3.7 VISUAL RESOURCES

This section assesses the effects of the treatment techniques on views from public viewpoints. The Region of Influence is the potential treatment areas surrounding the San Francisco Estuary, including the intertidal areas, nearby trails and open space, roadways, and residential areas. Local laws and policies regarding visual resources will be applicable for each treatment location, and compliance with these laws will be addressed in subsequent environmental analyses.

3.7.1 Environmental Setting

Urbanization and industrial uses characterize the San Francisco Estuary margins, although major portions of the area around San Francisco Bay remain undeveloped. Many recreational users of the waterfront -- including bird watchers, bicyclists, joggers, anglers, and pedestrians -- value the aesthetic views of the Bay's edge. Open space views of tidal flats and salt marshes in many areas around the Bay afford spectacular views of wildlife and long distance views otherwise unavailable in an urban setting.

Views of the margin of the San Francisco Estuary from the water are characterized by unvegetated areas (mudflats) that transition into vegetated areas (intertidal marshes and transitional vegetation) and then into uplands that are developed. Views from upland areas also are characterized by vegetated marshes of various heights, channels, and mudflats.

The mudflats are typically brown when exposed but are frequently flooded by tides and are then viewed as extensions of the bay waters. Visually, the marshes range from having a low shrubby vegetated appearance (pickleweed marshes) to clumps of taller grasses and reed and grassy prairies (cordgrass marshes). Large flocks of shorebirds are also a characteristic visual feature of tidal mudflats. These marshes are typically bisected by open channels bounded by taller marsh vegetation.

Intertidal marshes that are comprised of native vegetation (e.g., *Salicornia virginica*, *Spartina foliosa*, *Jaumea carnosa*) are typically green in the spring and summer months. In the fall and winter months, some of these plants enter a dormant phase and turn reddish brown. This cyclic change in color and visual character of the vegetated marshes is also typical of areas infested with non-native cordgrass. Transitional plants on the banks typically remain green throughout the year, but only flower in the spring or summer months.

The vegetation in native marshes is shorter than areas with non-native cordgrass. The native cordgrass is approximately two to three feet tall compared to Atlantic smooth cordgrass and hybrids, which can reach five to six feet. English cordgrass has a growth form and seasonal color change similar to Atlantic smooth cordgrass. Chilean cordgrass and salt-meadow cordgrass are about the same height and color as native marsh vegetation. However, Chilean cordgrass grows in dense clumps, and colonies of salt-meadow cordgrass resemble a pile of hay or straw. These two species also undergo seasonal color changes. Even though non-native and native vegetation are visually different, a marsh of non-native vegetation may rank as visually pleasing as a native one to the unknowing observer. Tidal marshes dominated by non-native cordgrasses, however, are highly homogeneous, and lack the varied texture, pattern and color provided by the mature mosaic of native tidal marsh vegetation between complex tidal creek networks. This is evident even to casual observation. The primary visual contrast between native tidal wetlands and invasive cordgrass-
dominated marsh is between landscapes of homogenous cordgrass meadows, and complex
drainage-patterned and diverse tidal marsh vegetation.

### 3.7.2 Analysis of Potential Effects

Impacts on visual resources are summarized in Table 3.7.1.

**Significance Criteria**

In accordance with the California Environmental Quality Act (CEQA) Guidelines, the impacts
described below for each of the alternatives will be considered significant if they:

- Noticeably increase visual contrast and substantially reduce scenic quality, as seen from
  any high sensitivity foreground or middle-ground viewpoint;
- Block or disrupt existing views or reduce public opportunities to view scenic resources;
- and/or
- Would conflict with policies and regulations governing aesthetics.

**ALTERNATIVE 1: Proposed Action/Proposed Project - Regional Eradication Using All
Available Control Methods**

**IMPACT VIS-1: Alteration of Views from Removal of Non-native Cordgrass Infestations.**

Methods that require removal of large and densely vegetated areas would result in a change in
visual character and loss of scenic quality. Impacts associated with non-native cordgrass removal
would vary slightly depending on the size of the area being eradicated and the treatment method
used. Manual removal of non-native cordgrass would have a short-term impact on small, isolated
infestations. Pruning and hand-mowing would cause an immediate change from vegetative cover
to dead vegetation, and focus on infestations that are 1 to 10 acres. Views of cut vegetation would
be comparable to views of natural dieback. Flooding would change a treatment site’s appearance
from vegetated to water-covered for the duration of the flooding, then would appear as dead
vegetation until revegetated (up to two years).

Some of the visual impacts of removal methods are shown in Figure 3.7-1, 3.7-2 and 3.7-3.
**Figure 3.7-1** shows changes in views associated with herbicide use. Use of herbicides would
include use of a colorant. Sprayed areas would appear blue-tinted. However, these visual effects
would be temporary and less than significant because the colorant would be slowly rinsed from the
plants by tidal action and rainfall events. The herbicide treatments would result in vegetation
turning orange-brown then brown, as the vegetation dies and decomposes. This browning would
be similar to that which occurs seasonally as cordgrass enters winter dormancy, but would persist
until the plant decomposes or is removed.

**Figure 3.7-2** shows an area treated with herbicides and an area treated with a tracked mower. The
mowing example was taken from an invasive cordgrass control project in Willapa Bay,
Washington, and it shows that for methods involving the removal of above- and below-ground
biomass, mudflat habitat would be immediately restored. This photo also shows the scale over
which tracked vehicles could be used. There would be a temporary impact on large stands (greater
than 10 acres). Views of dense vegetation would be temporarily replaced with unvegetated
mudflats until revegetation. Of all the treatment methods proposed, large-scale mechanized
Figure 3.7-1. Changes in Views Associated with Herbicide Use

*Spartina alterniflora* - orange-brown (background) area was treated the previous year with herbicide, pickleweed (foreground)

Comparison of clones of *Spartina alterniflora* treated with herbicide (foreground) and untreated clones (background), San Francisco Bay.
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Example of area treated with herbicides (foreground)

Mechanical mowing of Spartina alterniflora, Willapa Bay, Washington

Figure 3.7-2 Changes in Views Associated with Herbicide Use and Mechanical Mowing
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Spartina alterniflora - treatment area is covered with black plastic

Example of recovery of native pickleweed following removal of non-native Spartina

Figure 3.7-3 Changes in Views Associated with Covering and Native Plant Recovery
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removal of invasive cordgrass, and removal by the use of herbicides, would result in the greatest visual alteration as seen from onshore or offshore viewpoints around San Francisco Estuary. These treatment methods would result in a temporary significant impact to the existing visual environment. An example of a covering treatment on a small area is shown in Figure 3.7-3. The covering treatment would not contrast substantially with the mudflats since sediment would settle on the plastic. Figure 3.7-3 also shows an area where native pickleweed recovered over a short period. The photo of the recovered site shows that native vegetation, where nearby seed and vegetative sources exist, readily re-colonizes treated areas in about a year. In areas to be restored as mudflats or beaches that occurred prior to infestation by invasive cordgrass, the visual change would be permanent, but not adverse. This small-scale treatment would result in minor, localized effects to the visual environment.

The most substantial change in the visual character of the treatment site under Alternative 1 would occur during the first treatment. Subsequent treatments, if necessary, would have less impact since the majority of the vegetation and biomass would be removed in the initial treatment. Following treatment, the treatment areas would have significant impacts on visual resources because there would be vast areas of decaying and dead vegetation. The areas would contain expanses of blackened vegetation if it were burned, fallen vegetation in mowed and sprayed areas, and other evidence of dead vegetation. This impact would be temporary because the treatment areas would return to low-vegetation native marshes and mudflats. However, as noted above, temporary (under two years) impacts at large-scale treatment sites could be perceived as visually significant impacts.

Mitigation Measures

MITIGATION VIS-1: The ISP will integrate signage into all treatment areas that are adjacent or within areas accessible or visible to the general public, whenever the treatment of nonnative Spartina will result in a substantial change in the visual character of the area. Signage will vary depending upon the site-specific components of treatment methods, availability and nature of public access and visibility, extent of the infestation, and other factors. Signage will therefore range from simple signs providing a brief description of the nature and reason for the change (e.g. where there is little public visibility or the extent of infestation is small) to more detailed interpretive signs highlighting the ecological effects of Spartina and the need for control (e.g. where there is significant public access and high visibility, and infestation is broad).

ALTERNATIVE 2: Regional Eradication Using Only Non-Chemical Control Methods

Impacts

Alternative 2 would be similar to Alternative 1, except that chemical methods would not be used and visual quality impacts from a colorant would not occur. The visual impacts associated with manual or mechanical methods would occur more frequently if repeated treatment is required. As with Alternative 1, potential impacts on visual resources for areas of large-scale treatment would be temporarily significant.

Mitigation Measures

Mitigation VIS-1 also applies to this alternative.
3.7 Visual Resources

ALTERNATIVE 3: No Action – Continued Limited, Regionally Uncoordinated Treatment

IMPACT VIS-2: Change in Views from Native Marsh, Mudflat, and Open Water to Non-native Cordgrass Meadows and Monocultures.

For the first five to ten years, visual quality impacts would be similar to those under Alternative 1. Although limited treatment would continue in navigational waterways, after this period, assuming that the uncoordinated treatment does not halt the invasive cordgrass infestations in the Estuary, viewers would see a substantial increase in vegetative cover from new infestations and the spread of existing colonies of non-native cordgrass. Changes in the visual character (from low stature native marsh and mudflats to tall meadow-like areas) would continue and potentially cover a large portion of native marshes, mudflats, and shallow subtidal areas.

Views of shallow open water, mudflats, and low-vegetation marshes would be altered to large expanses of taller non-native cordgrass. This would dramatically alter the visual character of the shoreline throughout the Estuary. The current variety of visual elements in the intertidal areas along the shoreline would be replaced with a single dominant monotonous element - large expanses of cordgrass meadows. This potential change in scenic quality of the San Francisco Estuary shoreline from the continued spread of non-native cordgrass would be a significant impact. One of the most conspicuous consequences of this alternative would be reduced visibility of shorebirds in mudflats from viewing points within the San Francisco Bay National Wildlife Refuge, East Bay Regional Parks, and other fixed viewing locations closely adjacent to tidal mudflats. Growth of Atlantic smooth cordgrass from marsh edges towards the Bay would obstruct views from low-lying levees, and would increase viewing distances by displacing tidal mudflats farther from existing levees and platforms. This would significantly reduce scenic values of public access areas along the Bay edge.

Mitigation Measures

Under this alternative, no feasible mitigation has been identified to reduce the impact of spreading infestations on the scenic qualities of the San Francisco Estuary shoreline. Under this alternative, potential impacts on visual quality would be significant since there is no feasible mitigation to reduce the impact.
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<tr>
<td>VIS-1: Alteration of Views from Removal of Non-native Cordgrass Infestations.</td>
<td>All Alternatives: Short-term impact on small, isolated infestations.</td>
<td>All Alternatives: Temporary impact on large stands (&gt;10 acres). Views of dense vegetation would be temporarily replaced with unvegetated mudflats until revegetation.</td>
<td>All Alternatives: Immediate increase in visual contrast between vegetative cover (before) and treated areas (after), and focus on infestations that are 1 to 10 acres. Views of the abandoned cut material would be comparable to views of natural dieback.</td>
<td>All Alternatives: Short-term impact for up to two years. Areas would be similar to existing intertidal views (flooded or dry).</td>
<td>All Alternatives: Short-term impact from green to brown or blackened vegetation. Views would change from dense vegetation to dead plant material.</td>
<td>All Alternatives: N/A</td>
<td>Views of green vegetation would be replaced with blue-tinted plants that decompose over time. The color of treated plants would be blush-brown and the blue colorant would rinse off. Alternative 2: No impact.</td>
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