4.4 UNION CITY CLAPPER RAIL REGION

The Union City Region in Alameda County stretches from the San Mateo Bridge to the Dumbarton Bridge. There are a variety of habitats in this region, including mature restoration marsh with a range of channel orders and morphologies, highly-channelized flood control conduits, young restoration sites with little vegetation or structure, and mudflats. Raptors were the most frequently observed predators, seen at nearly every visit to the region.

The Union City Clapper Rail Region includes 22 ISP clapper rail sites, four of which were evaluated by the ISP in 2010 (Table 7, Figure 11). Most of this region is surveyed for clapper rail by USFWS. However, some parcels within the Eden Landing complex were recently restored to tidal action and subsequently invaded by hybrid *Spartina*; these sites were surveyed by the ISP in 2010. We conducted passive call count surveys (Protocol A) at one of these sites: Mount Eden Creek (13j). The other three sites were evaluated for habitat only (Protocol F), which was deemed absent at all three sites. These sites were North Creek (13h), Pond 10 (13i) and Eden Landing Reserve South (13k).

Table 7: Summary results from California clapper rail surveys at sites in the Union City Region.

<table>
<thead>
<tr>
<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits (=stations x rounds)</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurance</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eden Landing - North Creek (13h)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Eden Landing - Pond 10 (13i)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Eden Landing - Mt Eden Creek (13j)</td>
<td>F - C</td>
<td>3</td>
<td>21</td>
<td>2</td>
<td>10%</td>
<td>2 - 4</td>
<td>-</td>
</tr>
<tr>
<td>Eden Landing Reserve - South (13k)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>REGIONAL SUMMARY</td>
<td>-</td>
<td>3</td>
<td>21</td>
<td>2</td>
<td>10%</td>
<td>2 - 4</td>
<td>-</td>
</tr>
</tbody>
</table>

1 The number of stations where CLRA were detected, expressed as a percentage of the total number of stations sampled during the season.
Figure 11. Map of 2010 clapper rail site boundaries in the Union City Region.
Eden Landing - North Creek (13h)

*Detected 0 clapper rails*

North Creek (Figures 12a and 13a) is a narrow channel opened to tidal action in winter 2005. It is hydrologically connected to Old Alameda Creek through a large breach in the levee along the north channel. Hybrid *Spartina* has rapidly colonized the banks of the creek, although it has yet to coalesce into a continuous band of vegetation. The young restoration site has the potential to become clapper rail breeding habitat as marsh vegetation continues to colonize the site and sediment accretes on the channel banks. However, when the habitat at this site was evaluated on January 8, 2010 it was determined to lack enough vegetative structure to support breeding clapper rails and decided that no further surveys were necessary.

Eden Landing - Pond 10 (13i)

*Detected 0 clapper rails*

Pond 10 (Figures 12b and 13b) was opened to the bay briefly in 2005 as part of the South Bay Salt Ponds restoration effort. Currently, the tidal flow is managed and the site is maintained at a fairly high water depth. Pond 10 only supports marsh vegetation along the levee edges and on an island in the southwest corner of the pond. It is otherwise a large expanse of shallow water. The small disjunct patches of *Sarcocornia* and hybrid *Spartina* along the upper edges of the pond are not enough to support breeding clapper rails. Additionally, the ponded water does not provide traditional foraging ground for rails.

Jude Stalker surveyed the site January 10, 2010 and determined that it lacked the vegetative structure and foraging opportunities needed to support breeding clapper rails and that no further surveys were necessary.

Eden Landing - Mount Eden Creek (13j)

*Detected 2-4 clapper rails*

Mount Eden Creek (Figures 12c and 13c) is a historic tidal slough found within the massive 240-hectare Eden Landing Complex in Hayward. This area is a large complex of former salt ponds that have been tidally restored or are slated for tidal restoration. Until restoration enhancements in 2005, Mt. Eden Creek had limited tidal flow, which stunted the site’s vegetation and resulted in a seasonally dry mudflat. Restoration efforts expanded this creek’s mouth which has resulted increased vegetative presence. *Sarcocornia pacifica* is the dominant vegetation type, but *Grindelia stricta* and *Frankenia salina* have a growing presence here. Non-native *Spartina* has colonized the
channel banks and the mudflat; however, the infestation here is relatively patchy due to high treatment efficacy.

The Mount Eden Creek was initially evaluated for rail habitat and deemed potentially supportive of breeding rails. It was then surveyed using Protocol C for a total of three rounds. Surveys were conducted on February 14, March 12 and March 26, 2010. Whitney Thornton conducted the first two rounds surveys. She played tapes at all locations and detected no clapper rails. Jeanne Hammond conducted the final round survey. She played tapes at every station and detected two to four clapper rails.

The levees around Mount Eden Creek provide a corridor for land based predators. Raccoons, skunks, and foxes have been seen here. Northern harriers, great egrets and several gull species were all observed.

Other birds detected at the Mount Eden Creek during 2010 included: double-crested cormorant, great egret, Canada goose, ruddy duck, canvasback, bufflehead, mallard, American wigeon, Northern shoelcer, Northern harrier, American coot, black-bellied plover, American avocet, least sandpiper, whimbrel, long-billed dowitcher, marbled godwit, long-billed curlew, Western sandpiper, Western gull, ring-billed gull, Caspian tern, barn swallow, marsh wren, savannah sparrow, song sparrow and house finch.

**Eden Landing Reserve South (13k)**

*Detected 0 clapper rails*

Eden Landing Reserve South (Figures 12d and 13d) is another young restoration site recently opened to tidal action. Tidal water flows from Old Alameda Creek through North Creek (13h) to fill Eden Landing Reserve South with bay water twice per day. Although quite a lot of *Sarcocornia pacifica* is becoming established here, the site is still largely unvegetated and offers very little upland refuge during high tide. Like North Creek, Eden Landing Reserve South has the potential to become clapper rail breeding habitat as marsh vegetation continues to colonize the site and sediment accretes.

When the habitat at the site was evaluated on January 8, 2010 however, it was determined to lack enough vegetative structure to support breeding clapper rails and that no further surveys were necessary in 2010.
Figure 12. Site maps of the Union City Region.

Figure 12a. Map of the Eden Landing – North Creek (13h) site boundary evaluated for clapper rail habitat.
Figure 12b. Map of the Eden Landing – Pond 10 (13i) site boundary evaluated for clapper rail habitat.
Figure 12c. Map of 2010 clapper rail survey results at Eden Landing – Mt. Eden Creek (13j).
Figure 12d. Map of the Eden Landing Reserve – South (13k) site boundary evaluated for clapper rail habitat.
4. 2010 Survey Results

Figure 13. Site photos of the Union City Region.

Figure 13a. View looking southeast at northern end of North Creek showing recruitment of native marsh vegetation along the channel.

Figure 13b. View facing west from the south end of Pond 10 that shows the lack of suitable clapper rail habitat.
4. 2010 Survey Results

Figure 13c. View southeast across Mount Eden Creek showing recruitment of native marsh vegetation along the constructed channels.

Figure 13d. This view from the northwest corner of Eden Landing Reserve-South illustrates the newly restored condition of the marsh.
4.5 NEWARK CLAPPER RAIL REGION

The Newark Region extends from the Dumbarton Bridge to Alviso Slough on the eastern side of the bay, and includes the East Bay portion of the Don Edwards National Wildlife Refuge lands. This region is dominated by large parcels of mature marshes on managed and protected lands. The complex vegetative structure and channel networks of the sites in the Newark Region provide excellent habitat for clapper rails. However, or perhaps because, of the excellent marsh habitat in the region, both avian and mammalian predators were observed on nearly every round of surveys.

This region consists of six ISP clapper rails sites, only one of which was surveyed by ISP staff in 2010 (Table 8, Figure 14). Other sites in the area are surveyed by biologists with Don Edwards NWR and PRBO Conservation Science. We conducted three rounds of passive call count surveys at Newark Slough (05c).

Table 8: Summary results from California clapper rail surveys at sites in the Newark Region.

<table>
<thead>
<tr>
<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits (=stations x rounds)</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurance¹</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newark Slough (05c)</td>
<td>A</td>
<td>3</td>
<td>21</td>
<td>6</td>
<td>29%</td>
<td>5 - 8</td>
<td>X</td>
</tr>
<tr>
<td>REGIONAL SUMMARY</td>
<td>-</td>
<td>3</td>
<td>21</td>
<td>6</td>
<td>29%</td>
<td>5 - 8</td>
<td>X</td>
</tr>
</tbody>
</table>

¹ The number of stations where CLRA were detected, expressed as a percentage of the total number of stations sampled during the season.
Figure 14. Map of 2010 clapper rail site boundaries in the Newark Region.
Newark Slough (05c)

Detected 5-8 clapper rails

Newark Slough (Figures 15 and 16) is a natural channel with wide, vegetated banks forming a large area of tidal marsh habitat within the Don Edwards NWR. Levees and roads border the slough on both sides, providing easy access for red fox and other terrestrial predators. A levee marking the boundary between the slough and adjacent salt pond is undergoing maintenance; large mounds of wet mud lined the levee top during the time of surveys precluding access to one survey station, which was subsequently dropped. Newark Slough supports a complex vegetative community: *Sarcocornia pacifica* and *Grindelia stricta* dominate; both native and hybrid *Spartina* line the channels; and *Frankenia salina* and *Distichlis spicata* provide dense cover in the understory.

The site was surveyed using Protocol A for a total of three rounds. The first round of surveys was conducted on January 26, 2010 by Jeff Lewis, who detected five to eight clapper rails at the site, the highest count of all rounds. During the second round on February 12, 2010 Jeanne Hammond detected four to six rails. Prerecorded vocalizations were played at three of six stations during the final round on March 12, 2010 when Stephanie Chen detected two to four clapper rails.

Other bird species observed at Newark Slough in 2010 included: eared grebe, pied-billed grebe, double-crested cormorant, snowy egret, great egret, American wigeon, gadwall, Canada goose, mallard, Northern shoveler, bufflehead, greater scaup, black-bellied plover, American avocet, least sandpiper, willet, greater yellowlegs, Western gull, mourning dove, black phoebe, Bewick's wren, marsh wren, Northern mockingbird, American pipit, song sparrow, California towhee and house finch.
Figure 15. Map of 2010 clapper rail survey results at Newark Slough (05c).
4. 2010 Survey Results

Figure 16. View looking north across Newark Slough at the well-developed marsh vegetation present on the marsh plain and along channels.
4. 2010 Survey Results

4.6 MOUNTAIN VIEW & ALVISO CLAPPER RAIL REGIONS

The Mountain View Clapper Rail Region stretches from the west end of the Dumbarton Bridge eastward to Alviso Slough; The Alviso Clapper Rail Region begins at Alviso Slough and extends to the upper reaches of Coyote Creek. These regions include a variety of habitat types, including freshwater creeks, restored salt ponds, tidal sloughs, creek deltas, fringing tidal marsh benches, and historic tidal marsh plains. The *Spartina* infestation in this region is patchy and often nestled in meadows of native *Spartina foliosa*.

The region is not well surveyed for clapper rail by the ISP because of the relatively small infestation of *Spartina* compared to net tidal area. In 2010, we conducted clapper rail surveys at five of the eight ISP clapper rail sites (Table 9, Figure 17). Passive call count surveys (Protocol A) were conducted at three portions of the conglomerate South Bay Marshes (15a/c) and at Cooley Landing (16a). Ravenswood Open Space Preserve (02j) was evaluated for rail habitat, which was deemed present; the site was then actively surveyed (Protocol C) for three rounds.

Table 9: Summary results from California clapper rail surveys at sites in the both the Alviso and Mountain View Regions.

<table>
<thead>
<tr>
<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits =stations x rounds</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurance1</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ravenswood Open Space Preserve (02j)</td>
<td>F - C</td>
<td>3</td>
<td>9</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>S Bay Marshes: Alviso Slough (15a)</td>
<td>A</td>
<td>3</td>
<td>24</td>
<td>2</td>
<td>8%</td>
<td>9 - 10</td>
<td>-</td>
</tr>
<tr>
<td>S Bay Marshes: Charleston Sl (15a &amp; c)</td>
<td>A</td>
<td>3</td>
<td>15</td>
<td>5</td>
<td>33%</td>
<td>3 - 4</td>
<td>-</td>
</tr>
<tr>
<td>S Bay Marshes: Stevens Creek (15a &amp; c)</td>
<td>A</td>
<td>3</td>
<td>15</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Cooley Landing (16a)</td>
<td>A</td>
<td>4</td>
<td>32</td>
<td>5</td>
<td>16%</td>
<td>3 - 4</td>
<td>-</td>
</tr>
<tr>
<td>REGIONAL SUMMARY</td>
<td>-</td>
<td>16</td>
<td>95</td>
<td>12</td>
<td>11%</td>
<td>15 - 18</td>
<td>-</td>
</tr>
</tbody>
</table>

1 The number of stations where CLRA were detected, expressed as a percentage of the total number of stations sampled during the season.

2 Portions of both 15a and 15c surveyed from these South Bay channel complexes.
Figure 17. Map of 2010 clapper rail site boundaries in the Mountain View and Alviso Regions.
Ravenswood Open Space Preserve (02j)

Detected 0 clapper rails

Ravenswood Open Space Preserve (Figures 18a and 19a) is a strip marsh along an outboard levee just south of the Dumbarton Bridge. The site is about one kilometer long and ranges from 50 to 100 meters wide. The marsh has a moderately complex biotic structure, comprised of both native tidal marsh vegetation and hybrid Spartina. South Bay Salt Pond Restoration has been in progress resulting in the levee being under construction and closed to the public. The bay trail tops the levee, running parallel to the site, while narrow channels cut into the site perpendicular to the levee.

On January 15, 2010 Ravenswood Open Space Preserve was evaluated for habitat using Protocol F by Jude Stalker, who determined the site merited additional surveys. The site was then surveyed using Protocol C for a total of three rounds. Surveys were conducted on February 9, 2010 by Stephanie Chen and Jeff Lewis, March 11, 2010 by Stephanie Chen, and on April 1, 2010 by Tobias Rohmer and Jude Stalker. Prerecorded vocalizations were played during all three rounds at all three stations, but no clapper rails were detected.

Other bird species recorded at the site during 2010 included: snowy egret, great egret, bufflehead, American kestrel, black-necked stilt, long-billed curlew, greater yellowlegs, willet, Western sandpiper, least sandpiper, Western gull, California gull, black phoebe, marsh wren, song sparrow, savannah sparrow and house finch.

South Bay Marshes (15a &15c)

Detected 12-14 clapper rails total (all three sites)

ISP’s South Bay Marshes site spans two Clapper Rail Regions and includes an enormous amount of marshland from the Palo Alto Baylands to upper Coyote Creek. Habitat at this site is diverse, ranging from brackish marsh in the upper reaches the tidal creeks to fringing tidal marsh benches along the bay front edge. Because of the size of this site, we took a subsample of the area and surveyed at 3 locations: Alviso Slough, Charleston Slough and Stevens Creek.

Alviso Slough (15a)

Detected 9-10 clapper rails

Alviso Slough (Figures 18b and 19b) is the eastern most marsh included in ISP’s South Bay Marshes. It is included in Don Edwards Wildlife Refuge in the southeastern corner of the bay. This site is composed of a roughly 100 meter wide slough bounded on either side by salt pond levees that wind south-southeast from the mouth of Coyote Creek. Habitat here is composed of Sarcocornia dominated marsh plains traversed with small drainage channels running from the levees into the slough. Power towers at the mouth of the slough provide raptor perches, and the salt pond levees allow access for terrestrial predators.
Alviso Slough was surveyed using Protocol A for a total of three rounds by Stephanie Chen. The first survey was conducted on February 4, 2010 with no clapper rail detections. The second survey was conducted on February 18, 2010 when nine to ten clapper rails were detected. The third and final round was conducted on April 14, 2010. Prerecorded vocalizations were played at seven of the eight survey stations, though no clapper rail were detected. One of the largest breeding colonies of California gulls in San Francisco Bay is located on pond A6, directly adjacent to this site, which was noted as being very loud and active during rounds one and three. Gull activity may have suppressed rail behavior and/or precluded surveyor’s detection of vocalizations during these rounds.

Raptors observed during surveys included Northern harriers for two of the three rounds. Other bird species recorded at Alviso Slough in 2010 included: Western grebe, double-crested cormorant, American white pelican, great blue heron, snowy egret, great egret, black-crowned night-heron, American wigeon, canvasback, ruddy duck, bufflehead, Canada goose, Northern shoveler, mallard, Northern harrier, American coot, American avocet, long-billed curlew, marbled godwit, willet, Western gull, California gull, Caspian tern, American crow, marsh wren and song sparrow.

Charleston Slough (15a, 15c)

Detected 3-4 clapper rails

Charleston Slough (Figures 18c and 19c) is part of the eastern reaches of the Palo Alto Baylands and is characterized as a bayward fringe marsh surrounding the head of a leveed salt production pond. Less than 300 meters deep at its broadest point, this predominantly Sarcocornia marsh is interlaced with Grindelia-lined channels. A large channel inlet along the western portion of this site cuts through a leveed Sarcocornia plain, extending south and terminating at a managed salt pond culvert. PG&E power towers stand over the majority of this site providing raptor perches, while the pervasive levees edging the site provide access for terrestrial predators.

Charleston Slough was surveyed using Protocol A for a total of three rounds by Stephanie Chen. The first survey was conducted on February 1, 2010 when two to four rails were detected along the bay front edge of the site. No clapper rails were detected during round two on February 16, 2010. The final round was conducted on March 27, 2010 when tapes were played at four of five stations and three to four rails were detected.

Avian predators were noted at the site including red-tailed hawk and Northern harrier during the first two rounds with a peregrine falcon during the second round.

All bird species recorded at Charleston Slough during 2010 included: horned grebe, double-crested cormorant, brown pelican, American white pelican, great blue heron, snowy egret, great egret, American wigeon, canvasback, ruddy duck, bufflehead, Canada goose, Northern shoveler, mallard, American green-winged teal, blue-winged teal, cinnamon teal, red-tailed hawk, Northern harrier, peregrine falcon, American coot, American avocet, long-billed curlew, whimbrel, marbled godwit, willet, long-billed dowitcher, Western gull, Forster's tern, black phoebe, marsh wren and song sparrow.
Stevens Creek (15a, 15c)

*Detected 0 clapper rails*

The mouth of Stevens Creek (Figures 18d and 19d) is located at the southernmost tip of open San Francisco Bay. The creek extends south between salt pond levees till it opens into a triangle shaped marsh marking the southern boundary of ISP’s survey site. The site is outlined in public access trails and bordered on the west by a string of PG&E towers, both of which provide easy access for predators, avian and mammalian. One culvert to Stevens Creek proper extends as a single primary channel to feed the entire pocket marsh causing this site to be slightly muted and brackish. *Sarcocornia pacifica* is the dominant vegetation along the creek banks as well as in the pocket marsh.

Stevens Creek was surveyed using Protocol A for a total of three rounds on January 30, February 22 and March 18, 2010 by Stephanie Chen. Prerecorded vocalizations were played at all five stations during the final round, but no clapper rails were detected at the site during any round.

Predators noted at this site included Northern harriers every round and a barn owl that flew through the site during round three.

All bird species recorded at Charleston Slough during 2010 included: Western grebe, double-crested cormorant, great blue heron, snowy egret, American wigeon, canvasback, ruddy duck, Canada goose, Northern shoveler, mallard, American green-winged teal, Northern harrier, ring-necked pheasant, American coot, Virginia rail, sora, Forster's tern, barn owl, marsh wren, white-crowned sparrow and song sparrow.

Cooley Landing Salt Pond (16a)

*Estimated 3-4 clapper rails*

Cooley Landing Salt Pond (Figures 18e and 19e) is a 47-hectare restoration marsh located in East Palo Alto at the western end of the Dumbarton Bridge. This former salt evaporator was returned to tidal action in 2000. Cooley Landing’s mudflat has rapidly vegetated with *Sarcocornia pacifica* and hybrid *Spartina*. Hybrid *Spartina* treatment efficacy at this site was minimal in 2009. Therefore, this site supports several large, dense patches of hybrid. Exterior to the levees that surround Cooley Landing Salt Pond is a fringe of older, developed marsh. This fringe marsh is fully developed and contains a diverse array of native salt marsh species including *Grindelia stricta*, *Jaumea carnosa*, *Limonium californicum*, *Frankenia salina*, *Bulboschoenus californica*, and *Spartina foliosa*.

The site was surveyed using Protocol A for a total of four rounds. Surveys were conducted on January 30, February 13, March 2 and March 26, 2010. Jude Stalker conducted the first round survey and heard two to four birds. Jeanne Hammond conducted the second round survey and heard no clapper rails. Stephanie Chen conducted the third and fourth round surveys. During the third round she detected three
to four clapper rails. On the fourth round, she played tapes at four of the eight stations, but detected no clapper rail.

PG&E power towers bisect the site, providing perches for avian predators. Northern harriers and several heron species were observed during surveys. Terrestrial predators can easily access the marsh from both the levee and the PG&E boardwalk running below the power lines. Feral cats, opossums, skunks, raccoons, and red and gray fox have all been noted at this site in the past; however, no mammalian predators observed during 2010 surveys.

Other species of birds observed at the site included: snowy egret, great egret, Northern harrier. American wigeon, mallard, Canada goose, ring-necked pheasant, killdeer, black-bellied plover, long-billed curlew, willet, least sandpiper, Western sandpiper, black phoebe, common raven, marsh wren, Northern mockingbird, song sparrow and house finch.
Figure 18. Site maps in the Mountain View and Alviso Regions.

Figure 18a. Map of 2010 clapper rail survey results at Ravenswood Open Space Preserve (02j).

Ravenswood Open Space Preserve (02j)
California Clapper Rail Surveys for the Invasive Spartina Project

Stations
Boundary
Imagery: NAIP, 2005

0 400 Meters
0 0.1 Miles
4. 2010 Survey Results

Figure 18b. Map of 2010 clapper rail survey results at South Bay Marshes – Alviso Slough (15a).
Figure 18c. Map of 2010 clapper rail survey results at South Bay Marshes – Charleston Slough (15a & c).
Figure 18d. Map of 2010 clapper rail survey results at South Bay Marshes – Stevens Creek (15a & c).
Figure 18e. Map of 2010 clapper rail survey results at Cooley Landing (16a)
Figure 19. Site photos of the Mountain View and Alviso Regions.

Figure 19a. View looking north of Ravenswood Open Space Preserve showing marsh vegetation along the bay edge.

Figure 19b. View of Alviso Slough showing Sarcocornia pacifica on the marsh plain.
Figure 19c. View of Charleston Slough showing extensive *Sarcocornia pacifica* across the marsh plain.

Figure 19d. View of Stevens Creek marsh showing *Sarcocornia pacifica* on the marsh plain.
Figure 19e. View from northern end of Cooley Landing restoration marsh showing recruitment of *Sarcocornia pacifica* and invasion by *Spartina*.
4.7 SAN MATEO CLAPPER RAIL REGION

The San Mateo clapper rail region stretches from the San Mateo Bridge to the Dumbarton Bridge. This region contains a variety of wetland habitats, including marsh islands, active and inactive commercial salt ponds, large tidal channels, and bayfront strip marshes. Channel mouths and younger restoration sites have been heavily invaded by hybrid *Spartina*, sometimes coalescing into large meadows. These sites have been treated by helicopter for the past three years and vegetation is patchy. The older marsh parcels and the upper reaches of tidal channels are generally more resistant to invasion by *Spartina* and show less impact by subsequent control efforts. Predators, particularly raptors, are abundant at the sites in this region, seen on nearly every round.

The San Mateo clapper rail region contains fourteen ISP clapper rail sites. We surveyed nine sites and conducted a habitat evaluation for one more site during the 2010 field season (Table 10, Figure 20). Eight sites were surveyed for three rounds of passive call count (Protocol A): Belmont Slough (02a), Redwood Shores (02a & b), B2 South Quadrant (02d), Greco Island North (02f), Greco Island South (02h), Ravenswood Slough (02i) and Inner Bair Island Restoration (02l). Active call count surveys (Protocol C) were conducted at West Point Slough - NW (02e) for three rounds and for one round at West Point Slough SE (02g), during which a rail was detected and subsequent surveys were conducted passively. One habitat assessment survey (Protocol F) was conducted at Foster City (19q), where habitat was deemed insufficient to support a breeding rail population.

Table 10: Summary results from California clapper rail surveys at sites in the San Mateo Region.

<table>
<thead>
<tr>
<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits (=stations x rounds)</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurrence</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belmont Slough (02a)</td>
<td>A</td>
<td>3</td>
<td>24</td>
<td>4</td>
<td>17%</td>
<td>4 - 6</td>
<td>-</td>
</tr>
<tr>
<td>Redwood Shores (02a &amp; b)</td>
<td>A</td>
<td>3</td>
<td>17</td>
<td>1</td>
<td>4%</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>B2 South Quadrant (02d)</td>
<td>A</td>
<td>3</td>
<td>18</td>
<td>7</td>
<td>39%</td>
<td>7 - 8</td>
<td>-</td>
</tr>
<tr>
<td>West Point Slough - NW (02e)</td>
<td>C - A</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>33%</td>
<td>1 - 2</td>
<td>-</td>
</tr>
<tr>
<td>Greco Island - North (02f)</td>
<td>A</td>
<td>3</td>
<td>24</td>
<td>6</td>
<td>25%</td>
<td>11 - 14</td>
<td>-</td>
</tr>
<tr>
<td>West Point Slough - SWE (02g)</td>
<td>C</td>
<td>3</td>
<td>9</td>
<td>1</td>
<td>11%</td>
<td>1 - 2</td>
<td>-</td>
</tr>
<tr>
<td>Greco Island - South (02h)</td>
<td>A</td>
<td>3</td>
<td>18</td>
<td>11</td>
<td>61%</td>
<td>24 - 26</td>
<td>-</td>
</tr>
<tr>
<td>Ravenswood Slough/Mouth (02i)</td>
<td>A</td>
<td>3</td>
<td>21</td>
<td>8</td>
<td>38%</td>
<td>3 - 6</td>
<td>-</td>
</tr>
<tr>
<td>Inner Bair Island Restoration (02i)</td>
<td>F - A</td>
<td>3</td>
<td>21</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Foster City (19q)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

**REGIONAL SUMMARY**

1 The number of stations where CLRA were detected, expressed as a percentage of the total number of stations sampled during the season.
2 Portions of both 02a and 02b surveyed from Redwood Shores in Redwood City
Figure 20. Map of 2010 clapper rail site boundaries in the San Mateo Region.
Belmont Slough (02a)  
*Detected 3-4 clapper rails*

Belmont Slough (Figures 21a and 22a) is a large natural channel that divides two residential neighborhoods: Foster City and Redwood Shores. Although bounded on both sides by paved trails and roads, Belmont Slough has a wide bank which supports native marsh vegetation. The hybrid *Spartina* invasion at this site is greater toward the mouth of the channel, which is where we focused our clapper rail survey efforts. Belmont Slough supports a moderately diverse assemblage of plants, including *Grindelia stricta* and *Baccharis pilularis* along the internal levees, both native and hybrid *Spartina, Sarcocornia pacifica* and *Frankenia salina*. Wrack trapped among the vegetation provides further cover for marsh wildlife. PG&E power towers cross the slough at the northern end of the site, providing perches for avian predators. Feral cats and pet dogs may also contribute to predation pressures at the site.

The site was surveyed using Protocol A for a total of three rounds. The first round of surveys was conducted on January 26, 2010 by Stephanie Chen who detected two to four clapper rails at the site. During the second round on February 16, 2010 Stephanie Chen detected two clapper rails at Belmont Slough despite foggy conditions. During the final round on March 11, 2010, Jude Stalker played tapes at three of eight stations and detected three to four clapper rails.

Other birds observed at the site included: double-crested cormorant, American wigeon, mallard, Canada goose, bufflehead, Northern harrier, killdeer, dunlin, American crow, Northern mockingbird, European starling, white-crowned sparrow, golden-crowned sparrow, Western meadowlark, Brewer's blackbird and red-winged blackbird.

Redwood Shores (02a, 02b)  
*Detected 2-2 clapper rails*

Redwood Shores (Figures 21b and 22b) includes the northern bayfront of Belmont Slough, the northwestern portion of Steinberger Slough and a large island known as Bird Island. Originally this site was surveyed by PRBO; ISP began surveying the area in 2009. All portions of Redwood Shores are composed of *Sarcocornia pacifica* plains with occasional *Grindelia stricta* lining the numerous small channels that cut through the marsh. Hybrid *Spartina* at this site is fairly sparse and patchy. Bird Island is separated from the mainland by an approximately 50 meter wide channel, while the remainder of the site is bordered by residential levees, which provide marsh access for terrestrial predators. Additionally, power lines and trees in the neighboring residential area provide perches for raptors. The 2010 season was peppered with construction projects; re-dredging and re-forming of the main levee as well as preparation for the breach of a diked field along the eastern shore of the Belmont Slough mouth. The levee was breached in two places on September 22, 2010, returning this area to full tidal action to be evaluated in the future for potential rail presence.
Redwood Shores was surveyed using Protocol A for a total of three rounds. The first round was conducted on January 26, 2010 by Tobias Rohmer who detected two clapper rails. Survey stations RESH01, RESH02 and RESH03 were not surveyed during round one due to recent heavy rains and fresh levee construction leaving the area inaccessible. No rails were detected in either following surveys: round two on March 17, 2010 by Jen McBroom and round three by Tobias Rohmer on April 9, 2010, during which rail playback tapes were played at six stations. Stations RESH06 and RESH07 were removed from the survey for rounds two and three due to time constraints in completing the survey within a two hour period.

Hunting peregrine falcons were observed during rounds one and three, and a cat was seen stalking the marsh edge during round three as well. Other potential predators present during the surveys included Northern harrier, American crow, black-crowned night-heron, snowy egret, great egret, Western gull and ring-billed gull.

All bird species observed at the site included: Western grebe, double-crested cormorant, black-crowned night-heron, snowy egret, great egret, Northern shoveler, gadwall, Northern pintail, Canada goose, mallard, greater scaup, Northern harrier, peregrine falcon, killdeer, American avocet, black-necked stilt, black-bellied plover, marbled godwit, greater yellowlegs, least sandpiper, willet, Wilson’s snipe, short-billed dowitcher, Western gull, ring-billed gull, Forster’s tern, Anna's hummingbird, black phoebe, bushtit, barn swallow, European starling, yellow-rumped warbler, savannah sparrow, song sparrow, red-winged blackbird and house finch.

**Outer Bair Island – B2 South Quadrant (02d)**

*Detected 8-10 clapper rails*

Outer Bair Island is a large, remote marsh in an extensive complex of preserved or restored tidal wetlands. The B2 South Quadrant site (Figures 21c and 22c) can be divided into two segments: a fully tidal area to the north, and an area that receives muted tidal flow through a relatively recent breach in the levee to the south. Hybrid *Spartina* once formed a meadow at the northern portion of the site; however successful control efforts have greatly reduced the infestation. *Sarcocornia pacifica* dominates the vegetative community, although patchy stands of hybrid *Spartina* channels and marsh plain.

The site was surveyed using Protocol A for a total of three rounds. Whitney Thornton conducted the first two rounds of survey. This first round was conducted on February 5, 2010, and eight to ten clapper rails were detected, the highest count at this site for the season. The second round was conducted on March 5, 2010 and three to six clapper rails were detected. Jude Stalker conducted the final round on March 23, 2010; she played tapes at two survey stations and detected two to four birds.

PG&E power towers cross the site at the southern tip, creating perches for raptors. Old levees and upland islands provide refuge for land mammals. Mammal scat or raptor pellet were encountered on levees between all survey stations. Snowy egrets and Northern harriers were observed during the first two rounds site surveys. During the second survey, a short eared owl was observed eating an unidentified marsh bird in the eastern marsh plain.
Other bird species detected at Outer Bair in 2010 include: brown pelican, double-crested cormorant, Northern shoveler, Canada goose, mallard, Northern harrier, killdeer, American avocet, black-necked stilt, marbled godwit, dowitcher sp., Western sandpiper, California gull, short-eared owl, marsh wren and song sparrow.

**West Point Slough NW (02e)**

*Detected 1-2 clapper rails*

West Point Slough Northwest (Figures 21d and 22d) represents a series of small marsh fragments and invaded shoreline at the edge of a large marsh refuge complex. A new marina, Westpoint Marina, has just been created at the site, contributing to disturbance and reducing habitat quality. Deemed unsuitable for clapper rail in 2009, ISP decided to survey this area in 2010 due to advancing marsh development. This small site has only one survey station, though it is also surveyed by proxy from Greco Island-North located on the opposite side of the 100-200 meter wide slough.

West Point Slough NW was surveyed using Protocol A for a total of three rounds by Stephanie Chen on February 11, February 25 and March 17, 2010. No rails were detected in rounds one and two, so prerecorded vocalizations were played on round three when one to two rails were heard. However, on February 5, 2010, Tobias Rohmer also detected one to two rails in this site from his first survey of Greco Island-North.

A Northern harrier was observed here during round one.

All bird species documented at this site include Western grebe, an unidentified scaup species, Northern harrier, American avocet, willet and song sparrow.

**Greco Island North (02f)**

*Detected 11-14 clapper rails*

Greco Island (Figures 21e and 22e, presented here) is reported to be the largest remaining prehistoric tidal marsh in the South Bay (SFEI, EcoAtlas). Located in Redwood City, this historic marsh contains an extensive network of channels and supports high plant diversity. Native vegetation at Greco Island includes the dominant *Sarcocornia pacifica* as well as subdominants *Grindelia stricta, Distichlis spicata* and *Jaumea carnosa*. Both native and invasive *Spartina* line the channel banks and marsh edge. Low treatment efficacy has meant that Greco Island North was still highly invaded with hybrid *Spartina* during the 2010 field season. Additionally, an unidentified species of *Puccinellia* forms a dense mat monoculture in certain areas of high elevation marsh.

The site was surveyed using Protocol A for a total of three rounds. Tobias Rohmer conducted the first two rounds of surveys. The first survey was completed on February 5, 2010 when three to four clapper rails were detected. The second round was completed on March 5, 2010 and five to six clapper rails were detected. Stephanie Chen conducted the final round survey on March 22, 2010. She played tapes at three stations and detected 11-14 rails.
PG&E power towers run the entire length of the site. Peregrine falcons were seen perched on these towers, and both peregrine falcons and Northern harriers were observed hunting the marsh during survey time. In addition, fresh gull remains were seen on the boardwalk during the second round survey. Large amounts of raccoon scat have been seen on the boardwalk suggesting that boardwalks probably act as a corridor for mammals.

Other birds detected at Greco Island North during the 2010 clapper rail survey season included: Western grebe, brown pelican, double-crested cormorant, bufflehead, Canada goose, greater scaup, American wigeon, mallard, Northern harrier, osprey, peregrine falcon, least sandpiper, long-billed curlew, Forster's tern, California gull, Western gull, barn owl, Say's phoebe, black phoebe, marsh wren, common yellowthroat, savannah sparrow and song sparrow.

**West Point Slough SW/E (02g)**

*Detected 1-2 clapper rails*

West Point Slough SW/E (Figures 21f and 22f) is a wide channel that separates Greco Island from Cargill salt ponds to the west. Potential clapper rail habitat along the slough that is included in this site consists of a mostly narrow band of native marsh vegetation, primarily *Sarcocornia pacifica*, on the west side of the slough that widens in some places to as much as 50m. As the slough turns south, potential habitat on the west side of the slough widens (up to 180m across) and is bordered by Cargill salt ponds to the west and Bayfront Park to the east. Due to the larger extent of marsh and presence of secondary channelization, our survey efforts were focused on the southern portion of the slough.

The site was surveyed using Protocol C/A for three rounds. Surveys were conducted at three stations on February 5, 2010 by Jeanne Hammond and by Stephanie Chen on February 25 and March 17, 2010. Tapes were played at all stations during the first round and a rail responded to playback. The site was subsequently surveyed using Protocol A, and no more clapper rails were detected at the site.

No raptors or mammalian predators were observed during surveys, however, the proximity to a public trail and road on top of the levee separating the salt ponds from the marsh provide accessibility to mammals.

Other bird species observed at the site during 2010 included: Western grebe, double-crested cormorant, canvasback, bufflehead, Canada goose, mallard, American wigeon, gadwall, American green-winged teal, American coot, American avocet, black-bellied plover, long-billed dowitcher, dunlin, greater yellowlegs, willet, Anna's hummingbird, black phoebe, *American crow*, bushtit, Bewick's wren, marsh wren, yellow-rumped warbler, song sparrow and red-winged blackbird.

**Greco Island South (02h)**

*Detected 24-26 clapper rails*

Greco Island (Figures 21g and 22g, presented here) is reported to be the largest remaining prehistoric tidal marsh in the South Bay (SFEI, EcoAtlas). Located in Redwood City,
this historic marsh contains an extensive network of channels and supports high plant diversity. Native tidal marsh vegetation includes the dominant *Sarcocornia pacifica* and subdominants *Grindelia stricta, Limonium californicum, Distichlis spicata* and *Jaumea carnosa*. Both native and hybrid *Spartina* line channels and inhabit low elevation marsh.

The site was surveyed using Protocol A for a total of three rounds. The first round was conducted by Jeanne Hammond and Tobias Rohmer on February 9, 2010. They heard 24-26 clapper rails. Jeanne Hammond and Whitney Thornton conducted the second round survey on February 25, 2010 and detected 14-24 clapper rail. Jen McBroom and Tobias Rohmer conducted the final round of surveys on April 13, 2010 when 5-10 clapper rails were heard. Taped recordings were not used at the site.

PG&E power lines run along the northeastern edge of this site and provide ample perches for raptors and owls. Cooper’s hawks, Northern harriers and various heron species were all spotted at this site. An old levee lined with terrestrial vegetation bisects the site and provides a corridor for mammals. Bird bones or mammal scat were observed on the levee at four of the six survey stations.

Other birds detected at Greco Island South in 2010 include: great egret, American wigeon, Canada goose, mallard, Cooper's hawk, Northern harrier, black rail, American avocet, willet, Western sandpiper, greater yellowlegs, least sandpiper, long-billed curlew, Forster's tern, mourning dove, Eurasian collared-dove, Northern flicker, Say's phoebe, barn swallow, marsh wren, American pipit, common yellowthroat, white-crowned sparrow, savannah sparrow, song sparrow, red-winged blackbird, Western meadowlark and Brewer's blackbird.

**Ravenswood Slough (02i)**

*Detected 3-6 clapper rails*

Ravenswood Slough (Figures 21h and 22h) is a large natural channel, surrounded on either side by salt ponds. Ravenswood Slough has a wide marsh bench which supports native vegetation, including *Sarcocornia pacifica, Grindelia stricta*, and both native and hybrid *Spartina*. The non-native *Spartina* invasion at this site is greater toward the mouth of the channel and successful treatment efforts have temporarily reduced the vegetative cover in these areas. Predators are abundant at the site; raptors and signs of mammalian predators were seen during each visit.

The site was surveyed for the first time by ISP in 2009, using survey stations established by PRBO in prior years. In 2010, Ravenswood slough was surveyed using Protocol A for a total of three rounds. The first round of surveys was conducted on February 8, 2010 by Tobias Rohmer and Stephanie Chen who detected three to six clapper rails. Stephanie Chen conducted the final two rounds on March 10 and April 13, 2010, detecting three to four and three to six rails respectively. Taped recordings were used during the final round at four of seven survey stations.

Other birds observed at the site included: Western grebe, double-crested cormorant, great egret, snowy egret, American wigeon, mallard, peregrine falcon, American avocet, black-
4. 2010 Survey Results

necked stilt, least sandpiper, whimbrel, dunlin, long-billed curlew, California gull, black phoebe, marsh wren and song sparrow.

**Inner Bair Island Restoration (02l)**

*Detected 0 clapper rails*

Inner Bair Restoration Marsh (Figures 21i and 22i) is a part of the Bair Island Complex in Redwood City. The Bair Island Complex is divided into three distinct areas separated by slough channels: Inner, Middle, and Outer Bair. Inner Bair Island is connected to the mainland with access from Whipple Avenue and U.S. Highway 101. The central part of this former salt pond is being filled with dredged spoils in order to eventually return it to tidal flow. Thus, the only clapper rail habitat currently available at Inner Bair is a fringing marsh that surrounds the whole of the island. The largest area of habitat is found on the southwest edge of the marsh. In this area there is a 20-50 meter band of *Sarcocornia pacifica* high marsh and *Spartina foliosa* low marsh. A few patches of hybrid dense hybrid *Spartina* can be found in the most southerly corner.

Jude Stalker evaluated the site for habitat (Protocol F) on January 15, 2010 and deemed it worthy of further clapper rail surveys. The site was then surveyed using Protocol A for a total of three rounds. Stephanie Chen conducted all three rounds on February 10, February 24 and March 31, 2010. Taped recordings were used at every station during the final round, though no clapper rails were detected.

A peregrine falcon was observed next to the marsh during the final round.

All bird species detected during the surveys included: double-crested cormorant, snowy egret, American wigeon, mall, Northern shoveler, Canada goose, white-tailed kite, peregrine falcon, greater yellowlegs, lesser yellowlegs, Anna's hummingbird, American crow, marsh wren and European starling.

**Foster City (19q)**

*Detected 0 clapper rails*

Foster City (Figures 21j and 22j) is a strip marsh to the north of Belmont Slough (02a). The site is sparsely vegetated, with a wide upland area dominated by exotic fennel. Oyster shell berms crisscross the marsh, providing access for both people and predators. Successful hybrid *Spartina* control has eliminated most of the marsh vegetation at the site, with few small clones remaining in the sand/shell beach. No vegetation grows on the oyster shell berm, which forms the backshore of the majority of the site.

Although the site is adjacent to the known clapper rail population at Belmont Slough, rails have never been detected at the site since it began being surveyed in 2005. During the F-survey conducted on January 15, 2010, Jude Stalker determined that the site was unsuitable for breeding clapper rails and that no further surveys were necessary.
Figure 21. Site maps of the San Mateo Region.

Figure 21a. Map of 2010 clapper rail survey results at Belmont Slough (02a).
4. 2010 Survey Results

Figure 21b. Map of 2010 clapper rail survey results at Redwood Shores (02a/b).
Figure 21c. Map of 2010 clapper rail survey results at B2 South Quadrant (02d).
Figure 21d. Map of 2010 clapper rail survey results at West Point Slough - NW (02e).
Figure 21e. Map of 2010 clapper rail survey results at Greco Island - North (02f).
Figure 21f. Map of 2010 clapper rail survey results at West Point Slough – SW/E (02g).
Figure 21g. Map of 2010 clapper rail survey results at Greco Island - South (02h).
Figure 21h. Map of 2010 clapper rail survey results at Ravenswood Slough/Mouth (02i).
Figure 21i. Map of 2010 clapper rail survey results at Inner Bair Island Restoration (02i).
Figure 21m. Map of the Foster City (19g) site boundary evaluated for clapper rail habitat.
Figure 22. Site photos of the San Mateo Region.

Figure 22a. Looking south over the expansive marsh and well-lined channels at Belmont Slough.

Figure 22b. *Sarcocornia pacifica* plain characterizes most of Redwood Shores, here seen looking southeast towards Steinberger Slough and Bair Island.
Figure 22c. View of the fully tidal portion of B2 South Quadrant showing the extent of *Sarcocornia pacifica*.

Figure 22d. View of the northwest portion of West Point Slough showing the widest extent of tidal marsh.
Figure 22e. Bisecting Greco Island north from the NW to SE, a string of PG&E power towers and boardwalk provide excellent perches and access for both avian and mammalian predators.

Figure 22f. View looking north of the southeastern portion of West Point Slough near Marsh Road and adjacent to BayFront Park.
Figure 22g. View looking east from levee that traverses southern Greco Island showing the complexity of native marsh vegetation.

Figure 22h. View showing side channels and marsh vegetation along Ravenswood Slough.
Figure 22i. Looking north at Inner Bair Island from the southwestern end of the public trail adjacent to the Bayshore Freeway.

Figure 22j. Facing south, the oyster shell berm and sparse marsh vegetation present at the Foster City site.
4.8 SAN FRANCISCO PENINSULA CLAPPER RAIL REGION

The San Francisco Peninsula Clapper Rail Region stretches from the Golden Gate Bridge to the San Mateo Bridge. This urban region is highly developed and includes several marinas, tidal lagoons, flood control channels, small fragmented patches of remnant marsh, invaded mudflats, and the mouths of several creeks and sloughs. A wide range of land uses can be found here, from SFO Airport and shipyards, to light and heavy industry, to commercial and residential development. It includes the cluster of marshes within the Colma Creek complex, as well as the disjunct sites along the length of the Peninsula.

Of the 35 ISP sites in San Francisco Peninsula region, ISP surveyed 30 during the 2010 clapper rail field season (Table 11, Figure 23). We used passive Protocol A for surveys at eleven of these sites, and active Protocol C for surveys at nine sites within the region. Protocol F habitat evaluations were conducted at a total of 18 sites, eight of which were deemed adequate for rails and subsequently included in the call count surveys reported above. The remaining nine sites were deemed of insufficient habitat quality to support breeding clapper rails.

Table 11: Summary results from California clapper rail surveys at sites in the San Francisco Peninsula Region.

<table>
<thead>
<tr>
<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits (=stations x rounds)</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurrence</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier 98/Heron's Head (12b)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>India Basin (12c)</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Hunters Point Naval Reserve (12d)</td>
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</tr>
<tr>
<td>Yosemite Channel (12e)</td>
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</tr>
<tr>
<td>Candlestick Cove (12f)</td>
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<tr>
<td>Colma Creek (18a)</td>
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</tr>
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### 4. 2010 Survey Results

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<th>Site Name (ID)</th>
<th>Survey Type</th>
<th>Number of Rounds</th>
<th>Number of Visits (=stations x rounds)</th>
<th>Number of Visits with Detections</th>
<th>Percent Occurrence</th>
<th>CLRA detected</th>
<th>Included in Five Year Analysis</th>
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<tr>
<td>Brisbane Lagoon (19a)</td>
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</tr>
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<td>0</td>
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</tr>
<tr>
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<td>6</td>
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<td>0%</td>
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<td>-</td>
</tr>
<tr>
<td>Oyster Point Marina (19d)</td>
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<td>-</td>
</tr>
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<tr>
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<tr>
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<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Fisherman's Park (19m)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Coyote Point Marina (19n)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>San Mateo Creek (19o)</td>
<td>F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Seal Slough Mouth (19p)</td>
<td>A</td>
<td>4</td>
<td>24</td>
<td>1</td>
<td>4%</td>
<td>1 - 2</td>
<td>X</td>
</tr>
<tr>
<td>Anza Lagoon (19q)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td><strong>REGIONAL SUMMARY</strong></td>
<td>-</td>
<td>61</td>
<td>168</td>
<td>5</td>
<td>3%</td>
<td>5 - 8</td>
<td>X</td>
</tr>
</tbody>
</table>

1. The number of stations where CLRA were detected, expressed as a percentage of the total number of stations sampled during the season.
2. Surveyed from stations located at adjacent sites.
Figure 23. Map of 2010 clapper rail site boundaries in the San Francisco Peninsula Region.
**4. 2010 Survey Results**

**Pier 98 / Heron’s Head (12b)**

*Detected 0 clapper rails*

Heron's Head Park (formerly known as Pier 98) is a 10-hectare restored wetland in a highly industrialized area at the base of the Hunters Point, south of Lash Lighter Basin. Heron's Head (Figures 24a and 25a) is a long, thin peninsula extending east into San Francisco Bay that it is built on landfill and was slated for development as a Port of San Francisco facility, but has now been transformed into a thriving marsh maintained primarily by volunteers of Literacy for Environmental Justice (LEJ). More than 1000 student volunteers serve as primary caretakers of the park each year. They help to plant native plant species, remove non-natives such as invasive *Spartina*, and clean and maintain the wild areas of the park. The area consists mostly of riprap fill with some high marsh habitat and a PG&E pond on the western side. Adjacent land uses include Port of San Francisco facilities used as police driver training areas and a recycling center. There is a public recreational trail through the center of the peninsula that is frequently used by joggers, dog walkers and the occasional fisherperson.

Jude Stalker evaluated the site for the presence of clapper rail habitat (Protocol F) on December 31, 2009. Because of its distance from a source population, lack of clapper rail presence in past years surveys and minimal habitat characteristics to support breeding rails, she determined that no further surveys were necessary at this site.

Subsequent to the survey season, a California clapper rail with an attached radio-transmitter was photographed at Heron’s Head in early July 2010. This bird was soon identified to have originated in San Bruno Marsh (18g) and moved to Heron’s Head of its own volition, and was documented as doing so as part of an ongoing study conducted by the U.S. Geological Survey.

Other bird species observed at this site included: Western grebe, scaup sp., bufflehead, ruddy duck and Western gull.

**India Basin (12c)**

*Detected 0 clapper rails*

The India Basin site (Figures 24b and 25c) is a small invaded mudflat located in the cove south of Heron’s Head and adjacent to the India Basin Shoreline Park, a small heavily trafficked park in Southeastern San Francisco. The surrounding land is used for residential housing as well as a now closed and partially demolished PG&E power plant. There is a negligible amount of marsh vegetation and a few remaining patches on hybrid *Spartina* within the site boundary. Jude Stalker evaluated the habitat (Protocol F) at the site on December 31, 2009. She determined that India Basin lacked suitable clapper rail habitat and no further surveys were needed.
Hunter’s Point Naval Shipyard (12d)

*Detected 0 clapper rails*

Potential clapper rail habitat at the Hunter’s Point Naval Shipyard (Figures 24c and 25c) is confined to a small stretch of *Spartina*-invaded shoreline adjacent to the decommissioned Navy base (Base Realignment and Closure site). The thin band of mostly sandy shoreline is bordered by rip-rap and vegetated primarily by non-native *Spartina*, which has invaded the mudflat. This area is a U.S. E.P.A. Superfund Site that is currently undergoing extensive clean-up due to contamination with fuels, pesticides, heavy metals, PCBs, volatile organic compounds (VOCs) and various radionuclides (primarily radium 226 and cesium 137).

Jude Stalker evaluated the Hunter’s Point site using the F survey protocol on 8/13/2009 and determined that no further surveys were necessary in 2010. The lack of vegetative structure, the small extent of existing marsh and level of contamination all make this site unsuitable for breeding clapper rails.

Yosemite Channel (12e)

*Detected 0 clapper rails*

Yosemite Channel (Figures 24d and 25d) is a small inlet located within a heavily industrialized area just southwest of the Hunter’s Point Naval Reservation. The site is comprised of a relatively large mudflat with some patchy marginal salt marsh habitat and upland weeds. Yosemite Slough is more than three miles from the nearest known clapper rail population at Sierra Point (19b). There is currently no public use of the site, as the area is primarily fenced off.

Jude Stalker evaluated the habitat (Protocol F) at the site on December 31, 2009. She determined that although there is a significant stand of native and hybrid *Spartina* here, the lack of channel structure and great distance from other known clapper rail sites made clapper rail presence at Yosemite Channel highly unlikely and that no further surveys were needed.

Other birds observed at this site included a scaup species, bufflehead and an unknown gull species.

Candlestick Cove (12f)

*Detected 0 clapper rails*

Candlestick Cove (Figures 24e and 25e) is located in South San Francisco, directly adjacent Highway 101. The site has an oyster shell embankment that provides a barrier between the open bay and the marsh. There are no channels at the site; instead, the tide enters through low points in the bank and ponds in the center. Native *Grindelia* lines the higher elevation oyster shell embankment and invasive *Spartina* hybrids scattered amongst the native *S. foliosa* occupy the lower ponded areas. The site is bordered by the roadway leading to Candlestick Park and has several light posts, trees and shrubs that
could harbor potential avian and terrestrial clapper rail predators. C surveys conducted here in previous year(s) have not detected a presence of clapper rails. The nearest marsh known to support clapper rails is at Sierra Point (19b), about two miles away, although there were no clapper rails detected at Sierra Point in 2010.

Jude Stalker evaluated the site using Protocol F on December 31, 2009. Due to the insufficient habitat, lack of channels and absence of clapper rails in previous years, it was determined that no further clapper rail surveys were needed.

Other bird species documented in and around this site included: great egret, snowy egret, scaup species, common goldeneye, Western gull and common raven.

**Colma Creek (18a)**

*Detected 0 clapper rails*

Colma Creek (Figures 24f and 25f) is a narrow tidal creek that flows through a highly urbanized, industrial area of South San Francisco. It is north of San Francisco Airport. This site was once heavily invaded by hybrid Spartina, but high Spartina treatment efficacy has left this site sparsely vegetated. Bare patches of mudflat now a prominent feature of the site. Remnant patches of hybrid Spartina and low-growing Sarcocornia pacifica typify the vegetation. At the mouth of the creek, there is a wastewater treatment plant which may affect water chemistry. A well used portion of the bay trail runs parallel to the creek. Large amounts of trash and litter line the creek.

The site was surveyed using Protocol A for a total of three rounds. All surveys were conducted by Tobias Rohmer on February 3, February 17 and April 2, 2010. On the final round tapes were played at all stations. No rails were detected during any of the three rounds.

Near survey station COCR02 at the northwestern part of the marsh is an active cat feeding station. At least six cats were observed in this area. During one round of surveys, Tobias Rohmer witnessed a local couple replenishing the cat food. Dead clapper rail and other bird remains have been found at this feeding station in past years. Snowy egrets, great egrets, or American crows were seen at all six survey stations. Raccoon tracks were noted in the northern part of the creek.

Other birds observed at Colma Creek in 2010 included: snowy egret, black-crowned night-heron, canvasback, gadwall, bufflehead, mallard, Canada goose, American coot, killdeer, black-bellied plover, American avocet, black-necked stilt, spotted sandpiper, long-billed curlew, short-billed dowitcher, whimbrel, willet, Caspian tern, ring-billed gull, California gull, mew gull, Western gull, glaucous-winged gull, Anna’s hummingbird, Say’s phoebe, black phoebe, American crow, bushtit, European starling, common yellowthroat, yellow-rumped warbler, song sparrow, golden-crowned sparrow, white-crowned sparrow, California towhee and house finch.
Navigable Slough (18b)

Detected 0 clapper rails

Navigable Slough (Figures 24g and 25g) is a short tributary of Colma Creek (18a). This narrow tidal channel drains into a cement culvert west of Highway 101. This slough was once lined with robust hybrid *Spartina*, but high treatment efficacy has reduced this site to a sparsely vegetated mudflat. Patches of hybrid *Spartina* and *Sarcocornia pacifica* now typify the vegetation in this site. Some *Grindelia stricta* can be found along the high marsh plain.

The site was surveyed using Protocol A for a total of three rounds. All surveys were conducted by Jude Stalker. Surveys were conducted on February 2, February 17 and April 2, 2010. On the final round tapes were played at all stations. No rails were detected during any of the three rounds.

In past years, a high number of feral cats have been seen at this site. However, none were noted during the survey. No raptors were observed during surveys at Navigable Slough, but Snowy egrets and American crows were observed at both survey locations.

Other birds observed at Navigable Slough in 2010 include: snowy egret, canvasback, bufflehead, mallard, American coot, short-billed dowitcher, Anna's hummingbird, black phoebe, American crow, bushtit, European starling, yellow-rumped warbler, song sparrow, California towhee, white-crowned sparrow and house finch.

Old Marina (18c)

Detected 0 clapper rails

Old Marina (Figures 24h and 25h) is located between South San Francisco’s wastewater treatment plant and the San Francisco Airport. This highly urbanized site is bordered by the bay trail and a large long-term parking structure. The site itself is comprised of 5 concrete locks that were once used to build concrete barges. These locks have since filled with sediment and been invaded by hybrid *Spartina*. Clapper Rails have been detected using these locks in the past. However, high treatment efficacy has greatly reduced hybrid *Spartina* cover. The site is now primarily mudflat with a few patchy remnant *Spartina* stands. Very little other marsh vegetation is present.

The site was surveyed using Protocol A for a total of three rounds. All surveys were conducted by Jude Stalker on February 2, February 17 and April 2, 2010. On the final round tapes were played at all stations. No rails were detected during any of the three rounds.

This site is highly fragmented with ample upland corridors for mammalian predators. In past years, a high number of feral cats and raccoons have been detected. However, no mammalian or avian predators were observed in 2010.

Other Birds detected at Old Marina in 2010 included: American coot, American avocet, willet, long-billed curlew and ring-billed gull.
4. 2010 Survey Results

**Inner Harbor (18d)**

*Detected 0 clapper rails*

Inner Harbor (Figures 24i and 25i) is a highly urbanized marsh located between the SamTrans bus yard and the San Francisco airport. This mudflat was once highly invaded by hybrid *Spartina*. However, high treatment efficacy has returned over ninety percent of this site to mudflat. A few scattered patches of hybrid *Spartina* still remain. Riprap levee edges are primarily covered with *Carpobrotus* spp., but do support some native vegetation such as *Grindelia stricta* and *Sarcocornia pacifica*. There are little to no natural channels at the site. Both surveyors commented that this site seems unlikely to support clapper rail.

Inner Harbor was surveyed using Protocol A for a total of three rounds. Surveys were conducted on February 2, February 17 and April 2, 2010. The first two surveys were conducted by Whitney Thornton, who detected no clapper rails during either survey. Jen McBroom conducted the final survey. She played tapes at both stations and detected no clapper rails.

Public access trails surround the site. It is common to see dogs off leash. Near survey station 1 (southeastern portion of marsh), there is an active cat feeding station. Feral cats were seen during all three rounds of survey. In the second round of surveys, a cat was observed 20 feet in the marsh. Snowy egrets and great blue herons were observed two of the three survey rounds.

Other birds observed at Inner Harbor in 2010 include: snowy egret, great blue heron, Canada goose, ruddy duck, canvasback, bufflehead, mallard, Northern shoveler, American coot, black-necked stilt, American avocet, dunlin, whimbrel, willet, least sandpiper, Western sandpiper, marbled godwit, long-billed curlew, California gull and European starling.

**SamTrans Peninsula (18e)**

*Detected 1-2 clapper rails*

SamTrans Peninsula (Figures 24j and 25j) is a highly urbanized site in South San Francisco. The northern portion of this site is a strip marsh that surrounds the SamTrans parking lot. The southeastern part of this site is a small triangle shaped marsh located north of the San Francisco Airport. This shoreline was once highly invaded by hybrid *Spartina*. However, treatment has greatly reduced the invasion. Only a few scattered patches of hybrid *Spartina* still remain. Riprap levee edges are primarily covered with *Carpobrotus* spp., but do support some native vegetation such as *Grindelia stricta* and *Sarcocornia pacifica*. The southern marsh contains more high marsh habitat and supports higher plant diversity—although hybrid *Spartina* treatment has left this more diverse area stunted in terms of height.

SamTrans Peninsula was surveyed using Protocol A for a total of three rounds. Surveys were conducted on February 2, February 17 and April 2, 2010. The first two surveys were conducted by Whitney Thornton. She detected no clapper rails. Jen McBroom...
conducted the final survey. She played tapes at both stations and detected one to two clapper rails.

Public access trails surround the site. It is common to see dogs off leash. Near survey station 6 (south portion of marsh), there is an active cat feeding station. Feral cats were seen at all survey stations and seen during all three rounds of survey. No raptors were seen, but snowy egrets, great blue herons, and American crows were seen during surveys.

Other birds observed at SamTrans Peninsula in 2010 include: snowy egret, great blue heron, ruddy duck, canvasback, mallard, Northern shoveler, bufflehead, Canada goose, American coot, Black-necked stilt, American avocet, Western sandpiper, willet, whimbrel, dunlin, least sandpiper, long-billed curlew, marbled godwit, California gull and European starling.

Confluence Marsh (18f)

Detected 1-2 clapper rails

Confluence Marsh (Figures 24k and 25k) is a small, low elevation marsh peninsula located in South San Francisco. The western edge of this site is bordered by Colma Creek and its eastern edge is San Bruno creek mouth. At the southern base of the peninsula is a South San Francisco wastewater treatment facility. The northern portion of the marsh was once heavily invaded by hybrid Spartina. However, high Spartina treatment efficacy has resulted in over seventy percent loss of vertical structure. The southern upland of this marsh does provide some refugia in the form of a thick Sarcocornia pacifica/Distichlis spicata patch and some Grindelia stricta presence.

Confluence Marsh was surveyed from stations at adjacent sites. Three rounds of Protocol A surveys were conducted at adjacent marsh levees. Various surveyors listened from San Bruno Marsh (18g), Colma Creek (18a), Sam Trans Peninsula (18e), and Inner Harbor (18d). Surveys were conducted on February 2, February 17 and April 2, 2010. During the first round of surveys, Whitney Thornton saw a female clapper rail swimming from Confluence Marsh to SamTrans peninsula. No vocalizations were heard. This was the only clapper rail detection at Confluence Marsh in 2010.

Unlike most other sites in the San Bruno Complex, this site has no public access trails. Due to the fact that this site was only surveyed via adjacent sites, no additional birds were observed at Confluence Marsh during 2010 surveys.

San Bruno Marsh (18g)

Detected 0 clapper rails

San Bruno Marsh (Figures 24l and 25l) is large strip marsh located in South San Francisco and provides the most potential rail habitat in the Colma Creek Complex. The area around this marsh is highly developed with light industrial, commercial, and business facilities. A well-used portion of the Bay Trail runs parallel to this site. In March 2010, construction on the bay trail adjacent to San Bruno Marsh started and the trail was closed to the public. The marsh itself is a wide band (over 100 meters wide) of
hybrid *Spartina* invaded shoreline. San Bruno Marsh was once densely vegetated with hybrid clones that had coalesced into a meadow; however, high treatment efficacy has greatly reduced vertical structure. Due to phased control and chemical mowing, San Bruno Marsh does maintain a greater amount of hybrid *Spartina* than other marshes in the Colma Creek complex. Several shallow, wide, and indistinct channels create a slight elevation gradient. High elevation marsh supports some *Sarcocornia pacifica*, *Distichlis spicata*, and *Grindelia stricta*, but also contains dense mats of *Carpobrotus* spp.

San Bruno Marsh was surveyed using Protocol A for a total of three rounds by Stephanie Chen on February 2, February 17 and April 2, 2010. No birds were detected at any of the three rounds of surveys.

It is common to see dogs off-leash on the public access trails that surround this marsh. Domestic/feral cats have been seen in past years at this marsh; however, this year no avian or mammal predators were seen during any round of surveys.

Other bird species observed at San Bruno Marsh for 2010 included: *snowy egret*, bufflehead, hooded merganser, mallard, Canada goose, surf scoter, a scaup sp., American coot, American avocet, black-bellied plover, black-necked stilt, a yellowlegs sp., dunlin, Western sandpiper, least sandpiper, long-billed curlew, willet, whimbrel, California gull, ring-billed gull, Anna's hummingbird, black phoebe, *American crow*, American robin, golden-crowned sparrow, song sparrow, white-crowned sparrow, marsh wren, Western meadowlark and European starling.

**San Bruno Creek (18h)**

*Detected 0 clapper rails*

San Bruno Creek (Figures 24m and 25m) is a narrow channel immediately north of the San Francisco Airport. The mouth of the creek is located between Inner Harbor (18d) and Old Marina (18c), where the creek parallels North Access Road, passes through a culvert and under Highway 101. The site is bounded by tall fencing on either side, and surrounded by busy roads and parking lots. Potential threats include pollution from runoff, noise, lights and trash. Once dominated by hybrid *Spartina*, the site is now restoring to vegetative cover of *Sarcocornia pacifica*, *Grindelia stricta* and *Frankenia salina*, while still supporting some standing dead *Spartina*. The upper edge of the site is mostly vegetated by *Foeniculum vulgare*, *Raphanus raphanistrum* and non-native upland grasses. As the creek extends south and west past Highway 101, this area becomes protected as important habitat for the endemic, endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and its preferred prey, the California red-legged frog (*Rana draytonii*).

The site was surveyed using active Protocol C for three rounds. Surveys were conducted on February 2, February 17, and April 2, 2010 by Jude Stalker. Prerecorded vocalizations were played at every survey station during each survey round, yet no clapper rails were detected. Clapper rails were absent from San Bruno Creek in 2010. No clapper rails have been detected in this site in the last four years of survey by ISP (McBroom, 2009).

Other bird species noted during survey times included double-crested cormorant, *snowy egret*, mallard and European starling.
4. 2010 Survey Results

Brisbane Lagoon (19a)

Detected 0 clapper rails

Brisbane Lagoon (Figures 24n and 25n) was once an open cove along the Bay shoreline of the San Francisco Peninsula. However, the site was leveed in the 1950s and now functions as a storm water catchment for the city of Brisbane. The site is sandwiched between Highway 101 to the east and railroad tracks to the west and is composed of a tidal channel to the north, a fringing marsh along its border, and a larger marsh (2.0 hectares) to the south. The channelized marsh parcel at the southern end of the site is the only portion of the site likely to support breeding clapper rails. *Sarcocornia pacifica*, *Grindelia* and *Spartina foliosa* are the dominant plants in the marsh habitat at the site; however, hybrid *Spartina* is also found in small patches along the lagoon shoreline and in the channels.

Brisbane Lagoon was evaluated for clapper rail habitat (Protocol F) on December 27, 2009 by Jude Stalker. Although she found most of the shoreline habitat unsuitable for clapper rails, she determined that the vegetative structure and *Spartina*-lined channels in the marsh at the southern end of the lagoon provided potential clapper rail habitat and that surveys should be conducted at the site. The site was surveyed using Protocol C for a total of three rounds. Surveys were conducted on January 31, 2010 by Stephanie Chen and Tobias Rohmer, February 14, 2010 by Whitney Thornton and Tobias Rohmer and March 13, 2010 by Stephanie Chen and Whitney Thornton. Prerecorded vocalizations were played on all three rounds. No clapper rails were detected at the site during any of the three rounds.

A red-shouldered hawk was detected during the survey, as were snowy egret, Western gull, and American crow.

Other bird species observed at this site included: Western grebe, snowy egret, lesser scaup, bufflehead, ruddy duck, red-shouldered hawk, spotted sandpiper, willet, Western gull, Anna's hummingbird, American crow, wrentit, bushtit, American robin, golden-crowned sparrow, savannah sparrow, white-crowned sparrow, Western meadowlark and red-winged blackbird.

Sierra Point (19b)

Detected 0 clapper rails

Sierra Point (Figures 24o and 25o) is a small inlet of marsh habitat between Highway 101 and an office park near Brisbane Lagoon (19a). Once dominated by hybrid *Spartina*, successful treatment has reduced the *Spartina* invasion to a few small patches and scattered individual stems. At the bay edge of the inlet, an oyster shell beach supports scattered clones of hybrid *Spartina* and clumps of *Grindelia stricta*. Behind the beach, a channel runs to the rear of the site, ending in a pond, where a culvert provides freshwater input. *Sarcocornia pacifica* dominates the site with dense stands of *Bolboschoenus* near the freshwater input. Human paths crisscross Sierra Point, providing easy access for
terrestrial predators. One or two clapper rails have been observed regularly at this site since 2006, though with the almost complete eradication of hybrid *Spartina*, very minimal habitat remains in 2010 and clapper rail presence is incredibly unlikely.

Sierra Point was surveyed using Protocol C for a total of three rounds, the first two of which were conducted by Tobias Rohmer on January 31, and February 14, 2010. Whitney Thornton conducted the final round on March 13, 2010. Tapes were played during all three rounds of survey, but no clapper rails were detected at the site. Noise from Highway 101 impedes some audio sensitivity, but not so much as to prohibit detection of rail vocalizations considering the small size of the site.

A red-tailed hawk was observed during the final survey round. No other raptors or terrestrial predators were observed at this site, though snowy egrets and Western gulls were noted on several occasions as potential nest predators.

All bird species observed at this site include: Western grebe, snowy egret, lesser scaup, bufflehead, ruddy duck, lesser scaup, red-tailed hawk, spotted sandpiper, willet, Western gull, Anna's hummingbird, black phoebe, wrentit, bushtit, European starling, yellow-rumped warbler, white-crowned sparrow, California towhee, savannah sparrow and golden-crowned sparrow.

**Oyster Cove (19c)**

*Detected 0 clapper rails*

Oyster Cove (Figures 24p and 25p) is located to the south of Sierra Point (19b) and adjacent to Highway 101. The site is predominantly a riprap shoreline with small patches of hybrid *Spartina*. The largest fragment of marsh habitat is in the southern portion of the site and supports a diverse assemblage of native vegetation. Successful control efforts have greatly reduced the hybrid *Spartina* that once colonized the site’s bayfront edge. A culvert drains into the marsh creating a small channel at the southern end of the site. Additionally, a wide and thickly vegetated upland zone provides a buffer between the bay trail and the marsh habitat. In 2006 and 2007, at least one clapper rail was recorded at the site; however, no rails have been detected since then.

Oyster Cove was initially evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker. She determined that the site merited additional surveys. The site was surveyed using Protocol C for a total of three rounds. Surveys were conducted by Tobias Rohmer on January 22, 2010 and by Jude Stalker on February 7, and March 13, 2010. Prerecorded vocalizations were played all rounds, but no clapper rails were detected during any of the three visits to the site.

Other bird species observed at Oyster Cove included: Western grebe, brown pelican, double-crested cormorant, bufflehead, surf scoter, lesser scaup, American coot, black oystercatcher, black-necked stilt, Western sandpiper, least sandpiper, whimbrel, spotted sandpiper, willet, lesser yellowlegs, Western gull, ring-billed gull, American crow, Northern mockingbird, European starling and red-winged blackbird.
**Oyster Point Marina (19d)**

*Detected 0 clapper rails*

Oyster Point Marina (Figures 24q and 25q) is located to the east of the Oyster Point Cove (19c) in South San Francisco. The *Spartina* treatment has been relatively successful at this site, but significant patches of hybrid *Spartina* are still colonizing the interior shoreline of the marina. The other remaining vegetation at the site includes short-stature plants, such as *Jaumea carnosa* and both native and non-native *Limonium* species. A trail surrounds the marina, providing access for both people and predators.

Oyster Point Marina was initially evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker, who determined that because the site was near other sites with potential habitat, it merited additional surveys. The site was surveyed using Protocol C for a total of three rounds. Surveys were conducted by Tobias Rohmer on January 22, 2010 and by Jude Stalker on February 7, and March 13, 2010. Prerecorded vocalizations were played all rounds, but no clapper rails were detected during any of the three visits to the site.

Other bird species observed at the Oyster Point Marina site included: Western grebe, double-crested cormorant, mallard, greater scaup, ruddy duck, American coot, willet, *Western gull*, *ring-billed gull*, European starling and Brewer's blackbird.

**Oyster Point Park (19e)**

*Detected 0 clapper rails*

Oyster Point Park (Figures 24r and 25r) is located south of the Oyster Point Marina. A short, narrow creek passes from the invaded riprap shoreline, along the UPS parking lot to the rear of the site, ending at Gull Drive. The invasive *Spartina* hybrids that line the channel are showing signs of regrowth; however the clones on the bayfront are largely dead. *Sarcocornia pacifica* and bare mud are found in areas with successful *Spartina* control.

Oyster Point Park was initially evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker, who determined that the site merited additional surveys. The site was surveyed using Protocol C for a total of three rounds. Surveys were conducted by Tobias Rohmer on January 22, 2010 and by Jude Stalker on February 7 and March 13, 2010. Prerecorded vocalizations were played all rounds, but no clapper rails were detected during any of the three visits to the site.

Other bird species observed at Oyster Point Park included: Clark's grebe, double-crested cormorant, Canada goose, mallard, surf scoter, American coot, killdeer, least sandpiper, greater yellowlegs, willet, Nuttall's woodpecker, black phoebe and *American crow*. 
**Point San Bruno (19f)**

*Detected 2-2 clapper rails*

Point San Bruno (Figures 24s and 25s) is a small inlet of marsh habitat just north of the Colma Creek complex (18a-h). The site is located between a recycling plant to the south and an office park to the north. An oyster-shell berm between the bay and the inlet restricts tidal flow at the site and water accumulates in the channels forming a small holding pond surrounded by *Sarcocornia pacifica*. Point San Bruno is invaded by hybrid *Spartina* both along the bayward edge and within the inlet. The site’s proximity to San Bruno Marsh is the prominent factor in evaluating its suitability for supporting breeding clapper rails. In 2010, construction of a pedestrian ramp crossing over the marsh was completed.

A Protocol F habitat evaluation survey was conducted by Jude Stalker on December 27, 2009, and Point San Bruno was deemed potential habitat. The site was then surveyed using Protocol A for a total of three rounds. Surveys were conducted on February 2, February 17, and April 2, 2010 by Stephanie Chen. Taped recordings were used during the final round when two clapper rails were detected.

No other bird species were recorded at this site.

**Seaplane Harbor (19g)**

*Detected 0 clapper rails*

Seaplane Harbor (Figures 24t and 25t) extends from the SamTrans Peninsula (18e) to San Francisco International Airport (19h). Most of the site is a narrow riprap shoreline with few scattered hybrid *Spartina* clones along the levee. However, a continuous patch of marsh vegetation has developed along the shoreline in the northern section of the site, where a jetty extends into the bay. It is in this portion of the site where we focus our survey efforts. *Grindelia stricta*, *Carpobrotus* spp., and non-native *Limonium ramosissimum* dominate the upper edge of the levee while the mudflat at the levee toe is dominated by hybrid *Spartina*. Moderate treatment efficacy at the site has reduced the hybrid *Spartina* population at the site; however large patches of hybrid meadows still stand.

The site was surveyed using Protocol A for a total of three rounds. The first and second surveys were conducted on February 8, March 16, 2010 by Jude Stalker. No clapper rails were detected on either round. Tobias Rohmer conducted the final round on March 31, 2010, played tapes at both stations with no observed response.

A feral cat was observed at the marsh edge during round three.

Other birds detected at the site included: snowy egret, Canada goose, mallard, killdeer, Western sandpiper, least sandpiper, an unidentified gull species, black phoebe and American crow.
San Francisco Airport (19h)

Detected 1-2 clapper rails

The San Francisco Airport site (Figures 24u and 25u) is located along the shoreline adjacent to SFO, to the south of the Colma Creek marsh complex (18a-h). Although the control program site boundary stretches over seven kilometers, only a small section of marsh at the south of the boundary provides enough habitat to support clapper rails. This area is a long strip marsh about 50 meters wide. It is dominated by both hybrid and native Spartina along the bayward edge and Sarcocornia along the upper marsh bench. Avian and terrestrial predators (including a red fox) have been observed in the marsh at SFO.

The site was surveyed using Protocol A for a total of three rounds. The first and second surveys were conducted on February 8 and March 15, 2010 by Jude Stalker who detected one to two rails. Tobias Rohmer conducted the final round on March 31, 2010, played tapes at two of four stations and had no further clapper rail detections.

Other bird species detected at the site included: snowy egret, Canada goose, mallard, black-bellied plover, killdeer, Western sandpiper, least sandpiper, willet, ring-billed gull, mew gull, black phoebe, barn swallow, Northern mockingbird, European starling, American pipit, savannah sparrow, song sparrow, Western meadowlark and red-winged blackbird.

Mills Creek Mouth (19i)

Detected 0 clapper rails

Directly south of San Francisco Airport, Mills Creek (Figures 24v and 25v) emerges from a culvert under the Bayshore Highway to form a small marsh at its mouth. This marsh, officially designated the Burlingame Shorebird Sanctuary, is dominated by both native and invasive Spartina. The steep riprap slopes are vegetated by Carpobrotus spp. and ornamental plants. Surrounding the site are hotels, parking lots and warehouses, which increase likelihood of human-commensal land predators; street lights and walking trails increase access by both raptors and terrestrial predators. Although the site seems unlikely to support clapper rail, presence was confirmed during a 2007 survey (McBroom, 2007).

Mills Creek was initially evaluated for habitat (Protocol F) on December 27 2009 by Jude Stalker, who determined that the site merited additional surveys. The site was surveyed using Protocol C for a total of three rounds. Surveys were conducted on January 24 and February 11, 2010 by Tobias Rohmer and on March 19, 2010 by Whitney Thornton. Prerecorded vocalizations were played during all survey rounds, though no clapper rails were detected. Clapper rails have not been detected at this site since the 2007 survey season.

All bird species were observed at this site include: mallard, canvasback, lesser scaup, Canada goose, red-shouldered hawk, killdeer, black-bellied plover, willet, greater yellowlegs, ring-billed gull, California gull, rock dove, Anna's hummingbird, black phoebe, bushtit, European starling, yellow-rumped warbler and house finch.
4. 2010 Survey Results

**Easton Creek Mouth (19j)**

*Detected 0 clapper rails*

Easton Creek Mouth (Figures 24w and 25w) is a narrow, riprap lined channel that once fanned into a hybrid *Spartina* strip marsh where the creek meets the Bay. Once heavily impacted by coalescing clones of hybrid *Spartina* at the bay edge, the shoreline at Mills Creek Mouth has changed drastically from a vegetative meadow to mudflat due to ISP's hybrid *Spartina* control efforts. The site is bounded by movie theater and hotel parking lots and riprapped shoreline, which both leave the site fairly isolated as far as marsh habitat is concerned, and provide easy marsh access for mammalian predators. The riprap bounding the creek was sparsely vegetated by *Carpobrotus* spp., *Sarcocornia pacifica*, upland weeds and ornamental plants.

Easton Creek Mouth was evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker, who determined that the site merited additional surveys. The site was then actively surveyed (Protocol C) for a total of three rounds. Surveys were conducted on January 24 and February 11, 2010 by Tobias Rohmer and on March 19, 2010 by Whitney Thornton. No clapper rails were detected, despite playing prerecorded vocalizations during all survey rounds.

During one round at Easton Creek surveyors observed a merlin, an unlikely yet potential predator.

All bird species noted during survey rounds include: Western grebe, great egret, snowy egret, bufflehead, lesser scaup, canvasback, turkey vulture, merlin, black-bellied plover, black phoebe, yellow-rumped warbler and white-crowned sparrow

**Sanchez Marsh (19k)**

*Detected 0 clapper rails*

Sanchez Marsh (Figures 24x and 25x) is slightly muted tidal lagoon west of Burlingame Lagoon in Burlingame. This highly urbanized marsh is surrounded by high use commercial zones, a water treatment plant, and a busy portion of Highway 101. Sanchez Marsh has a diverse array of native and non-native vegetation. This marsh hosts three species of *Spartina*, the native *S. foliosa* and the non-natives hybrid *Spartina* and *S. densiflora*. High elevation marsh contains the natives *Sarcocornia pacifica, Grindelia stricta, Jaumea carnosa, Limonium californicum* and *Distichlis spicata*. However, non-natives *Limonium ramosissimum* and *Puccinellia maritima* have an increasing presence at this site and form thick mats at high marsh edge.

Sanchez Marsh was evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker, who determined that the site merited additional surveys. The site was then surveyed using Protocol C for a total of three rounds. Surveys were conducted on January 23, February 11 and March 19, 2010. Tobias Rohmer conducted the first two rounds of surveys. Whitney Thornton conducted the final round. Call play back was used all three rounds, but no clapper rails were detected.
The marsh is bounded on all sides by upland edge and PG&E towers run the length of the site, potentially providing perched for avian predators, although no raptors were observed during any visits to the site.

Other bird species recorded at the site during the clapper rail surveys included: mallard, turkey vulture, red-tailed hawk, killdeer, Anna’s hummingbird, black phoebe, bushtit, white-crowned sparrow and California towhee.

**Burlingame Lagoon (19l)**

*Detected 0 clapper rails*

Burlingame Lagoon (Figures 24y and 25y) is a tidal lagoon in the City of Burlingame, the majority of which at low tide is open water with scattered mudflat areas. It is bounded to the south by Highway 101, to the west by the adjoining Sanchez Marsh (19k), and to the east by commercial development. The site is encircled by a riprap levee and supports a minimal edge of mixed marsh vegetation including both *Spartina densiflora* and hybrid. A canal from the northeastern corner runs approximately 400 meters to connect the lagoon to tidal exchange with the Bay just beyond the overpass of Airport Blvd.

Burlingame Lagoon was evaluated for clapper rail habitat (Protocol F) on December 27, 2009 by Jude Stalker. Because of the lack of vegetative structure and foraging habitat, she determined that Burlingame Lagoon was unsuitable for breeding clapper rails and no further surveys were necessary.

A red-tailed hawk was observed during survey time, as were American crows and an unidentified gull species.

All bird species observed at this site were: canvasback, bufflehead, red-tailed hawk, black-necked stilt, willet, a gull species and American crow.

**Fisherman’s Park (19m)**

*Detected 0 clapper rails*

Fisherman’s Park (Figures 24z and 25z) is a small fragment of marsh vegetation at a bend in the bay shoreline between Coyote Point (19n) and Burlingame Lagoon (19l). Fisherman’s Park has no channels and is divided into an upper and lower section by an oyster shell bank. At the bay edge, a few small remnant patches of hybrid *Spartina* remain on the mudflat. Inland from the embankment, the plant community is composed of upland weeds mixed with native marsh vegetation. Terrestrial predators as well as human foot traffic have easy access to the site from the adjacent bay trail and the PG&E towers overlooking the site provide ideal perches for avian predators.

Fisherman’s Park was assessed using Protocol F on December 27, 2009 by Jude Stalker, who determined that the site lacked the habitat to support breeding clapper rails and no further surveys were needed.
Other bird species observed at this site included: Clark's grebe, great egret, snowy egret, a scaup sp., bufflehead, surf scoter, red-tailed hawk, osprey, greater yellowlegs, willet, sanderling, Western sandpiper and Western gull.

**Coyote Point Marina (19n)**

*Detected 0 clapper rails*

Coyote Point Marina (Figures 24aa and 25aa) is located in the Coyote Point Recreational Area in the City of San Mateo, northeast of the Poplar Creek Golf Course. The main marsh at the site is bounded by the C-shaped levee to the east of the marina proper. Hybrid Spartina once dominated the vegetation at the site, however successful control efforts has eliminated most of the cordgrass. A strip of Grindelia, Sarcocornia, non-native Limonium and other marsh plants line the levee surrounding the now open mudflat. No clapper rails have been detected during past surveys at the site and clapper rail habitat has been reduced further with the removal of the invasive Spartina.

Coyote Point Marina was assessed using Protocol F on December 27, 2009 by Jude Stalker, who determined that the site lacked the vegetative structure and channelization needed to support breeding clapper rails and that no further surveys were needed.

Raccoon tracks here are evidence of terrestrial predators frequenting the marsh and the many tall trees in the park surrounding the marsh provide ideal perching sites for raptors.

Other bird species observed at this site included: American avocet, black-bellied plover, marbled godwit, willet, Western sandpiper, least sandpiper, a dowitcher sp. and white-crowned sparrow.

**San Mateo Creek (19o)**

*Detected 0 clapper rails*

San Mateo Creek (Figures 24bb and 25bb) is located to the south of Coyote Point Marina (19n) in a residential neighborhood. The mouth of the creek is adjacent to a recreational park, with frequent use by dog-walkers. The creek is channeled through a culvert as it passes under J. Hart Clinton Dr., limiting clapper rail movement through the site. Successful Spartina control at the bay edge has altered the habitat from a cordgrass meadow to mudflat, however large stands of non-native Spartina remain in the upper portions of the creek. No clapper rails were detected at this site while conducting C protocol surveys in 2009.

San Mateo Creek was evaluated for habitat (Protocol F) on December 27, 2009 by Jude Stalker, who determined that the site lacked suitable breeding habitat for clapper rails and that no additional surveys were necessary.

Other bird species observed at this site include great blue heron, snowy egret, mallard, American wigeon, a scaup sp., canvasback, ruddy duck and belted kingfisher.
Seal Slough (19p)

Detected 1-2 clapper rails

Seal Slough (Figures 24cc and 25cc) is located south of San Mateo Creek (19o) and north of the San Mateo Bridge on the west side of the Bay. In 1983, the mouth of this slough was restored from diked upland to tidal marsh. In the late 2000s, a large sinuous channel was constructed in the eastern portion of the marsh. This restored an open salt pan to tidal action. In 2008, a viewing platform was constructed in the western portion of the marsh.

Seal Slough’s dominant vegetation types are Sarcocornia pacifica and hybrid Spartina. Mid- to high-elevation marsh contains the native plants Jaumea carnosa and Distichlis spicata. The invasive plants Limonium ramosissimum and Puccinellia maritima have a growing presence at this site. Seal Slough has supported a significant population of clapper rails in prior years. However, successful control efforts have greatly diminished this site’s Spartina invasion, which has reduced vertical vegetative structure. Additionally, construction activities in the eastern and western portions of the marsh have considerably changed marsh hydrology over the last few years.

Seal Slough was surveyed using Protocol A for a total of three rounds. Jude Stalker conducted the first two rounds of surveys on January 26 and February 9, 2010 and detected no clapper rails. Whitney Thornton conducted the third survey on March 16, 2010. During this round tapes were played at five of the six survey stations and one to two clapper rails were detected.

PG&E power towers stand in the southwestern portion of the marsh, providing tall perches for raptors, and foot paths through the marsh provide land-based predator access. Raccoon tracks were noted at all survey stations at this site.

Other birds observed at the site included: snowy egret, great egret, Canada goose, killdeer, black-necked stilt, willet, dunlin, American crow and marsh wren.

Anza Lagoon (19r)

Detected 0 clapper rails

Anza Lagoon (Figures 24dd and 25dd) is a tidal pond in the City of Burlingame surrounded by commercial development. The site is bordered by a riprap levee and public walkway and has a narrow inlet allowing tidal exchange with the bay. Most of the site is open water at low tide while scattered patches of the remaining hybrid Spartina line the cobbled levee along with Sarcocornia pacifica and various non-native grasses & shrubs. Both avian and terrestrial predators have been recorded at this site.

Jude Stalker evaluated Anza Lagoon for clapper rail habitat using Protocol F on December 27, 2009. Because of the lack of vegetative structure and foraging habitat, she determined that Anza Lagoon was unsuitable for breeding clapper rails and no further surveys were necessary.

Other bird species observed at this site included: bufflehead and a species of scaup.
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Figure 24. Site maps of the San Francisco Peninsula Region.

Figure 24a. Map of the Pier 98/Heron's Head (12b) site boundary evaluated for clapper rail habitat.
Figure 24b. Map of the India Basin (12c) site boundary evaluated for clapper rail habitat.
Figure 24c. Map of the Hunter’s Point Naval Reserve (12d) site boundary evaluated for clapper rail habitat.
Figure 24d. Map of the Yosemite Channel (12e) site boundary evaluated for clapper rail habitat.
Figure 24e. Map of the Candlestick Cove (12f) site boundary evaluated for clapper rail habitat.
Figure 24f. Map of 2010 clapper rail survey results at Colma Creek (18a).
Figure 24g. Map of 2010 clapper rail survey results at Navigable Slough (18b).
Figure 24h. Map of 2010 clapper rail survey results at Old Marina (18c).
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Figure 24i. Map of 2010 clapper rail survey results at Inner Harbor (18d).
Figure 24j. Map of 2010 clapper rail survey results at SamTrans Peninsula (18e).
Figure 24k. Map of 2010 clapper rail survey results at Confluence Marsh (18f).
Figure 24. Map of 2010 clapper rail survey results at San Bruno Marsh (18g).
Figure 24m. Map of 2010 clapper rail survey results at San Bruno Creek (18h).
Figure 24n. Map of 2010 clapper rail survey results at Brisbane Lagoon (19a).
Figure 24o. Map of 2010 clapper rail survey results at Sierra Point (19b).
Figure 24p. Map of 2010 clapper rail survey results at Oyster Cove (19c).
Figure 24q. Map of 2010 clapper rail survey results at Oyster Point Marina (19d).
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Figure 24r. Map of 2010 clapper rail survey results at Oyster Point Park (19e).
Figure 24s. Map of 2010 clapper rail survey results at Point San Bruno (19f).
Figure 24t. Map of 2010 clapper rail survey results at Seaplane Harbor (19g).
Figure 24u. Map of 2010 clapper rail survey results at SFO (19h).
Figure 24v. Map of 2010 clapper rail survey results at Mills Creek Mouth (19i).
Figure 24w. Map of 2010 clapper rail survey results at Easton Creek Mouth (19j).
Figure 24x. Map of 2010 clapper rail survey results at Sanchez Marsh (19k).
Figure 24y. Map of the Burlingame Lagoon (19l) site boundary evaluated for clapper rail habitat.
Figure 24z. Map of the Fisherman’s Park (19m) site boundary evaluated for clapper rail habitat.
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Figure 24aa. Map of the Coyote Point Marina (19n) site boundary evaluated for clapper rail habitat.
Figure 24bb. Map of the San Mateo Creek (19o) site boundary evaluated for clapper rail habitat.
Figure 24cc. Map of 2010 clapper rail survey results at Seal Slough Mouth (19p).
Figure 24dd. Map of 2010 clapper rail survey results at Anza Lagoon (19r).
Figure 25. Site photos of the San Francisco Peninsula Region.

Figure 25a. The view of the marsh facing southwest from across the southern side of Pier 94/Heron’s Head (12b). Very little hybrid *Spartina* remains here.

Figure 25b. Facing southwest into the cove at India Basin.
Figure 25c. Looking northeast along the previously infested shoreline at the Hunter's Point Naval Shipyard, it is evident that the minimal amount of hybrid *Spartina* remaining here provides no clapper rail habitat.

Figure 25d. View of the northwestern end of Yosemite Channel showing the stands of native *Spartina* along the marsh edge.
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Figure 25e. This view of the north end of Candlestick Cove at high tide shows the higher Grindelia-lined berm surrounding the lagoon.

Figure 25f. Looking southwest over Colma Creek towards San Francisco Airport at the remnants of treated hybrid Spartina that once thickly lined the creek.
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Figure 25g. Minimal hybrid *Spartina* patches and mudflat remain as a sign of recent years of invasive *Spartina* treatment along Navigable Slough.

Figure 25h. The northeast facing view from the southern most remnant lock at Old Marina shows the high treatment efficacy at this site.
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Figure 25i. This southward view of Inner Harbor shows an expansive open mudflat and the remnant fringe of treated hybrid *Spartina*.

Figure 25j. Extending east towards the bay directly north of SFO, this alcove along the SamTrans Peninsula once hosted an extensive meadow of hybrid *Spartina* and several pairs of clapper rails.
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Figure 25k. This northwesterly view over San Bruno Marsh (background) shows the high upland edge of Confluence marsh (foreground) from a water treatment plant.

Figure 25l. Facing southeast over the wide band of hybrid *Spartina* invaded shoreline, shallow ponds and channels of San Bruno Marsh.
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Figure 25m. View of San Bruno Creek facing northeast towards the mouth where it meets the Inner Harbor site.

Figure 25n. North-facing view of the relatively expansive marsh at the southern end of Brisbane Lagoon.
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Figure 25o. Looking south towards a freshwater urban drainage, with Highway 101 on the right. Minimal clapper rail habitat remains at Sierra Point after years of effective hybrid *Spartina* treatment.

Figure 25p. The view of sparsely vegetated mudflat at the southern edge of Oyster Cove.
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Figure 25q. A view of the southern edge of Oyster Point Marina shows the patchy <i>Spartina</i>-invaded riprap shoreline.

Figure 25r. The mouth of Oyster Point Park’s only channel as it opens into San Francisco Bay.
Figure 25s. Looking west into the inlet at Point San Bruno. Although hybrid treatment efficacy has been high, adequate clapper rail habitat remains in this isolated cove.

Figure 25t. Northward facing view over the Seaplane Harbor site.
Figure 25u. The view of the marsh at SFO taken from the southern end of the site with visible stubble of treated hybrid Spartina.

Figure 25v. This photo is from the foot-bridge at the southern end of Mill's Creek Mouth. The highly successful removal of hybrid Spartina along this invaded shoreline has rendered it unlikely clapper rail habitat.
Figure 25w. In this northwest facing view from the Easton Creek mouth, the remnant hybrid *Spartina* is visible along the shoreline.

Figure 25x. This westward facing photo of Sanchez Marsh shows the still thriving hybrid clones on the mud flat, and the blend of native and hybrid *Spartina* along the marsh edge; both provide habitat for clapper rails.
Figure 25y. Looking east over the Burlingame Lagoon at the narrow strip of marsh with minimal vegetative structure to support clapper rails.

Figure 25z. This westward facing photo taken from the beach at Fisherman's Park highlights the site's lack of clapper rail habitat.
Figure 25aa. Facing north along the northeastern shoreline of the Coyote Point Marina site. This relatively narrow strip of marsh does not provide adequate clapper rail habitat.

Figure 25bb. Looking northeast towards the mouth of San Mateo Creek, some of the remaining stands of hybrid Spartina can be seen here.
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Figure 25cc. Northward facing view of the outer margins of Seal Slough, which has undergone substantial habitat change in recent years for both hybrid *Spartina* eradication and native marsh restoration.

Figure 25dd. View of the north and western shoreline of Anza Lagoon, now almost completely devoid of hybrid *Spartina*. 