 350 boat docks covering a total of 110,000 square feet (2.53 acres) of Bay surface area. Although the permit contains no conditions requiring mitigation for the fill, the Commission found that "2.3 acres of new Bay surface area will be created as mitigation for the project. Therefore, any environmental impacts from the fill or dredging will be offset by the substantial public benefits of the project and no further mitigation is required...."

The Commission has not generally required mitigation for floating boat docks. However, there have been some specific instances where applicants provided mitigation because either constructing the boat dock(s) or boat use in the area would have localized and particular impacts on Bay resources. These projects included construction of a single boat dock at the Kokalis residence at Strawberry Point in Marin County and construction of a marina at Encinal Terminals in Alameda.

The Kokalis project (Permit No. 12-82) involved installation of a boat dock and appurtenant structures covering 384 square feet of Bay surface area.

The only route from the boat dock to deep water was through a dredged channel immediately adjacent to a harbor seal haul-out grounds, a unique and sensitive Bay wildlife resource. The Commission found that:

> although it is unlikely that the addition of just one more boat dock would increase boat traffic past the haul-out grounds, the approval of one boat dock means that the Commission will have no basis for denying any similar boat docks in the area. The cumulative impact of all these boat docks would pose a severe disturbance to the harbor seals....

For this reason, the Commission conditioned its approval as follows: (1) the permit was limited to two years, providing the Commission with the opportunity to re-evaluate the impact of the project in light of future events and new information that became available; and (2) use of the boat dock was restricted to the six months of the year that harbor seals did not use the haul-out grounds.

The marina project at the unbuilt Encinal Terminals project (Permit No. 5-83) involved renovating and enlarging an existing marine terminal from one container berth to three container berths, and expanding an existing marina by 228 berths. The floating fill for the marina was relatively small in proportion to the overall fill proposed for the project (approximately 16 percent or 38,600 square feet (.89 acre) of a total fill of 240,300 square feet (5.5 acres)). Nonetheless, the applicant included the floating fill for the marina along with the solid and pile-supported fill for the marine terminal in its calculations of the amount of mitigation needed for the project. Mitigation in this case consisted of a contribution to a Commission-approved mitigation bank program equal to the cost of acquiring, restoring, and maintaining an area equal to the project's net Bay fill. In the permit for the project, the Commission found that:

> the proposed mitigation is sufficient to offset the detriments caused by the Bay fill proposed in this project. Therefore, the Commission finds that the public benefits of the project exceed the detriments caused by the fill. The Commission notes that the mitigation funds were proposed by the applicant and should not be contrived as establishing a precedent for projects approved under the Seaport Plan....

Vessels Moored for Extended Periods

Under the Commission's law, floating structures moored for extended periods are considered "fill." Since 1974, the Commission has approved nine permits involving the long-term mooring of floating structures. Five of these permits authorized the permanent mooring of historic ships (the same vessel was involved in two permits), two involved houseboats, and two involved the same group of barges.

Because of their size, floating structures moored continuously for long periods generally block more sunlight and displace more water volume in a given area than do floating boat docks. In some cases, floating structures that rest on the Bay bottom at low tide have also raised concerns that the structures can impact the benthic community or increase the rate of sedimentation around the structure by "stilling" wave action. Although the Commission has expressed concern regarding such impacts, none of these projects have provided or have been required to provide mitigation. The Commission has, however, limited the term of some of these permits so that the environmental impacts of the fill can be monitored. Examples of such permits include mooring of a historic ship on the San Francisco northern waterfront and the mooring of 150 LASH (lighter aboard ship) barges at Redwood City.

In the permit to Delta King Enterprises and the Port of San Francisco (Permit No. 6-80) on San Francisco's northern waterfront, the Commission authorized the permanent mooring and remodeling of the 17,000-square-foot (.39

acre) "Delta King", a historic paddlewheel steamer, for public access, offices, three restaurants, and retail shops. No mitigation was provided. The Commission found that:

> the public interest in preservation [of the historic ship] outweighs any public interest in additional restriction of uses....Because the proposed vessel will float at all stages of the tide, [and] it will have minimum effect on the volume, surface area, and circulation of the water in the Bay....

The permit to the Port of Redwood City (Permit No. 7-82) involved the mooring of 150 LASH barges covering 270,000 square feet (6.20 acres) of Redwood Creek. The primary issue the Commission considered was whether the barges, which would rest on Bay mud at low tide, would significantly impact benthic organisms and feeding areas for marsh birds, shore birds, and migratory waterfowl. The Commission found that the project would not significantly adversely affect the environment so long as the barges were removed at the end of a two-year period. This project was not pursued and two years later, the applicant was authorized (Permit No. 15-84) to moor 89 of the barges at a different location where all the barges would float at all stages of the tide. The Commission limited this authorization to two years as well, and concurred with the Port's findings that the project would not have a significant impact on the environment.

Drydocks

Since 1974, the Commission has authorized two floating drydocks, the largest form of floating fill that the Commission has authorized. Because of their size, drydocks are the most likely of the floating fills to have adverse environmental impacts on the Bay and, in fact, both permits provided

mitigation, albeit less than would have been provided had the fill involved solid or permanently placed fill. Both permits also authorized the fill for a limited period.

The best example of mitigation required by the Commission for floating drydocks is the permit to Continental Maritime and the Port of San Francisco (BCDC Permit No. 19-84) for the mooring of a 112,000-square foot (2.57 acres) floating drydock for ship repair. The applicant proposed to remove 5,670 square feet (.13 acre) of pile-supported fill from a 38,500-square foot (.88 acre) water area to mitigate for the adverse environmental impacts, a proposal the Commission later adopted as a mitigation condition. In addition, the Commission limited the permit to four years duration and restricted work on installing the dry dock to those times of the year that the work would not adversely affect the herring spawning season. The Commission found that:

> although the 5,670 square feet of mitigation is considerably less than the 113,100 square feet of fill placed, the Commission finds that it is justified because this authorization terminates on February 28, 1989 and the effects will not, therefore, be long-term. The Commission notes that if the proposed project remains for a longer period of time, that additional public benefits would likely have to be provided to offset the loss of Bay surface area....The future public benefit could involve a total amount of area of new Bay surface [equal to] the area covered by the floating fill....

CHAPTER II. SUBMERGED FILL

Submerged fills are predominantly underwater. Examples include depositing dredged materials, storm drains, outfall pipes, pipelines, riprap, breakwaters, public access facilities such as tidal stairs, and boat launching ramps.

Environmental Impacts

Generally, the environmental impacts of submerged fill include: (1) changes in the Bay substrate which can significantly affect the kinds and numbers of benthic and intertidal organisms that live in an area; (such disturbance occurs continually at Bay dredge spoil disposal sites); (2) alteration of currents and water circulation patterns which can affect the rate of sedimentation (e.g., breakwaters); (3) resuspension of sediments and pollutants suspended in Bay muds if dredging is involved (e.g., pipelines and outfalls); and (4) alteration of the natural processes of shoreline erosion and accretion that typifies most of the Bay edge (e.g., riprap, bulkheads, and breakwaters).

Dredged Material Disposal

To date, mitigation has not been required for the placement of dredged materials at U. S. Army Corps of Engineers designated in-Bay disposal sites in part because it has long been thought that most of the material placed at such disposal sites was carried out of the Bay on ebb tides. However, recent evidence suggests that deposited material may not be dispersing effectively and is accumulating to the point of creating submerged mounds that affect

water circulation, currents, and volume, as well as navigation and dredging costs. In addition, the Army Corps of Engineers is considering designating in-Bay disposal sites for non-dispersible dredged materials. Depending on the outcome of these investigations, the Commission may find it necessary to require mitigation to offset the impacts of placing dredged materials at in-Bay disposal sites.

Riprap

Most fill projects within the Commission's jurisdiction involve establishing a permanent shoreline as part of the project to protect the shoreline from tidal erosion. As riprap is by far the most common means of shoreline protection in San Francisco Bay, the Commission has approved many miles of riprap. Though riprap represents a dramatic change in substrate affecting an area's animal and plant life, most environmental documents contain little or no discussion concerning the environmental impacts of riprap; by implication, such impacts are usually considered to be insignificant. Therefore, the Commission has not required mitigation for riprap. A typical example of Commission action on a permit involving riprap was the permit issued to Robert Greene (Permit No. 28-78) for the construction of an office and commercial services complex near Point San Quentin in San Rafael. The only fill proposed consisted of placing 5,300 cubic yards of riprap along 1,144 feet of a levee that protected the property from tidal inundation. The Commission determined there were no adverse impacts resulting from the riprap and, consequently, no mitigation was required.

Though the Commission has not required mitigation for riprap, the Commission typically conditions such permits to assure that fill placed for riprap creates a permanent, well-engineered, stable, and safe shoreline

requiring little future maintenance. The Commission has also required applicants to design riprap projects to minimize fill and has encouraged designs that both protect the shoreline from erosion and provide habitat for wildlife.

An example is a permit to the City of San Mateo (Permit No. 9-75) involving reconstructing an existing levee by grading the bayward face to create a flatter slope prior to placing protective riprap. The net effect of both the excavation and the placing of riprap fill was to increase the water surface area along the reconfigured levee by approximately 25,000 square feet (.57 acre), as well as providing a gradual slope where Bay-related wildlife could find sites for resting and feeding. Because the project resulted in a net increase in the size of the tidal prism, the Commission required no mitigation.

Storm Drains, Pipelines, and Outfall Pipes

Storm drains, pipelines, and outfall pipes, like riprap, are often processed administratively (processed by the staff after Commission review, but without a Commission public hearing) unless the project is part of a larger project requiring a Commission hearing and action. Usually buried, the excavations and subsequent fills associated with these projects pose few significant permanent environmental impacts and consequently the Commission has not required mitigation for these projects. However, construction of such facilities may result in several significant short-term impacts. For example, the dredging involved to install pipes can resuspend sediments and/or pollutants, and the heavy equipment needed to excavate trenches for pipelines and outfalls can disrupt large areas of existing marsh vegetation and mudflats

when pipelines are routed through these areas. The Commission has conditioned permits for such uses so that such short-term construction impacts are mitigated.

An example of such a permit is one issued to the Shell Oil Company for work in the Suisun Marsh in Solano County (Permit No. 5-76). This permit involved constructing an underground natural gas pipeline through the Suisun Marsh. The Commission's permit incorporated most of the mitigation measures required in Solano County's local permit, including: (1) using wide track or amphibious construction equipment and mats to prevent construction equipment from sinking into the soft marsh muds; (2) restricting construction to a narrow corridor to avoid disturbing adjoining marsh areas; (3) working from existing roads wherever feasible to avoid compacting marsh soils; (4) assuring that the top two feet of native soil excavated from the pipeline trench was replaced as the top layer when the trench was refilled; and (5) reseeding or replanting disturbed areas that had not naturally revegetated within one year of project completion.

There is one instance where an applicant restored and dedicated a 4,400-square foot (.10 acre) marsh in addition to adopting construction measures designed to mitigate possible short-term construction impacts. In its permit to the Central Marin Sanitation Agency (Permit No. 20-81), the Commission required the permittee to dedicate and restore a marsh. However, the dedication and restoration was required originally by the local government with permit authority.

Breakwaters and Groins

Since 1974, the Commission has approved 13 major permits, material amendments, or consistency determinations involving the construction of

breakwaters. In addition, the Commission has issued one permit authorizing the construction of groins to help restore and maintain an existing beach.

Sheetpile breakwaters generally have little impact on water surface area and volume (the largest breakwater authorized involved 20,000 square feet (.46 acre) of fill). However, breakwaters may affect water circulation and consequently siltation. To date, the Commission has not found that a proposed breakwater would result in significant adverse impacts on water circulation and consequently has not required mitigation for breakwaters.

A typical example of a breakwater authorization is the material amendment issued to the Pier 39 Limited Partnership, San Francisco (Permit No. 22-76, Amendment No. 10). In this amendment, the Commission authorized the removal of a floating breakwater, the reconfiguration of the Pier 39 Marina, and the construction of a new 10,280-square foot (.24 acres) sheetpile breakwater. The Commission found that:

> by its nature, a sheetpile breakwater consists of much less fill than a rubble or floating breakwater, and thus will have less of an impact on the water volume of the Bay. Also studies commissioned by the permittees have shown that, although the breakwater will reduce the longshore current by as much as 10 percent, such a reduction will not significantly affect water quality or increase the rate of sedimentation, largely because of the strong currents in the area....

Public Access and Recreation

The Commission has also authorized submerged fill for public access and recreation purposes such as tidal steps, beaches, and boat launch ramps. Such fills can alter the substrate of the intertidal area, thereby affecting what plants and animals can inhabit the area. With the exception of two beach replenishment projects, most of the public access fills approved by the Commission have been small (less than 3,500 square feet (.08 acre)) and the Commission has found that their impacts are insignificant compared with the

benefits of improving public access to the Bay. For example, in a permit issued to the City of Alameda (Permit No. 32-79), the Commission authorized construction of a 2,320-square foot (.05 acre) boat launching ramp and associated parking, and the improvement of an existing rubble breakwater for fishing access. The Commission found that "because the proposed fill is small and will be placed...on the bottom of the Bay...the fill will have minimum effect on the volume, surface area, and circulation of the waters of the Bay...."

The Commission has also approved two permits that involved placing fill over much larger areas to create or restore beaches. The Commission allowed the East Bay Regional Park District and the City of Alameda (Permit No. 9-81) to place up to 200,000 cubic yards of sand over a 15-acre existing beach to replenish sand lost through erosion. The project was necessary both for shoreline protection (the eroding beach protected a major shoreline road and several apartment buildings and homes) and to maintain a popular recreational beach. The permit included a number of conditions, most of which reinforced statements made in the application, to assure that a monitoring and maintenance program would be instituted to prevent sand from migrating into neighboring ecologically sensitive areas. The permit also prohibited depositing sand at an interim site offshore prior to pumping sand onto the beach unless several conditions were met.

CHAPTER III. PILE-SUPPORTED FILL

Pile-supported fills are supported above water on pilings. Under the Commission's law, both the pilings and the structure supported over water by pilings are considered "fill". The Commission has approved pile-supported fill for marine terminals, boat docks, bridges, public access boardwalks, restaurants, and houses.

Environmental Impacts

The adverse environmental impacts of pile-supported fill are similar to those of floating fill: (1) driving pilings disrupts and displaces existing benthic communities; (2) pile-supported fill creates shade, which affects water and soil temperature, and influences an area's plant and animal communities; (3) the pilings, particularly when close together, dampen wave energy and create eddies which alter water circulation and potentially increase the rate of sedimentation; (4) pile-supported fill may disrupt animal use of an area and animal movement between areas; and (5) depending on their design and size, large pile-supported fills may reduce gaseous exchange between Bay waters and the atmosphere.

Public Access

Since 1974, the Commission has approved 31 major permits and material amendments involving the construction of pile-supported public access facilities such as boardwalks, fishing piers, and observation decks. The majority of such facilities have been less than 2,500 square feet (.06 acre) and have been relatively narrow requiring few support piles, thus causing

minimal shading and shoaling. Most of these fills have also been designed to be compatible with sensitive wildlife resources. For these reasons, the Commission has generally found that the public benefits of improved access to the Bay offset the insignificant environmental impacts of such fills.

A typical example is the Commission's authorization of the Burlingame Group (Permit No. 18-83) to construct a 300-room hotel and two restaurants in the shoreline band in Burlingame. The only fill proposed in this as yet unbuilt project involved a small amount of riprap and an approximately 1,500-square-foot (.03 acre) pile-supported public access deck. The environmental document, a Negative Declaration, declared that there were no adverse impacts caused by the fill; therefore the Commission did not require mitigation.

Although most permits for pile-supported public access facilities have involved relatively small amounts of fill, the Commission has approved six permits, each authorizing more than 7,000 square feet (.16 acre) of pile-supported fill for public access. The largest of these fills was 66,668-square feet (1.56 acres) authorized to the Port of San Francisco (Permit No. 3-78) to construct a promenade between the Agriculture Building and Pier 24 on San Francisco's northern waterfront. Each of these six permits also involved removal of substantial amounts of existing Bay fill so that each project resulted in a net increase in Bay surface area. In each case, the Commission considered such fill removal to be a significant public benefit. For example, in a permit to the Port of San Francisco for a project that has not yet been built (Permit No. 8-84), the Commission authorized the Port to remove the existing 88,270 square-foot (2.02 acre) Pier 7 and replace it with a smaller, 33,600-square-foot (.77 acre) public access pier. Neither the Negative Declaration nor the application summary identified any adverse

impacts of the proposed fill, but the permit does contain a finding that the project "will result in an increase of 54,600 square feet [1.28 acres] of Bay surface area..." indicating that any adverse impact of the fill would be offset by removing the larger existing pier.

Marinas and Boat Docks

Marinas use pile-supported fill to provide access to boat berths, for boat hoists, for observation decks, and for covered boat berths. Pile-supported fill is also used to provide docking facilities for fishing boats and ferries. Like pile-supported fill for public access, these fills tend to be small (only one of the 12 Commission permits issued for such fills involved more than 9,000 square feet (.21 acres) of Bay coverage) with minor environmental impacts. Consequently, mitigation has generally not been required for such fills.

Two examples of pile-supported fills authorized for marinas or docking facilities include the Schoonmaker Point project in Sausalito (Permit No. 21-79, which was never constructed) and the Napa Valley Marina Expansion project on the Napa River (Permit No. 20-78). The Schoonmaker Point project involved remodeling an existing building in the shoreline band for use as a fish processing plant and constructing an 8,670-square foot (.20 acre) pile-supported pier for mooring and maintaining fishing vessels. The permit included a finding that "because the proposed fill is small and largely pile-supported, it will have a minimum effect on the volume, surface area, and circulation of the water of the Bay." For this reason, mitigation was not provided for this project.

The Napa Valley Marina expansion project involved enlarging an existing 91-berth marina by adding 48 covered boat berths covering 27,000 square feet (.62 acres) of Bay surface area. Mitigation was not required and the Commission found that "the pile-supported...fill is of a size and type such that harmful effects on the Napa River will be minimized...."

Although the majority of permits for pile-supported marina facilities and boat docks have not provided mitigation, many have involved the removal of some existing fill. For example, in a permit to Harbor Carriers, Inc. and the Port of San Francisco (Permit No. 42-79) involving remodeling Pier 43-1/2 for its continued use as a ferry and tour boat terminal, the applicants' proposed to remove a 5,524-square foot (.13 acre) deteriorated pier to make room for two new piers totaling 7,349 square feet (.17 acre). The Commission subsequently required the pier removal as a permit condition.

Buildings

Since 1974, the Commission has authorized ten pile-supported buildings. Three of these buildings involved fills of 750 square feet (.02 acre) or less and were originally authorized in the first two and one-half years that the Commission began using mitigation in the public benefits equation. None of these small fill projects provided mitigation, although it is not clear whether this was due to the Commission determining that these fills would have relatively insignificant impacts on the Bay or to the fact that the Commission was just beginning to apply a new, unfamiliar policy.

All of the remaining seven pile-supported buildings authorized by the Commission required either fill removal (such as removing existing pilings, pile-supported structures, or sunken barges) or creation of a tidal marsh. In all but two of the permits, the permit authorization assured that there would

be no net loss of Bay surface area with project construction. The two permits where more fill was authorized than would be removed were both approved in the first six months that the Commission began applying its mitigation policy, and both involved special circumstances (one involved a claim of exemption, the other authorized replacemnt of a building destroyed by fire). Thus, mitigation has generally been required by the Commission for all but the smallest pile-supported buildings, and those few exceptions were at the very early period of application of the Commission's mitigation policy.

For example, the Commission authorized the Port of Oakland (Permit No. 24-81) to remove an existing, vacant restaurant and associated wharves and floats covering 12,700 square feet (.30 acre) of Bay surface and to construct a new restaurant and associated decks covering 4,000 square feet (.09 acre) of Bay. The permit included a finding stating that:

> "removal of the deteriorated structure and the consequent opening of the majority of the previously filled area to free tidal action constitutes a public benefit that clearly outweighs the detriments caused by the fill...."

In another case, the Commission permitted the Sausalito-Marin City Sanitary District (Permit No. 24-80) to construct a 16,078 square foot (.37 acre) addition to an existing sewage treatment plant. Both the existing plant and the addition would be located almost entirely in the Bay. Although the applicant contended that the project provided its own mitigation by improving Bay water quality, the Commission also required the permittee to return an area equivalent in size to the area filled to tidal action. The permit included a finding that:

"while the Commission has required larger amounts of mitigation in the past, the Commission finds that this amount of area to be opened to tidal action is sufficient to offset the impact of this type of project at this location...."

Bridges

The Commission has approved 12 pile-supported automobile or railroad bridges ranging in size from 510 square feet (.01 acre) to 604,352 square feet (14.2 acres). In addition to creating shade and increasing shoaling, bridges can present a significant barrier to wildlife. Bridges can also isolate small areas of tidelands that have no other direct connection to the Bay. The physical barrier of the bridge, the resulting traffic and noise, and the increase in human activity all impede animal use of an area that may otherwise appear unchanged.

Because of these adverse environmental impacts, all but one of the Commission's permits for pile-supported bridges have provided mitigation. In fact, the first mitigation required by the Commission was in a permit to the California Department of Transportation (Caltrans) in February 1974 for the Dumbarton Bridge and its approaches (Permit No. 20-73). Two typical examples of bridge permits are a permit to Caltrans to construct a bridge in Richmond (Permit No. 17-85) and a permit to the City of San Mateo to construct a bridge across Seal Slough (Permit No. 18-82).

The Richmond project, as yet unbuilt, involves constructing a 2,856-square-foot (.07 acre) pile-supported bridge across Stege Drain. The Commission's permit required that the permittee offset the adverse impacts of the fill by either:

(1) restoring or enhancing approximately 2,856 square feet of tidal marsh [proposed originally by the applicant], or (2) contributing a sum of money...to go

> toward the purchase and restoration of approximately 2,856 square feet of tidal marsh...at an East Bay location within a reasonable amount of time....

The City of San Mateo's project consisted of placing 1.5 acres of pile-supported Bay fill to construct a new four-lane bridge across Seal Slough. The project also involved placing approximately 2.77 acres of solid fill in non-tidal wetlands largely outside the Commission's jurisdiction. Early in the planning process, the permittee worked with the U. S. Fish and Wildlife Service, the California Department of Fish and Game, and Commission staff to develop an acceptable compensation proposal for all the fill (including the fill outside the Commission's jurisdiction). The proposal that emerged consisted of excavating a system of channels and ponds in eight-acres of a 43-acre City-owned marsh. Nearly all of the 43-acre area was subject to tidal action, but the eight-acre enhancement area was relatively high in elevation, had poor tidal circulation, and little vegetation. The Commission's permit incorporated this proposal as a condition, and also required excavating a system of small mosquito abatement channels throughout the remaining 35 acres of marsh to improve tidal circulation throughout the marsh. This work was estimated to take approximately one or two days to complete at a cost of less than $1,000.

The one pile-supported bridge that did not involve mitigation was a 9,450-square foot (.22 acre) bridge proposed by the City of San Leandro (Permit No. 4-76) across a flood control channel. The purpose of the bridge was to provide access to a 156-acre public shoreline recreation area. The permit contained a plan review condition requiring "examination of the number of pilings necessary to support the bridge to minimize impacts on Bay waters below, to minimize restriction of flood waters from upstream, and to maximize

visual access to the Bay...." The permit also contained a finding that the project benefited the public by allowing "public access to 156 acres of Bay shoreline which will be developed for public recreation use."

Marine Terminals, Wharves, and Water-Related Industry

Pile-supported fills for marine terminals and wharves used for water-related industry tend to be larger than other pile-supported fills approved by the Commission. For this reason, their effects on shading, water circulation, and shoaling tend to be more pronounced. The largest of these fills can dramatically alter an area's appearance and its availability to wildlife, and significantly increase noise levels and human activity in the area. In practice, most of the Commission-approved fills for marine terminals have involved lesser impacts because they have involved replacing or modernizing existing similar facilities in industrial areas where wildlife resources have already been disturbed. Nineteen of the Commission's 22 major permits, material amendments, or consistency determinations for pile-supported marine terminals or water-related industrial wharves have offset the fill's adverse impacts either through removal of existing pile-supported fill performed in the course of project construction, or through mitigation. In all but seven of these 22 projects, the Bay's surface area remained the same or increased as a result of project construction and the implementation of mitigation measures. The following four examples illustrate the variety of ways applicants have offset the adverse impacts of these fills.

In a permit to the Richmond Redevelopment Agency (Permit No. 27-80), the Commission authorized the temporary use of a former construction yard to construct production facilities for the Alaskan North Slope oil fields. Work in the Bay included placing a sand pad on the Bay bottom to support barges as

they were being loaded, installation of new dolphins, and constructing a 960-square-foot (.02 acre) pile-supported wharf for a total fill of approximately 1,300 square feet (.03 acre). The applicant proposed to offset the impacts of these various fills by doing extensive shoreline cleanup of this former construction site, removing such objects as concrete pilings and slabs, wood scraps and timbers, and wire cable and steel drums, a proposal the Commission subsequently required in a permit condition. In addition, the Commission required that "all improvements placed pursuant to this permit, including the 14 dolphins, the 1,000-square-foot off-loading wharf...and enough of the sand pad to bring its elevation to 10 feet below Mean Lower Low Water shall be removed by December 1, 1984 [the estimated project completion date]...." The Commission found that "by extensively cleaning up the shoreline, safe public access will be provided to a shoreline that has long been closed to the public, and a major step will have been taken toward fulfilling the Special Area Plan goal of creating attractive public access along this entire shoreline..." and thus the project's public benefits outweighed the project's possible adverse impacts on Bay natural resources.

In a permit to the Port of Redwood City (Permit No. 3-84), the Commission authorized replacing an existing 36,100-square-foot (.83 acre) deteriorated timber wharf with a new 24,700-square-foot (.57 acre) concrete wharf. The Commission approved the project as proposed, finding that the net 11,400-square-foot (.26 acre) increase in Bay surface area resulting from project construction adequately offset any of the fill's adverse environmental impacts on the Bay.

In Permit No. 8-79, the Commission authorized the Shell Oil Company to modernize an existing oil refinery in Martinez so that domestic oil could be processed at the refinery. Although work on the project has not yet

commenced, the project would involve placing 22,000 square feet (.51 acre) of pile-supported fill in the Bay adjacent to an existing wharf to install pipelines on trestles and expand the wharf deck for emergency vehicles. Approximately 3.3 acres of marsh, mudflats, and submerged lands were to be dredged to facilitate construction of the wharf improvements. To offset the project impacts, the applicant proposed, and the Commission subsequently required in the permit, improving tidal action on 2.56 acres of land owned by Shell immediately adjacent to the wharf by widening an existing levee break to increase tidal action into the 2.56 acre area and excavating approximately 5,000 cubic yards of earth to create a system of channels and ponds to improve water circulation and wildlife habitat throughout the marsh.

Finally, in a permit to the Port of Richmond (Permit No. 22-79), the Commission authorized construction of a 106,100-square-foot (2.44 acres) pile-supported marginal wharf for a marine terminal facility. Approximately 32,100 square feet (.75 acre) of solid fill were to be removed in the course of constructing the project. The permit required that the applicant provide mitigation for the net fill of 74,000 square feet (1.7 acres) by preparing a plan that involved either "the removal of derelict or unneeded pile-supported structures, the removal of earth fill, the removal of debris from marsh or shoreline areas, the contribution of funds toward the acquisition or improvement of a large restoration project or a combination thereof...."

Four of the 22 projects for pile-supported terminals involved substantial fill removal, but resulted in a net decrease in Bay surface area because more fill was authorized to be placed than would be removed. In three of these permits, extensive findings explained why additional mitigation was not provided. For example, in Consistency Determination No. CN 7-85, the Commission authorized the construction of a new 60,700-square-foot (1.39

acres) pile-supported wharf to moor four U. S. Coast Guard cutters. To provide space for the new wharf, the Coast Guard proposed removing an existing deteriorated timber wharf covering 22,500 square feet (.52 acre) of the Bay. The Commission's consistency determination findings state, in part, that:

> "the particular manner in which the pier will be constructed should result in minimal impact on the biota underneath the wharf. The proposed 40-foot width of the Coast Guard's facility should cause less shading than most wharves built parallel to the shoreline because the wharf will not be immediately adjacent to the shore....The 75-foot separation between the shoreline and the wharf will allow sunlight to penetrate to the bottom of the Oakland Estuary from the landward side of the wharf, exposing the bottom to the sun during longer periods of the day....Furthermore, the Commission's consultant states the pier will have a minimal impact because the new pier will be located fairly high above the surface of the water. Species that presently use the area, such as fish-eating birds, may still be able to use the area....
>
> "The primary public detriment of the fill associated with the Coast Guard's project appears to be the loss of...Bay surface. However, the project will also provide unique public benefits. The new mooring facilities will enhance the Coast Guard's effectiveness in carrying out public service missions that benefit the entire San Francisco Bay Area and Bay resources in particular. One such public service mission is marine environmental protection. The Coast Guard plays an integral role in policing oil tankers and other cargo vessels to ensure that the operators of these vessels adhere to federal laws against discharging oily wastes and other pollutants into the Bay and coastal waters. In addition, the Coast Guard aids in the cleanup of oil spills in Bay waters....
>
> "Another important public service mission performed by the Coast Guard in the Bay is search and rescue. The maritime community relies on the Coast Guard to respond to them in boating emergencies. Furthermore, the Coast Guard provides law enforcement on Bay waters. All of these services are directly beneficial to water-oriented uses such as shipping, fishing, recreational boating, and to the environmental protection of the marine environment....The Commission finds that these public benefits of the project outweigh the public deteriments from the fill associated with the project. Therefore, the Commission

> finds that mitigation is not necessary in this case because detrimental effects of the project are sufficiently offset...."

Although most of the 22 projects for pile-supported terminals resulted in no net fill or a net increase in Bay surface area, the Commission has authorized three permits for terminals that involved little or no fill removal. These permits involved fills ranging in size from 5,220 square feet (.12 acre) to 11,680 square feet (.25 acre). The Commission determined that the relatively small size of these fills would result in insignificant adverse impacts to the Bay, and thus, no mitigation was required.

CHAPTER IV. EARTH FILL

Earth fills are solid fills placed in tidal areas to create dry land. The Commission has approved earth fill for marine terminals, water-related industry, marinas, exploratory natural gas wells, levees, bridges, and public access.

Environmental Impacts

Of the various kinds of fill, earth fills have the most dramatic impact on the Bay. Earth fill transforms an existing tidal area to upland. Such fills can potentially have serious impacts on the Bay, including: (1) destruction of fish and wildlife habitat; (2) disruption of the ecological balance of the Bay; (3) reduction in the Bay's surface area and volume thus decreasing the Bay's aquatic habitat, reducing the amount of water available to assimilate wastes, and reducing the tidal prism that flushes waste from the Bay; and (4) reduction in the climate-moderating effects of the Bay, thereby increasing the possibility of air pollution. Even small fills can have far-reaching and sometimes highly destructive effects on the Bay. For these reasons, the Commission has required that nearly all earth fill projects it has approved offset the impacts of such fills through mitigation or through project design that negates the adverse impacts of the fill on Bay resources. In nearly all cases, the mitigation measures have resulted in creating natural resource values equal to or greater than the values lost from the fill. The following examples illustrate many of the various mitigation measures that have been employed to offset the unavoidable adverse environmental impacts of earth fill.

Shoreline Improvement and Public Access

Most earth fills authorized to improve shoreline appearance and public access have been small, involving less than 6,000 square feet (.14 acre) of fill. Nearly all projects involving such fills have provided mitigation for the fill's impacts. For example, in a permit to Ponderosa Homes in Alameda (Permit No. 1-80) the Commission authorized the construction of 30 single-family residences on the existing shoreline and the placement of approximately 6,000 square feet (.14 acre) of fill primarily for public access in a small, debris-strewn drainage ditch subject to tidal action. Working with the Department of Fish and Game and the Commission staff, the applicant developed a proposal to mitigate the fill's effects by creating a 14,000-square-foot (.32-acre) tidal marsh and lagoon elsewhere on the applicant's property. The marsh and lagoon were to be developed as integral parts of the project's public access network, providing points of interest along the project shoreline. The Commission incorporated this proposal as a permit condition, finding that "the public benefits from constructing the lagoon outweigh any detriments from the fill in the channel...."

In another example, the Commission, in a permit to Alameda Marina Village Associates in Alameda (Permit No. 39-79) authorized construction of a marina, offices, commercial and residential buildings on a 206-acre former shipyard. The existing shoreline was cluttered with deteriorating wood and concrete wharves, extensive sheetpiling, numerous piles, and four large concrete shipways. The applicant proposed creating an attractive and accessible shoreline site by removing much of the existing fill and placing earth, pile-supported, submerged, and floating fill at locations where removal costs were excessive. In all, the Commission authorized 335,084 square feet (7.69 acres) of fill, of which 36,500 square feet (.84 acre) was largely for

public access. In addition, 342,022 square feet (7.85 acres) of fill was removed, resulting in a net increase in the Bay's surface area. By designing the project so that it resulted in a net increase in Bay surface area and a marked improvement in shoreline appearance, the Commission was able to find that the project's benefits were sufficient to offset the fill's unavoidable adverse environmental impacts without requiring additional project mitigation.

Mitigation has not been required for all public access fills. The Commission has approved several permits for small amounts of public access fill (less than 1,000 square feet (.02 acre)) without mitigation, and in certain circumstances, the Commission has not required mitigation for larger public access fills. For example, in a permit to Caltrans (Permit No. 10-85) for a yet unbuilt project in Sausalito, the Commission authorized placing 55,000 square feet (1.26 acres) of fill atop a former railroad bed to establish a one-mile long public access path. The existing railroad bed was higher than much of the surrounding land, and the few plants that grew on it were characteristic of upland rather than tidal areas. However, through subsidence the railroad bed was occasionally inundated by tidal waters and was technically part of San Francisco Bay. The Commission found that the project would greatly improve public access in the area. The Commission also found that the project's impacts on fish and wildlife resources, and on water surface area, tidal circulation, and water volume were relatively insignificant. For these reasons, the Commission did not require mitigation for this project.

Bridges

Since 1974, the Commission has approved four projects involving earth fill for bridges and bridge approaches. With the exception of one project

involving less than 450 square feet (.01 acre) of fill, all have provided mitigation.

For example, in a permit to the East Bay Regional Park District (Permit No. 30-79) for the first phase of a 194-acre park on a former landfill in San Leandro, the Commission approved a small, 1,900-square-foot (.04-acre) earth fill/culvert entrance roadway across a small tidal inlet to provide access to the park. The Commission required the permittee to "create and permanently maintain a new salt water marsh covering not less than the area to be filled in the immediate vicinity of the marsh crossing...." (Work on this project has not yet commenced.)

In another permit, the Commission authorized Caltrans (Permit No. 20-73) to replace the existing Dumbarton Bridge with a new pile-supported bridge covering 14 acres of Bay surface. In addition, 76 acres of earth fill were to be placed in salt ponds and managed wetlands for the bridge approaches.[1/] In approving the project, the Commission required that the applicant develop a public benefits plan "to mitigate the unavoidable adverse environmental impacts of the project...." The Commission was to be involved in the

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1/ This permit was the first in which the Commission took a lead role in determining what kind and how much mitigation should be provided to offset a project's adverse impacts. This was not the first time the Commission had required mitigation, however. Mitigation first appeared in Permit No. 22-73 to the Golden Gate Bridge District to construct the Larkspur Ferry Terminal, a permit issued two weeks prior to the Commission's authorization of the Dumbarton Bridge. The mitigation required in that permit reflected a proposal developed by the Bridge District prior to submitting an application to the Commission.

preparation of the plan, which was to meet the following criteria: (1) the cost of preparing and carrying out the plan would be $900,000; (2) a new area or areas totaling not less than 200 acres would be acquired and returned to tidal action; the mitigation area(s) could not be subject to tidal action or used for salt production at the time the permit was issued, and preferably such area(s) would be located in the South Bay; and (3) any money not used in acquiring and restoring the 200 acres should be "devoted to acquisition that will reduce or eliminate development pressures on wetlands and salt ponds which are in the Commission's jurisdiction and on which the project will have a material growth-inducing impact...."

Exploratory Gas Wells

Since 1974, the Commission has authorized five major permits for the construction of drilling pads for natural gas exploration. All five have included essentially the same conditions and findings. A typical example is a permit the Commission issued to Dow Chemical Company (Permit No. 11-82(M)) for a project in the Suisun Marsh in Solano County. This project involved constructing a 24,700-square-foot (.57-acre) drilling pad in the primary management area of the Suisun Marsh. To offset the adverse, but temporary impacts of the fill, the permit required all fill material to be removed within a few months of drilling completion if the exploratory drilling proved unsuccessful. In addition, the permit required that "any marsh area disturbed during the construction of the drilling pad, drilling operations, or fill removal shall be reseeded with appropriate California native plant seed...within six (6) months of fill removal." Finally, the permit findings state that in the event the drilling proved successful:

> the Commission would require that an area, equal to or greater in size than the area affected by such [permanent] facilities and not now subject to tidal action, be returned to tidal action and marsh as a condition of any authorization for such permanent facilities....

Marinas

The Commission's marina policies (page 21 of the San Francisco Bay Plan) allow "fill for marina support facilities...at sites with difficult land configurations provided that the fill in the Bay is the minimum necessary and any unavoidable loss of Bay habitat, surface area, or volume is offset to the maximum extent feasible, preferably at or near the site." Earth fill has been authorized for several marinas, primarily to improve shoreline appearance and public access, or to provide additional parking areas.[2/] Nearly all such projects have offset the impacts of the fill with fill removal. The following three permits issued by the Commission illustrate the mitigation provided as part of marina fill projects.

The Commission issued a permit to the Port of Oakland (Permit No. 8-77), for Embarcadero Cove Marina, authorizing 11,500 square feet (.26 acre) of floating fill for 44 new boat berths and 4,500 square feet (.10 acre) of earth fill for public access. As part of the project, an existing deteriorated wharf and floating walkway covering 29,400 square feet (.67 acre) of Bay surface area were to be demolished. The Commission concurred with the conclusions of the Environmental Impact Report that the fill removal and proposed public access improvements were sufficient public benefits to offset the adverse impacts of the fill.

2/ Fill for marina parking could be approved prior to the 1982 amendments to the Bay Plan's marina policies. The current Bay Plan policies virtually prohibit fill for marina parking.

In a permit to the Richmond Redevelopment Agency (Permit No. 11-78), the Commission authorized the first phase of the redevelopment of Richmond's Inner Harbor with a marina-centered development of commercial, recreational and public access facilities. In addition to floating fill for 500 boat berths and submerged fill for shoreline protection, the permit authorized 0.20 acres of pile-supported fill for marina-related commercial uses and 2.85 acres of earth fill to improve public access and shoreline appearance in a highly disturbed area formerly used for shipbuilding. To offset the adverse impacts of the fill, the applicant proposed creating and maintaining a 4.03-acre salt marsh by excavating adjacent, City-owned uplands. The applicant also proposed creating a 0.50-acre tidal cove to serve as the focal point for the shoreside development. The Commission determined that these mitigation measures adequately offset the resource values lost as a result of placing fill and included conditions requiring creation of the new tidal areas in the permit.

In another permit for the New Red Rock marina in Richmond, (Permit No. 19-83), the Commission authorized renovation and expansion of an existing 90-berth marina to accommodate 637 berths and new marina-related facilities. The existing marina had seriously deteriorated and contained numerous abandoned and sunken barges, docks, floats, oil spills, and miscellaneous debris. The proposed renovation included floating fill for boat berths, submerged fill for breakwaters, and 1.40 acres of earth fill, some of which was already in place but unauthorized, for public access and parking. As part of the project, the applicant proposed removing 2.50 acres of abandoned floats, barges, vessels, a ferry dock, breakwater, and all other debris in an effort to create a safe, attractive, and usable shoreline and marina basin and to offset the impact of the new fill. The Commission determined that "the significant adverse environmental effects from the placement of solid fill for

parking and public access will be mitigated to the extent feasible by the removal of existing fill and debris from the site...."

As stated earlier, nearly all marina projects that have involved earth fill have mitigated the adverse effects of the fill. The two projects that did not provide mitigation both involved small fills of less than 850 square feet (.02 acre).

Levees

Since 1974, eight major permits involving fill for levees have been authorized. All but one have provided, or been required to provide, mitigation for the adverse impacts of the earth fill.

For example, the Sewerage Agency of Southern Marin project in Mill Valley (Permit No. 21-80) involved improving and expanding the Mill Valley Wastewater Treatment Plant, as well as constructing a buried pipeline along the shoreline. To build two stormwater retention basins, the applicant proposed constructing a dike that would destroy 6,400 square feet (.15 acre) of tidal salt marsh. The applicant proposed mitigating the loss of this wetland area by excavating 8,000 square feet (.18 acre) of uplands to create a new salt marsh, as well as enhancing an existing 12,000-square-foot (.28 acre) tidal marsh by removing debris and excavating channels to improve water circulation. In authorizing the project, the Commission included permit conditions requiring these mitigation measures and found that "the public benefits from the marsh creation and marsh enhancement proposed by the permittee outweigh any detriments from the filling of the remnant, pocket marsh...."

A project by the City of Albany (Permit No. 17-82) involved placing 6.30 acres of earth fill in the Bay to construct a perimeter dike and leachate

barrier around a former landfill to seal the site, stabilize its slopes, and provide public access. The Commission required that the applicant mitigate the effects of the fill by improving water quality and water circulation in an existing 5-acre tidal lagoon adjacent to the landfill. In addition, the Commission required that the applicant "provide the equivalent of the restoration of 5.1 acres of land to tidal action, in a manner approved by or on behalf of the Commission, which may specificially include the contribution of funds to a mitigation land bank...."

In only one permit has the Commission authorized earth fill for levee construction without requiring mitigation for the fill. In Permit No. 14-76, issued to the Stauffer Chemical Company in Martinez, the Commission permanently authorized a 10,890-square foot (.25 acre) dike that had previously been constructed as a temporary levee under Emergency Permit E-10 to prevent contaminated leachate from entering the Bay. The permit required the applicant to prepare a plan for eliminating and containing the leachate, and included a finding that:

> "although the levee, a form of fill, is not consistent with the provisions of the San Francisco Bay Plan, it is so essential to the public health and safety as to justify approval because the leachate, if allowed to escape into the Bay, would contaminate significant amounts of Bay water, a problem that is of such a scale as to be of importance to the public in the entire Bay Area...."

Port and Water-Related Industry

Since 1974, the Commission has approved nine major permits or material amendments authorizing earth fill for port or water-related industrial uses. All have offset the adverse impacts of the fill, usually by contributing funds toward the acquisition and tidal restoration of an off-site parcel. In nearly

all cases, the proposed contribution was equivalent to the purchase and restoration of a parcel of equal or greater size than the area proposed to be filled. Two typical examples of these fill projects and their associated mitigation are permits to the Port of Oakland (Permit No. 8-78) and to Jensen and Reynolds (Permit No. 15-79).

The permit to the Port of Oakland for Berth 5 authorized demolishing an existing 96,600-square-foot (2.22 acres) pile-supported wharf equipped with a portable container crane and replacing the facility with a new wharf and permanent crane on 68,250 (1.57 acre) square feet of pile-supported fill and 28,350 square feet (.65 acre) of earth fill totalling 96,600 square feet (2.27 acres). The Commission recognized that the project would result in no net increasing in Bay coverage and determined that the removal of the existing pile-supported structures was sufficient to offset the new pile-supported fill. But the Commission also determined that the solid fill would have a permanent detrimental impact on water volume and wildlife habitat that was not sufficiently offset by the removal of an equal amount of pile-supported fill. For this reason, the Commission agreed with the applicant's proposal to use the remaining "credit" for leasing 18-acre Doolittle Pond in nearby Alameda on San Leandro Bay to the East Bay Regional Park District as part of the public benefits of the project to offset the adverse impacts of the solid fill. The Park District breached the levee and restored Doolittle Pond to tidal action.[3/]

3/ The Port had previously used Doolittle Pond for mitigation in two other fill projects (Permits Nos. 4-74 and 2-77) whose net earth and pile-supported fills totaled 2.59 acres. Although it was not called a mitigation bank at the time, using the same parcel to offset the impacts of more than one project is the basic principle of mitigation banks. See Chapter V for a discussion of a mitigation bank.

The permit issued to Jensen and Reynolds Holding Company in Benicia involved placing earth fill on 4.24 acres of tidal marsh to construct a barge terminal and fabrication yard for the manufacture and shipping of large steel structures to be used in off-shore oil exploration. The applicant consulted with the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Commission staff to determine appropriate mitigation for the fill's impacts. The Habitat Evaluation Procedure (HEP)[4/] was used to quantify the habitat value of both the proposed fill site and the preferred mitigation site. Based on the HEP analysis, the applicant proposed and the Commission subsequently required a program to offset the adverse impacts of the fill by acquiring and enhancing the equivalent of 20 acres that were:

> (a) not now subject to tidal action; (2) is not now used for the solar evaporation of sea water in the course of salt production; and (3) was diked-off from the Bay prior to September 17, 1965....[T]he applicant may participate in other larger scale marsh or Bay restoration projects, preferably in or adjacent to the Carquinez Strait, by private or public parties or agencies...provided that the contribution by the permittee in land, money, or work...is at least equivalent in value to the cost of acquisition of approximately 20 acres of diked-off land meeting the criteria referenced above.

4/ The HEP system is a method of quantifying the habitat value of a site for the species that make use of it. In practice, biologists often use key species representing the range of species making use of the site rather than making exhaustive investigations of every species. Changes in habitat value can be quantified in the same way, and the effects of a project can be compared to the improvement caused by the proposed mitigation. See pages 49-53 of the Commission's "Staff Report on Fill Controls" for a detailed discussion of HEP procedures.

CHAPTER V: MITIGATION RESOURCES

Finding Mitigation Sites

The Commission's mitigation policy states that mitigation should "be at the fill project site, or if the Commission determines that on-site mitigation is not feasible, as close as possible." As illustrated in many of the permits cited in this report, many applicants have designed their projects so that mitigation was provided at the project site. On-site mitigation has several advantages, including: (1) the applicant controls the land, and thus can coordinate any mitigation work with project construction; (2) the applicant has increased involvement with the mitigation site, thereby increasing the applicant's incentive for the mitigation to succeed; and (3) there is greater likelihood that the mitigation will offset the actual fill project impacts, as site location, soil and hydrological conditions, microclimate, and other features closely mirror the Bay resources lost through filling.

However, even with the advantages of on-site mitigation, it is not always feasible or desirable for mitigation to take place on the project site. In some cases, land is not available for on-site mitigation. In other situations, on-site mitigation may result in creating a wildlife habitat, such as a tidal marsh, that is too small, too isolated, or too subject to continual disturbance to have a significant habitat value. In these instances, off-site mitigation may be necessary or preferable.

Unfortunately, it is becoming increasingly difficult to find mitigation sites in the San Francisco Bay Area simply because so much of the shoreline has either been developed, is high-priced, or already supports valuable wildlife resources. This scarcity of suitable mitigation sites has frustrated

applicants and regulatory agencies alike in their efforts to offset a project's adverse environmental impacts. In recognition of the difficulty of finding mitigation sites, and to allow the greatest possible flexibility in providing mitigation, an increasing number of Commission permits have provided the applicant with several acceptable mitigation options. The two options that appear most frequently are off-site mitigation and contributions of monies to "mitigation banks."

Mitigation Banks

Mitigation bank contributions usually involve applicants contributing funds on a pro-rata basis toward the cost of acquiring, restoring, maintaining, and monitoring a new wetland. In the San Francisco Bay Area, mitigation bank projects have consisted of restoring tidal action to an area that has been diked-off from the Bay, or enhancing an existing tidal wetland. Normally, the mitigation bank is acquired, enhanced, and maintained by some party other than the applicant.

Mitigation banks can eliminate the lag-time between habitat loss and habitat creation because the mitigation site is usually restored prior to project construction. Mitigation banks also allow applicants to determine their mitigation costs early in the project development process. Applicants contributing to a mitigation bank are assured that the mitigation they provide is comparable to mitigation provided by other project sponsors contributing to the mitigation bank; thus all applicants are treated equitably.

Because of these advantages, and because mitigation banks offer additional flexibility in meeting the public benefits test, the Commission has encouraged the development of mitigation banks and has approved two mitigation bank programs for San Francisco Bay. One was to be operated by the East Bay

Regional Park District and involved the restoration of 200 acres along the Hayward shoreline; the other was to be operated by the State Coastal Conservancy and involved enhancing a 15-acre diked wetland at the mouth of Petaluma River. Unfortunately, neither of these mitigation banks has been successful. In both cases, well after the mitigation projects were planned and the sites acquired, the California Department of Fish and Game and the U. S. Fish and Wildlife Service determined that the existing wildlife values at each site were so high as diked seasonal wetlands that any proposed enhancement program would not substantially increase the site's wildlife value. These determinations led the Coastal Conservancy to abandon the Petaluma Mitigation Bank, while the East Bay Regional Park District is continuing to assess what course of action should be taken with its Hayward property.

The failure of these two mitigation bank programs is of great concern. Without mitigation banks as a mitigation option, and as suitable mitigation sites become increasingly scarce, applicants for small, otherwise approvable fills will be unable to offset the adverse impacts of their proposed approvable Bay fill projects. Unless acceptable mitigation techniques can be found, the Commission will be faced with the difficult choice of either denying projects because the adverse impacts cannot be mitigated, or approving fill projects without any mitigation.

The most promising idea is for the agencies most familiar with wildlife resources -- the California Department of Fish and Game and the U. S. Fish and Wildlife Service -- to identify sites which could be enhanced to provide mitigation and to have operating agencies, such as the Coastal Conservancy, acquire these sites and establish mitigation banks. Unfortunately, the fish and wildlife agencies have not expressed an interest in this approach.

Organizations and Agencies Involved With Mitigation in San Francisco Bay

Regulatory Agencies

San Francisco Bay Conservation and
Development Commission
Thirty Van Ness Avenue, Room 2011
San Francisco, California 94102
(415) 557-3686

San Francisco Bay Regional Water
Quality Control Board
1111 Jackson Street, Room 6040
Oakland, California 94612

U. S. Army Corps of Engineers
San Francisco District
211 Main Street
San Francisco, California 94105
(415) 974-0416

Reviewing Agencies

California Department of
Fish and Game
Region III
P. O. Box 47
Yountville, California 94599
(707) 944-2011

U. S. Environmental Protection Agency
Region IX
215 Fremont Street
San Francisco, California 94105
(415) 974-8071

U. S. Fish and Wildlife Service
2800 Cottage Way
Sacramento, California 95825
(916) 484-4731

California Department of
Fish and Game
Marine Patrol Branch Office
411 Burgess Drive,
Menlo Park, California 94025
(415) 326-0324

U. S. National Marine Fisheries
Tiburon Laboratory
3150 Paradise Drive
Tiburon, California 94920
(415) 556-0565

Interest Groups

Bay Planning Coalition
666 Howard Street, Suite 301
San Francisco, California 94108
(415) 543-3830

Golden Gate Audubon Society
1550 Shattuck Avenue #204
Berkeley, Calfiornia 94709
(415) 843-2211

Save San Francisco Bay Association
2140 Shattuck Avenue
Berkeley, California
(415) 849-3053

San Francisco Bay Chapter
Sierra Club
6014 College Avenue
Oakland, California 94618
(415) 658-7470

Interest Groups continued

Audubon Society
Sequoia Chapter
720 El Camino Real
Belmont, California 94002
(415) 593-7368

Marin Audubon Society
Post Office Box 599
Mill Valley, California 94942
(415) 924-6057

Santa Clara Valley Audubon Society
415 Cambridge Avenue, Suite 21
Palo Alto, California 94306
(415) 329-1811

National Audubon Society
376 Green Beach Road
Tiburon, California 94920
(415) 388-2524

Organizations Involved in Purchase and Enhancement of Mitigation Sites

California Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, California 94612
(415) 464-1015

East Bay Regional Park District
11500 Skyline Boulevard
Oakland, California 94619
(415) 531-9300

Marin Open Space District
Civic Center
San Rafael, California 94903
(415) 499-6387

Peninsula Open Space Trust
3000 Sand Hill Road
Menlo Park, California 94025
(415) 854-7696

Midpeninsula Open Space District
Old Mill Office Center
Building C, Suite 135
201 San Antonio Circle
Mountain View, California 94040
(415) 949-5500

Nature Conservancy
California Field Office
785 Market Street
San Francisco, California 94103
(415) 777-0487

Sonoma Land Trust
P. O. Box 1211
Sonoma, California
(707) 938-9119

Trust for Public Lands
82 Second Street
San Francisco, California 94105
(415) 495-4014

5. The Commission will balance the public detriment of a proposed fill project, as determined under CEQA or NEPA, against the public benefits to be derived from the project. In reference to this balancing process, the McAteer-Petris Act requires the Commission to focus on environmental rather than economic or social factors in determining the public benefits of a project. However, the Commission is not limited to direct environmental benefits in its weighing of the benefits of fill projects. For instance, the potential loss of a small amount of water area from a particular project may be outweighed by the overwhelming public benefits to be derived from the project. Thus, mitigation would not be needed for the project. On the other hand, the public benefits of a particular project may not completely offset the public detriment of the project in which case some mitigation may be needed.

6. When the Commission determines that mitigation is needed, a mitigation program should be provided as part of the project. In accordance with Section 66605(a) of the Act, mitigation should consist of measures to compensate for the adverse impacts of the fill to the natural resources of the Bay as identified under CEQA or NEPA such as to water surface, volume or circulation, fish and wildlife habitat, or marshes or mudflats.

7. It should be noted that mitigation is not a mandatory requirement of all proposed fill projects.

Conclusion. Mitigation is an important and valuable tool for overcoming the adverse environmental impacts of Bay fill projects. Mitigation is also often a necessary legal requirement under the Commission's law. However, it is impossible to establish precise mitigation standards that can be applied to all situations because of the variables in site conditions, project details, environmental impacts, and other circumstances. Therefore, early in their planning project applicants should contact the Commission's staff to determine the information that will be needed to assess the adverse impacts of fill, the types of impacts that will have to be considered, and how to best assure that the project will provide public benefits that will outweigh the detriments of Bay fill. The Commission's Chief of Permits should be contacted to arrange for these discussions.