San Francisco Bay Conservation and Development Commission
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TO: Bay Fill Policies Working Group Members

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SUBJECT: Fill for Habitat Amendment Draft Background Report Outline

1. **The Future Bay**
   a. Climate Change/Sea Level Rise
   b. Suspended sediment concentration relatively low compared to past
   c. Predicted habitat shifts under various predicted future regimes (BEHGU)
   d. Need for more sediment in the Bay/restoration of Bay habitats to allow these important places to survive (reference findings of BEHGU, other studies)
   e. Intro to the need for more Bay fill and benefits of Bay fill
2. **"Bay Fill for Habitat" and BCDC's associated policies.**
   a. Define "Bay Fill for Habitat" – Bay fill vs fill in other parts of BCDC jurisdiction; what do we mean by "habitat".
   b. Describe the laws and policies specifically applying to Bay Fill for these projects, and why these are problematic for the need to place a large amount of fill in the Bay.
3. **Challenges and opportunities for restoration in general.**

   <u>Restoration Challenges</u>

   a. Sand in the Gears issues
   b. General impression that the restoration permitting process is slow and belabored, and requires more information/$ than it should
   c. Lack of funding to do the number of projects that people want to do at the scale they want to do them

Restoration Enhancement Efforts

a. Sustainable Conservation

b. BRRIT

c. Measure AA

4. Fill for Habitat Restoration past, present, and future.

Brief overview of use of fill in past and current habitat restoration

a. Not much fill in Bay jurisdiction—primarily in Salt Ponds/diked wetlands (because of the above policies)

b. Overview of project types with examples (wetland restoration, transition zone creation, beach nourishment, subtidal habitat creation)

c. Make sure to define/incorporate beneficial reuse of dredged sediment

d. Project highlight on Middle Harbor: a bit of background on the project, and use that to demonstrate that each project has site-specific considerations that determine the amount of fill that is appropriate and necessary

e. Nature of restoration:

f. often smaller isolated projects located wherever land can be obtained (as opposed to larger, interconnected, strategically placed restoration)

g. proof of concept (as opposed to large scale regionwide execution to save habitats from SLR)

Habitat-specific risks and solutions

a. Marshes
   - Drowning risk
   - Erosion risk
   - Placement methods to reduce these impacts

b. Subtidal
   - Important components of complete ecosystem
   - Rare in the Bay
   - Important habitat and shoreline erosion prevention benefits
   - Placement methods to create/enhance

c. Beaches
   - Rare in the Bay
   - Erosion/flooding risk

- Could in some cases be used to prevent marsh erosion
- Placement methods to create and/or enhance

d. Transition zones

- Provide high tide refugia
- Provide accommodation space for marsh to migrate inland
- Placement methods to create

Regional scale approach and importance of restoring/creating connectivity among habitats

a. We have to be thinking about restoration in a regional, integrative way that transcends specific habitats

b. BEHGU

c. OLUs

d. Reconnecting channels/restoring watershed connectivity

Shoreline protection benefits of Bay fill for habitat restoration

a. Many habitat restoration projects will be multi-benefit, and also confer important shoreline protection benefits.

b. Describe mechanisms of habitat shoreline protection

c. Examples of multi-benefit projects

d. Important to continue to encourage these projects as well

Economic benefits of Bay fill for habitat restoration (and habitat restoration in general)

a. Asset protection via flood protection and prevention of shoreline erosion

b. Providing local jobs

c. Recreation

d. Carbon sequestration

5. Impacts and Tradeoffs.

a. We need to use the strategies listed above to help habitats survive. However, filling may have negative impacts on Bay wildlife, ecosystems, and processes

b. Potential impacts:

- Wildlife and other organisms (fish, birds, mammals, inverts, microbes, etc.)
- Vegetation
- Sediment processes
- Any other impacts?

c. Science/strategies to evaluating these tradeoffs

- Tools referenced in discussion with SFEI: mapping tools to assess areas that are most at risk for drowning, overlaid with layer of species distribution and risk
- EPA Type Conversion guidance
- Self-mitigation

6. Moving forward with uncertainty.

a. Intro: We have to assess the risks to habitats posed by fill and sea level rise, and to the best of our ability choose the course of action that causes the least lasting damage to essential Bay ecosystems. There will inevitably be uncertainty and risk associated with fill for habitat restoration projects of the future, and we need to manage that risk by employing a strategic approach to the design, monitoring, and adaptive management of these projects.

b. Demonstration/pilot projects

- Define
- Demonstration/pilot projects on fill that have been done in the Bay or nearby but outside of BCDC's jurisdiction
- Potential issues: less certainty, untested methods
- BCDC policies/regs that have been used to permit these projects
- Necessity of more fill pilot/demonstration projects in the future

c. Design

- Overview of standard design process when fill for habitat is involved (when in the process do applicants start interfacing with regulators, types of information required, level of certainty expected in design). Include overview of Bay Plan policies on design of restoration projects.
- Expected challenges with this approach with future projects (sea level rise, sediment supply—how will these things change ability to plan ahead with certainty)
- More flexibility in the design may be necessary to execute adaptive management

d. Monitoring

- Information typically gathered by monitoring (including Bay Plan policies)
- Need for regional monitoring coordination and the WRMP
- The information gathered in monitoring programs should ideally feed into 1) validation of designs/proof of success (so we can learn from it), 2) adaptive management, so we can determine if a project is failing and do something about it

- State of monitoring: are the things being monitored sufficient to serve those purposes? Explain which other factors might need to be monitored.

e. Adaptive Management

- Define
- Information gathered from monitoring often feeds into an adaptive management plan. Essential to decide what to do with a project as time goes on.
- How our policies regarding adaptive management of fill for restoration projects are currently used and could be strengthened.