

# San Francisco Bay Conservation and Development Commission

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**TO:** Bay Fill Policies Working Group Committee Members

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**SUBJECT:** **Summary of Bay Fill Working Group Activities and Considerations on Bay Fill Policies and Habitat Based Projects**  
(For Working Group consideration on May 19, 2016)

## Summary

In late 2014, the Commission created the Bay Fill Policies Working Group to examine potential policy issues specifically in regards to Bay fill that may be necessary for the region to adapt to rising Bay waters. The Bay Fill Policies Working Group's charge is to make recommendations to the full Commission regarding whether BCDC's Bay fill laws and policies need to be amended due to the need to adapt to rising sea level, and to make the Bay more resilient and productive environmentally and economically while ensuring Bay protection and maximum feasible public access to the Bay. In developing these recommendations, the Working Group has heard from and will continue to hear from a variety of stakeholders, to assist them in understanding the issues faced when proposing adaptation measures related to Bay fill and the Commission's current laws and policies.

The Working Group developed a plan for addressing the multiple issues and policies that relate to Bay fill. The plan included a general discussion of the McAteer-Petris Act, the *San Francisco Bay Plan* and its policies, and focused meetings, separated into two overarching topics – habitat and resource based policies, and those addressing the built environment. The Working Group has completed its initial review of the habitat and resource based policies. This report summarizes that work, and considers the path forward for the Working Group.

## Background and Next Steps

I. **Bay Fill Policies Working Group Meetings.** The Working Group is composed of representatives of the Commission, with Commissioner Barry Nelson (Senate Rules Committee Appointee) as the Chairperson; and Commissioners Jason Brush (USEPA Appointee), Katerina Galacatos (USACE Appointee), Sean Randolph (Governor's Appointee) and Jim Mc Grath (Water Board Appointee). Staff to the Working Group includes Chief Deputy Director Steve Goldbeck and Brenda Goeden (Sediment Program Manager). The meetings occur on the third Thursday of the month, prior to the corresponding meeting of the full Commission and are open to the public. The meetings have followed a similar format, with each meeting having a selected topic that encompasses an aspect of rising Bay waters and the potential for fill to address the specific issue, often including a presentation from a guest speaker.

As described and summarized below, the Working Group approved a work plan and met regularly over the past year and a half, examining the Commission's laws and policies relating to fill for habitat, resource protection and restoration activities.

A. **Overview of Commission Laws and Policies Related to Fill.** Joe LaClair, previous BCDC Planning Chief, presented this topic. Working Group members were reminded of the multiple layers of laws, policies and regulations with which a project must comply in order to be permitted. The Commission's laws include the McAteer-Petris Act and the Suisun Marsh Preservation Act. The Commission's policies are contained in several plans: the *San Francisco Bay Plan* (Bay Plan), covering the Bay, shoreline band, salt ponds and managed wetlands and containing the most frequently cited policies; the *Suisun Marsh Protection Plan*, applicable to the primary and secondary management areas of the Suisun Marsh; the Seaport Plan, which is adopted as part of the Bay Plan and is the basis of the Bay Plan policies for ports; and the Special Area Plans, which are part of the Bay Plan and provide finer grain planning for specific areas, such as the San Francisco Waterfront and Richardson Bay. This presentation also briefly touched on the Commission's regulations found in California Code of Regulations, Title 14, Natural Resources Division 5, The San Francisco Bay Conservation and Development Commission.

The McAteer-Petris Act is the enacting legislation for the Commission and contains and directs its legal activities. In addition it describes the major uses of and limitations on uses and development of the Bay. Specific sections address major tenets of the Commission's authority regarding fill. Section 66600 describes the Bay as a resource that can be beneficially used for specific purposes and activities. Section 66601 addresses and limits haphazard filling of the Bay at the Commission's inception and for the future. Section 66602 describes the uses of the Bay more specifically and defines permissible water-oriented uses. Section 66602.1 discusses how salt ponds and managed wetlands should be treated and restored or developed if the original purpose should be terminated. Section 66605 provides for balancing benefits and detriments of specific activities and the appropriate purposes, management and manner of filling when necessary, and no upland alternatives are available. Section 66605(c) is particularly pertinent because it includes the requirement that proposed fill be the minimum necessary for the proposed project.

The Suisun Marsh Preservation Act and *Suisun Marsh Protection Plan*, in overview, state that the Suisun Marsh habitats should be preserved and that the Marsh deserves special protection, as it is an area of national significance. The Act and Plan also give special consideration of development within the Marsh, such as proposing fill for natural gas development and water-related industry. While the Suisun Marsh Preservation Act is an important component of the Commission's law and policy, the main focus of this Working Group has been on the McAteer-Petris Act and the Bay Plan policies.

In summarizing the Bay Plan, Joe noted that it is divided into three sections, including the Major Policies and Conclusions; policies focused on the Bay as a resource; and Development of the Bay and shoreline (uses of the Bay). Within the resource policies, important policies for consideration in this effort include: Fish, Wildlife, Other Aquatic Organisms, and Wildlife; Surface Area & Volume; Tidal Marshes and Flats; and Subtidal Areas. The development oriented policies that should be considered include: Salt Ponds; Managed Wetlands; Other Uses; Fills in Accord with the Bay Plan; Mitigation; and the Bay Plan Map Policies. While the Bay Plan has a somewhat divided construct separating resource policies from development policies, all applicable policies are applied to a proposed project, as the analysis of a project often intersects the resource and development oriented policies.

**Discussion and Findings.** The Working Group conversation focused on the variety of laws and policies that the Commission has, how the staff works within the existing framework, and challenges of the changing dynamics of the Bay system, particularly in regards to sea level rise and potentially necessary Bay fill as an adaptation measure.

The key suggested finding from this discussion was that the McAteer-Petris Act language was likely sufficiently broad enough to allow for adaption to sea level rise, and did not need modification. The Working Group did note that a broader interpretation of what constitutes a water oriented use may be necessary, or an explicit inclusion of sea level rise adaption may be appropriate.

**B. Excerpts from the San Francisco Bay Plan related to Bay Fill.** Over the next several meetings, the Working Group considered the Bay Plan policies that related to fill. Staff provided an excerpt from the Bay Plan that highlighted policies that both directly and indirectly relate to fill, both for habitat and development purposes. As part of these discussions, the Working Group examined a number of questions, including:

1. How does the Commission determine what is a "minor" amount of fill to enhance wildlife?
2. How does the Commission conserve subtidal areas and tidal marshes and tidal flats in light of sea level rise?
3. How does the Commission weigh short- and long-term benefits and detriments associated with filling existing habitats to improve their resilience?
4. How does the Commission ensure that all projects likely to remain in place longer than mid-century are adaptable to end-of-century?

5. What are the appropriate ways to integrate thresholds into the Commission's regulatory program?
6. Given that fill should be the minimum necessary to achieve the purpose of the project, how does the Commission encourage adaptive management plans that protect Bay resources into the future?
7. How does the Commission evaluate whether nonstructural methods of shoreline protection are feasible, appropriate, and adaptable?
8. How does the Commission determine whether levee easements and right-of-ways are "sufficiently wide" to allow adaptation in the future?
9. How does the Commission prevent adverse impacts to public access from sea level rise, e.g., will public access be sacrificed for levee widening/raising shoreline protection?
10. What are appropriate innovative sea level rise adaptation approaches? How does the Commission encourage them?
11. How does the Commission evaluate whether new adaptation measures are feasible and appropriate? How does the Commission monitor their effectiveness over time given the Bay will change in unexpected ways as sea level rises?
12. How does the Commission evaluate maximum feasible water volume and surface area in salt ponds in light of sea level rise?
13. How does the Commission consider tidal barriers at different scales, e.g., tidal barrier across Dumbarton Narrows vs. tidal barrier on a tidal creek?
14. How does the Commission pursue beneficial reuse for restoration projects using dredged sediment given the status of the Oakland Middle Harbor Enhancement Project, i.e., what is a minor amount of dredged material?
15. How does the Commission address shoreline migration as sea level rises?

In addition, the Working Group considered several projects that involved fill and were authorized under existing law and policy, such as the Pier 30-32 Cruise Ship Terminal; West Point Marina constructed in a former salt pond; Brooklyn Basin fill for public access; and the Port of Oakland Middle Harbor Enhancement Project as a subtidal habitat restoration, among others

Through these discussions, the Working Group developed a work plan that over 18 months would allow the members to examine a number of questions through presentations by speakers engaged in sea level rise planning, or activities that either were in response to rising Bay waters or could be used as an adaptation measure. More recently, the work plan was further organized to concentrate first on habitat/resource related policies and topics, and then on development-based topics and policies.

**C. Flood Protection.** Mitch Avalon, formerly with the Contra Costa Public Works Department, briefed the Working Group on current flood protection issues, and foreseeable challenges associated with climate change. His presentation included a description of how flood protection generally works, the FEMA requirements that the agencies need to meet and a discussion of the existing flooding problems in Contra Costa County under today's conditions and what is expected with climate change and rising Bay waters. He also discussed the culture of flood protection agencies, which traditionally treated flooding issues as an engineering problem whose solution was to get water off the land as quickly as possible. This resulted in straightened creeks and concrete channels as a general practice. The plan developed by the Contra Costa County Public Works Department lays out a plan for the next fifty years with the goal of realigning flood protection with a more natural setting that includes low flow channels, and marsh and riparian flood plains, which will provide multiple benefits to the community, including supporting native species and providing recreational opportunities. Challenges include funding, permitting, mitigation for temporal loss of existing habitat, endangered species, available space to widen the flood plains and agency culture.

The specific policies addressed included: Fish, Other Aquatic Organisms and Wildlife Policies 1, 2, and 5; Water Quality Policies 1 and 7; Tidal Marsh and Tidal Flats Policies 1, 2, 3, and 6; Fresh Water Flow Policy 3; Climate Change Policies 3, 5, 7; Shoreline Protection Policies 1, 4 and 5.

**Questions the Working Group Considered:** The Working Group did not have a proposed set of questions prior to this discussion. The following questions are offered for further consideration.

1. In realigning flood protection channels, habitat can be initially lost, but would be ultimately enhanced or restored. How should these temporal losses be addressed and should the project mitigate for these losses?
2. How does the Commission support realignment and reconnection of the flood plain to the Bay, given its limited jurisdiction?
3. How will flood protection adaptively managed for sea level rise other than raising the top of the levee or adding sea walls?

**Discussion and Findings.** The Working Group discussed the need for recreating connections between the watershed and the Bay, for fresh water and sediment connections. They agreed that realignment of the channels to create better connectivity is important and in some areas is highly constrained due to existing development. They discussed the need to allow sediment from the flood protection channels to contribute to marshes on the landside, as well as from the Bay. Discussions centered around the trade-offs between flood protection of communities and habitat needs at the interface of fresh and salt water. There appeared to be general agreement that long term watershed planning is necessary for this realignment to occur, but what is outside of the Commission's jurisdiction, so how the Commission can influence such projects is a consideration beyond the actions immediately adjacent to the shoreline.

**D. Baylands Ecological Habitat Goals Update and Recommendations.** Matt Gerhart of the State Coastal Conservancy and Jeremy Lowe of the San Francisco Estuary Institute (SFEI) provided an overview of the newly released Baylands Ecosystem Habitat Goals Project (Goals Update Project). They reminded the Working Group of the importance of marshes and transitional zones due to the multiple benefits they provide, such as habitat for native and listed species; recreational uses; and mitigation of the effects of storm surges, flooding, climate change and sea level rise. They provided a comparison of the findings of the 1999 Goals Project and the Update, reporting that approximately 34,000 acres of baylands are now either being restored to tidal action or are in the planning phase, for restoration with 100,000 acres being the goal.

They also noted that the acceleration of sea level rise and reduction of sediment in the system is an alarming scenario that is detrimental to wetland restoration efforts. If we can ensure sediment is in adequate supply, we can sustain marsh restoration and development through the century, but without adequate sediment supply, the marshes will drown or erode as sea level rises. They noted that the region should consider ways to augment sediment supply and further manage sediment sources in the region, to allow marshes to keep up with rising seas over time. The Goals Update Project identified strategies to reduce impacts from sea level rise, which include: restoring complete systems to maximize ecosystem health; placing sediment in the appropriate places to feed marshes and wetlands; and taking advantage of this relatively quiet period before the acceleration of mid-century sea level rise. Potential policy issues may arise when trying to augment sediment in marshes either to increase vertical accretion or to create additional habitat diversity and transitional habitat within existing marshes.

The specific policies addressed included: Major Conclusions and Policies 3 and 4; Fish, Other Aquatic Organisms and Wildlife Policies 2, 3, and 5; Water Surface Area and Volume Policy 1; Tidal Marsh and Tidal Flats Policies 1, 2, 3, 4 and 8; Subtidal Areas Policies 2, 3, and 4; Climate Change Policies 4, 5.

**Questions the Working Group Considered:**

1. How should the Commission determine what is a minor amount of fill to enhance habitat and wildlife for future generations?
2. How should the Commission determine that “green” shoreline protection is viable, and should be required?
3. Climate Policy 3 requires viability through end-of-century. The amount and timing of sea level rise the Bay will experience is uncertain. How long should the benefits of habitat on Bay fill persist in order to meet the public benefits/detriments tests? Are such projects self mitigating? Or should habitat conversion be offset through mitigation?
4. What sort of monitoring should be required to support adaptive management?

**Discussion and Findings.** The Working Group considered the changing nature of the Bay system that was once considered fairly static, in light of the Commission's emphasis on increasing the surface area and volume. The acknowledgement of rising seas and reduced sediment supplies requires a shift in thinking around these issues and how the Commission moves forward. Of particular concern is how to allow the existing and restored marshes to migrate upland and the need to establish transition zones when most wetlands are constrained by levees and development.

The members also discussed the potential policy issue of creating transition zones in existing tidal marshes, because they are within the Commission's Bay jurisdiction, and the fill policies apply. Also, the fill would involve conversion of the existing wetland habitat, and reduction of the surface area and volume of the Bay. Sea level rise's temporal nature presents a challenge because it is not clear when transition zones would convert back to marsh (Bay) and how much would remain upland. The question of whether fill could be added gradually was also discussed.

The Working Group noted that creating transition zones in the diked Baylands or in salt ponds prior to breaching did not trigger the same policy issues, because it would not be considered Bay fill, or in the case of salt ponds the test is whether open water is maximized. This raised other questions regarding whether sediment could be added after breaching a site and how that may be managed and what policy issues it might present. It was also noted that the Commission has a great deal of flexibility when it comes to fill for marsh restoration and salt ponds.

Discussion also ensued regarding the need for a comprehensive regional sediment management plan, and an understanding of how sediment can be used strategically to help offset some of the losses in tidal marshlands due to sea level rise. Sediment sources discussed included flood protection channels, sand mining, navigation dredging, sediments in reservoirs and dams, and construction soils. Stockpiling of soils and sediment was also considered, including the high cost of land necessary for stockpiling and that stockpiling requires double handling of the sediment, which raises costs.

**E. East Bay Municipal Dischargers South Bay Strategy.** Mike Connor, from the East Bay Dischargers Authority (EBDA), presented a recent study conducted by EBDA and SFEI to examine the potential to move discharge of treated waste water from pipelines into the Bay and instead use it to provide fresh water and nutrients to the land side of existing and restored marshes. The project included study of the historical ecology for the eastern side of the South Bay, which included significant local fresh water flows into marshes and creating brackish water marshes adjacent to tidal marshes. While brackish marshes were extensive prior to development in the Bay Area, they are extremely limited today. The concept uses local wastewater as the fresh water source to recreate the brackish marshes to the Bay and to return fresh water to the Bay locally. The benefits to the dischargers would include decreased pumping distance, and thereby less green house gases produced; new collaborations with multiple entities; and multi-benefit projects. The presentation touched on the LTMS program and suggested that it could be expanded to do more, and mentioned the potential use of bio-solids as sediment source.

The specific policies addressed included: Fish, Other Aquatic Organisms and Wildlife Policy 1, 3 and 5; Water Quality Policies 1, 2, 3, 5, and 7; Tidal Marsh and Tidal Flats Policies 3 and 4.

**Questions the Working Group Considered:** The Working Group did not have a proposed set of questions prior to this discussion.

**Discussion and Findings.** The group discussed the historical ecology of the area and the benefits of reconnecting fresh water to the back of marshes and the Bay to create habitat that is virtually non-existent. It could also reduce costs and green house gas production, and provide some resilience for listed species. Much of the proposed activities appear to be targeted for areas outside the Commission's limited shoreline jurisdiction, but the water would flow into marshes or the Bay, creating a nexus for Commission review. The larger questions associated with the proposal are the purview of the San Francisco Regional Water Quality Control Board (Water Board) and the US Environmental Protection Agency (EPA). However, if proposals came forward that included "seepage levees," such as the Oro Loma pilot project at the back of tidal marshes, they may include fill within the Commission's jurisdiction.

**F. Minor Amounts of Fill for Habitat Purposes.** Meg Meriott of U.S. Fish and Wildlife Service (USFWS) presented the original proposal for the Sonoma Creek Marsh Project, the permit process from the USFWS perspective, and the final project and its progress to date. Arthur Feinstein of the Sierra Club presented a conceptual project that would recreate historic beach habitat along the South San Francisco shoreline. Staff intended these presentations to show the Working Group how projects are changed to be consistent with the Bay Plan fill policies.

Meg's presentation was focused on the Sonoma Creek project, which the Commission authorized in 2015. The construction was completed and the site is currently operating well, and the USFWS anticipates the project will meet its success criteria. Meg discussed the original project, which proposed a larger amount of fill for transitional habitat 25 acres in size, but was reduced to 10 acres in discussions with staff to meet the "minor" amount of fill for habitat purposes of the Bay Plan policies. The remaining volume of sediment was used to create marsh mounds and stockpiled for use as levee maintenance material in the future. The USFWS believes that the larger amount of fill would have provided more transitional habitat and therefore better habitat had it been allowed to go forward as originally proposed.

Arthur's presentation provided an overview of the development of an area near Hunter's Point, as part of a contaminated site clean up that is required to provide habitat benefits as part of the overall project. The presentation included historic maps that showed pocket beaches along south San Francisco's shoreline that have since been lost to development. The conceptual design is to place a large amount of fill in the Bay to create a sand bar and lagoon, with woody debris along the sand bar. The concept is that waves and currents will move the sand and woody debris ashore overtime and a natural beach will be recreated. This concept was shown to BCDC staff several years ago, who expressed concern over the scale of the volume and surface area filled, and recommended a much smaller pilot project to prove the concept. Arthur noted that the project is not likely to come before the Commission for about 10 years.

The specific policies addressed included: Major Conclusions and Policies 3 and 5(a); Fish, Other Aquatic Organisms and Wildlife Policy 5; Tidal Marsh and Tidal Flats Policy 8; Subtidal Policy 6; and Dredging Policy 11.

**Questions the Working Group Considered:**

1. What does the phrase “minor amount of fill” mean and how should it be measured?
2. Should placement of large habitat transition zones be considered a minor amount of fill?
3. Should “hard fill” (rock or other hard substrates) be viewed differently than “soft fill” (sediment)?
4. Should the Commission consider allowing more than a “minor amount” of fill for habitat purposes?

**Discussion and Findings.** The Working Group members discussed several potential adaptation measures that may require fill to reduce impacts from climate change on Bay habitats. These included increasing transition zones between habitats, as they are now rare in the landscape. Another idea included the placement of low berms or barrier islands adjacent to eroding shorelines to reduce wave fetch and storm surge. Reconnecting the tributaries to the system may also allow natural deltas to occur, also providing some shoreline protection and habitat diversity that has been lost over time in the Bay. In considering adding sediment directly to the Bay, it was suggested that it should mimic natural processes, which may be contrary to the way dredged sediment disposal currently occurs. Further, smaller multiple contributions of sediment over time may be more appropriate and reduce impacts.

Further discussion focused on habitat conversion; the temporal issue of filling wetlands to create uplands now for future sea level rise, when existing habitat is very limited and necessary for listed and native species. Because these types of projects are fairly new, the amount of fill necessary to ensure their success is not known. Further consideration needs to be given to “minimum amount of fill necessary” and “minor fill.” One suggestion offered was to allow a more gradual fill process in a project with repeat applications of fill over time to address needs as sea level rises.

The members also discussed whether these legal metrics were the most appropriate way to determine if a project should be authorized. These metrics could be replaced with analysis of the project goals and the fill necessary to create a successful project, or whether biometrics should be the measure of success.

There was also consideration of the current practice to place fill in a restoration project before it is breached, but not once it is breached, because it would be considered fill in the Bay, as opposed to fill in an upland area. The Working Group members may want to contemplate the need for sediment to restore a tidal site if the elevations are low.

The members briefly considered differences between hard and soft fill, in that hard fill would likely change physical processes more than soft fill. The biological processes also have to be considered when placing different types of fill.

Additional consideration was given to whether different projects should have different categories for fill based on the benefits of the project? After some discussion, this concept appeared to be dismissed based on the complicated nature of such an undertaking and the ability to discern benefits of a project.

**G. Adaptive Management.** John Bourgeios, State Coastal Conservancy, Executive Project Manager of the South Bay Salt Ponds, and Laura Valoppi, US Geological Survey (USGS) and lead scientist for South Bay Salt Pond Restoration Project (SBSP Project) presented the South Bay Salt Pond Project's adaptive management program from the perspective of scientific inquiry and project management. Laura provided an overview of the SBSP Project; the scientific definition of adaptive management; how it is being implemented through phasing of the overall project, and individual management questions. Because the SBSP Project is so large and could have significant impacts on existing wildlife that use the ponds, adaptive management is being employed to assess and determine how much of the project can be converted to tidal wetlands and how much should stay in managed ponds. It was noted that managed ponds require more maintenance, and therefore cost more over time, which provides an incentive to increase tidal marshes over managed ponds. Additional rationales include support for critically endangered species, not wanting to displace thousands of shorebirds that rely on the salt ponds for overwintering and nesting habitat; and the desire to restore the South Bay to a more natural state. In completing the project in phases, the team has the opportunity to study the effects of the phase completed on wildlife, and management of the area, and determine through monitoring appropriate next steps and can modify the plan as needed based the results of the monitoring.

She also identified key uncertainties identified early in the process and that are being examined as part of the adaptive management plan. She used the example of sediment sources to the ponds as a key uncertainty, explained how it was being studied, changes that were made in the project as a result of the studies; and emphasized that scale is a very important issue to consider when examining uncertainties.

John then discussed using adaptive management from the perspective of a project manager. He stated that cost of the studies was a very big factor in determining whether they could examine all the key uncertainties and the need to prioritize among them. Further John noted that monitoring was difficult to obtain funding for, but critical to understand the success of the project. He also stated that the time it took to complete the studies delayed the restoration work, but that because the project is so large, it could have vast impacts, so it is imperative to ensure the project is done with care and using the best available science to inform the process and decision making.

Bay Plan policies that include language specific to, or indirectly related to, adaptive management include: Fish, Other Aquatic Organisms and Wildlife Policy 3; Tidal Marsh and Tidal Flats Policy 4 and 6; Climate Change Policy 5 and 6; Shoreline Protection Policy 4; Public Access Policy 4 and 5; and Mitigation Policy 7.

### Questions the Working Group Considered:

1. How should the Commission consider adaptive management? Project level, sub region, and Bay Area?
2. Can adaptive management be implemented at a landscape scale? Can measures be shared between projects?
3. What level of effort to adaptively manage a project is needed?
4. How can the Commission provide for adaptive management when information on specific project features and actions may not be available at the time the Commission considers the project?
5. Should there be policies requiring adaptive management for the built environment (most of the Commission's adaptive management policies are directed at habitat projects)?

**Discussion and Findings.** The Working Group members considered many sides of this issue. A conversation ensued regarding whether restoration and other “public benefits” project should receive preferential treatment in the regulatory process. This was countered by the assertion that many development projects provide public benefits such as housing, etc. After considering the issue further, the members decided that a regulatory process that applied to all was appropriate. Discussion then turned to monitoring and the need to study and manage a site with specific metrics or criteria. A suggestion offered that the metrics should be based on biology rather than physical attributes at a site, because restoration projects were primarily developing habitat for species so biological criteria seems appropriate. It was noted that the biological data is some of the most challenging and expensive to acquire.

Further reflection on monitoring included discussion on the importance of scale, and whether small projects should have to monitor to the same intensity as larger projects, which lead to the statement that large scale projects were far more desirable and successful than smaller projects in stabilizing species populations due to the need for large expanses of connected habitat. Discussion also included the concept of developing regional monitoring programs so that smaller projects could participate at a potentially lesser cost or with fewer resources.

Regarding the question of whether the policies needed to be revised to specifically require adaptive management, the members appeared to agree that the language in the policies is currently strong enough and applicable to adaptive management, even though they refer to monitoring, management and success criteria.

H. **Beneficial Reuse.** Mr. Brian Ross, of the U.S. Environmental Protection Agency briefed the Working Group on Long Term Management Strategy for the Placement of Dredged Sediments in the Bay Region (LTMS) Program, its current status and progress on beneficial reuse; and federal law and policy related to dredged sediment disposal, specifically, Clean Water Act (CWA) of 1977 and the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA).

The focus of the discussion was on beneficial reuse of dredged sediments, and the related Bay Plan policies, including Dredging Policies 1, 2, 3, 4, 5, 10, 11 and 12.

**Questions the Working Group Considered:**

1. How can the Commission discourage disposal at the Deep Ocean Disposal site given that it does not control activities outside of its jurisdiction?
2. Should the Commission consider new in-Bay placement sites for beneficial reuse and how should subtidal impacts be assessed in balancing the potential improvements to marshes and/or mudflats?
3. Should the Commission further define maximizing beneficial reuse?
4. Should the Commission consider using dredged sediment to improve or restore subtidal habitat, beyond a “minor amount?”

At the beginning of the meeting, the Working Group was reminded of the importance of the underlying legislative authority and direction of Government Code Section 66605(a) from the McAteer-Petris Act, which requires that fill in the Bay must be for a water oriented use, and that the public benefits must outweigh the public detriments of the activity.

During this meeting, there was an extensive discussion of the constraints of dredging projects, including equipment and budgetary limitations; federal laws that regulate dredge material disposal activities; the overlapping jurisdictions and regulations of the state and federal agencies; the utility of the deep ocean disposal site; and the challenges of beneficially reusing sediment. The US Army Corps of Engineer’s (USACE) “federal standard” was discussed, and how this policy reduces the USACE San Francisco District’s beneficial reuse.

There was agreement that when evaluating project alternatives, the test is whether the alternative selected is the least damaging alternative that *meets the project purpose*. If the project purpose is to restore or to have an environmental benefit, such as beach nourishment or wetlands restoration, the baseline presumption that less fill equals less impact is not necessarily valid. Members also considered the need to determine if the purpose of the discharge of dredged sediments does not have adverse impacts of its own. In considering any in-Bay beneficial reuse, the placement must benefit the Bay [habitat], not just be an inexpensive way of disposing of the dredged sediment.

The group further discussed in-Bay beneficial reuse as a concept, and considered whether there would be strategic locations; an appropriate volume of sediment, given the specific need; the need for dispersion of the sediment, both grain size and volume; the ability to predict whether physical process can move the sediment to desired locations; and a recognition that using dredged sediment in this way would not necessarily mimic the natural system.

The Working Group members also discussed the need to clarify the differences between the terms “practicability” and “feasibility” because the way the terms are approached is different, and have different meanings. Due to time constraints, the Working Group did not focus discussion on the proposed questions.

I. **Policies for a Rising Bay Project of Special Merit.** In addition to policy discussions, the Working Group was briefed on staff efforts on a project that is evaluating many of the same issues that the Bay Fill Policies Working Group is evaluating BCDC's fill policies and how they relate to rising sea levels and adaptation actions. The project, entitled Policies for a Rising Bay (PRB), was funded by the National Oceanic and Atmospheric Administration (NOAA) in 2015 to collaboratively analyze the Commission's policies in light of climate change, identify how the Commission can most effectively support the Bay Area's climate adaptation needs, and develop guidance for the Commission, staff and project proponents.

The PRB project is being conducted with a steering committee – composed of over 30 stakeholders representing public, private, and non-profit organizations, which has assisted staff in each stage of the project, including interviews, case studies, and group discussion. Staff worked with steering committee members and technical experts to create four example project proposals that explore how current Commission policies apply to green and grey infrastructure adaptation solutions, as well as identify challenges related to governance and equity issues:

1. The transportation case study presents an interstate highway adjacent to the Bay with residential and commercial development inland. The case study includes the adaptation action of a beach, a mudflat recharge area, and an enclosure over the highway to provide public access and open space and retain a connection to the Bay and shoreline.
2. The shoreline community case study includes a neighborhood with low-income residential, commercial and industrial land uses adjacent to a creek. The adaptation actions in the case study include a horizontal levee at the back of the marsh, sediment augmentation, and a tide gate across the creek to protect residential, commercial and light industrial properties.
3. The airport case study depicts an airport adjacent to a residential community that is flooded by rising sea levels from areas both on and off airport property. The adaptation action proposed in the case study involves raising the existing levee on the airport property and covering it with riprap to improve existing flood infrastructure.
4. The contaminated lands case study investigates Commission policies applicable to a closed and covered municipal landfill with a residential neighborhood to the north and a wetland to the south. The landfill, which was closed as a dry site, is vulnerable to wave erosion and water infiltration as sea level rises.

The Working Group was briefed last year on the scope of the project and its progress. In addition, two Working Group members participated in the project as Steering Committee members. Outcomes of this effort will be presented to the Working Group and the Commission in the Summer of 2016.

**II. Next Steps for Working Group.** The Working Group has examined a number of topics and projects related to Bay Fill and habitat/resource based projects. While each meeting had lengthy discussions that were both informative and thought provoking, most of these discussions have not yet resulted in final recommended actions.

The Group noted however, that the timing of the projects may support a phased approach to policy development. For example, the Corps is formulating a study to evaluate how dredged sediment might be strategically placed in-Bay to augment sediment supply to existing and restored marshes. Initial results are likely in 2017, with a potential pilot project proposed for 2018. This study would provide information to evaluate in-Bay beneficial reuse. Middle Harbor Enhancement Area is in final construction and eelgrass will be planted over the next three years, and monitored for success over ten years, which will allow the Commission to evaluate its success as called for in Dredging Policy 11.

Over the next three years, lower San Francisquito Creek will be realigned and provide an example of a widened, softened creek with a low flow channel and terraced marsh plain while over the next five years, several additional beneficial reuse sites will likely come online, including Bel Marin Keys, Eden Landing, and Phase Two of the SBSP.

These projects and their potential timeline gives the Working Group an idea of when changes may be desired to support resiliency efforts, and when better information may be available to base new policies.

The Working Group can move forward in several different ways. As noted, the work to date has primarily focused on habitat/resource based projects and policies. The next direction of the Working Group could include the following:

**A. Human Built Environment/Development Policies/Topics.** Examining policies and projects related to human built environments and development. The work plan includes topics related to transportation, shoreline protection public access and recreational opportunities, all of which may require fill to adapt to sea level rise, or managed retreat.

**B. Revisit Habitat/Resource Based Policies/Topics.** The Working Group may opt to spend more time developing concepts from the habitat/resource-based discussions. This may include the identification of additional information needs, and requests for further presentations or information gathering activities. It is also possible that the Working Group members would like to revisit some of the existing topics or policies for a fuller discussion and potential to reach some conclusions on subject matter.

As noted earlier, the Working Group will have the findings of the Policies for a Rising Bay study by the end of June, which will provide further ideas and analysis for the group to consider.

**C. Relationship to the Rising Seas Working Group and the Commission's Sea Level Rise Workshop.** The Working Group will likely wish to reevaluate its charge and topics based upon the outcome of the Commission recommendations regarding rising sea level coming out of the full Commission workshops.