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DATE: December 9, 2010 (Revised June 25, 2013)

SUBJECT: Update on the Web-Based "California Wetlands Portal" previously referred to as the "Wetland Tracker" –DRAFT Third Annual Report for 2009.

Introduction

Since August 2006, the San Francisco Bay Water Board (Water Board) has required submittal of the Wetland Tracker[1] form, now called the "California Wetlands Portal" (CWP), as a condition in many water quality certifications to track losses and gains of wetlands and streams[2]. This third annual report summarizes impacts and compensatory mitigation to wetlands and streams for projects certified in 2009. In addition, two highly significant restoration projects certified in 2008 that were only briefly summarized in the 2008 staff report will be discussed in more detail here. These restoration projects were not included in figures and tables showing gains and losses in the 2008 report because their large size would have overwhelmed the other projects making the figures and tables difficult to interpret. Secondly, the primary purpose for tracking projects certified under the 401 program is to ensure that projects impacting wetlands and streams comply with the federal No Net Loss Policy and State water quality regulations. Nevertheless, if successful, the two large restoration projects approved by the Board in 2008 will contribute enormously to Region 2's overall gain of wetland habitats. Annual reports for 2008 and the

[1] In February 2010 the online Wetland Tracker database was renamed "California Wetlands". This name change was incorporated into all 401 certifications requiring the California Wetlands condition in June 2010.

[2] Streams include permanent, intermittent, or ephemeral fresh water flow through stream channels. Streams may flow through natural, restored, or man-made channels such as culverts or concrete trapezoidal channels. The term "stream" also includes riparian areas in and around stream channels. In this report, the terms "stream" and "riparian habitat" are used synonymously.

pilot year (2006-2007) were presented to the Board in the previous two years[3]. The Water Board has worked closely with the San Francisco Estuary Institute (SFEI) which manages the CWP to improve the wetland and riparian project tracking system over the past four years.

Project Status

In 2009, 77 projects were certified that included the CWP form submittal condition. Two projects were delayed due to project redesign and will be included in the 2010 report. A third project was cancelled due to lack of funds. This report will discuss the 74 projects that complied with the wetland tracker submittal condition by the end of 2009.

Project Types

In 2009, three main project types were identified: compensatory mitigation, restoration, and stream repair/maintenance. These are listed in Table 1 and defined below.

Table 1. Overview of California Wetlands Projects (2009)

Certifications requiring the California Wetlands Form	Analyzed in this report[1]			
77	74			
	Number of Projects	Impacts to wetlands	Impacts to streams	Total impacts to all habitats[2]
Compensatory Mitigation	32	25	20	45
Restoration	9	7	5	12
Stream Repair and Maintenance	33	N/A	33	33
Total	**74**	**32**	**58**	**90**

[1]Two projects were delayed until 2010 due to redesign. A third project was delayed indefinitely and may not be constructed.
[2]Impacts to habitats are greater than the number of projects because some projects impacted more than one habitat.

[3]The 2008 report and appendices are available on the linked web page, page 3, Item 10. http://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2010/January/01-13-10_Board_Meeting_Agenda.pdf. The 2006-07 report is available here:http://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2008/december/8/Final_Staff_Report.pdf

Compensatory Mitigation Projects

Water Board policy is to avoid, minimize, and, as a last resort, mitigate for adverse impacts to wetlands and streams. The CWP was developed to accurately track losses and gains of wetlands and streams from certified projects. Thirty-two projects that required compensatory mitigation in 2009 were entered in the CWP to evaluate compliance (see www.californiawetlands.net). Monitoring such projects is usually required for five to ten years to ensure mitigation success.

Restoration Projects

Nine restoration projects were certified in 2009, more than double the number certified in 2008 (4). Restoration projects should return wetland or stream functions where they existed historically. As with compensatory mitigation projects, the CWP facilitates tracking restoration projects to ensure that success criteria are met, since not all restoration projects are successful and some habitat losses occur during construction of the restored habitat. The nine restoration projects along with the Bair Island and South Bay Salt Ponds restoration projects (ordered by the Board in 2008) will be discussed in part 2 below.

Stream repair and maintenance projects

The stream repair and maintenance project category was added in 2008 to cover projects that do not require compensatory mitigation, because they do not increase the footprint of the original project. In 2009, 33 of these were certified, compared to 19 in 2008. With both proper project design to improve existing conditions and implementation of best management practices during construction, these projects might cause temporary short-term impacts but achieve long-term benefits overall (e.g., reduced bed and bank erosion and subsequent sedimentation, improved riparian vegetation). As such, we typically do not require additional compensatory mitigation if projects are constructed as approved. Although there is no change of use or footprint associated with these projects, and consequently no long-term habitat gain or loss, monitoring is still required to ensure that the project improves existing conditions and does not cause unintended consequences up or downstream of the project. Tracking and mapping stream repairs and

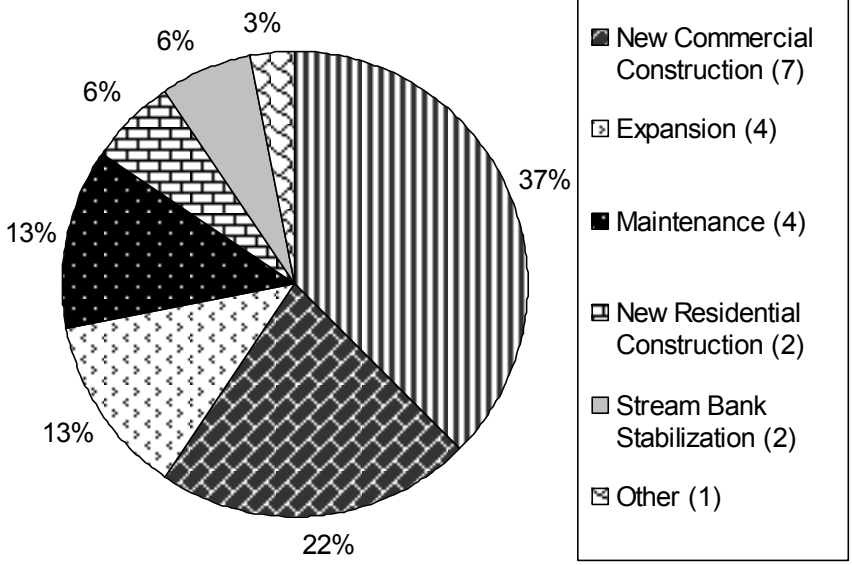
routine maintenance activities on the CWP can inform future needs on reach- or watershed-scale improvements or restoration that might be more cost-effective than on a project by project basis.

Project Characteristics

I. Compensatory Mitigation Projects

Figure 1 below groups compensatory mitigation projects by the type of activity that altered the wetlands or streams. The total number of projects for each type is shown in parentheses.

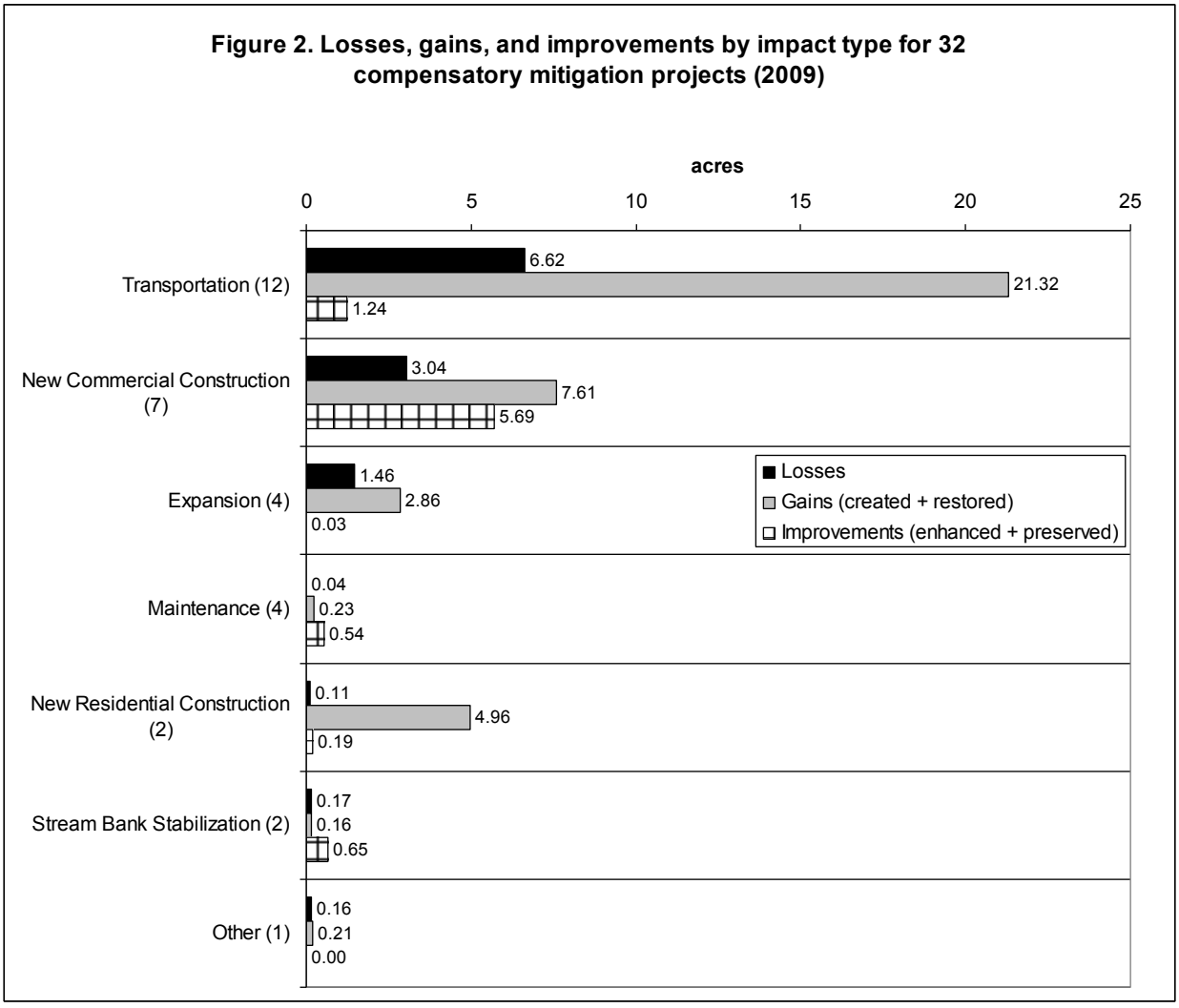
Figure 1. Compensatory mitigation projects by impact type in 2009 (Total=32)



Three more compensatory mitigation projects were certified in 2009 than in 2008, with the majority (12) in the transportation category which was double the number in 2008. There were also more new commercial construction projects in 2009 (7) than in 2008 (6), while the number of new residential construction projects continued to decline, with only two in 2009 down from the peak of ten in 2006-07. These data reflect the regional and statewide housing crisis that resulted in the cancellation of new, or abandonment of partially constructed, housing projects.

The 12 transportation projects include construction of BART's Warm Springs extension, two railway improvement projects, two bridge replacement projects, three highway and road improvement projects, and three projects resulting in improved access for pedestrians, bicycles, public transit riders in publicly owned parks. Three of the four expansion projects were undertaken by the SFPUC to upgrade drinking water supplies. The fourth project involved improvements to a wastewater treatment facility holding pond. Maintenance activities in 2008 include repairs to an airport runway, a natural gas pipeline, an eroded lake bed, and a stock pond. The project in the category "Other" was for improvements to a levee for flood protection. Complete project information for compensatory mitigation projects can be found in Appendix 1.

Figure 2 below shows habitat gains and losses by project activity type.



In 2009 Region 2 complied overall with the No Net Loss Policy, though stream bank stabilization projects resulted in a very small loss of 0.01 acre. The improvements for this category included tree planting as additional mitigation for project impacts from removal of unauthorized rubble placed in 2001. These improvements should result in a net environmental benefit. The 12 transportation projects mitigated for losses at a greater than 3:1 ratio. New commercial construction projects replaced lost wetlands at a greater than 2.5:1 ratio, while expansion projects achieved a nearly 2:1 mitigation ratio. The two residential construction projects achieved a 45:1 mitigation rate. These data do not show the potential lost

acreage that was avoided following project modifications recommended by 401 staff. In the future, data on avoided losses will be tracked using the online 401 application system currently being developed by SFEI. Table 2 shows impacts by county to the 45 total habitats impacted by 32 compensatory mitigation projects. Those habitats included 20 riparian and 25 wetland areas. The overall net gain for the compensatory mitigation projects was 27.6 acres (for wetland and riparian projects) and 7,814 linear feet (for riparian projects only).

Table 2. Net gains [1] by habitat and County for 32 compensatory mitigation projects (2009)

	Riparian			Estuarine		Depressional		Seeps and Springs		Vernal Pools		Lacustrine		**All habitats**	
	Net gain shown in acres and linear feet (riparian only) = sum of restored and created habitats subtracted from loss. [2]														
	# of habitats	**ac**	**lf**	**#**	**ac**	**#**	**ac**	**#**	**ac**	**#**	**ac**	**#**	**ac**	**#**	**ac**
Alameda	4	4.73	1,431	0	0	3	2.84	1	0.36	0	0	1	6.00	9	**13.93**
Contra Costa	2	0.33	710	1	0	2	0	1	0	0	0	0	0	6	**0.47**
Marin	3	4	1,990	2	0.51	1	-0.16	1	0.45	0	0	1	0.32	8	**5.47**
Napa	2	-0.10	-378	0	0	1	0.73	1	-0.02	1	0.71	1	-0.04	6	**1.28**
San Francisco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
San Mateo	2	0.04	245	2	0.05	1	-0.01	0	0	0	0	0	0	5	**0.08**
Santa Clara	3	1	3,635	0	0	0	0	0	0	0	0	0	0	3	**1.03**
Solano	2	1.12	517	1	1.16	1	0.23	0	0	1	2.21	0	0	5	**4.73**
Sonoma	2	0.02	-336	0	0	1	0.60	0	0	0	0	0	0	3	**0.62**
Total	**20**	**11.52**	**7,814**	**6**	**1.72**	**10**	**4.37**	**4**	**0.79**	**2**	**2.92**	**3**	**6.28**	**45** [3]	**27.61**

[1] Gains include created and restored acres.
[2] Improvements, consisting of enhanced or preserved areas, are not calculated as gains and have been omitted.
[3] Total for all habitats is greater than 32 because some projects impacted more than one habitat.

In 2009, compensatory mitigation projects impacted 25 wetlands and 20 streams resulting in the following net habitat gain:

Table 3. Net gains from Compensatory Mitigation Projects

Habitat	**Net Gain (acres)**	**Net Gain (linear feet)**
Wetlands	**16.09**	**N/A**
Streams	**11.52**	**7, 814**

Impacts to riparian habitats outnumber impacts to any other habitat type. Impacts to riparian and depressional wetland habitats were distributed more evenly across counties than other habitats. Overall

there were habitat gains, and no county had a net loss of habitat. However, depressional habitat was lost in two counties, Marin and San Mateo. Small losses to seeps and springs and lacustrine habitats occurred in Napa. Riparian losses as measured in linear feet were reported in Napa and Sonoma counties. The mean gain per wetland project (total = 25) is 0.60 acres with a mean project impact size of 0.24 acres, ranging from 0.0014 acres to 1.5 acres. The mean gain per stream project is 0.54 acres (389 linear feet), with a mean project impact size of 0.27 acres (272 linear feet) ranging from 0.01 acres to 1.9 acres (10 to 1400 linear feet).

II. Restoration Projects

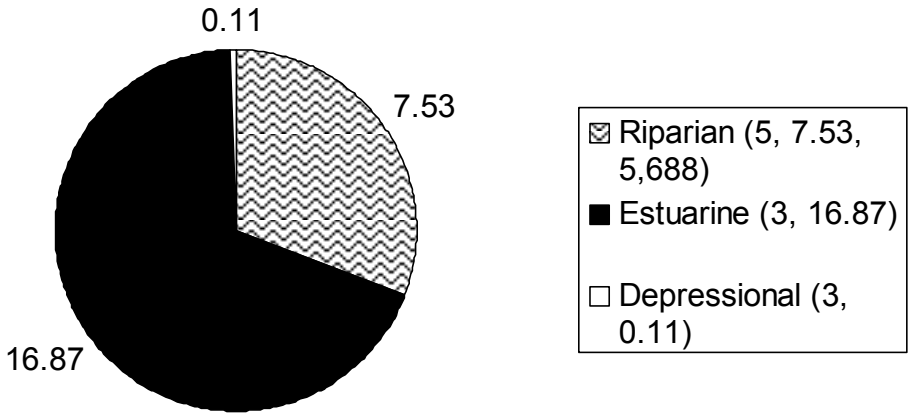
The 2009 report describes restoration projects separately. In previous years, they were grouped with compensatory mitigation projects (2008) or with repair and maintenance projects (2006-07). Nine restoration projects were certified in 2009, substantially more than in previous years (four in 2008, excluding Bair Island and South Bay Salt ponds, and six in 2006-07) In addition, this report updates the status of Bair Island and the South Bay Salt Ponds which were approved by the Board in 2008. Table 4 and Figure 3 summarize habitat gains from the nine restoration projects certified in 2009.

Table 4. Restoration project gains and improvements by habitat type for 2009 (Total=9)

	# of projects[1]	Gains[2]		Improvements[3]	
Habitat		acres	linear feet	acres	linear feet
Riparian	5	7.53	5,688	6.01	12,882
Estuarine	3	16.87	N/A	65.46	N/A
Depressional	3	0.11	N/A	0	N/A
Total	**11**	**24.51**	**5,688**	**71.47**	**12,882**

[1]Number of projects is greater than 9 because some projects impacted more than one habitat.
One project impacted seeps and was omitted from this table because the restored habitat was depressional.
[2]Losses subtracted from sum of acres created and restored (linear feet for riparian).
[3]Sum of enhanced and preserved acres (and linear feet for riparian).

Figure 3. Net gain in acres for 9 restoration projects (2009). Numbers in parentheses indicate total number of projects followed by acres (riparian also includes linear feet)



Gains for the nine restoration projects in 2009 totaled nearly 25 acres. This approaches the total of about 28 acres gained by the 32 compensatory mitigation projects. Restoration projects should result in a higher gain proportional to their impacts since that is their purpose. As mentioned in previous reports, the gains reported here are only projected and require long-term monitoring to ensure that paper gains are achieved at the actual project site. The CWP will help track these restoration projects through reviewing annual monitoring reports. This year, a follow-up report of site visits to selected restoration projects that are nearing the end of the required monitoring period is being planned. Ideally, on-the-ground conditions will be observed using approved wetland assessment protocols such as CRAM or WEA. Detailed information about these nine restoration projects is available in Appendix 2.

Two large restoration projects, Bair Island and the South Bay Salt Ponds were approved by the Water Board in 2008. They were described briefly but not actually counted in the 2008 staff report because their large size dwarfed the remaining smaller projects and obscured details required for

enforcement actions against compensatory mitigation projects. For this reason, reported gains for these exceptional projects are separated out from summary tables of net gains and losses. However, it is important to include the large restoration projects in No Net Loss calculations for the San Francisco Bay Region and California since they make a large contribution to wetland restoration. The update below describes restoration activities that have taken place since last year in Bair Island and the South Bay Salt Ponds. Table 5 summarizes losses, gains and improvements for both projects.

Table 5. Major tidal marsh restoration projects in 2008[1]

Bair island	Lost	Restored	Enhanced	**Net gain (acres)**
Inner	40	158	42	118
Middle	7	0	554	-7
Outer	1	111	521	110
Total	**48**	**269**	**1116**	**222**
South Bay Salt Ponds				
Habitat	Lost	Restored	Enhanced	**Net gain (acres)**
Estuarine marsh	256	960	-	704
Reversible muted tidal marsh	-	1400	-	1400
Reconfigured managed pond	-	709	-	709
Total	256	3069	-	2813
Grand Total (Bair+SBSP)	**304**	**3338**	**1116**	**3035**

[1]These data were not included in the 2008 report's summary of losses and gains.

Bair Island

Initial construction began on Inner Bair Island in 2006. Since then, a new contractor has been hired to bring in 1.3 million cubic yards of fill needed to complete construction. It is scheduled for completion in 2013 but may be delayed. Bids for Middle Bair Island will be solicited in summer 2010 and construction may begin there in fall 2011. Channels were constructed on Outer Bair Island and levees were breached in January 2009. Monitoring has begun and biennial monitoring reports will be posted to the CWP.

South Bay Salt Ponds

The South Bay Salt Ponds Project is the third largest restoration project in the United States. Phase I of the project is underway. This project includes a 50 year monitoring period to enable ongoing experimentation in an adaptive management framework. The final ratio of tidal marsh to managed ponds is still unknown but will fall within the range of 50:50 to 90:50 (90 being tidal marsh). Data from water quality monitoring, bird counts, tidal mapping, and other metrics will be analyzed to determine if tidal marsh should be increased. Project designs are flexible so habitat considerations can be balanced with the need for flood control. Sea level rise models will inform the adaptive management process. Specific examples of innovative habitat design include islands that are being reengineered for bird habitats in a variety of spatial configurations and the use of biosentinels to detect mercury levels. Other examples of active management of this project include manual control of tidal levels by a screw gate and the redesign of some low oxygen ponds based on the results of continuous water quality monitoring data.

III. Riparian repair and maintenance projects

The 33 projects in this category all have temporary impacts to streams and do not require compensatory mitigation. The numbers following impact categories in Figures 4 and 5 denote the number of projects and impacted acreage and linear feet. Figure 5 is similar to Figure 4 but uses linear feet instead of acreage. Project certifications require that impacts caused by repair and maintenance activities be mitigated on-site by replacing any removed vegetation with native plants.

Figure 4. Project size in acres for 33 stream repair and maintenance projects (2009). Percentages indicate each project type's share of the total impacted acreage. Numbers following the parenthese indicate number of projects and impacted acreage.

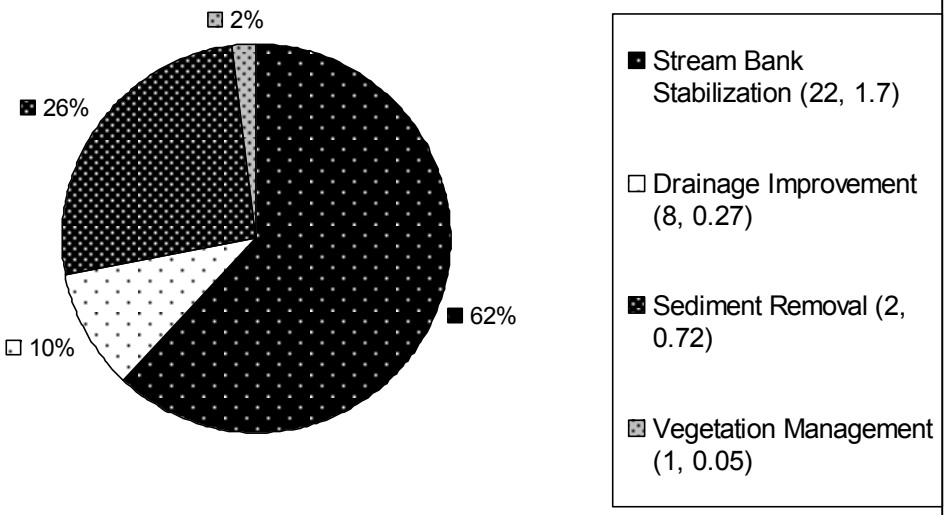
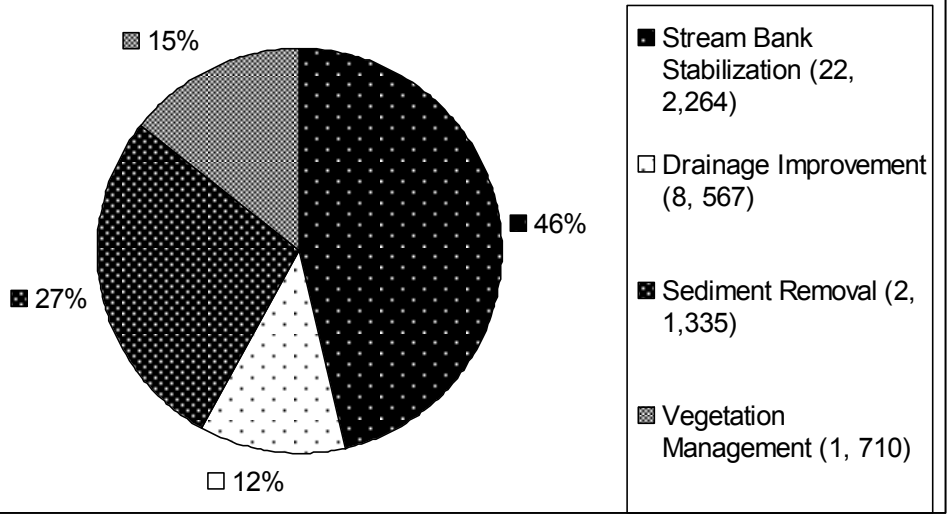


Figure 5. Project size in linear feet for the 33 stream repair and maintenance projects (2009). Numbers following the parentheses indicate number of projects and impacted linear feet.



Single projects often have several maintenance goals. The California wetlands stream repair form allows permittees to check off as many project types as applicable to their project. In preparing these data, a judgment was made as to what the primary purpose of the project was in order to make quantitative reporting possible.

In 2009, stream bank stabilization (SBS) projects comprised the majority of repair and maintenance projects as they did in 2008. Many SBS project certifications are issued to private homeowners to repair eroded stream banks adjacent to their property. Some SBS projects are undertaken by flood control districts or other public agencies. Drainage improvement projects encompass activities that result in improved stream flow and are usually performed by flood control districts and other agencies such as Caltrans. Common examples of drainage improvement projects include the replacement of structures such as culverts and outfalls. Sediment removal projects are undertaken by flood control districts or other public works agencies to maintain flood flow conveyance in stream channels. These projects are often recurring, as sediment builds up over time. In 2009, the vegetation management category had one project to reroute a hiking trail away from a stream channel and riparian floodplain, thereby improving hiking conditions and riparian habitat.

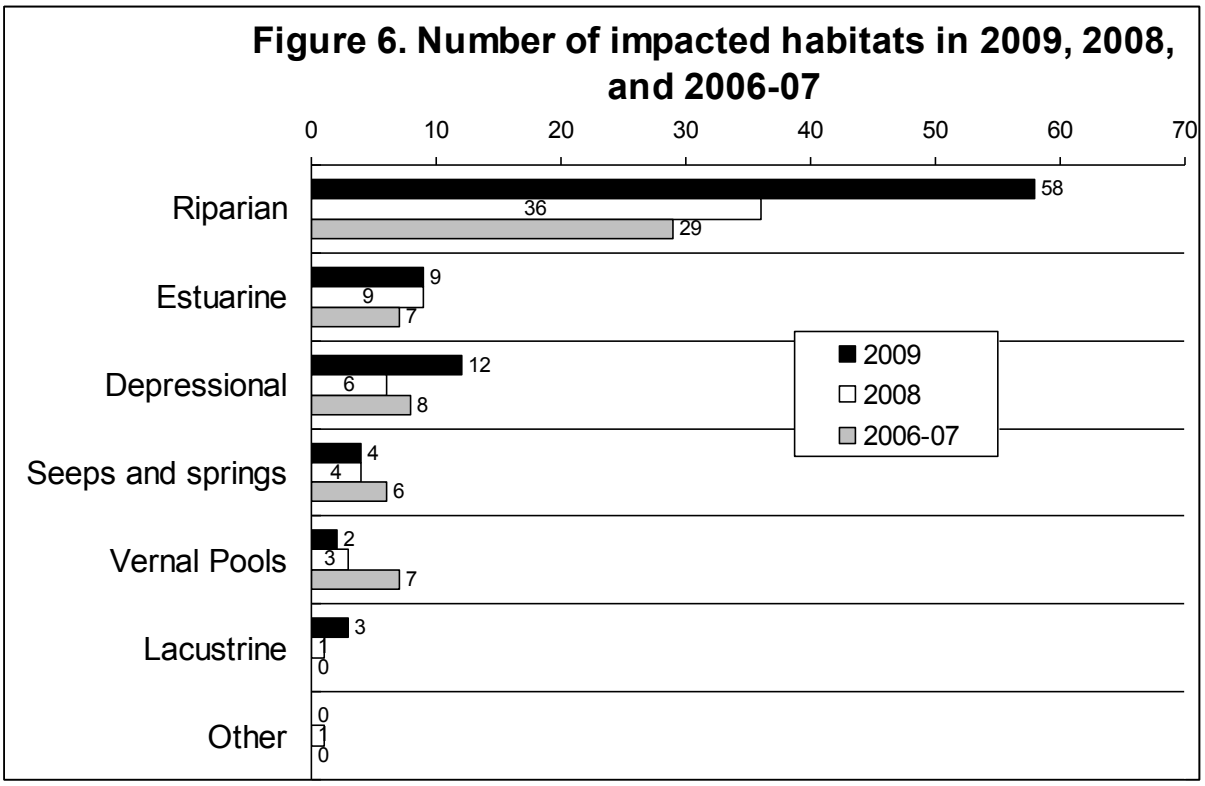
Nearly all stream repair project certifications require replanting of disturbed vegetation with native plants. This requires monitoring, usually five years, and for projects requiring replanting of trees, ten years. Monitoring may be limited to annual submission of photographs but can also include monitoring reports with numerical success criteria. Detailed project information for stream repair and maintenance projects can be found in Appendix 3.

Table 6. Impacts (temporary losses) and improvements to streams by county for 33 stream repair and maintenance projects (2009)

		Impacted area		Total enhancement		Additional enhancement (Total minus impacted area)	
# of projects (%)		acres	linear feet	acres	linear feet	acres	linear feet
Alameda	1 (3)	0.08	235	0.08	235	0	0
Contra Costa	3 (9)	0.08	128	0.19	571	0.11	443
Marin	5 (15)	0.28	1,090	0.30	2,880	0.02	1,790
Napa	5 (15)	0.69	388	0.69	388	0	0
San Francisco	0	0	0	0	0	0	0
San Mateo	6 (18)	0.80	2,831	0.74	1,619	-0.06	-1,212
Santa Clara	4 (12)	0.23	361	0.42	514	0.19	153
Solano	0	0	0	0	0	0	0
Sonoma	9 (27)	0.6	690	1.21	998	0.61	929
Totals	**33**	**2.76**	**5,723**	**3.63**	**7,205**	**0.87**	**2,103**

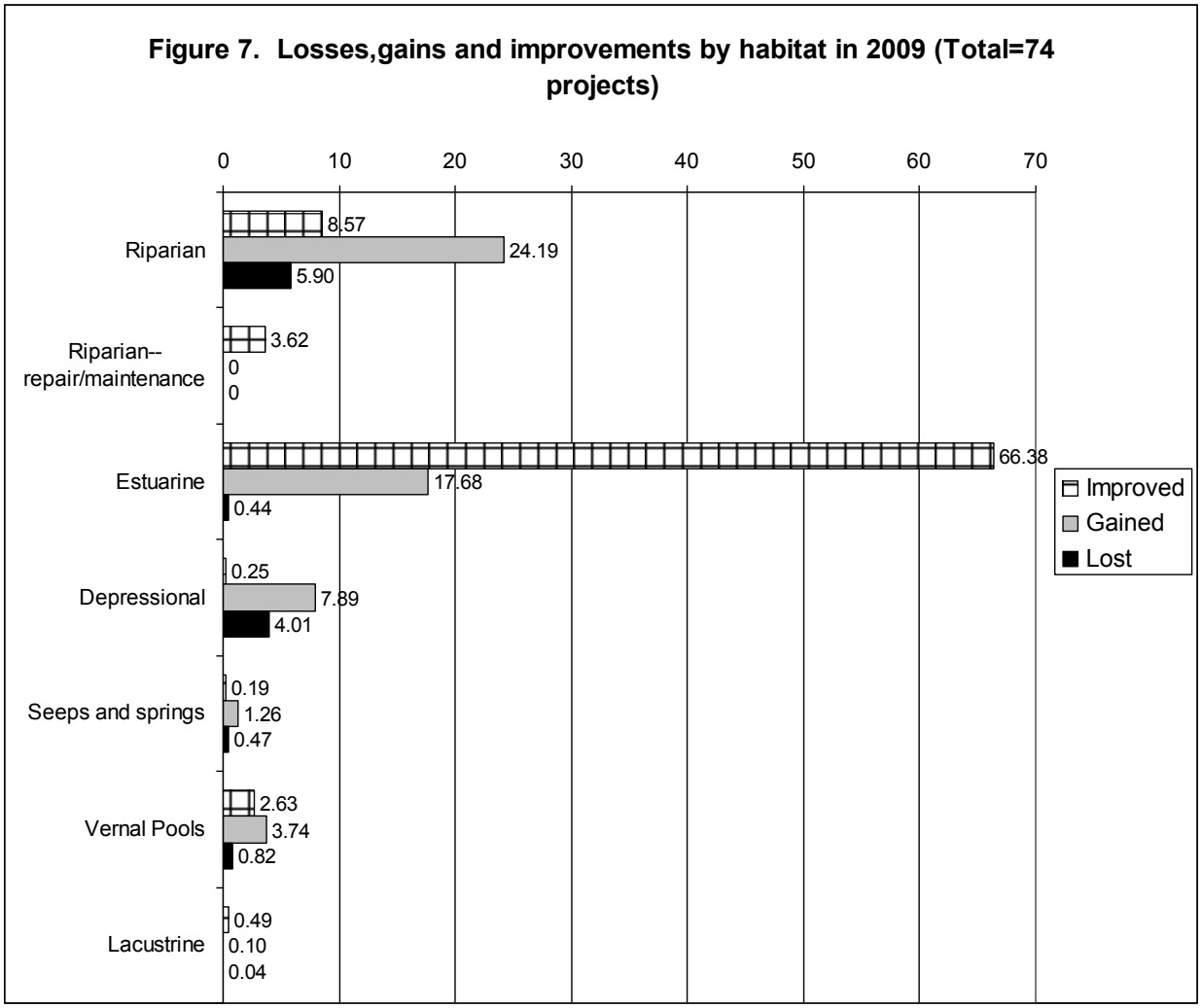
Riparian repair and maintenance projects occurred in all but two Bay Area counties in 2009. The majority had very minor impacts (mean impact size=0.08 acres, 173 linear feet). In two cases, project enhancements were less than project impacts, indicated by negative numbers in the additional enhancement columns. Overall, the 33 repair and maintenance projects contributed to modest improvements in riparian habitats in 2009, with additional enhancements of 0.69 acres and 1,620 linear feet.

Figure 6 compares impacted habitats recorded in the CWP for 2009 with 2008 and 2006-07 projects. Note that all three project types (compensatory mitigation, restoration, and stream repair and maintenance) are shown for 2008 and 2009. 2006-07 data included compensatory mitigation and restoration but there was no separate category for stream repair and maintenance projects.



Riparian and depressional habitat impacts increased sharply in 2009. The increase in riparian impacts was largely due to the increase in stream repair and maintenance projects, 33 in 2009 versus 19 in 2008. The reason for the increase in depressional impacts is unclear. Lacustrine impacts also increased while impacts to seeps and springs remained the same as in 2008. Vernal pool impacts continued to decline in 2009 from their peak in 2006-07.

Figure 7 shows losses, gains, and improvements by habitat in 2009.



There were no net habitat losses in 2009. Riparian habitats had the greatest losses and gains in 2009. Estuarine projects had very small losses compared to gains and improvements. Riparian repair and maintenance projects have zeros recorded for losses and gains, since losses are temporary and consequently no compensatory mitigation is required.

Table 6 shows similar information to Figure 7 in tabular form and includes mitigation ratios. Net gains are determined by mitigation ratios that represent the sum of acres gained (except for the riparian analysis in linear feet) by adding restoration and creation, and dividing the sum by the acres lost. Column 8 shows both net gain in area and mitigation ratios. Mitigation ratios enable more meaningful comparisons across habitats than raw gains in area as the number of projects varies across habitats. The mitigation ratio shown in column 9 gives credit for enhancement and preservation. While enhancement

does not contribute to net gains of wetlands or riparian systems on an acre-per-acre basis, it can improve functions such as pollutant filtration, flood peak attenuation, groundwater recharge, and crucial habitat for special status and for all biological species to feed, rest, breed, and hide from predators. Preservation alone does not compensate for net loss, but can protect and preserve habitats from permanent loss and provide opportunities for future restoration. Restoration and creation are usually required as mitigation, but credit can sometimes be given to enhancement and preservation as part of the overall compensatory mitigation if critical ecological, hydrological, or water quality benefits are expected to result in the watershed.

Table 7: Gains and Losses by Habitat Type for 74 Projects (2009)[1]

1	2	3	4	5	6	7	8	9
			Total Gains		Additional Improvements		Net Gain and	
Habitat Type[2]	Number of impacted habitat areas[3]	Total lost[3]	Total restored [4]	Total created	Total enhanced	Total preserved	Net gain--includes Cols. 4 & 5, minus loss	Additional improvements--includes Cols. 6 & 7[5]
		A	c	r	e	s	Mitigation ratio (col 4 + 5) /col 3	Mitigation ratio (col 6+7) /col 3
Estuarine	9 (10%)	0.29	4.76	12.92	66.13	0.25	**17.39**	66.38
	Mitigation ratio						**61.52**	230.97
Depres-sional	13 (14%)	4.51	0.34	8.65	0.95	0.00	**4.48**	0.95
	Mitigation ratio						**2.00**	0.21
Vernal pools	2 (2%)	0.82	0.00	3.74	0	2.63	**2.92**	2.63
	Mitigation ratio						**4.56**	3.21
Seeps and springs	5 (6%)	0.47	0	1.26	0.19	0	**0.79**	0.19
	Mitigation ratio						**2.67**	0.40
Lacustrine	3 (3%)	0.04	6.32	0.00	0.039	0	**6.28**	0
	Mitigation ratio						**162.05**	1
Riparian	58 (64%)	5.90	13.56	10.63	6.29	5.90	**18.29**	12.19
	Mitigation ratio						**4.10**	2.07
		L	i	n	e	a	r	Feet
Riparian (linear feet lf)	58 (64%)	6,876	12,380	7,958	16,284	12,605	**13,462**	28,889
	Mitigation ratio						**2.96**	4.20
*TOTALS		A	c	r	e	s		
(Acres)	90 (122%)	12.02	24.98	37.20	73.60	8.78	**50.15**	82.38
							5.17	**6.85**

[1]The 74 projects impact 90 habitat areas because some projects impact more than one habitat type resulting in a percentage that exceeds 100%.

[2] Most habitat impacts are reported in acres. Riparian project impacts are normally stated in linear feet and acres.

[3]Temporary impacts caused by 33 riparian repair and maintenance projects do not result in permanent habitat loss. These impacts are recorded in column 2 (impacts) but not column 3 (lost).

[4]Restoration and creation are considered gains; while enhancement and preservation are desirable, they do not add more wetlands to the existing watershed system.

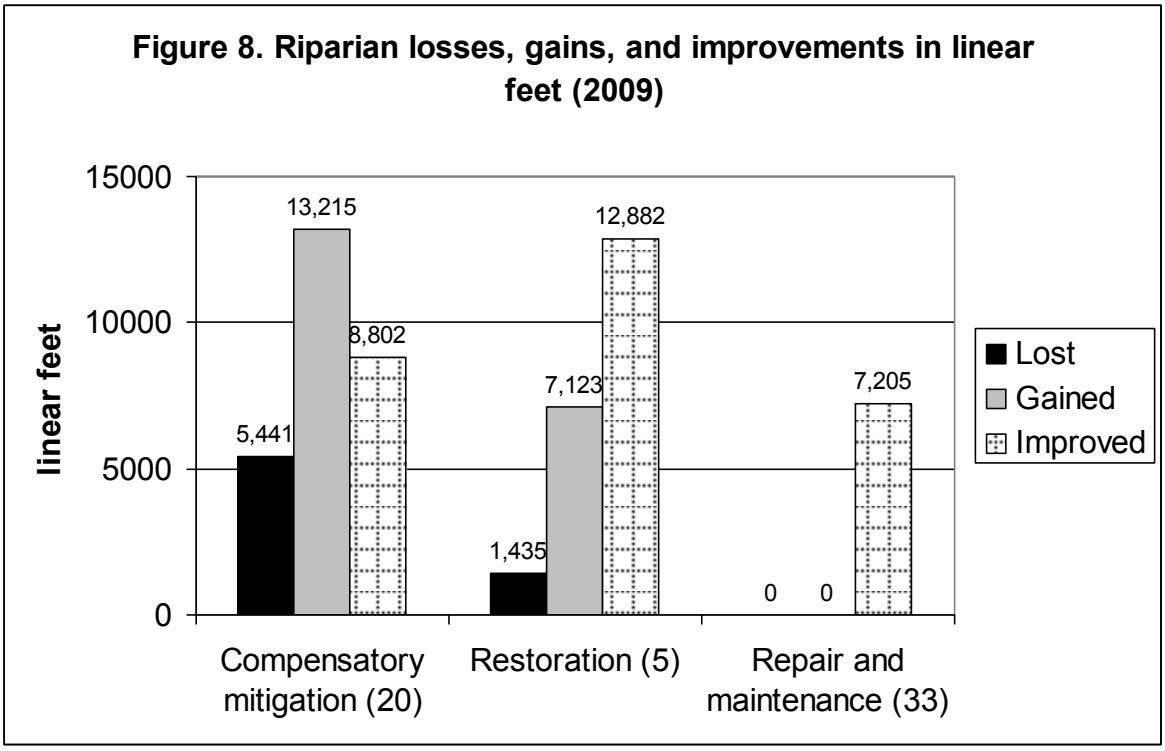
[5] Note that when net gain has already accounted for the loss by subtracting it from restoration and creation, the loss is not subtracted again here. However, in those rare instances when preservation and enhancement are used for mitigation without restoration or creation, care should be taken to subtract the loss from enhancement or preservation to determine appropriate mitigation ratios.

In 2009, the overall net gain from restoration and creation was over 50 acres after losses are subtracted, with an additional 82 acres of improvements from enhancement and preservation. These gains are substantially greater than those reported in 2008[4].

Because many habitats in 2009 were impacted by only one or a few projects, results are not statistically significant and should be interpreted as suggestive rather than conclusive. In 2009, depressional habitats gained at the lowest ratio, 1.97:1, very close to the target minimum ratio of 2:1 (at least 2 acres must be gained for each 1 acre lost) which is considered important to maintain and improve wetland and riparian systems as required under the state and regional No Net Loss policy. All other habitat mitigation ratios exceeded the 2:1 minimum mitigation target ratio.

Figure 8 shows impacts, gains, and improvements in linear feet for riparian projects certified for compensatory mitigation, restoration, and stream repair and maintenance.

Figure 8. Riparian losses, gains, and improvements in linear feet (2009)



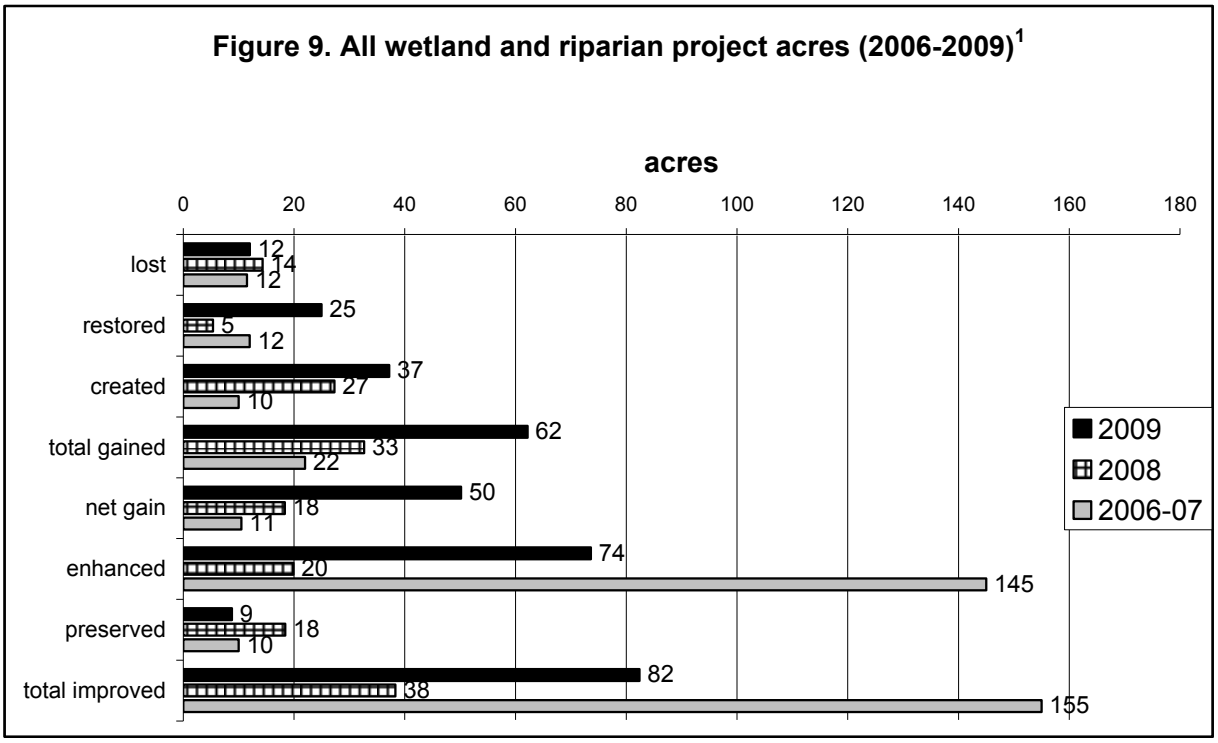
With proper project design and BMP implementation during construction, impacts by riparian repair/maintenance projects are typically temporary and do not require additional compensatory

[4] 2008 gains exclude gains from Bair Island and South Bay Salt Ponds.

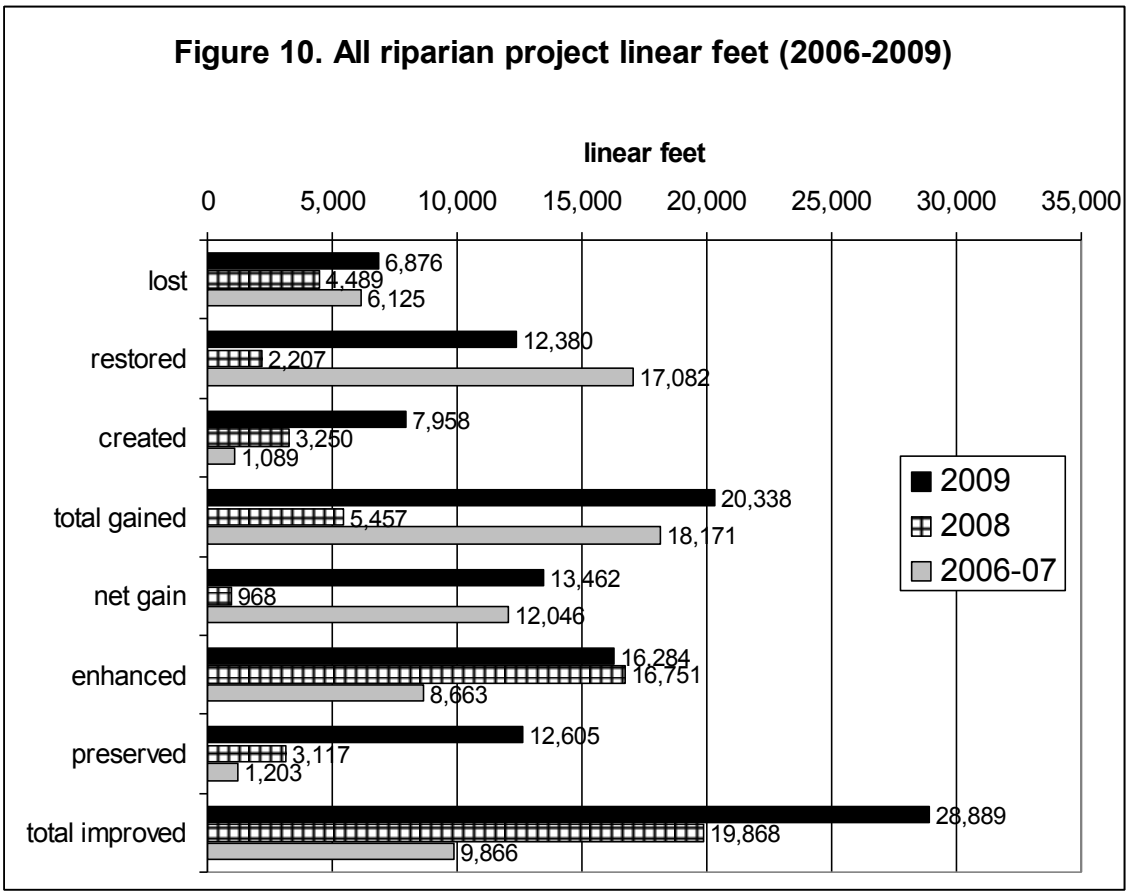
mitigation. Thus, both losses and gains for this group are zero. Improvements to streams are made at roughly the same rate for both project types. In contrast to 2008, gains to riparian habitats as measured in linear feet exceeded the 2:1 minimum mitigation ratio for both compensatory mitigation and restoration projects. Some of this gain likely reflects better reporting of linear feet measurements. For the first time since data collection and analysis began in 2006, there was no missing linear feet data.

The following figures compare overall gains, losses, and improvements for 2009 with 2008 and 2006-07 in acres (Figure 9) and linear feet (Figure 10).

Figure 9. All wetland and riparian project acres (2006-2009)[1]



[1]2008 data does not include Bair Island and South Bay Salt Ponds.



The 74 projects certified in 2009 replaced wetland and riparian areas—though not necessarily their functions—in the following ways:

- Riparian habitats gained the most acreage, closely followed by estuarine.
- No habitats recorded a net loss in 2009, and nearly all habitats exceeded a gain of two acres for each acre lost.
- Riparian and depressional habitat impacts increased in 2009. Most of the increase in riparian impacts resulted from more stream repair and maintenance projects, which should have no permanent losses.

Gains in 2009 continued their upward trend, reaching 50 acres as compared to 33 acres in 2008 and 22 acres in 2006-07 (The figure for 2008 does not include the 3,338 acres for restoration and the 1,116 acres for enhancement presented above in Table 4). Riparian projects dominated in each of the

three years analyzed with 78% in 2009, 75% in 2008, and about 66% in 2006-07. Losses measured in acres in 2009 were the same as in 2006-07, and two acres less than in 2008. Linear feet losses were greater in 2009 than in previous years but net gains were also greater.

Discussion

Several conclusions emerge from the review of 2009 CWP projects:

1. The proportion of riparian projects increased slightly in 2009 (78%) compared to 2008 (75%). The proportion of stream repair and maintenance projects also increased in 2009, 44% of all projects versus 35% of all projects in 2008. These repair and maintenance projects should not result in permanent losses of habitat and do not require compensatory mitigation. Tracking these projects has been streamlined by the availability of the Riparian Repair and Maintenance California Wetlands form.

2. The net gain increased from 10.5 acres in 2006-07 to 50 acres in 2009. If the two large restoration projects approved in 2008 are added to the others, 2008 showed a net gain of 3,053 acres.

3. The number of projects that used mitigation bank credits to mitigate for impacts decreased slightly in 2009. Four projects purchased mitigation bank credits in 2006-07, three purchased them in 2008, and only two in 2009. As discussed in previous reports, only two approved mitigation banks serve our region and new development in those areas has declined since 2006-07. Both mitigation bank projects in 2009 purchased credits from the Elsie Gridley Mitigation Bank, a 441 acre area with four wetland types: depressional, vernal pools, playas, and riparian areas. One project purchased vernal pool creation credits for permanent impacts to vernal pools and the other purchased depressional credits for temporary impacts to depressional wetlands. The Interagency Review Team (IRT), a multi-agency team led by the Army Corps of Engineers approves and reviews commercial mitigation banks (U. S. Army Corps of Engineers, 2010). Neither the State nor Regional Water Quality Control Boards are on the IRT and therefore do not receive annual monitoring reports for mitigation bank projects. A team of U.C. Berkeley students conducted a post-project appraisal of created vernal pools in the Elsie Gridley mitigation bank and concluded that while some pools appeared to support vernal pool functions, additional monitoring, maintenance of invasive thatch, and clearer definitions of success were required to ensure long-term establishment of vernal pool functions (Baraona, Ippolito and Renz, 2007).

Next Steps

The San Francisco Estuary Institute (SFEI) is working to improve the functionality of the California wetlands portal by automating data entry and providing querying and reporting features that will reduce the amount of staff time spent on creating figures and tables for this report. In addition, SFEI has developed a prototype of the online application tool and is soliciting feedback from Water Board staff, other agencies, and consultants recommended by the Water Board. Once this tool is available, it is

anticipated that time spent on recordkeeping by both applicants and Water Board staff will be dramatically reduced. Once the California Wetlands portal has been optimized, Water Board staff will be able to direct resources to conduct rapid conditional or more intensive functional assessments and other monitoring and enforcement activities.

Some[5] of the earliest projects certified with the CWP condition are now nearing the end of the required 5 year monitoring period. In anticipation of future deployment of resources for site assessments, Water Board staff conducted site visits of two projects, the Elsie Roemer Enhancement Project in Alameda (estuarine habitat) and the Lion Creek Stream Channel Stabilization Project on the Mills College campus in Oakland. Both sites were visited on September 7, 2010.These sites were selected because they were publicly accessible, had good documentation of project purpose and follow-up monitoring, and were located a short distance from the office. In addition, riparian habits comprise the majority of impacted habitat types in region 2 while estuarine habitats rank second. The purpose of these visits was to verify whether success criteria were being met and to compare reported results with on-the-ground conditions. Concerns that were identified during the site visits were communicated to the site managers of both projects. Because neither of these projects has reached the end of the prescribed 5-year monitoring period, there is still time to address these concerns during the required monitoring period. Detailed notes are provided in appendix D.

At both sites, there is a risk that invasive plant species could overrun the sites, reducing habitat values for both wildlife and humans. More data is needed on successful weed management strategies that could be applied to future mitigation and restoration projects. It is hoped that better data management tools will free up staff time for conducting a more systematic and thorough assessment program of 401 projects. Water Board staff look forward to collaborating with SFEI and other partners to collect these and other important data on 401 projects in Region 2.

[5] Several initial candidates for site visits were eliminated because construction was ongoing or groundwork had been completed less than a year ago.

References:

Baraona, M., T. Ippolito, W. Renz. 2007. Post-project appraisals of constructed vernal pools in Solano County, California. University of California Water Resources Center, UC Berkeley. http://www.escholarship.org/uc/item/4zz121tn

U.S. Army Corps of Engineers. San Francisco District. 2010. Mitigation Banking Information. http://www.spn.usace.army.mil/regulatory/bankinfo.htm

2009 Wetland Tracker/California Wetlands Projects--Compensatory Mitigation. Does not include restoration projects and stream repair projects, which are highlighted in blue (stream repair) and green (restoration).

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type										Mitigation type	County
					Loss		restoration		creation		enhancement		preservation			
					ac	lf	ac	lf	ac	lf	ac	lf	ac	lf		
103	Alameda Siphons Seismic Reliability Project	SFPUC	10	E	0.1 d marsh		0.1 rip area	40 rip area	0.3 d marsh						on, off, +k, ·k	Alameda
104	Stony Point Road Bridge Project															
105	BART Warm Springs Extension Project	BART	5	T	1.5 d OW		6 Lak		3.6 d OW						on, off, MB	Alameda
					1.9 rip	N/A	0.8 rip	100 rip area	5.6 rip	N/A						
					1.1 rip chan	1400 rip chan	0.2 rip chan	360 rip chan	0.9 rip chan	1800 rip chan						
106	Orinda Oaks Development (Stein Way) Project	KT Properties, Dba Orinda Oaks Associates, LLC	5	NCR	0.06 S				0.06 S		0.19 S				on, +k	Contra Costa
107	Jacques Gulch Restoration Project															
108	Irvington Pump Station Holding Pond Project	Union Sanitary District	5	E	0.27 d marsh				0.32 d marsh						on, +k	Alameda
					0.53 d OW				1.02 d OW							
109	Coyote Creek Bank Stabilization at Gilroy Hot Springs	Santa Clara Co. of Roads and Airports														Santa Clara
110	Glen Drive Culvert Replacement															
111	Meyer Warehouse Phase II Project	Meyer Cookware Industries Inc.	5 years (WQC)	NCC	0.35				2.56						MB	Solano

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type						Mitigation type	County
					vp			vp				
112	Adopted Amendment of WDR Order/Yosemite & Deepwater Sloughs											
113	Yountville Inn Expansion and Workforce Housing Project											
114	Tulucay Creek											
115	Napa River Bank											
116	Camille Creek											Napa
117	Repair of stock pond and spillway	Muir Heritage Land Trust	5	M	Loss	restoration	creation	enhancement	preservation		on, +k	Contra Costa
					0.02 d marsh	180 d marsh		0.25 d marsh	410 d marsh			
118	Roberts Road											
119	Napa Commerce Center	Headwaters Development LLC	5	NCC	Loss	restoration	creation	enhancement	preservation		on, +k	Napa
					0.47 vp		1.18 vp		2.63 vp			
					0.03 rip chan	135 rip ch			0.76 rip ch	3185 rip ch		
120	Replacement of the Stevens Canyon Road Bridge No. 37C0576 and Bridge No. 37C0577	Santa Clara Co, Roads and Airport Division	10	T	Loss	restoration	creation	enhancement	preservation		off, +k	Santa Clara
					0.17 rip	330 rip	0.33 rip	365 rip	0.006 rip ch	75 rip ch		
121	Red Top Road to Air Base Parkway/I 80 HOV lane	Solano Transportation Authority	10	T	Loss	restoration	creation	enhancement	preservation		off, +k	Solano
					0.04 rip chan	98 rip chan						
					0.02 rip area	80 rip area	0.18 rip	220 rip				
122	Ignacio Creek											Marin
123	Arroyo Seco Creek Drainage Improvement	Alameda Co. Pub Wks										Alameda
124	San Carlos Drive Storm Drain Repair Project											
125	Sediment Removal from Elmhurst Creek at 7825, 8255, and 8261 San Leandro Street	Monterey Mechanical Company	5	SBS, SED	Loss	restoration	creation	enhancement	preservation		on	Alameda
					0.02	24	0.1	500	0.3	550		

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type								Mitigation type	County
					rip chan	rip chan		rip area	rip area	rip area	rip area			
126	Noriel Lane Storm Drain Protection and Trail Embankment Repair Project													
127	HABITAT IMPROVEMENTS													
128	Marin Headland & Fort Baker Transportation Infrastructure Management Plan	GGNRA	5	T, M	Loss		restoration		creation	enhancement	preservation		on, +k, -k	Marin
							0.28 es marsh							
					0.18 d marsh		0.03 d marsh							
					0.11 rip chan	1180 rip chan	0.32 lak marsh							
					0.04 rip		0.09 rip							
129	Glenbrook Quarry Restoration And Dam Removal Project													
130	Petaluma Boulevard North Bridge Project													
131	Lake Hennessey Storm Damage Repair Project	CALTRANS	0	M	Loss		restoration		creation	enhancement	preservation			Napa
					0.04 lak marsh					0.039 lak marsh				
132	Suisun Marsh Bridge Replacement Project	Union Pacific Railroad	3	T	Loss		restoration		creation	enhancement	preservation		on, +k	Solano
					0.04 es marsh					0.25 es marsh				
133	Sonoma Creek Bank Stabilization Project													
134	Hicks Mountain Ranch	Solit Interests Group	5	NCR/NCC	Loss		restoration		creation	enhancement	preservation		on, +k	Marin
					0.05 seeps				0.5 seeps					
							4.4 rip	3170 rip area						
135	Lion Creek Restoration Project													
136	Reconstruction of Two Stormwater Outfalls at Watson Park													
137	Chevron Pipeline Company Sacramento Leg Repairs, Sites 102 through 106	Chevron Pipeline Company	2	M	Loss		restoration		creation	enhancement	preservation		Other	Contra Costa and Solano
										0.5 es marsh				
138	Greenwood Commerce Center	Napa Gateway Partners, LLC	5	NCC	Loss		restoration		creation	enhancement	preservation		on, -k	Napa
					0.02 seeps									
					0.14	342	0.07	99		0.304	2650			

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type								Mitigation type	County				
					rip area	rip area	rip chan	rip chan		rip chan	rip chan							
139	Lombard Crossing Industrial Park Project	R.H. Hess Development Company	5	NCC	Loss		restoration		creation		enhancement	preservation	on, +k	Napa				
					0.47 d marsh				1.2 d marsh									
140	Rumrill Boulevard Bridge Replacement Project Over San Pablo Creek	City of San Pablo Public Works Department	5	T	Loss		restoration		creation		enhancement	preservation	on, +k					
					0.86 rip						0.1 rip area	110 rip area						
141	Valley Transportation Authority's Freight Railroad Relocation / Lower Berryessa Creek Project	Santa Clara Valley Transportation Authority	5	T	Loss		restoration		creation		enhancement	preservation	on, +k	Alameda, Santa Clara	3390	0.07782	15800	0.36272
					0.48 rip chan	288 rip chan	*0.36* rip chan	1580 rip chan	*0.08* rip chan	339 rip chan								
									1 rip	1981 rip								
142	Rodeo Creek Restoration Project at Fernandez Ranch																	
143	Copeland Sewer Project																	
144	Phase 1 of the Napa River Rutherford Reach Restoration Projec																	
145	Bank Stabilization on San Pablo Creek																	
146	Laguna Creek (Zone 6 Line E Flood Control Channel) Erosion Repair Project																	
147	Road 20 Bank Stabilization on San Pablo Creek																	
148	Parkway Commerce Center Project	Panattoni Development Company	5	NCC	Loss		restoration		creation		enhancement	preservation		Contra Costa				
					0.77 d marsh		0.02 d marsh		0.91 d marsh									
					0.09 rip chan	70 rip chan			0.52 rip chan	1,200 rip chan								
									0.63 rip area	1,200								
149	Bay Division Pipeline Reliability Upgrade Project	SFPUC	10	E	Loss		restoration		creation		enhancement	preservation	on, off, +k, MB	Alameda, San Mateo				
					0.01 d marsh				0 d marsh		0.003 d marsh							
					0.34 seeps				0.7 seeps									
					0.01 rip area	10 rip area			0.01 rip area	10 rip area	0.025 rip area	24 rip area						

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type								Mitigation type	County
					*0.156 es marsh				*0.322 es marsh					
150	Sanders Ranch Sediment Removal and Culvert Replacement Project													
151	Sonoma Country Inn Road Network Project	Auberge Resorts	5	T	Loss		restoration		creation		enhancement	preservation	on, +k	Sonoma
					0.05 rip chan	724 rip chan	0.27 rip chan	388 rip chan	0.01 rip chan	21 rip chan				
152	North Connector Project: Suisun Creek Bridge	Solano County Public Works Department	10	T	Loss		restoration		creation		enhancement	preservation	on, +k	Solano
									1 rip area	475 rip area				
153	Pullman Ditch Improvement Project													
154	Thompson Creek													
155	Point Reyes National Seashore Area Muddy Hollow Repair and maintenance projects													Marin
156	Marin Municipal Water	Marin Municipal Water District												Marin
157	Sir Francis Drake Stream Habitat improvements and repairs													
158	BNSF Honda port of entry	Burlington Northern Santa Fe Railway Company	5	T	Loss		restoration		creation		enhancement	preservation		Contra Costa
					0.1 rip chan	420 rip chan					0.49 rip chan	1,120 rip chan	0.04 rip chan	420 rip chan
159	Bridge Road Bank Stabilization Project													
160	Pinole Creek Demonstration Restoration Project													
161	Sonoma Valley Business Park	Odyssey Development Company	5	NCC	Loss		restoration		creation		enhancement	preservation	on, +k	Sonoma
					0.5 d OW				1.1 d OW		0.7 d OW			
					0.2 rip						1 rip area	0.3 rip		
162	Lower Tubbs Island/Lower Tolay Creek Marsh Enhancement Project													
163	Mulholland Ridge Pond Restoration													
164	Rancho Higuera Project													
165	Sonoma Valley Co. Sanitation Dist. Sewer Trunk Main Stream Bank Stabilization Project (Aqua Caliente)													
166	Bhaskar Creek/ Matadero Creek Rubble removal and bank stabilization project	applicant	10	SBS	Loss		restoration		creation		enhancement	preservation	on, +k	Santa Clara
					0.15 rip	300 rip	0.06 rip	288 rip area			0.35 rip area	268 rip area		
167	Lynch Creek Bank Repair Project													
168	Alpine Road Bridge Repair Project													
169	San Felipe Road/Thompson Creek Bank Stabilization													
170	Hopper Creek Diversion Structure Bank Stabilization Project													
171	Log Cabin Ranch Access Road Repair and Creek Bank Stabilization Project/Mindego Creek													
172	Burlingame Annual Creek and Channel Maintenance Project													
173	Modification to State Route 1 Post-Mile 2.6 Culvert Outfall Repair Project													
174	Bear Gulch Upper Diversion Dam Maintenance													
175	New Irvington Tunnel Project	SFPUC	10	E	Loss		restoration		creation		enhancement	preservation	on	Alameda
					0.04	20	0.08	75						

WT #	PROJECT NAME	Applicant	Monitoring period (years) unless otherwise noted	Impact type[1]	Project type and habitat type						Mitigation type	County
					rip chan	rip chan	rip chan	rip chan				
176	Bayfront Levee Improvements Project	City of San Mateo	5	O	Loss		restoration		creation	enhancement	preservation	on, off	San Mateo
					0.16 es marsh		0.21 es marsh					
177	Runway 03R/21L Repair	Travis Air Force Base	In perpetuity	M	Loss		restoration		creation	enhancement	preservation	MB	Solano
							0.23 d marsh					
178	Tennessee Valley/Manzanita Connector Pathway	Marin Co. Dept. of Public Works	7	T	Loss		restoration		creation	enhancement	preservation	on, +k	Marin
					0.04 es marsh		0.27 es marsh			0.18 rip area	400 rip area	
179	Belmont Pedestrian Overcrossing Project	City of Belmont	5	T	Loss		restoration		creation	enhancement	preservation	on, +k	San Mateo
					0.001 es marsh				0.001 es marsh	0.17 es marsh		
Projects numbered 179.xx were added after February 3, 2010.												
179	BMW Service Cent	applicant	5	NCC	Loss		restoration		creation	enhancement	preservation	on, +k	San Mateo
					0.01 rip chan	20 rip chan	0.05 rip area	265 rip area				

1. Impact types codes: T=transportation NCR=new construction residential NCC=New constr commercial SBS=stream bank stabilization SED=Sediment removal E=expansion of existing facility EC=erosion control M=Maintenance Res=Restoration NG=natural gas exploration Non=no permanent impacts O=other

2. Project type codes: Gains: R=Restoration C=Creation of new habitat Improved (no net increase in habitat): E=Habitat Enhancement P=Preservation O=other

3. Habitat type codes: Es=estuarine C=Coastal lagoon L=lacustrine D=depressional V=vernal pools & swales (seasonal) S=seeps and springs Rip=Riparian OW=Open water U=Unknown B=buffer O=other

4. Mitigation type codes: On=on site Off=off site +k=in-kind -k=out of kind MB=mitigation bank Non=Non-mitigation

2009 Restoration projects (net gain of habitat). Includes two large restoration projects from 2008.

WT #	PROJECT NAME	Applicant	County	Monitoring period (years) unless otherwise noted	Project type and habitat type										Mitigation type
					ac	lf	ac	lf	ac	lf	ac	lf	ac	lf	
107	Jacques Gulch Restoration Project	Santa Clara Valley Water District	Santa Clara	5	Loss		restoration		creation		enhancement		preservation		on, +k
					0.55 rip chan	1335 rip chan	1 rip chan	1355 rip chan							
							2.08 rip area	2100 rip area							
112	Adopted Amendment of WDR Order/Yosemite & Deepwater Sloughs	SFO	San Mateo	5	Loss		restoration		creation		enhancement		preservation		off, +k
					0.05 es				12 es						
127	HABITAT IMPROVEMENTS	Van Acker Construction	Marin	5	Loss		restoration		creation		enhancement		preservation		Non
									0.002 rip chan	*18* rip chan	0.01 rip chan	*32* rip chan			
									0.004 rip area	*NA*					
129	Glenbrook Quarry Restoration And Dam Removal Project	Point Reyes National Seashore	Marin	Unknown	Loss		restoration		creation		enhancement		preservation		Non
					0.05 d marsh				0.54 es marsh		0.46 es marsh				
135	Lion Creek Restoration Project	ACFCWCD and City of Oakland	Alameda	3	Loss		restoration		creation		enhancement		preservation		Non
					0.01	100	1.6	700							

					rip chan	rip chan	rip chan	rip chan																
142	Rodeo Creek Restoration Project at Fernandez Ranch	Muir Heritage Land Trust	Contra Costa	10	Loss		restoration		creation		enhancement		preservation		Non									
					0.1				0.2		0.6	1050	1.5	4500										
					d marsh				d marsh		rip chan	rip chan	rip chan	rip chan										
									0.9	1050	0.3	2800	3.6	4500										
									rip area	rip area	rip area	rip area	rip area	rip area										
144	Phase 1 of the Napa River Rutherford Reach Restoration Project	Napa County Flood Control & Water Conservation District	Napa	10	Loss		restoration		creation		enhancement		preservation		Non									
							2.5	1900																
							rip area	rip area																
162	Lower Tubbs Island/Lower Tolay Creek Marsh Enhancement Project	USFWS	Sonoma	5	Loss		restoration		creation		enhancement		preservation		Non									
							4		0.38		65													
							es marsh		es marsh		es marsh													
163	Mulholland Ridge Pond Restoration	O.G. Property Owner LLC	Contra Costa	5	Loss		restoration		creation		enhancement		preservation		off, -k									
					0.004		0.06																	
					seeps		d marsh																	
# of projects (2009)			9		0.764	1435	11.24	6055	14.026	1068	66.37	3882	5.1	9000										
Net gain	(c+r) - l		24.50																					
Net gain	(c+r +e+p)		95.97																					
Min gain c	Min gain r		0.06	0.002																				
Max gain r	Max gain c		4.00	12																				
Mean gain r	Mean gain		1.87	2.003714																				
2008 projects:																								
102.5	Bair Island Restoration Project	CDFG, USFWS	San Matec	15	Loss		restoration		creation		enhancement		preservation		Non									

Total					304		3338		1065		
Net gain	(c+r) - l	3034.00									
Net gain	(c+r +e+p)	4099.00									

This worksheet summarizes information for **stream** repair projects that received the wetland tracker condition in 2009. All project impacts are self-mitigating. These projects do not contribute additional wetland or riparian habitat acreage, although additional habitat enhancement is provided in some projects. Habitat type for all projects is riparian. Italicized entries are estimates derived from maps, drawings, or other spatial information related to the site.

WT#	PROJECT NAME	Applicant	Project Type[1]	Impact		Total Enhancement		County	Monitoring period (years) unless otherwise noted
				ac	lf	ac	lf		
104	Stony Point Road Bridge Project	City of Petaluma	SBS	**0.1**	**115**	**0.1**	**117**	Sonoma	none per 401 cert
110	Glen Drive Culvert Replacement	Town of Fairfax	DI	**0.02**	**25**	**0.02**	**25**	Marin	none
113	Yountville Inn Expansion and Workforce Housing Project	Yountville Inn, LLC	SBS & DI	**0.01**	**31**	**0.01**	**31**	Napa	5 years
114	Tulucay Creek Bank Stabilization Project	City of Napa Public Works	DI	**0.02**	**37**	**0.02**	**37**	Napa	5 years
115	Napa River Bank Stabilization Project	City of Napa Public Works	SBS	**0.14**	**160**	**0.14**	**160**	Napa	5 years
116	Camille Creek Bank Stabilization Project	City of Napa Public Works	SBS	**0.5**	**80**	**0.5**	**80**	Napa	5 years
118	Roberts Road Bridge Replacement Project	Town of Los Gatos	DI	**0.09**	**80**	**0.12**	***80***	Santa Clara	none
122	Ignacio Creek Culvert Outfall Repairs	Ignacio Creek Homeowners Association	SBS	**0.11**	**90**	**0.11**	**90**	Marin	3 years
124	San Carlos Drive Storm Drain Repair Project	City of Petaluma	DI & SBS	**0.01**	**30**	**0.3**	**100**	Sonoma	5 years
126	Noriel Lane Storm Drain Protection and Trail Embankment Repair Project	City of Petaluma	DI	**0.014**	**80**	**0.014**	**80**	Sonoma	5 years
130	Petaluma Boulevard North Bridge Project	City of Petaluma	SBS & SED	**0.07**	**115**	**0.07**	**121**	Sonoma	5 years
133	Sonoma Creek Bank Stabilization Project	Property owner	SBS	**0.25**	**200**	**0.5**	**200**	Sonoma	3 years
136	Reconstruction of Two Stormwater Outfalls at Watson Park	City of San Jose	DI	**0.078**	**94**	**0.078**	**94**	Santa Clara	10 years
143	Copeland Sewer Project	City of Petaluma	SBS	**0.11**	**120**	**0.19**	**160**	Sonoma	none per 401 cert

145	Bank Stabilization on San Pablo Creek	City of San Pablo	SBS	**0.037**	**50**	**0.037**	**50**	Contra Costa	5 years
146	Laguna Creek (Zone 6 Line E Flood Control Channel) Erosion Repair Project	Alameda County Public Works Agency	SBS	**0.08**	**235**	**0.08**	**235**	Alameda	2 years
147	Road 20 Bank Stabilization on San Pablo Creek	City of San Pablo	SBS	**0.037**	**50**	**0.037**	**50**	Contra Costa	5 years
150	Sanders Ranch Sediment Removal and Culvert Replacement Project	Sanders Ranch Homeowners Association	SBS & DI	**0.002**	**28**	**0.12**	**471**	Contra Costa	5 years
153	Pullman Ditch Improvement Project	CALTRANS	DI	**0.02**	**214**	**0.02**	**214**	San Mateo	5 years
154	Thompson Creek Streambank Stabilization Project, I Street	Property owner	SBS	**0.008**	**70**	**0.014**	**70**	Sonoma	3 years
155	Point Reyes National Seashore Area Muddy Hollow Repair and maintenance projects	National Park Service	VEG &DI	**0.05**	**710**	**0.069**	**2500**	Marin	non per 401 cert
157	Sir Francis Drake Stream Habitat improvements and repairs	Property owner	SBS	**0.05**	**130**	**0.05**	**130**	Marin	5
159	Bridge Road Bank Stabilization Project	Property owner	SBS	**0.021**	**30**	**0.021**	**30**	San Mateo	5 years
164	Rancho Higuera Project	Manager	DI	**0.02**	**7**	**0.2**	**220**	Santa Clara	10 years
165	Bhaskar Creek/ Matadero Creek Rubble removal and bank stabilization project	Property owner	SBS	**0.015**	**50**	**0.0041**	**30**	Sonoma	5 years
167	Lynch Creek Bank Repair Project	Southern Sonoma County Resource Conservation District	SBS	**0.02**	**180**	**0.02**	**120**	Sonoma	3 years
168	Alpine Road Bridge Repair Project	San Mateo Co. Dept of Public Works	SBS & SED	**0.00746**	**80**	**0.00746**	**80**	San Mateo	5 years
169	San Felipe Road/Thompson Creek Bank Stabilization	Property owner	SBS	**0.04**	**180**	**0.02**	**120**	Santa Clara	3 years
170	Hopper Creek Diversion Structure Bank Stabilization Project	Town of Yountville	SBS & SED	**0.017**	**80**	**0.017**	**80**	Napa	5 years
171	Log Cabin Ranch Access Road Repair and Creek Bank Stabilization Project/Mindego Creek	City/Co. of San Francisco	SBS	**0.027**	**55**	**0.027**	**55**	San Mateo	non per 401 cert
172	Burlingame Annual Creek and Channel Maintenance Project	City of Burlingame Dept of Public Works	SED & VEG	**0.66**	**1240**	**0.66**	**1240**	San Mateo	non per 401 cert

173	Modification to State Route 1 Post-Mile 2.6 Culvert Outfall Repair Project	CALTRANS	SBS & DI	**0.05**	**135**	**0.05**	**135**	Marin	non per 401 cert
174	Bear Gulch Upper Diversion Dam Maintenance	Cal Water	SED	**0.06**	**95**	**N/A**	**N/A**	San Mateo	non per 401 cert
			Totals	**2.74**	**4876**	**3.63**	**7205**		

1. Project type codes: SBS=Stream Bank stabilization,SED=Sediment removal, DI=Drainage improvement, VEG=Vegetation management, O=other

2. Repaired area: All projects are self-mitigating, meaning that the amount of habitat impacted equals the amount of habitat enhanced, such that there is no permanent loss of riparian habitat.

3. Additional enhancement: Some projects provided more enhancement than the required 1:1 habitat replacement. These gains are shown in the additional enhancement column.

Appendix D. Site visits

1. Elsie Roemer Enhancement Project
   Certified October 2, 2006. Construction completed January 31, 2007. Monitoring period end dateJune 31, 2011.

The Elsie Roemer site objective was to eradicate invasive cordgrass (*Spartina alterniflora)* while providing bird habitat, especially for the endangered Clapper Rail. The WEA assessment method was used to evaluate the hydrologic and vegetative health of the site as well as use by wildlife. An estimated 200 birds were observed at the site. Although a full assessment including an evaluation of the buffer was not conducted and thus no overall condition score was assigned, this visit did generally confirm that the site is moving towards compliance with success criteria described on the wetland tracker form submitted in 2007. A few concerns were identified and communicated to a representative of the Invasive Spartina Project, the permittee. The most important concern was the presence of one individual of a potentially very invasive plant known as RussianTumbleweed *(Salsola soda)*. Also noted were lingering patches of cordgrass, especially in the mudflats; percent cover of this species was estimated to be 7% or less. One channel also appeared somewhat stagnant but was not blocked. The Invasive Spartina Project representative agreed to make efforts to remove the tumbleweed.

2. Lion Creek Stream Channel Stabilization Project, Mills College
   Certified July 15, 2008. Construction completed July 26, 2008. Monitoring end date July 30, 2018.

The objective of the Lion Creek Stream Channel Stabilization Project was to repair and stabilize the stream channel and banks by removing concrete and asphalt along two reaches of the creek. Habitat enhancement efforts included removing non-native tree species, English Ivy, and planting native trees, shrubs, and forbs. Since project completion several volunteers have helped manage weeds, install mulch and sheet mulching around native plants, and flag native plants to ensure their protection.

During the site visit, the WEA assessment was used primarily to evaluate the vegetative health of the site. Stream function appeared normal for the season but there was no time for a detailed evaluation and no measurements were taken. The Post Road site extends 150 linear feet on both sides of the stream channel and covers 0.5 acres. We estimated 80% cover of weedy species. *Sonchus oleraceus*, common sow thistle, is the dominant weed in the sunnier parts of the site. The Post Road site is much smaller, extending only 40 linear feet on either side of the stream channel. Weed species were also abundant here though they appeared to be more intermixed with the natives. The 4/30/2010 monitoring report also notes the abundance of *Solanum Americanum*, which though a native, is thinned when it is observed to be crowding out other native plants. The report also notes the presence of Black acacia (*Acacia melanoxylon*) and Blue gum eucalyptus (*Eucalyptus globulus*) sprouts—these invasive tree species were also noted in the field though percent cover of both was estimated to be less than 10%. English ivy was described as virtually absent within the mitigation site in the report. Dead ivy, presumably from application of herbicide, was observed within the mitigation site and adjacent healthy ivy was presumed to be outside of the mitigation site. Despite the visual dominance of weeds, many native plants species were also observed including at least five tree species, 4-5 shrub species, and a few rushes and sedges near the stream channel.

This site was included in the City of Oakland's Creek to Bay Day event on September 25, 2010. One of the Water Board staff on the site visit had participated earlier in the Creek to Bay Day event, which focused on weed management. The site coordinator and manager of the Botanic Garden and nursery on campus said that the weeds had gained dominance at the site only during the summer. The previous year, weeds had been removed during the summer but not in 2010. This particular project is only in the second of ten years of monitoring and both permittees and the larger community are actively involved in its stewardship. With more frequent and effective management techniques, native plants may become dominant.